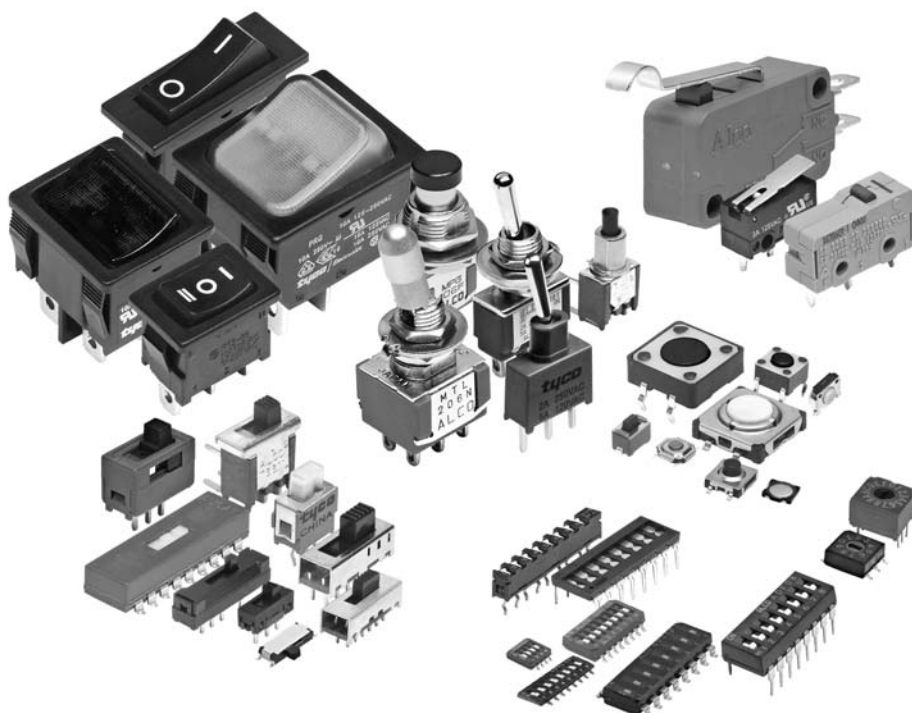




Switches

Contents



Tyco Electronics offers a comprehensive range of switches including DIP switches, slide switches, tactile switches, pushbutton switches, toggle switches, rocker and paddle switches, power rocker switches, snap action switches, rotary switches, and keylock switches. Accessories as knobs, caps, boot seals and the respective hardware round off our extensive range.

Our switches cover the widest range of applications, from white goods, building automation, office equipment, communications, test & measurement, remote control devices up to machinery and heating and air-conditioning systems.

Tyco Electronics does not only offer standard switches, but also customized switching solutions for customer applications from the mA range up to 25 A.

DIP Switches

A

Slide Switches

B

Tactile Switches

C

Pushbutton Switches

D

Toggle Switches

E

Rocker & Paddle Switches

F

Power Rocker Switches

G

Snap Action Switches

H

Rotary Switches

I

Keylock Switches

J

Knobs

K

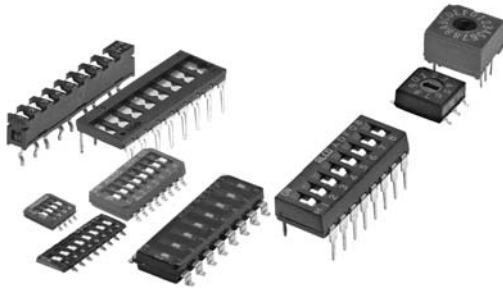
Glossary

I

Partnumber Reference

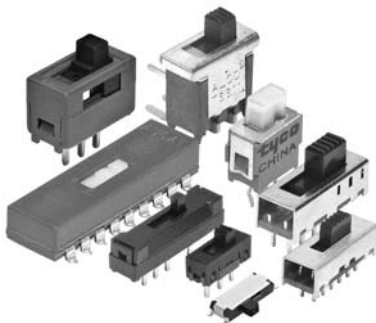
M

Contents (Continued)



DIP Switchessection A

- DIP Switches
- Rotary DIP Switches
- Shunts
- DIP FIX



Slide Switchessection B

- Telecom Grade Slide Switches
- Instrumentation Grade Slide Switches
- Consumer Grade Slide Switches
- Economy Grade Slide Switches



Tactile Switchessection C

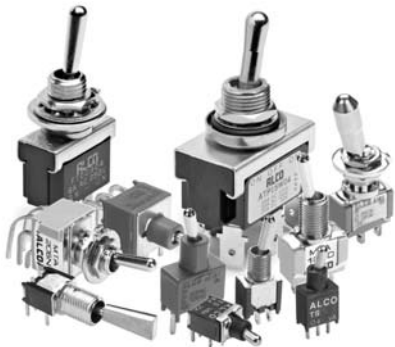
- 3,5 x 6 mm Standard Size Tactiles
- 6 x 6 mm Standard Size Tactiles
- 6 x 6 mm Low Profile Tactiles
- 12 x 12 mm Standard Size Tactiles
- Slimline Tactiles
- Miniature Side Actuated Tactiles
- Multidirectional Tactiles



Pushbutton Switchessection D

- Tiny Push Buttons
- Panel Mount Push Buttons
- High Current Push Buttons

Contents (Continued)



Toggle Switchessection E

- Tiny Toggles
- Miniature Toggles
- Power Toggles



Rocker & Paddle Switchessection F

- Rocker & Paddle Switches for Panel Mounting
- Rocker & Paddle Switches for PCB Mounting



Power Rocker Switchessection G

- Single Pole Power Rocker Switches
- Double Pole Power Rocker Switches



Snap Action Switchessection H

- Ultraminiature Snap Action Switch
- Sub Miniature Snap Action Switch
- Miniature Snap Action Switch

Contents (Continued)



Rotary Switchessection I

- Wire hooking versions
- PCB versions



Keylock Switchessection J

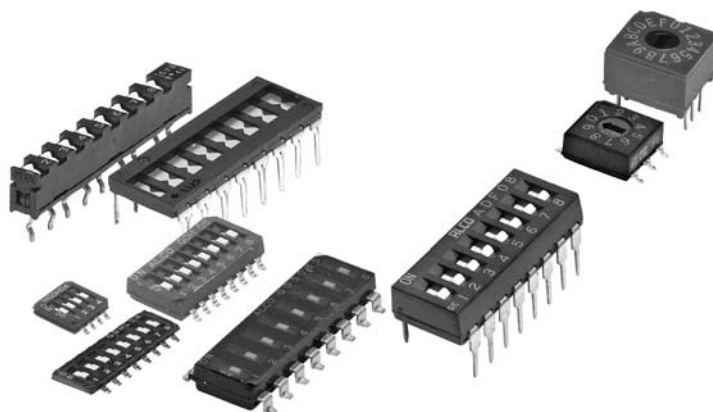
- Medium Security Keylock Switches
- High Security Keylock Switches



Knobssection K

- Machined Aluminum Knobs
- Molded Phenolic Knobs
- Knob Accessories

Product Range



DIP Switches

■ DIP Switches High Featured Line: GD Series

- Bifurcated gold wiping contact system
- Very low profile versions
- Half pitch pinning
- End stackable
- Rocker actuator
- Corner notch
- THT or SMT pinning

■ DIP Switches Basic Lines: AD Series and 7000 Series, DIP Assys up to 30 poles

- Extremely high pressure contact system (gas tight) for AD series
- Flush or extended actuator
- THT, SMT; action pins for DIP assys series

■ SIP Switches: STV, STR Series

- Extremely high pressure contact system (gas tight)

■ Shunts

■ DIP-FIX

- Up to 24 poles
- C/O contacts up to 12 poles
- End stackable
- Easy configuration with predetermined breaking points

■ Rotary DIP Switches:

- Right angle versions
- Different output codes
- low profile: MRD Series
- many different actuator styles: DRD, DRM, DRS or DRW Series

GDS Series, Low Profile, THT & SMTpage A4



GDP Series, Piano Actuator, THT & SMTpage A6



Product Range (Continued)



GDR Series, Recesses Rocker Actuator, THT & SMTpage A8



GDH Series, Half Pitch, Low Profile, SMTpage A10



GDHL Series, Half Pitch, Ultra Low Profile, SMTpage A12



ADE Series, Extended Actuator, THTpage A14

ADE Series, Extended Actuator, SMTpage A16



ADF Series, Flush Actuator, THTpage A19

ADF Series, Flush Actuator, SMTpage A21



ADP & ADPA Series, Piano Style Actuator, THT & SMTpage A24



AR Series Hybrid, THT & SMTpage A27



7000 & 7100 Series, THTpage A30



DIP Shunt, THT & SMTpage A35

Product Range (Continued)



STV Series SIP Switch, THTpage A37



STR Series SIP Switch, Right Angle, THTpage A39



DIP Switches, THT & Action Pinspage A41



MRD Series Rotary DIP Switch, Low Profile, Process Sealed, 7mm, THT & SMT .page A43



DRD Series Rotary DIP Switch, Process Sealed, THT & SMTpage A46



DRD, DRM, DRS or DRW Series Rotary DIP Switch, THTpage A49

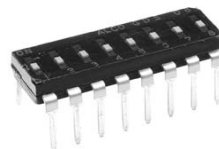


DIP-FIX Switches, Highly Simplified, THTpage A53

GDS Series, Low Profile, THT & SMT

Features

- Bifurcated gold wiping contact system (gold to gold contact system)
- Low profile
- End stackable
- Tape seal standard with corner notch
- Vacuum pick and place compatible
- Auto insertable
- Available in pc and surface mount configuration
- Shipped in the OFF position, ON position on request



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching	100 mA @ 50 VDC
Contact rating, switching	25mA A @ 24 VDC
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	300 VAC for 1 min
Actuation force	0.6 to 6 N (60 to 600 gf)
Actuator travel	1.00 mm (.039) average

Environmental specification

Operating temperature	-45 to +100°C
Storage temperature	-45 to +100°C
Solder heat resistance	265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts	copper alloy gold finish
Actuator	lcp
Terminals	copper alloy gold finish
Base	pps
Cover	pps
Tape seal	polyimide film
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

GDS 04 S TR 04

Type

GDS Low profile DIP switch

Positions

02	2 positions	08	8 positions
04	4 positions	10	10 positions
06	6 positions		

Terminal

blank	through hole - THT
S	surface mount - SMT

Sealing

blank	with tape seal
NTS	no tape seal

Packaging

blank	tube
TR	tape & reel

Material

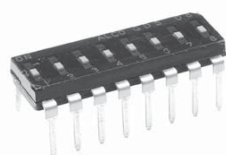
04	RoHS compliant
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GDS Series, Low Profile, THT & SMT (Continued)

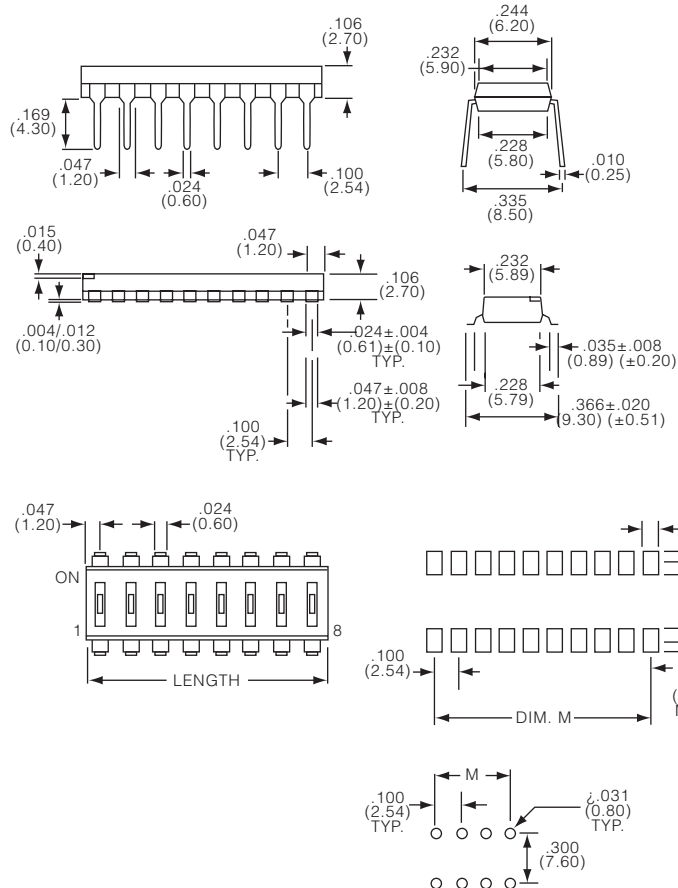
Positions



Codes 02, 04, 06, 08, 10 2, 4, 6, 8 and 10 positions



GDS0804



Code	Poles	Length	Dim M
02	2	4.94mm (.194)	2.54mm (.100)
04	4	10.02mm (.394)	7.62mm (.300)
06	6	15.10mm (.594)	12.7mm (.500)
08	8	20.18mm (.794)	17.78mm (.700)
10	10	25.26mm (.994)	22.86mm (.900)

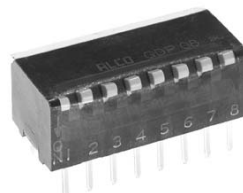
Product key	Positions	Terminal	Sealing	Packaging	Material	Part Number
GDS0204	2 positions	THT	with t.seal	tube	RoHS compliant	1825006-1
GDS02NTS04			no t. seal			1825006-2
GDS02S04		SMT	with t.seal	tape & reel		1825006-3
GDS02STR04						1825006-4
GDS0404	4 positions	THT	with t.seal	tube		1825006-5
GDS04NTS04			no t. seal			1825006-6
GDS04S04		SMT	with t.seal	tape & reel		1825006-7
GDS04STR04						1825006-8
GDS0604	6 positions	THT	with t.seal	tube		1825006-9
GDS06NTS04			no t. seal			1-1825006-0
GDS06S04		SMT	with t.seal	tape & reel		1-1825006-1
GDS06STR04						1-1825006-2
GDS0804	8 positions	THT	with t.seal	tube		1-1825006-3
GDS08NTS04			no t. seal			1-1825006-4
GDS08S04		SMT	with t.seal	tape & reel		1-1825006-5
GDS08STR04						1-1825006-6
GDS1004	10 positions	THT	with t.seal	tube		1-1825006-7
GDS10NTS04			no t. seal			1-1825006-8
GDS10S04		SMT	with t.seal	tape & reel		1-1825006-9
GDS10STR04						2-1825006-0

Preferred parts in bold print

GDP Series, Piano Actuator, THT & SMT

Features

- Bifurcated gold wiping contact system (gold to gold contact system)
- Available in pc and surface mount configuration
- Traditional tape seal standard
- Shipped in the OFF position, ON position on request



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching	100 mA @ 50 VDC
Contact rating, switching	25 mA @ 24 VDC
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	300 VAC for 1 min
Actuation force	6 N (600 gf) max
Actuator travel	1.30 mm (.051) average

Environmental specification

Operating temperature	-35 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts	copper alloy gold finish
Actuator	lcp
Terminals	copper alloy gold finish
Base	pps
Cover	pps
Tape seal	polyimide film
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

GDP 04 S TR 04

Type
GDP DIP switch with piano actuator

Positions
02 2 positions
04 4 positions
06 6 positions
08 8 positions
10 10 positions

Terminal
blank through hole - THT
S surface mount - SMT

Sealing
blank with tape seal
NTS no tape seal

Packaging
blank tube
TR tape & reel

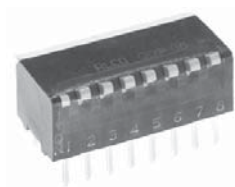
Material
04 RoHS compliant

GDP Series, Piano Actuator, THT & SMT (Continued)

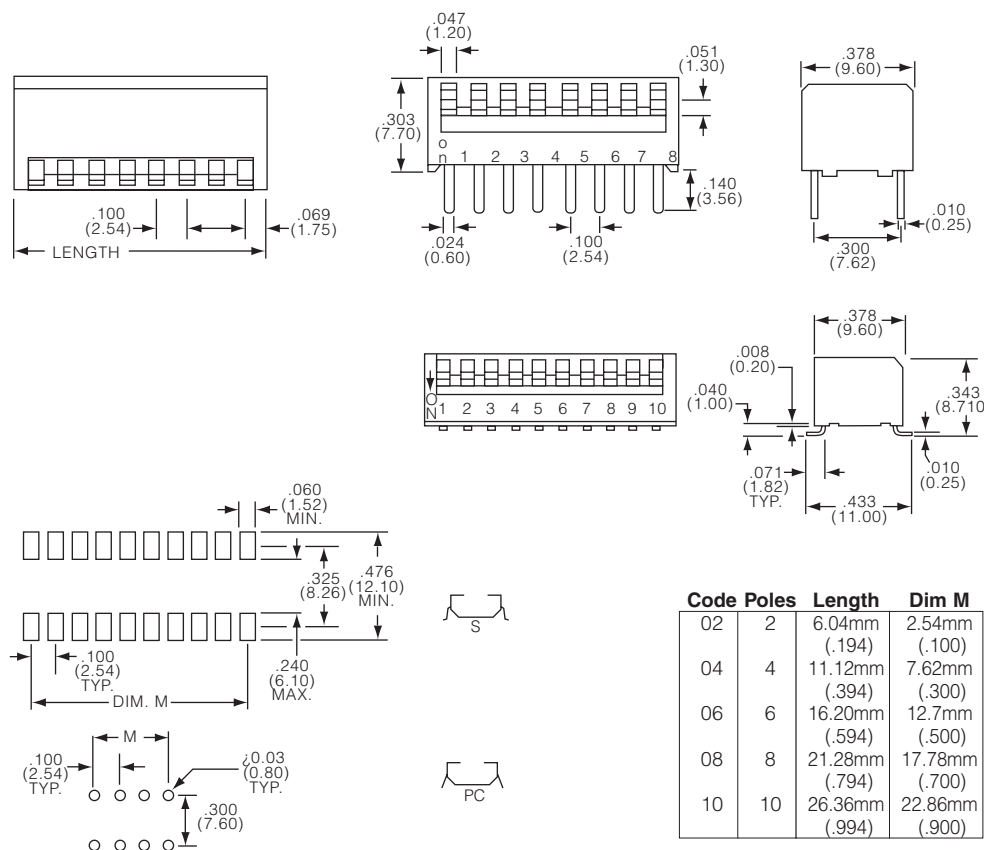
Positions



Codes 02, 04, 06, 08, 10 2, 4, 6, 8 and 10 positions



GDP0804



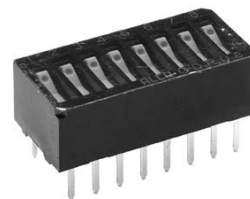
Product key	Positions	Terminal	Sealing	Packaging	Material	Part Number
GDP0204	2 positions	THT	with t.seal	tube	RoHS compliant	1571998-1
GDP02NTS04			no t. seal			1571998-2
GDP02S04		SMT	with t.seal			1571998-3
GDP02STR04				tape & reel		1571998-4
GDP0404	4 positions	THT		tube		1571998-5
GDP04NTS04			no t. seal			1571998-6
GDP04S04		SMT	with t.seal			1571998-7
GDP04STR04				tape & reel		1571998-8
GDP0604	6 positions	THT		tube		1571998-9
GDP06NTS04			no t. seal			1-1571998-0
GDP06S04		SMT	with t.seal			1-1571998-1
GDP06STR04				tape & reel		1-1571998-2
GDP0804	8 positions	THT		tube		1-1571998-3
GDP08NTS04			no t. seal			1-1571998-4
GDP08S04		SMT	with t.seal			1-1571998-5
GDP08STR04				tape & reel		1-1571998-6
GDP1004	10 positions	THT		tube		1-1571998-7
GDP10NTS04			no t. seal			1-1571998-8
GDP10S04		SMT	with t.seal			1-1571998-9
GDP10STR04				tape & reel		2-1571998-0

Preferred parts in bold print

GDR Series, Recesses Rocker Actuator, THT & SMT

Features

- Bifurcated gold wiping contact system (gold to gold contact system)
- Available in pc and surface mount configuration
- Tape seal standard
- Shipped in the OFF position, ON position on request



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching	100 mA @ 50 VDC
Contact rating, switching	25 mA @ 24 VDC
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	300 VAC for 1 min
Actuation force	6 N (600 gf) max

Environmental specification

Operating temperature	-35 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts	copper alloy gold finish
Actuator	lcp
Terminals	copper alloy gold finish
Base	pps
Cover	pps
Tape seal	polyimide film
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

GDR 06 S 04

Type

GDR DIP switch with recessed rocker actuator

Positions

02	2 positions	08	8 positions
04	4 positions	10	10 positions
06	6 positions		

Terminal

blank	through hole - THT
S	surface mount - SMT

Material

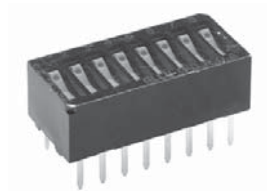
04 RoHS compliant

GDR Series, Recesses Rocker Actuator, THT & SMT (Continued)

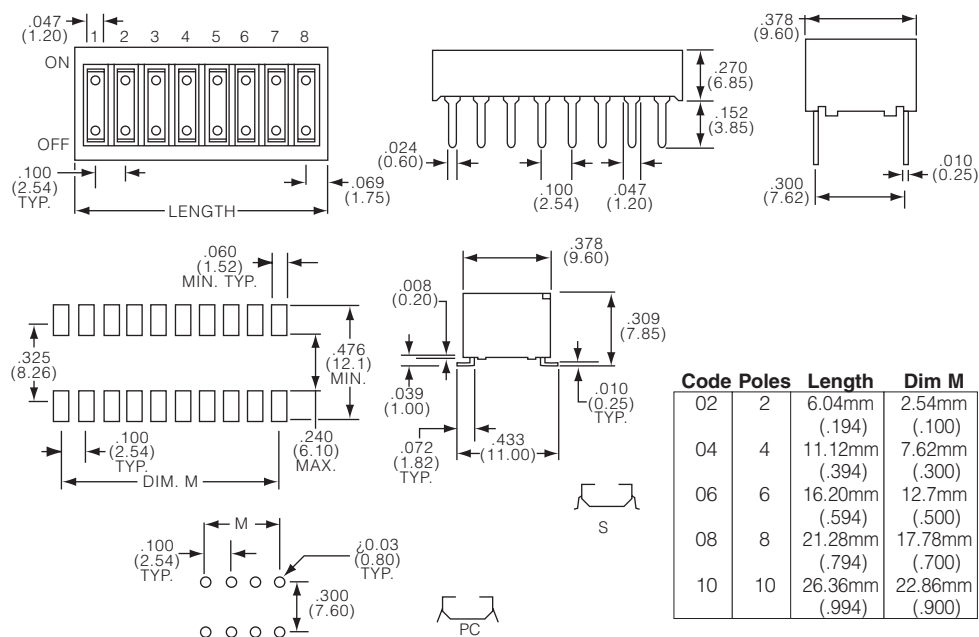
Positions



Codes 02, 04, 06, 08, 10 2, 4, 6, 8 and 10 positions



GDR0804



Product key	Positions	Terminal	Material	Part Number
GDR0204	2 positions	THT	RoHS	1825286-1
GDR02S04		SMT	compliant	1825286-2
GDR0404	4 positions	THT		1825286-3
GDR04S04		SMT		1825286-4
GDR0604	6 positions	THT		1825286-5
GDR06S04		SMT		1825286-6
GDR0804	8 positions	THT		1825286-7
GDR08S04		SMT		1825286-8
GDR1004	10 positions	THT		1825286-9
GDR10S04		SMT		1-1825286-0

Preferred parts in bold print

GDH Series, Half Pitch, Low Profile, SMT

Features

- Bifurcated gold wiping contact system (gold to gold contact system)
- Tape seal standard, with corner notch
- Vacuum pick and place compatible
- Half pitch .050" terminal spacing
- Shipped in the OFF position, ON position on request



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching	100 mA @ 50 VDC
Contact rating, switching	25 mA @ 24 VDC
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	300 VAC for 1 min
Actuation force	6 N (600 gf) max
Actuator travel	1.00 mm (.039) average

Environmental specification

Operating temperature	-35 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts	copper alloy gold finish
Actuator	lcp
Terminals	copper alloy gold finish
Base	pps
Cover	pps
Tape seal	polyimide film
RoHS Directive 2002/95/EC	compliant

Product key		Typical product key		GDH	04	S	TR	04
Type								
GDH	Half pitch, low profile DIP switch							
Positions								
02	2 positions		08	8 positions				
04	4 positions		10	10 positions				
06	6 positions							
Terminal								
S	surface mount - SMT							
Packaging								
blank	tube							
TR	tape & reel							
Sealing								
blank	tape seal							
NTS	no tape seal							
Material								
04	RoHS compliant							

GDH Series, Half Pitch, Low Profile, SMT (Continued)

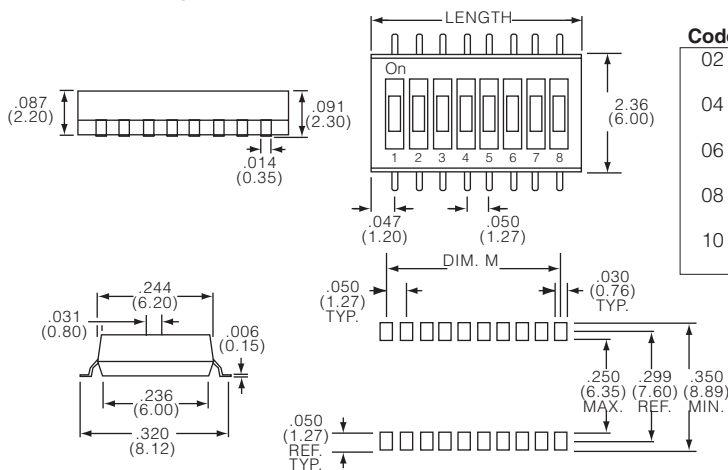
Positions



Codes 02, 04, 06, 08, 10 2, 4, 6, 8 and 10 positions



GDH0804



Code	Poles	Length	Dim M
02	2	3.66mm (.194)	1.27mm (.100)
04	4	6.20mm (.394)	3.81mm (.300)
06	6	8.75mm (.594)	6.35mm (.500)
08	8	11.29mm (.794)	8.89mm (.700)
10	10	13.82mm (.994)	11.43mm (.900)



Product key	Positions	Terminal	Packaging	Sealing	Material	Part Number
GDH02S04	2 positions	SMT	tube	with seal	RoHS compliant	1571983-1
GDH02STR04			tape & reel			1571983-3
GDH04S04	4 positions		tube			1571983-4
GDH04STR04			tape & reel			1571983-5
GDH04STRNTS04				no seal		1571983-6
GDH06S04	6 positions		tube	with seal		1571983-8
GDH06STR04			tape & reel			1571983-9
GDH08S04	8 positions		tube			1-1571983-0
GDH08STR04			tape & reel			1-1571983-1
GDH08STRNTS04				no seal		1-1571983-2
GDH10S04	10 positions		tube	with seal		1-1571983-3
GDH10STR04			tape & reel			1-1571983-4

Preferred parts in bold print

GDHL Series, Half Pitch, Ultra Low Profile, SMT

Features

- Bifurcated gold wiping contact system (gold to gold contact system)
- Height of only 1.50 mm (.059)
- Tape seal standard, with corner notch
- Vacuum pick and place compatible
- Shipped in the OFF position, ON position on request



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching	100 mA @ 50 VDC
Contact rating, switching	25mA @ 24 VDC
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	300 VAC for 1 min
Actuation force	4.90 N (490 gf) max
Actuator travel	0.80 mm (.032) average

Environmental specification

Operating temperature	-30 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	copper alloy gold finish
Actuator	lcp
Terminals	copper alloy gold finish
Base	pps
Cover	pps
Tape seal	polyimide film
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

GDHL 04 S TR

Type

GDHL Half pitch, ultra low profile DIP switch

Positions

02	2 positions	08	8 positions
04	4 positions	10	10 positions
06	6 positions		

Terminal

S surface mount - SMT

Packaging

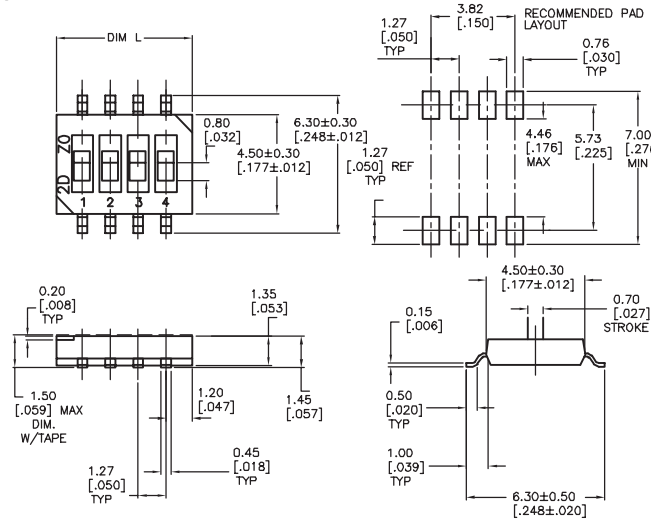
blank tube
TR tape & reel

GDHL Series, Half Pitch, Ultra Low Profile, SMT (Continued)

Positions



Codes 02 to 10 2 to 10 poles



Code	Positions	Dim L
02	2	3.76mm (.148)
04	4	6.30mm (.248)
06	6	8.84mm (.348)
08	8	11.38mm (.448)
10	10	13.92mm (.548)

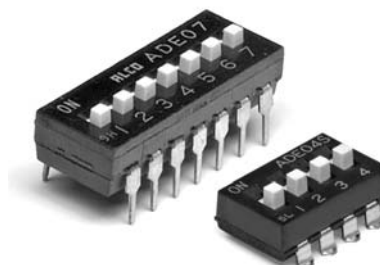
Product key	Positions	Terminal	Packaging	Part Number
GDHL02S	2 positions	SMT	tube	1977103-1
GDHL02STR			tape & reel	1977103-2
GDHL04S	4 positions		tube	1977103-3
GDHL04STR			tape & reel	1977103-4
GDHL06S	6 positions		tube	1977103-5
GDHL06STR			tape & reel	1977103-6
GDHL08S	8 positions		tube	1977103-7
GDHL08STR			tape & reel	1977103-8
GDHL10S	10 positions		tube	1977103-9
GDHL10STR			tape & reel	1-1977103-0

Preferred parts in bold print

ADE Series, Extended Actuator, THT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- Auto insertable
- Shipped in the OFF position



Typical performance characteristics

Contact configuration SPST
 Contact rating, non-switching (max) 1 Amp @ 5 VDC
 Contact rating, switching (max) 100 mA @ 24 VDC
 Contact rating, switching (min) 0.1 μ A @ 1 mV
 Electrical life 1,000 cycles
 Mechanical life 1,000 cycles
 Contact resistance max 50 mOhm
 Insulation resistance min 1000 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 8.0 N (800 gf) max
 Actuator travel 1.30 mm (.051)

Environmental specification

Operating temperature -30 to +85°C
 Storage temperature -45 to +100°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy gold finish
 Actuator nylon PA6T
 Terminals copper alloy gold finish
 Base PPS
 Cover PPS
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

ADE

04

04

Type

ADE extended actuator, auto insertable through hole DIP switch

Positions

02	2 positions	07	7 positions
03	3 positions	08	8 positions
04	4 positions	09	9 positions
05	5 positions	10	10 positions
06	6 positions	12	12 positions

Terminal

blank through hole - THT

Material

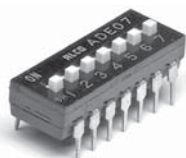
04 RoHS compliant

ADE Series, Extended Actuator, THT (Continued)

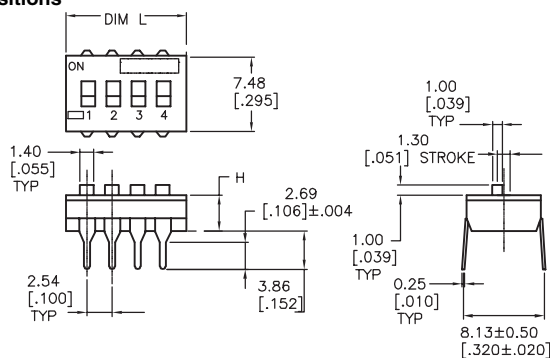
Positions



Codes 02 to 12 2 to 12 positions



ADE08

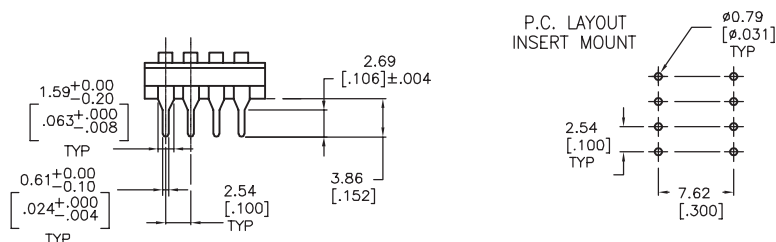


Code	Pos	Dim L	Dim H
02	2	7.06 (.278)	3.50 (.138)
03	3	9.60 (.378)	3.50 (.138)
04	4	12.14 (.478)	3.50 (.138)
05	5	14.68 (.578)	3.50 (.138)
06	6	17.22 (.678)	3.50 (.138)
07	7	19.76 (.778)	3.50 (.138)
08	8	22.30 (.878)	3.50 (.138)
09	9	24.84 (.978)	3.50 (.138)
10	10	27.38 (1.078)	3.50 (.138)
12	12	32.51 (1.278)	3.61 (.142)

Terminal



blank through hole - THT



Product key	Positions	Terminal	Material	Part Number
ADE0204	2 positions	THT	RoHS	1825057-1
ADE0304	3 positions	through hole	compliant	1825057-2
ADE0404	4 positions			1825057-3
ADE0504	5 positions			1825057-4
ADE0604	6 positions			1825057-5
ADE0704	7 positions			1825057-6
ADE0804	8 positions			1825057-7
ADE0904	9 positions			1825057-8
ADE1004	10 positions			1825057-9
ADE1201	12 positions			1-1825057-0

Preferred parts in bold print

ADE Series, Extended Actuator, SMT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- Auto insertable
- Shipped in the OFF position



Typical performance characteristics

Contact configuration SPST
Contact rating, non-switching (max) 1 Amp @ 5 VDC
Contact rating, switching (max) 100 mA @ 24 VDC
Contact rating, switching (min) 0.1 μ A @ 1 mV
Electrical life 1,000 cycles
Mechanical life 1,000 cycles
Contact resistance max 50 mOhm
Insulation resistance min 1000 MOhm
Dielectric strength 500 VAC for 1 min
Actuation force 8.00 N (800 gf) max
Actuator travel 1.30 mm (.051)

Environmental specification

Operating temperature -30 to +85°C
Storage temperature -45 to +100°C
Solder heat resistance 260°C/10s reflow

Material specifications

Contacts copper alloy gold finish
Actuator nylon PA6T
Terminals copper alloy gold finish
Base pps
Cover pps
RoHS Directive 2002/95/EC compliant

Product key

Typical product key

ADE 08 S 04

Type

ADE extended actuator, auto insertable surface mount DIP switch

Positions

02	2 positions	07	7 positions
03	3 positions	08	8 positions
04	4 positions	09	9 positions
05	5 positions	10	10 positions
06	6 positions	12	12 positions

Terminal

S Gullwing
SA J-lead

Material

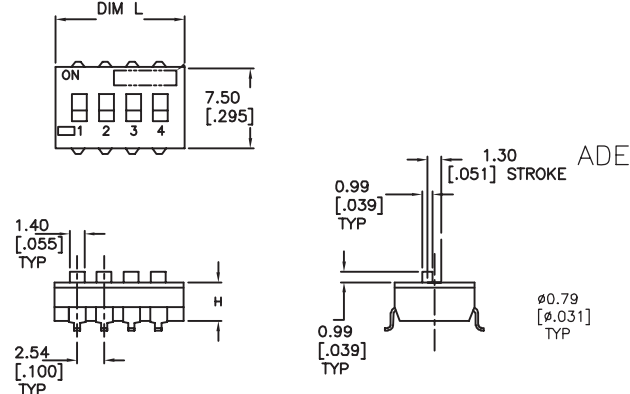
04 RoHS compliant

ADE Series, Extended Actuator, SMT (Continued)

Positions



Codes 02 to 12 2 to 12 positions



CodePos	Dim L	Dim H
02 2	7.06 (.278)	3.50 (.138)
03 3	9.60 (.378)	3.50 (.138)
04 4	12.14 (.478)	3.50 (.138)
05 5	14.68 (.578)	3.50 (.138)
06 6	17.22 (.678)	3.50 (.138)
07 7	19.76 (.778)	3.50 (.138)
08 8	22.30 (.878)	3.50 (.138)
09 9	24.84 (.978)	3.50 (.138)
10 10	27.38 (1.078)	3.50 (.138)
12 12	32.51 (1.278)	3.61 (.142)

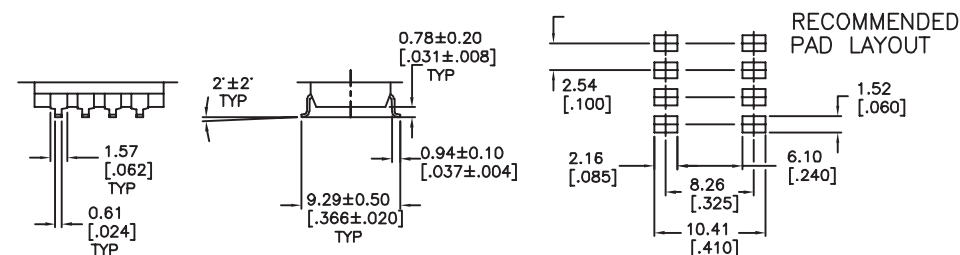
Terminal



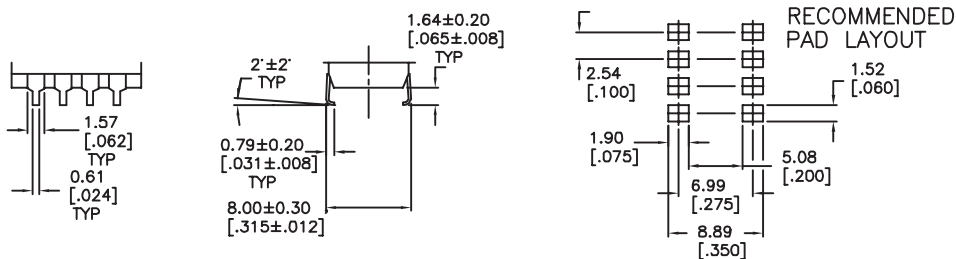
Codes S gullwing SMT



ADE04S04



Codes SA J-lead SMT



ADE Series, Extended Actuator, SMT (Continued)

DIP Switches

Product key	Positions	Terminal	Material	Part Number
ADE02S04	2 positions	Gullwing	RoHS compliant	1825058-1
ADE02SA04		J-lead		1825058-2
ADE03S04	3 positions	Gullwing		1825058-4
ADE03SA04		J-lead		1825058-5
ADE04S04	4 positions	Gullwing		1825058-7
ADE04SA04		J-lead		1825058-8
ADE05S04	5 positions	Gullwing		1-1825058-0
ADE05SA04		J-lead		1-1825058-1
ADE06S04	6 positions	Gullwing		1-1825058-3
ADE06SA04		J-lead		1-1825058-4
ADE07S04	7 positions	Gullwing		1-1825058-6
ADE07SA04		J-lead		1-1825058-7
ADE08S04	8 positions	Gullwing		1-1825058-9
ADE08SA04		J-lead		2-1825058-0
ADE09S04	9 positions	Gullwing		2-1825058-2
ADE09SA04		J-lead		2-1825058-3
ADE10S04	10 positions	Gullwing		2-1825058-5
ADE10SA04		J-lead		2-1825058-6
ADE12S04	12 positions	Gullwing		2-1825058-8
ADE12SA04		J-lead		2-1825058-9

Preferred parts in bold print

ADF Series, Flush Actuator, THT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- Auto insertable
- Shipped in the OFF position



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching (max)	1 Amp @ 5 VDC
Contact rating, switching (max)	100 mA @ 24 VDC
Contact rating, switching (min)	0.1 μ A @ 1 mV
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 1000 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	8.0 N (800 gf) max
Actuator travel	1.30 mm (.051)

Environmental specification

Operating temperature	-30 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	265°C/10s wave

Material specifications

Contacts	copper alloy gold finish
Actuator	nylon PA6T
Terminals	copper alloy gold finish
Base	pps
Cover	pps
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

ADF

08

04

Type

ADF Flush actuator, auto insertable through hole DIP switch

Positions

02	2 positions	07	7 positions
03	3 positions	08	8 positions
04	4 positions	09	9 positions
05	5 positions	10	10 positions
06	6 positions	12	12 positions

Terminal

blank through hole - THT

Sealing

blank No tape
T tape seal

Packaging

blank tube

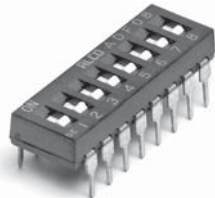
Material

04 RoHS compliant

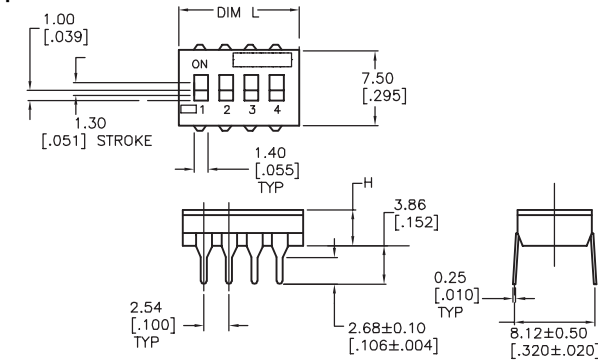
ADF Series, Flush Actuator, THT (Continued)

Positions

Codes 02 to 12 2 to 12 positions



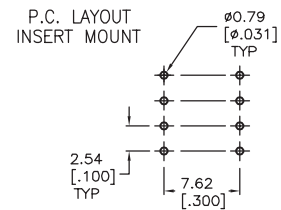
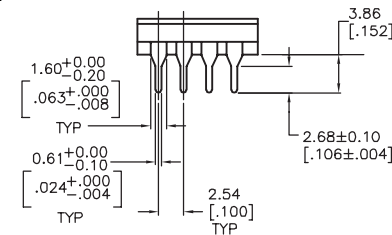
ADF08



Code	Pos	Dim L	Dim H
02	2	7.06 (.278)	3.50 (.138)
03	3	9.60 (.378)	3.50 (.138)
04	4	12.14 (.478)	3.50 (.138)
05	5	14.68 (.578)	3.50 (.138)
06	6	17.22 (.678)	3.50 (.138)
07	7	19.76 (.778)	3.50 (.138)
08	8	22.30 (.878)	3.50 (.138)
09	9	24.84 (.978)	3.50 (.138)
10	10	27.38 (1.078)	3.50 (.138)
12	12	32.51 (1.278)	3.61 (.142)

Terminals

blank through hole - THT



Product key	Positions	Terminal	Sealing	Packaging	Material	Part Number
ADF0204	2 positions	THT	no tape	tube	RoHS compliant	1825002-1
ADF02T04		through hole	tape seal			1825002-2
ADF0304	3 positions		no tape			1825002-3
ADF03T04			tape seal			1825002-4
ADF0404	4 positions		no tape			1825002-5
ADF04T04			tape seal			1825002-6
ADF0504	5 positions		no tape			1825002-7
ADF05T04			tape seal			1825002-8
ADF0604	6 positions		no tape			1825002-9
ADF06T04			tape seal			1-1825002-0
ADF0704	7 positions		no tape			1-1825002-1
ADF07T04			tape seal			1-1825002-2
ADF0804	8 positions		no tape			1-1825002-3
ADF08T04			tape seal			1-1825002-4
ADF0904	9 positions		no tape			1-1825002-5
ADF09T04			tape seal			1-1825002-6
ADF1004	10 positions		no tape			1-1825002-7
ADF10T04			tape seal			1-1825002-8
ADF1204	12 positions		no tape			1-1825002-9
ADF12T04			tape seal			2-1825002-0

Preferred parts in bold print

ADF Series, Flush Actuator, SMT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- Auto insertable
- Shipped in the OFF position



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching (max)	1 Amp @ 5 VDC
Contact rating, switching (max)	100 mA @ 24 VDC
Contact rating, switching (min)	0.1 μ A @ 1 mV
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 1000 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	8.00 N (800 gf) max
Actuator travel	1.30 mm (.051)

Environmental specification

Operating temperature	-30 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	copper alloy gold finish
Actuator	nylon PA6T
Terminals	copper alloy gold finish
Base	pps
Cover	pps
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

ADF 04 S 04

Type

ADF Flush actuator, SMT DIP switch

Positions

02	2 positions	07	7 positions
03	3 positions	08	8 positions
04	4 positions	09	9 positions
05	5 positions	10	10 positions
06	6 positions	12	12 positions

Terminal

S	SMT Gullwing	SA	SMT J-lead
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Sealing

blank	no tape
T	tape seal

Packaging

blank	tube
TR	tape & reel

Material

04	RoHS compliant
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ADF Series, Flush Actuator, SMT (Continued)

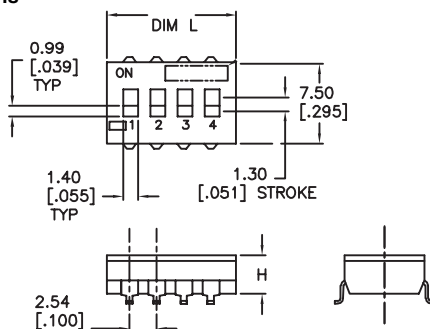
Positions



Codes 02 to 12 2 to 12 positions



ADF08

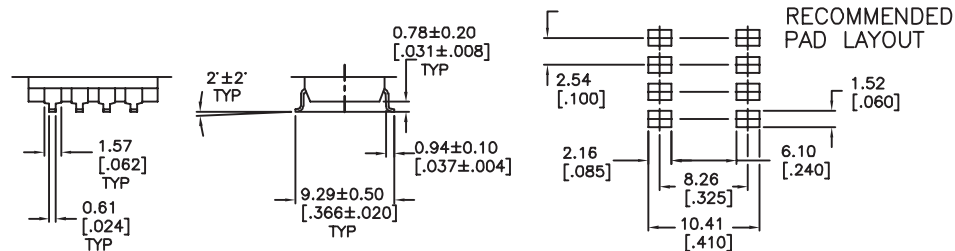


Code	Pos	Dim L	Dim H
02	2	7.06 (.278)	3.50 (.138)
03	3	9.60 (.378)	3.50 (.138)
04	4	12.14 (.478)	3.50 (.138)
05	5	14.68 (.578)	3.50 (.138)
06	6	17.22 (.678)	3.50 (.138)
07	7	19.76 (.778)	3.50 (.138)
08	8	22.30 (.878)	3.50 (.138)
09	9	24.84 (.978)	3.50 (.138)
10	10	27.38 (1.078)	3.50 (.138)
12	12	32.51 (1.278)	3.61 (.142)

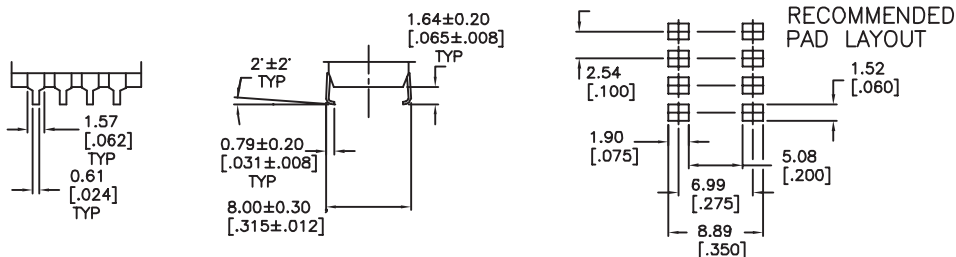
Terminal



Codes S gullwing SMT



Codes SA J-lead SMT



ADF Series, Flush Actuator, SMT (Continued)

Product key	Positions	Terminal	Sealing	Packaging	Material	Part Number
ADF02S04	2 positions	SMT Gullwing	no tape	tube	RoHS compliant	1825059-1
ADF02SA04		SMT J-lead				1825059-2
ADF02SAT04			tape seal			1825059-3
ADF02SATTR04				tape & reel		1825059-4
ADF02ST04	3 positions	SMT Gullwing		tube		1825059-5
ADF02STTR04				tape & reel		1825059-6
ADF03S04			no tape	tube		1825059-7
ADF03SA04		SMT J-lead				1825059-8
ADF03SAT04	4 positions		tape seal			1825059-9
ADF03SATTR04				tape & reel		1-1825059-0
ADF03ST04		SMT Gullwing		tube		1-1825059-1
ADF03STTR04				tape & reel		1-1825059-2
ADF04S04	5 positions		no tape	tube		1-1825059-3
ADF04SA04		SMT J-lead				1-1825059-4
ADF04SAT04			tape seal			1-1825059-5
ADF04SATTR04				tape & reel		1-1825059-6
ADF04ST04	6 positions	SMT Gullwing		tube		1-1825059-7
ADF04STTR04				tape & reel		1-1825059-8
ADF05S04			no tape	tube		1-1825059-9
ADF05SA04		SMT J-lead				2-1825059-0
ADF05SAT04	7 positions		tape seal			2-1825059-1
ADF05SATTR04				tape & reel		2-1825059-2
ADF05ST04		SMT Gullwing		tube		2-1825059-3
ADF05STTR04				tape & reel		2-1825059-4
ADF06S04	8 positions		no tape	tube		2-1825059-5
ADF06SA04		SMT J-lead				2-1825059-6
ADF06SAT04			tape seal			2-1825059-7
ADF06SATTR04				tape & reel		2-1825059-8
ADF06ST04	9 positions	SMT Gullwing		tube		2-1825059-9
ADF06STTR04				tape & reel		3-1825059-0
ADF07S04			no tape	tube		3-1825059-1
ADF07SA04		SMT J-lead				3-1825059-2
ADF07SAT04	10 positions		tape seal			3-1825059-3
ADF07SATTR04				tape & reel		3-1825059-4
ADF07ST04		SMT Gullwing		tube		3-1825059-5
ADF07STTR04				tape & reel		3-1825059-6
ADF08S04	11 positions		no tape	tube		3-1825059-7
ADF08SA04		SMT J-lead				3-1825059-8
ADF08SAT04			tape seal			3-1825059-9
ADF08SATTR04				tape & reel		4-1825059-0
ADF08ST04	12 positions	SMT Gullwing		tube		4-1825059-1
ADF08STTR04				tape & reel		4-1825059-2
ADF09S04			no tape	tube		4-1825059-3
ADF09SA04		SMT J-lead				4-1825059-4
ADF09SAT04	13 positions		tape seal			4-1825059-5
ADF09SATTR04				tape & reel		4-1825059-6
ADF09ST04		SMT Gullwing		tube		4-1825059-7
ADF09STTR04				tape & reel		4-1825059-8
ADF10S04	14 positions		no tape	tube		4-1825059-9
ADF10SA04		SMT J-lead				5-1825059-0
ADF10SAT04			tape seal			5-1825059-1
ADF10SATTR04				tape & reel		5-1825059-2
ADF10ST04	15 positions	SMT Gullwing		tube		5-1825059-3
ADF10STTR04				tape & reel		5-1825059-4
ADF12S04			no tape	tube		5-1825059-5
ADF12SA04		SMT J-lead				5-1825059-6
ADF12SAT04	16 positions		tape seal			5-1825059-7
ADF12SATTR04				tape & reel		5-1825059-8
ADF12ST04		SMT Gullwing		tube		5-1825059-9
ADF12STTR04				tape & reel		6-1825059-0

Preferred parts in bold print

ADP & ADPA Series, Piano Style Actuator, THT & SMT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- Through hole and surface mount options
- Auto insertable
- Shipped in the OFF position



Typical performance characteristics

Contact configuration SPST
 Contact rating, non-switching (max) 1 Amp @ 5 VDC
 Contact rating, switching (max) 100 mA @ 24 VDC
 Contact rating, switching (min) 0.1 μ A @ 1 mV
 Electrical life 1,000 cycles
 Mechanical life 1,000 cycles
 Contact resistance max 50 mOhm
 Insulation resistance min 1000 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 8.00 N (800 gf) max
 Actuator travel 25° average

Environmental specification

Operating temperature -30 to +85°C
 Storage temperature -45 to +100°C
 Solder heat resistance 260°C/10s reflow or 265°C/10s wave

Material specifications

Contacts copper alloy gold finish
 Actuator nylon PA6T
 Terminals copper alloy gold finish
 Base pps
 Cover pps
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

ADP

08

04

Type

ADP Piano style actuator DIP switch

ON position

blank lever down

A lever up

Positions

02 2 positions
03 3 positions
04 4 positions
05 5 positions
06 6 positions

07 7 positions
08 8 positions
09 9 positions
10 10 positions

Terminal

blank through hole - THT

S SMT Gullwing
SA SMT J-lead

Packaging

blank tube
TR tape & reel

Material

04 RoHS compliant

ADP & ADPA Series, Piano Style Actuator, THT & SMT (Continued)

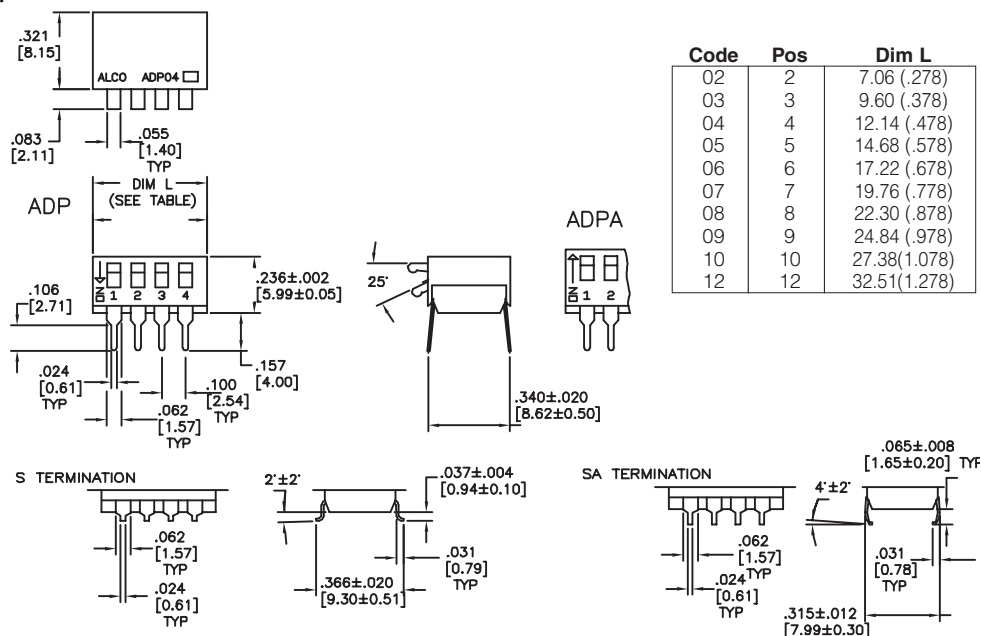
Positions



Codes 02 to 12 2 to 12 positions



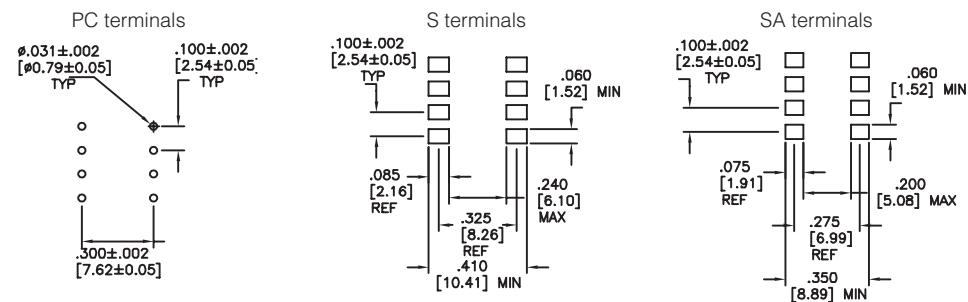
ADP08



Terminal



proposed board layout



ADP & ADPA Series, Piano Style Actuator, THT & SMT (Continued)

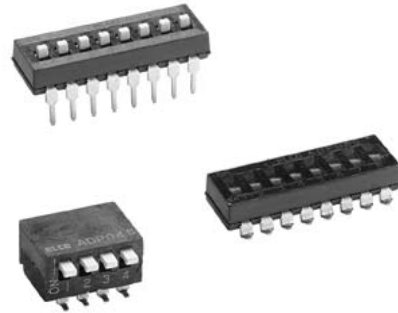
Product key	ON position	Positions	Terminal	Packaging	Material	Part Number
ADP0204	lever down	2 positions	THT	tube	RoHS compliant	1571999-1
ADP02S04			SMT Gullwing			1571999-2
ADP02SA04			SMT J-lead			1571999-3
ADP02STR04			SMT Gullwing	tape & reel		1571999-4
ADP0404		4 positions	THT	tube		1571999-6
ADP04S04			SMT Gullwing			1571999-7
ADP04SA04			SMT J-lead			1571999-8
ADP04STR04			SMT Gullwing	tape & reel		1571999-9
ADP0504		5 positions	THT	tube		1-1571999-1
ADP05S04			SMT Gullwing			1-1571999-2
ADP05SA04			SMT J-lead			1-1571999-3
ADP05STR04			SMT Gullwing	tape & reel		1-1571999-4
ADP0604		6 positions	THT	tube		1-1571999-6
ADP06S04			SMT Gullwing			1-1571999-7
ADP06SA04			SMT J-lead			1-1571999-8
ADP06STR04			SMT Gullwing	tape & reel		1-1571999-9
ADP0704		7 positions	THT	tube		2-1571999-1
ADP07S04			SMT Gullwing			2-1571999-2
ADP07SA04			SMT J-lead			2-1571999-3
ADP07STR04			SMT Gullwing	tape & reel		2-1571999-4
ADP0804		8 positions	THT	tube		2-1571999-6
ADP08S04			SMT Gullwing			2-1571999-7
ADP08SA04			SMT J-lead			2-1571999-8
ADP08STR04			SMT Gullwing	tape & reel		2-1571999-9
ADP0904		9 positions	THT	tube		3-1571999-1
ADP09S04			SMT Gullwing			3-1571999-2
ADP09SA04			SMT J-lead			3-1571999-3
ADP09STR04			SMT Gullwing	tape & reel		3-1571999-4
ADP1004		10 positions	THT	tube		3-1571999-6
ADP10S04			SMT Gullwing			3-1571999-7
ADP10SA04			SMT J-lead			3-1571999-8
ADP10STR04			SMT Gullwing	tape & reel		3-1571999-9
ADPA0204	lever up	2 positions	THT	tube		4-1571999-1
ADPA02S04			SMT Gullwing			4-1571999-2
ADPA02SA04			SMT J-lead			4-1571999-3
ADPA0404		4 positions	THT			4-1571999-4
ADPA04S04			SMT Gullwing			4-1571999-5
ADPA04SA04			SMT J-lead			4-1571999-6
ADPA0504		5 positions	THT			4-1571999-7
ADPA05S04			SMT Gullwing			4-1571999-8
ADPA05SA04			SMT J-lead			4-1571999-9
ADPA0604		6 positions	THT			5-1571999-0
ADPA06S04			SMT Gullwing			5-1571999-1
ADPA06SA04			SMT J-lead			5-1571999-2
ADPA0704		7 positions	THT			5-1571999-3
ADPA07S04			SMT Gullwing			5-1571999-4
ADPA07SA04			SMT J-lead			5-1571999-5
ADPA0804		8 positions	THT			5-1571999-6
ADPA08S04			SMT Gullwing			5-1571999-7
ADPA08SA04			SMT J-lead			5-1571999-8
ADPA0904		9 positions	THT			5-1571999-9
ADPA09S04			SMT Gullwing			6-1571999-0
ADPA09SA04			SMT J-lead			6-1571999-1
ADPA1004		10 positions	THT			6-1571999-2
ADPA10S04			SMT Gullwing			6-1571999-3
ADPA10SA04			SMT J-lead			6-1571999-4

Preferred parts in bold print

AR Series Hybrid, THT & SMT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- Thick film pull-up resistors molded into the base of the switch
- Replaces discrete resistor network plus DIP switch with one component
- Available with 3.3K Ohms or 10K Ohms resistors
- Auto insertable
- Extended, flush or piano actuator styles
- Through hole or surface mount termination available
- Shipped in OFF position



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching (max)	1 Amp @ 5 VDC
Contact rating, switching (max)	100mA @ 24 VDC
Contact rating, switching (min)	0.1 μ A @ 1 mV
Electrical life	5,000 cycles
Mechanical life	5,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 1000 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	8.0 N (800 gf) max
Actuator travel	1.30 mm (.051)

Environmental specification

Operating temperature	-30 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts	copper alloy gold finish
Actuator	nylon PA6T
Terminals	copper alloy gold finish
Base	pps
Cover	pps
RoHS Directive 2002/95/EC	compliant

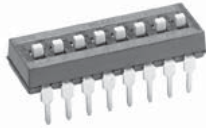
Product key		Typical product key		AR	F	08	10K	04
Type								
AR	Hybrid DIP switch							
Actuator style								
E	extended	P	piano (ON down)					
F	flush	PA	piano (ON up)					
Number of positions								
02	2 positions	08	8 positions					
04	4 positions	10	10 positions					
06	6 positions							
Resistor value								
3.3K	3.3K Ohms	10K	10K Ohms					
Terminal								
blank	through hole - THT	S	gullwing SMT					
Seal								
blank	no seal	T	tape seal					
Material								
04	RoHS compliant							

AR Series Hybrid, THT & SMT (Continued)

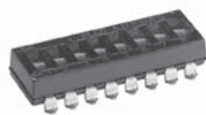
Actuator style & Positions



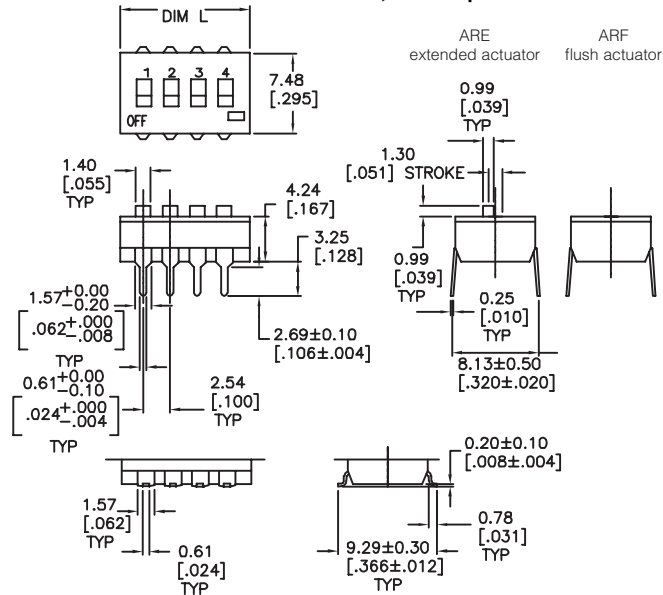
Codes E, F and codes 02 to 12 extended and flush actuators, 2 to 12 positions



ARE0810K04



ARF0810KS04

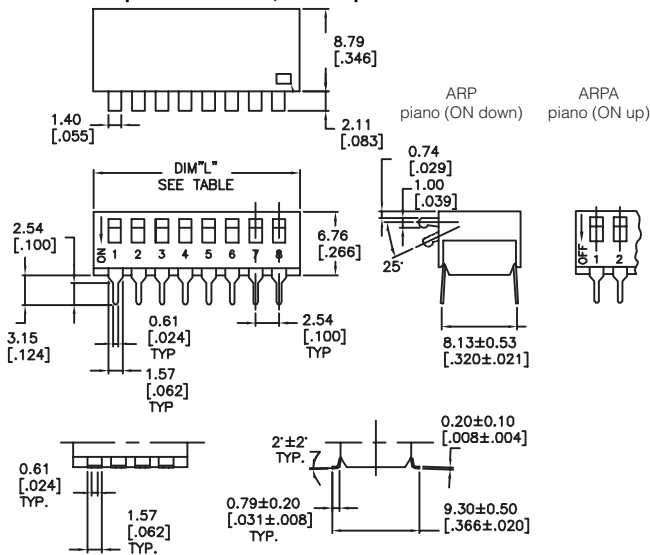


Code Positions	Dim L
02	2 7.06mm (.278)
04	4 12.14mm (.478)
06	6 17.22mm (.678)
08	8 22.30mm (.878)
10	10 27.38mm (1.078)

Codes P, PA and codes 02 to 12 piano actuators, 2 to 12 positions



ARP043.3K04



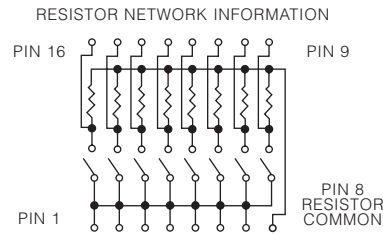
Code Positions	Dim L
02	2 7.06mm (.278)
04	4 12.14mm (.478)
06	6 17.22mm (.678)
08	8 22.30mm (.878)
10	10 27.38mm (1.078)

Resistor value



3.3K, 10K resistor network, 3.3k Ohms, 10K Ohms

AR Series Hybrid, THT & SMT (Continued)

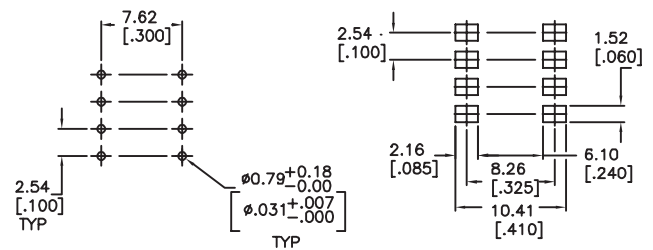


Terminal



PCB and SMT

RECOMMENDED BOARD LAYOUT

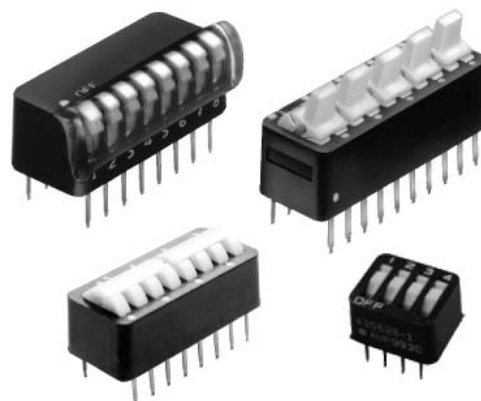


Product key	Actuator style	No. of positions	Resitance	Terminal	Seal	Material	Part Number
ARE043.3K04	extended	4 positions	3.3 kOhm	THT	no seal	RoHS compliant	1825428-5
ARE0810K04		8 positions	10 kOhm	gullwing SMT			1825428-6
ARE0810KS04							1825428-7
ARE083.3K04	flush	10 positions	3.3 kOhm	THT			1825428-1
ARE103.3K04							1825428-2
ARF023.3K04		2 positions					1825428-8
ARF0410K04		4 positions	10 kOhm				1825428-3
ARF043.3K04			3.3 kOhm				1825428-9
ARF043.3KT04		8 positions			tape seal		1-1825428-0
ARF0810K04			10 kOhm		no seal		1825428-4
ARF0810KT04					tape seal		1-1825428-1
ARF083.3K04			3.3 kOhm		no seal		1-1825428-2
ARP0810KS04	piano (up)		10 kOhm	gullwing SMT			1825429-1
ARPA0810K04	piano (down)			THT			1825429-2

7000 & 7100 Series, THT

Features

- Available in SPST, side actuated SPST and multiple series versions
- Contacts made of high strength copper alloy
- 7000 cycles can be obtained using the 7000 series
- 2000 cycles can be obtained using the 7100 series



Typical performance characteristics

Contact rating, non-switching (max)	1.0 Amp @ 40 VDC
Contact rating, switching (max)	60 milliamps @ 5 VDC
	15 milliamps @ 24 VDC
Electrical life	7000 series: 7000 cycles
	7100 series: 2000 cycles
Mechanical life	7000 series: 7000 cycles
	7100 series: 2000 cycles
Contact resistance	max 100 mOhms
Insulation resistance	min 1000 MOhms
Dielectric strength	500 V DC

Environmental specification

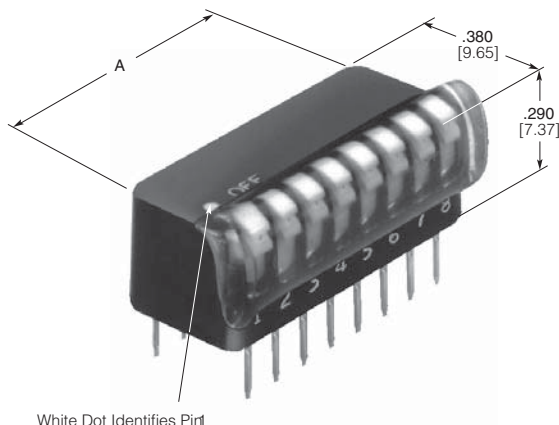
Operating temperature	-55 to +105°C
Storage temperature	-73 to +105°C
Solder heat resistance	265°C/10 s wave

Material specifications

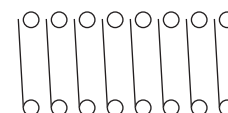
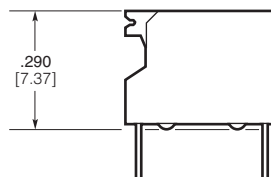
Contacts	copper alloy, gold finish
Actuator	thermoplastic
Terminals	copper alloy, tin finish
Base	glass filled polyester
RoHS Directive 2002/95/EC	compliant

7000 Series

Piano style actuator, single pole, single throw, side actuated, low profile

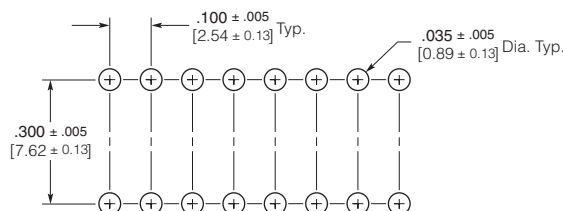


White Dot Identifies Pin 1



Pin 1

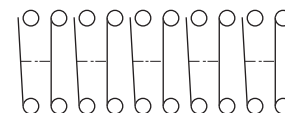
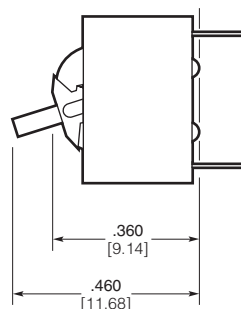
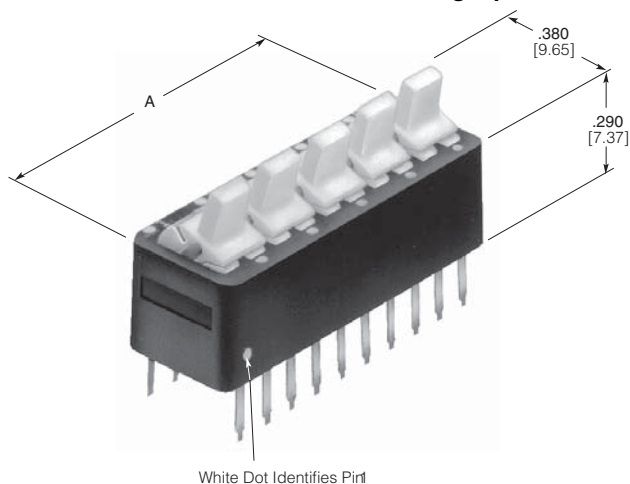
Note: switches shown in open position



Switches	Dim A	unsealed P/N	sealed P/N
2	7.11 (.280)	1-5435802-0	
3	9.65 (.380)	5435802-2	
4	12.19 (.480)	5435802-3	1-5435802-5
5	14.73 (.580)	5435802-4	1-5435802-6
6	17.27 (.680)	5435802-5	1-5435802-7
7	19.81 (.780)	5435802-6	1-5435802-8
8	22.35 (.880)	5435802-1	5435802-9
9	24.89 (.980)	5435802-7	1-5435802-9
10	27.43 (1.080)	5435802-8	2-5435802-0
11	29.97 (1.180)		2-5435802-1
12	32.51 (1.280)		2-5435802-2

7000 & 7100 Series, THT (Continued)

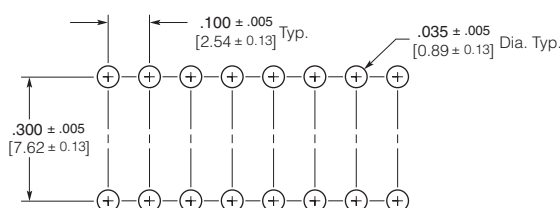
Extended actuator, combined single pole, double throw



Pin 1

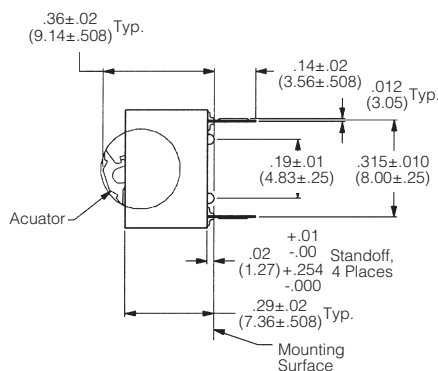
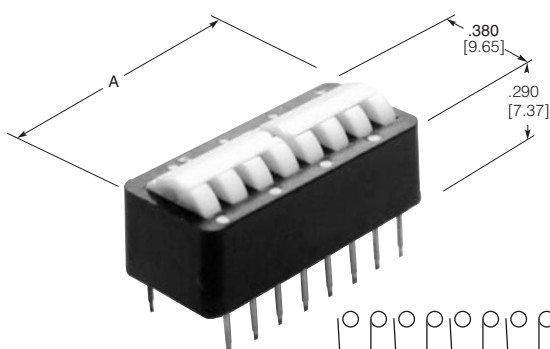
Note: switch positions are closed when rockers are down towards white dots. Switches have make-before-break design.

Extended lever actuator shown

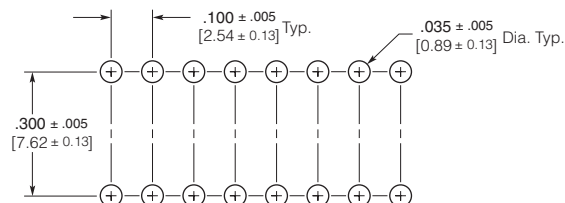


Switches	Dim A	Low profile actuator P/N	Extended lever actuator P/N
1	7.11 (.280)	5-435470-7	7-435470-1
2	12.19 (.480)	5-435470-1	7-435470-2
3	17.27 (.680)	5-435470-2	
4	22.35 (.880)	5-435470-3	7-435470-4
5	27.43 (1.080)		7-435470-5
6	32.51 (1.280)		7-435470-6

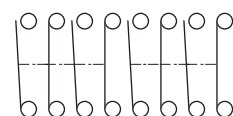
Extended actuator, combined single pole, double throw



Low Profile Lever Actuator Shown



Switches	Dim A	Low profile actuator P/N	Extended lever actuator P/N
1	12.19 (.480)	5-435470-5	8-435470-1
2	22.35 (.880)	5-435470-9	



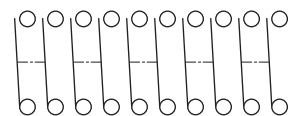
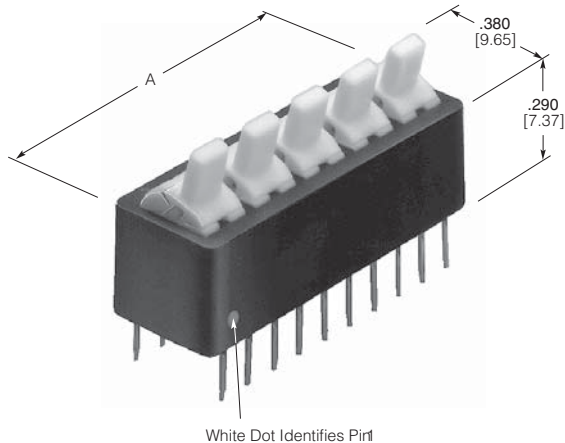
Pin 1

Note: switch positions are closed when rockers are down towards white dots. Switches have make-before-break design.

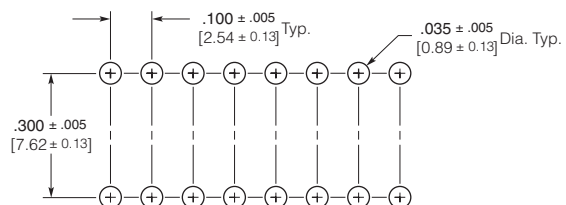
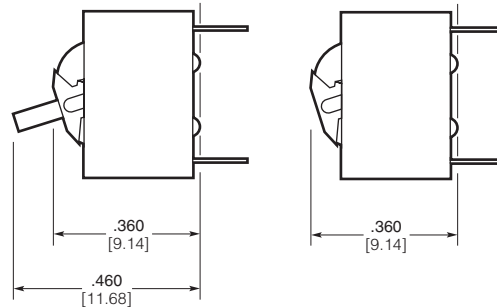
Extended lever actuator shown

7000 & 7100 Series, THT (Continued)

Extended actuator, multiple double pole, single throw

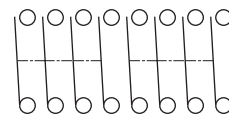
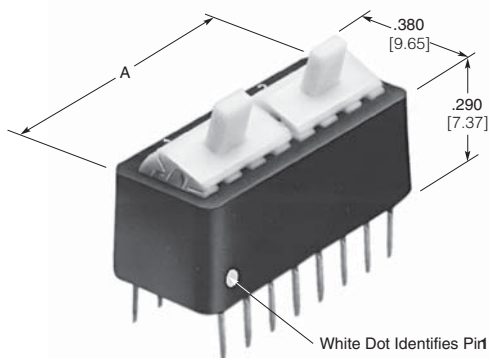


Note: switches shown in open position

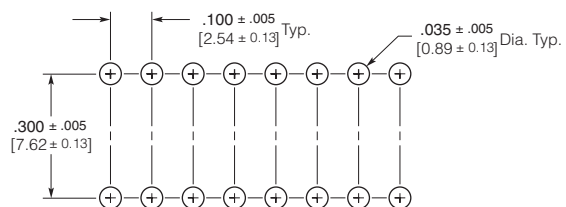
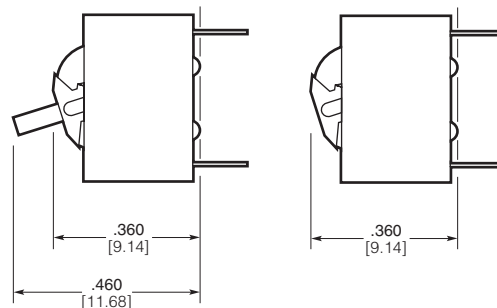


Switches	Dim A	Low profile	Extended lever
1	7.11 (.280)	5-435469-9	7-435469-1
2	12.19 (.480)	7-435469-2	7-435469-2
4	22.35 (.880)	5-435469-3	7-435469-4
5	27.43 (1.080)		7-435469-5
6	32.51 (1.280)		7-435469-6

Extended actuator, 4 pole, single throw



Note: switches shown in open position



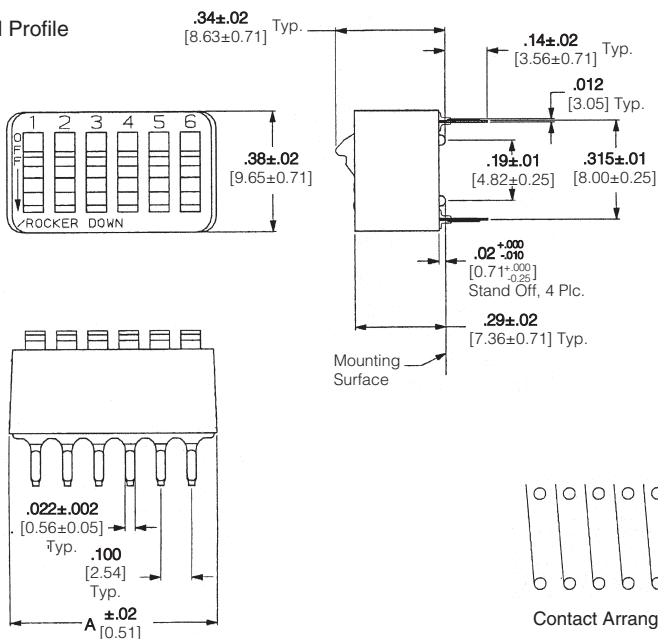
Switches	Dim A	Low profile	Extended lever
1	12.19 (.480)	5-435469-7	8-435469-1

7000 & 7100 Series, THT (Continued)

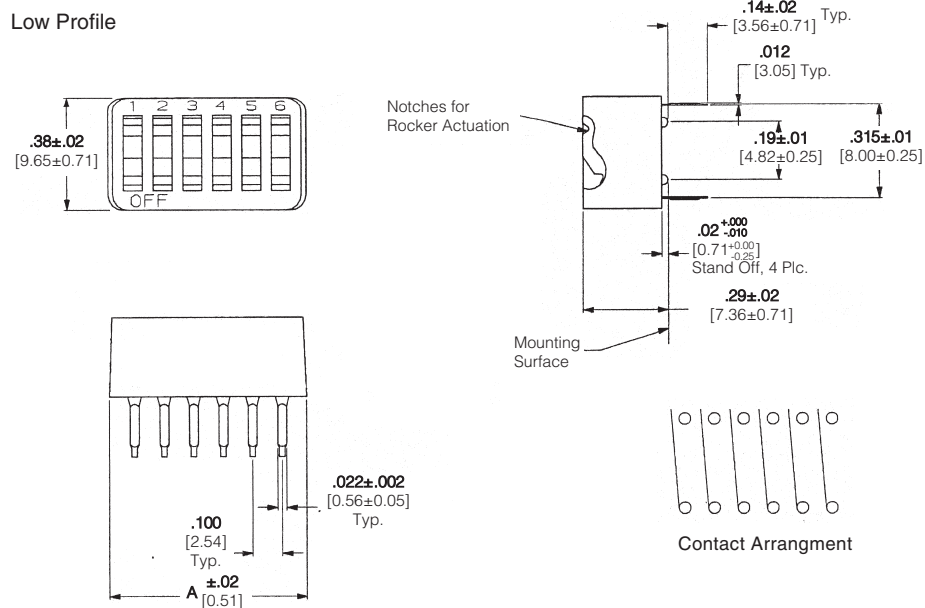
Rocker style actuator



Standard Profile



Low Profile

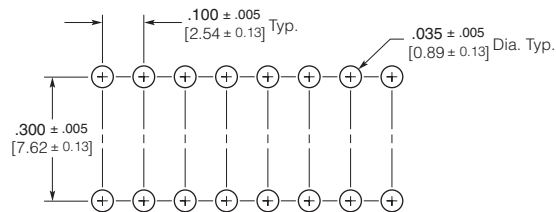
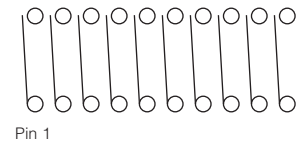
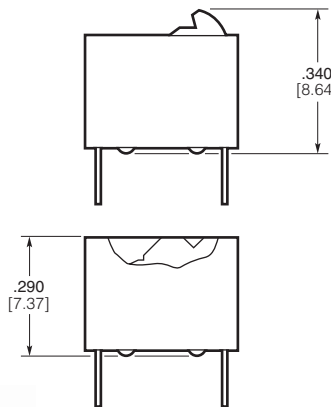
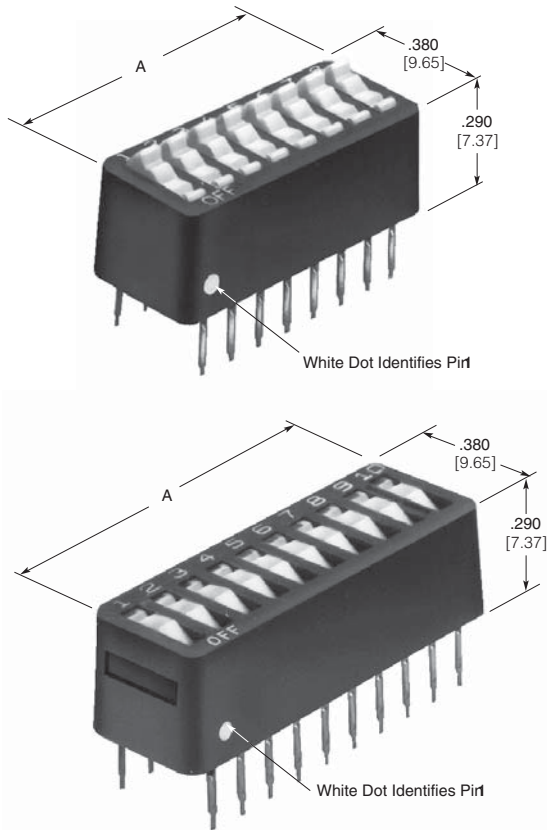


Switches	Dim A	Standard profile unsealed P/N	Standard profile sealed P/N	Low profile unsealed P/N	Low profile sealed P/N
2	7.11 (.280)	2-5435166-9			8-435626-6
3	9.65 (.380)				8-435626-7
4	12.19 (.480)	5435166-2	4-5435166-9	5-435626-1	8-435626-8
5	14.73 (.580)		5-5435166-0	5-435626-2	
6	17.27 (.680)	5435166-4	5-5435166-1		9-435626-0
7	19.81 (.780)	5435166-1	5-5435166-2		9-435626-1
8	22.35 (.880)	5435166-5	5-5435166-3	5-435626-5	9-435626-2
10	27.43 (1.080)	5435166-7	5-5435166-5		9-435626-4

7000 & 7100 Series, THT (Continued)

7100 Series

Rocker style actuator, single pole, single throw, standard and low profile



Switches	Dim A	Standard profile unsealed P/N	Standard profile sealed P/N	Low profile unsealed P/N	Low profile sealed P/N
2	7.11 (.280)	2-5435640-9		5435668-1	2-5435668-6
3	9.65 (.380)	3-5435640-0			3-5435668-3
4	12.19 (.480)	5435640-2	3-5435640-5	5435668-3	3-5435668-4
5	14.73 (.580)	5435640-3	3-5435640-6	5435668-4	3-5435668-5
6	17.27 (.680)	5435640-4	3-5435640-7	5435668-5	2-5435668-5
7	19.81 (.780)	5435640-1	3-5435640-8		2-5435668-7
8	22.35 (.880)	5435640-5	3-5435640-9	5435668-7	2-5435668-8
9	24.89 (.980)	5435640-6	4-5435640-0		2-5435668-9
10	27.43 (1.080)	5435640-7	4-5435640-1	5435668-9	3-5435668-0
11	29.97 (1.180)				3-5435668-1
12	32.51 (1.280)	3-5435640-2	4-5435640-3		3-5435668-2

DIP Shunt, THT & SMT

Features

- High reliability, low cost solution for programming electronic equipment
- Through hole and surface mount configurations



Typical performance characteristics

Contact rating 2 Amp for +20°C temperature-rise above ambient
Insulation resistance 1,000 MOhms min
Dielectric strength 500 VDC

Environmental specification

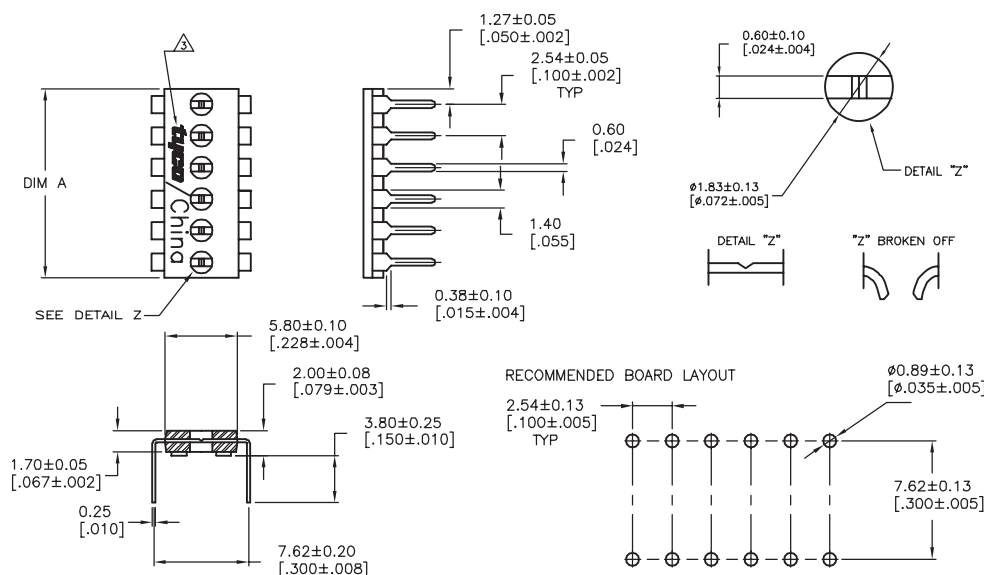
Operating temperature -55 to +105°C
Storage temperature -55 to +105°C
Solder heat resistance 265°C/10 sec wave, 260°C/10 sec reflow

Material specifications

Terminals copper alloy, tin over nickel finish
Base PBT (THT), NYLON 6T (SMT)
RoHS Directive 2002/95/EC compliant

Terminals

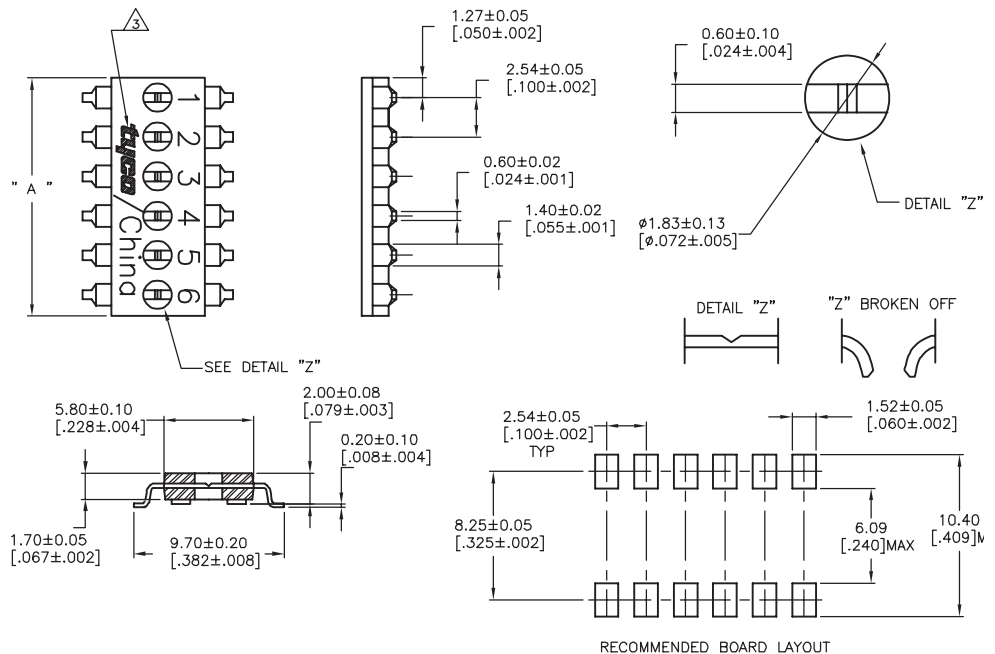
Through hole THT



Positions	Dim A	Part Number
2	0.508mm (.200)	1825190-1
3	0.762mm (.300)	1825190-2
4	1.016mm (.400)	1825190-3
5	1.27mm (.500)	1825190-4
6	1.524mm (.600)	1825190-5
7	1.778mm (.700)	1825190-6
8	2.032mm (.800)	1825190-7
9	2.286mm (.900)	1825190-8
10	2.54mm (1.00)	1825190-9
12	3.048mm (1.20)	1-1825190-0

DIP Shunt, THT & SMT (Continued)

Surface mount SMT

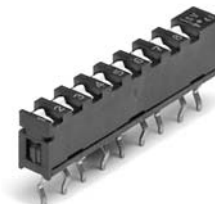


Positions	Dim A	Part Number
2	0.508mm (.200)	1825189-1
3	0.762mm (.300)	1825189-2
4	1.016mm (.400)	1825189-3
5	1.27mm (.500)	1825189-4
6	1.524mm (.600)	1825189-5
7	1.778mm (.700)	1825189-6
8	2.032mm (.800)	1825189-7
9	2.286mm (.900)	1825189-8
10	2.54mm (1.00)	1825189-9
12	3.048mm (1.20)	1-1825189-0

STV Series SIP Switch, THT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- 2 SIP switches take up less board space than 1 DIP switch
- Shipped in the OFF position



Typical performance characteristics

Contact configuration	SPST
Contact rating, non-switching (max)	1 Amp @ 5 VDC
Contact rating, switching (max)	10mA @ 5 VDC
Contact rating, switching (min)	0.1 μ A @ 1 mV
Electrical life	1,000 cycles
Mechanical life	1,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	300 VAC for 1 min
Actuation force	2.45 N (245 gf) average
Actuator travel	33°

Environmental specification

Operating temperature	-30 to +85°C
Storage temperature	-45 to +100°C
Solder heat resistance	265°C/8s wave

Material specifications

Contacts	copper alloy gold finish
Actuator	nylon
Terminals	copper alloy gold finish
Base	pps
Cover	pbt
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

STV 08

Type

STV SIP switch

Positions

02	2 positions	08	8 positions
04	4 positions	10	10 positions
06	6 positions		

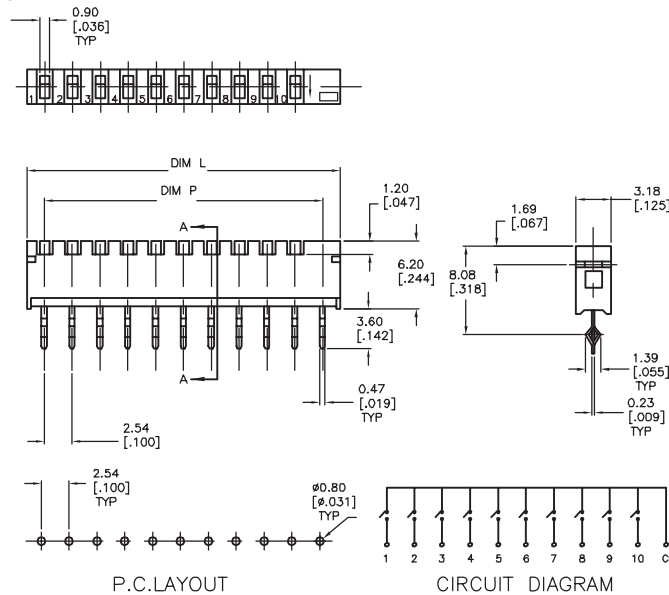
STV Series SIP Switch, THT (Continued)

Positions

Codes 02 - 10 2 to 10 positions



STV08



Code	Poles	Dim L	Dim P
02	2	8.28mm (.326)	5.08mm (.200)
04	4	13.36mm (.526)	10.16mm (.400)
06	6	18.44mm (.726)	15.24mm (.600)
08	8	23.52mm (.926)	20.32mm (.800)
10	10	28.60mm (1.126)	25.40mm (1.00)

Product key	Positions	Part Number
STV02	2 positions	1977104-1
STV04	4 positions	1977104-2
STV06	6 positions	1977104-3
STV08	8 positions	1977104-4
STV10	10 positions	1977104-5

Preferred parts in bold print

STR Series SIP Switch, Right Angle, THT

Features

- Extremely high contact pressure system allows aqueous or solvent cleaning without tape seal
- Gas tight contacts
- Shipped in the OFF position



Typical performance characteristics

Contact configuration	 spst
Contact rating, non-switching (max)	 1 Amp @ 5 VDC
Contact rating, switching (max)	 10 mA @ 5 VDC
Contact rating, switching (min)	 0.1 μ A @ 1 mV
Electrical life	 1,000 cycles
Mechanical life	 1,000 cycles
Contact resistance	 max 50 mOhm
Insulation resistance	 min 100 MOhm
Dielectric strength	 300 VAC for 1 min
Actuation force	 2.45 N (245 gf) average
Actuator travel	 33°

Environmental specification

Operating temperature	 -30 to +85°C
Storage temperature	 -45 to +100°C
Solder heat resistance	 265°C/8s wave

Material specifications

Contacts	 copper alloy gold finish
Actuator	 nylon
Terminals	 copper alloy gold finish
Base	 pps
Cover	 pbt
RoHS Directive 2002/95/EC	 compliant

Product key

Typical product key

STR 08

Type
STR SIP switch, right angle

Positions

02	2 positions	08	8 positions
04	4 positions	10	10 positions
06	6 positions		

STR Series SIP Switch, Right Angle, THT (Continued)

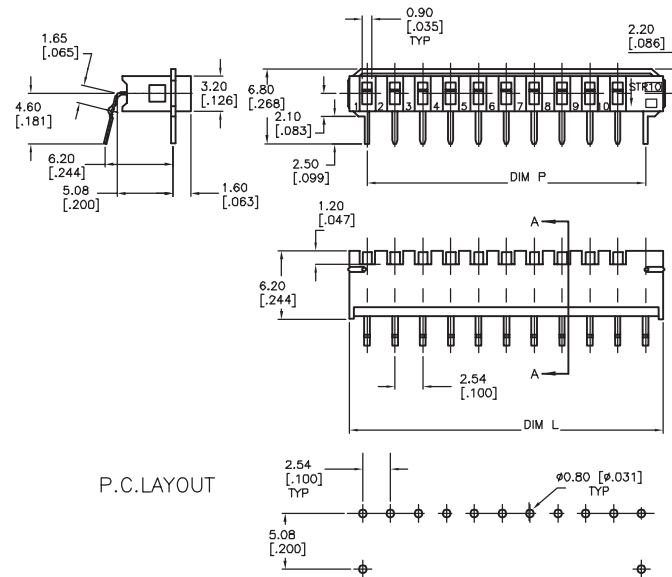
Positions



Codes 02 - 10 2 to 10 positions



STR08



Code	Poles	Dim L	Dim P
02	2	8.28mm (.326)	5.08mm (.200)
04	4	13.36mm (.526)	10.16mm (.400)
06	6	18.44mm (.726)	15.24mm (.600)
08	8	23.52mm (.926)	20.32mm (.800)
10	10	28.60mm (1.126)	25.40mm (1.00)

Product key	Positions	Part Number
STR02	2 positions	1977105-1
STR04	4 positions	1977105-2
STR06	6 positions	1977105-3
STR08	8 positions	1977105-4
STR10	10 positions	1977105-5

Preferred parts in bold print

Dip Switches, THT & Action Pins

Features

- Up to 30 poles
- Action pins up to 9 poles
- Terminals with standard pitch 2.54 x 7.62 mm



Typical performance characteristics

Number of poles	1-30 poles
Contact configuration	SPST
Contact rating	0.5 VA max 50 VDC
Contact rating max, non switching	15 A
Electrical life	min 2,000 cycles
Contact resistance, initial	max 20 mOhm
Insulation resistance	min 1,000 MOhm @ 100 VDC
Standards and specs	108-19336

Environmental specification

Operating temperature	-25 to +70°C
Storage temperature	-55 to 100°C
Solder heat resistance	265°C for 10 sec

Material specifications

Contacts	phosphor bronze, tin plated
Terminals	phosphor bronze, tin plated
Actuator	polyester, glass filled UL94-0 rated
Housing	nylon, glass filled UL94-0 rated
RoHS compliance	compliant

Product key

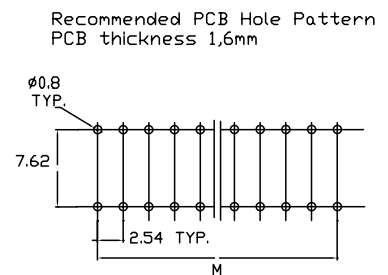
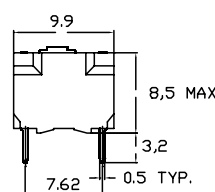
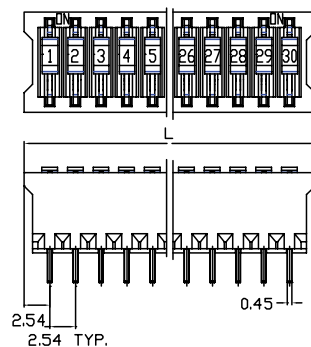
Typical product key

DIP 04

Type	DIP Multi pole Dip switches, through hole & action pins
Number of poles	configurable from 01 1 pole ... to 30 30 poles
Terminals	blank through hole A action pin version

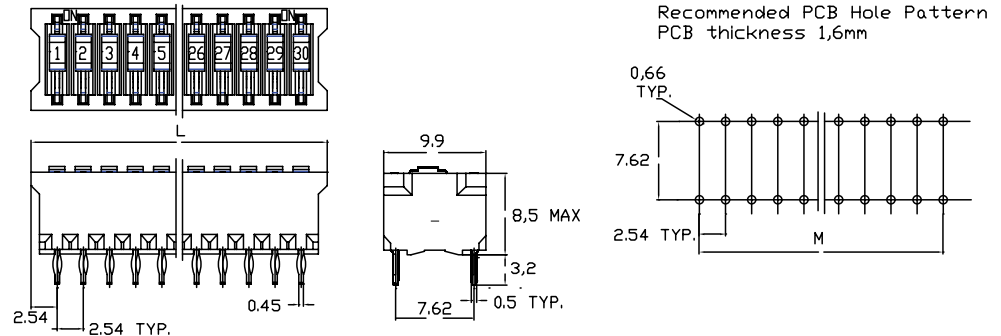
Terminals

blank through hole



Dip Switches, THT & Action Pins (Continued)

A action pin



Code/Poles	Dim L	Dim M	Code/Poles	Dim L	Dim M	Code/Poles	Dim L	Dim M
01	5.08 mm		11	30.48 mm	25.40 mm	21	55.88 mm	50.80 mm
02	7.62 mm	2.54 mm	12	33.02 mm	27.94 mm	22	58.42 mm	53.34 mm
03	10.16 mm	7.62 mm	13	35.56 mm	30.48 mm	23	60.96 mm	55.88 mm
04	12.70 mm	10.16 mm	14	38.10 mm	33.02 mm	24	63.50 mm	58.42 mm
05	15.24 mm	12.70 mm	15	40.64 mm	35.56 mm	25	66.04 mm	60.96 mm
06	17.78 mm	15.24 mm	16	43.18 mm	38.10 mm	26	68.58 mm	63.50 mm
07	20.32 mm	15.24 mm	17	45.72 mm	40.64 mm	27	71.12 mm	66.04 mm
08	22.86 mm	17.78 mm	18	48.26 mm	43.18 mm	28	73.66 mm	68.58 mm
09	25.40 mm	20.32 mm	19	50.80 mm	45.72 mm	29	76.20 mm	71.12 mm
10	27.94 mm	22.86 mm	20	53.34 mm	48.26 mm	30	78.74 mm	73.66 mm

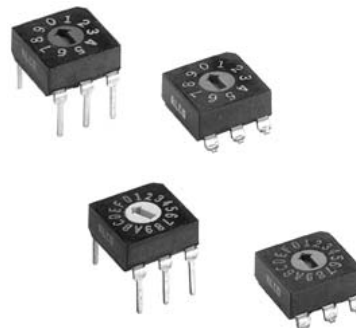
Product key	Number of poles	Terminals	Part Number
DIP01	1 pole	THT terminals	5161390-1
DIP02	2 poles		5161390-2
DIP03	3 poles		5161390-3
DIP04	4 poles		5161390-4
DIP05	5 poles		5161390-5
DIP06	6 poles		5161390-6
DIP07	7 poles		5161390-7
DIP08	8 poles		5161390-8
DIP09	9 poles		5161390-9
DIP10	10 poles		1-5161390-0
DIP11	11 poles		1-5161390-1
DIP12	12 poles		1-5161390-2
DIP13	13 poles		1-5161390-3
DIP14	14 poles		1-5161390-4
DIP15	15 poles		1-5161390-5
DIP16	16 poles		1-5161390-6
DIP17	17 poles		1-5161390-7
DIP18	18 poles		1-5161390-8
DIP19	19 poles		1-5161390-9
DIP20	20 poles		2-5161390-0
DIP21	21 poles		2-5161390-1
DIP22	22 poles		2-5161390-2
DIP23	23 poles		2-5161390-3
DIP24	24 poles		2-5161390-4
DIP25	25 poles		2-5161390-5
DIP26	26 poles		2-5161390-6
DIP27	27 poles		2-5161390-7
DIP28	28 poles		2-5161390-8
DIP29	29 poles		2-5161390-9
DIP30	30 poles		3-5161390-0
DIP01A	1 pole	action pin version	5338048-1
DIP02A	2 poles		5338048-2
DIP03A	3 poles		5338048-3
DIP04A	4 poles		5338048-4
DIP05A	5 poles		5338048-5
DIP06A	6 poles		5338048-6
DIP07A	7 poles		5338048-7
DIP08A	8 poles		5338048-8
DIP09A	9 poles		5338048-9

Preferred parts in bold print

MRD Series Rotary DIP Switch, Low Profile, Process Sealed, 7mm, THT & SMT

Features

- 40% PCB area space savings over standard DIP switches
- 50% lower profile than standard DIP switches
- Hexadecimal or binary code, with or without complement
- Sealed O-ring design
- Vertical and right angle versions



Typical performance characteristics

Contact rating, switching (max) 0.4 VA @ 20 VDC or AC
 Contact rating, switching (min) 0.1 μ A @ 1 mV
 Electrical life 10,000 steps
 Mechanical life 20,000 steps
 Contact resistance max 100 mOhm
 Insulation resistance min 1000 MOhm
 Dielectric strength 250 VAC for 1 min
 Actuation force 200gfcmm max
 Actuator travel 22.5° 16 position & 36° 10 position

Environmental specification

Operating temperature -30 to +85°C
 Storage temperature -45 to +100°C
 Solder heat resistance 265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts copper alloy gold finish
 Actuator nylon
 Terminals copper alloy gold finish
 Base pps
 Cover pps
 RoHS Directive 2002/95/EC compliant

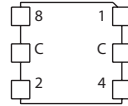
Product key		Typical product key		MRD	10C		S	TR	04
Type									
MRD	Rotary DIP switch, low profile, process sealed, 7mm, vertical & right angle								
Circuit type									
10	BC decimal	16	hexadecimal						
10C	BCD complement	16C	hexadecimal complement						
Operating direction									
blank	vertical	RA	right angle						
Terminal									
blank	through hole - THT	S	gullwing SMT						
Packaging									
blank	tube								
TR	tape & reel								
Material									
04	RoHS compliant								

MRD Series Rotary DIP Switch, Low Profile, Process Sealed, 7mm (Continued)

Circuit type



TERMINAL IDENTIFICATION
VIEWED FROM BOTTOM SWITCH



Codes 10, 10C 10 position BC decimal, BC decimal complement

10 position, BCD (red actuator)

P.	0	1	2	3	4	5	6	7	8	9
C										
1										
2										
4										
8										

10 position, BDC complement (orange actuator)

P.	0	1	2	3	4	5	6	7	8	9
C										
1										
2										
4										
8										

Codes 16, 16C 16 position hexadecimal, hexadecimal complement

16 position, hexadecimal (black actuator)

P.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C																
1																
2																
4																
8																

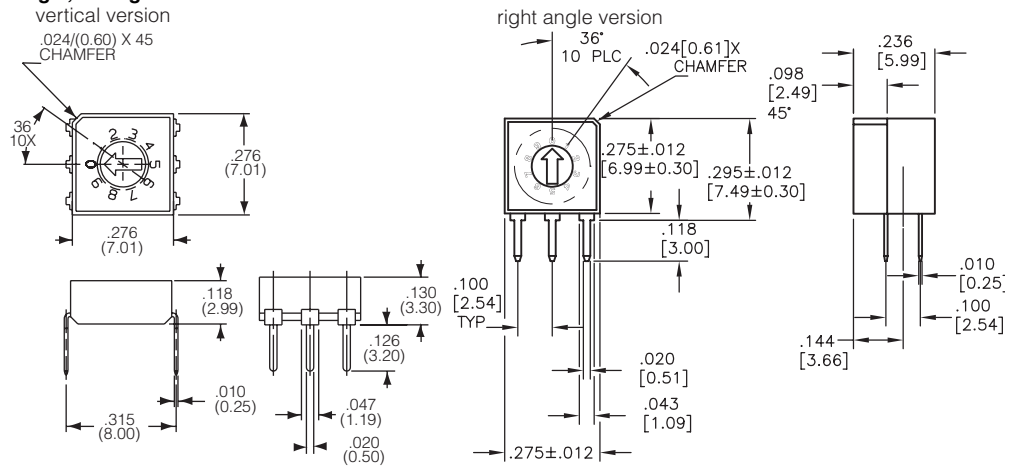
16 position, hexadecimal complement (white act.)

P.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C																
1																
2																
4																
8																

Terminal



blank vertical and right angle, through hole THT

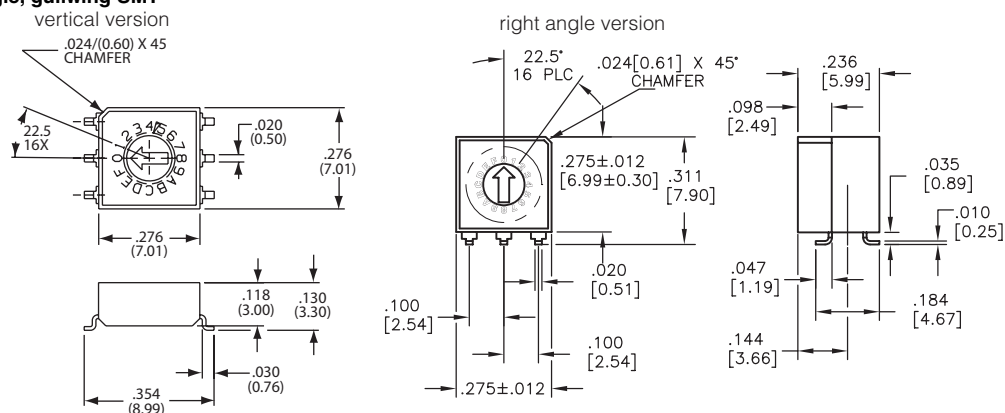


MRD Series Rotary DIP Switch, Low Profile, Process Sealed, 7mm (Continued)

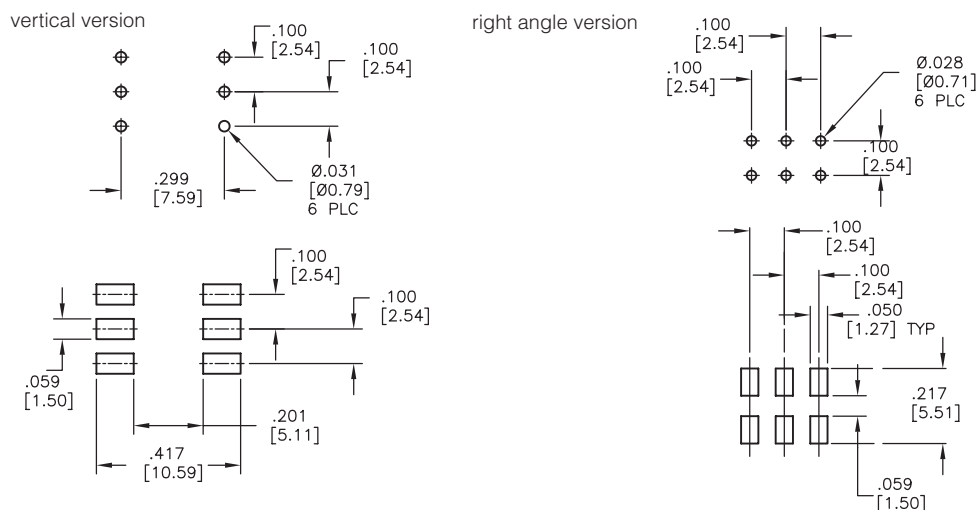
S vertical and right angle, gullwing SMT



MRD10S04



layouts THT and SMT



Product key	Circuit type	Terminal	Terminal	Packaging	Material	Part Number
MRD1004	BC decimal	vertical	THT	tube	RoHS compliant	1825013-1
MRD10C04	BCD					1825013-2
MRD10CRA04	complement	right angle				1825013-3
MRD10CRAS04						1825013-4
MRD10CS04		vertical	SMT			1825013-5
MRD10CSTR04				tape & reel		1825013-6
MRD10RA04	BC decimal	right angle	THT	tube		1825013-7
MRD10RAS04						1825013-8
MRD10S04		vertical	SMT			1825013-9
MRD10STR04				tape & reel		1-1825013-0
MRD1604	hexadecimal		THT	tube		1-1825013-1
MRD16C04	hexadecimal					1-1825013-2
MRD16CRA04	complement	right angle				1-1825013-3
MRD16CRAS04						1-1825013-4
MRD16CS04		vertical	SMT			1-1825013-5
MRD16CSTR04				tape & reel		1-1825013-6
MRD16RA04	hexadecimal	right angle	THT	tube		1-1825013-7
MRD16RAS04						1-1825013-8
MRD16S04		vertical	SMT			1-1825013-9
MRD16STR04				tape & reel		2-1825013-0
MRD10CRASTR04	BCD complement	right angle				2-1825013-1
MRD10RASTR04	BC decimal					2-1825013-2
MRD16CRASTR04	hex. complement					2-1825013-3
MRD16RASTR04	hexadecimal					2-1825013-4

Preferred parts in bold print

DRD Series Rotary DIP Switch, Process Sealed, THT & SMT

Features

- Hexadecimal or binary code, with or without complement
- Insert molded terminals
- High pressure contacts provide 20,000 steps
- Unique design utilizes high pressure pin-point sliding contacts to penetrate contaminants on contact surface



Typical performance characteristics

Contact rating, switching (max) 0.4 VA @ 20 VDC or peak AC
 Electrical life 20,000 steps
 Mechanical life 20,000 steps
 Contact resistance max 50 mOhm
 Insulation resistance min 1000 MOhm
 Dielectric strength 300 VAC for 1 min
 Actuation force THT: 43.1Nmm (6 oz-in) average
 SMT: 21.6Nmm (3 oz-in) average
 Actuator travel 22.5° 16 position & 36° 10 position

Environmental specification

Operating temperature -30 to +85°C
 Storage temperature -45 to +100°C
 Solder heat resistance 265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts copper alloy gold finish
 Rotor nylon
 Terminals copper alloy gold finish
 Base pps
 Cover pps
 O-Ring rubber
 Tape polyamid
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		DRD	10	E	04
Type							
DRD		Rotary DIP switch, process sealed, through hole & surface mount					
Circuit type							
10		BC decimal					
10C		BCD complement					
16		hexadecimal					
16C		hexadecimal complement					
Terminal							
blank		through hole - THT					
S		gullwing SMT					
SA		J-lead SMT					
Version							
E		standard					
Packaging							
blank		tube					
TR		tape & reel					
Material							
04		RoHS compliant					

DRD Series Rotary DIP Switch, Process Sealed, THT & SMT (Continued)

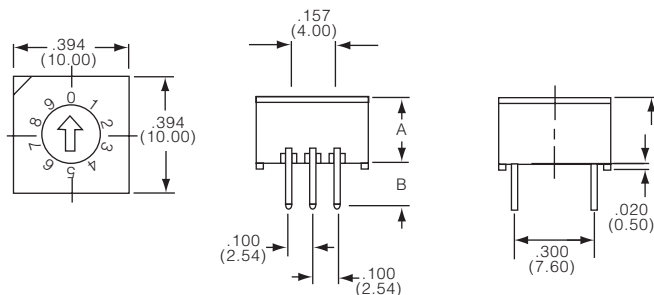
DRD Series



D flush actuator



DRD10



Circuit type



☐ 8	☐ 1
☐ C	☐ C
☐ 2	☐ 4

VIEW FROM BOTTOM
OF THE SWITCH

NOTE: COMMON TERMINALS ARE CONNECTED INTERNALLY

Codes 10, 10C 10 position BC decimal, BC decimal complement

10 position, BCD (red actuator)

P.	0	1	2	3	4	5	6	7	8	9
C	■	■	■	■	■	■	■	■	■	■
1		■		■		■		■		■
2			■	■			■	■		
4					■	■	■	■		
8									■	■

10 position, BDC complement (orange actuator)

P.	0	1	2	3	4	5	6	7	8	9
C	■	■	■	■	■	■	■	■	■	■
1	■		■		■		■		■	
2	■	■			■	■			■	■
4	■	■	■	■					■	■
8	■	■	■	■	■	■	■	■		

Codes 16, 16C 16 position hexadecimal, hexadecimal complement

16 position, hexadecimal (black actuator)

P.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1	■		■		■		■		■		■		■		■	
2		■	■			■	■			■	■			■	■	
4				■	■	■	■					■	■	■	■	
8								■	■	■	■	■	■	■	■	■

16 position, hexadecimal complement (white act.)

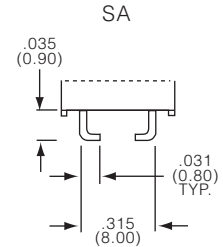
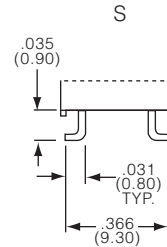
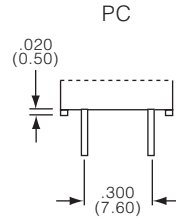
P.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
1	■		■		■		■		■		■		■		■	
2	■	■			■	■			■	■			■	■		
4	■	■	■	■				■	■	■	■					
8	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

DRD Series Rotary DIP Switch, Process Sealed, THT & SMT (Continued)

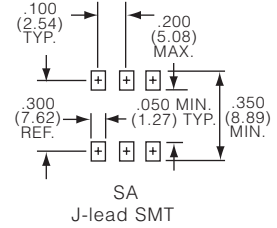
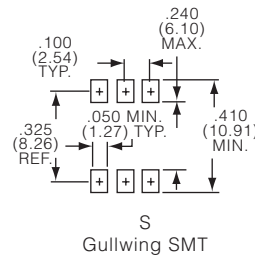
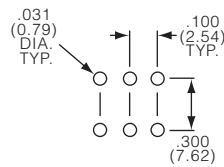
Terminal



Codes blank, S, SA through hole THT, gullwing SMT, J-lead SMT



PCB layouts



Product key	Circuit type	Terminal	Packaging	Material	Part Number
DRD10CE04	BCD	THT	tube	RoHS compliant	1825007-1
DRD10CSAE04	complement	J-lead SMT			1825007-2
DRD10CSAETR04			tape&reel		1825007-4
DRD10CSE04		gullwing SMT	tube		1825007-3
DRD10CSETR04			tape&reel		1825007-5
DRD10E04	BC decimal	THT	tube		1825007-6
DRD10ET04					2-1825007-1
DRD10SAE04		J-lead SMT			1825007-7
DRD10SAETR04			tape&reel		1825007-9
DRD10SE04		gullwing SMT	tube		1825007-8
DRD10SETR04	hexadecimal complement				1-1825007-0
DRD16CE04		THT			1-1825007-1
DRD16CSAE04		J-lead SMT			1-1825007-2
DRD16CSAETR04			tape&reel		1-1825007-4
DRD16CSE04		gullwing SMT	tube		1-1825007-3
DRD16CSETR04	hexadecimal				1-1825007-5
DRD16E04		THT			1-1825007-6
DRD16ET04					2-1825007-2
DRD16SAE04		J-lead SMT			1-1825007-7
DRD16SAETR04			tape&reel		1-1825007-9
DRD16SE04		gullwing SMT	tube		1-1825007-8
DRD16SETR04			tape&reel		2-1825007-0

Preferred parts in bold print

DRD, DRM, DRS or DRW Series Rotary DIP Switch, THT

Features

- Hexadecimal or binary code, with or without complement
- Insert molded terminals
- High pressure contacts provide 20,000 steps
- Unique design utilizes high pressure pin-point sliding contacts to penetrate contaminants on contact surface
- Various actuator options



Typical performance characteristics

Contact rating, switching (max) 0.4 VA @ 20 VDC or peak AC
 Electrical life 20,000 steps
 Mechanical life 20,000 steps
 Contact resistance max 50 mOhm
 Insulation resistance min 1000 MOhm
 Dielectric strength 300 VAC for 1 min
 Actuation force 43.1Nmm (6 oz-in) average
 Actuator travel 22.5° 16 position & 36° 10 position

Environmental specification

Operating temperature -30 to +85°C
 Storage temperature -45 to +100°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy gold finish
 Rotor nylon
 Terminals copper alloy gold finish
 Base pps
 Cover pps
 Tape polyimide
 Shaft (DRS) brass nickel finish
 Bushing (DRS) zinc die cast
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		DR	D	16C	RA	E	04
Type									
DR		Rotary DIP switch, through hole							
Actuator style									
D		flush (right angle version only)		S					
M		mini plastic shaft		W					
Circuit type									
10		BC decimal		16					
10C		BCD complement		16C					
Terminations									
blank		pcb vertical		RA					
Version									
E		standard (for actuator styles 'D', 'M' and 'W')							
blank		standard (for actuator style 'S')							
Material									
04		RoHS compliant							

DRD, DRM, DRS or DRW Series Rotary DIP Switch, THT (Continued)

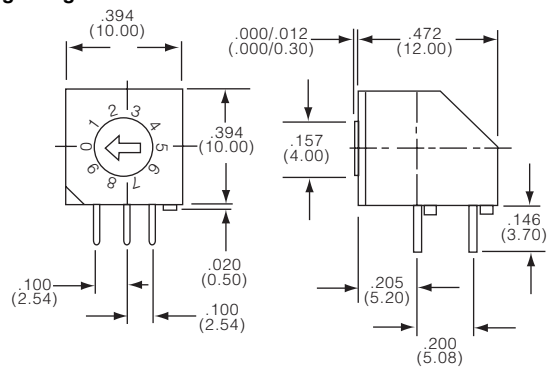
Actuator style



Code D flush actuator, right angle



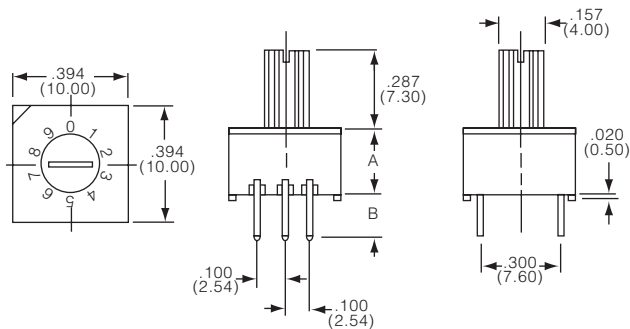
DRD10E04



Code M mini plastic shaft, vertical



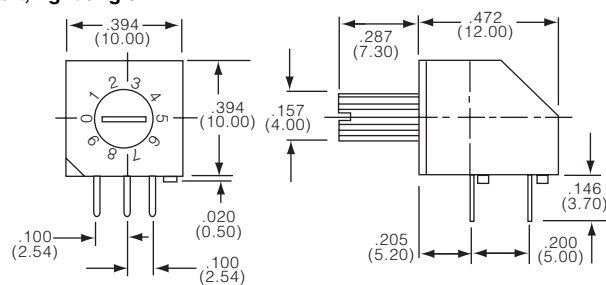
DRM10E04



Code M mini plastic shaft, right angle



DRM10RAE04

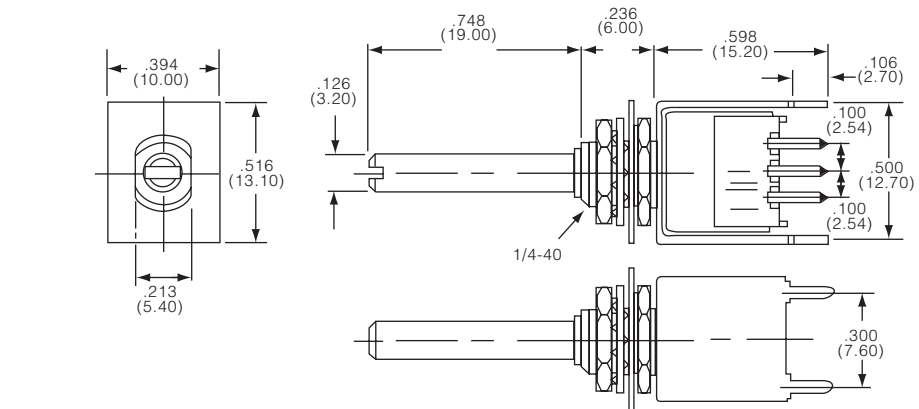


DRD, DRM, DRS or DRW Series Rotary DIP Switch, THT (Continued)

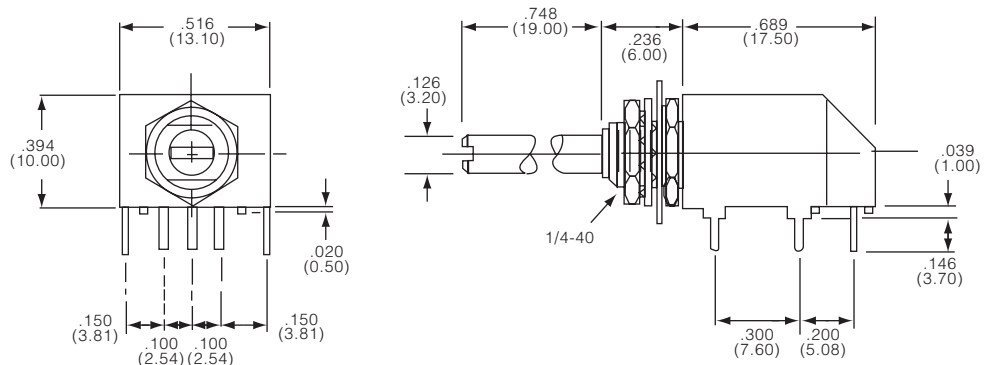
Code S metal shaft, vertical



DRS1004



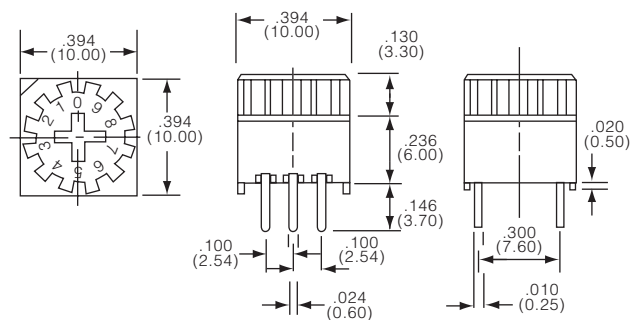
Code S metal shaft, right angle



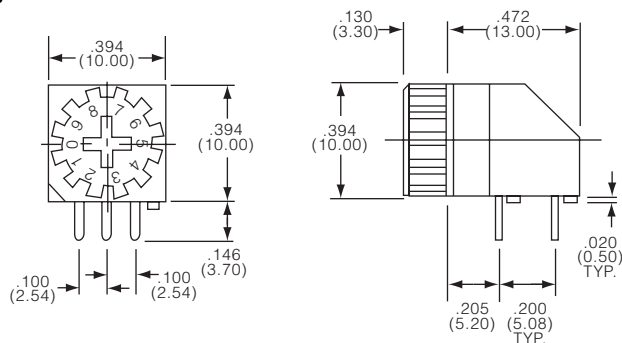
Code W wheel, vertical



DRW16E04



Code W wheel, right angle



DRD, DRM, DRS or DRW Series Rotary DIP Switch, THT (Continued)

Circuit type



Codes 10, 10C 10 position BC decimal, BC decimal complement



VIEW FROM BOTTOM
OF THE SWITCH
NOTE: COMMON TERMINALS
ARE CONNECTED INTERNALLY

10 position, BCD (red actuator)

P.	0	1	2	3	4	5	6	7	8	9
C										
1										
2										
4										
8										

10 position, BCD complement (orange actuator)

P.	0	1	2	3	4	5	6	7	8	9
C										
1										
2										
4										
8										

Codes 16, 16C 16 position hexadecimal, hexadecimal complement

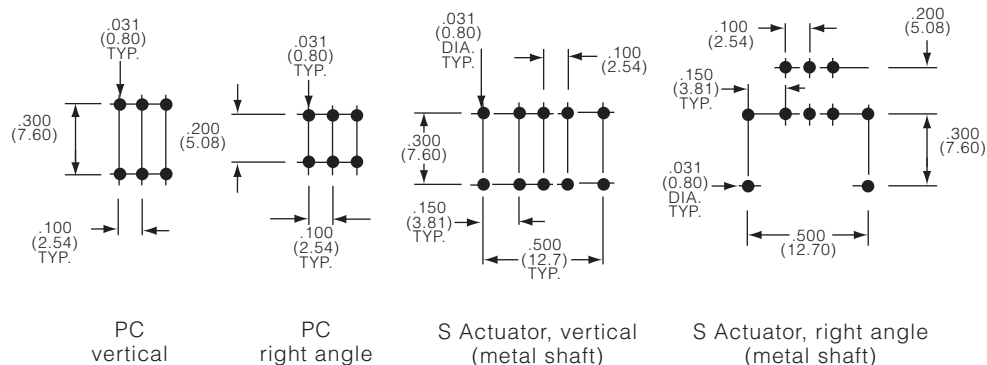
16 position, hexadecimal (black actuator)

P.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C																
1																
2																
4																
8																

16 position, hexadecimal complement (white act.)

P.	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
C																
1																
2																
4																
8																

Layouts



Product key	Actuator	Circuit type	Terminations	Material	Part Number
DRD10RAE04	actuator flush	BC decimal	right angle	RoHS compliant	1825008-2
DRD10CRAE04		BCD complement			1825008-1
DRD16RAE04		hexadecimal			1825008-4
DRD16CRAE04		hex complement			1825008-3
DRM10E04	mini plastic shaft	BC decimal	vertical		1825033-1
DRM10RAE04			right angle		1825008-6
DRM10CE04		BCD complement	vertical		1825033-6
DRM10CRAE04			right angle		1825008-5
DRM16E04		hexadecimal	vertical		1-1825033-1
DRM16RAE04			right angle		1825008-8
DRM16CE04		hexadecimal	vertical		1-1825033-6
DRM16CRAE04		complement	right angle		1825008-7
DRS1004	metal shaft	BC decimal	vertical		4-1825033-1
DRS10RA04			right angle		1-1825008-0
DRS10C04		BCD complement	vertical		4-1825033-6
DRS10CRA04			right angle		1825008-9
DRS1604		hexadecimal	vertical		5-1825033-1
DRS16RA04			right angle		1-1825008-2
DRS16C04		hexadecimal	vertical		5-1825033-6
DRS16CRA04		complement	right angle		1-1825008-1
DRW10E04	wheel	BC decimal	vertical		2-1825033-1
DRW10RAE04			right angle		1-1825008-4
DRW10CE04		BCD complement	vertical		2-1825033-6
DRW10CRAE04			right angle		1-1825008-3
DRW16E04		hexadecimal	vertical		3-1825033-1
DRW16RAE04			right angle		1-1825008-6
DRW16CE04		hexadecimal	vertical		3-1825033-6
DRW16CRAE04		complement	right angle		1-1825008-5

Preferred parts in bold print

DIP-FIX Switches, Highly Simplified, THT

Features

- Up to 24 poles
- Change-over contacts up to 12 poles
- Predetermined breaking points, detachable for individual connections
- End to end stackable
- Terminals with standard pitch 2,54 x 7,62mm
- Low-cost alternative to DIP-Switches



Typical performance characteristics

Number of poles	1 to 24 poles
Contact configuration	SPST, SPDT
Contact rating	5 W max 60 VDC; max 0,5 A
Electrical life	50 cycles
Contact resistance	max 200 mOhm
Insulation resistance	min 1,000 MOhm @ 100 VDC

Environmental specification

Operating temperature	-40 to +85°C
Solder heat resistance	260°C for 10 sec

Material specifications

Contacts	steel, tin plated
Terminals	steel, tin plated
Housing	pbt-p-GF30, blue
RoHS compliance	compliant

Product key

Typical product key

DIP-FIX **A1** **01**

Type	DIP-FIX highly simplified DIP switch, THT (C42315-A1347)
------	--

Function	
A1	normally open
A2	change over

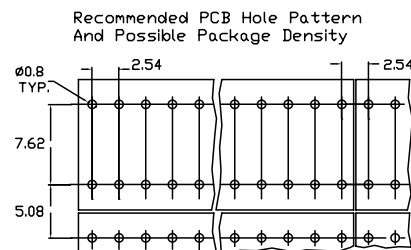
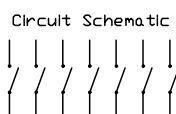
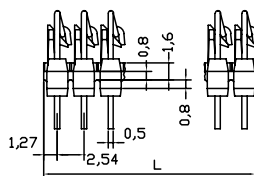
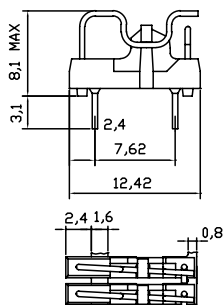
Number of poles			
01	1 pole	06	6 poles
02	2 poles	07	7 poles
03	3 poles	08	8 poles
04	4 poles	09	9 poles
05	5 poles	10	10 poles
		12	12 poles
		16	16 poles
		24	24 poles

Function

A1 normally open



DIP-FIX-A108

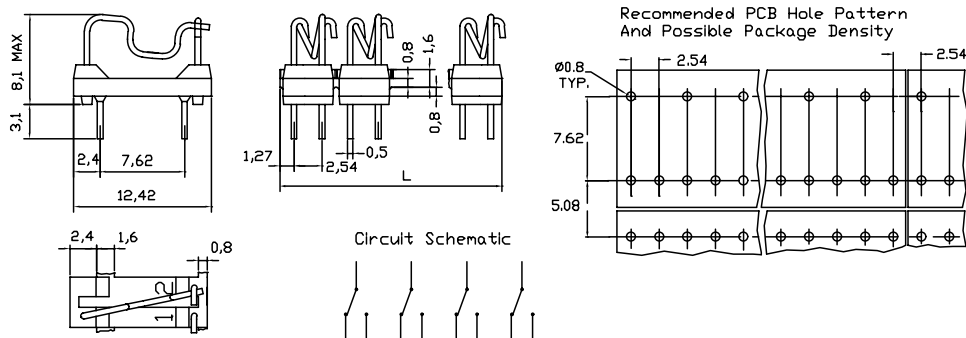


A2 change over

DIP-FIX Switches, Highly Simplified, THT (Continued)



DIP-FIX-A204



Function A1, Normally Open

Code/Poles	Dim L
01	2.54 mm
02	5.08 mm
03	7.62 mm
04	10.16 mm
05	12.70 mm
06	15.24 mm
07	17.78 mm
08	20.32 mm
09	22.86 mm
10	25.40 mm
12	30.48 mm
16	40.64 mm
24	60.96 mm

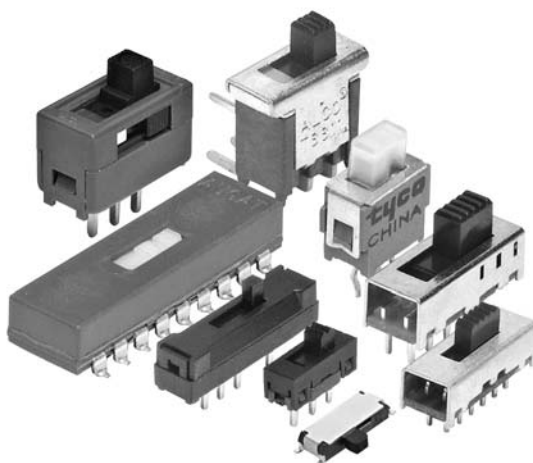
Function A2, Change Over

Code/Poles	Dim L
01	5.08 mm
02	10.16 mm
03	15.24 mm
04	20.32 mm
05	25.40 mm
08	40.64 mm
12	60.96 mm

Product key	Function	Number of poles	Part Number
DIP-FIX-A101	normally open	1 pole	1393546-1
DIP-FIX-A102		2 poles	1393546-2
DIP-FIX-A103		3 poles	1393546-3
DIP-FIX-A104		4 poles	1393546-4
DIP-FIX-A105		5 poles	1393546-5
DIP-FIX-A106		6 poles	1393546-6
DIP-FIX-A107		7 poles	1393546-7
DIP-FIX-A108		8 poles	1393546-8
DIP-FIX-A109		9 poles	1393546-9
DIP-FIX-A110		10 poles	1-1393546-0
DIP-FIX-A112		12 poles	1-1393546-1
DIP-FIX-A116		16 poles	1-1393546-2
DIP-FIX-A124	change over	24 poles	1-1393546-3
DIP-FIX-A201		1 pole	1-1393546-4
DIP-FIX-A202		2 poles	1-1393546-5
DIP-FIX-A203		3 poles	1-1393546-6
DIP-FIX-A204		4 poles	1-1393546-7
DIP-FIX-A205		5 poles	1-1393546-8
DIP-FIX-A208		8 poles	1-1393546-9
DIP-FIX-A212		12 poles	2-1393546-0

Preferred parts in bold print

Product Range



Slide Switches

■ **Telecom grade applications:**

AS Series

■ **Instrumentation grade applications:**

AS-, SSA-, SSB-, SSJ-, MSSA . 01/04-, MMS-, TSS-, MHS-, MSS-, MSSA-, SDS-, STS-, CTS-, MLL-, A68 Series

■ **Consumer grade applications:**

S + SE-, SLS + SLSA-, STSA- Series

■ **Economy grade applications:**

SLS-Series

Main features:

- Up to 6 poles
- Up to 60.000 operations
- Silver or gold contacts, bifurcated double wipe contact versions
- Break-before-make or Make-before-break contact timing
- Sealed or unsealed, plastic or steel housings
- Micro sized versions
- Low profile versions
- Right angle versions
- Panel mount versions
- Different actuator styles
- Single or dual actuator
- SMT, THT, lug and turret terminals
- 2.54 mm or 5.08 mm terminal spacing
- Decorative versions



AS Series, Instrumentation and Telecom Grade, THT & SMTpage B2



S & SE Series, Sealed & Unsealed, THT & SMTpage B11



SSA Series, Micro Size, Instrumentation Grade, THTpage B14

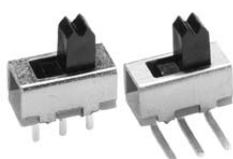
Product Range (Continued)



SSB Series, Micro Size, Instrumentation Grade, THTpage B16



SSJ Series, Micro Size, Instrumentation Grade, THTpage B18



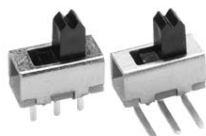
SLS Series, Miniature, Rolling Contact, Economy Grade, THTpage B20



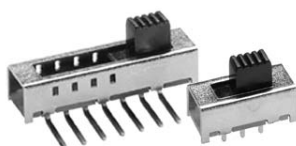
SL Series, PC Tails, Consumer Grade, THTpage B23



SLS & SLSA Series, Panel Mount, Consumer, THTpage B25



SLS Series, PC Tails, Consumer Grade, THTpage B28



STS Series, Miniature, Low Profile, THTpage B30



STSA Series, Miniature, Low Profile, THTpage B34

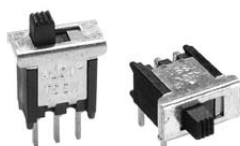


MSSA . 01/04 Series, Instrumentation Grade, THTpage B36

Product Range (Continued)



MMS Series, Micro Size, Instrumentation Grade, THTpage B40



TSS Series, Single or Dual Actuator, THTpage B43



MHS Series, Low Profile, Instrumentation Grade, THTpage B48



MSS Series, Instrumentation Grade, THTpage B52



MSSA Series, Instrumentation Grade, THTpage B58



SDS Series, Decorative Instrument Grade, THTpage B64



CST Series, Baton Toggle, THTpage B67



MLL Series, Micro Size, Low Profile, SMTpage B70

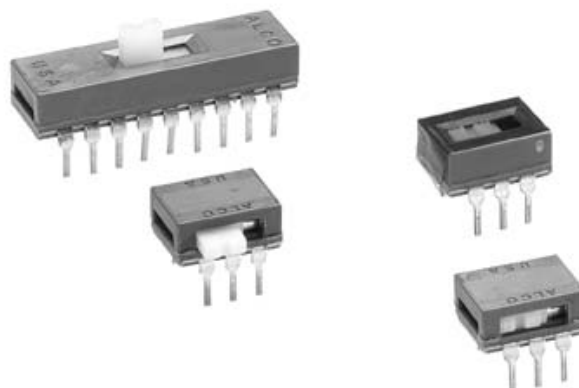


A68 Series, Instrumentation Grade, THTpage B72

AS Series, Instrumentation and Telecom Grade, THT & SMT

Features

- Unique design enables aqueous or solvent cleaning
- Auto insertable
- ASF-package with flush actuator allows auto insertion on standard IC equipment. Standard tape seal and closed case construction provide process seal
- ASE-package with extended actuator, open ended case allows washout after process cleaning
- 2, 4 & 6 pole versions available with top or side actuation.
- Bifurcated double wipe contact design provide dependable, telecom grade switching
- Industry standard 2.54 (.100) x 7.62 (.300) terminal spacing



Typical performance characteristics

Contact rating, gold 0.4 VA @ 20 VDC or peak AC (shorting)
Contact rating, silver 300 mA @ 115 VAC or 28 VDC
Electrical life. 15,000 cycles
Mechanical life. 15,000 cycles
Contact resistance max 40 mOhm
Insulation resistance min 1000 MOhm
Dielectric strength 600 VAC for 1 min
Actuation force. 8.50 N (850 gf) max
Actuator travel 2.54 mm (.100) average

Environmental specification

Operating temperature -40 to +80°C
Storage temperature -40 to +80°C
Solder heat resistance 265°C/10s wave or 260°C/10s reflow

Material specifications

Contacts copper alloy gold or silver finish
Actuator nylon
Terminals copper alloy tin finish
Base pct
Cover. pct
Tape polyimide
RoHS Directive 2002/95/EC compliant

Product key		Typical product key		AS	E	2	2		G	S		04
Type												
AS	Slide switch, auto insertable											
Actuator												
E	extended			F	flush							
No of poles												
2	double pole			6	6 pole							
4	4 pole											
No of throws												
2	2 throws			3	3 throws (4 pole only)							
Actuation												
blank	top actuator			R	side actuator							
Contact finish												
blank	silver			G	gold							
Termination												
blank	through hole THT			L	gullwing SMT							
				S	J-lead SMT							
Packaging												
blank	tube			TR	tape & reel							
Material												
04	RoHS compliant											

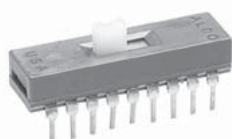
AS Series, Instrumentation and Telecom Grade, THT & SMT (Continued)

E Extended actuator

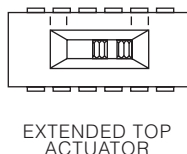


Code	Type	Dim A
ASE22	DPDT	10.2mm (.400)
ASE42	4PDT	17.8mm (.700)
ASE43	4P3T	27.9mm (1.10)
ASE62	6PDT	25.4mm (1.00)

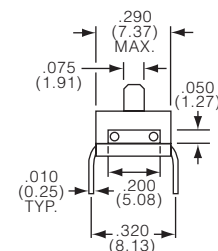
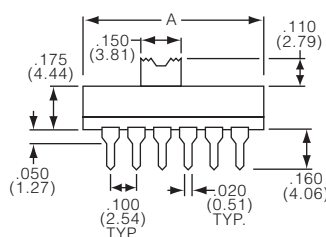
Upright, through hole



ASE62G



EXTENDED TOP ACTUATOR

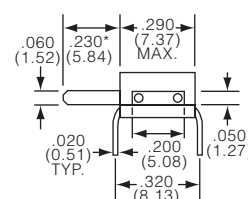
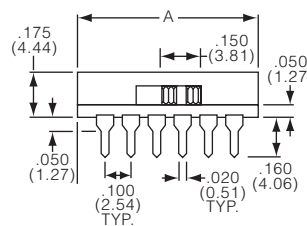
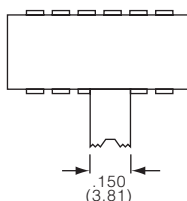


Right angle, through hole



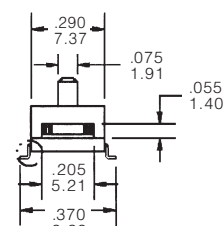
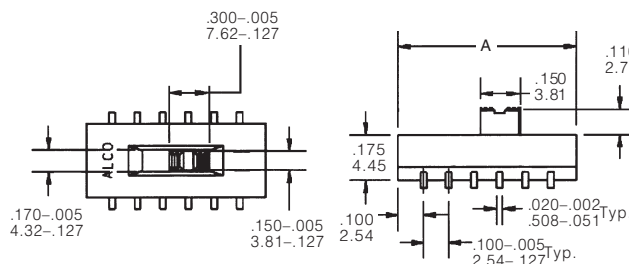
ASE22R

EXTENDED SIDE ACTUATOR

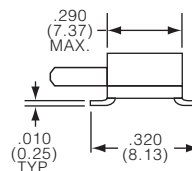
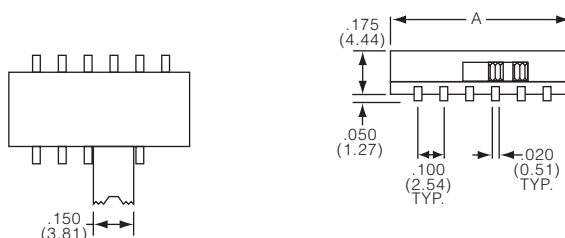


*.105 (2.67) ASE22R, ASE22RG

Upright, gullwing surface mount

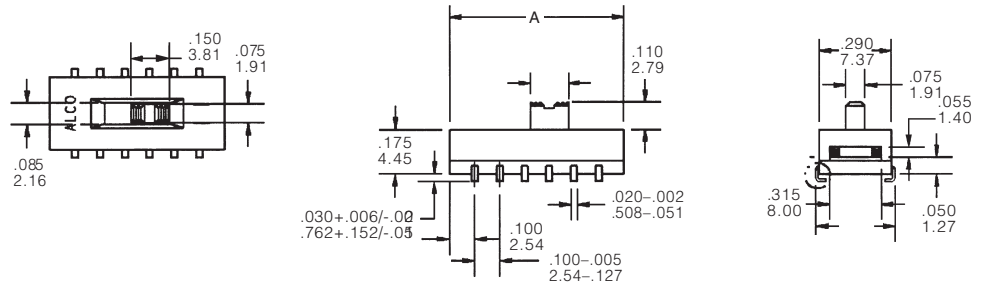


Right angle, gullwing surface mount

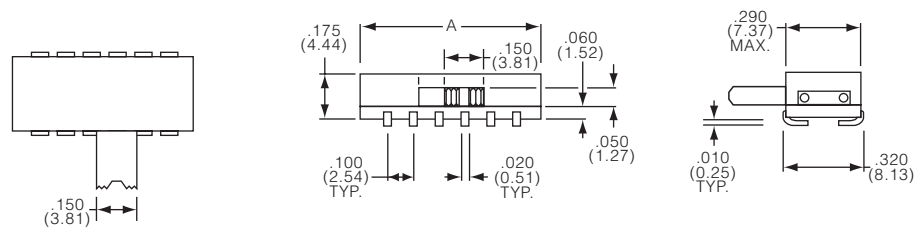


AS Series, Instrumentation and Telecom Grade, THT & SMT (Continued)

Upright, J-lead surface mount



Right angle, J-lead surface mount

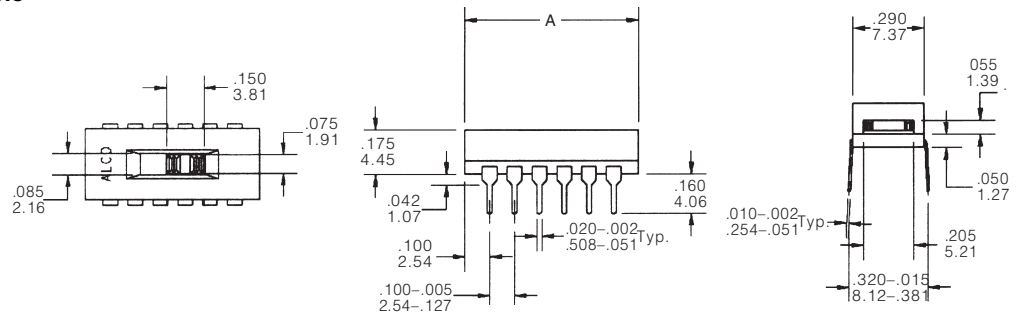


F Flush actuator

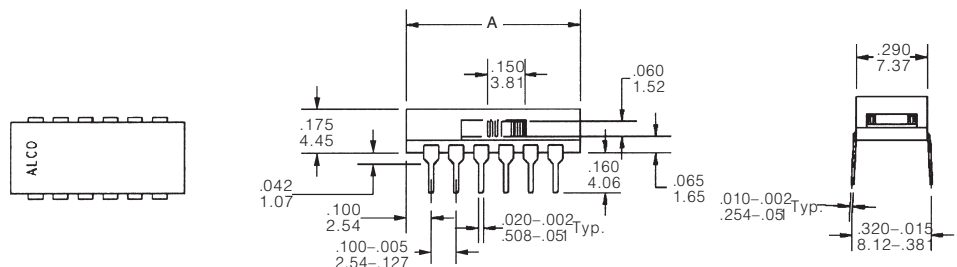


Code	Type	Dim A
ASF22	DPDT	10.2mm (.400)
ASF42	4PDT	17.8mm (.700)
ASF43	4P3T	27.9mm (1.10)
ASF62	6PDT	25.4mm (1.00)

Upright, through hole

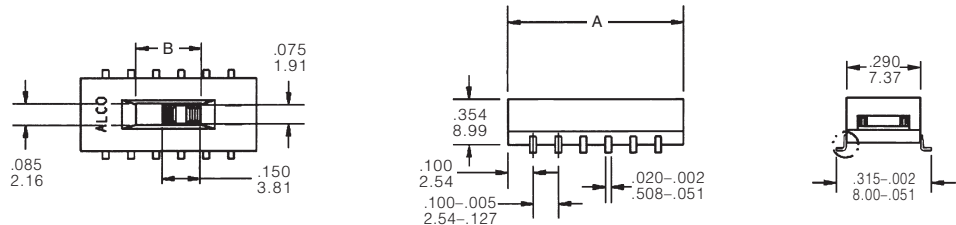


Right angle, through hole

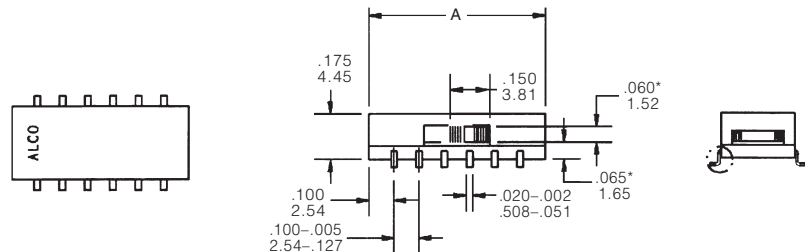


AS Series, Instrumentation and Telecom Grade, THT & SMT (Continued)

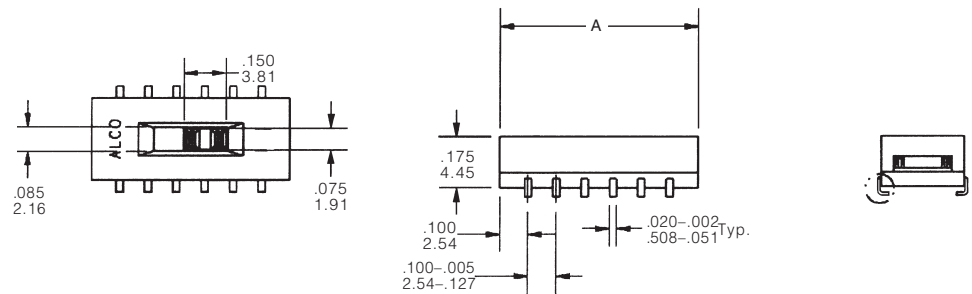
Upright, gullwing surface mount



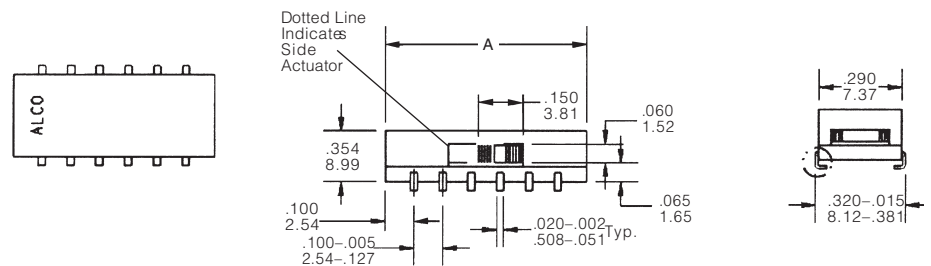
Right angle, gullwing surface mount



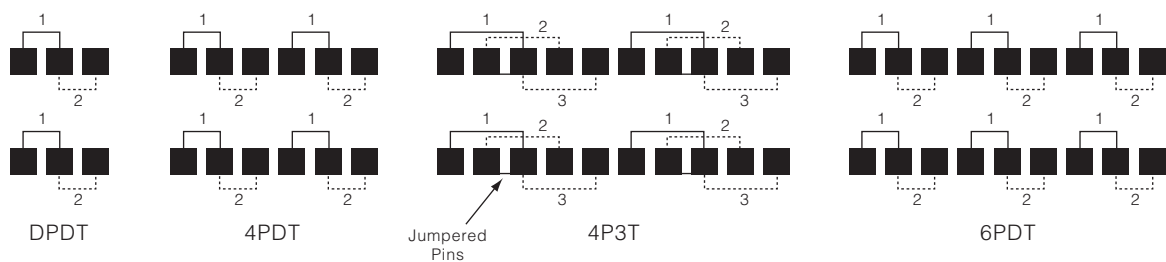
Upright, J-lead surface mount



Right angle, J-lead surface mount

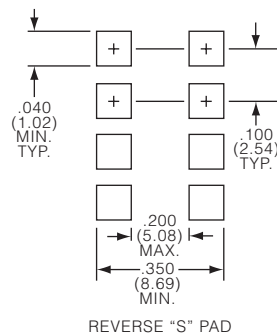
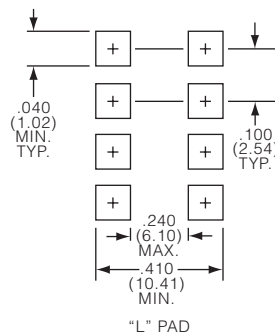
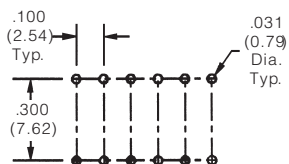


Circuit diagrams



AS Series, Instrumentation and Telecom Grade, THT & SMT (Continued)

PCB layout



AS Series, Instrumentation and Telecom Grade, THT & SMT (Continued)

Product key	Actuator	Poles	Throws	Actuation	Contacts	Termination	Packaging	Material	Part Number
ASE2204	extended	double	2 throws	top	silver	THT	tube	RoHS	1825010-1
ASE22G04	actuator	pole		actuator	gold			compliant	1825010-2
ASE22GL04						gullwing			1825010-5
ASE22GS04						J-lead			1825010-7
ASE22L04					silver	gullwing			1825010-6
ASE22R04				side		THT			1825010-3
ASE22RG04				actuator	gold				1825010-4
ASE22RGL04						gullwing			1825010-9
ASE22RGS04						J-lead			1-1825010-1
ASE22RL04					silver	gullwing			1-1825010-0
ASE22RS04						J-lead			1-1825010-2
ASE22S04				top					1825010-8
ASE4204		4 pole		actuator		THT			1-1825010-3
ASE42G04					gold				1-1825010-4
ASE42GL04						gullwing			1-1825010-7
ASE42GS04						J-lead			1-1825010-9
ASE42L04					silver	gullwing			1-1825010-8
ASE42R04				side		THT			1-1825010-5
ASE42RG04				actuator	gold				1-1825010-6
ASE42RGL04						gullwing			2-1825010-1
ASE42RGS04						J-lead			2-1825010-3
ASE42RL04					silver	gullwing			2-1825010-2
ASE42RS04						J-lead			2-1825010-4
ASE42S04				top					2-1825010-0
ASE4304			3 throws	actuator		THT			2-1825010-5
ASE43G04					gold				2-1825010-6
ASE43GL04						gullwing			2-1825010-9
ASE43GS04						J-lead			3-1825010-1
ASE43L04					silver	gullwing			3-1825010-0
ASE43R04				side		THT			2-1825010-7
ASE43RG04				actuator	gold				2-1825010-8
ASE43RGL04						gullwing			3-1825010-3
ASE43RGS04						J-lead			3-1825010-5
ASE43RL04					silver	gullwing			3-1825010-4
ASE43RS04						J-lead			3-1825010-6
ASE43S04				top					3-1825010-2
ASE6204		6 pole	2 throws	actuator		THT			3-1825010-7
ASE62G04					gold				3-1825010-8
ASE62GL04						gullwing			4-1825010-1
ASE62GS04						J-lead			4-1825010-3
ASE62L04					silver	gullwing			4-1825010-2
ASE62R04				side		THT			3-1825010-9
ASE62RG04				actuator	gold				4-1825010-0
ASE62RGL04						gullwing			4-1825010-5
ASE62RGS04						J-lead			4-1825010-7
ASE62RL04					silver	gullwing			4-1825010-6
ASE62RS04						J-lead			4-1825010-8
ASE62S04				top a.					4-1825010-4

Preferred parts in bold print

Product key	Actuator	Poles	Throws	Actuation	Contacts	Termination	Packaging	Material	Part Number
ASF2204	flush	double	2 throws	top	silver	THT	tube	RoHS	1825011-1
ASF22G04	actuator	pole		actuator	gold			compliant	1825011-2
ASF22GL04						gullwing			1825011-5
ASF22GLTR04							tape & reel		1825011-6
ASF22GS04						J-lead	tube		1825011-9
ASF22GSTR04							tape & reel		1-1825011-0
ASF22L04					silver	gullwing	tube		1825011-7
ASF22LTR04							tape & reel		1825011-8
ASF22R04				side		THT	tube		1825011-3
ASF22RG04				actuator	gold				1825011-4
ASF22RGL04						gullwing			1-1825011-3
ASF22RGLTR04							tape & reel		1-1825011-4
ASF22RGS04						J-lead	tube		1-1825011-7
ASF22RGSTR04							tape & reel		1-1825011-8
ASF22RL04					silver	gullwing	tube		1-1825011-5
ASF22RLTR04							tape & reel		1-1825011-6
ASF22RS04						J-lead	tube		1-1825011-9
ASF22RSTR04							tape & reel		2-1825011-0
ASF22S04				top			tube		1-1825011-1
ASF22STR04				actuator			tape & reel		1-1825011-2

Preferred parts in bold print

AS Series, Instrumentation and Telecom Grade, THT & SMT (Continued)

Slide Switches

Product key	Actuator	Poles	Throws	Actuation	Contacts	Termination	Packaging	Material	Part Number
ASF4204	flush	4 pole	2 throws	top	silver	THT	tube	RoHS	2-1825011-1
ASF42G04	actuator			actuator	gold			compliant	2-1825011-2
ASF42GL04						gullwing			2-1825011-5
ASF42GLTR04							tape & reel		2-1825011-6
ASF42GS04						J-lead	tube		2-1825011-9
ASF42GSTR04							tape & reel		3-1825011-0
ASF42L04					silver	gullwing	tube		2-1825011-7
ASF42LTR04							tape & reel		2-1825011-8
ASF42R04				side		THT	tube		2-1825011-3
ASF42RG04				actuator	gold				2-1825011-4
ASF42RGL04						gullwing			3-1825011-3
ASF42RGLTR04							tape & reel		3-1825011-4
ASF42RGS04						J-lead	tube		3-1825011-7
ASF42RGSTR04							tape & reel		3-1825011-8
ASF42RL04					silver	gullwing	tube		3-1825011-5
ASF42RLTR04							tape & reel		3-1825011-6
ASF42RS04						J-lead	tube		3-1825011-9
ASF42RSTR04							tape & reel		4-1825011-0
ASF42S04				top			tube		3-1825011-1
ASF42STR04				actuator			tape & reel		3-1825011-2
ASF4304			3 throws			THT	tube		4-1825011-1
ASF43G04					gold				4-1825011-2
ASF43GL04						gullwing			4-1825011-5
ASF43GLTR04							tape & reel		4-1825011-6
ASF43GS04						J-lead	tube		4-1825011-9
ASF43GSTR04							tape & reel		5-1825011-0
ASF43L04					silver	gullwing	tube		4-1825011-7
ASF43LTR04							tape & reel		4-1825011-8
ASF43R04				side		THT	tube		4-1825011-3
ASF43RG04				actuator	gold				4-1825011-4
ASF43RGL04						gullwing			5-1825011-3
ASF43RGLTR04							tape & reel		5-1825011-4
ASF43RGS04						J-lead	tube		5-1825011-7
ASF43RGSTR04							tape & reel		5-1825011-8
ASF43RL04					silver	gullwing	tube		5-1825011-5
ASF43RLTR04							tape & reel		5-1825011-6
ASF43RS04						J-lead	tube		5-1825011-9
ASF43RSTR04							tape & reel		6-1825011-0
ASF43S04				top		THT	tube		5-1825011-1
ASF43STR04				actuator			tape & reel		5-1825011-2
ASF6204		6 pole	2 throws				tube		6-1825011-1
ASF62G04					gold				6-1825011-2
ASF62GL04						gullwing			6-1825011-5
ASF62GLTR04							tape & reel		6-1825011-6
ASF62GS04						J-lead	tube		6-1825011-9
ASF62GSTR04							tape & reel		7-1825011-0
ASF62L04					silver	gullwing	tube		6-1825011-7
ASF62LTR04							tape & reel		6-1825011-8
ASF62R04				side		THT	tube		6-1825011-3
ASF62RG04				actuator	gold				6-1825011-4
ASF62RGL04						gullwing			7-1825011-3
ASF62RGLTR04							tape & reel		7-1825011-4
ASF62RGS04						J-lead	tube		7-1825011-7
ASF62RGSTR04							tape & reel		7-1825011-8
ASF62RL04					silver	gullwing	tube		7-1825011-5
ASF62RLTR04							tape & reel		7-1825011-6
ASF62RS04						J-lead	tube		7-1825011-9
ASF62RSTR04							tape & reel		8-1825011-0
ASF62S04				top			tube		7-1825011-1
ASF62STR04				actuator			tape & reel		7-1825011-2

Preferred parts in bold print

S & SE Series, Sealed & Unsealed, THT & SMT

Features

- Sealed or unsealed
- Straight or right angle
- Through hole or surface mount
- Bulk or tape and reel packaged
- Compact size
- Double pole function in a single pole body
- PC retention feature
- High reliability contact system
- Epoxy sealed base
- Robust actuator for easy actuation
- Non shorting-break-before-make



Typical performance characteristics

Contact rating, 0.4 VA @ 20 VDC or Peak AC (shorting)
 Contact rating, max 50 mA @ 48 VAC/DC
 Contact rating, min 1 microamp @ 20 millivolt AC/DC
 Electrical life 10,000 cycles
 Mechanical life 10,000 cycles
 Contact resistance, initial max 50 mOhm, 100 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 0.70 to 50.0 N (70 to 500 gf)
 Actuator travel 2.20 mm (.087) average

Environmental specification

Operating temperature -20 to +80°C
 Storage temperature -40 to +80°C
 Solder heat resistance 265°C/10s wave or 260°C/10s reflow

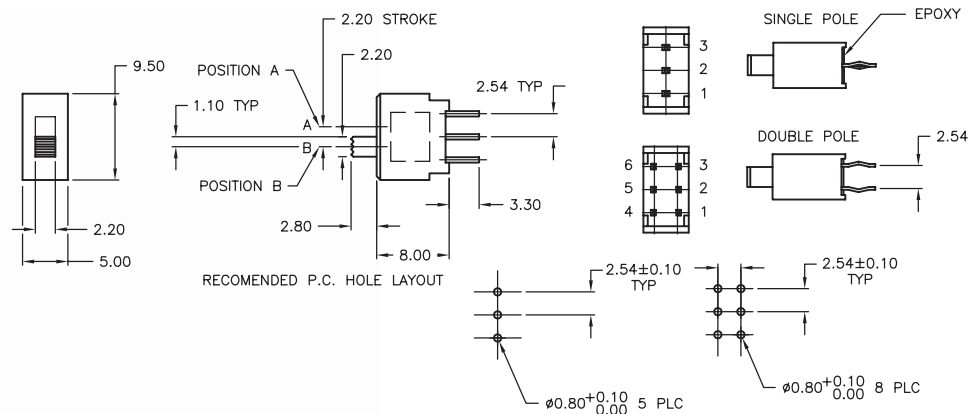
Material specifications

Contacts copper alloy gold finish
 Actuator nylon
 Terminals copper alloy gold finish
 Base nylon
 Frame copper alloy tin finish
 Seal silicon rubber
 RoHS Directive 2002/95/EC compliant

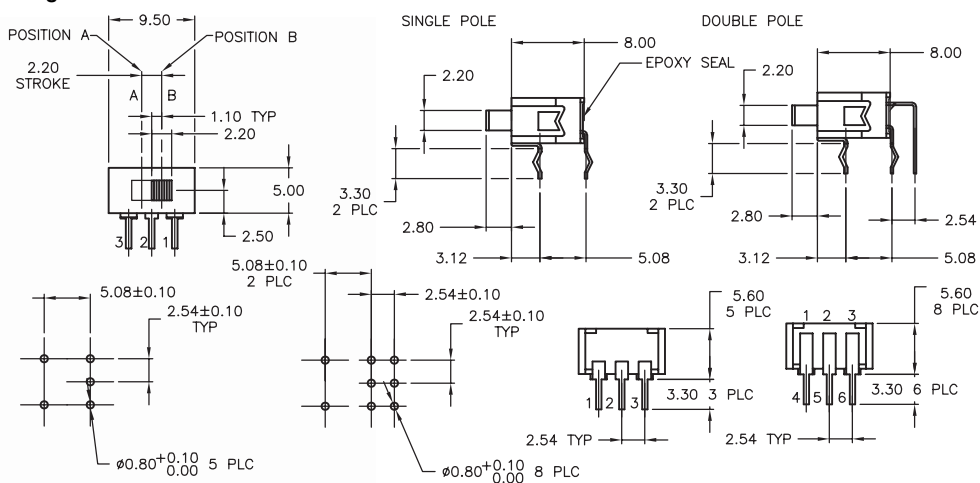
Product key		Typical product key		S	E	1	DG	SMT	TR	04
Type										
S	Slide switch, through hole and surface mount									
Seal										
blank	unsealed		E	sealed						
No of poles										
1	single pole		2	double pole						
No of throws										
G	single throw									
DG	double throw									
EG	triple throw									
Terminal										
PC	through hole THT, vertical		RA	through hole THT, right angle						
SMT	surface mount SMT									
Packaging										
blank	tray		TR	tape & reel						
Material										
04	RoHS compliant									

Slide Switches

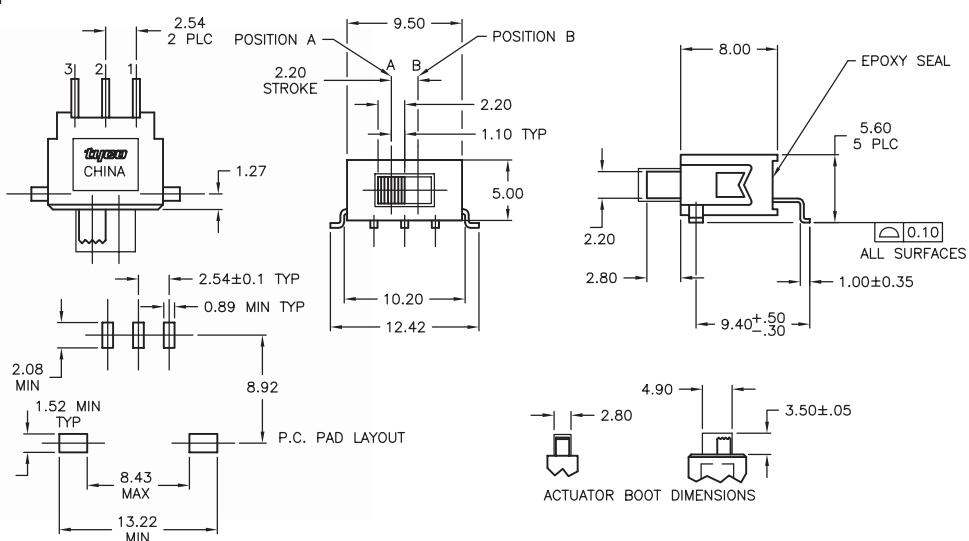
S1GPC04



S1GRA04



S1EGSMT04



S & SE Series, Sealed & Unsealed, THT & SMT (Continued)

Function

Code	Poles	Throws	■	■	■
1G	single	single	Off	None	On 1 - 3
1DG		double	On 2 - 3	None	On 1 - 2
1EG		triple	On 2 - 3	Off	On 1 - 2
2DG	double	double	On 2 - 3 5 - 6	None	On 1 - 2 4 - 5
2EG		triple	On 2 - 3 5 - 6	Off	On 1 - 2 4 - 5

Off mechanical position, no electrical connection
None no mechanical position

Product key	Seal	No of poles	No of throws	Terminal	Packaging	Material	Part Number
S1DGPC04	unsealed	single pole	double throw	THT vertical	tray	RoHS compliant	5-1571005-1
S1DGRA04				THT right angle			5-1571006-1
S1EGPC04				THT vertical			5-1571005-2
S1EGRA04				THT right angle			5-1571006-2
S2DGPC04		double pole	double throw	THT vertical			5-1571005-3
S2DGRA04				THT right angle			5-1571006-3
S2EGPC04				THT vertical			5-1571005-4
S2EGRA04				THT right angle			5-1571006-4
SE1DGPC04	sealed	single pole	double throw	THT vertical			1825032-1
SE1DGRA04				THT right angle			1825031-1
SE1DGSMT04				SMT			5-1571004-3
SE1DGSMTTR04					tape&reel		5-1571004-6
SE1EGPC04			triple throw	THT vertical	tray		1825032-2
SE1EGRA04				THT right angle			1825031-2
SE1EGSMT04				SMT			5-1571004-2
SE1EGSMTTR04					tape&reel		5-1571004-5
SE1GSMT04			single throw		tray		5-1571004-1
SE1GSMTTR04					tape&reel		5-1571004-4
SE2DGPC04		double pole	double throw	THT vertical	tray		1825032-3
SE2DGRA04				THT right angle			1825031-3
SE2EGPC04				THT vertical			1825032-4
SE2EGRA04				THT right angle			1825031-4

Preferred parts in bold print

SSA Series, Micro Size, Instrumentation Grade, THT

Features

- Break-Before-Make timing



Typical performance characteristics

Contact rating gold-0.4 VA @ 20 VDC
 silver-100 milliamps @ 30 VDC
 Electrical life 10.000 cycles
 Mechanical life 10.000 cycles
 Contact resistance, initial max 30 mOhm, 100 mOhm (after test)
 Insulation resistance min 100 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 2.5 N (250 gf) average
 Actuator travel 2.50 mm (.098) average

Environmental specification

Operating temperature -20 to +85°C
 Storage temperature -40 to +100°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy silver or gold finish
 Actuator nylon
 Terminals copper alloy silver or gold finish
 Base pps
 Cover nylon
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

SSA

1

2

04

Type

SSA Slide switch, micro size, instrumentation grade

No of poles

1 single pole

2 double pole

No of throws

2 2 throws

Plating

blank silver

G gold

Material

04 RoHS compliant

SSA Series, Micro Size, Instrumentation Grade, THT (Continued)

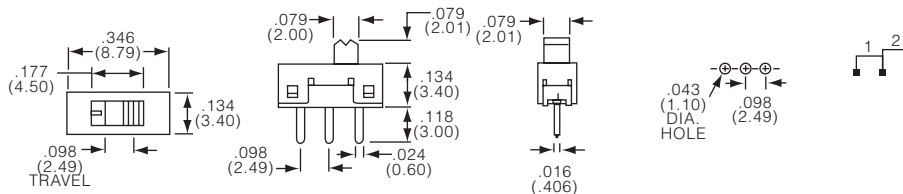
Number of poles



single pole



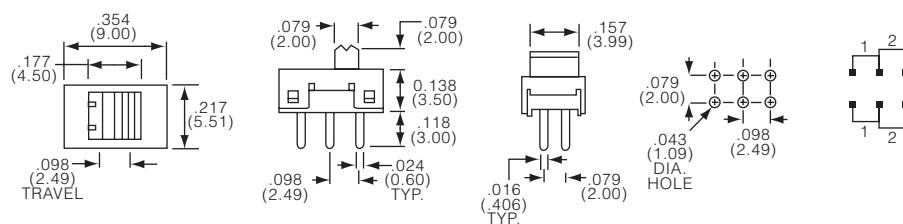
SSA12



double pole



SSA22



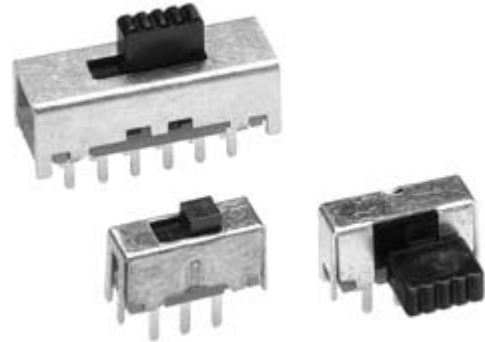
Product key	No of poles	No of throws	Plating	Material	Part Number
SSA1204	single	2 throws	silver	RoHS	1571981-1
SSA12G04	pole		gold	compliant	1571981-2
SSA2204	double		silver		1571981-3
SSA22G04	pole		gold		1571981-4

Preferred parts in bold print

SSB Series, Micro Size, Instrumentation Grade, THT

Features

- Upright or right angle
- Make-before-Break timing



Typical performance characteristics

Contact rating gold-0.4 VA @ 20 VDC
 silver-100 milliamps @ 30 VDC
 Electrical life 10,000 cycles
 Mechanical life 10,000 cycles
 Contact resistance, initial max 30 mOhm, 100 mOhm (after test)
 Insulation resistance min 100 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 2.5 N (250 gf) average
 Actuator travel 2.00 mm (.079) average

Environmental specification

Operating temperature -10 to +85°C
 Storage temperature -40 to +100°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy silver or gold finish
 Actuator pom
 Terminals copper alloy silver or gold finish
 Base phenolic
 Cover nylon
 Frame steel tin finish
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

SSB 1 2 R G

Type
SSB Slide switch, micro size, instrumentation grade

No of poles
1 single pole
2 double pole

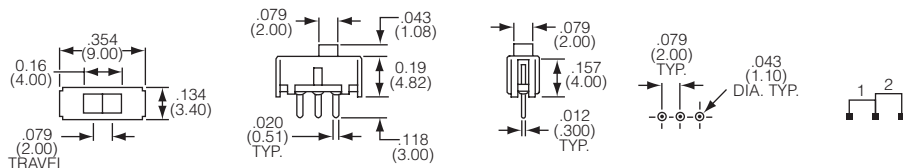
No of throws
2 2 throws

Actuation
blank vertical
R right angle

Plating
blank silver
G gold

Single pole

double throw, vertical

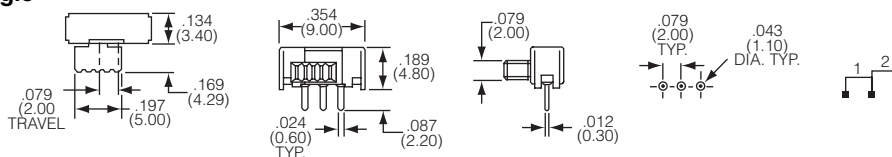


SSB Series, Micro Size, Instrumentation Grade, THT (Continued)

double throw, right angle



SSB12R



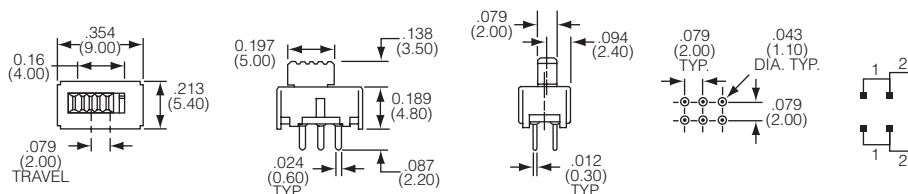
Double pole



double throw, vertical



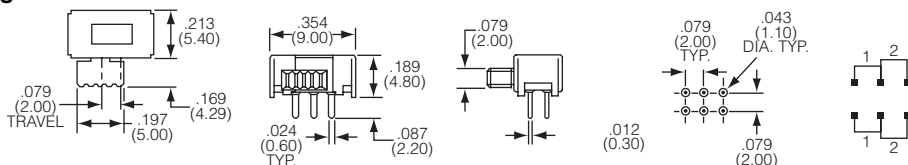
SSB22



double throw, right angle



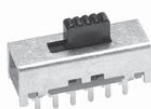
SSB22R



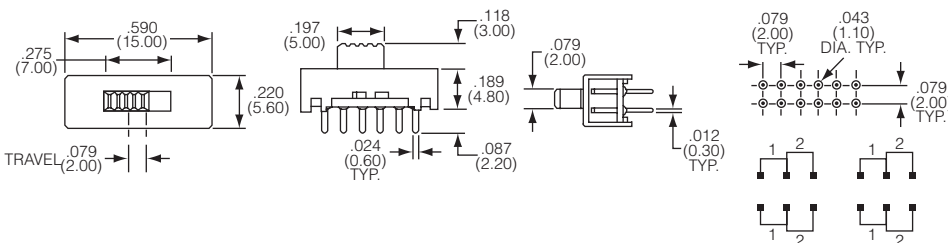
4 pole



double throw, vertical



SSB42



Product key	No of poles	No of throws	Actuation	Plating	Part Number
SSB12	single pole	2 throws	vertical	silver	1-1437575-8
SSB12G				gold	1-1437575-9
SSB12R			right angle	silver	2-1437575-0
SSB12RG				gold	2-1437575-1
SSB22	double pole		vertical	silver	2-1437575-2
SSB22G				gold	2-1437575-3
SSB22R			right angle	silver	2-1437575-4
SSB22RG				gold	2-1437575-5
SSB42	4 pole		vertical	silver	2-1437575-8
SSB42G				gold	2-1437575-9

SSJ Series, Micro Size, Instrumentation Grade, THT

Features

- Upright or right angle
- Make-before-Break timing



Typical performance characteristics

Contact rating 100 milliamps @ 12 VDC
Electrical life 10.000 cycles
Mechanical life 10.000 cycles
Contact resistance, initial max 30 mOhm, 100 mOhm (after test)
Insulation resistance min 100 MOhm
Dielectric strength 500 VAC for 1 min
Actuation force 2.5 N (250 gf) average
Actuator travel 2.0 mm (.079) average

Environmental specification

Operating temperature -20 to +70°C
Storage temperature -30 to +70°C
Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
Actuator nylon 66
Terminals copper alloy silver finish
Base nylon 66
Cover nylon 66
RoHS Directive 2002/95/EC compliant

Product key

Typical product key

SSJ

1

2

04

Type

SSJ Slide switch, micro size, instrumentation grade

No of poles

1 single pole

No of throws

2 2 throws **3** 3 throws

Actuation

blank vertical **R** right angle

Material

04 RoHS compliant

SSJ Series, Micro Size, Instrumentation Grade, THT (Continued)

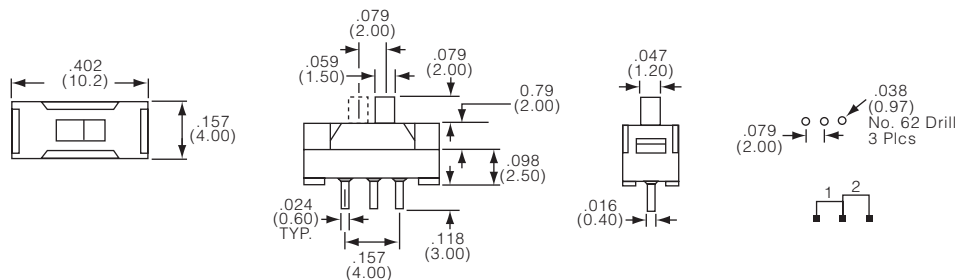
Single pole



double throw, vertical



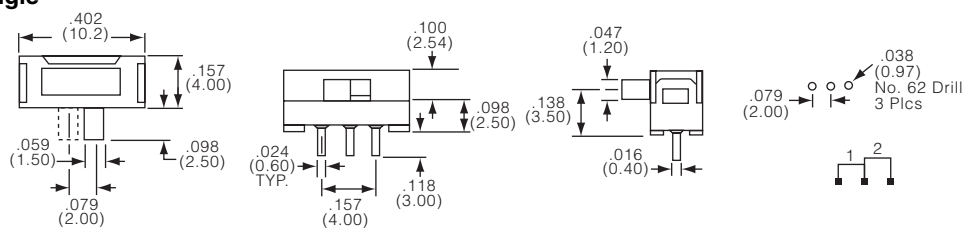
SSJ12



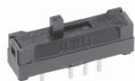
double throw, right angle



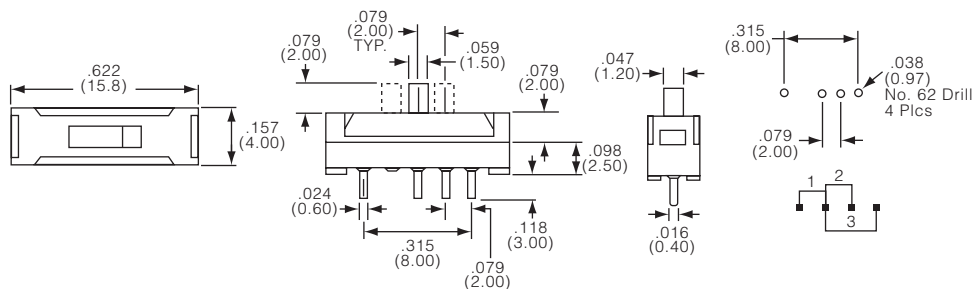
SSJ12R



triple throw, vertical



SSJ13



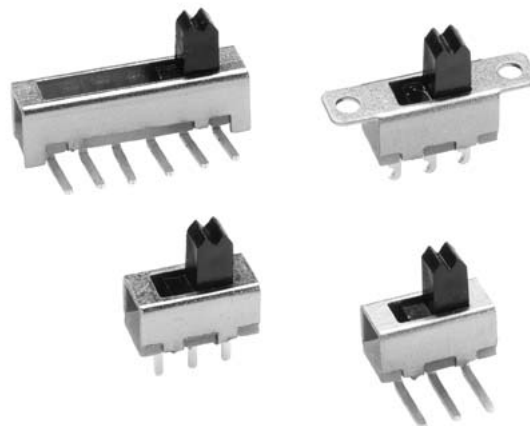
Product key	No of poles	No of throws	Actuation	Material	Part Number
SSJ1204	single pole	2 throws	vertical	RoHS compliant	1825280-1
SSJ12R04			right-angle		1825282-1
SSJ1304		3 throws	vertical		1825283-1

Preferred parts in bold print

SLS Series, Miniature, Rolling Contact, Economy Grade, THT

Features

- High reliability contact system
- Robust actuator for easy actuation
- Break-before-Make timing



Typical performance characteristics

Contact rating 250 milliamps @ 125 VAC, 150 milliamps @ 12 VDC
 Electrical life no load 10,000 cycles
 no load, at rated current, 8,000 cycles
 Mechanical life 10,000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 2.5 +1.5/-1.0 N (250 +150/-100 gf)
 Actuator travel 3.20 mm (.126)

Environmental specification

Operating temperature -10 to +85°C
 Storage temperature -10 to +100°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy gold or silver finish
 Actuator pbt
 Terminals copper alloy gold or silver finish
 Frame steel zinc finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

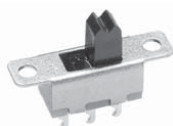
Product key		Typical product key		SLS	1	2	1		PC		04
Type	Slide switch, PC tails, wiping contact, consumer grade										
No of poles	single pole										
No of throws											
2	2 throws			4	4 throws						
3	3 throws			5	5 throws						
Version	standard										
Actuator color											
blank	black			N	natural						
Mounting											
blank	panel			RA	right angle						
PC	printed circuit			1	printed circuit with lug						
Contacts											
blank	silver			G	gold						
Material											
04	RoHS compliant										

SLS Series, Miniature, Rolling Contact, Economy Grade, THT (Continued)

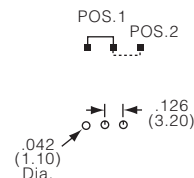
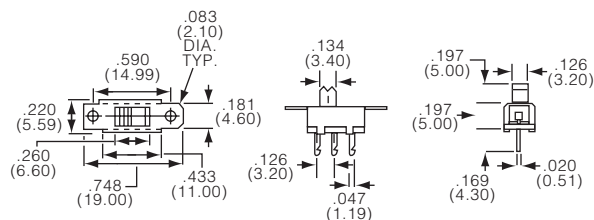
Double throw



panel mounting



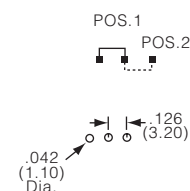
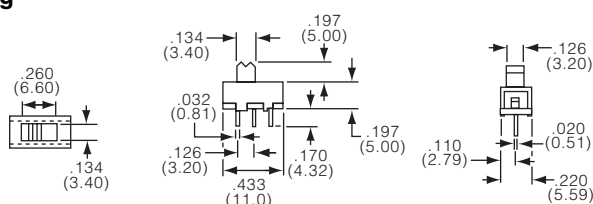
SLS121



printed circuit mounting



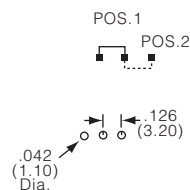
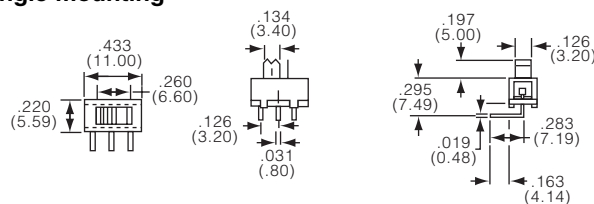
SLS121PC



printed circuit, right angle mounting



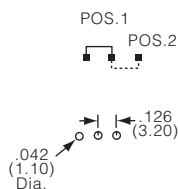
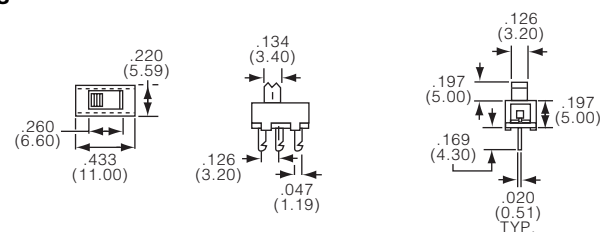
SLS121RA



printed circuit with lug



SLS1211



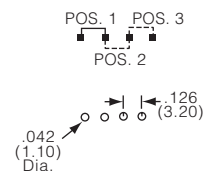
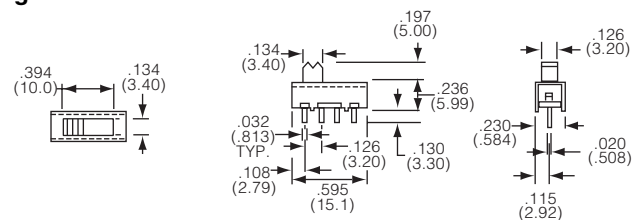
Triple throw



printed circuit mounting



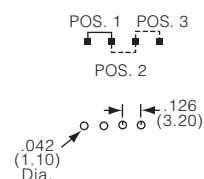
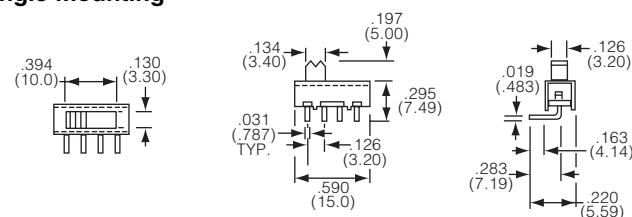
SLS1311PC



printed circuit, right angle mounting



SLS1311RA



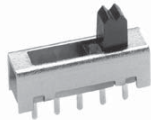
SLS Series, Miniature, Rolling Contact, Economy Grade, THT (Continued)

Slide Switches

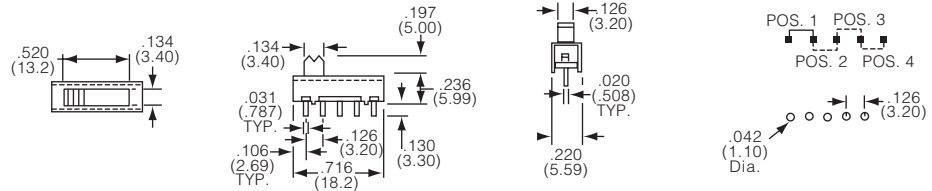
4 throws



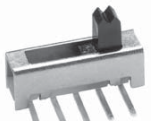
printed circuit mounting



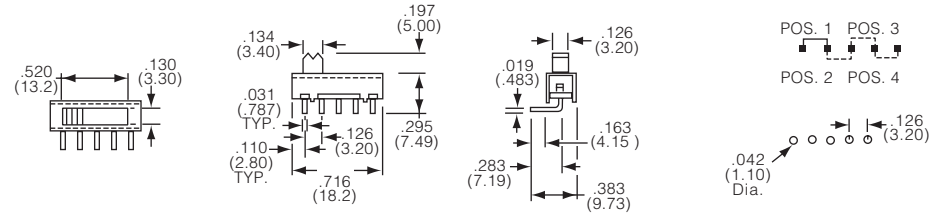
SLS141PC



printed circuit, right angle mounting



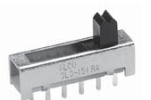
SLS141RA



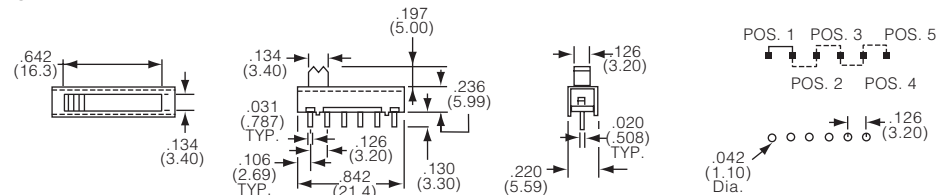
5 throws



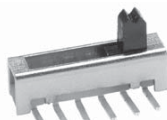
printed circuit mounting



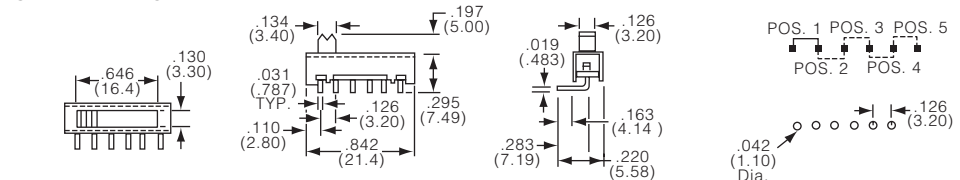
SLS151PC



printed circuit, right angle mounting



SLS151RA



Product key	No of poles	No of throws	Mounting	Material	Part Number
SLS12104	single pole	2 throws	panel	RoHS compliant	1825076-1
SLS121104			pc with lug		1825077-1
SLS121NPC04			printed circuit		1825115-3
SLS121NRA04			right angle		1825116-2
SLS121PC04			printed circuit		1825115-1
SLS121PCG04	single pole	3 throws	printed circuit	RoHS compliant	1825115-2
SLS121RA04			right angle		1825116-1
SLS131PC04			printed circuit		1825117-1
SLS131RA04			right angle		1825118-1
SLS141PC04			printed circuit		1825119-1
SLS141RA04	single pole	4 throws	right angle	RoHS compliant	1825120-1
SLS151PC04			printed circuit		1825121-1
SLS151RA04			right angle		1825122-1

Preferred parts in bold print

SL Series, PC Tails, Consumer Grade, THT

Features

- High reliability contact system
- Robust actuator for easy actuation
- Lever or knob actuator
- Break-before-Make timing
- Wiping contact



Slide Switches

Typical performance characteristics

Contact rating 250 milliamps @ 125 VAC, 150 milliamps @ 12 VDC
 Electrical life. 10.000 cycles
 Mechanical life. 10.000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force. 1.0 to 3.0 N (100 to 300gf)
 Actuator travel 4.0 mm (.157) average

Environmental specification

Operating temperature -10 to +60°C
 Storage temperature -10 to +60°C
 Solder heat resistance. 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
 Slider polycarbonate
 Actuator steel zinc finish
 Terminals copper alloy silver finish
 Frame steel tin finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

SL

3

30

04

Type

SL

Slide switch, PC tails, wiping contact, consumer grade

No of poles

2 2 poles
3 3 poles
5 5 poles
6 6 poles

7 7 poles
8 8 poles
10 10 poles

No of positions

20 2 positions
30 3 positions
50 5 positions
60 6 positions

70 7 positions
80 8 positions
00 10 positions

Material

04

RoHS compliant

SL Series, PC Tails, Consumer Grade, THT (Continued)

Number of poles

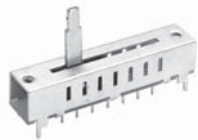


Codes 2, 3, 5, 6, 7, 8, 10 2 to 10 poles

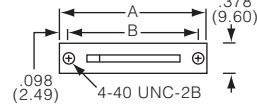
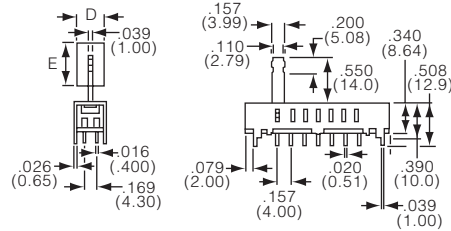


SL550

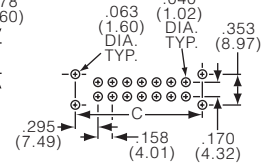
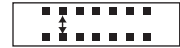
SL660
with
KSS
knob



SL770



CONTACT ARRANGEMENT



Pos.	Dim A	Dim B	Dim C
2	24.13 (.950)	19.05 (.750)	19.05 (.750)
3	28.19 (1.11)	23.1 (.910)	23.1 (.910)
5	36.07 (1.42)	30.99 (1.22)	31.1 (1.22)
6	40.13 (1.58)	35.05 (1.38)	35.1 (1.38)
7	44.20 (1.74)	39.12 (1.54)	39.1 (1.54)
8	48.01 (1.89)	43.18 (1.70)	43.1 (1.70)
10	56.13 (2.21)	51.05 (2.01)	51.1 (2.01)

Knob	Dim D	Dim E
KSS10A	6.86 (.270)	12.7 (.500)
KSS10B	6.86 (.270)	12.7 (.500)
KSS20A	7.75 (.305)	13.0 (.512)
KSS20B	7.75 (.305)	13.0 (.512)

Product key	No of poles	No of positions	Material	Part Number
SL22004	2 pole	2 positions	RoHS	1825073-1
SL33004	3 pole	3 positions	compliant	1825073-2
SL55004	5 pole	5 positions		1825073-3
SL66004	6 pole	6 positions		1825073-4
SL77004	7 pole	7 positions		1825073-5
SL88004	8 pole	8 positions		1825073-6
SL100004	10 pole	10 positions		1825073-7

SLS & SLSA Series, Panel Mount, Consumer Grade, THT

Features

- High reliability contact system
- Robust actuator for easy actuation
- Break-before-Make timing
- Wiping contact



Slide Switches

Typical performance characteristics

Contact rating 500 milliamps @ 125 VAC, 200 milliamps @ 12 VDC
 Electrical life. 10.000 cycles
 Mechanical life. 10.000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 3.5 +/-2.0 N (350 +/-200 gf)
 Actuator travel 2.69 mm (.106)

Environmental specification

Operating temperature -20 to +85°C
 Storage temperature -40 to +100°C
 Solder heat resistance. 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
 Actuator pbt
 Terminals copper alloy silver finish
 Frame steel zinc finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key			
			SLS	2	20
Type	SLS Slide switch, panel mount, wiping contact, consumer grade				
Terminal	blank lug	A	turret		
No of poles	1 single pole	2	double pole		
No of throws	20 2 throws				
Frame style	blank panel mounting	1	no panel hole		
Material	04 RoHS compliant				

SLS & SLSA Series, Panel Mount, Consumer Grade, THT (Continued)

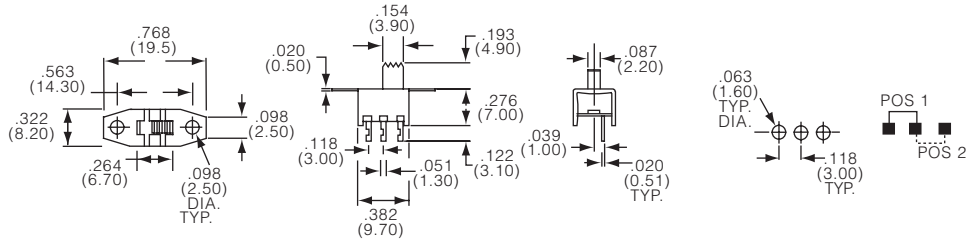
Single Pole



lug terminal, panel mounting



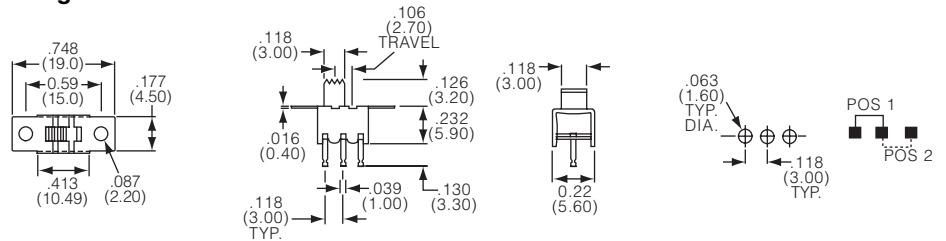
SLS120



turret terminal, panel mounting



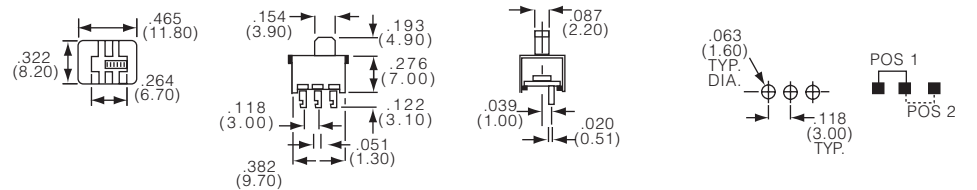
SLSA120



lug terminal, no panel hole



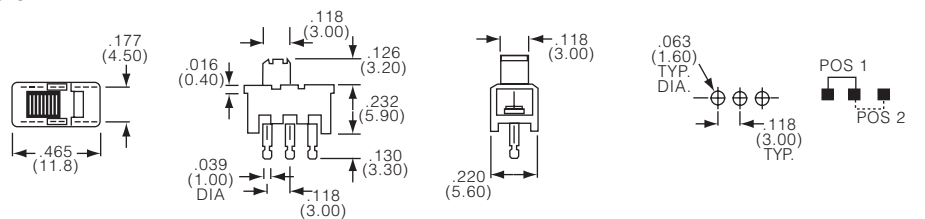
SLS1201



turret terminal, no panel hole



SLS2201



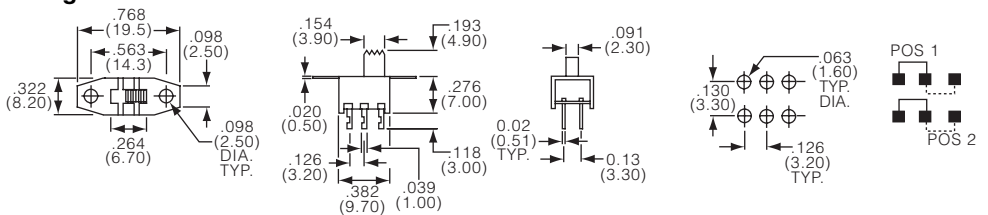
Double Pole



lug terminal, panel mounting



SLS220

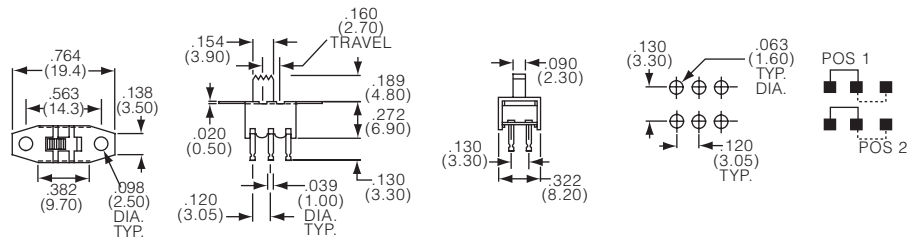


turret terminal, panel mounting

SLS & SLSA Series, Panel Mount, Consumer Grade, THT (Continued)



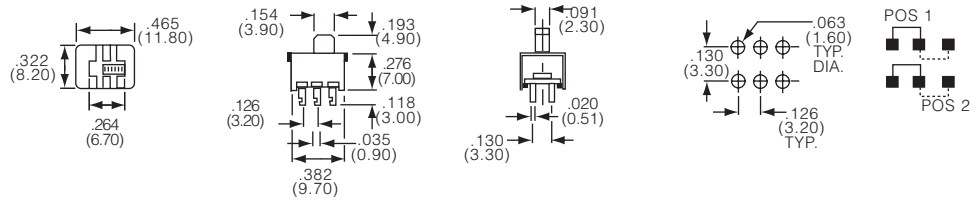
SLSA220



lug terminal, no panel hole



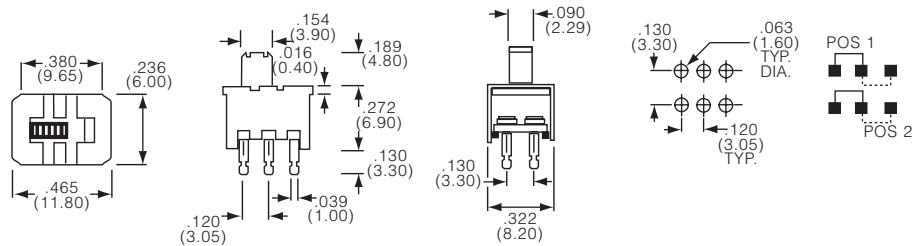
SLSA1201



turret terminal, no panel hole



SLSA2201



Product key	Terminal	No of poles	No of throws	Frame style	Material	Part Number
SLS12004	lug	single	2 throws	panel mount	RoHS compliant	1825074-1
SLS120104		pole		no panel hole		1825075-1
SLS22004		double		panel mount		1825078-1
SLS220104	turret	pole		no panel hole		1825079-1
SLSA12004		single		panel mount		1825081-1
SLSA120104		pole		no panel hole		1825082-1
SLSA22004		double		panel mount		1825083-1
SLSA220104		pole		no panel hole		1825087-1

SLS Series, PC Tails, Consumer Grade, THT

Features

- High reliability contact system
- Robust actuator for easy actuation
- Break-before-Make timing
- Wiping contact



Typical performance characteristics

Contact rating 250 milliamps @ 125 VAC, 150 milliamps @ 12 VDC
 Electrical life 10.000 cycles
 Mechanical life 10.000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 2.50 N (250 gf) average
 Actuator travel 3.20 mm (.126) average

Environmental specification

Operating temperature -10 to +60°C
 Storage temperature -10 to +60°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
 Actuator pbt
 Terminals copper alloy silver finish
 Case steel zinc finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

SLS 2 40 PC 04

Type

SLS Slide switch, PC tails, wiping contact, consumer grade

No of poles

2 2 poles

No of positions

20 2 positions
30 3 positions
40 4 positions
50 5 positions
60 6 positions

Mounting

PC printed circuit

Material

04 RoHS compliant

SLS Series, PC Tails, Consumer Grade, THT (Continued)

Number of positions



codes 20, 30, 40, 50, 60 2 to 6 positions



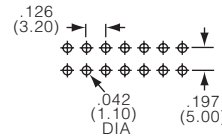
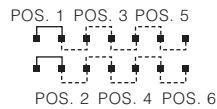
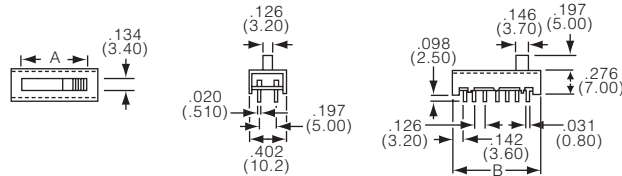
SLS220PC

SLS250PC



SLS240PC

SLS230PC



Pos.	Dim A	Dim B
2	6.91 (.272)	13.59 (.535)
3	10.11 (.398)	16.79 (.661)
4	13.31 (.524)	19.99 (.787)
5	16.51 (.650)	23.19 (.913)
6	19.71 (.776)	26.39 (1.04)

Product key	No of poles	No of positions	Mounting	Material	Part Number
SLS220PC04	double	2 positions	printed circuit	RoHS	1825080-1
SLS230PC04	pole	3 positions		compliant	1825080-2
SLS240PC04		4 positions			1825080-3
SLS250PC04		5 positions			1825080-4
SLS260PC04		6 positions			1825080-5

Preferred parts in bold print

STS Series, Miniature, Low Profile, THT

Features

- Upright or right angle
- High reliability contact system
- Robust actuator for easy actuation
- Make-before-Break timing



Typical performance characteristics

Contact rating..... 250 milliamps @125 VAC
 Electrical life..... 10.000 cycles
 Mechanical life..... 10.000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength..... 500 VAC for 1 min
 Actuation force..... 2.50 N (250 gf) average
 Actuator travel 2.49 (.098) average

Environmental specification

Operating temperature -10 to +60°C
 Storage temperature -10 to +60°C
 Solder heat resistance..... 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
 Actuator..... pom
 Terminals..... copper alloy silver finish
 Case steel zinc finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

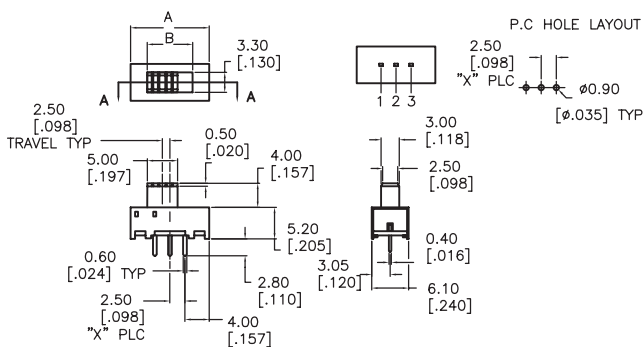
Product key		Typical product key		STS	1	2	1	RA	04
Type									
STS Miniature, low profile slide switch									
No of poles									
1	single pole	2	double pole						
No of throws									
2	two throws	5	five throws						
3	three throws	6	six throws						
4	four throws								
Pinning									
1	in-line spacing without break								
0	dual row in-line spacing without break								
00	in-line spacing with break								
Actuation									
PC	vertical	RA	right angle (single pole only)						
Material									
04	RoHS compliant								

STS Series, Miniature, Low Profile, THT (Continued)

Single Pole



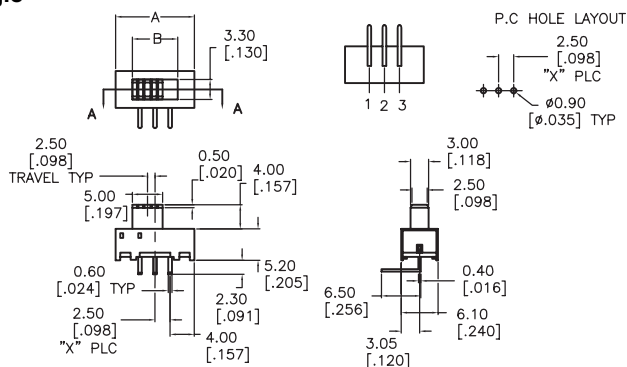
without break, vertical



Fct	Dim A	Dim B
SPDT	13.00 (.512)	7.49 (.295)
SP3T	15.50 (.610)	10.01 (.394)
SP4T	18.01 (.709)	12.50 (.492)
SP5T	20.50 (.807)	15.01 (.591)
SP6T	23.01 (.906)	17.50 (.689)

X number of throws

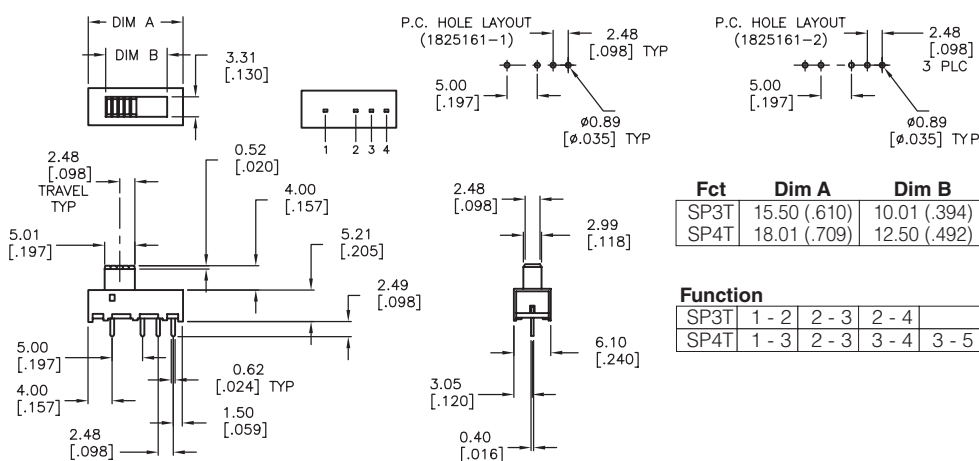
without break, right angle



Fct	Dim A	Dim B
SPDT	13.00 (.512)	7.49 (.295)
SP3T	15.50 (.610)	10.01 (.394)
SP4T	18.01 (.709)	12.50 (.492)
SP5T	20.50 (.807)	15.01 (.591)
SP6T	23.01 (.906)	17.50 (.689)

X number of throws

with break, vertical

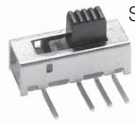


Fct	Dim A	Dim B
SP3T	15.50 (.610)	10.01 (.394)
SP4T	18.01 (.709)	12.50 (.492)

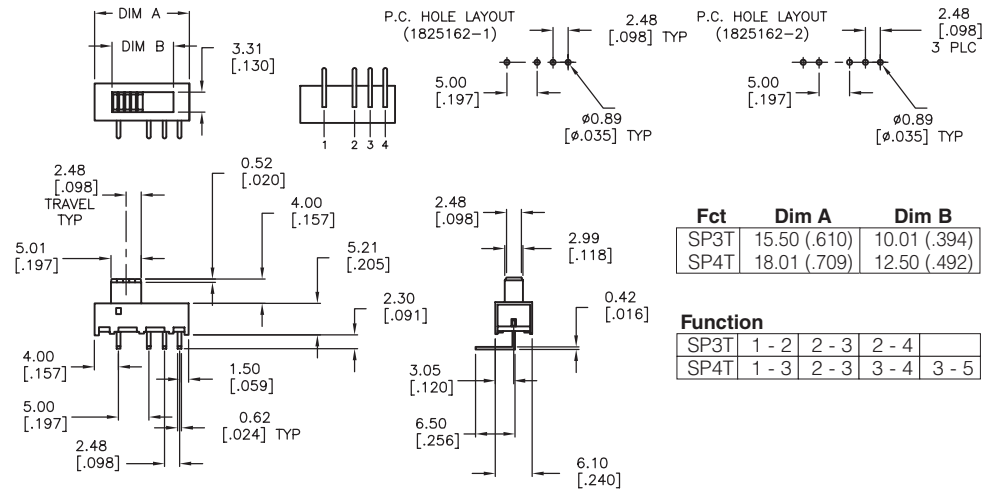
Function			
SP3T	1 - 2	2 - 3	2 - 4
SP4T	1 - 3	2 - 3	3 - 4

STS Series, Miniature, Low Profile, THT (Continued)

with break, right angle

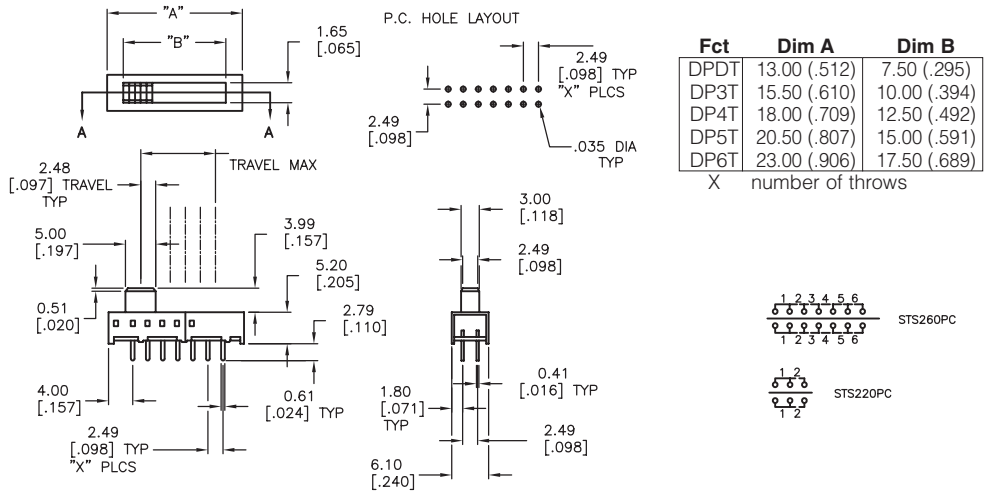


STS1300RA



Double Pole

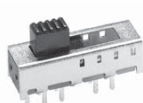
without break, vertical



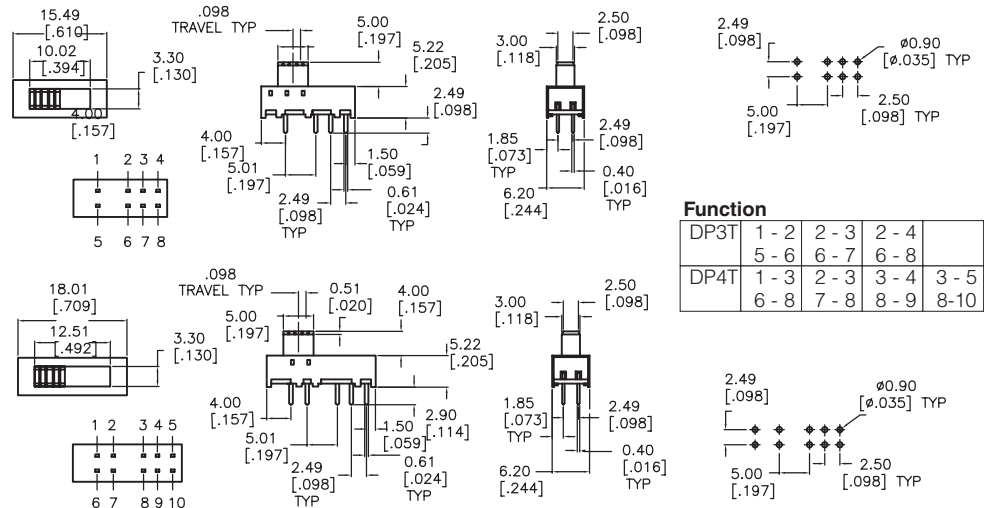
with break, vertical



STS2300PC



STS2400PC



STS Series, Miniature, Low Profile, THT (Continued)

Product key	No of poles	No of throws	Pinning	Terminal	Material	Part Number
STS121PC04	single pole	2 throws	in-line spacing without break	vertical	RoHS compliant	1825159-1
STS131PC04		3 throws				1825159-2
STS141PC04		4 throws				1825159-3
STS151PC04		5 throws				1825159-4
STS161PC04		6 throws				1825159-5
STS121RA04		2 throws		right angle		1825160-1
STS131RA04		3 throws				1825160-2
STS141RA04		4 throws				1825160-3
STS151RA04		5 throws				1825160-4
STS161RA04		6 throws				1825160-5
STS1300PC04	double pole	3 throws	in-line spacing with break	vertical	1825161-1	
STS1400PC04		4 throws				1825161-2
STS1300RA04		3 throws	right angle	1825162-1		
STS1400RA04		4 throws		1825162-2		
STS220PC04		2 throws	dual row in-line spacing without break	vertical	1825163-1	
STS230PC04		3 throws			1825163-2	
STS240PC04		4 throws			1825163-3	
STS250PC04		5 throws			1825163-4	
STS260PC04		6 throws			1825163-5	
STS2300PC04		3 throws	in-line spacing with break		1825164-1	
STS2400PC04	4 throws			1825165-1		

Preferred parts in bold print

STSA Series, Miniature, Low Profile, THT

Features

- Upright or right angle
- High reliability contact system
- Robust actuator for easy actuation
- Make-before-Break timing



Typical performance characteristics

Contact rating..... 250 milliamps @125 VAC
 Electrical life..... 10,000 cycles
 Mechanical life..... 10,000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength..... 500 VAC for 1 min
 Actuation force..... 2.50 N (250 gf) average
 Actuator travel 2.49 mm (.098) average

Environmental specification

Operating temperature -10 to +60°C
 Storage temperature -10 to +60°C
 Solder heat resistance..... 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
 Actuator..... pom
 Terminals..... copper alloy silver finish
 Case steel zinc finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

STSA 2 2 0 RA 04

Type

STSA Miniature, low profile slide switch

No of poles

2 double pole

No of throws

2 two throws **3** three throws

Version

0 standard version

Actuation

RA right angle

Frame

blank without posts **1** with posts

Material

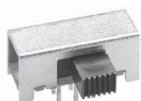
04 RoHS compliant

STSA Series, Miniature, Low Profile, THT (Continued)

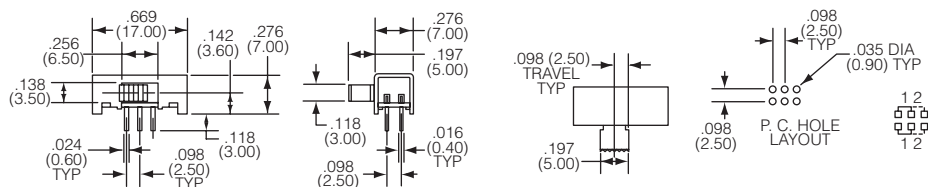
2 throws



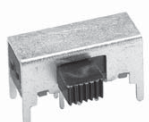
right angle, without posts



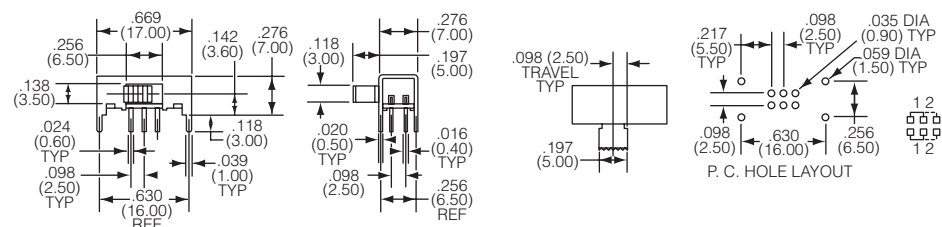
STSA220RA



right angle, with posts



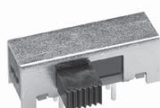
STSA220RA1



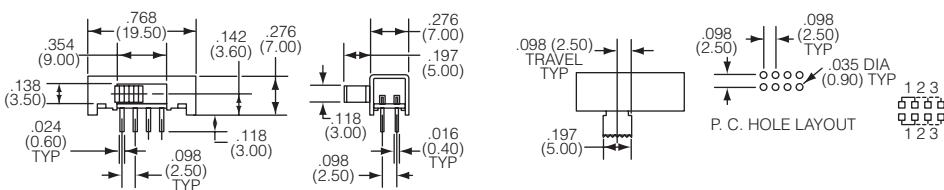
3 throws



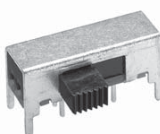
right angle, without posts



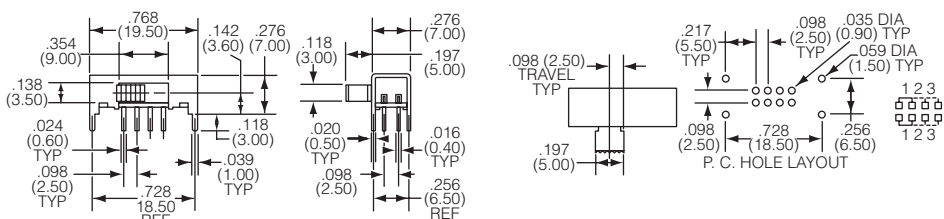
STSA230RA



right angle, with posts



STSA230RA1



Product key	No of poles	No of throws	Terminal	Frame	Material	Part Number
STSA220RA04	double	2 throws	right angle	without	RoHS	1825166-1
STSA230RA04	pole	3 throws		posts	compliant	1825166-2
STSA220RA104		2 throws		with posts		1825167-1
STSA230RA104		3 throws				1825167-2

MSSA . 01/04 Series, Instrumentation Grade, THT

Features

- 2.54 mm (.100) and 5.08 mm (.200) terminal spacing
- Upright or right angle
- Gold or silver contact finish
- Break-before-Make timing



Typical performance characteristics

Contact rating, gold: 0.4 VA @ 20 VDC or Peak AC
 silver: 3 A @ 115 VAC, 1.5 A @ 230 VAC
 Electrical life, 30,000 cycles
 Mechanical life, 30,000 cycles
 Contact resistance, initial, max 20 mOhm
 Insulation resistance, min 1,000 MOhm
 Dielectric strength, 500 V for 1 min
 Actuation force, 6.0 N (600 gf) average
 Actuator travel, 3.05 mm (.120) average

Environmental specification

Operating temperature, -20 to +65°C
 Storage temperature, -40 to +100°C
 Solder heat resistance, 265°C/10s wave

Material specifications

Contacts, copper alloy silver or gold finish
 Actuator, pps
 Terminals, copper alloy silver or tin finish
 Base, pbt
 Cover, pbt
 RoHS Directive 2002/95/EC, compliant

Product key		Typical product key							
		MSSA	2	0	1	D	1		04
Type									
MSSA		Slide switch, instrumentation grade							
No of poles									
1	single pole	2	double pole						
Terminal C/L									
0	2.54 mm (.100)	1	5.08 mm (.200)						
Contact finish									
1	gold	4	silver						
Actuation code									
D	On-None-On	N	On-None-On						
E	On-Off-On	P	On-Off-On						
Plating									
blank	silver	G	gold						
Actuator									
blank	extended actuator	1	flush actuator						
Actuation									
blank	vertical	RA	right angle						
Material									
04	RoHS compliant								

MSSA . 01/04 Series, Instrumentation Grade, THT (Continued)

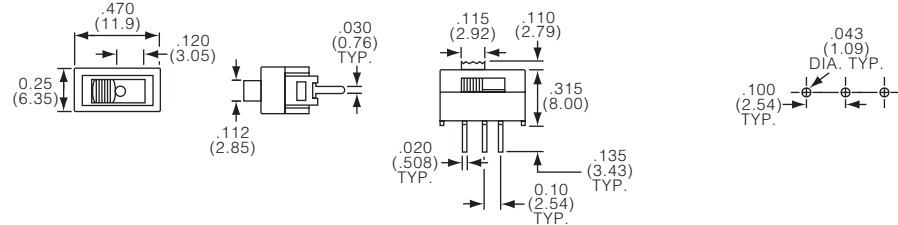
Single pole



terminals 2.54 mm (.100), extended actuator, vertical



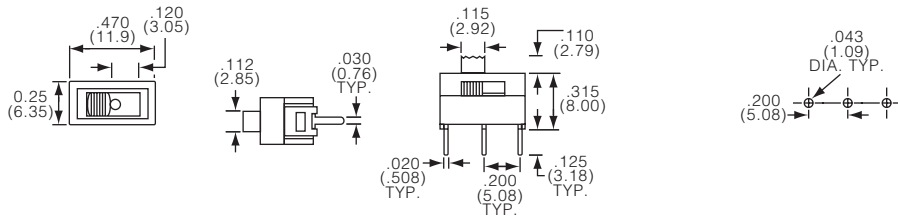
MSSA104D



terminals 5.08 mm (.200), extended actuator, vertical



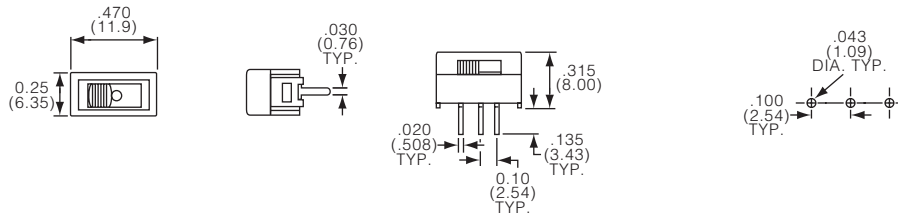
MSSA114D



terminals 2.54 mm (.100), flush actuator



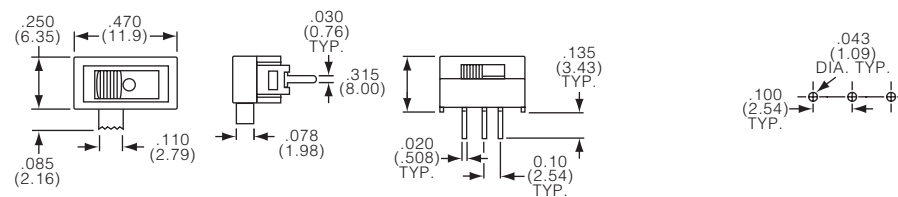
MSSA104D1



terminals 2.54 mm (.100), extended actuator, right angle



MSSA104DGRA



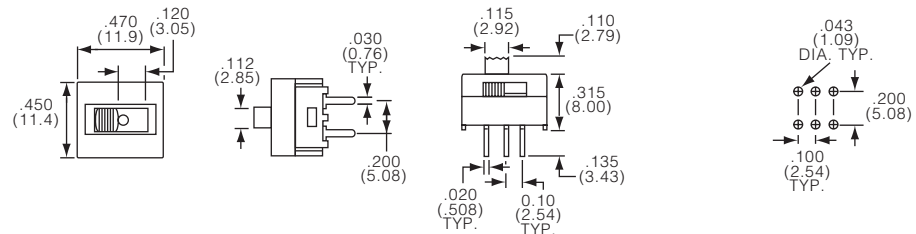
Double pole



terminals 2.54 mm (.100), extended actuator, vertical

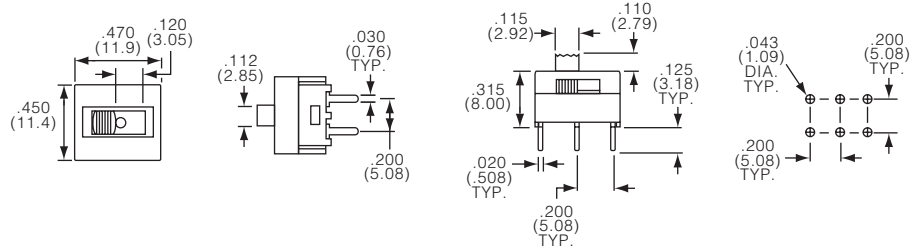


MSSA204N

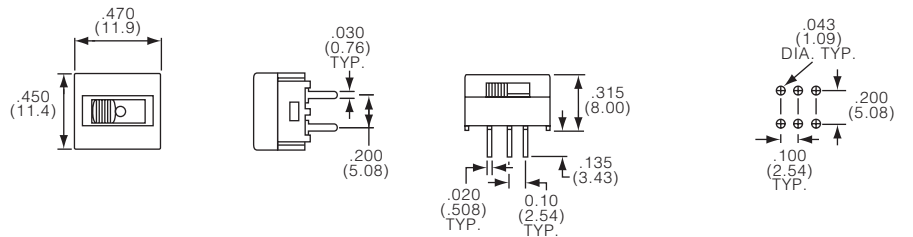


MSSA . 01/04 Series, Instrumentation Grade, THT (Continued)

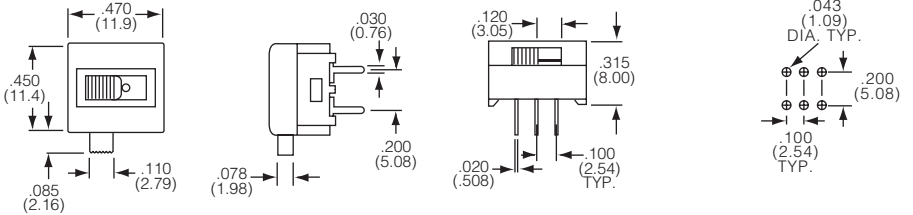
terminals 5.08 mm (.200), extended actuator, vertical



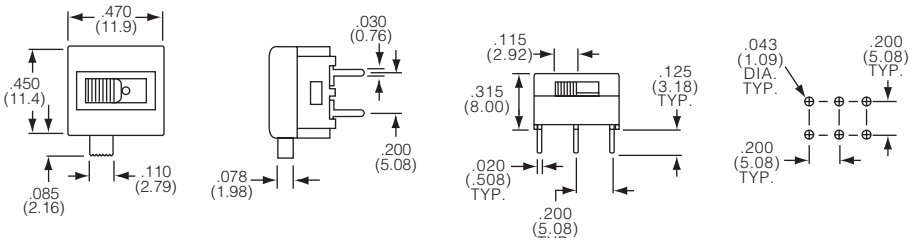
terminals 2.54 mm (.100), flush actuator



terminals 2.54 mm (.100), extended actuator, right angle



terminals 5.08 mm (.200), extended actuator, right angle



Actuation code



Codes D, E, N, P

D On-None-On



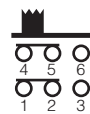
NONE



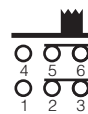
E On-Off-On



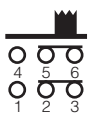
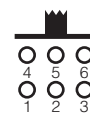
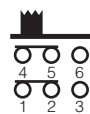
N On-None-On



NONE



P On-Off-On



MSSA . 01/04 Series, Instrumentation Grade, THT (Continued)

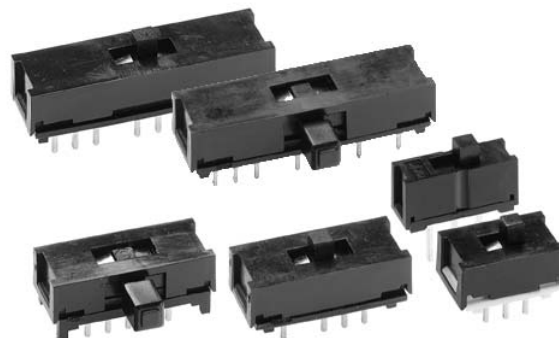
Product key	Poles	Terminal	Contacts	Actuation	Plating	Actuator	Actuation	Material	Part Number
MSSA101DG04	single pole	2.54 mm (.100)	gold	On-None-On	gold	extended	vertical	RoHS compliant	1-1437580-7
MSSA101DG104						flush			1-1437580-8
MSSA101DGRA04			silver	On-Off-On		extended	right angle		1-1437580-9
MSSA101EGRA04									2-1437580-1
MSSA104D04				On-None-On	silver		vertical		2-1437580-3
MSSA104D104						flush			2-1437580-4
MSSA104DRA04						extended	right angle		2-1437580-5
MSSA104E04				On-Off-On			vertical		2-1437580-6
MSSA111DG04		5.08 mm (.200)	gold	On-None-On	gold				2-1437580-9
MSSA111EG04				On-Off-On					3-1437580-0
MSSA114D04			silver	On-None-On	silver				3-1437580-1
MSSA114E04				On-Off-On					3-1437580-2
MSSA201NG04	double pole	2.54 mm (.100)	gold	On-None-On	gold				4-1437580-1
MSSA201NGRA04							right angle		4-1437580-2
MSSA204N04			silver		silver		vertical		4-1437580-4
MSSA204N104									4-1437580-5
MSSA204NRA04							right angle		4-1437580-6
MSSA204P04				On-Off-On			vertical		4-1437580-7
MSSA204P104						flush			4-1437580-8
MSSA211NG04		5.08 mm (.200)	gold	On-None-On	gold	extended			4-1437580-9
MSSA211NGRA04							right angle		5-1437580-0
MSSA211PG04			silver	On-Off-On			vertical		5-1437580-1
MSSA214N04				On-None-On	silver				5-1437580-2

Preferred parts in bold print

MMS Series, Micro Size, Instrumentation Grade, THT

Features

- Upright or right angle
- Make-before-Break timing



Typical performance characteristics

Contact rating 100 milliamps @ 30 VDC
 Electrical life 10.000 cycles
 Mechanical life 10.000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 100 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 2.0 N (200 gf) average
 Actuator travel 2.00 mm (.079) average
 MMS12: 2.50 mm (.098) average

Environmental specification

Operating temperature -10 to +60°C
 Storage temperature -10 to +60°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
 Actuator polyacetal
 Terminals copper alloy silver finish
 Base nylon
 Cover polyacetal
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

MMS	2	2
------------	----------	----------

Type

MMS Slide switch, micro size, instrumentation grade

No of poles

1 single pole
2 double pole

No of throws

2 2 throws
3 3 throws

Actuation

blank vertical
R right angle

MMS Series, Micro Size, Instrumentation Grade, THT (Continued)

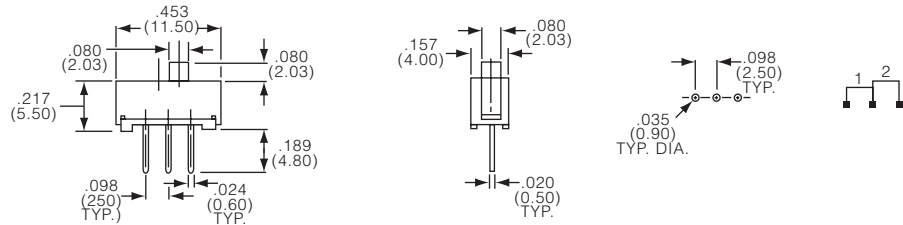
Single Pole



double throw, vertical



MMS12



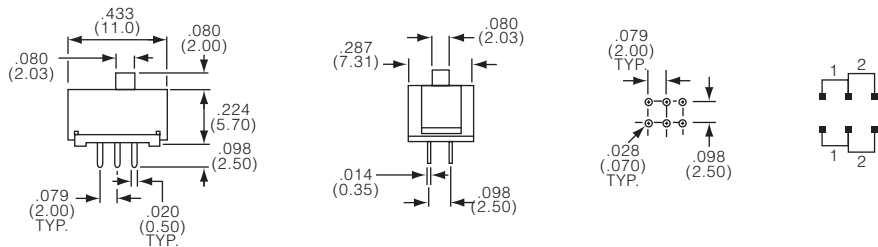
Double Pole



double throw, vertical



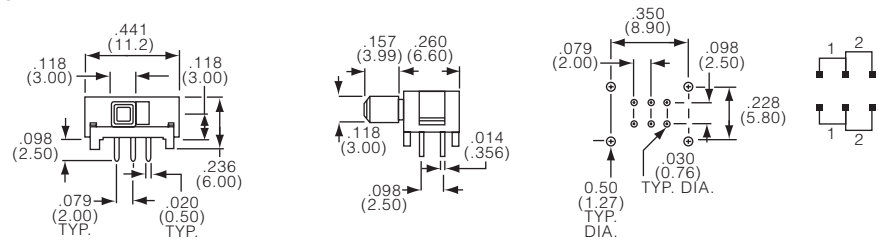
MMS22



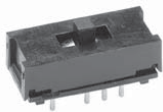
double throw, right angle



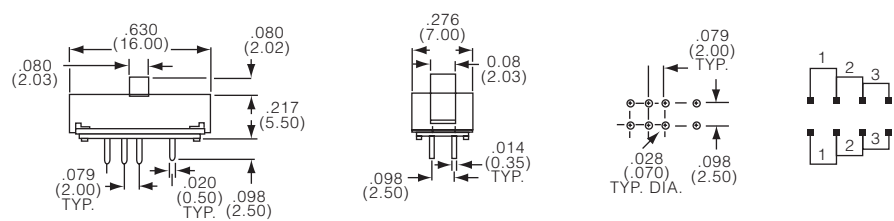
MMS22R



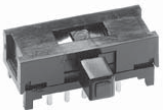
triple throw, vertical



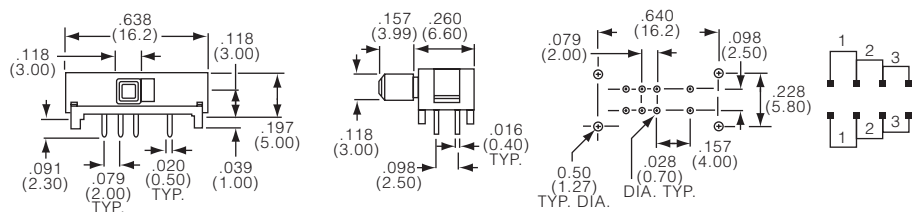
MMS23



triple throw, right angle



MMS23R

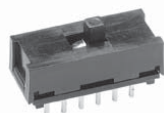


MMS Series, Micro Size, Instrumentation Grade, THT (Continued)

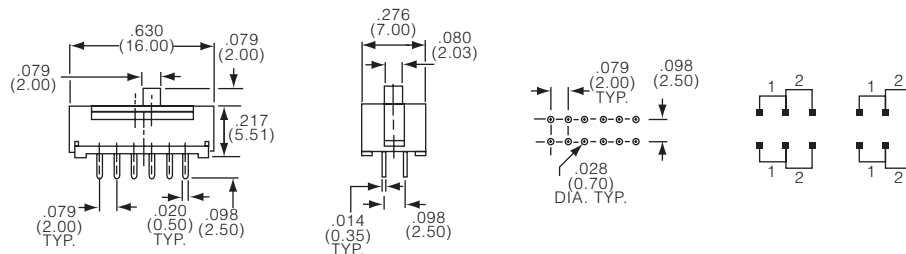
4 Pole



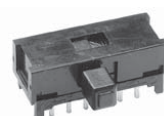
double throw, vertical



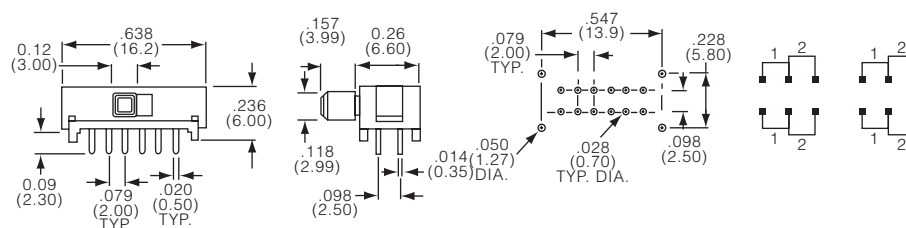
MMS42



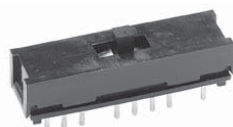
double throw, right angle



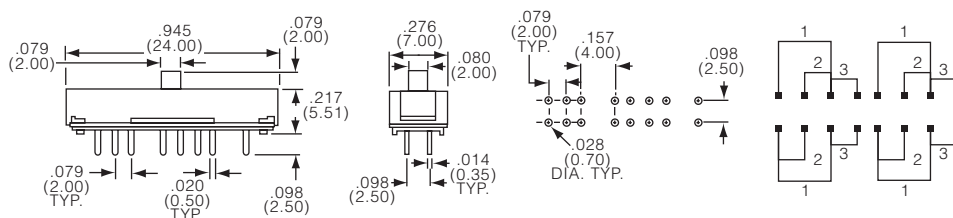
MMS42R



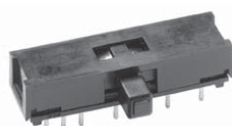
triple throw, vertical



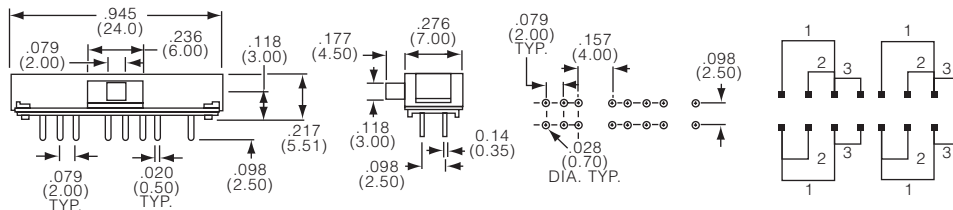
MMS43



triple throw, right angle



MMS43R

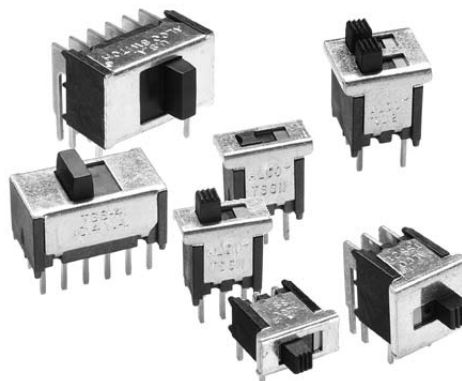


Product key	No of poles	No of throws	Actuation	Part Number
MMS12	single pole	2 throws	vertical	1437575-4
MMS22	double pole			1437575-5
MMS22R			right angle	1437575-6
MMS23		3 throws	vertical	1437575-8
MMS23R			right angle	1437575-9
MMS42	4 pole	2 throws	vertical	1-1437575-0
MMS42R			right angle	1-1437575-1
MMS43		3 throws	vertical	1-1437575-2

TSS Series, Single or Dual Actuator, THT

Features

- Break-before-Make timing
- Vertical or right angle versions



Typical performance characteristics

Contact rating, 0.4 VA @ 20 VDC or peak AC
Electrical life, 80,000 cycles
Mechanical life, 80,000 cycles
Contact resistance, initial max 20 mOhm, 60 mOhm (after test)
Insulation resistance, min 1,000 MOhm
Dielectric strength 1,000 VAC for 1 min
Actuation force 1.50 to 8.0 N (150 to 800 gf)
Actuator travel 3.05 mm (.120) average

Environmental specification

Operating temperature -20 to +80°C
Storage temperature -20 to +80°C
Solder heat resistance, 265°C/10s Wave

Material specifications

Contacts copper alloy gold finish
Actuator pbt
Terminals copper alloy tin finish
Case lcp
Frame steel tin finish
RoHS Directive 2002/95/EC compliant

Product key		Typical product key		TS	S	1	1	D	G		PC	04
Type												
TS	Slide switch											
No of actuators												
S	single actuator		D	dual actuator								
No of poles												
1	single pole		2	double pole								
			4	4 pole								
Version												
1	standard version											
Actuation code												
D	On-None-On		P	On-Off-On								
E	On-Off-On		DD	(dual) On-None-On								
K	On-None-Off		EE	(dual) On-Off-On								
N	On-None-On											
Actuator version												
G	standard version											
Actuator												
blank	extended actuator		1	flush actuator								
Terminal												
PC	vertical		RA	right angle								
Material												
04	RoHS compliant											

TSS Series, Single or Dual Actuator, THT (Continued)

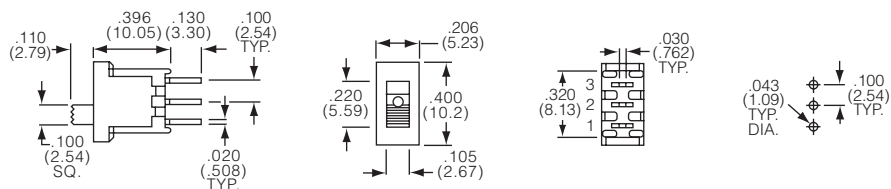
Single actuator, single pole



extended actuator, vertical



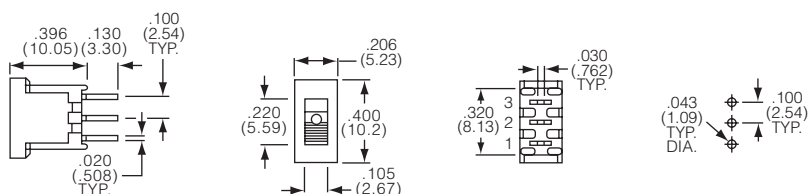
TSS11DGPC



flush actuator, vertical



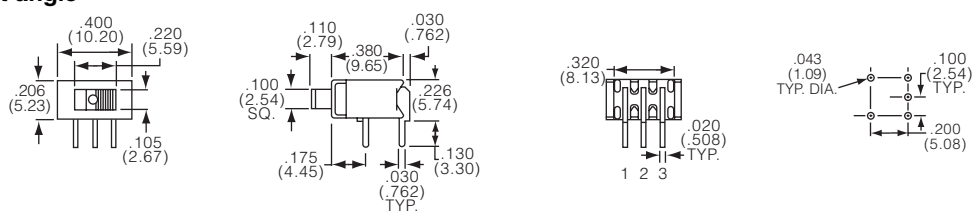
TSS11DG1PC



extended actuator, right angle



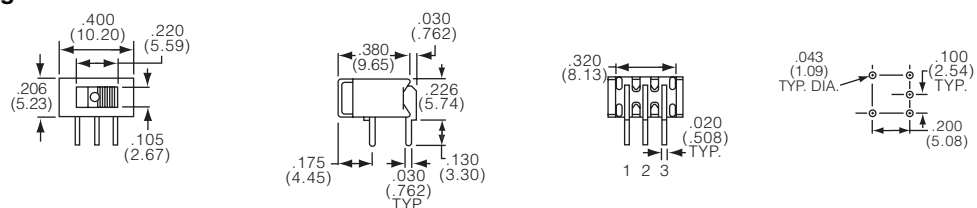
TSS11DGRA



flush actuator, right angle



TSS11DG1RA



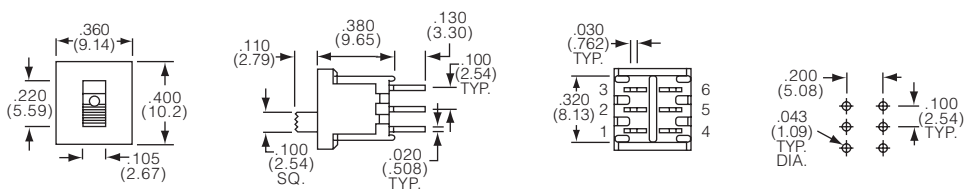
Single actuator, double pole



extended actuator, vertical



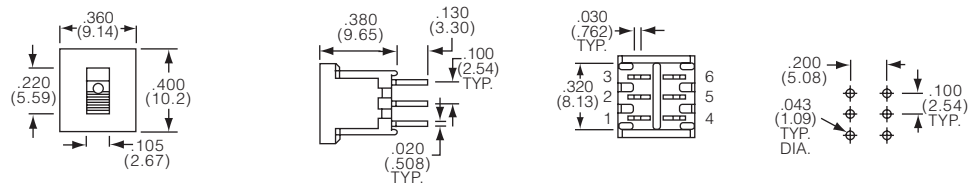
TSS21NGPC



TSS Series, Single or Dual Actuator, THT (Continued)

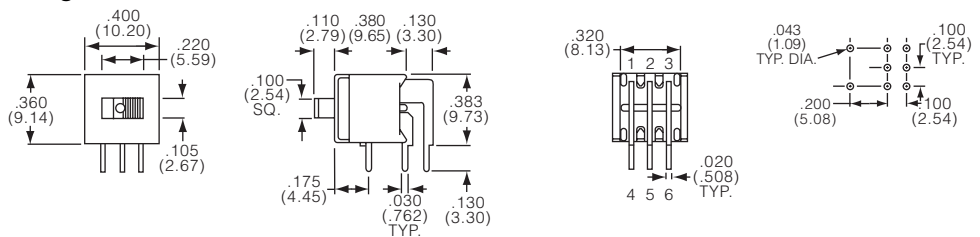
flush actuator, vertical

TSS21NG1PC



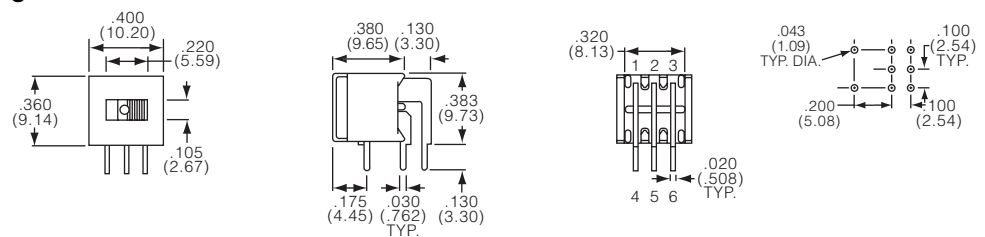
extended actuator, right angle

TSS21NGRA



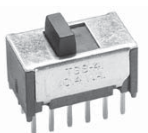
flush actuator, right angle

TSS21NG1RA

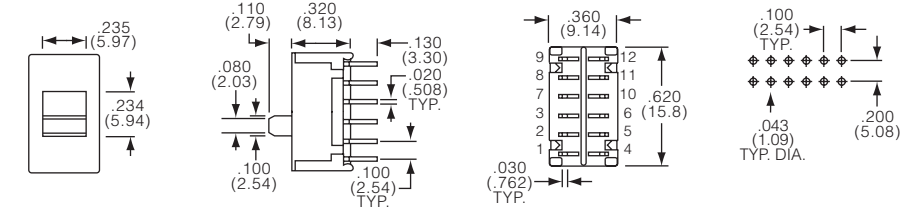


Single actuator, 4 pole

extended actuator, vertical



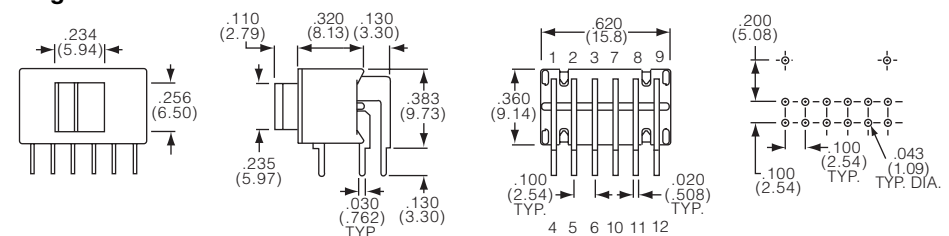
TSS41NGPC



extended actuator, right angle



TSS41NGRA



TSS Series, Single or Dual Actuator, THT (Continued)

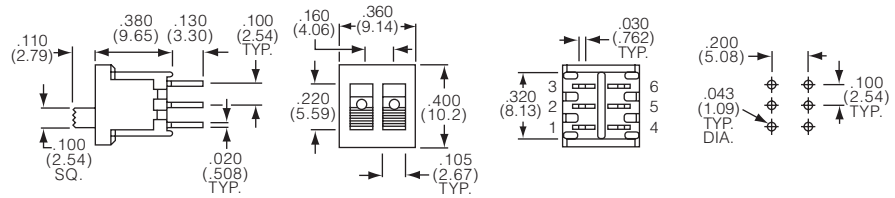
Dual actuator, single pole



extended actuator, vertical



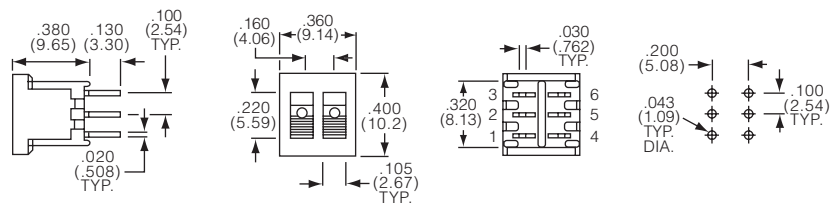
TSD21DDGPC



flush actuator, vertical



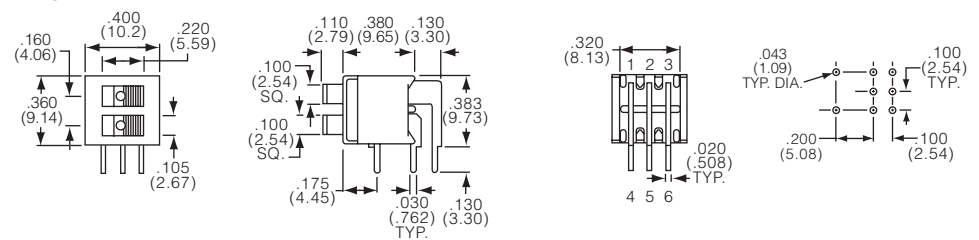
TSD21DDG1PC



extended actuator, right angle



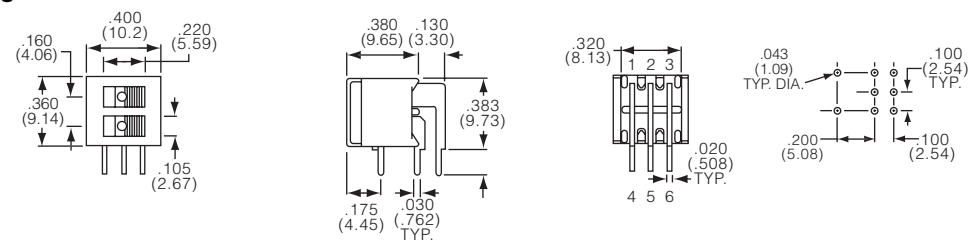
TSD21DDGRA



flush actuator, right angle



TSD21DDG1RA



TSS Series, Single or Dual Actuator, THT (Continued)

Actuation code 

Codes D, E, K, N, P, DD, EE

D On-None-On



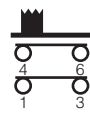
NONE



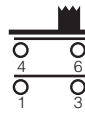
E On-Off-On



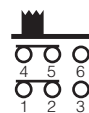
K On-None-Off



NONE



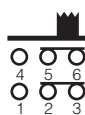
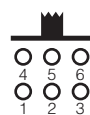
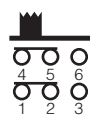
N On-None-On



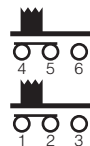
NONE



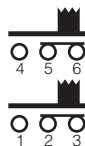
P On-Off-On



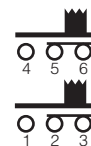
DD Dual actuator, On-None-On



NONE



EE Dual actuator, On-Off-On



Product key	No of actuators	No of poles	Actuation code	Actuator	Terminal	Material	Part Number
TSD21DDG1RA04	dual actuator	2 x single pole	On-None-On	flush	right angle	RoHS compliant	1825014-3
TSD21DDGPC04				extended	vertical		1825015-1
TSD21DDGRA04					right angle		1825014-1
TSD21EEGRA04	single actuator	single pole	On-Off-On				1825014-2
TSS11DG1PC04			On-None-On	flush	vertical		1571982-1
TSS11DG1RA04					right angle		1571985-1
TSS11DGPC04				extended	vertical		1571982-2
TSS11DGRA04					right angle		1571984-1
TSS11EG1PC04		double pole	On-Off-On	flush	vertical		1571982-3
TSS11EG1RA04					right angle		1571985-2
TSS11EGPC04				extended	vertical		1571982-4
TSS11EGRA04					right angle		1571984-2
TSS21KGPC04		double pole	On-None-Off		vertical		1571982-5
TSS21NG1PC04			On-None-On	flush			1571982-6
TSS21NG1RA04					right angle		1571985-3
TSS21NGPC04		4 pole		extended	vertical		1571982-7
TSS21NGRA04					right angle		1571984-3
TSS21PG1PC04			On-Off-On	flush	vertical		1571982-8
TSS21PG1RA04					right angle		1571985-4
TSS21PGPC04				extended	vertical		1571982-9
TSS21PGRA04					right angle		1571984-4
TSS41NGPC			On-None-On		vertical		2-1437579-5
TSS41NGRA					right angle		2-1437579-7

Preferred parts in bold print

MHS Series, Low Profile, Instrumentation Grade, THT

Features

- Upright or right angle
- Gold or silver contact finish
- Various actuator styles
- Make-before-Break timing



Typical performance characteristics

Contact rating, gold: 0.4 VA @ 20 VDC or Peak AC
 silver: 300 milliamp @ 125 VAC
 Electrical life, 15,000 cycles
 Mechanical life, 15,000 cycles
 Contact resistance, initial max 30 mOhm, 100 mOhm (after test)
 Insulation resistance, min 1,000 MOhm
 Dielectric strength 500 V for 1 min
 Actuation force, 6.0 N (600 gf) average
 Actuator travel 2.00 mm (.079) average
 MHS122: 4.00 mm (.157) average

Environmental specification

Operating temperature -20 to +85°C
 Storage temperature -40 to +100°C
 Solder heat resistance, 265°C/10s wave

Material specifications

Contacts copper alloy silver or gold finish
 Actuator, pom
 Terminals, copper alloy silver or gold finish
 Frame steel nickel finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

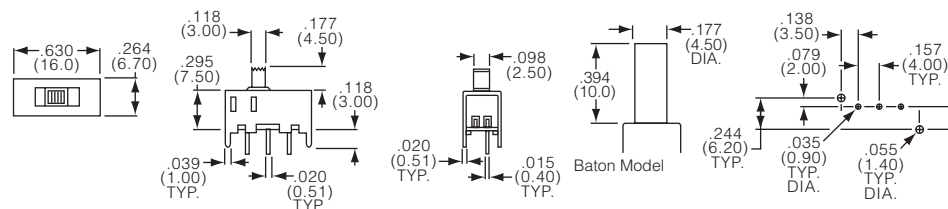
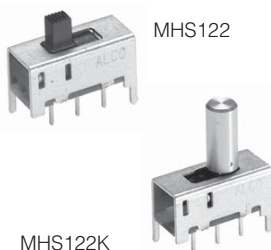
Product key		Typical product key		MHS	1	3	3	K	G	04
Type										
MHS	Slide switch, low profile, instrumentation grade									
No of poles										
1	single pole		2	double pole						
No of throws										
2	2 throws		3	3 throws						
No of positions										
2	2 positions		3	3 positions						
Actuator										
blank	standard		K	baton						
Contact finish										
blank	silver		G	gold						
Actuation										
blank	vertical		RA	right angle						
Material										
04	RoHS compliant									

MHS Series, Low Profile, Instrumentation Grade, THT (Continued)

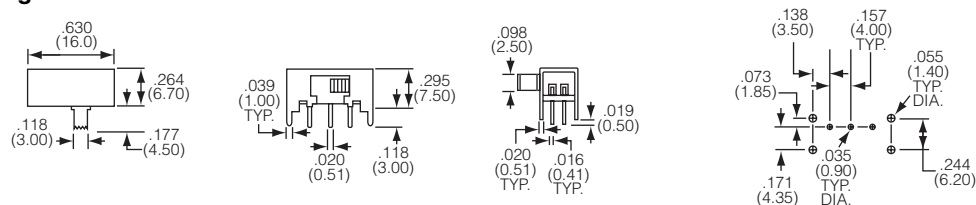
Single pole



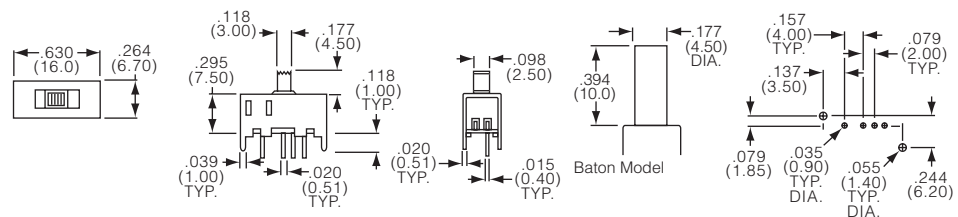
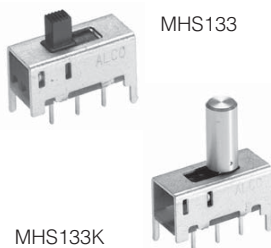
double throw, vertical



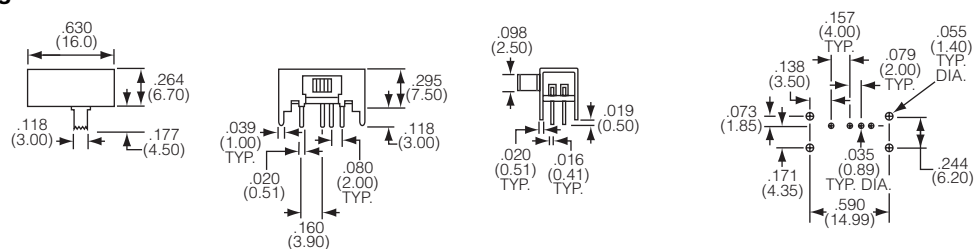
double throw, right angle



triple throw, vertical



triple throw, right angle

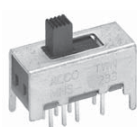


MHS Series, Low Profile, Instrumentation Grade, THT (Continued)

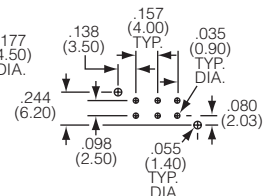
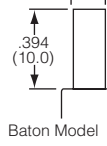
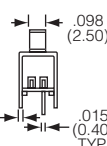
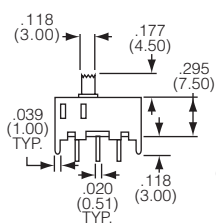
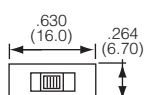
Double pole



double throw, vertical



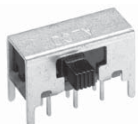
MHS222



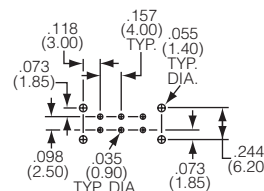
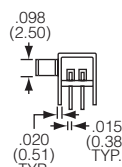
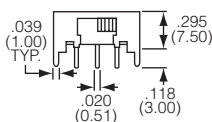
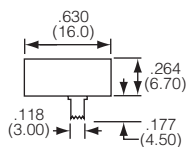
MHS223K



double throw, right angle



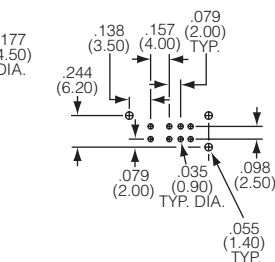
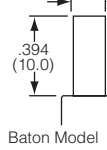
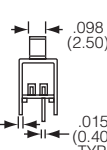
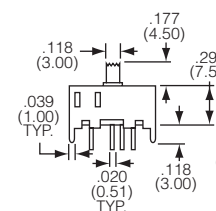
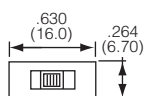
MHS222RA



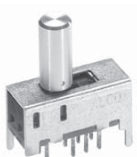
triple throw, vertical



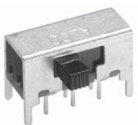
MHS233



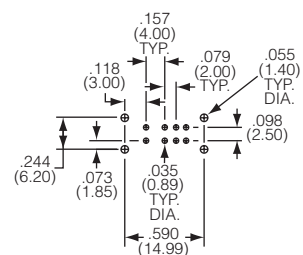
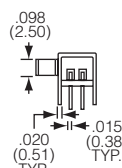
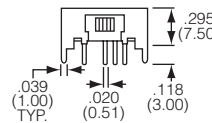
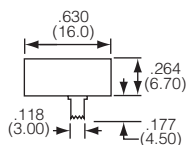
MHS233K



triple throw, right angle



MHS233GRA



MHS Series, Low Profile, Instrumentation Grade, THT (Continued)

Function

Poles	Throws	Positions	Function
1	2	2	
1	2	3	
1	3	3	
2	2	2	
2	2	3	
2	3	3	

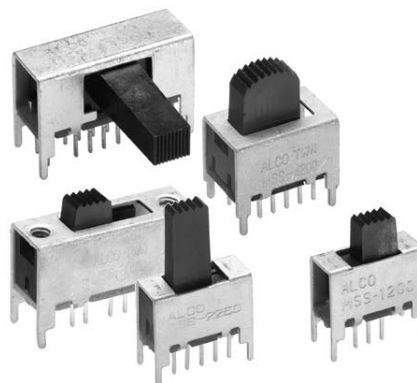
Product key	No of poles	No of throws	No of positions	Actuator	Contact finish	Material	Part Number
MHS12204	single pole	2 throws	2 positions	standard	silver	RoHS compliant	1825255-1
MHS122G04					gold		1825255-2
MHS122GRA04				baton	silver		1825255-3
MHS122K04					gold		1825255-4
MHS122RA04			3 positions	standard	silver		1825256-1
MHS12304					gold		1825255-5
MHS123GRA04				baton	silver		1825256-5
MHS123K04					gold		1825255-6
MHS123RA04		3 throws		standard	silver		1825256-2
MHS13304					gold		1825255-7
MHS133G04					silver		1825255-8
MHS133GRA04					gold		1825256-6
MHS133K04				baton	silver		1825255-9
MHS133KG04					gold		1-1825255-0
MHS133RA04		double pole	2 positions	standard	silver		1825256-3
MHS22204					gold		1825289-1
MHS222G04					silver		1825289-2
MHS222GRA04					gold		1825290-4
MHS222K04				baton	silver		1825289-3
MHS222KG04					gold		1825289-4
MHS222RA04			3 positions	standard	silver		1825290-1
MHS22304					gold		1825289-5
MHS223G04					silver		1825289-6
MHS223GRA04					gold		1825290-5
MHS223K04				baton	silver		1825289-7
MHS223KG04					gold		1825289-8
MHS223RA04		3 throws		standard	silver		1825290-2
MHS23304					gold		1825289-9
MHS233G04					silver		1825289-6
MHS233GRA04					gold		1825290-6
MHS233K04				baton	silver		1-1825289-0
MHS233KG04					gold		1-1825289-1
MHS233RA04				standard			1825290-3

Preferred parts in bold print

MSS Series, Instrumentation Grade, THT

Features

- Upright or right angle
- Gold or silver contact finish
- Various actuator heights
- Make-before-Break timing



Typical performance characteristics

Contact rating, gold: 0.4 VA @ 20 VDC or peak AC
 silver: 300 milliamp @ 125 VAC
 Electrical life, 15,000 cycles
 Mechanical life, 15,000 cycles
 Contact resistance, initial max 30 mOhm, 100 mOhm (after test)
 Insulation resistance, min 1,000 MOhm
 Dielectric strength 500 V for 1 min
 Actuation force, 6.0 N (600 gf) average
 Actuator travel 2.0 mm (.079) average

Environmental specification

Operating temperature -20 to +85°C
 Storage temperature -40 to +100°C
 Solder heat resistance, 265°C/10s wave

Material specifications

Contacts copper alloy silver or gold finish
 Actuator, pom
 Terminals, copper alloy silver or gold finish
 Frame steel nickel finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		MSS	1	2	00	R	G	04
Type										
MSS	Slide switch, instrumentation grade									
No of poles										
1	single pole	4	4 pole							
2	double pole	6	6 pole							
No of throws										
2	2 throws	4	4 throws							
3	3 throws									
Actuator length										
00	standard	35	xx-long							
25	x-long	50	xxx-long							
Actuation										
blank	vertical	R	right angle							
Contact finish										
blank	silver	G	gold							
Material										
04	RoHS compliant									

MSS Series, Instrumentation Grade, THT (Continued)

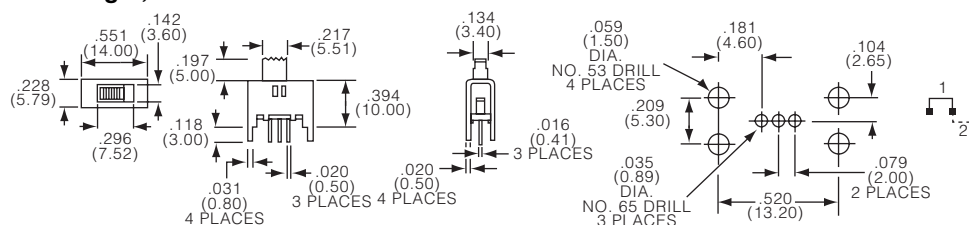
Single pole



2 throws, standard actuator length, vertical



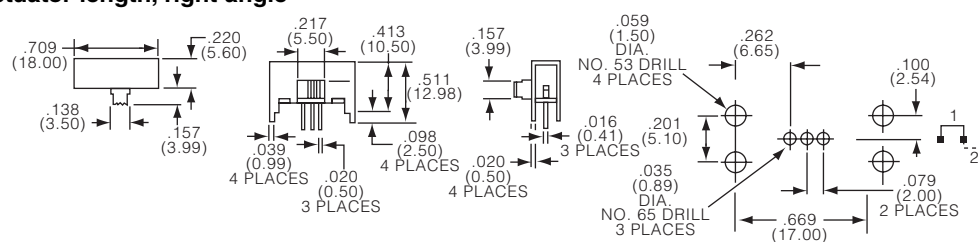
MSS1200



2 throws, standard actuator length, right angle



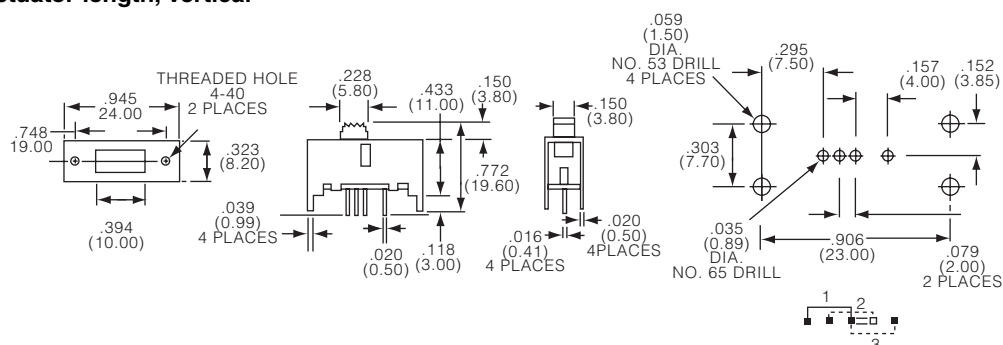
MSS1200R



3 throws, standard actuator length, vertical



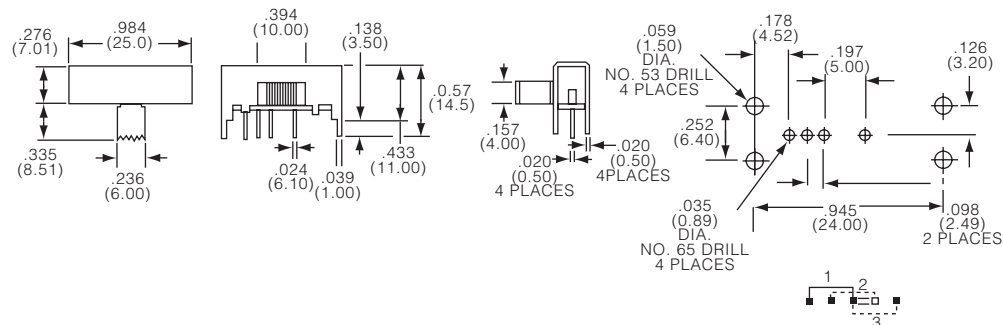
MSS1300



3 throws, standard actuator length, right angle

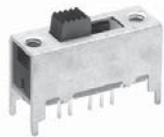


MSS1300R

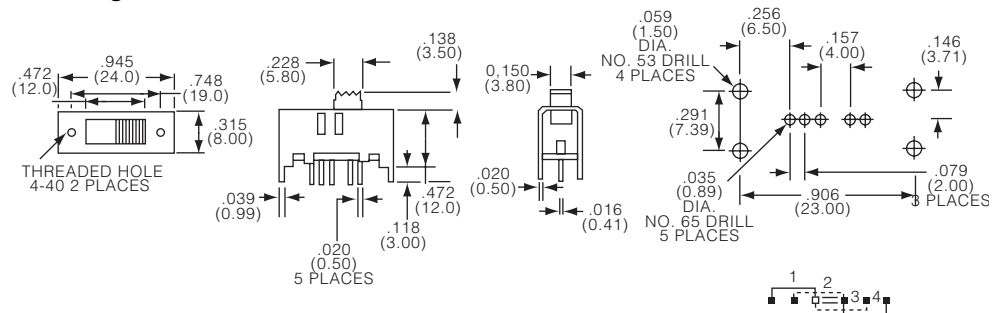


MSS Series, Instrumentation Grade, THT (Continued)

4 throws, standard actuator length, vertical



MSS1400



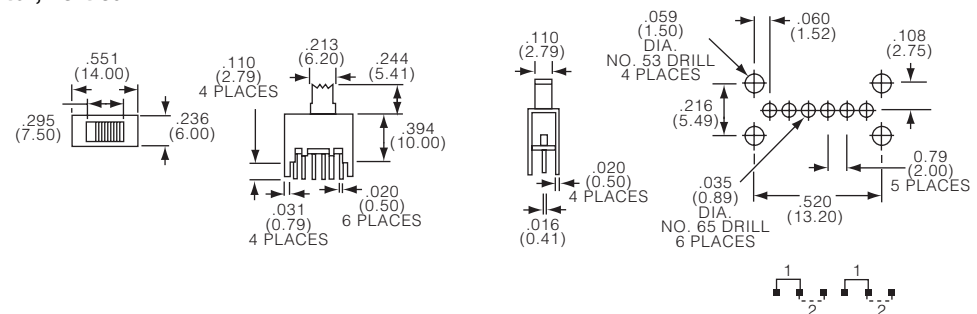
Double pole



2 throws, x-long actuator, vertical



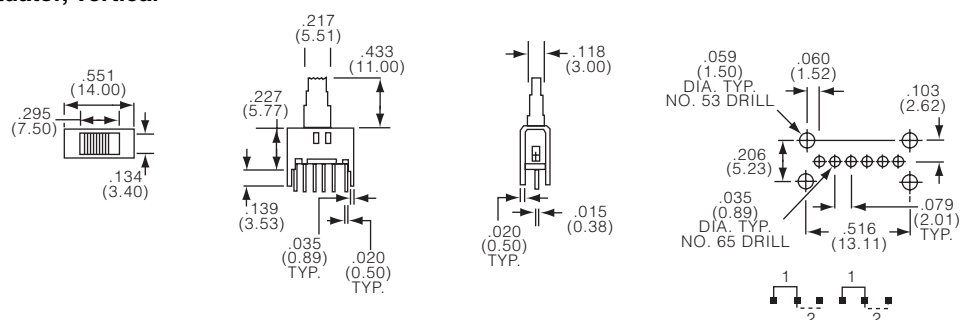
MSS2225



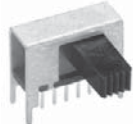
2 throws, xxx-long actuator, vertical



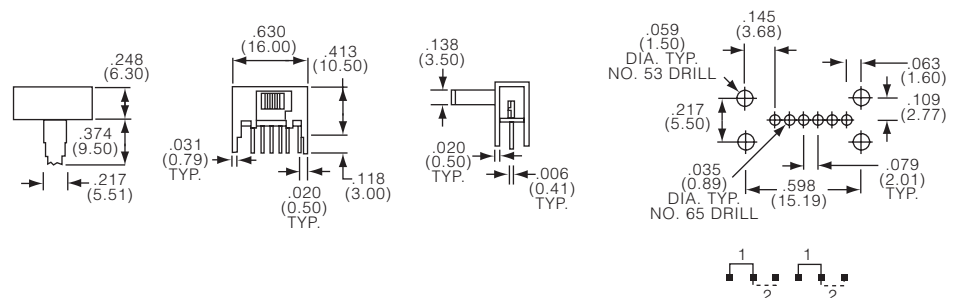
MSS2250



2 throws, xxx-long actuator, right angle



MSS2250R



MSS Series, Instrumentation Grade, THT (Continued)

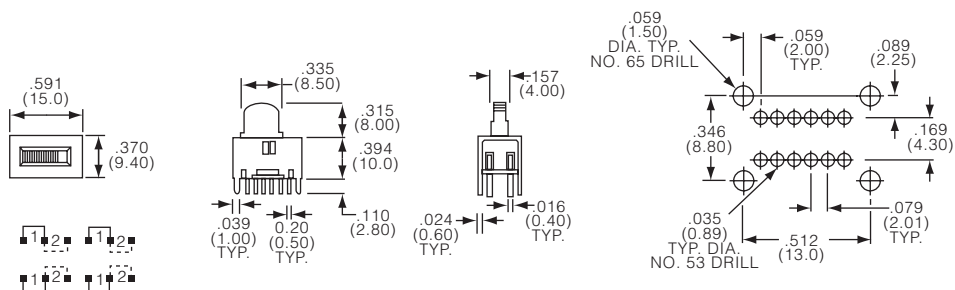
4 poles



2 throws, xxx-long actuator, vertical



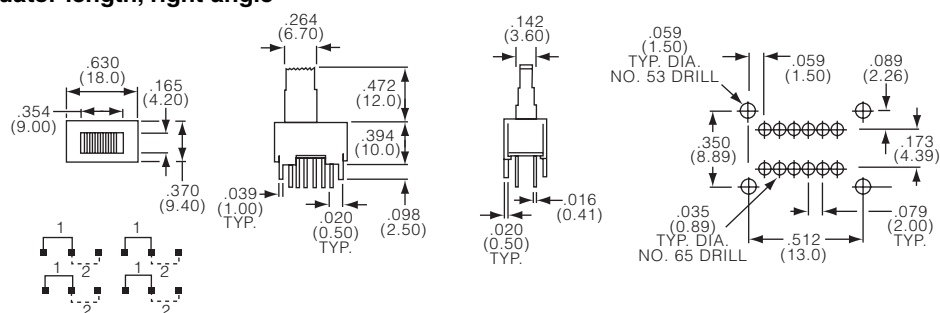
MSS4200



2 throws, standard actuator length, right angle



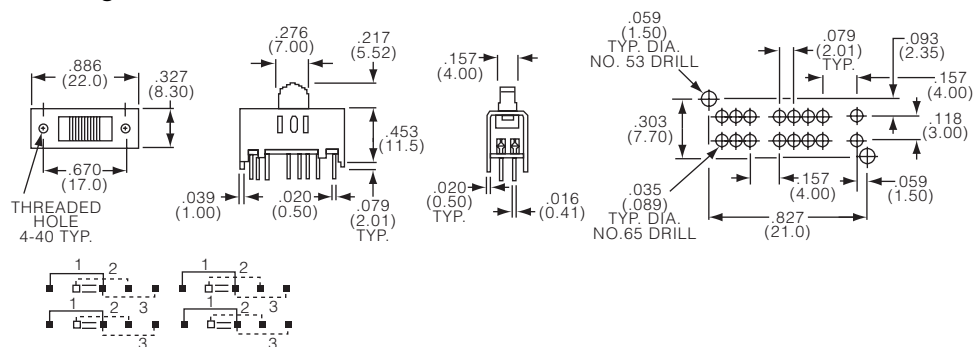
MSS4250



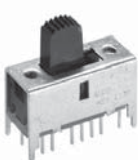
3 throws, standard actuator length, vertical



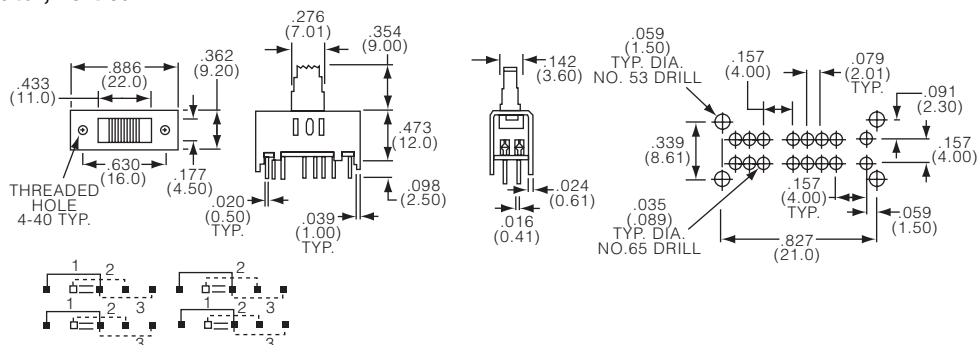
MSS4300



3 throws, xx-long actuator, vertical

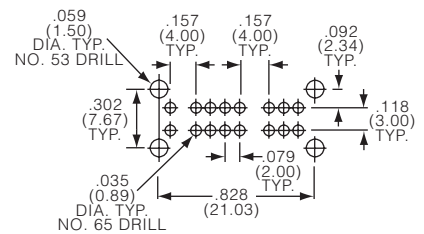
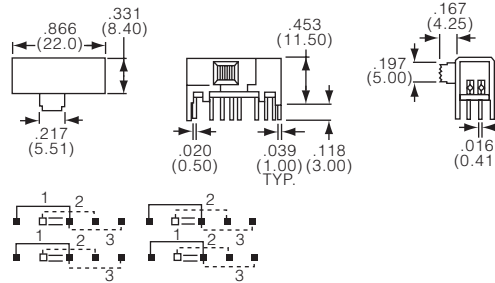


MSS4335

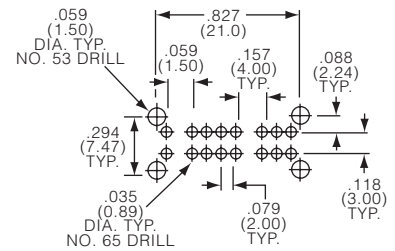
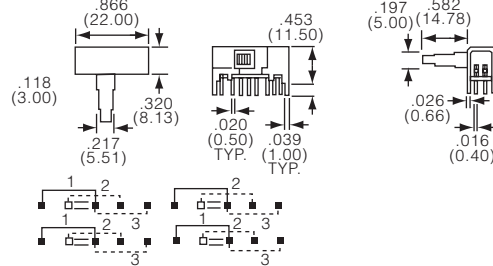


MSS Series, Instrumentation Grade, THT (Continued)

3 throws, standard actuator length, right angle



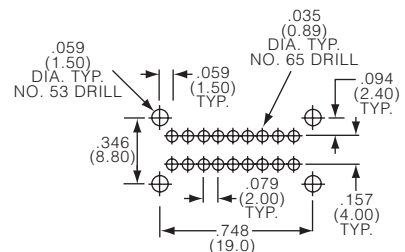
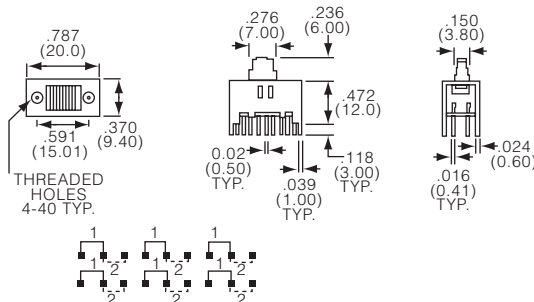
3 throws, xxx-long actuator length, right angle



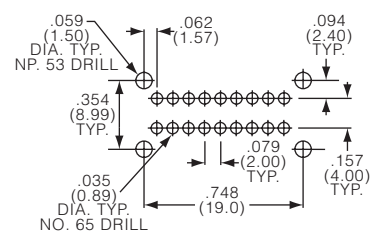
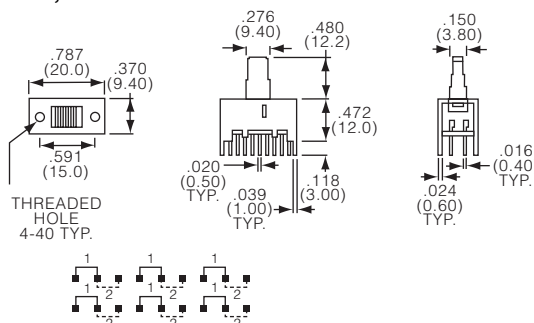
6 poles



2 throws, standard actuator length, vertical

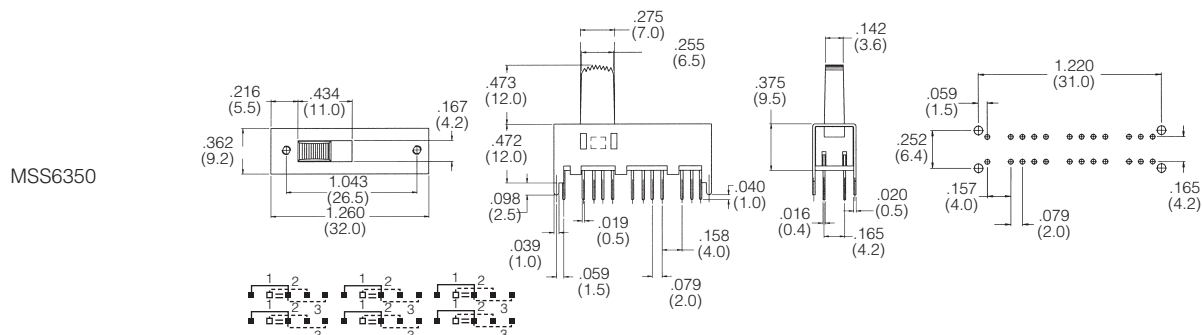


2 throws, xxx-long actuator, vertical

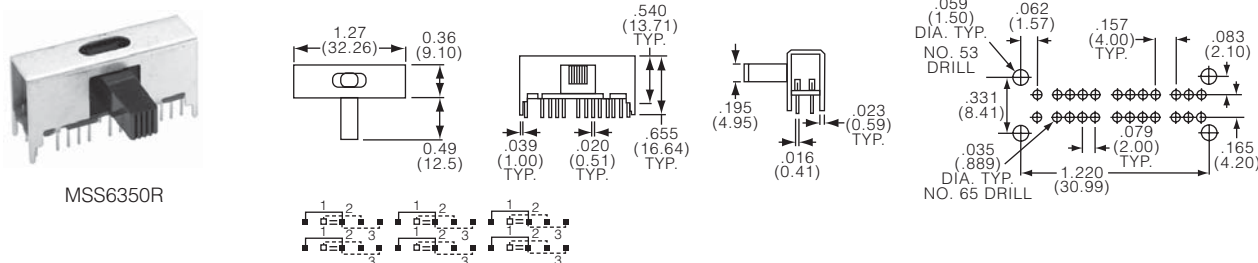


MSS Series, Instrumentation Grade, THT (Continued)

3 throws,xxx-long actuator, vertical



3 throws, xxx-long actuator, right angle



Product key	No of poles	No of throws	Actuator length	Actuation	Contact finish	Material	Part Number
MSS120004	single pole	2 throws	standard	vertical	silver	RoHS compliant	1825257-1
MSS1200G04					gold		1825257-2
MSS1200R04		3 throws		right-angle	silver		1825258-1
MSS1200RG04					gold		1825258-2
MSS130004		3 throws		vertical	silver		1825259-1
MSS1300G04					gold		1825259-2
MSS1300R04		4 throws		right-angle	silver		1825260-1
MSS1300RG04					gold		1825260-2
MSS140004		4 throws		vertical	silver		1571423-2
MSS1400G04					gold		1571423-1
MSS220004		2 throws			silver		1825261-1
MSS2200G04					gold		1825261-2
MSS222504	double pole		x-long		silver		1825262-1
MSS2225G04					gold		1825262-2
MSS225004		xxx-long			silver		1825263-1
MSS2250G04					gold		1825263-2
MSS2250R04				right-angle	silver		1571630-2
MSS2250RG04					gold		1571630-3
MSS420004	4 pole		standard	vertical	silver		1825264-1
MSS4200G04					gold		1825264-2
MSS4200R04		3 throws		right-angle	silver		1825265-1
MSS4200RG04					gold		1825265-2
MSS425004		xxx-long		vertical	silver		1825266-1
MSS430004					gold		1825267-1
MSS4300G04		3 throws	standard		silver		1825267-2
MSS4300R04				right-angle	silver		1825268-1
MSS4300RG04					gold		1825268-2
MSS433504				vertical	silver		1825269-1
MSS4350R04		xxx-long		right-angle			1825270-1
MSS4350RG04					gold		1825270-2
MSS620004	6 pole	2 throws	standard	vertical	silver		1825271-1
MSS6200G04					gold		1825271-2
MSS625004		3 throws	xxx-long		silver		1825272-1
MSS635004							1825273-1
MSS6350R04				right-angle			1825274-1

Preferred parts in bold print

MSSA Series, Instrumentation Grade, THT

Features

- Upright or right angle
- Gold or silver contact finish
- Make-before-Break timing
- Multiple pole and throw options



Typical performance characteristics

Contact rating gold: 0.4 VA @ 20 VDC or peak AC
 silver: 300 milliamp @ 125 VAC
 Electrical life. 15,000 cycles
 Mechanical life. 15,000 cycles
 Contact resistance, initial max 30 mOhm, 100 mOhm (after test)
 Insulation resistance. min 1,000 MOhm
 Dielectric strength 500 V for 1 min
 Actuation force. 6.0 N (600 gf) average
 Actuator travel 2.00 mm (.079) average

Environmental specification

Operating temperature -20 to +85°C
 Storage temperature -40 to +100°C
 Solder heat resistance. 265°C/10s wave

Material specifications

Contacts copper alloy silver or gold finish
 Actuator nylon 66
 Terminals copper alloy silver or tin finish
 Frame steel tin finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		MSSA	2	4	50	G	04	
Type				MSSA Slide switch, instrumentation grade						
No of poles										
1	single pole		3	tripple pole						
2	double pole		4	4 pole						
No of throws										
3	3 throws		4	4 throws						
Actuator length										
50	standard version									
Actuation										
blank	vertical		R	right angle						
Contact finish										
blank	silver		G	gold						
Material										
04	RoHS compliant									

MSSA Series, Instrumentation Grade, THT (Continued)

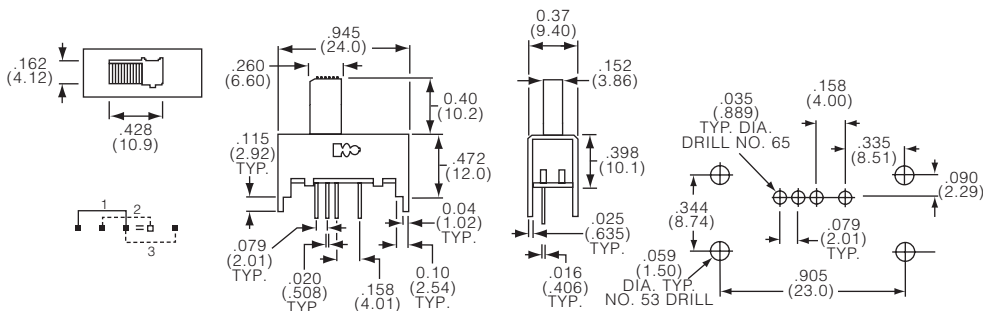
Single pole



3 throws, vertical



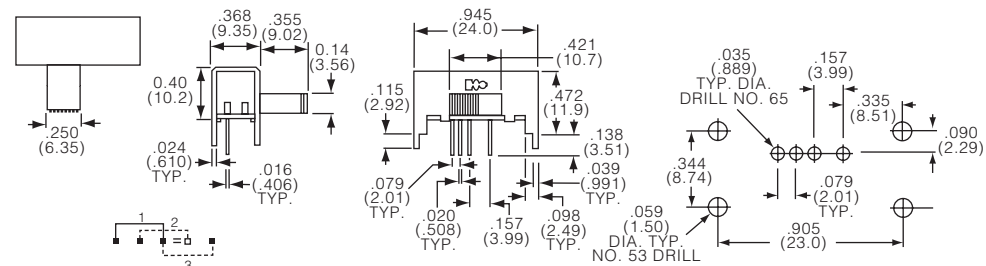
MSSA1350



3 throws, right angle



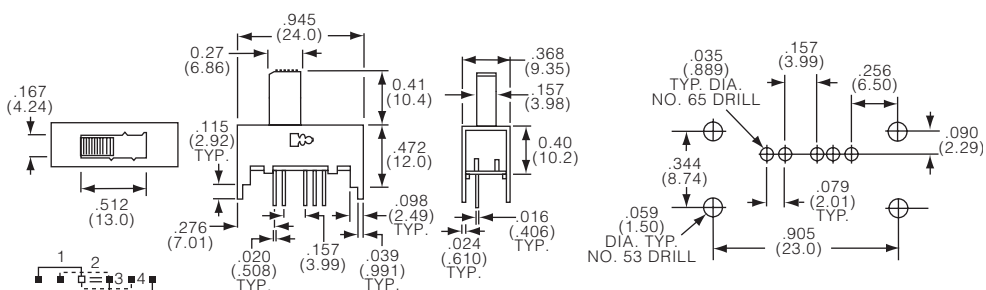
MSSA1350R



4 throws, vertical



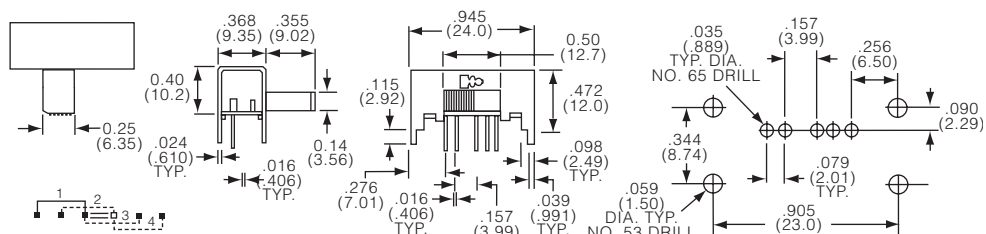
MSSA1450



4 throws, right angle



MSSA1450R



MSSA Series, Instrumentation Grade, THT (Continued)

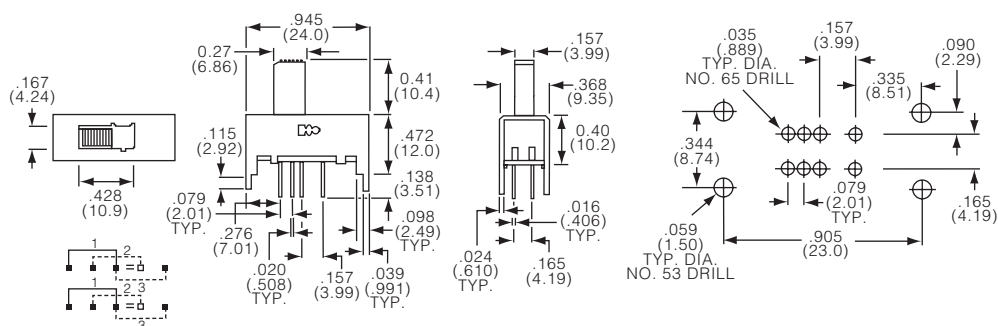
Double pole



3 throws, vertical



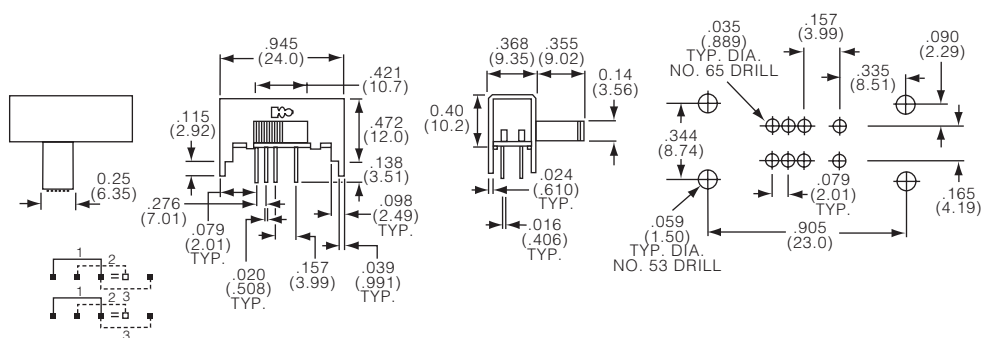
MSSA2350



3 throws, right angle



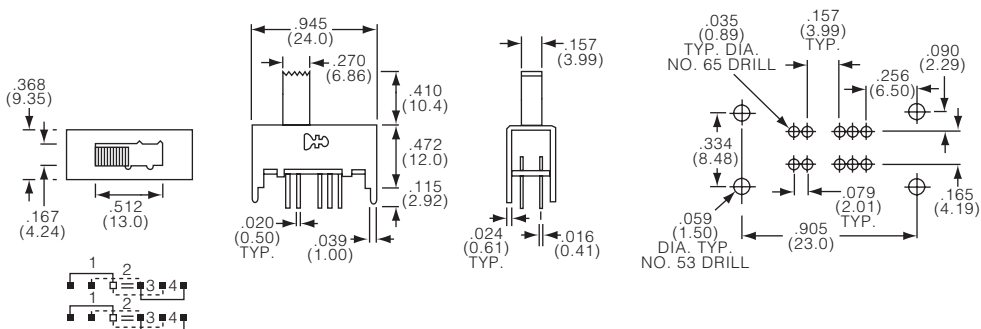
MSSA2350R



4 throws, vertical



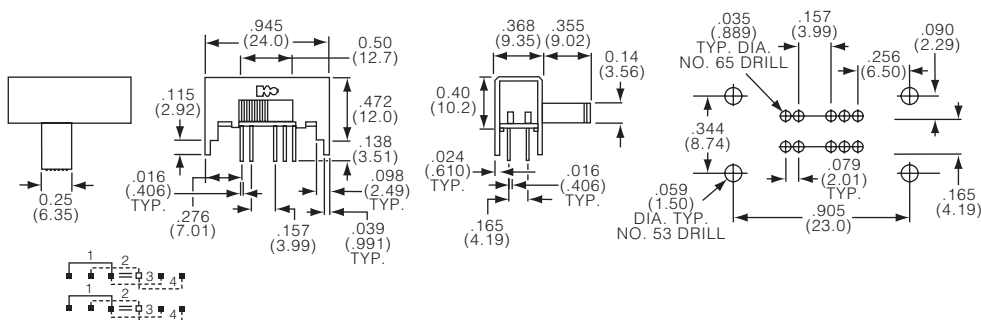
MSSA2450



4 throws, right angle



MSSA2450R



MSSA Series, Instrumentation Grade, THT (Continued)

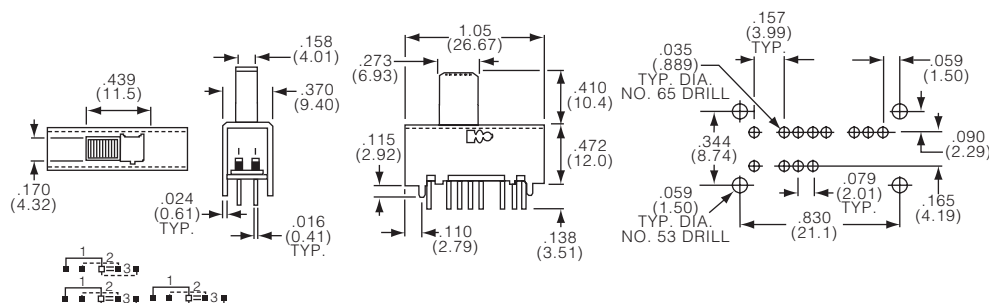
3 pole



3 throws, vertical



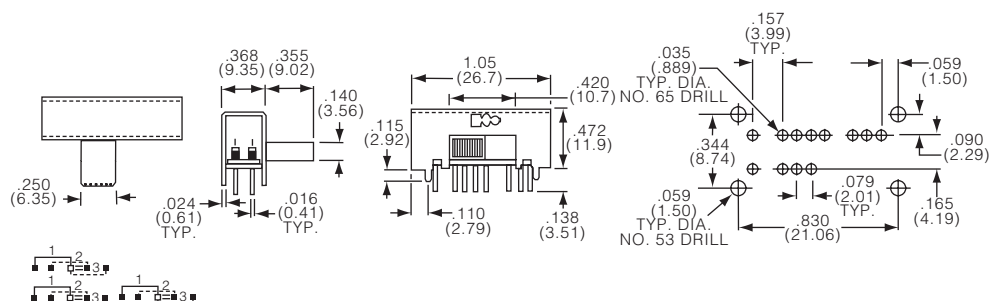
MSSA3350



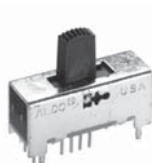
3 throws, right angle



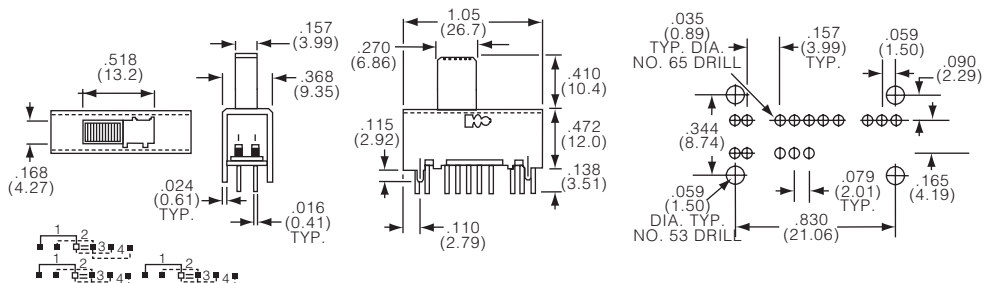
MSSA3350R



4 throws, vertical



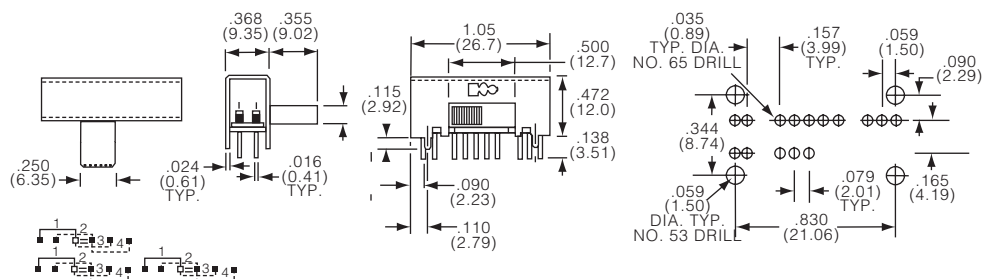
MSSA3450



4 throws, right angle



MSSA3450R



MSSA Series, Instrumentation Grade, THT (Continued)

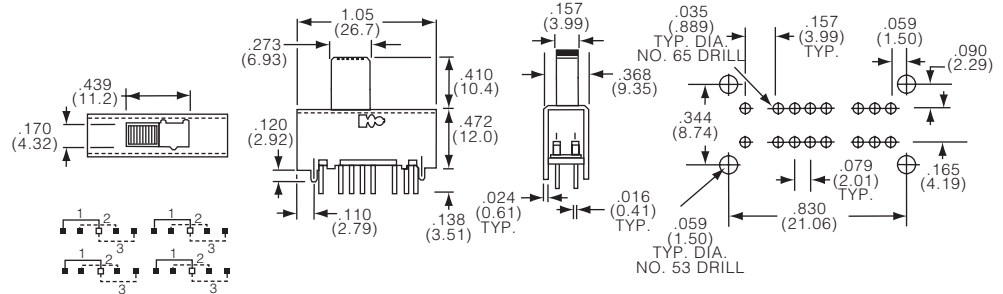
4 pole



3 throws, vertical



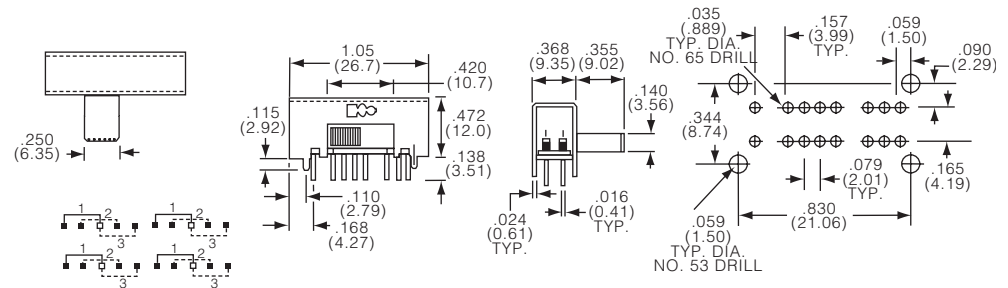
MSSA4350



3 throws, right angle



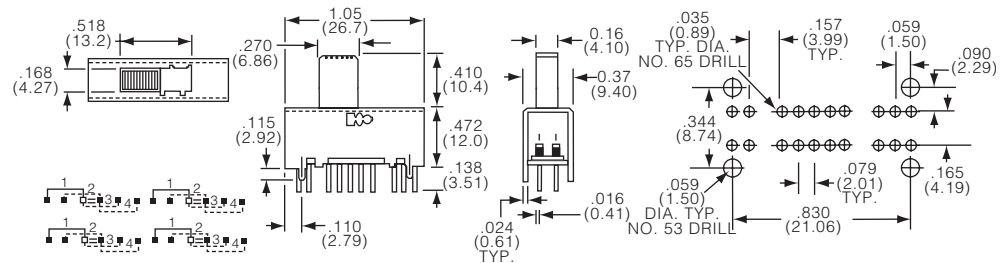
MSSA4350R



4 throws, vertical



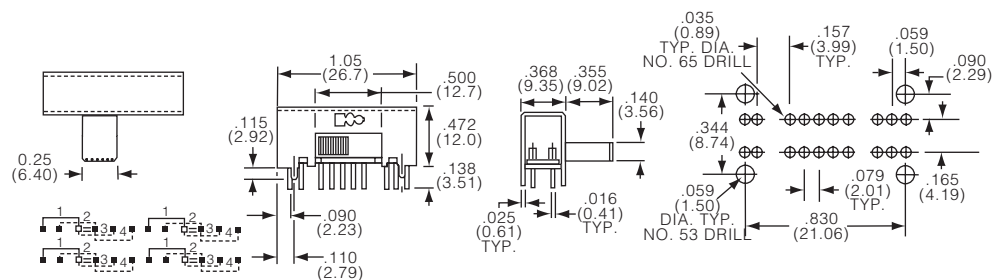
MSSA4450



4 throws, right angle



MSSA4450R



MSSA Series, Instrumentation Grade, THT (Continued)

Product key	No of poles	No of throws	Actuation	Contact finish	Material	Part Number
MSSA135004	single	3 throws	vertical	silver	RoHS	1825194-1
MSSA1350G04	pole			gold	compliant	1825194-2
MSSA1350R04			right angle	silver		1825195-1
MSSA1350RG04				gold		1825195-2
MSSA145004		4 throws	vertical	silver		1825196-1
MSSA1450G04				gold		1825196-2
MSSA1450R04			right angle	silver		1825197-1
MSSA1450RG04				gold		1825197-2
MSSA235004	double	3 throws	vertical	silver		1825198-1
MSSA2350G04	pole			gold		1825198-2
MSSA2350R04			right angle	silver		1825199-1
MSSA2350RG04				gold		1825199-2
MSSA245004		4 throws	vertical	silver		1825200-1
MSSA2450G04				gold		1825200-2
MSSA2450R04			right angle	silver		1825201-1
MSSA2450RG04				gold		1825201-2
MSSA335004	triple	3 throws	vertical	silver		1825202-1
MSSA3350G04	pole			gold		1825202-2
MSSA435004	4 pole			silver		1825202-3
MSSA4350G04				gold		1825202-4
MSSA3350R04	triple		right angle	silver		1825203-1
MSSA3350RG04	pole			gold		1825203-2
MSSA4350R04	4 pole			silver		1825203-3
MSSA4350RG04				gold		1825203-4
MSSA345004	triple	4 throws	vertical	silver		1825204-1
MSSA3450G04	pole			gold		1825204-2
MSSA445004	4 pole			silver		1825204-3
MSSA4450G04				gold		1825204-4
MSSA3450R04	triple		right angle	silver		1825205-1
MSSA3450RG04	pole			gold		1825205-2
MSSA4450R04	4 pole			silver		1825205-3
MSSA4450RG04				gold		1825205-4

SDS Series, Decorative Instrument Grade, THT

Features

- High reliability contact system
- Robust actuator for easy actuation
- Make-before-Break timing



Typical performance characteristics

Contact rating..... 250 milliamps @125 VAC
Electrical life..... 10.000 cycles
Mechanical life..... 10.000 cycles
Contact resistance, initial max 20 mOhm, 60 mOhm (after test)
Insulation resistance min 500 MOhm
Dielectric strength..... 500 VAC for 1 min
Actuation force..... 1.0 to 7.0 N (100 to 700 gf)
Actuator travel 2.0 (.079) average

Environmental specification

Operating temperature -10 to +60°C
Storage temperature -10 to +60°C
Solder heat resistance..... 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
Actuator pbt
Terminals copper alloy silver finish
Case steel zinc finish
Terminal board phenolic
RoHS Directive 2002/95/EC compliant

Product key		Typical product key		SDS	1	2	40	RA	0
Type				SDS					
SDS		Slide switch, decorative instrument grade							
No of poles									
1	single pole	2	double pole						
No of throws									
2	two throws	3	three throws						
Version									
40	standard version								
Terminal									
RA	right angle								
Actuator color									
0	black	8	gray						

SDS Series, Decorative Instrument Grade, THT (Continued)

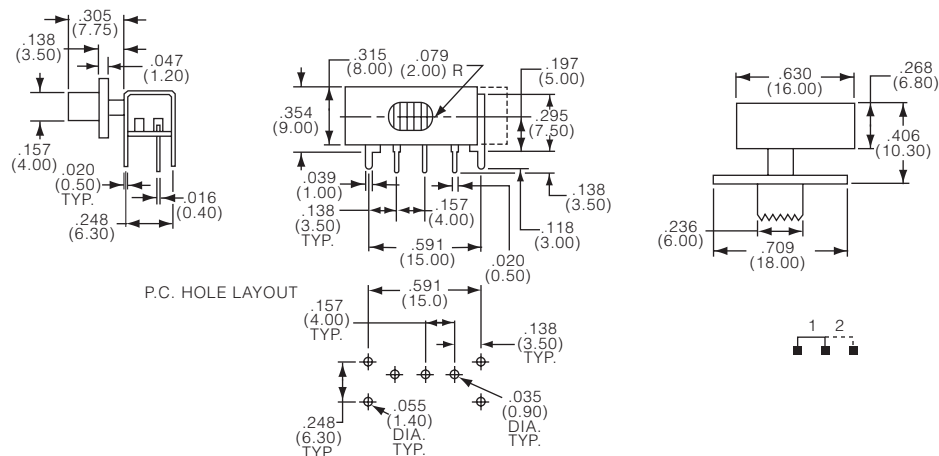
Single pole



2 throws



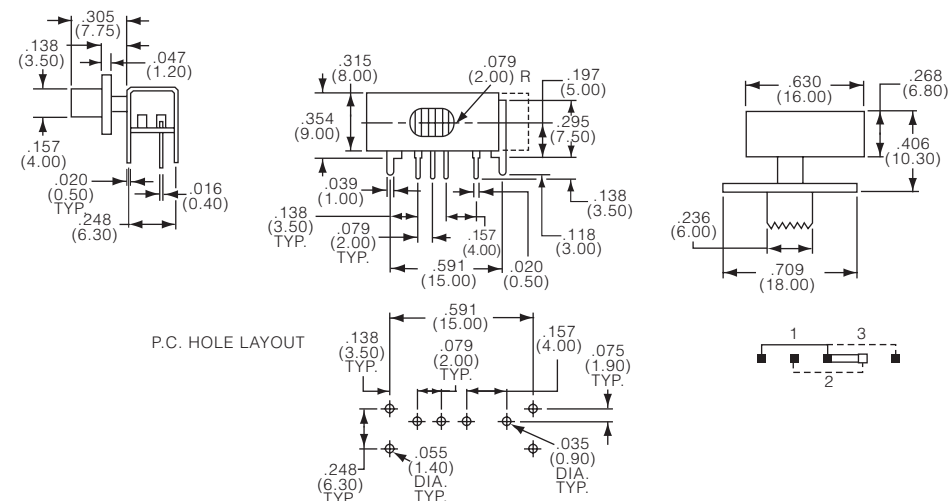
SDS1240RA0



3 throws



SDS1340RA0



SDS Series, Decorative Instrument Grade, THT (Continued)

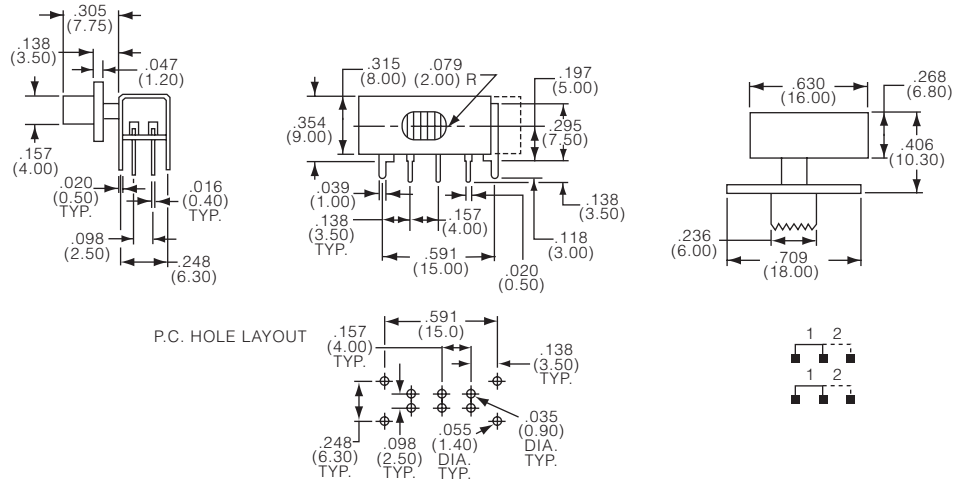
Double pole



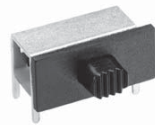
2 throws



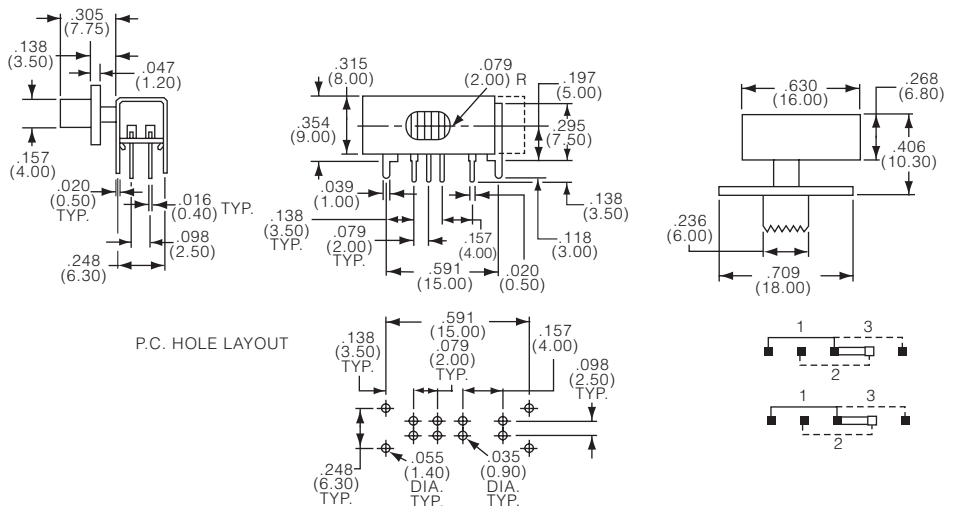
SDS2240RA0



3 throws



SDS2340RA0



Product key	No of poles	No of throws	Terminal	Actuator color	Part Number
SDS1240RA0	single pole	2 throws	right angle	black	1437577-2
SDS1240RA8				gray	1437577-3
SDS1340RA0		3 throws		black	1437577-4
SDS1340RA8				gray	1437577-5
SDS2240RA0	double pole	2 throws		black	1437577-6
SDS2340RA0					1437577-7

CST Series, Baton Toggle, Multiple Pole, THT

Features

- High reliability contact system
- Baton toggle actuator for easy actuation
- Break-before-Make timing



Typical performance characteristics

Contact rating 300 milliamps @ 125 VAC
 200 milliamps @ 12 VDC
 Electrical life no load: 10,000 cycles
 at rated current: 8,000 cycles
 Mechanical life 10,000 cycles
 Contact resistance, initial max 30 mOhm, 60 mOhm (after test)
 Insulation resistance min 500 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 5.5 +/-2.5 N (550 +/-250 gf)
 Actuator travel 3.20 mm (.126)

Environmental specification

Operating temperature -15 to +55°C
 Storage temperature -20 to +60°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts copper alloy silver finish
 Actuator aluminum
 Slider pbt
 Terminals copper alloy silver finish
 Frame steel tin finish
 Terminal board phenolic
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

CST 04 2 NK

Type

CST Slide switch, baton toggle, multiple pole

No of poles

02 2 poles
04 4 poles
06 6 poles

No of throws

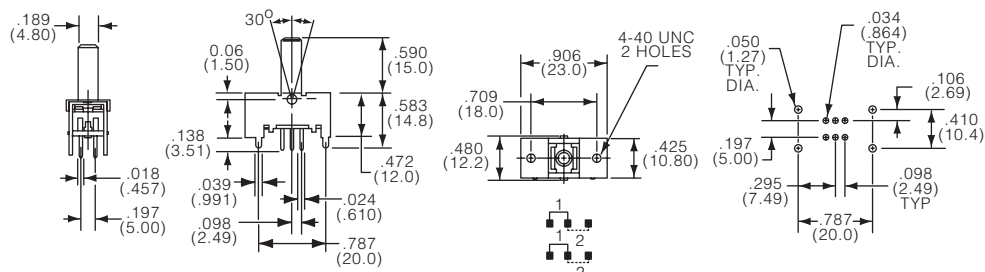
2 2 throws
3 3 throws

Version

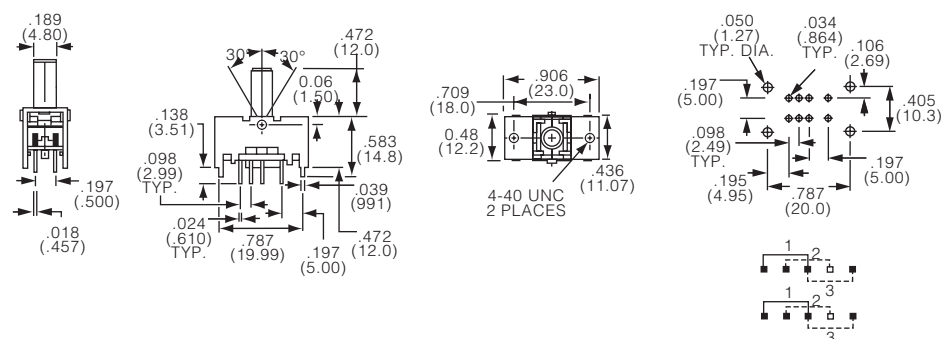
NK standard

Slide Switches

CST022NK

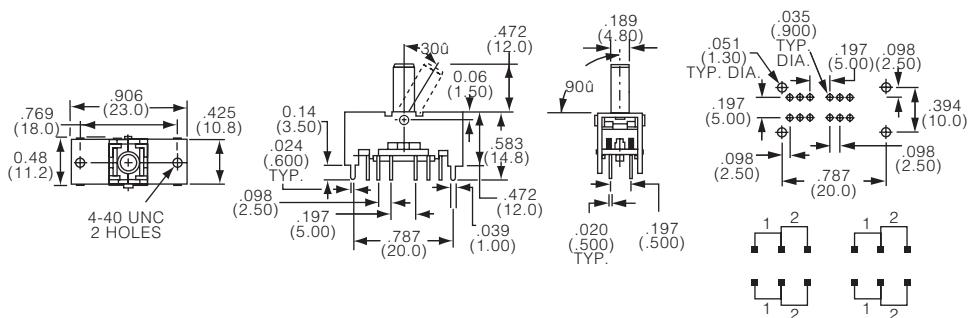


CST023NK

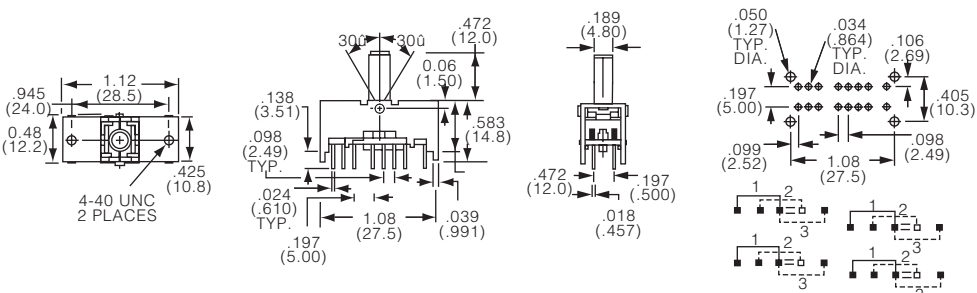


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CST042NK



CST043NK

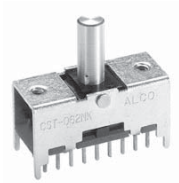


CST Series, Baton Toggle, Multiple Pole, THT (Continued)

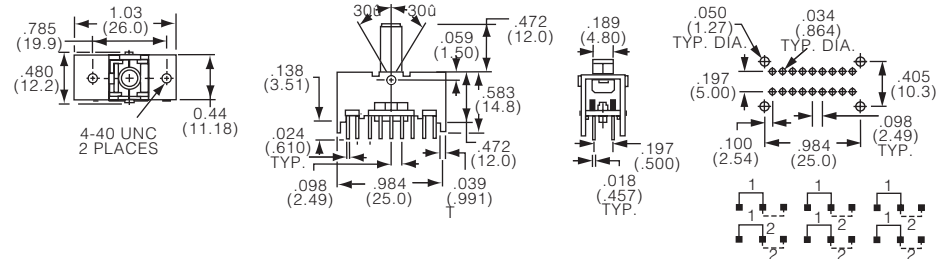
6 poles



double throw



CST062NK



Slide Switches

Product key	No of poles	No of throws	Version	Part Number
CST022NK	2 poles	2 throws	standard	1437576-2
CST023NK	4 poles	3 throws		1437576-4
CST042NK		2 throws		1437576-5
CST043NK		3 throws		1437576-6
CST062NK	6 poles	2 throws		1437576-7

MLL Series, Micro Size, Low Profile, SMT

Features

- Low profile design
- Right angle mounting



Typical performance characteristics

Contact rating	300 milliamps @ 4 VDC
Electrical life	10,000 cycles
Mechanical life	10,000 cycles
Contact resistance, initial	max 70 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	100 VAC for 1 min
Actuation force	1.75 +/-1.0 N (175 +/-100 gf)
Actuator travel	1.50 mm (.059)

Environmental specification

Operating temperature	-10 to +60°C
Storage temperature	-20 to +85°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	copper alloy silver finish
Actuator	nylon 46
Terminals	copper alloy silver finish
Frame	nickel Silver
Case	lcp
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

MLL	1	2	00	S
------------	----------	----------	-----------	----------

Type
MLL Slide switch, low profile, right angle, SMT

No of poles
1 single pole

No of throws
2 2 throws **3** 3 throws

Version
00 standard

Terminals
S surface mount SMT

Packaging
blank bulk **TR** tape & reel

MLL Series, Micro Size, Low Profile, SMT (Continued)

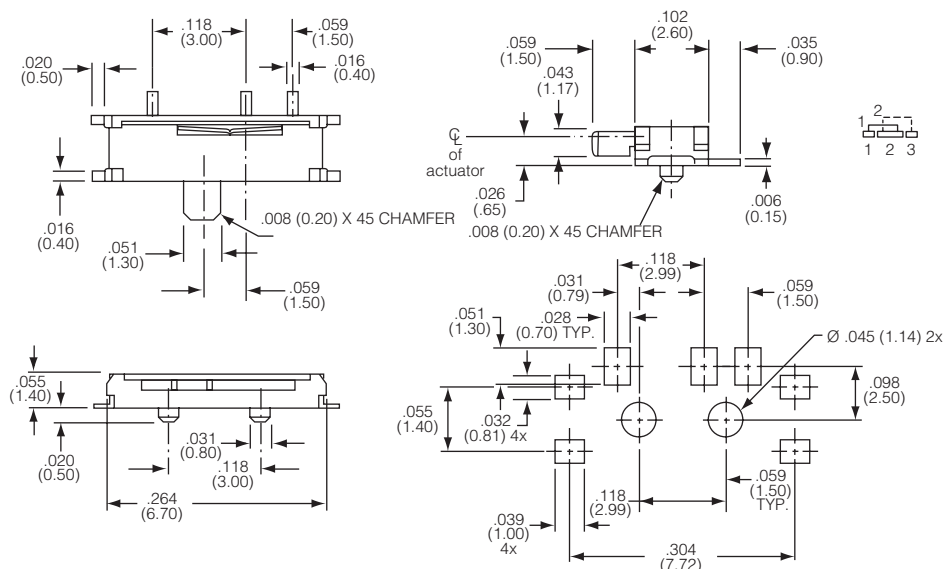
Single pole



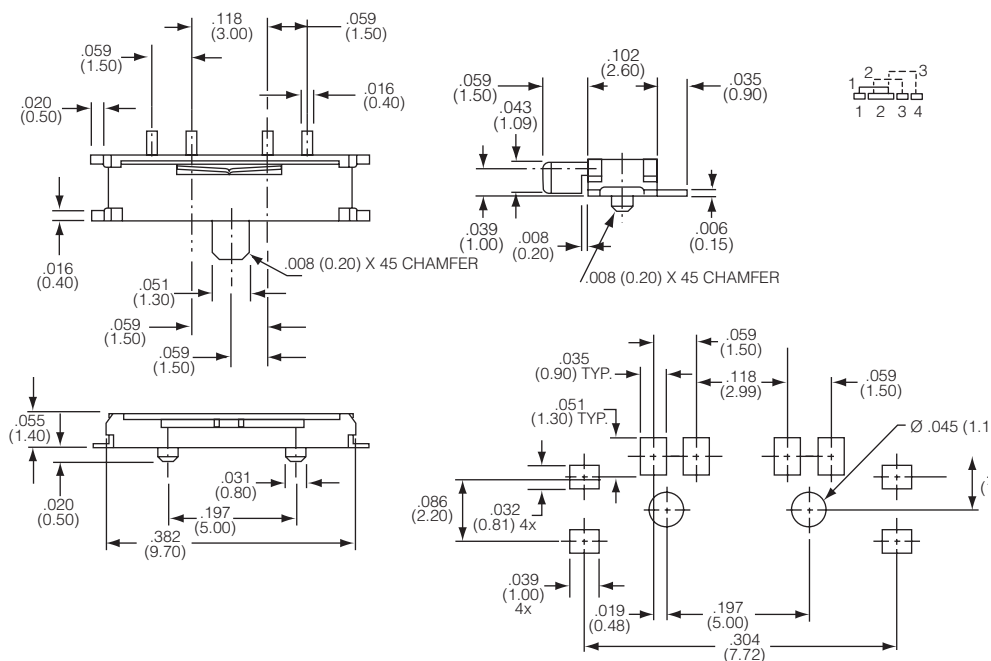
2 throws



MLL1200S



3 throws



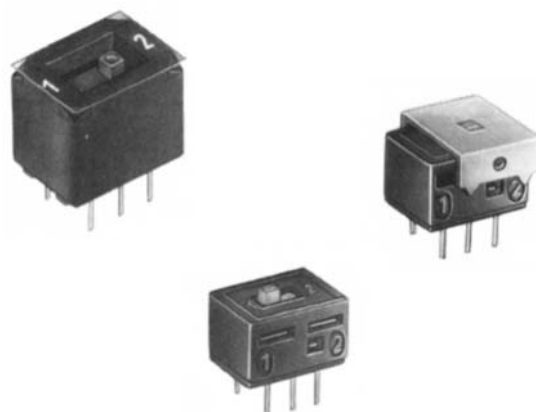
Product key	No of poles	No of throws	Terminals	Packaging	Part Number
MLL1200S	single	2 throws	surface mount	bulk	1437575-1
MLL1200STR	pole		SMT	tape & reel	1437575-2
MLL1300S		3 throws		bulk	1437575-3

Preferred parts in bold print

A68 Series, Instrumentation Grade, THT

Features

- Approved construction
- Self-cleaning, gold sliding contact
- Break-before-Make timing



Typical performance characteristics

Contact rating	0,3 A @ 24 V AC/DC
Electrical life	> 500 cycles
Mechanical life	> 1,000 cycles
Contact resistance	max 80 mOhm
Insulation resistance	min. 1,000 MOhm
Dielectric strength	500 VAC
Actuator travel	2.0 mm

Environmental specification

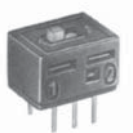
Operating temperature	-25°C to +85°C
Storage temperature	-25°C to +85°C
Solder heat resistance	265°C/ 10s wave

Material specifications

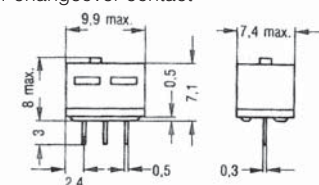
Base	psu
Cover	psu
Contacts	copper alloy gold finish
Terminals	copper alloy tin finish
actuator	pa
RoHS compliance	compliant

Actuator

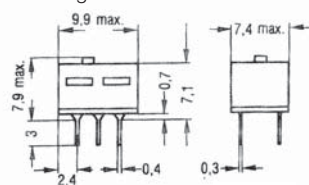
Extended actuator



1 changeover contact



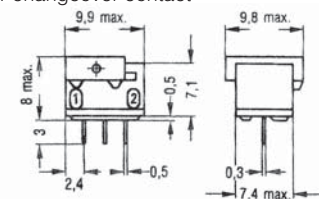
2 changeover contacts



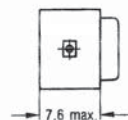
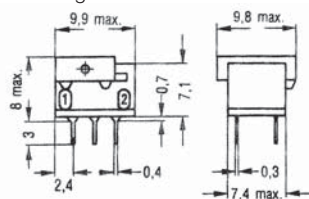
Adapter



1 changeover contact

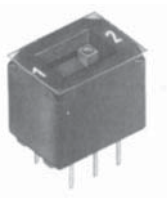


2 changeover contacts

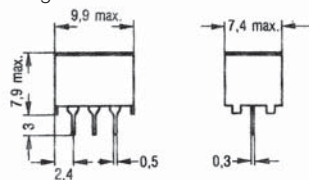


A68 Series, Instrumentation Grade, THT (Continued)

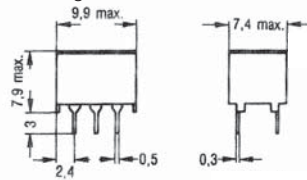
Flush actuator



1 changeover contact



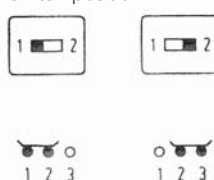
2 changeover contacts



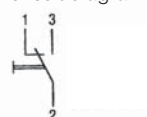
travel S = 2 mm

Function

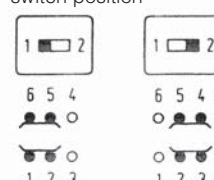
1 changeover contact
switch position



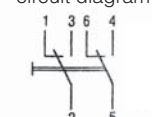
circuit diagram



2 changeover contacts
switch position



circuit diagram



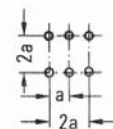
Mounting

1 changeover contact



dimension a = 2.5..2.54 mm

2 changeover contacts



Product key	No of poles	Actuator	Material	Part Number
C42315A68A1	2	extended	RoHS compliant	1393685-1
C42315A68A2		adapter		1393685-2
C42315A68A3	1	extended		1393685-3
C42315A68A4		adapter		1393685-4
C42315A68A31	2	flush		1393685-5
C42315A68A33	1			1393685-7

Product Range

Tactile Switches

- 3,5 x 6 mm FSM Standard Size Tactiles
- 6 x 6 mm FSM Standard Size Tactiles
- 6 x 6 mm FSM Low Profile Tactiles
- 12 x 12 mm FSM Standard Tactiles
- FSM Slimline Tactiles
- FSM Miniature Side Actuated Tactiles
- FSM Multidirectional Tactiles

Main features:

- Different actuator length and styles
- Different actuation forces
- Sealed, unsealed, radial tape versions
- Ultra low profile versions
- Right angle versions
- SMT and THT versions
- High temperature versions
- Extended life versions



FSM . SM & FSM . JM Series 3.5 x 6.0, THT & SMTpage C4



FSM . SMS & FSM . JMS Series 4.6 x 6.8, Sealed, THT & SMTpage C6



FSM . SMLP & FSM . JMLP Series, 4.2 x 6.0, Low profile, SMTpage C8



FSMJ Series 6 x 6, THTpage C10



FSMCD Series 6 x 6, Square Button, THTpage C13



FSMJRT Series 6 x 6, Radial Tape, THTpage C15

Product Range (Continued)



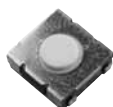
FSMRAJ Series 6 x 6, Right Angle, THTpage C17



FSMJSM Series 6 x 6, SMTpage C19



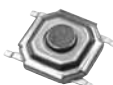
FSMLP Series 6 x 6, Low Profile, SMTpage C21



FSMJEL Series 6 x 6, Extended Life, SMTpage C23



FSMJX Series 6 x 6, Extreme Life Cycle, SMTpage C25



FSMCT Series 5.2 x 5.2, Ultra Low Profile, SMTpage C26



FSMLPU Series 4.8 x 4.8, Slimline, SMTpage C27



FSMJS6 Series 6 x 6, Sealed, SMTpage C28



FSMJS Series 7.6 x 7.3, Sealed, SMT & THTpage C29

Product Range (Continued)



FSMRAJS Series 6 x 6, Sealed, Right Angle, SMT & THTpage C32



FSMRAJSA Series 8.1 x 8.1, Sealed, Right Angle, SMTpage C34



FSM10 Series 12 x 12, THTpage C36



FSM10 Series 12 x 12, Sealed, SMT & THTpage C38



FSMMSH Series 2.55 x 4.5, Miniature Side Action, SMTpage C41



FSMMS Series 3 x 5 Miniature Side Action, SMTpage C43



FSMMST Series "Turtle" Style, SMTpage C45



FSMMDS Series 7.5 x 7.5 Multidirectional, SMTpage C47



FSM . MD Series 12 x 12 Multidirectional, THT & SMTpage C49

FSM . SM & FSM . JM Series 3.5 x 6.0, THT & SMT

Features

- 3 mounting options
- Space saving geometry



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	max 50 mA @ 24 VDC
Contact rating min.	min 10 µA @ 1 VDC
Electrical life	20,000 to 40,000 cycles
Mechanical life	20,000 to 40,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.3 N (130 gf) to 1.8 N (180 gf)
Actuator travel	0.25 mm (.010) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	265°C/10sec wave or 260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Actuator	pps, nylon or pbt
Terminals	copper alloy silver or tin finish
Base	pps or nylon
Cover	stainless steel
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM

1

SM

TR

Type

FSM Tactile switch 3.5 x 5 mm

Actuator length

1	4.3 mm (.169)
2	5.0 mm (.197)

Terminal

blank	through hole - THT
SM	surface mount - SMT
JM	J-lead surface mount - SMT

Actuation force

blank	1.8±0.5 N (180±50 gf)
L	1.3±0.5 N (130±50 gf)

Finish

blank	silver
SN	tin

Packaging

blank	bulk
TR	tape & reel

FSM . SM & FSM . JM Series 3.5 x 6.0, THT & SMT (Continued)

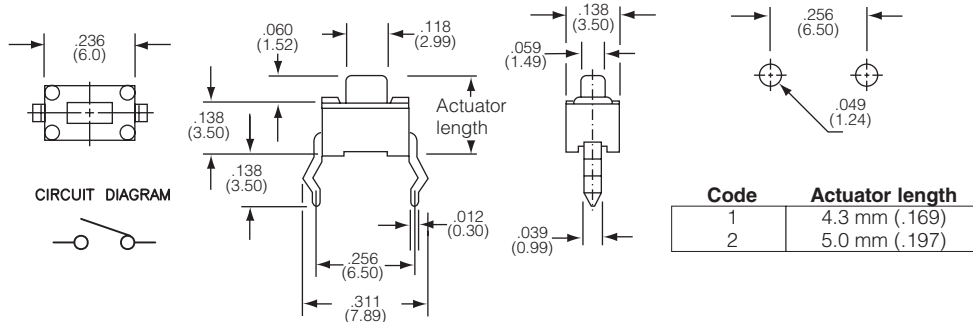
Terminal



blank through hole technology



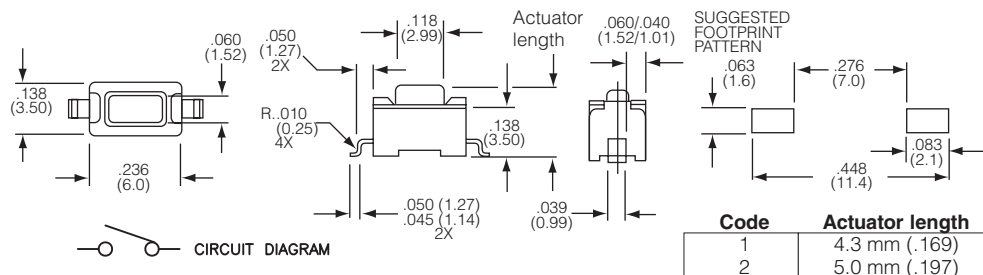
FSM1



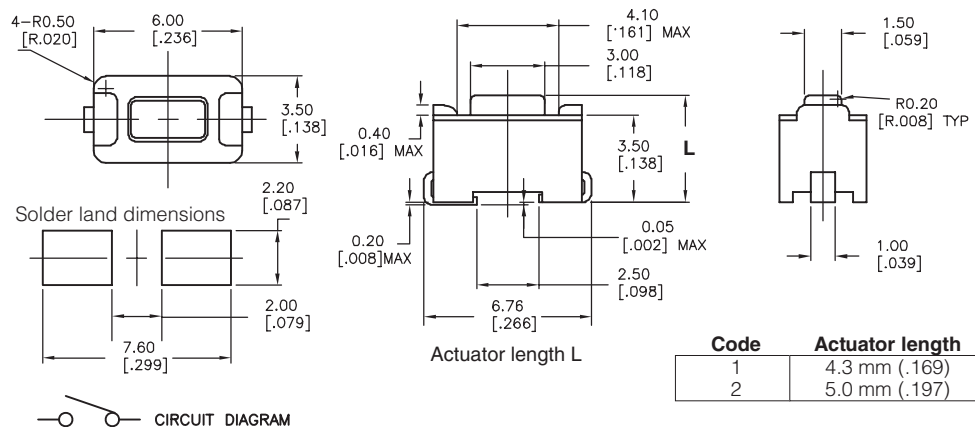
SM surface mount SMT



FSM1SMTR



JM J-lead surface mount - SMT



Product key	Actuator length	Life	Terminal	Actuation force	Finish	Packaging	Part Number
FSM1JML	4.3 mm	40,000	J-lead, SMT	1.8±0.5 N (180±50 gf)	Silver	bulk	147942-1
FSM1JMLTR	(.169)			1.3±0.5 N (130±50 gf)		tape & reel	147942-2
FSM1JMSNTR				1.8±0.5 N (180±50 gf)	Tin		147873-5
FSM1JMTR					Silver		147873-2
FSM1L		20,000	THT	1.3±0.5 N (130±50 gf)		bulk	1825966-1
FSM1SM			SMT	1.8±0.5 N (180±50 gf)			1437566-3
FSM1SMTR						tape & reel	1437566-4
FSM2JMSNTR	5.0 mm	40,000	J-lead, SMT		Tin		147873-4
FSM2JMTR	(.196)				Silver		147873-1
FSM2L		20,000	THT	1.3±0.5 N (130±50 gf)		bulk	1825965-1

Preferred parts in bold print

FSM . SMS & FSM . JMS Series 4.6 x 6.8, Sealed, THT & SMT

Features

- 3 mounting options
- Space saving geometry
- Sealed per IP67



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	max 50 mA @ 24 VDC
Contact rating min.	min 10 µA @ 1 VDC
Electrical life	1,000,000 cycles
Mechanical life	1,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 mOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.3 +/-0.5 N (130 +/-50 gf)
Actuator travel	0.35 mm (.014) average

Environmental specification

Operating temperature	-35 to +105°C in testing
Storage temperature	-35 to +105°C in testing
Solder heat resistance	265°C/10sec wave or 260°C/10s reflow
Seal	IP67

Material specifications

Contacts	stainless steel silver finish
Actuator	nylon
Terminals	copper alloy silver finish
Base	nylon
Cover	nickel silver
Seal	silicon rubber
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM 1 S JM

Type

FSM Sealed tactile switch 4.6 x 6.8 mm, THT & SMD

Actuator length

1	4.3 mm (.169)
2	5.0 mm (.197)

Version

S sealed

Terminal

blank	through hole - THT
SM	surface mount - SMT
JM	J-lead surface mount - SMT

Packaging

blank	bulk
TR	tape & reel

FSM . SMS & FSM . JMS Series 4.6 x 6.8, Sealed, THT & SMT (Continued)

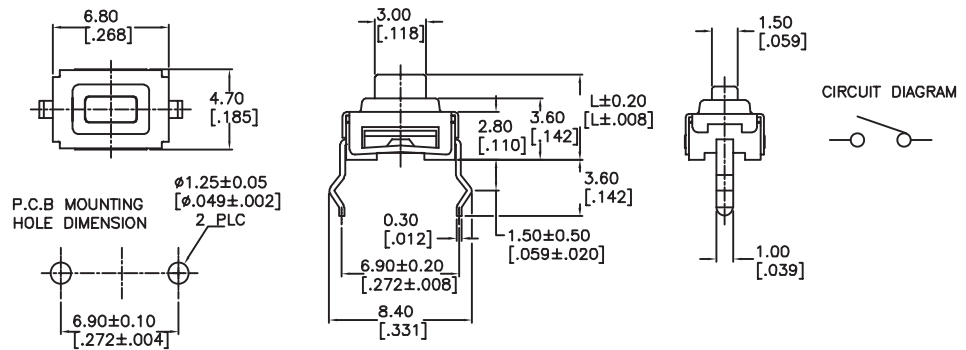
Terminal



blank through hole - THT



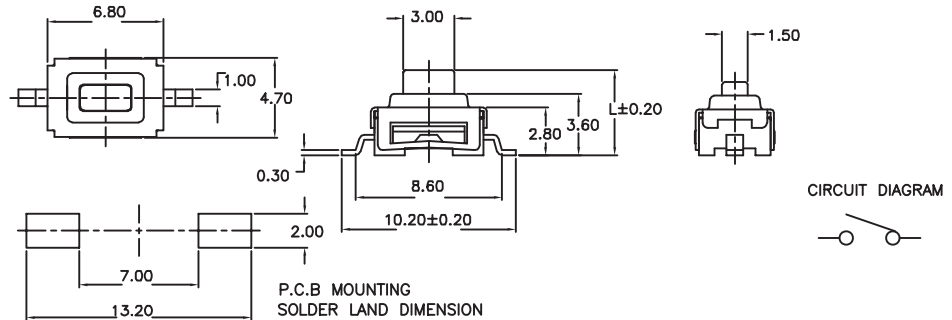
FSM2S



SM surface mount - SMT



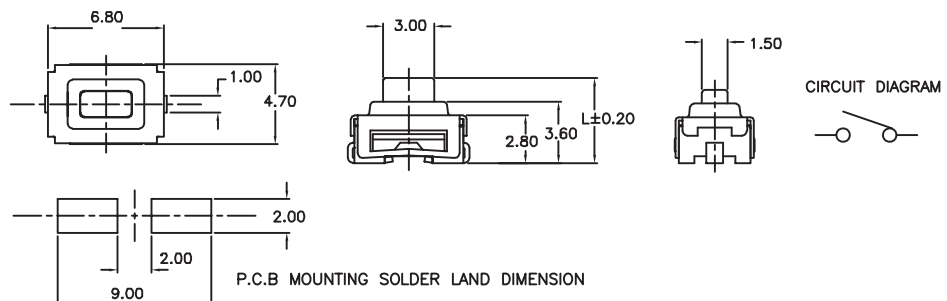
FSM2SSM



JM J-lead surface mount - SMT



FSM2SJM



Product key	Actuator length	Version	Terminal	Packaging	Part Number
FSM1SJM	4.3 mm	sealed	J-lead, SMT	bulk	1571299-1
FSM1SJMTR				tape & reel	1571299-2
FSM2S	5.0 mm		THT	bulk	1571297-1
FSM2SJM			J-lead, SMT		1571299-3
FSM2SJMTR				tape & reel	1571299-4
FSM2SSM			SMT	bulk	1571298-1
FSM2SSMTR				tape & reel	1571298-2

Preferred parts in bold print

FSM . SMLP & FSM . JMLP Series, 4.2 x 6.0, Low profile, SMT

Features

- 2 mounting options
- Space saving geometry
- Low profile



Typical performance characteristics

Contact configuration SPST
Contact rating max. 50 mA @ 32VDC
Contact rating min. 20 μ A @ 1 VDC
Electrical life. 100,000 cycles
Mechanical life. 100,000 cycles
Contact resistance max. 100mOhm
Capacitance min. 100MOhm
Insulation resistance. 250 VAC for 1 min
Actuation force 1.6 N to 5.2 N (160 to 520 gf)
Actuator travel. 0.50 mm (.020) average

Environmental specification

Operating temperature -40 to +85°C
Storage temperature -40 to +100°C
Solder heat resistance 260°C/10s reflow

Material specifications

Contacts stainless steel silver finish
Actuator silicon rubber
Terminals copper alloy silver finish
Base. nylon
Cover stainless steel
RoHS Directive 2002/95/EC compliant

Product key

Typical product key

	FSM	JM	LP	A	TR
Type	Low profile tactile switch 4.2 x 6.0 mm				
Terminal					
JM	J-lead surface mount - SMT	SM	surface mount - SMT		
Version					
LP	low profile version				
Actuation force					
blank	1.6±0.5 N (160±50 gf)	A	2.6±0.5 N (260±50 gf)		
		AA	5.2±1.0 N (520±100 gf)		
Packaging					
TR	tape & reel				

FSM . SMLP & FSM . JMLP Series, 4.2 x 6.0, Low profile, SMT (Continued)

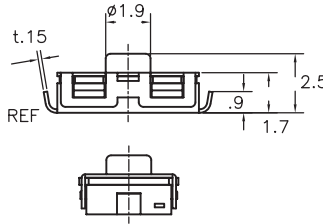
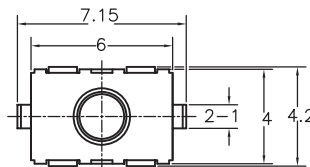
Terminal



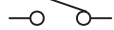
JM J-lead surface mount



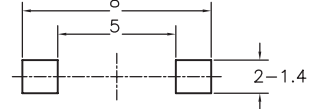
FSMJMPTR



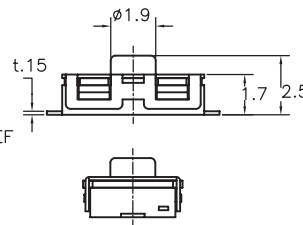
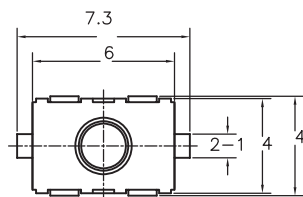
CIRCUIT DIAGRAM



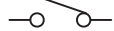
P.C.B SOLDER LAND DIMENSION



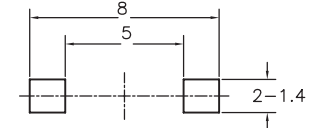
SM surface mount



CIRCUIT DIAGRAM



P.C.B SOLDER LAND DIMENSION



Product key	Terminal	Actuation force	Packaging	Part Number
FSMJMLPTR	J-lead, SMT	1.6±.5 N (160±50 gf)	tape & reel	1571528-1
FSMJMLPATR		2.6±.5 N (260±50 gf)		1571528-2
FSMSMLPTR	SMT	1.6±.5 N (160±50 gf)		1825086-1
FSMSMLPATR		2.6±.5 N (260±50 gf)		1825086-2
FSMSMLPAATR		5.2±1.0 N (520±100 gf)		1825086-3

Preferred parts in bold print

FSMJ Series 6 x 6, THT

Features

- With or without ground terminal
- 9 standard actuator lengths
- 4 different actuation forces



Typical performance characteristics

Contact configuration SPST
 Contact rating max. max 50 mA @ 24 VDC
 Contact rating min. min 10 μ A @ 1 VDC
 Electrical life..... 500,000 cycles
 Mechanical life..... 500,000 cycles
 Contact resistance max 50 mOhm
 Insulation resistance..... min 1,000 MOhm
 Dielectric strength..... 500 VAC for 1 min
 Actuation force..... 1.0 to 5.2 N (100 to 520 gf)
 Actuator travel..... 0.25mm +0.20/-0.10

Environmental specification

Operating temperature -35 to +105°C
 Storage temperature -35 to +105°C
 Solder heat resistance 265°C for 10 s

Material specifications

Contacts & terminals..... copper alloy silver finish
 Actuator & base nylon 66
 Cover PET film or steel
 RoHS Directive 2002/95/EC compliant

Product key

Typical product key

FSM 2 J A H

Type

FSM Tactile switch 6 x 6 mm

Grounding terminal & actuator length

without grounding terminal, actuator length

2 4.3 mm (.169)	8 9.5 mm (.374)	14 13.0 mm (.512)
4 5.0 mm (.196)	10 7.3 mm (.287)	16 17.0 mm (.669)
6 7.0 mm (.276)	12 8.0 mm (.315)	18 8.5 mm (.335)

with grounding terminal, actuator length

1 4.3 mm (.169)	7 9.5 mm (.374)	13 13.0 mm (.512)
3 5.0 mm (.196)	9 7.3 mm (.287)	15 17.0 mm (.669)
5 7.0 mm (.276)	11 8.0 mm (.315)	17 8.5 mm (.335)

Version

J through hole version

Actuation force

L 1.0±0.5 N (100±50 gf)	A 2.6±0.5 N (260±50 gf)
blank 1.6±0.5 N (160±50 gf)	AA 5.2±1.0 N (520±100 gf)

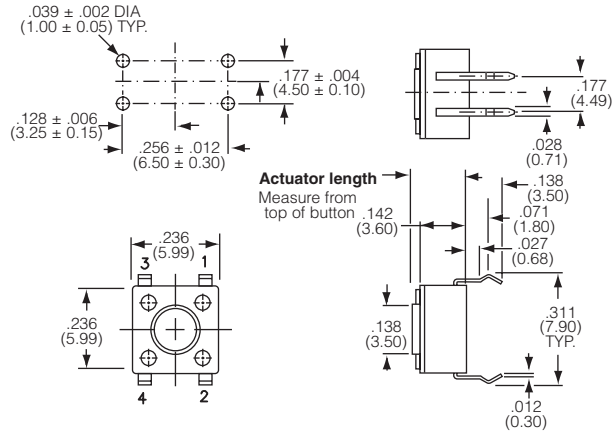
Temperature

H high temperature version, high solder heat resistance

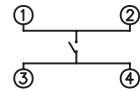
FSMJ Series 6 x 6, THT (Continued)

Grounding terminal & actuator length

Codes 2, 4, 6, 8, 10, 12, 14, 16, 18 without grounding terminal, actuator length

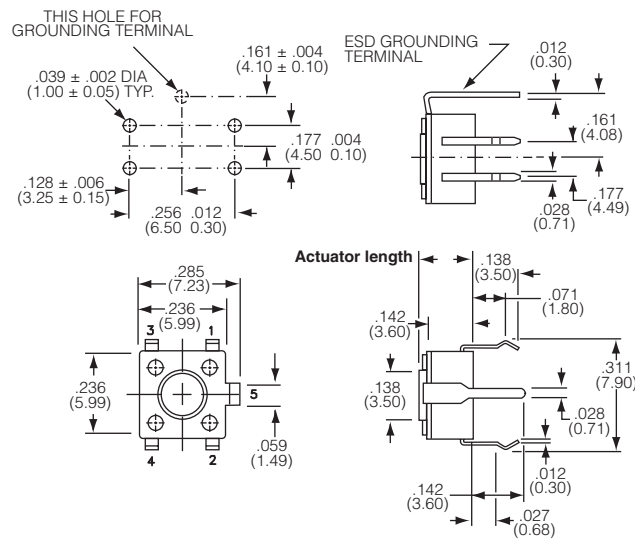


CIRCUIT DIAGRAM

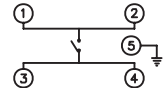


Code	Actuator length
2	4.3 mm (.169)
4	5.0 mm (.196)
6	7.0 mm (.276)
8	9.5 mm (.374)
10	7.3 mm (.287)
12	8.0 mm (.315)
14	13.0 mm (.512)
16	17.0 mm (.669)
18	8.5 mm (.335)

Codes 1, 3, 5, 7, 9, 11, 13, 15, 17 with grounding terminal, actuator length



CIRCUIT DIAGRAM



Code	Actuator length
1	4.3 mm (.169)
3	5.0 mm (.196)
5	7.0 mm (.276)
7	9.5 mm (.374)
9	7.3 mm (.287)
11	8.0 mm (.315)
13	13.0 mm (.512)
15	17.0 mm (.669)
17	8.5 mm (.335)

FSMJ Series 6 x 6, THT (Continued)

Product key	Grounding	Actuator length	Version	Actuation force	Temperature	Part Number
FSM2JLH	without grounding terminal	4.3 mm (.169)	through hole version	1.0±0.5 N (100±50 gf)	high	1825910-1
FSM2JH				1.6±0.5 N (160±50 gf)	temperature	1825910-2
FSM2JAH		2.6±0.5 N (260±50 gf)		version	1825910-3	
FSM2JAAH		5.2±1.0 N (520±100 gf)		high solder heat resistance	1825910-4	
FSM4JLH		5.0 mm (.196)		1.0±0.5 N (100±50 gf)		1825910-5
FSM4JH				1.6±0.5 N (160±50 gf)		1825910-6
FSM4JAH		2.6±0.5 N (260±50 gf)		1825910-7		
FSM4JAAH		5.2±1.0 N (520±100 gf)		1825910-8		
FSM6JLH		7.0 mm (.276)		1.0±0.5 N (100±50 gf)		1825910-9
FSM6JH				1.6±0.5 N (160±50 gf)		1-1825910-0
FSM6JAH		2.6±0.5 N (260±50 gf)		1-1825910-1		
FSM6JAAH		5.2±1.0 N (520±100 gf)		1-1825910-2		
FSM8JLH		9.5 mm (.374)		1.0±0.5 N (100±50 gf)		1-1825910-3
FSM8JH				1.6±0.5 N (160±50 gf)		1-1825910-4
FSM8JAH		2.6±0.5 N (260±50 gf)		1-1825910-5		
FSM8JAAH		5.2±1.0 N (520±100 gf)		1-1825910-6		
FSM10JLH		7.3 mm (.287)		1.0±0.5 N (100±50 gf)		1-1825910-7
FSM10JH				1.6±0.5 N (160±50 gf)		1-1825910-8
FSM10JAH		2.6±0.5 N (260±50 gf)		1-1825910-9		
FSM10JAAH		5.2±1.0 N (520±100 gf)		2-1825910-0		
FSM12JLH		8.0 mm (.315)		1.0±0.5 N (100±50 gf)		2-1825910-1
FSM12JH				1.6±0.5 N (160±50 gf)		2-1825910-2
FSM12JAH		2.6±0.5 N (260±50 gf)		2-1825910-3		
FSM12JAAH		5.2±1.0 N (520±100 gf)		2-1825910-5		
FSM14JLH		13.0 mm (.512)		1.0±0.5 N (100±50 gf)		2-1825910-6
FSM14JH				1.6±0.5 N (160±50 gf)		2-1825910-7
FSM14JAH		2.6±0.5 N (260±50 gf)		2-1825910-8		
FSM14JAAH		5.2±1.0 N (520±100 gf)		2-1825910-9		
FSM16JLH		17.0 mm (.669)		1.0±0.5 N (100±50 gf)		3-1825910-0
FSM16JH				1.6±0.5 N (160±50 gf)		3-1825910-1
FSM16JAH		2.6±0.5 N (260±50 gf)		3-1825910-2		
FSM16JAAH		5.2±1.0 N (520±100 gf)		3-1825910-3		
FSM18JLH		8.5 mm (.335)		1.0±0.5 N (100±50 gf)		3-1825910-4
FSM18JH				1.6±0.5 N (160±50 gf)		3-1825910-5
FSM18JAH		2.6±0.5 N (260±50 gf)		3-1825910-6		
FSM18JAAH		5.2±1.0 N (520±100 gf)		3-1825910-7		
FSM1JLH	with grounding terminal	4.3 mm (.169)		1.0±0.5 N (100±50 gf)		1825955-1
FSM1JH				1.6±0.5 N (160±50 gf)		1825955-2
FSM1JAH		2.6±0.5 N (260±50 gf)		1825955-3		
FSM1JAAH		5.2±1.0 N (520±100 gf)		1825955-4		
FSM3JLH		5.0 mm (.196)		1.0±0.5 N (100±50 gf)		1825955-5
FSM3JH				1.6±0.5 N (160±50 gf)		1825955-6
FSM3JAH		2.6±0.5 N (260±50 gf)		1825955-7		
FSM3JAAH		5.2±1.0 N (520±100 gf)		1825955-8		
FSM5JLH		7.0 mm (.276)		1.0±0.5 N (100±50 gf)		1825955-9
FSM5JH				1.6±0.5 N (160±50 gf)		1-1825955-0
FSM5JAH		2.6±0.5 N (260±50 gf)		1-1825955-1		
FSM5JAAH		5.2±1.0 N (520±100 gf)		1-1825955-2		
FSM7JLH		9.5 mm (.374)		1.0±0.5 N (100±50 gf)		1-1825955-3
FSM7JH				1.6±0.5 N (160±50 gf)		1-1825955-4
FSM7JAH		2.6±0.5 N (260±50 gf)		1-1825955-5		
FSM7JAAH		5.2±1.0 N (520±100 gf)		1-1825955-6		
FSM9JLH		7.3 mm (.287)		1.0±0.5 N (100±50 gf)		1-1825955-7
FSM9JH				1.6±0.5 N (160±50 gf)		1-1825955-8
FSM9JAH		2.6±0.5 N (260±50 gf)		1-1825955-9		
FSM9JAAH		5.2±1.0 N (520±100 gf)		2-1825955-0		
FSM11JLH		8.0 mm (.315)		1.0±0.5 N (100±50 gf)		2-1825955-1
FSM11JH				1.6±0.5 N (160±50 gf)		2-1825955-2
FSM11JAH		2.6±0.5 N (260±50 gf)		2-1825955-3		
FSM11JAAH		5.2±1.0 N (520±100 gf)		2-1825955-4		
FSM13JLH		13.0 mm (.512)		1.0±0.5 N (100±50 gf)		2-1825955-5
FSM13JH				1.6±0.5 N (160±50 gf)		2-1825955-6
FSM13JAH		2.6±0.5 N (260±50 gf)		2-1825955-7		
FSM13JAAH		5.2±1.0 N (520±100 gf)		2-1825955-8		
FSM15JLH		17.0 mm (.669)		1.0±0.5 N (100±50 gf)		2-1825955-9
FSM15JH				1.6±0.5 N (160±50 gf)		3-1825955-0
FSM15JAH		2.6±0.5 N (260±50 gf)		3-1825955-1		
FSM15JAAH		5.2±1.0 N (520±100 gf)		3-1825955-2		
FSM17JLH		8.5 mm (.335)		1.0±0.5 N (100±50 gf)		3-1825955-3
FSM17JH				1.6±0.5 N (160±50 gf)		3-1825955-4
FSM17JAH		2.6±0.5 N (260±50 gf)		3-1825955-5		
FSM17JAAH		5.2±1.0 N (520±100 gf)		3-1825955-6		

Preferred parts in bold print

FSMCD Series 6 x 6, Square Button, THT

Features

- Square actuator
- Vertical and right angle



Typical performance characteristics

Contact configuration SPST
 Contact rating max. max 50 mA @ 24 VDC
 Contact rating min. min 10 μ A @ 1 VDC
 Electrical life 500,000 cycles
 Mechanical life 500,000 cycles
 Contact resistance max 100 mOhm
 Insulation resistance min 100 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 1.6 to 2.6 N (160 to 260 gf)
 Actuator travel0.25 mm (.010) average

Environmental specification

Operating temperature -35 to +105°C
 Storage temperature -35 to +105°C
 Solder heat resistance 265°C/10s wave

Material specifications

Contacts & terminals copper alloy silver finish
 Actuator & base nylon 6/6
 Cover steel, tin finish
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key				
Type		FSM				
FSM	Tactile switch 6 x 6 mm					
Operating direction						
blank	vertical					
RA	horizontal, right angle					
Version						
CD	square button version					
Actuator size						
1	2.42 mm (.095)					
2	2.8 mm (.110)					
Actuation force						
blank	1.6±0.5 N (160±50 gf)					
A	2.6±0.5 N (260±50 gf)					
Temperature						
H	high temperature version, high solder heat resistance					

FSMCD Series 6 x 6, Square Button, THT (Continued)

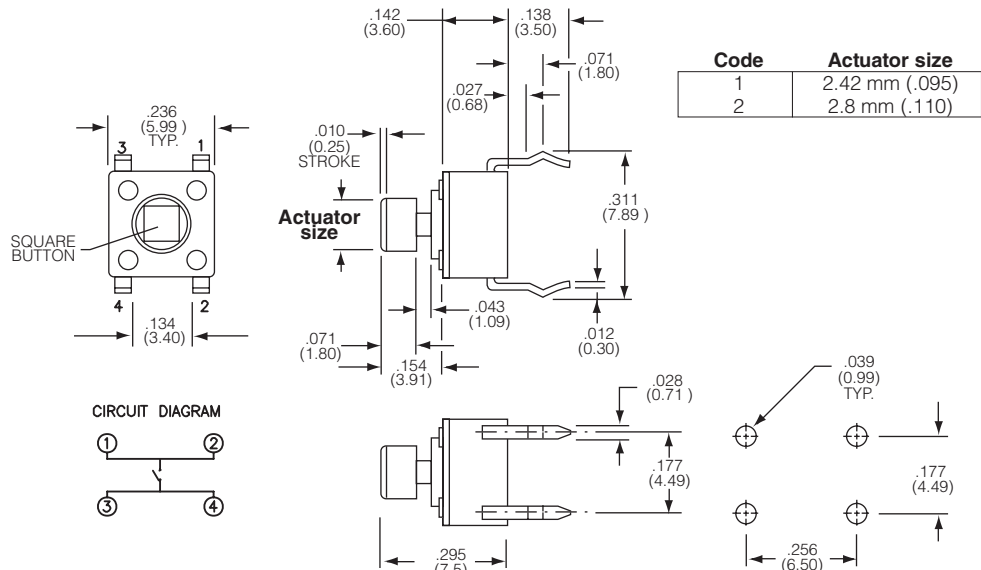
Operating direction



blank vertical version



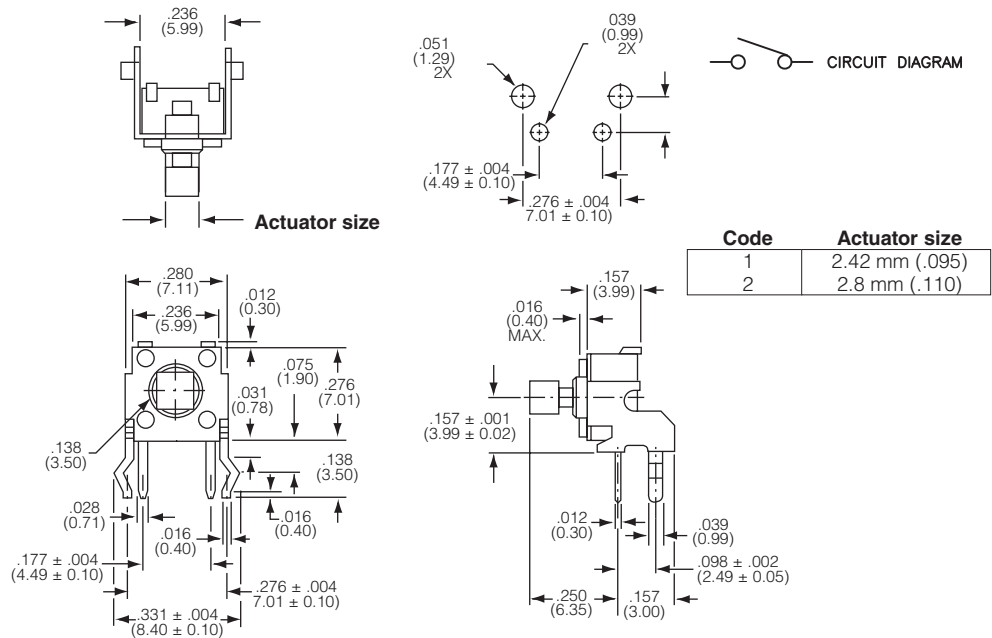
FSMCDA



RA right angle version



FSMRACDA



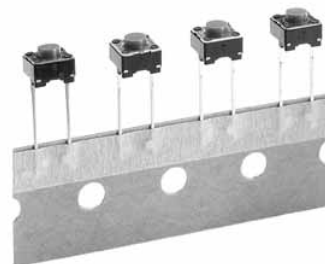
Product key	Operating direction	Version	Actuatore size	Actuation force	Temperature	Part Number
FSMCD2H	vertical	square button	2.80 mm (.110)	1.6±0.5 N (160±50 gf)	high	1825967-2
FSMCD1H	(.374)	version	2.42 mm (.095)		temperature	1825967-1
FSMRACD2AH	horizontal		2.80 mm (.110)	2.6±0.5 N (260±50 gf)	version	1825968-3
FSMRACD2H	right angle			1.6±0.5 N (160±50 gf)	high solder heat	1825968-2
FSMRACD1H	(.197)		2.42 mm (.095)		resistance	1825968-1

Preferred parts in bold print

FSMJRT Series 6 x 6, Radial Tape, THT

Features

- Radial tape packaged



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	500,000 cycles
Mechanical life	500,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.6 to 2.6 N (160 to 260 gf)
Actuator travel	0.25mm (.010) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	265°C/10s wave

Material specifications

Contacts & terminals	copper alloy silver finish
Actuator	acetal or pbt
Base	pbt
Cover	steel, tin finish
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM 2 J A RT

Type

FSM Tactile switch 6 x 6 mm

Actuator length

2	4.3 mm (.169)
4	5.0 mm (.196)
6	7.0 mm (.276)
8	9.5 mm (.374)
14	13.0 mm (.512)

Version

J radial tape version

Actuation force

blank	1.6 $\pm$ 0.5 N (160 $\pm$ 50 gf)
A	2.6 $\pm$ 0.5 N (260 $\pm$ 50 gf)

Packaging

RT radial tape

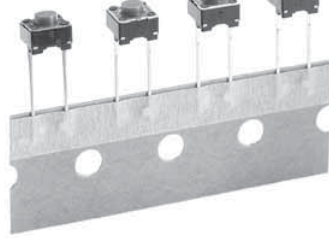
FSMJRT Series 6 x 6, Radial Tape, THT (Continued)

Actuator length

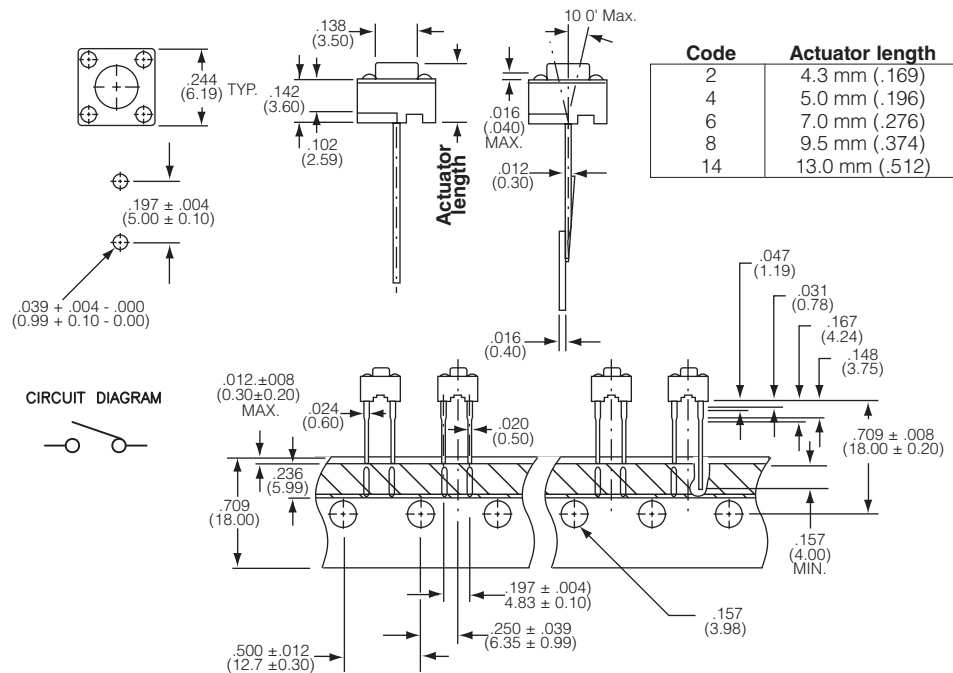


Codes 2, 4, 6, 8, 10, 12, 14, 16, 18

Tactile Switches



FSM4JRT



Code	Actuator length
2	4.3 mm (.169)
4	5.0 mm (.196)
6	7.0 mm (.276)
8	9.5 mm (.374)
14	13.0 mm (.512)

Product key	Actuator length	Version	Actuation force	Packaging	Part Number
FSM14JRT	13.0 mm (.512)	radial tape	1.6±0.5 N (160±50 gf)	radial type	1571010-1
FSM8JART	9.5 mm	version	2.6±0.5 N (260±50 gf)	tape & reel	147871-1
FSM8JRT	(.374)		1.6±0.5 N (160±50 gf)		147694-1
FSM6JART	7.0 mm		2.6±0.5 N (260±50 gf)		1571402-1
FSM6JRT	(.276)		1.6±0.5 N (160±50 gf)		4-1437565-8
FSM4JART	5.0 mm		2.6±0.5 N (260±50 gf)		147997-1
FSM4JRT	(.197)		1.6±0.5 N (160±50 gf)		4-1437565-0
FSM2JRT	4.3 mm				2-1437565-6
FSM2JART	(.169)		2.6±0.5 N (260±50 gf)		2-1437565-2

FSMRAJ Series 6 x 6, Right Angle, THT

Features

- Right angle mounting



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	500,000 cycles
Mechanical life	500,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.3 N (130 gf)
Actuator travel	0.25mm (.010) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	265°C/10s wave

Material specifications

Contacts & terminals	copper alloy silver finish
Actuator	nylon 6/6 or pbt
Base	nylon 6/6
Cover	steel tin finish
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM RA 2 JH L

Type

FSM Tactile switch 6 x 6 mm

Version

RA right angle version

Actuator length

1	3.15 mm (.124)	5	6.15 mm (.242)
2	3.86 mm (.152)	6	6.85 mm (.270)
3	5.85 mm (.230)	7	11.85 mm (.467)
4	8.35 mm (.329)	8	15.85 mm (.624)

Version

JH high temperature version, high solder heat resistance

Actuation force

L	1.0±0.3 N (100±30 gf)	A	2.6±0.5 N (260±50 gf)
blank	1.6±0.5 N (160±50 gf)		

FSMRAJ Series 6 x 6, Right Angle, THT (Continued)

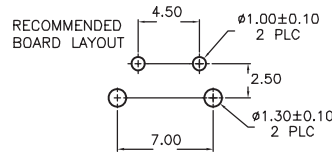
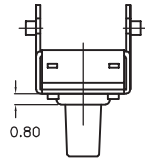
Actuator length



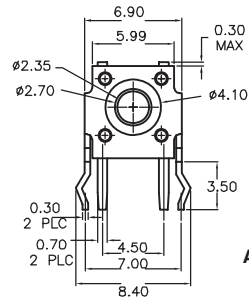
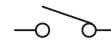
Codes 1, 2, 3, 4, 5, 6, 7, 8



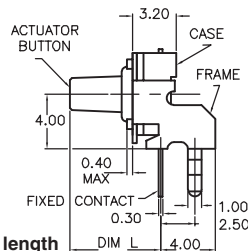
FSMRA7J



CIRCUIT DIAGRAM



Actuator length



Code	Actuator length
1	3.15 mm (.124)
2	3.86 mm (.152)
3	5.85 mm (.230)
4	8.35 mm (.329)
5	6.15 mm (.242)
6	6.85 mm (.270)
7	11.85 mm (.467)
8	15.85 mm (.624)

Product key	Version	Actuator length	Version	Actuation force	Part Number
FSMRA1JHL	version		resistance	1.0±0.3 N (100±30 gf)	1825027-1
FSMRA1JH	right angle	(.124)	high solder heat	1.6±0.5 N (160±50 gf)	1825027-2
FSMRA1JHA		3.15 mm	version	2.6±0.5 N (260±50 gf)	1825027-3
FSMRA2JHL			temperature	1.0±0.3 N (100±30 gf)	1825027-4
FSMRA2JH		(.152)	high	1.6±0.5 N (160±50 gf)	1825027-5
FSMRA2JHA		3.86 mm		2.6±0.5 N (260±50 gf)	1825027-6
FSMRA3JHL				1.0±0.3 N (100±30 gf)	1825027-7
FSMRA3JH		(.230)		1.6±0.5 N (160±50 gf)	1825027-8
FSMRA3JHA		5.85 mm		2.6±0.5 N (260±50 gf)	1825027-9
FSMRA4JHL				1.0±0.3 N (100±30 gf)	1-1825027-0
FSMRA4JH		(.329)		1.6±0.5 N (160±50 gf)	1-1825027-1
FSMRA4JHA		8.35 mm		2.6±0.5 N (260±50 gf)	1-1825027-2
FSMRA5JHL				1.0±0.3 N (100±30 gf)	1-1825027-3
FSMRA5JH		(.242)		1.6±0.5 N (160±50 gf)	1-1825027-4
FSMRA5JHA		6.15 mm		2.6±0.5 N (260±50 gf)	1-1825027-5
FSMRA6JHL				1.0±0.3 N (100±30 gf)	1-1825027-6
FSMRA6JH		(.270)		1.6±0.5 N (160±50 gf)	1-1825027-7
FSMRA6JHA		6.85 mm		2.6±0.5 N (260±50 gf)	1-1825027-8
FSMRA7JHL				1.0±0.3 N (100±30 gf)	1-1825027-9
FSMRA7JH		(.467)		1.6±0.5 N (160±50 gf)	2-1825027-0
FSMRA7JHA		11.85 mm		2.6±0.5 N (260±50 gf)	2-1825027-1
FSMRA8JHL				1.0±0.3 N (100±30 gf)	2-1825027-2
FSMRA8JH		(.624)		1.6±0.5 N (160±50 gf)	2-1825027-3
FSMRA8JHA		15.85 mm		2.6±0.5 N (260±50 gf)	2-1825027-4

Preferred parts in bold print

FSMJSM Series 6 x 6, SMT

Features

- Surface mount
- Tape & reel packaging available



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 µA @ 1 VDC
Electrical life	1,000,000 cycles
Mechanical life	1,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	0.7 to 2.6 N (70 to 260 gf)
Actuator travel	0.25 mm +0.20/-0.10 (.010 +.008/-.004)

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts & terminals	copper alloy silver finish
Actuator	pps or nylon
Base	pps
Cover	steel, tin finish
RoHS Directive 2002/95/EC	compliant

Product key		Typical product key		FSM	2	JSM	L	S	TR
Type									
FSM	Tactile switch 6 x 6 mm								
Actuator length									
2	4.3 mm (.169)		8	9.5 mm (.374)					
4	5.0 mm (.196)		14	13.0 mm (.512)					
6	7.0 mm (.276)								
Version									
JSM	surface mount version								
Actuation force									
XL	0.7±0.3 N (70±30 gf)		A	1.6±0.5 N (160±50 gf)					
L	1.0±0.3 N (100±30 gf)		AA	2.6±0.5 N (520±50 gf)					
Switching dome									
S	steel dome								
Packaging									
blank	bulk								
TR	tape & reel								

FSMJSM Series 6 x 6, SMT (Continued)

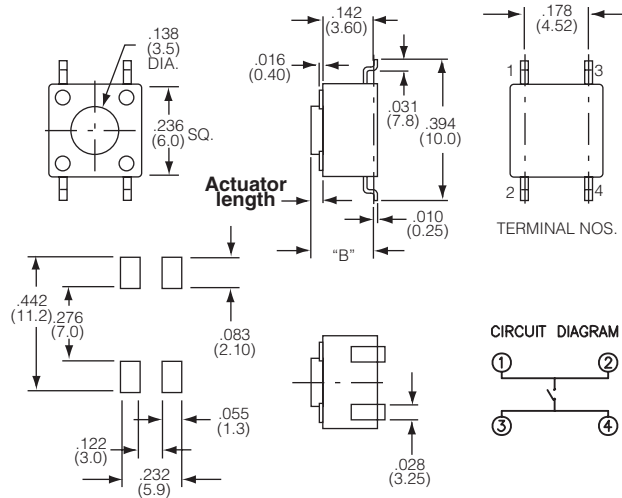
Actuator length



Codes 2, 4, 6, 8, 14



FSM2JSMA



Code	Actuator length
2	4.3 mm (.169)
4	5.0 mm (.196)
6	7.0 mm (.276)
8	9.5 mm (.374)
14	13.0 mm (.512)

Product key	Actuator length	Version	Actuation force	Packaging	Part Number
FSM2JSMAAS	4.3 mm	version	2.6±0.5 N (260±50 gf)	bulk	1977223-5
FSM2JSMAASTR	(.169)	surface mount		tape & reel	1977223-6
FSM2JSMAAS		J-lead	1.6±0.5 N (160±50 gf)	bulk	1977223-3
FSM2JSMASTR				tape & reel	1977223-4
FSM2JSMLS			1.0±0.3 N (100±30 gf)	bulk	1977223-1
FSM2JSMLSTR				tape & reel	1977223-2
FSM4JSMAAS	5.0 mm		2.6±0.5 N (260±50 gf)	bulk	1-1977223-1
FSM4JSMAASTR	(.196)			tape & reel	1-1977223-2
FSM4JSMAAS			1.6±0.5 N (160±50 gf)	bulk	1977223-9
FSM4JSMASTR				tape & reel	1-1977223-0
FSM4JSMLS			1.0±0.3 N (100±30 gf)	bulk	1977223-7
FSM4JSMLSTR				tape & reel	1977223-8
FSM6JSMAAS	7.0 mm		2.6±0.5 N (260±50 gf)	bulk	1-1977223-9
FSM6JSMAASTR	(.276)			tape & reel	2-1977223-0
FSM6JSMAAS			1.6±0.5 N (160±50 gf)	bulk	1-1977223-7
FSM6JSMASTR				tape & reel	1-1977223-8
FSM6JSMLS			1.0±0.3 N (100±30 gf)	bulk	1-1977223-5
FSM6JSMLSTR				tape & reel	1-1977223-6
FSM8JSMAAS	9.5 mm		2.6±0.5 N (260±50 gf)	bulk	2-1977223-5
FSM8JSMAASTR	(.374)			tape & reel	2-1977223-6
FSM8JSMAAS			1.6±0.5 N (160±50 gf)	bulk	2-1977223-3
FSM8JSMASTR				tape & reel	2-1977223-4
FSM8JSMLS			1.0±0.3 N (100±30 gf)	bulk	2-1977223-1
FSM8JSMLSTR				tape & reel	2-1977223-2
FSM14JSMAAS	13.0 mm		2.6±0.5 N (260±50 gf)	bulk	2-1977223-9
FSM14JSMAAS	(.512)		1.6±0.5 N (160±50 gf)		2-1977223-8
FSM14JSMLS			1.0±0.3 N (100±30 gf)		2-1977223-7

Preferred parts in bold print

FSMLP Series 6 x 6, Low Profile, SMT

Features

- Low profile design



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	500,000 cycles
Mechanical life	500,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.6 to 2.6 N (160 to 260 gf)
Actuator travel	0.25 mm +0.20/-0.10 (.010 +.008/-.004)

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish/copper alloy silver finish
Actuator & base	PPS
Terminals	copper alloy silver finish
Cover	nickel silver/steel tin finish
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM 1 LP A S TR

Type

FSM Tactile switch 6 x 6 mm

Actuator length & grounding terminal

1	3.1mm (.122), with grounding
4	4.3mm (.169), without grounding

Version

LP low profile version

Actuation force

blank	1.6±0.5 N (160±50 gf)
A	2.6±0.5 N (260±50 gf)

Switching dome

S steel dome

Packaging

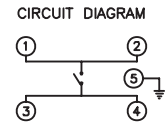
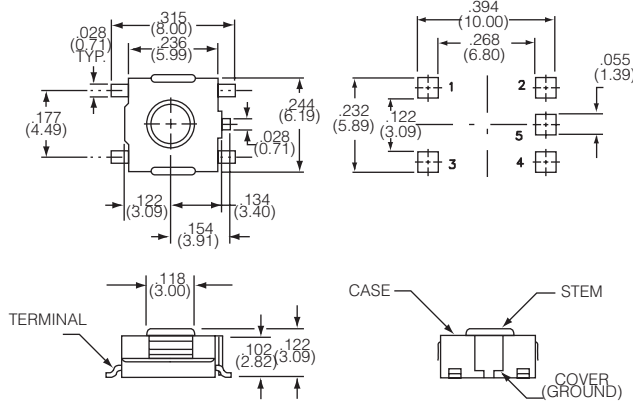
blank	bulk
TR	tape & reel

FSMLP Series 6 x 6, Low Profile, SMT (Continued)

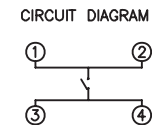
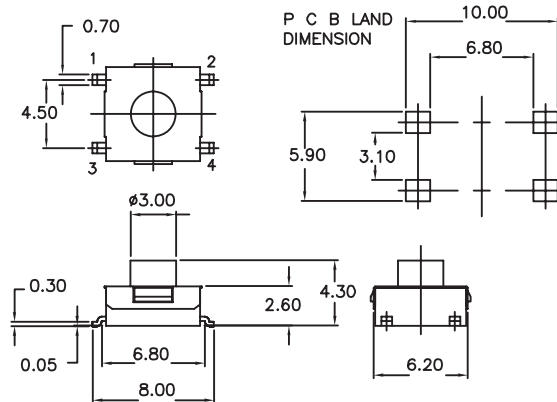
Actuator length & grounding terminal



Code 1 with grounding terminal, 3.1 mm



Code 4 without grounding terminal, 4.3 mm



Product key	Actuator length	Version	Actuation force	Packaging	Part Number
FSM1LPS	3.1 mm	low profile	1.6±0.5 N (160±50 gf)	bulk	1977263-1
FSM1LPAS	(.169)	version	2.6±0.5 N (260±50 gf)	bulk	1977263-2
FSM1LPASTR			1.6±0.5 N (160±50 gf)	tape & reel	1977263-3
FSM1LPSTR			2.6±0.5 N (260±50 gf)	tape & reel	1977263-4
FSM4LPAS	4.3 mm			bulk	1977264-1
FSM4LPASTR	(.196)			tape & reel	1977264-2

Preferred parts in bold print

FSMJEL Series 6 x 6, Extended Life, SMT

Features

- Gullwing, J-lead and gullwing w/grnd terminal surface mount
- Low profile design
- Extended life cycle



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	100,000 to 2,000,000 cycles
Mechanical life	100,000 to 2,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	0.5 to 2.6 N (50 to 260 gf)
Actuator travel	0.20 mm (.008) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow

Material specifications

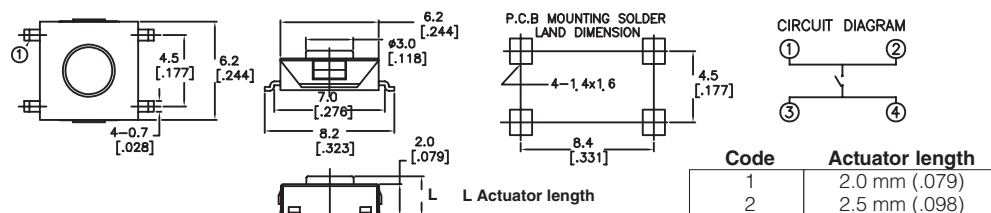
Contacts	stainless steel silver finish
Actuator	nylon
Terminals	copper alloy silver finish
Base	PPS
Cover	copper alloy, tin finish or stainless steel
RoHS Directive 2002/95/EC	compliant

Product key		Typical product key				
Type		FSM	1	JEL	G	TR
FSM	Tactile switch 6 x 6 mm					
Actuator length						
1	2.0 mm (.079)					
2	2.5 mm (.098)					
Version						
JEL	extended life version					
Terminals						
G	gullwing					
GE	gullwing with ground terminal					
J	J-lead					
Actuation force						
XL	0.5±0.3 N (50±30 gf), 1,000,000 cycles	blank	1.6±0.5 N (160±50 gf), 1,000,000 cycles			
L	1.0±0.5 N (100±50 gf), 1,000,000 cycles	A	2.6±0.5 N (520±50 gf), 100,000 cycles			
Packaging						
blank	bulk					
TR	tape & reel					

Terminal

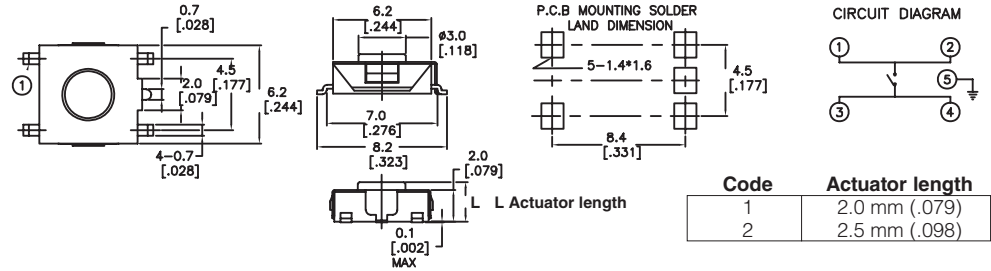


G gullwing terminal

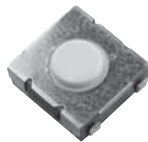


FSMJEL Series 6 x 6, Extended Life, SMT (Continued)

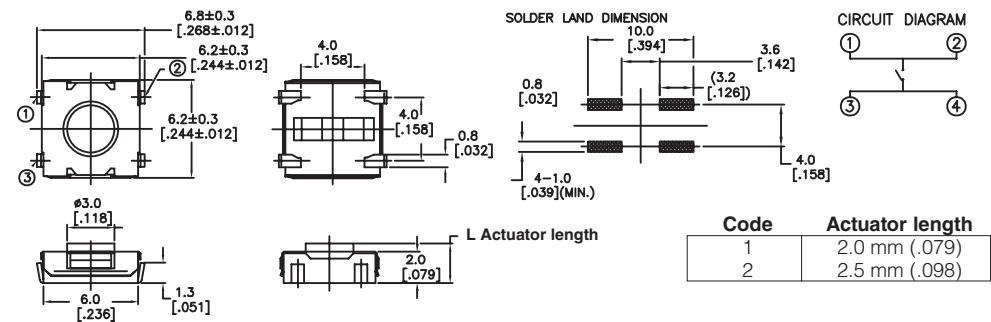
GE gullwing with ground terminal



J J-lead terminal



FSM1JELJ



Product key	Actuator length	Version	Terminal	Actuation force	Life	Packaging	Part Number
FSM1JELG	2.0 mm	extended	gullwing	1.6±0.5 N (160±50 gf)	1,000,000	bulk	1571626-7
FSM1JELGE	(.079)	life	gullwing				1571636-7
FSM1JELGETR		version	with ground			tape & reel	1571636-8
FSM1JELGTR			gullwing			bulk	1571626-8
FSM2JELG	2.5 mm			2.6±0.5 N (260±50 gf)	100,000	bulk	1571626-5
FSM2JELGA	(.098)						1571626-9
FSM2JELGATR						tape & reel	1-1571626-0
FSM2JELGE			gullwing	1.6±0.5 N (160±50 gf)	1,000,000	bulk	1571636-5
FSM2JELGEA			with ground	2.6±0.5 N (260±50 gf)	100,000		1571636-9
FSM2JELGEATR						tape & reel	1-1571636-0
FSM2JELGEL				1.0±0.3 N (100±30 gf)	1,000,000	bulk	1571636-3
FSM2JELGELTR						tape & reel	1571636-4
FSM2JELGETR				1.6±0.5 N (160±50 gf)			1571636-6
FSM2JELGEXL				0.5±0.3 N (50±30 gf)		bulk	1571636-1
FSM2JELGEXLTR						tape & reel	1571636-2
FSM2JELGL			gullwing	1.0±0.3 N (100±30 gf)		bulk	1571626-3
FSM2JELGLTR						tape & reel	1571626-4
FSM2JELGTR				1.6±0.5 N (160±50 gf)			1571626-6
FSM2JELGXL				0.5±0.3 N (50±30 gf)		bulk	1571626-1
FSM2JELGXLTR						tape & reel	1571626-2
FSM2JELJ			J-lead	1.6±0.5 N (160±50 gf)		bulk	1571625-5
FSM2JELJA				2.6±0.5 N (260±50 gf)	100,000		1571625-7
FSM2JELJATR						tape & reel	1571625-8
FSM2JELJL				1.0±0.3 N (100±30 gf)	1,000,000	bulk	1571625-3
FSM2JELJLTR						tape & reel	1571625-4
FSM2JELJTR				1.6±0.5 N (160±50 gf)			1571625-6
FSM2JELJXL				0.5±0.3 N (50±30 gf)	2,000,000	bulk	1571625-1
FSM2JELJXLTR						tape & reel	1571625-2

Preferred parts in bold print

FSMJX Series 6 x 6, Extreme Life Cycle, SMT

Features

- The ultimate in tactile functionality
- 5,000,000 cycles
- Soft actuator allows ample over travel protection
- Tested to operate normally after being compressed for 10 years (reference 109-1098)
- Tape and reel packaging available



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	5,000,000 cycles
Mechanical life	5,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	250 VAC for 1 min
Actuation force	1.6 +/-0.5 N (160 +/-50 gf)
Actuator travel	0.38 mm (.015) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Actuator	silicon rubber
Terminals	copper alloy silver finish
Base	pps
Cover	stainless steel
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM

JX

Type

FSM Tactile switch 6 x 6 mm

Version

JX extreme life cycle version

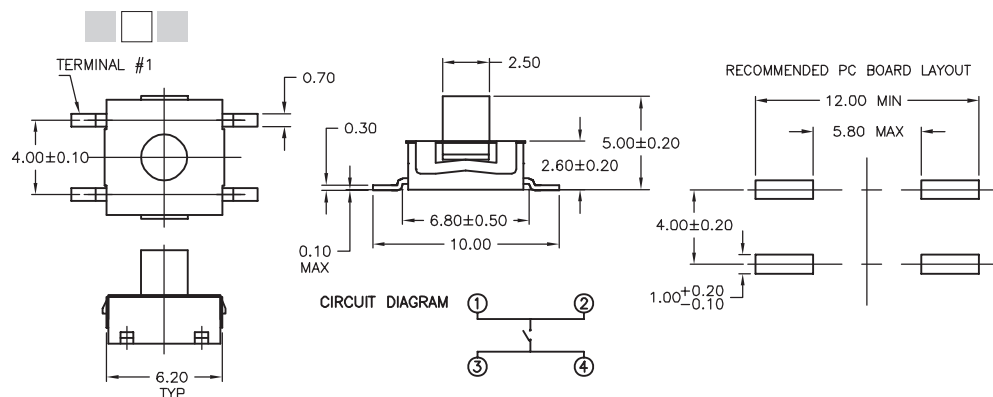
Packaging

blank bulk
TR tape & reel

Extreme life cycle version



FSMJX

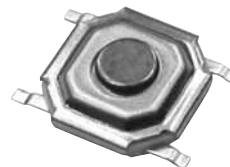


Product key	Version	Packaging	Part Number
FSMJX	extreme	bulk	1571634-1
FSMJXTR	life cycle	tape & reel	1571634-2

FSMCT Series 5.2 x 5.2, Ultra Low Profile, SMT

Features

- Ultra low profile design
- Metal actuator



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	500,000 to 1,000,000 cycles
Mechanical life	500,000 to 1,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.6 to 2.6 N (160 to 260 gf)
Actuator travel	0.25 mm +0.10/-0.20 (.010 +.004/-.008)

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Actuator	copper alloy
Terminals	copper alloy silver finish
Base	nylon 46
Cover	stainless steel
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM **CT** **TR**

Type

FSM Tactile switch 5.2 x 5.2 mm

Version

CT ultra low profile version

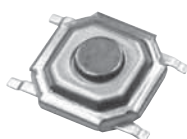
Actuation force

blank 1.6 $\pm$ 0.5 N (160 $\pm$ 50 gf), 1,000,000 cycles
A 2.6 $\pm$ 0.5 N (260 $\pm$ 50 gf), 500,000 cycles

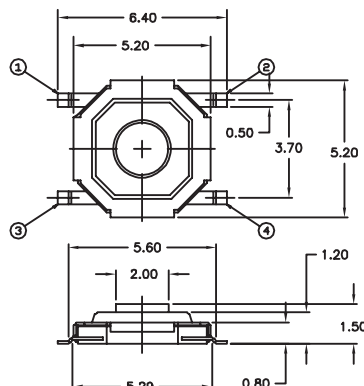
Packaging

TR tape & reel

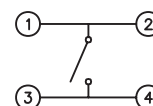
Ultra low profile version



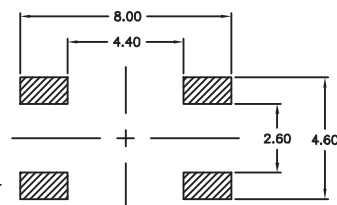
FSMCTTR



CIRCUIT DIAGRAM



P.C. BOARD LAYOUT



Product key	Version	Actuation force	Life	Packaging	Part Number
FSMCTTR	ultra low	1.6 $\pm$ 0.5 N (160 $\pm$ 50 gf)	1,000,000	tape & reel	8-1437565-0
FSMCTATR	profile version	2.6 $\pm$ 0.5 N (260 $\pm$ 50 gf)	500,000		8-1437565-1

Preferred parts in bold print

FSMLPU Series 4.8 x 4.8, Slimline, SMT

Features

- Ultra low (0.50mm) profile design



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	500,000 cycles
Mechanical life	500,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.6 N (160 gf)
Actuator travel	0.20 mm (.008) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Terminals	copper alloy silver finish
Base	nylon 46
Masking	PL film
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM

LPU

TR

Type

FSM Tactile switch 4.8 x 4.8 mm

Version

LPU slimline version

Packaging

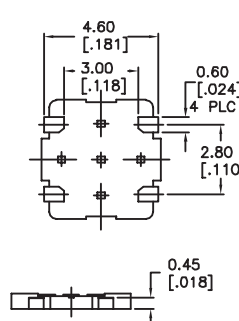
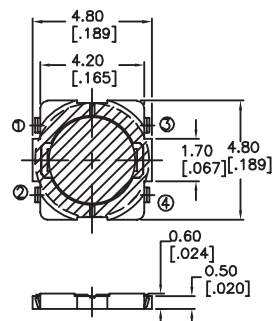
TR tape & reel

Version

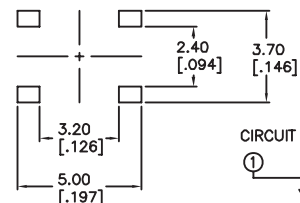
LPU slimline version



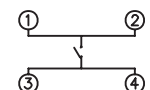
FSMLPUTR



SOLDER PAD LAYOUT



CIRCUIT DIAGRAM



Product key	Version	Actuation force	Packaging	Part Number
FSMLPUTR	slimline version	1.6±0.5 N (160±50 gf)	tape & reel	1825534-1

Preferred parts in bold print

FSMJS6 Series 6 x 6, Sealed, SMT

Features

- Sealed to IP67
- Tape & reel available



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24VDC
Contact rating min.	10 mA @ 1 VDC
Electrical life	1,000,000 cycles
Mechanical life	1,000,000 cycles
Contact resistance	max. 100mOhm
Capacitance	min. 100MOhm
Insulation resistance	250 VAC for 1 min
Actuation force	1.6 N (160 gf)
Actuator travel	0.20 mm (.008) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow
Seal	IP67

Material specifications

Contacts	stainless steel silver finish
Actuator	nylon
Terminals	copper alloy silver finish
Base	nylon
Cover	stainless steel
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM 2 JS6 SM TR

Type

FSM Tactile switch 6 x 6 mm, sealed

Actuator length

2 4.3 mm

Version

JS6 sealed version 6 x 6

Terminal

SM surface mount - SMD

Packaging

blank bulk **TR** tape & reel

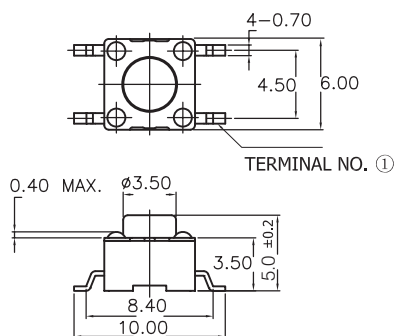
Version



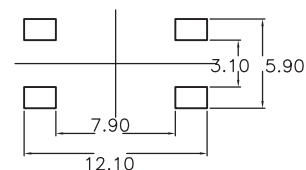
JS6 sealed version 6 x 6 mm



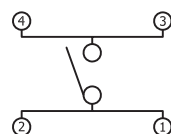
FSM2JS6SM



P.C.B. LAND DIMENSION



CIRCUIT DIAGRAM



Product key	Terminal	Actuation force	Packaging	Part Number
FSM2JS6SM	SMT	1.6±.5 N (160±50 gf)	bulk	1977265-1
FSM2JS6SMTR			tape & reel	1977265-2

Preferred parts in bold print

FSMJS Series 7.6 x 7.3, Sealed, SMT & THT

Features

- Sealed to IP67
- Through hole and surface mount
- Tape & reel available on SMT versions



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 µA @ 1 VDC
Electrical life	1,000,000 cycles
Mechanical life	1,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.6 to 2.6 N (160 to 260 gf)
Actuator travel	0.25 mm (.010) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	265°C for 10s wave or 260°C for 10s reflow
Seal	IP67

Material specifications

Contacts	stainless steel silver finish
Actuator & base	46 nylon
Terminals	copper alloy silver finish
Bracket	nickel silver
Seal	silicon rubber
RoHS Directive 2002/95/EC	compliant

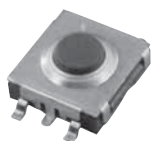
Product key		Typical product key				
		FSM	2	JS	SM	TR
Type	FSM Tactile switch 7.6 x 7.3 mm					
Actuator length & grounding terminal						
1	3.3mm (.130) with Gnd					
2	4.3mm (.169)					
4	5.0mm (.197)					
Version	JS sealed version					
Terminal						
blank	through hole - THT					
SM	surface mount - SMD					
Actuation force						
blank	1.6±0.5 N (160±50 gf)					
A	2.6±0.5 N (260±50 gf)					
Packaging						
blank	bulk					
TR	tape & reel					

FSMJS Series 7.6 x 7.3, Sealed, SMT & THT (Continued)

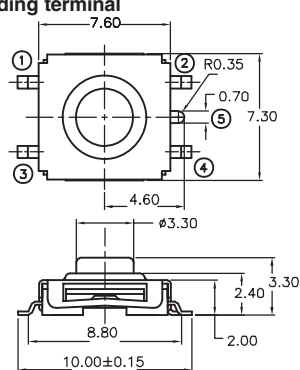
Actuator length & grounding terminal, THT & SMT



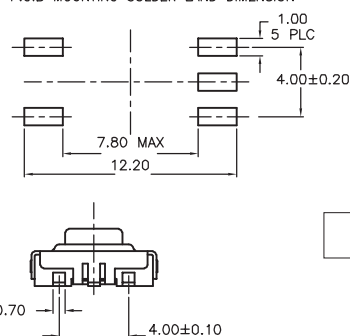
Code 1 SMT, with grounding terminal



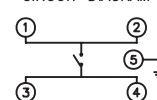
FSM1JSSM



P.C.B MOUNTING SOLDER LAND DIMENSION



CIRCUIT DIAGRAM

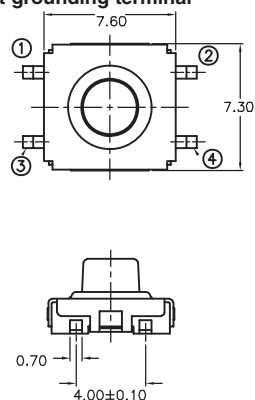


Code	Actuator length
1	3.3mm (.130) with Gnd

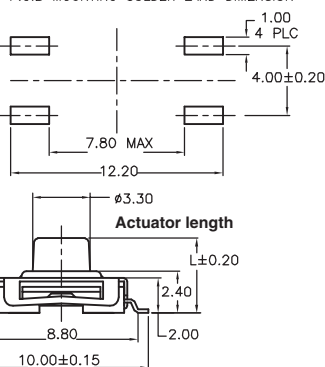
Codes 2, 4 SMT, without grounding terminal



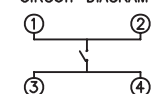
FSM2JSSM



P.C.B MOUNTING SOLDER LAND DIMENSION



CIRCUIT DIAGRAM

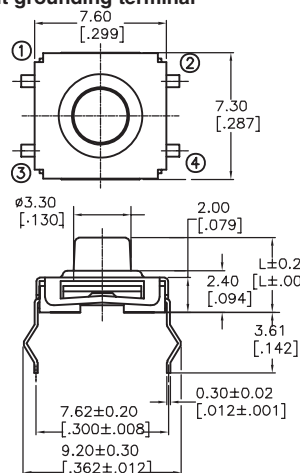


Code	Actuator length
2	4.3mm (.169)
4	5.0mm (.197)

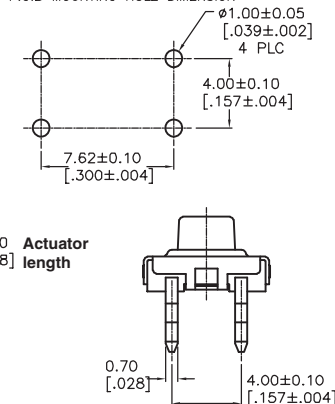
Codes 2, 4 THT, without grounding terminal



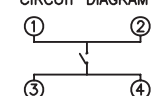
FSM2JS



P.C.B MOUNTING HOLE DIMENSION



CIRCUIT DIAGRAM



Code	Actuator length
2	4.3mm (.169)
4	5.0mm (.197)

FSMJ5 Series 7.6 x 7.3, Sealed, SMT & THT (Continued)

Product key	Version	Actuator length	Grounding	Terminal	Actuation force	Packaging	Part Number
FSMJ2JSSM	sealed	4.3 mm	without	SMT	1.6±0.5 N (160±50 gf)	bulk	1571294-1
FSMJ2JSSMTR	version	(.169)	ground		1.6±0.5 N (160±50 gf)	tape & reel	1571294-2
FSMJ4JSSM		5.0 mm			1.6±0.5 N (160±50 gf)	bulk	1571294-3
FSMJ4JSSMTR		(.196)			1.6±0.5 N (160±50 gf)	tape & reel	1571294-4
FSMJ2JSSMA		4.3 mm			2.6±0.5 N (260±50 gf)	bulk	1571294-5
FSMJ2JSSMATR		(.169)			2.6±0.5 N (260±50 gf)	tape & reel	1571294-6
FSMJ1JSSM		3.3 mm	with		1.6±0.5 N (160±50 gf)	bulk	1571296-1
FSMJ1JSSMTR		(.130)	ground		1.6±0.5 N (160±50 gf)	tape & reel	1571296-2
FSMJ2JS		4.3 mm (.169)	without	THT	1.6±0.5 N (160±50 gf)	bulk	1571295-1
FSMJ4JS		5.0 mm (.196)	ground		1.6±0.5 N (160±50 gf)		1571295-2

Preferred parts in bold print

FSMRAJS Series 6 x 6, Sealed, Right Angle, SMT & THT

Features

- Sealed to IP67
- Right angle through hole or surface mount



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 µA @ 1 VDC
Electrical life	1,000,000 cycles
Mechanical life	1,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.3 N (130 gf)
Actuator travel	0.35 mm (.014) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	265°C/10s wave or 260°C/10s reflow
Seal	IP67

Material specifications

Contacts	stainless steel silver finish
Actuator	silicon rubber
Terminals	copper alloy silver finish
Base	46 nylon or pps
Cover	nickel silver
Seal	silicon rubber
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM RAJS 3 SM TR

Type

FSM Tactile switch 6 x 6 mm

Version

RAJS sealed, right angle version

Actuator length

1	1.60 mm (.063)
2	3.85 mm (.152)
3	3.96 mm (.156)
4	6.85 mm (.270)

Terminal

blank	through hole - THT
SM	surface mount - SMD

Packaging

blank	bulk
TR	tape & reel

FSMRAJS Series 6 x 6, Sealed, Right Angle, SMT & THT (Continued)

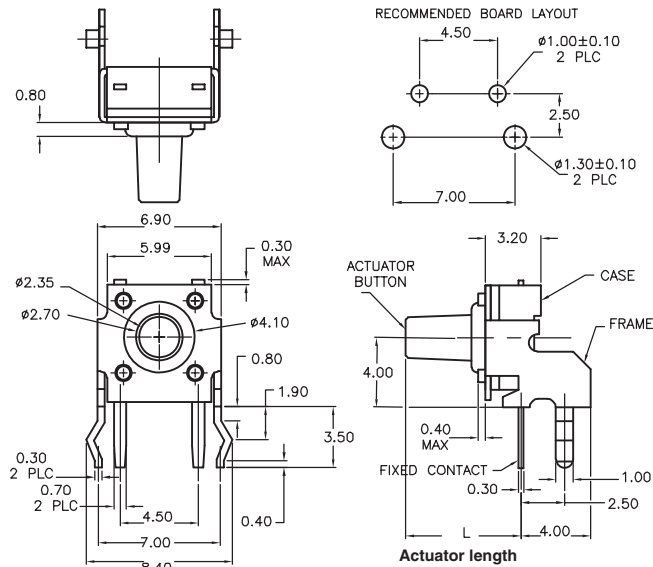
THT version



Actuator length, codes 1, 2, 3, 4



FSMRAJS2



CIRCUIT DIAGRAM

Code	Actuator length
1	1.60 mm (.063)
2	3.85 mm (.152)
3	3.96 mm (.156)
4	6.85 mm (.270)

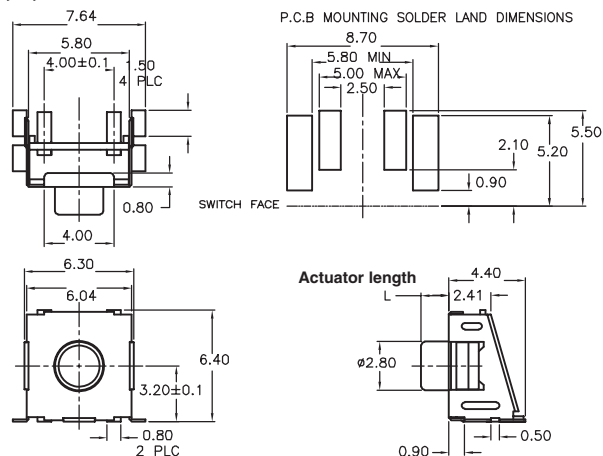
SMT version



Actuator length, codes 1, 2, 3, 4



FSMRAJS2SM



CIRCUIT DIAGRAM

Code	Actuator length
1	1.60 mm (.063)
2	3.85 mm (.152)
3	3.96 mm (.156)
4	6.85 mm (.270)

Product key	Version	Actuator length	Terminal	Packaging	Part Number
FSMRAJS3SM	sealed,	3.96 mm	SMT	bulk	1571407-3
FSMRAJS1SMTR	right angle	1.60 mm		tape & reel	1571407-2
FSMRAJS1SM	version			bulk	1571407-1
FSMRAJS2		3.85 mm	THT		1571610-2
FSMRAJS4		6.85 mm			1571610-1

Preferred parts in bold print

FSMRAJSA Series 8.1 x 8.1, Sealed, Right Angle, SMT

Features

- Sealed to IP67
- Right angle surface mount



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	1,000,000 cycles
Mechanical life	1,000,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.3 N (130 gf)
Actuator travel	0.35mm (.014) Average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow
Seal	IP67

Material specifications

Contacts	stainless steel silver finish
Actuator	silicon rubber
Terminals	copper alloy silver finish
Base	46 nylon
Cover	nickel silver
Seal	silicon rubber
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM RAJSA P

Type

FSM Tactile switch 8.1 x 8.1 mm

Version

RAJSA sealed, right angle, surface mount version

Location pin

blank no pins
P with pins

FSMRAJSA Series 8.1 x 8.1, Sealed, Right Angle, SMT (Continued)

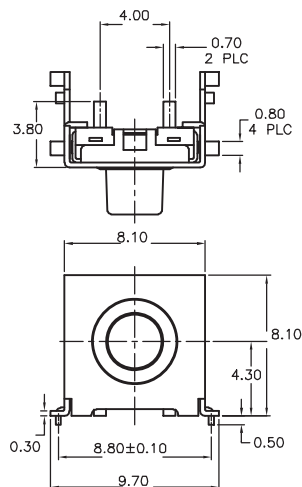
Location pin



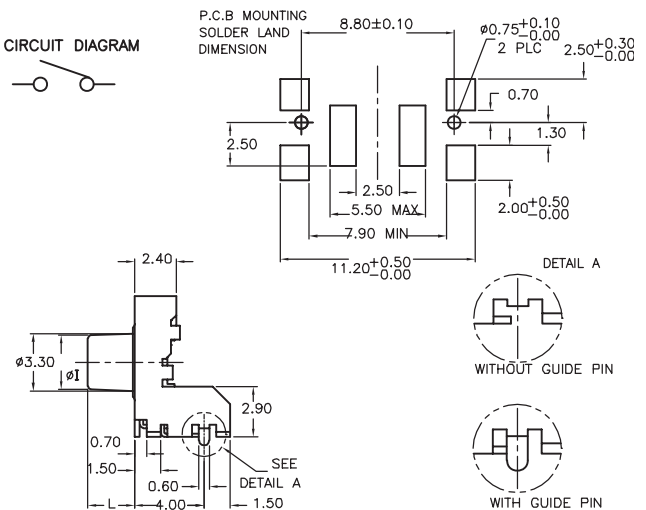
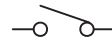
Codes blank, P without/with location pins



FSMRAJSA



CIRCUIT DIAGRAM



Tactile Switches

Product key	Version	Location pin	Actuation force	Part Number
FSMRAJSAP	sealed,	with pins	1.3±0.5 N (130±50 gf)	1571300-2
FSMRAJSA	right angle	without pins		1571300-1

FSM10 Series 12 x 12, THT

Features

■ Optional actuator configurations



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	max 50 mA @ 24 VDC
Contact rating min.	min 10 μ A @ 1 VDC
Electrical life	100,000 cycles
Mechanical life	100,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	1.6 to 2.6 N (160 to 260 gf)
Actuator travel	0.30 mm (.012) average

Environmental specification

Operating temperature	-35 to +85°C
Storage temperature	-35 to +85°C
Solder heat resistance	265°C/10s wave

Material specifications

Contacts	copper alloy silver finish
Actuator	acetal
Terminals	copper alloy silver finish
Base	pbt
Cover	pet film
Bracket (R/A)	nylon
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM 10 0 A

Type

FSM Tactile switch 12 x 12 mm

Version

10 standard, THT

Actuator length

0	4.3 mm (.169)	3	7.3 mm (.287)
1	8.5 mm (.335)	4	9.0 mm (.354), right angle
2	12.0 mm (.472)		

Actuation force

blank	1.6 N (160 gf)
A	2.6 N (260 gf)

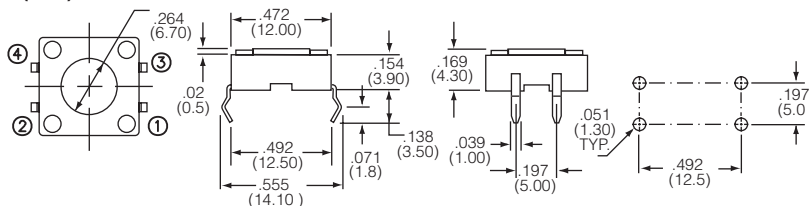
Actuator length



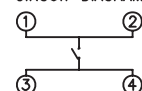
0 actuator length 4.3 mm (.169)



FSM100

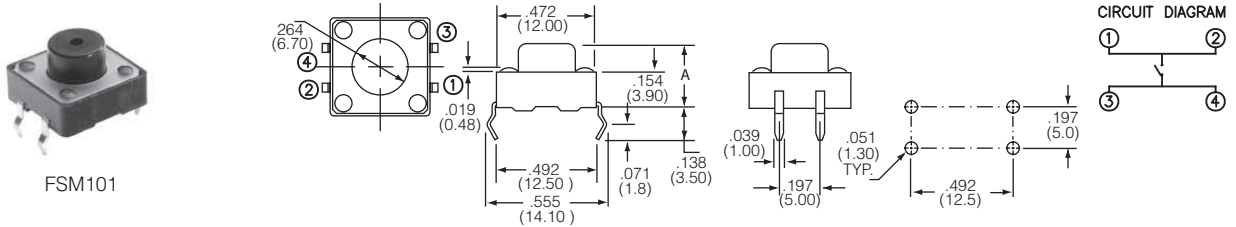


CIRCUIT DIAGRAM

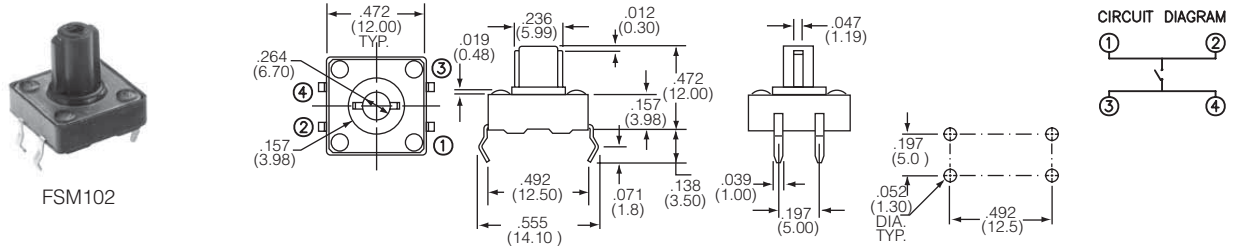


FSM10 Series 12 x 12, THT (Continued)

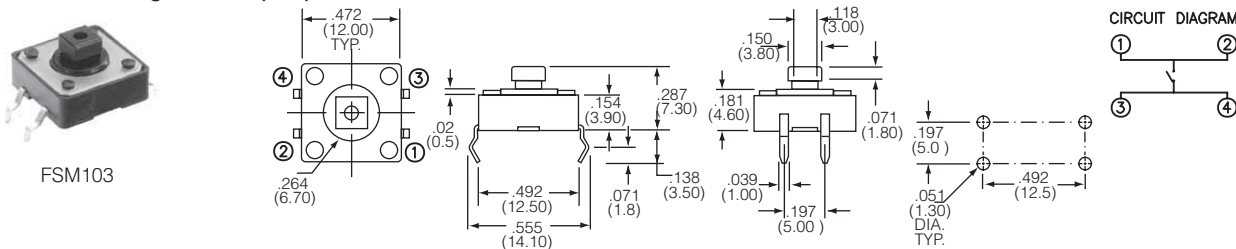
1 actuator length 8.5 mm (.335)



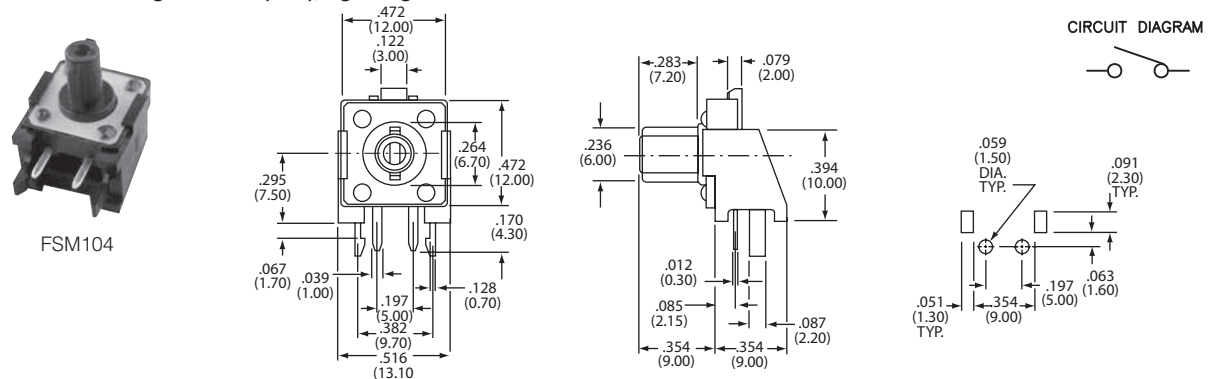
2 actuator length 12.0 mm (.472)



3 actuator length 7.3 mm (.287)



4 actuator length 9.0 mm (.354), right angle



Product key	Version	Actuator length	Actuation force	Part Number
FSM100	standard	4.3 mm	1.6 N (160 gf)	1437565-2
FSM100A	THT	(.169)	2.6 N (260 gf)	1571139-1
FSM101		8.5 mm	1.6 N (160 gf)	1437565-3
FSM101A		(.335)	2.6 N (260 gf)	1571140-1
FSM102		12.0 mm	1.6 N (160 gf)	1437565-4
FSM102A		(.472)	2.6 N (260 gf)	1571061-1
FSM103		7.3 mm	1.6 N (160 gf)	1437565-5
FSM103A		(.287)	2.6 N (260 gf)	1571621-1
FSM104		9.0 mm (.354) right angle	1.6 N (160 gf)	1437565-6

Preferred parts in bold print

FSM10 Series 12 x 12, Sealed, SMT & THT

Features

- Optional actuator configurations
- Optional mounting configurations
- Sealed to IP67



Typical performance characteristics

Contact configuration SPST
 Contact rating max. max 50 mA @ 24 VDC
 Contact rating min. min 10 μ A @ 1 VDC
 Electrical life 1,000,000 cycles
 Mechanical life 1,000,000 cycles
 Contact resistance max 100 mOhm
 Insulation resistance min 100 MOhm
 Dielectric strength 500 VAC for 1 min
 Actuation force 1.6 to 2.6 N (160 to 260 gf)
 Actuator travel 0.35 mm (.014) average

Environmental specification

Operating temperature -35 to +85°C
 Storage temperature -35 to +85°C
 Solder heat resistance 260°C/10s reflow or 265°C/10s wave
 Sealing IP67

Material specifications

Contacts stainless steel silver finish
 Actuator pps
 Terminals copper alloy silver finish
 Base nylon
 Cover stainless steel
 Seal silicon rubber
 RoHS Directive 2002/95/EC compliant

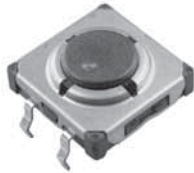
Product key		Typical product key							
		FSM	10	3	S			SM	TR
Type									
FSM		Tactile switch 12 x 12 mm							
Version									
10		standard							
Actuator length									
0		4.3 mm (.169)							
3		7.3 mm (.287) square							
Version									
S		sealed version							
Location pins									
blank		no pins							
P		with pins							
Terminal									
blank		through hole - THT							
SM		surface mount - SMT							
Actuation force									
blank		1.6 $\pm$.5 N (160 $\pm$ 50 gf)							
A		2.6 $\pm$.5 N (260 $\pm$ 50 gf)							
Packaging									
blank		bulk							
TR		tape & reel							

FSM10 Series 12 x 12, Sealed, SMT & THT (Continued)

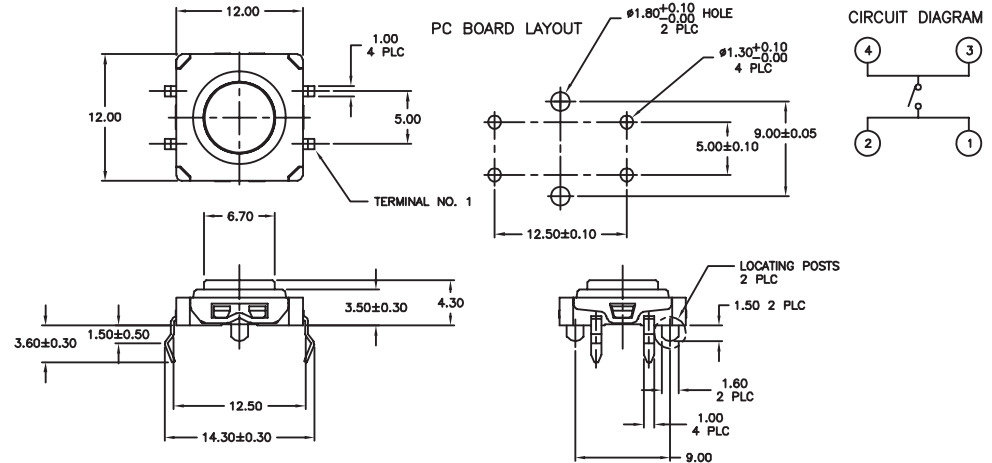
Actuator length, Location pins, Terminal



0 4.3 mm, without and with location pins, through hole THT



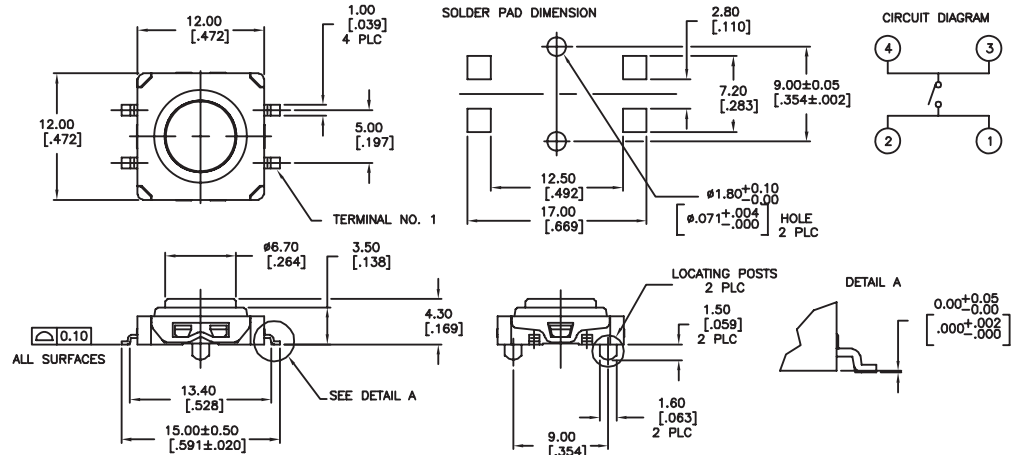
FSM100S



0 4.3 mm, without and with location pins, surface mount SMT



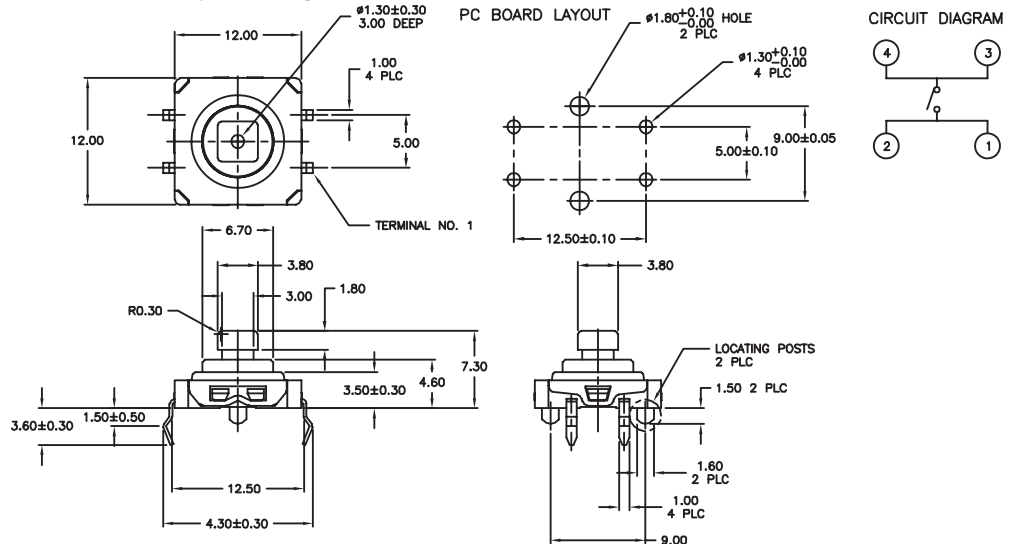
FSM100SM



3 7.3 mm square, without and with location pins, through hole THT



FSM103S

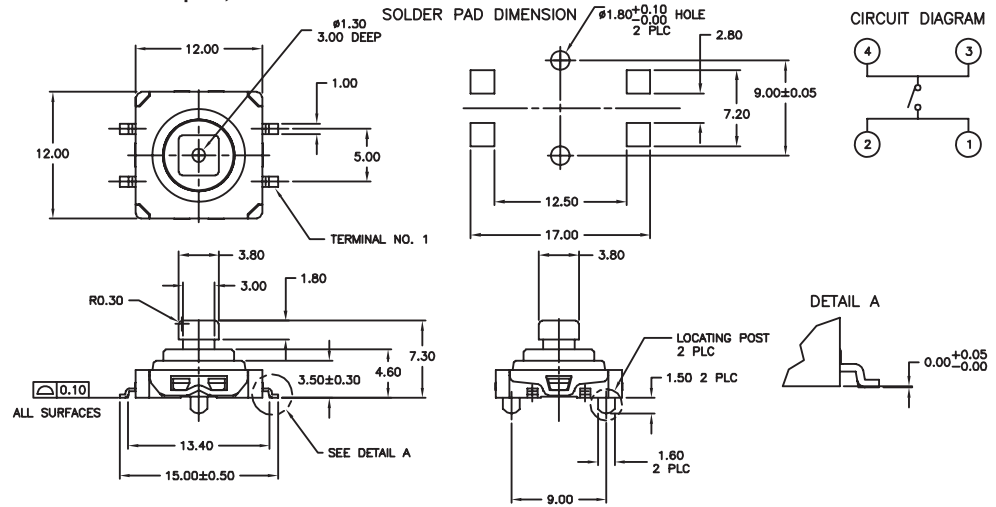


FSM10 Series 12 x 12, Sealed, SMT & THT (Continued)

3 7.3 mm square, without and with location pins, surface mount SMT



FSM103SM



Product key	Version	Actuator length	Version	Location pins	Terminal	Act. force	Packaging	Part Number
FSM100S	standard	4.3 mm	sealed	no pins	THT	1.6 ± .5 N	bulk	1571220-1
FSM100SP	THT	(.169)	version	with pins		(160 ± 50 gf)		1571220-2
FSM100SPSM					SMT			1571218-2
FSM100SPSMTR							tape & reel	1571218-4
FSM100SSM				no pins			bulk	1571218-1
FSM100SSMA						2.6 ± .5 N		1571218-5
FSM100SSMATR						(260 ± 50 gf)	tape & reel	1571218-6
FSM100SSMTR						1.6 ± .5 N		1571218-3
FSM103S		7.3 mm			THT	(160 ± 50 gf)	bulk	1571219-1
FSM103SP		(.287)		with pins				1571219-2
FSM103SPSM					SMT			1571217-2
FSM103SPSMTR							tape & reel	1571217-4
FSM103SSM				no pins			bulk	1571217-1
FSM103SSMTR							tape & reel	1571217-3

FSMMSH Series 2.55 x 4.5, Miniature Side Action, SMT

Features

- Small PCB space required
- Tape & reel packaging



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	100,000 cycles
Mechanical life	100,000 cycles
Contact resistance	max. 500mOhm
Capacitance	min. 100MOhm
Insulation resistance	500 VAC for 1 min
Actuation force	1.6 N (160 gf)
Actuator travel	0.20 mm (.008) average

Environmental specification

Operating temperature	-35 to +85°C
Storage temperature	-35 to +85°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Actuator	PPA
Terminals	copper alloy silver finish
Base	PPA
Cover	steel tin finish
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM

MSH

P

TR

Type

FSM Side action tactile switch, 2.55 x 4.5 mm

Version

MSH standard

Location pins

blank no pins **P** with pins

Packaging

TR tape & reel

FSMMSH Series 2.55 x 4.5, Miniature Side Action, SMT (Continued)

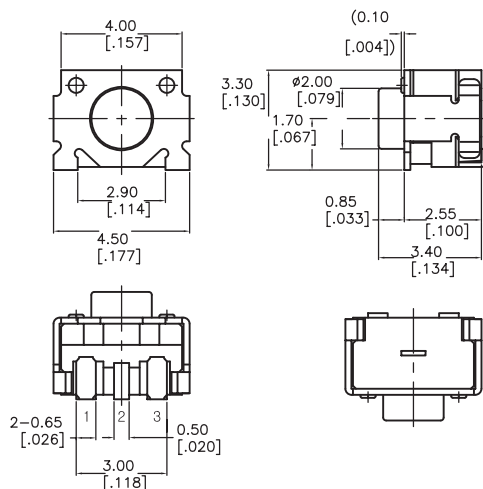
Location pins



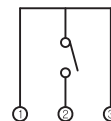
blank no location pins



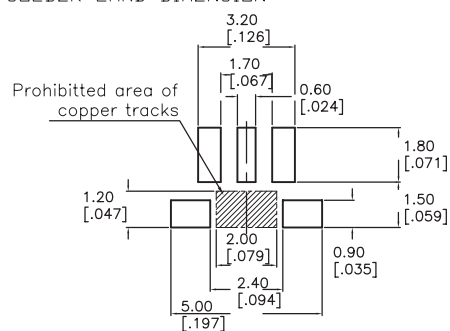
FSMMSHTR



CIRCUIT DIAGRAM



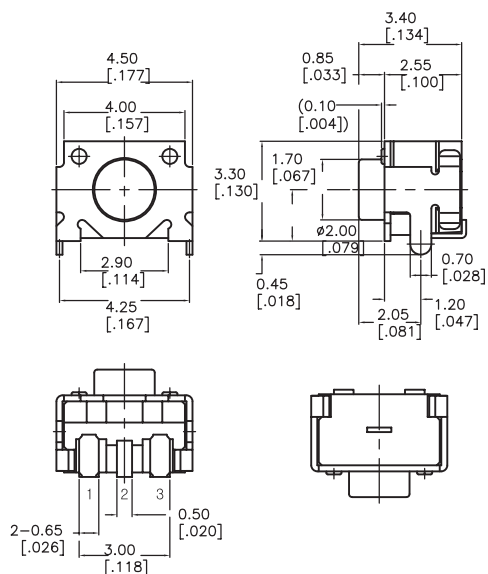
P.C.B MOUNTING
SOLDER LAND DIMENSION



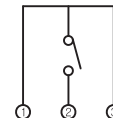
P with location pins



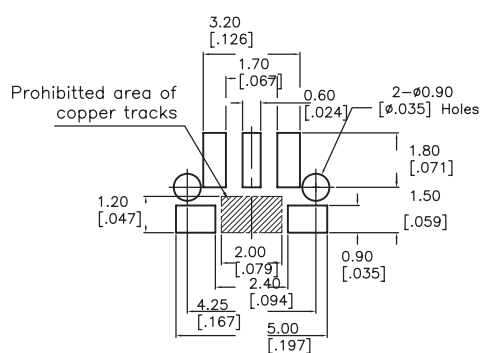
FSMMSHPTR



CIRCUIT DIAGRAM



P.C.B MOUNTING
SOLDER LAND DIMENSION



Product key	Location pins	Actuation force	Packaging	Part Number
FSMMSHPTR	with pins	1.6 $\pm$.5 N (160 $\pm$ 50 gf)	tape & reel	1977066-1
FSMMSHTR	no pins			1977067-1

Preferred parts in bold print

FSMMS Series 3 x 5 Miniature Side Action, SMT

Features

- Gullwing and J-lead surface mounting
- Tape & reel packaging
- Low profile of 1.60 mm



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 µA @ 1 VDC
Electrical life	100,000 cycles
Mechanical life	100,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	2.2 to 2.5 N (220 to 250 gf)
Actuator travel	0.30 mm (.012) average

Environmental specification

Operating temperature	-35 to +105°C
Storage temperature	-35 to +105°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Actuator	46 nylon or lcp
Terminals	copper alloy silver finish
Base	nylon 6T or lcp
Cover	stainless steel
RoHS Directive 2002/95/EC	compliant

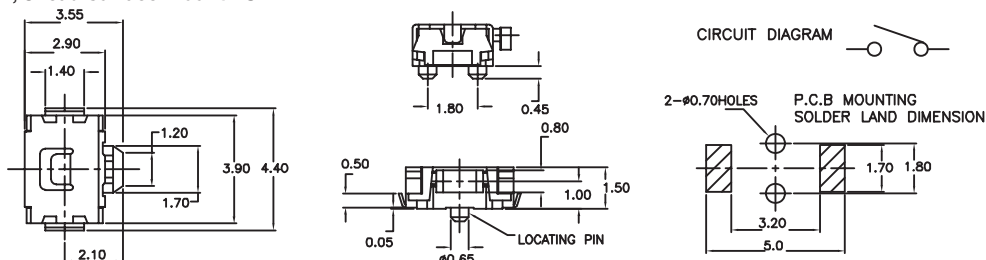
Product key		Typical product key		FSM	3	MS	SM	A	P	TR
Type										
FSM	Side action tactile switch, 3 x 5 mm									
Actuator length										
1	3.55 mm (.140)	3	4.50 mm (.177)							
2	4.40 mm (.173)									
Version										
MS	standard									
Terminal										
SM	surface mount - SMT	JM	J-lead surface mount - SMT							
Actuation force										
blank	2.2±.8 N (220±80 gf)	A	2.5±.5 N (250±50 gf)							
Location pins										
blank	no pins	P	with pins							
Packaging										
TR	tape & reel									

FSMMS Series 3 x 5 Miniature Side Action, SMT (Continued)

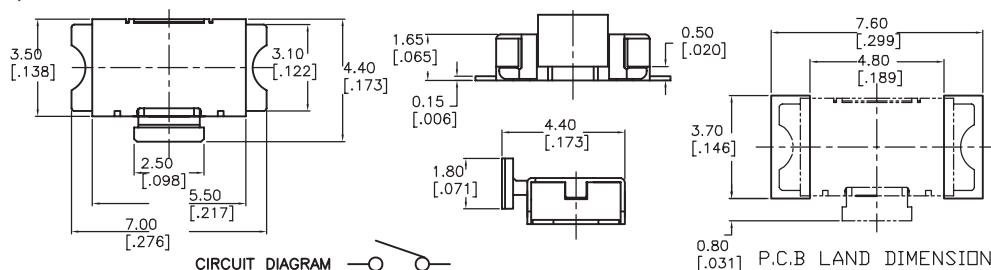
Actuator length, Terminal



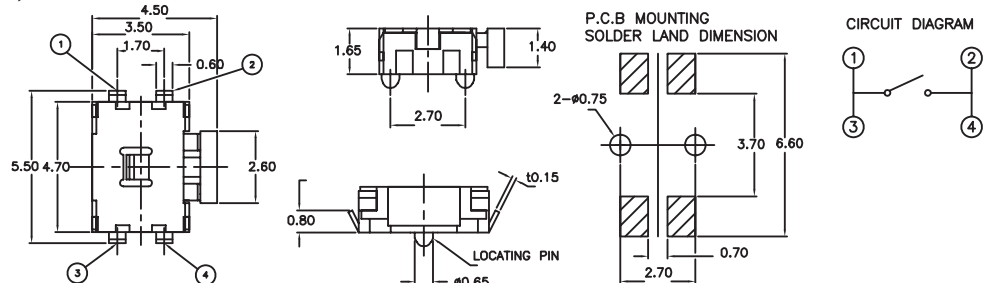
1 actuator length 3.55 mm, J-lead surface mount - SMT



2 actuator length 4.40 mm, J-lead surface mount - SMT



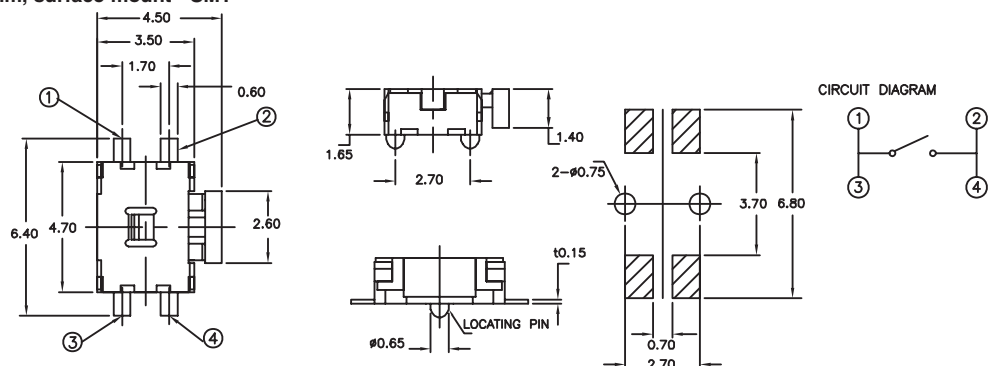
3 actuator length 4.50 mm, J-lead surface mount - SMT



3 actuator length 4.50 mm, surface mount - SMT



FSM3MSSMTR



Product key	Actuator length	Terminal	Actuation force	Location pin	Packaging	Part Number
FSM1MSJMPTR	3.55 mm	J-Lead	2.2±.8 N (220±80 gf)	yes	tape & reel	1571908-1
FSM1MSJMTR	(.140)	SMT		no		1571908-2
FSM2MSSMATR	4.40 mm (.173)	Gullwing, SMT	2.5±.5 N (250±50 gf)			1571895-1
FSM3MSJMPTR	4.50 mm	J-Lead	2.2±.8 N (220±80 gf)	yes		1571910-1
FSM3MSJMTR	(.177)	SMT		no		1571910-2
FSM3MSSMPTR		Gullwing		yes		1571909-1
FSM3MSSMTR		SMT		no		1571909-2

Preferred parts in bold print

FSMMST Series "Turtle" Style, SMT

Features

- Tape & reel packaging
- Low profile of 1.70 mm



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	100,000 cycles
Mechanical life	100,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	500 VAC for 1 min
Actuation force	2.2 N (220 gf)
Actuator travel	0.25 mm (.010) average

Environmental specification

Operating temperature	-20 to +70°C
Storage temperature	-30 to +80°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Actuator	lcp
Terminals	copper alloy silver finish
Base	lcp
Cover	stainless steel
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM **MST** **TR**

Type

FSM Turtle style tactile switch, SMT

Version

MST standard

Location pins

blank no pins
P with pins

Packaging

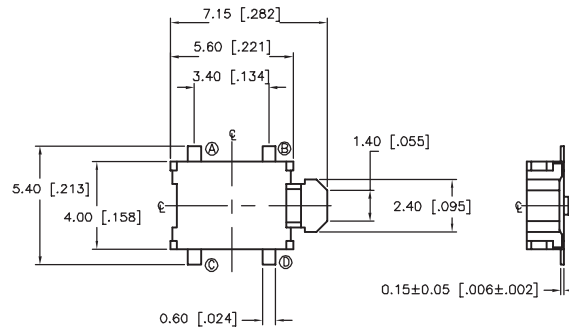
blank bulk
TR tape & reel

FSMMST Series "Turtle" Style, SMT (Continued)

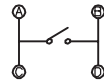
FSMMST Series



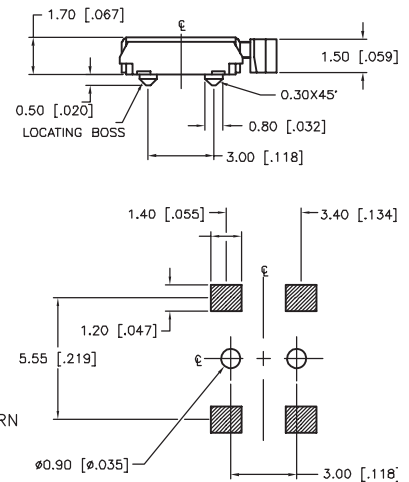
FSMMST



SCHEMATIC



RECOMMENDED LAND PATTERN



Product key	Version	Actuation force	Location pins	Packaging	Part Number
FSMMST	standard	2.2±.8 N (220±80 gf)	no pins	bulk	1571262-1
FSMMSTP			with pins		1571262-3
FSMMSTPTR				tape & reel	1571262-4
FSMMSTTR			no pins		1571262-2

Preferred parts in bold print

FSMMDS Series 7.5 x 7.5 Multidirectional, SMT

Features

- Multi direction actuation



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	50 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	200,000 cycles
Mechanical life	200,000 cycles
Contact resistance	max 500 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	100 VAC for 1 min
Actuation force	3.2 N (320 gf) center, 1.6 N (160 gf) side
Actuator travel	0.15 mm (.006) center, 2.0 (.008) side

Environmental specification

Operating temperature	-30 to +85°C
Storage temperature	-40 to +85°C
Solder heat resistance	260°C/10s reflow

Material specifications

Contacts	stainless steel silver finish
Actuator	lcp
Terminals	copper alloy silver finish
Base	nylon
Cover	stainless steel
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM

MDS

P

Type

FSM Multidirectional tactile switch, 7.5 mm, SMT

Version

MDS standard

Location pins

blank no pins
P with pins

FSMMDS Series 7.5 x 7.5 Multidirectional, SMT (Continued)

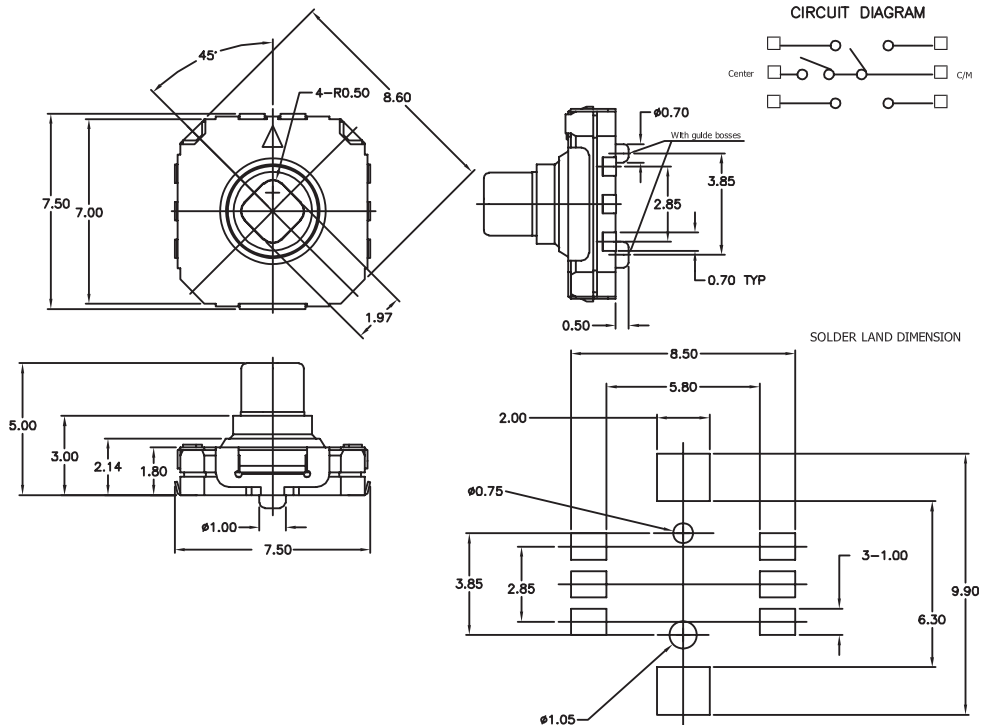
Version



MDS standard version, without and with location pins



FSMMDS



Product key	Version	Location pins	Part Number
FSMMDS	standard	no pins	1825446-1
FSMMDSP		with pins	1825446-2

FSM . MD Series 12 x 12 Multidirectional, THT & SMT

Features

- Multi direction actuation
- Through hole and surface mount option



Typical performance characteristics

Contact configuration	SPST
Contact rating max.	5 mA @ 24 VDC
Contact rating min.	10 μ A @ 1 VDC
Electrical life	50,000 cycles
Mechanical life	50,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	100 VAC for 1 min
Actuation force	3.5 to 8.0 N (350 to 800 gf) center 2.0N (200 gf) side
Actuator travel	THT: 0.25 mm (.010) center, 5° side SMT: 1.0 mm (.040) center, 8° side

Environmental specification

Operating temperature	-35 to +85°C
Storage temperature	-35 to +85°C
Solder heat resistance	260°C/10s reflow or 265°C/10s wave

Material specifications

Contacts	stainless steel or copper alloy silver finish
Actuator	pbt or nylon
Terminals	copper alloy silver finish
Base	nylon
Cover	stainless steel or pet film
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

FSM

3

MD

SM

A

Type

FSM 12 mm Multidirectional Tactile Switch

Actuator length

	THT		SMT
1	10.0 mm (.394)	2	10.5 mm (.413)
4	14.0 mm (.551)	3	12.2 mm (.480)
		5	14.2 mm (.559)

Version

MD standard

Terminal

blank	through hole - THT
SM	surface mount - SMT

Actuation force

blank	3.5 +1.0/-0.5 N (350 +100/-50 gf)
A	5.0±1.5 N (500±150 gf)
AA	8.0±1.0 N (800±100 gf)

FSM . MD Series 12 x 12 Multidirectional, THT & SMT (Continued)

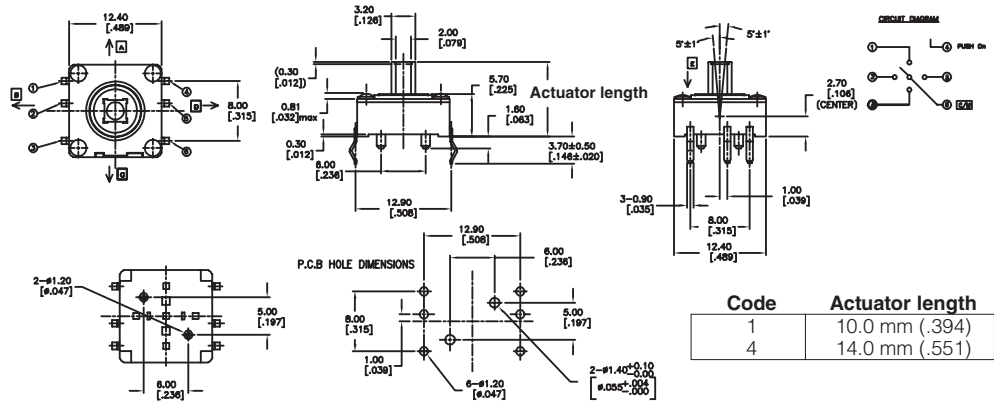
Terminal



blank through hole - THT



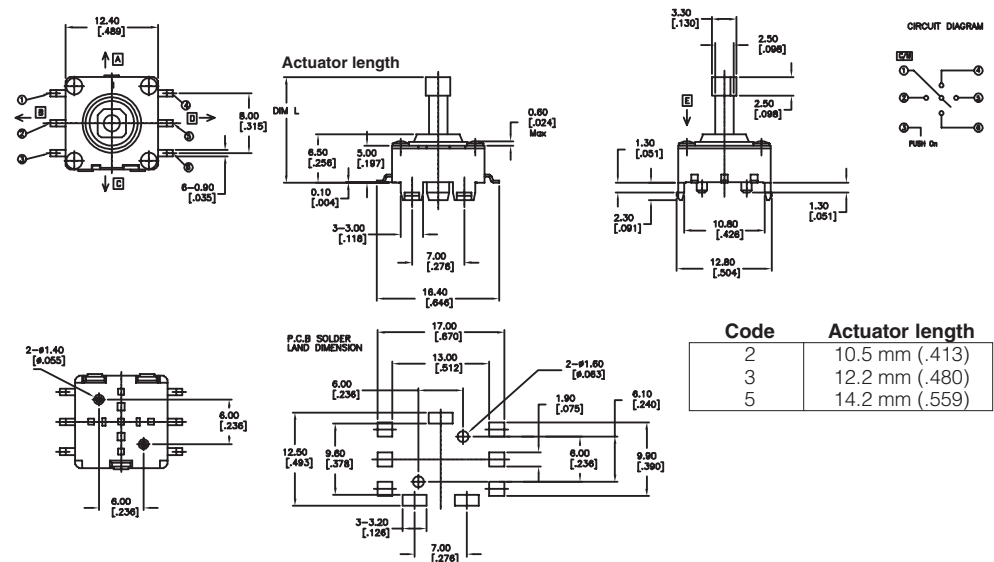
FSM1MD



SM surface mount - SMT



FSM5MDSMA



Product key	Actuator length	Version	Terminal	Actuation force	Part Number
FSM1MD	10.0 mm (.394)	standard	THT	3.5 N (350 gf)	1571515-1
FSM2MDSMA	10.5 mm (.413)		SMT	5.0±1.5 N (500±150 gf)	1571514-3
FSM3MDSMA	12.2 mm (.480)				1571514-2
FSM4MDAA	14.0 mm (.551)		THT	8.0±1.0 N (800±100 gf)	1571515-2
FSM5MDSMA	14.2 mm (.559)		SMT	5.0±1.5 N (500±150 gf)	1571514-1

Product Range

Pushbutton Switches

- **Tiny Push Buttons:** TP, TSP Series
- **Panel Mount Push Buttons:** MSP, MPA Series
- **Higher Current Push Buttons:** MP Green-, A 60 Series

Main features:

- Up to 4 poles
- N/O or C/O contact configuration
- Gold or silver contacts
- Sealed or unsealed versions
- Right angle versions
- Single or dual actuator
- Round or rectangular actuator buttons
- Flush actuator versions
- Snap action versions
- Bushing versions with and without thread
- Hermetically sealed versions
- THT or wire lug terminals
- Panel mounting versions
- Accessories: boot seals, caps, ...



TSP Series, Tiny, Process Sealedpage D3



TP Series, Tinypage D6



TP_ES Series, Tiny, Process Sealedpage D15



MSPM Series, Magnetic Reed, Long Life, Hermetically Sealedpage D18

Product Range (Continued)



MSPF Series, Front or Rear Mount, 15/32 Bushingpage D20



MPA103 Series, Panel Mountpage D22



MSP103 Series, 2.5mm Travel, Panel Mountpage D23



MPS Series, Snap Actionpage D25



MP / A / E / G Green Seriespage D28



A60 Seriespage D33



Accessoriespage D35



BP Series Boot Sealspage D37



BP Series Panel Sealspage D39

Pushbutton Switches

- Washable process sealed construction (internal "O" ring)
- Compact design



Contact configuration	SPST SPDT
Contact timing	Break-Before-Make
Contact rating max.	gold 0.4VA @20VAC/DC
Electrical life	function C: 80,000 cycles function F: 60,000 cycles
Contact resistance, initial	max.20 mOhms
Insulation resistance	1,000 MOhms @ 500VDC
Dielectric strength	function C: 1,000 Volts rms @ sea level function F: 500 Volts rms @ sea level
Actuator travel	momentary .035" (0.89)

Operating temperature	-30°C to +85°C
Storage temperature	-55°C to +85°C
Solder heat resistance	wave solder capable to 265° C
Seal	process sealed with internal "O" ring

Contacts	copper or brass, gold over nickel finish
Actuator	thermoplastic
Terminals	brass with gold over nickel in contact area
.....	tin over nickel in solder area
Case	thermoplastic (LCP)
Spring	music wire zinc plated
Support bracket	steel tin plated
Seal	"O" ring rubber
RoHS Directive 2002/95/EC	compliant

Product key		Typical product key		TSP	D		1	1	C	G	RA	0	04
Type													
TSP	Tiny pushbutton, process sealed												
Bushing													
D	plain, not threaded												
Actuator													
blank	length .200 (5.08)												
F	flush												
Number of Poles													
1	single pole												
Contact rating													
1	0.4VA Gold												
Function													
C	SPST, Off (On)				F	SPDT, On (On)							
Plating													
G	Gold												
Terminals													
PC	printed circuit board				RA	right angle							
PCV	printed circuit board, w bracket				VRA	vertical right angle							
					WW	wire wrap							
Button Color													
0	black		2	red									
Material													
04	RoHS compliant												

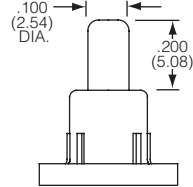
TSP Series, Tiny, Process Sealed (Continued)

Actuator

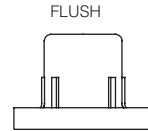
blank, F

standard actuator, flush actuator

blank, standard actuator



F, flush actuator



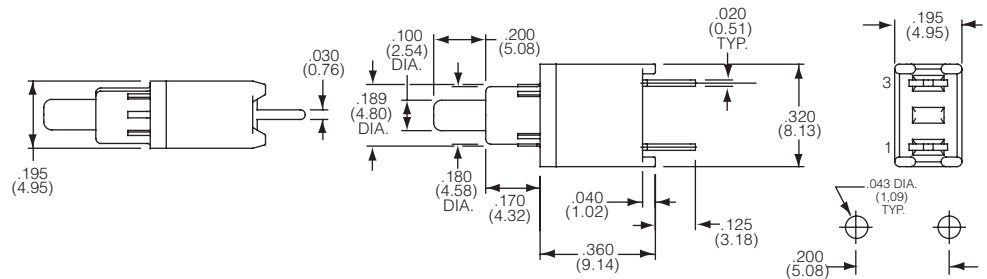
Terminations

PC

printed circuit board

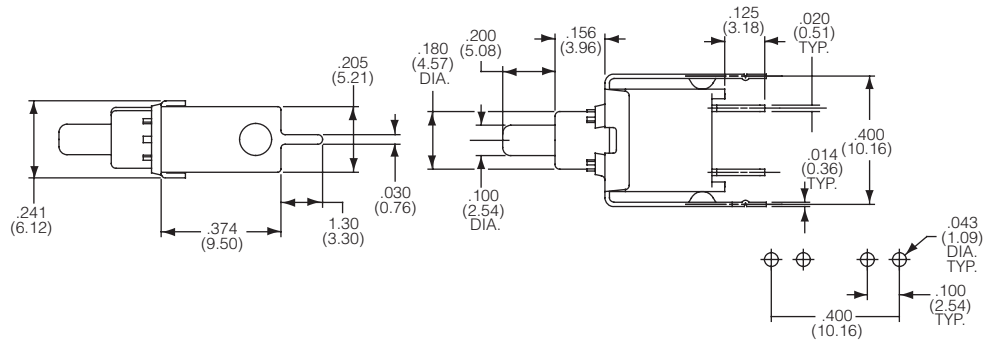


TSPD11CPC004



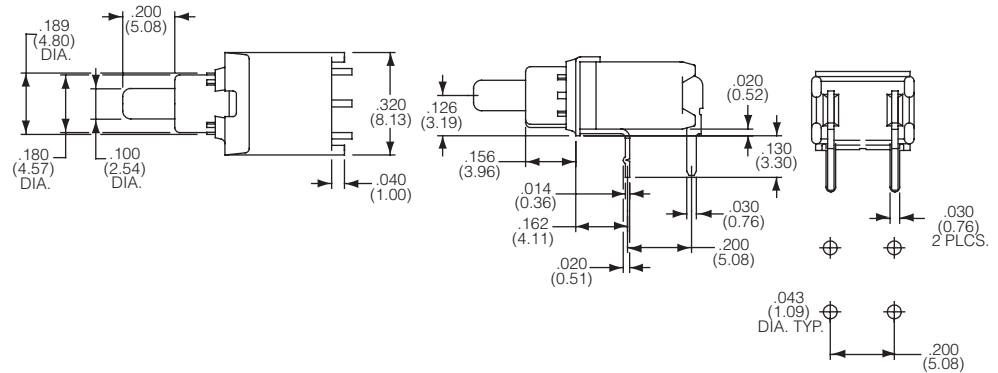
PCV

printed circuit board with vertical bracket



RA

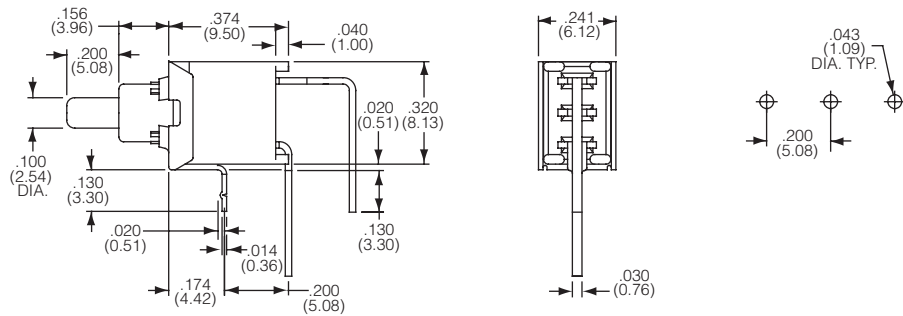
right angle



TSP Series, Tiny, Process Sealed (Continued)

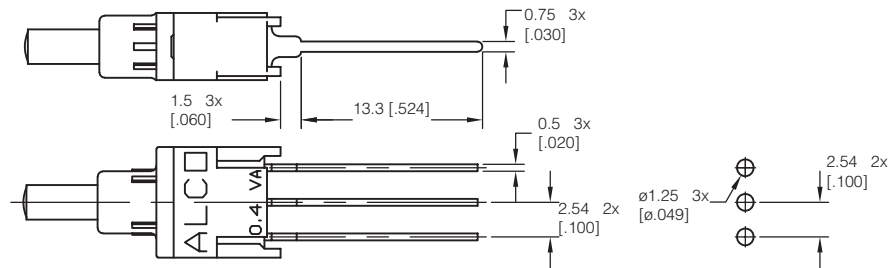
VRA

vertical right angle



WW

wire wrap

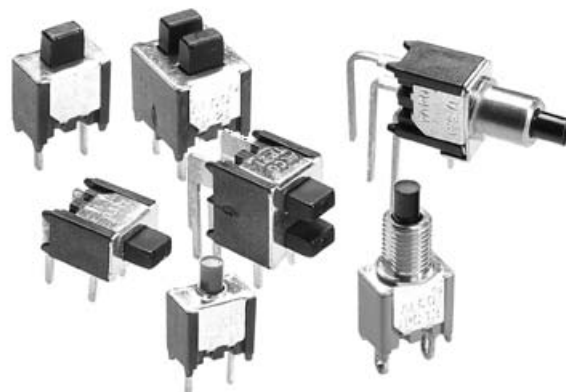


Product key	Bushing	Act.	Poles	Rating	Function	Conn.	Conn.	Plating	Terminals	Btn.	Material	Part Number
TSPD11CGPC004	plain,	length	1	0.4VA	Off (On)	Off	1-3	Gold	pcb	black	RoHS	1571990-1
TSPD11CGPC204	not	.200								red	compliant	1571990-2
TSPD11CGPCV004	threaded	(5.08)								black		1571990-3
TSPD11CGRA004									right angle			1571990-4
TSPD11CGRA204										red		1571990-5
TSPD11CGVRA004									vertical r.a.	black		1-1571990-3
TSPD11CGWW004									wire wrap			1-1571990-4
TSPD11FGPC004					On (On)	1-2	2-3		pcb			1-1571990-5
TSPD11FGPCV004									pcb w brack.			1-1571990-6
TSPD11FGRA004									right angle			1-1571990-7
TSPD11FGVRA004									vertical r.a.			2-1571990-1
TSPDF11CGPC004		flush			Off (On)	Off	1-3		pcb			2-1571990-2
TSPDF11CGRA004									right angle			2-1571990-5
TSPDF11CGVRA004									vertical r.a.			2-1571990-7
TSPDF11FGPC004					On (On)	1-2	2-3		pcb			2-1571990-8
TSPDF11FGRA004									right angle			2-1571990-9

TP Series, Tiny

Features

- Compact design
- Round or rectangular actuator buttons.
- Vertical or right angle versions



Typical performance characteristics

Contact configuration SPST, SPDT, DPDT
Contact timing Break-Before-Make
Contact rating max. gold: 0.4VA @20VDC or peak AC
..... silver: 1A @ 125VAC or 28 VDC resistive
Electrical life 1 pole2 ..2 pole
..... gold 100,000 ..80,000 cycles
..... silver 60,000 ..50,000 cycles
Contact resistance, initial max.20 mOhms
Insulation resistance 1,000 MOhms @ 500VDC
Dielectric strength 1,000 Volts rms @ sea level
Actuation force 0.5 to 4N (50-400gf)
Actuator travel momentary .030" (.762)

Environmental specification

Operating temperature -30°C to +65°C
Storage temperature -30°C to +65°C
Solder heat resistance wave solder capable to 265° C

Material specifications

Contacts copper or brass, gold over nickel finish or silver
..... clad with silver over nickel finish
Actuator thermoplastic
Terminals brass with gold over nickel or silver over nickel
Case thermoplastic
Frame and support bracket steel with tin over copper finish
RoHS Directive 2002/95/EC compliant

Product key		Typical product key		TP	A		1	1	C	G	PC	0	04
Type													
TP	Tiny pushbutton series												
Bushing													
blank	square, no bushing												
A	round, no bushing												
B	round .188 (4.78) dia. bushing not threaded												
C	round 10/48 UNS 2B thread												
D	.250" (6.35) dia. bushing, not threaded												
F	round 1/4-40 UNS 2B thread												
Actuator													
blank	standard												
F	flush (available with B and C bushings only)												
Number of Poles													
1	single pole		2	double pole									
Contact rating													
1	0.4VA Gold												
2	1.0 A Silver (Silver available only in wire lug and PC termination)												
Function													
single pole								double pole					
C	single throw, momentary						M	single throw, momentary					
F	double throw, momentary						R	double throw, momentary					
CC	dual function C - 2 x single throw, momentary												
FF	dual function F - 2 x double throw, momentary												
Plating													
G	Gold		blank	Silver (Silver available only in wire lug and PC termination)									
Terminals													
blank	wire lug						RA	right angle					
PC	printed circuit board						VRA	vertical, right angle (available only in single pole)					
Button Color													
0	black		2	red		6	blue						
Material													
04	RoHS compliant												

TP Series, Tiny (Continued)

Bushing



blank, square, no bushing

printed circuit board

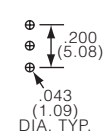
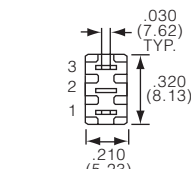
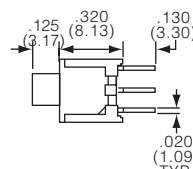
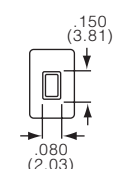


TP11CGPC004

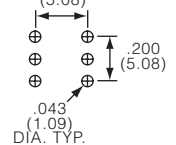
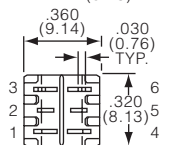
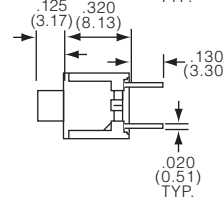
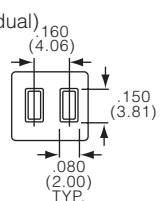


TP21CCGPC004

Single pole



2 x Single pole (dual)



Note: no center terminal on 'C' and 'M' function switch

right angle

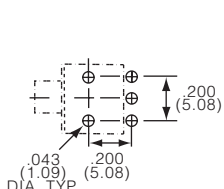
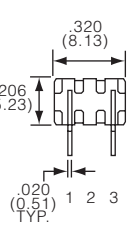
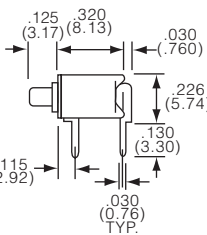
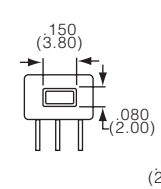


TP11CGRA004



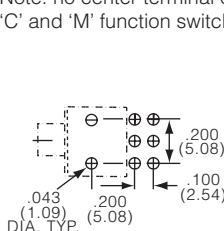
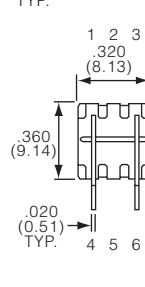
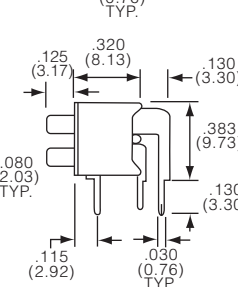
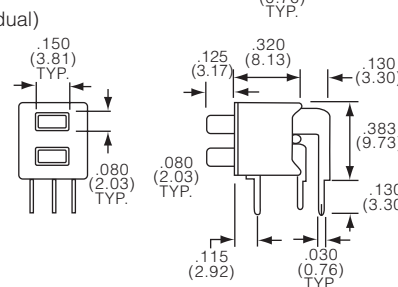
TP21CCGRA004

Single pole



Note: no center terminal on 'C' and 'M' function switch

2 x Single pole (dual)



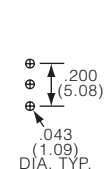
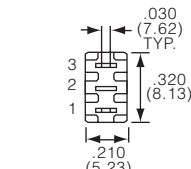
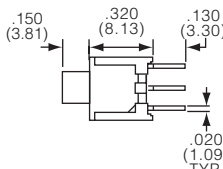
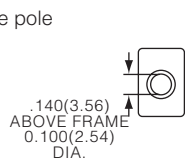
A, Round, no bushing

printed circuit board

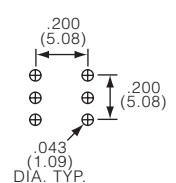
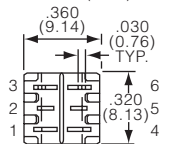
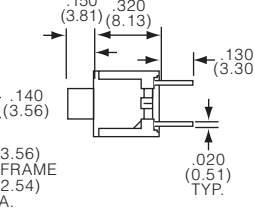
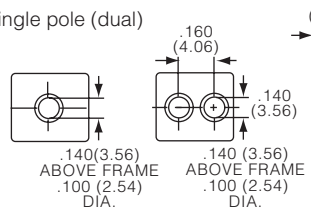


TPA11CGPC004

Single pole



2 x Single pole (dual)



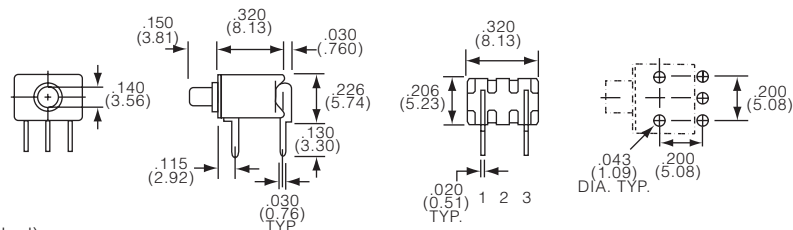
Note: no center terminal on 'C' function switch

TP Series, Tiny (Continued)

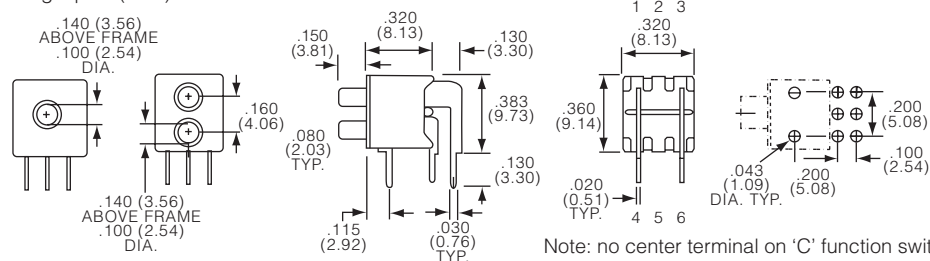
right angle



Single pole



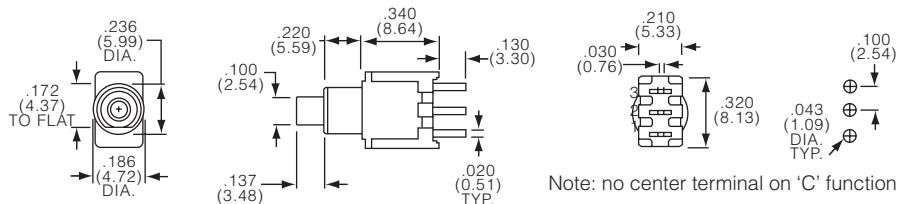
2 x Single pole (dual)



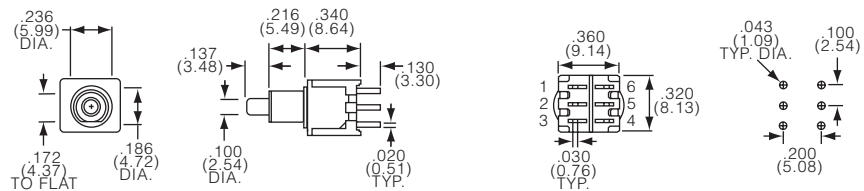
Note: no center terminal on 'C' function switch

B, Round .188 (4.78) dia. bushing not threaded

printed circuit board

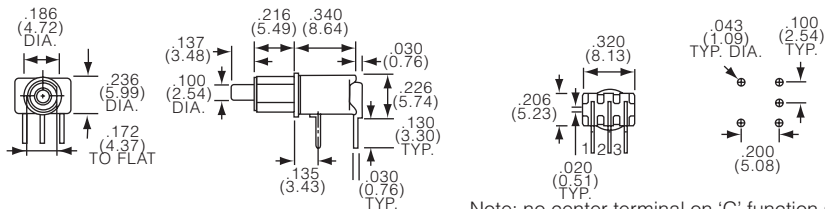


Note: no center terminal on 'C' function switch

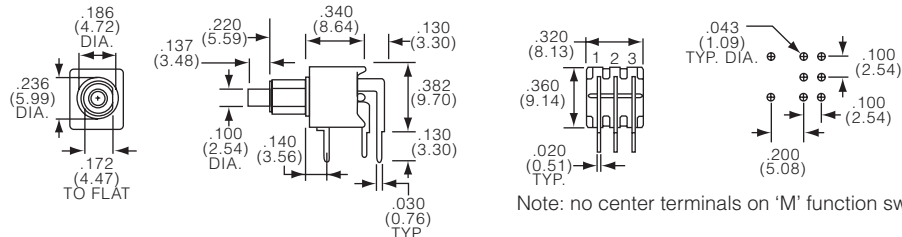


Note: no center terminals on 'M' function switch

right angle



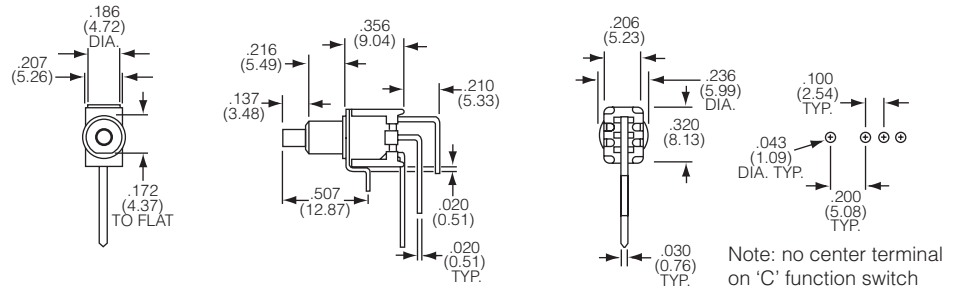
Note: no center terminal on 'C' function switch



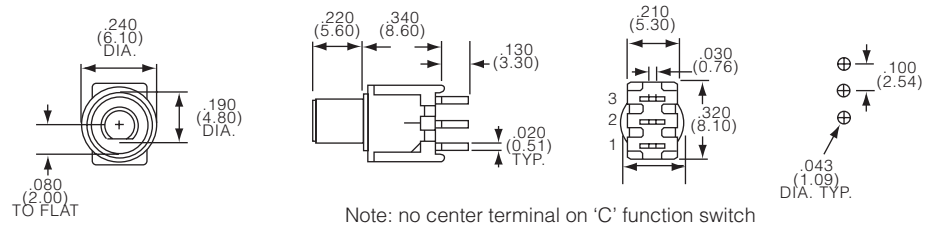
Note: no center terminals on 'M' function switch

TP Series, Tiny (Continued)

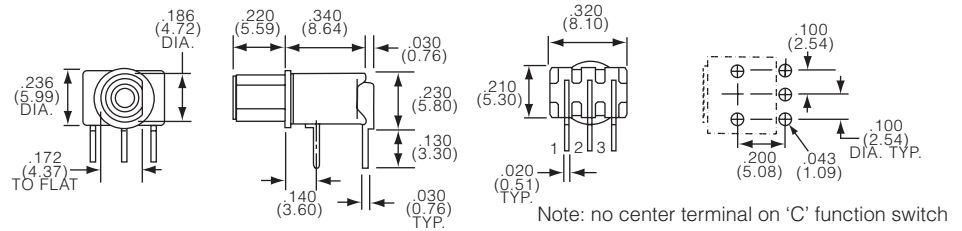
vertical right angle



printed circuit board, flush actuator

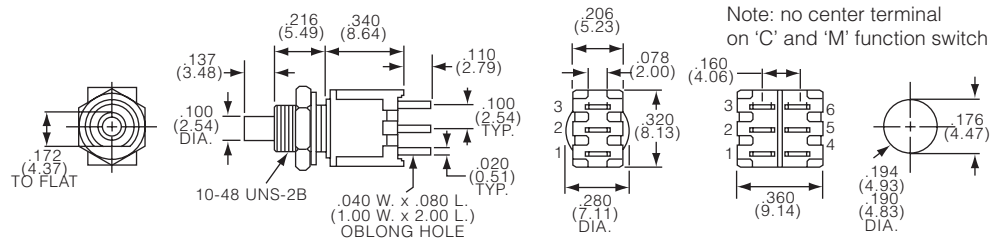


right angle, flush actuator

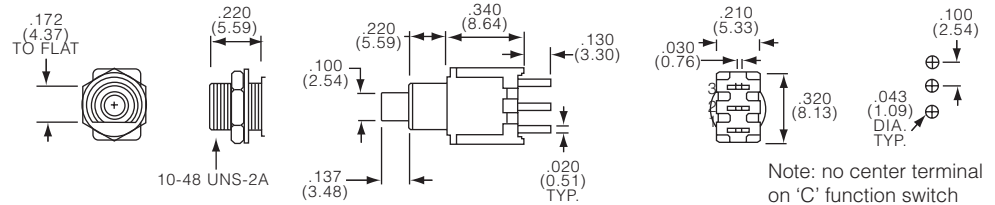


C, Round 10/48 UNS 2B thread

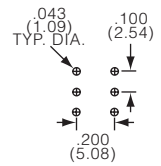
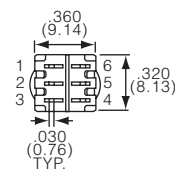
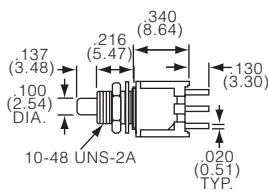
wire lug



printed circuit board

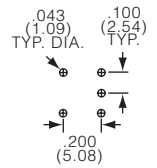
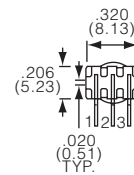
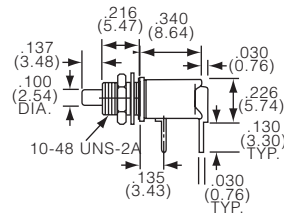


TP Series, Tiny (Continued)

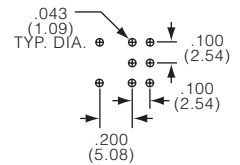
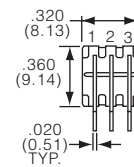
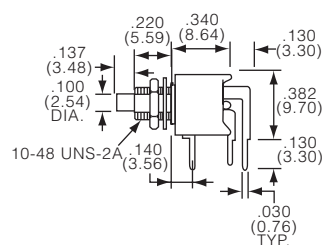


Note: no center terminals on 'M' function switch

right angle

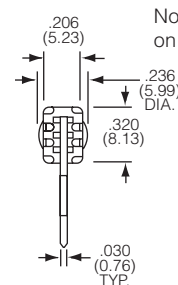
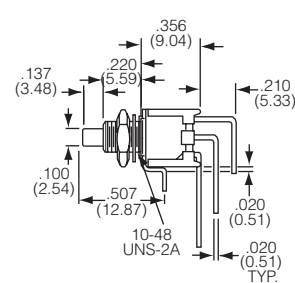
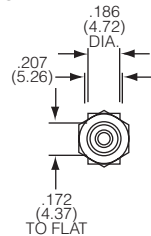


Note: no center terminal on 'C' function switch

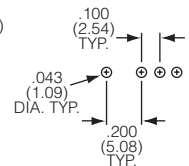


Note: no center terminals on 'M' function switch

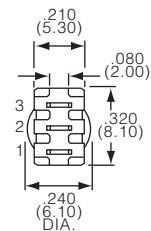
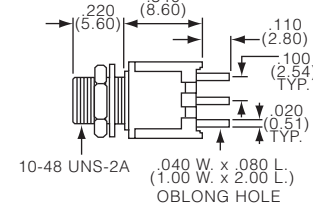
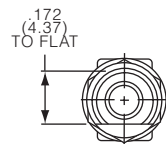
vertical right angle



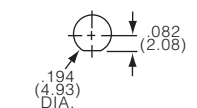
Note: no center terminal on 'C' function switch



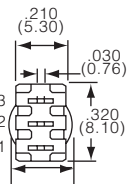
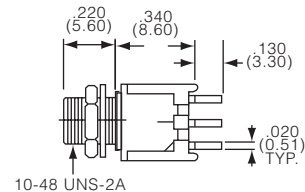
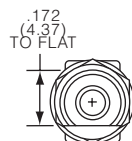
wire lug, flush actuator



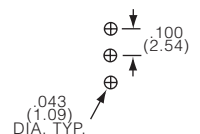
Note: no center terminal on 'C' function switch



printed circuit board, flush actuator

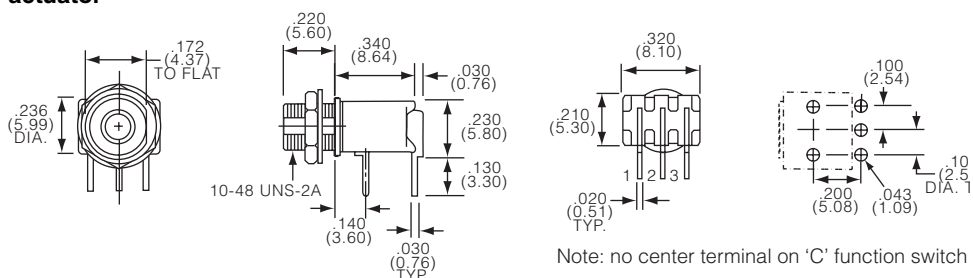


Note: no center terminal on 'C' function switch



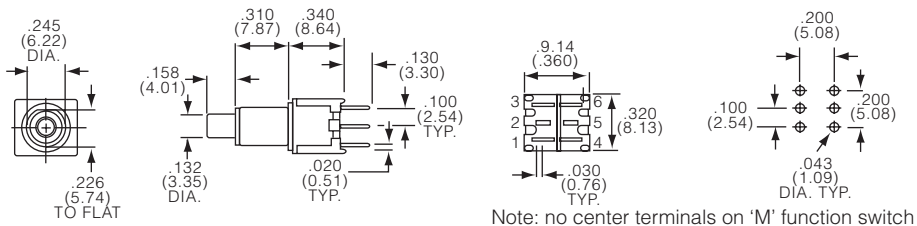
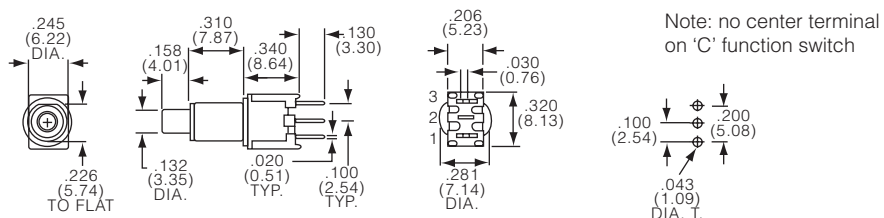
TP Series, Tiny (Continued)

right angle, flush actuator

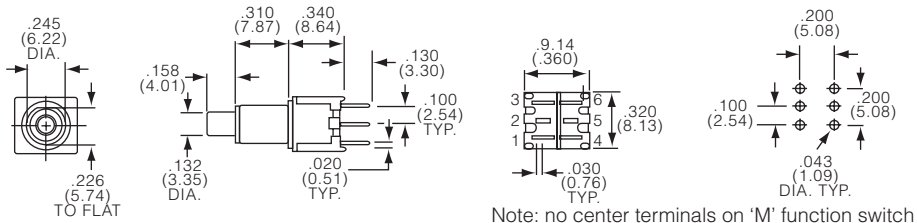
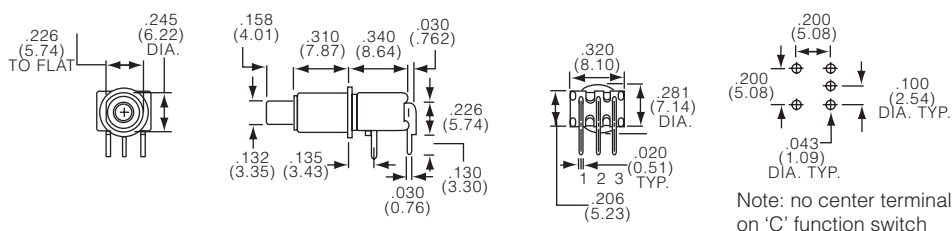


D, .250" (6.35) dia. bushing, not threaded

printed circuit board



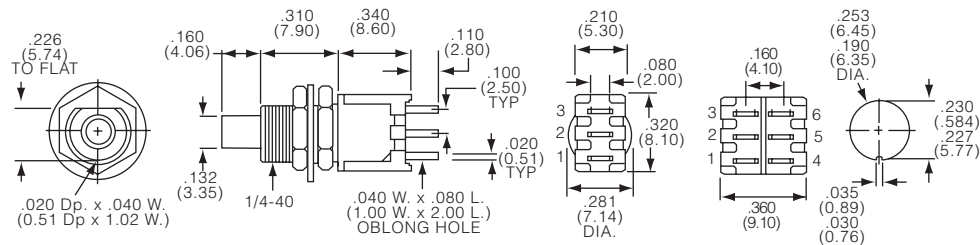
right angle



F, Round 1/4-40 UNS 2B thread

TPF13C

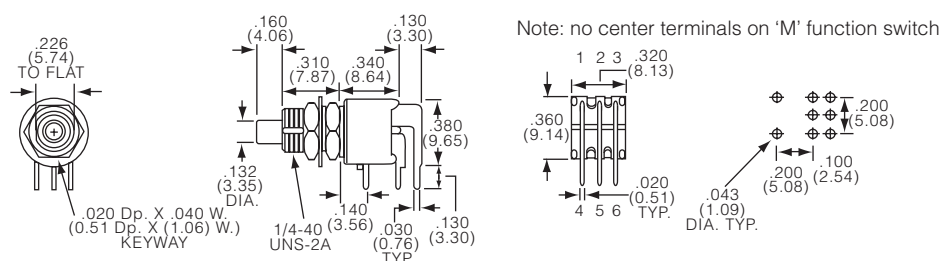
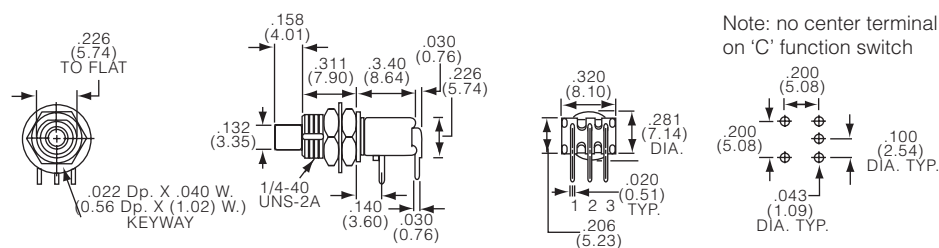
TPE23M



Note: no center terminal on 'C' and 'M' function switch

Technical drawings of UNS-2A and UNS-2B connectors. The left column shows UNS-2A (100 pins) and UNS-2B (100 pins) with dimensions in inches and millimeters. The right column shows UNS-2C (100 pins) and UNS-2D (100 pins) with dimensions in inches and millimeters. Notes indicate no center terminal on 'C' function switch and no center terminals on 'M' function switch.

TPF11CGRA



TP Series, Tiny (Continued)

Product key	Bushing	Act.	Poles	Rating	Function			Plating	Terminals	Btn.	Material	Part Number
TP11CGPC004	square	n/a	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black	RoHS	1825095-1
TP11CGPC204	no bushing									red	compliant	1825095-2
TP11CGRA004									right angle	black		1825095-3
TP11CGRA204										red		1825095-4
TP11CGRA604										blue		1825095-5
TP11FGPC004					On-(On)	1-2	2-3		pcb	black		1825095-6
TP11FGPC204										red		1825095-7
TP11FGRA004									right angle	black		1825095-8
TP11FGRA204										red		1825095-9
TP11FGRA604										blue		1-1825095-0
TP21CCGRA004			2 (1+1)		Off-(On)	Off	1-3			black		1-1825095-1
TP21CCGRA204										red		1-1825095-2
TP21FFGRA004					On-(On)	1-2	2-3			black		1-1825095-3
TPA11CGPC004	round		1		Off-(On)	Off	1-3		pcb			1825096-1
TPA11CGPC204	no bushing									red		1825096-2
TPA11CGPC604										blue		1825096-3
TPA11CGRA004									right angle	black		1825096-4
TPA11CGRA204										red		1825096-5
TPA11CGRA604										blue		1825096-6
TPA11FGPC004					On-(On)	1-2	2-3		pcb	black		1825096-7
TPA11FGPC204										red		1825096-8
TPA11FGPC604										blue		1825096-9
TPA11FGRA004									right angle	black		1-1825096-0
TPA11FGRA204										red		1-1825096-1
TPA11FGRA604										blue		1-1825096-2
TPA21CCGPC004			2 (1+1)		Off-(On)	Off	1-3, 4-6		pcb	black		1-1825096-3
TPA21CCGRA004									right angle			1-1825096-4
TPA21FFGRA204					On-(On)	1-2, 4-5	2-3, 5-6			red		1-1825096-5
TPA21MGRA004			2		Off-(On)	Off	1-3, 4-6			black		1-1825096-6
TPB11CGPC004	round	std	1				1-3		pcb			1825097-1
TPB11CGPC204	.188 (4.78)									red		1825097-2
TPB11CGRA004	dia								right angle	black		1825097-6
TPB11CGRA204	bushing,									red		1825097-4
TPB11CGVRA004	not								vertical r.a.	black		1825097-8
TPB11FGPC004	threaded				On-(On)	1-2	2-3		pcb			1825097-9
TPB11FGRA004									right angle			1-1825097-1
TPB11FGRA204										red		1-1825097-2
TPB11FGRA604										blue		1-1825097-3
TPB11FGVRA004									vertical r.a.	black		1-1825097-6
TPB21MGPC004			2		Off-(On)	Off	1-3, 4-6		pcb			1-1825097-7
TPB21MGPC204										red		1-1825097-8
TPB21MGRA004									right angle	black		2-1825097-8
TPB21RGRA004					On-(On)	1-2, 4-5	2-3, 5-6					1-1825097-9
TPB21RGRA0EDC04												1825112-1
TPBF11CGRA004		flush	1		Off-(On)	Off	1-3					2-1825097-1
TPBF11FGRA004					On-(On)	1-2	2-3					2-1825097-4
TPBF11FGRA204										red		2-1825097-5

Preferred parts in bold print

TP Series, Tiny (Continued)

Product key	Bushing	Act.	Poles	Rating	Function			Plating	Terminals	Btn.	Material	Part Number
TPC11CGPC004	round	std	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black	RoHS compliant	1825098-1
TPC11CGRA004	10/48								right angle			1825098-2
TPC11CGRA204	UNS 2B									red		1825098-3
TPC11CGVRA004	thread								vertical r.a.	black		1825098-4
TPC11FGPC004					On-(On)	1-2	2-3		pcb			1825098-5
TPC11FGRA004									right angle			1825098-6
TPC11FGVRA004									vertical r.a.			1825098-7
TPC11FGVRA204										red		1825098-8
TPC13C004				1.0 A	Off-(On)	Off	1-3	Silver	wire lug	black		1825098-9
TPC13C204										red		1-1825098-0
TPC13CPC004									pcb	black		1-1825098-1
TPC13F004					On-(On)	1-2	2-3		wire lug			1-1825098-2
TPC21MGRA204			2	0.4VA	Off-(On)	Off	1-3, 4-6	Gold	right angle	red		1-1825098-3
TPC21RGPC004					On-(On)	1-2, 4-5	2-3, 5-6		pcb	black		1-1825098-4
TPC23M004				1.0 A	Off-(On)	Off	1-3, 4-6	Silver	wire lug			1-1825098-5
TPC23R204					On-(On)	1-2, 4-5	2-3, 5-6			red		1-1825098-6
TPCF11CGPC004		flush	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black		1-1825098-7
TPCF11CGRA004									right angle			1-1825098-8
TPCF11FGRA004					On-(On)	1-2	2-3					1-1825098-9
TPCF13C004				1.0 A	Off-(On)	Off	1-3	Silver	wire lug			2-1825098-0
TPCF13F004					On-(On)	1-2	2-3					2-1825098-1
TPD11CGPC004	.259 (6.35)	n/a		0.4VA	Off-(On)	Off	1-3	Gold	pcb			1825099-1
TPD11CGPC204	dia									red		1825099-2
TPD11CGRA004	bushing,								right angle	black		1825099-3
TPD11CGRA204	not									red		1825099-4
TPD11CGRA604	threaded									blue		1825099-5
TPD11FGPC004					On-(On)	1-2	2-3		pcb	black		1825099-6
TPD11FGRA004									right angle			1825099-7
TPD11FGRA204										red		1825099-8
TPD21MGRA004			2		Off-(On)	Off	1-3, 4-6			black		1825099-9
TPD21RGPC004					On-(On)	1-2, 4-5	2-3, 5-6		pcb			1-1825099-0
TPF11CGPC004	round		1		Off-(On)	Off	1-3					1825100-1
TPF11CGPC204	1/4-40									red		1825100-2
TPF11CGRA004	UNS 2B								right angle	black		1825100-4
TPF11CGRA204	thread									red		1825100-5
TPF11CGRA604										blue		1825100-6
TPF11FGPC004					On-(On)	1-2	2-3		pcb	black		1825100-7
TPF11FGPC204										red		1825100-8
TPF11FGPC604										blue		1825100-9
TPF11FGRA004									right angle	black		1-1825100-1
TPF13C004				1.0 A	Off-(On)	Off	1-3	Silver	wire lug			1-1825100-2
TPF13C204										red		1-1825100-3
TPF13F204					On-(On)	1-2	2-3					1-1825100-4
TPF13F604										blue		1-1825100-5
TPF21MGPC004			2	0.4VA	Off-(On)	Off	1-3, 4-6	Gold	pcb	black		1-1825100-6
TPF21RGRA004					On-(On)	1-2, 4-5	2-3, 5-6		right angle			1-1825100-7
TPF23M004				1.0 A	Off-(On)	Off	1-3, 4-6	Silver	wire lug			1-1825100-8

TP_ES Series, Tiny, Process Sealed

Features

- Process and non-process sealed
- Compact design
- Vertical or right angle versions



Typical performance characteristics

Contact configuration SPST, SPDT, DPDT
 Contact timing Break-Before-Make
 Contact rating max. gold: 0.4VA @20VDC or peak AC
 silver: 1A @ 125VAC or 28 VDC resistive
 Electrical life 1 pole2 ..2 pole
 gold 100,000 ..80,000 cycles
 silver 60,000 ..50,000 cycles
 Contact resistance, initial. max.20 mOhms
 Insulation resistance 1,000 MOhms @ 500VDC
 Dielectric strength 1,000 Volts rms @ sea level
 Actuation force 0.5 to 4N (50-400gf)
 Actuator travel momentary .030" (.762)

Environmental specification

Operating temperature -30°C to +65°C
 Storage temperature -30°C to +65°C
 Solder heat resistance wave solder capable to 265° C
 Seal versions with process seal, with disposable cap

Material specifications

Contacts copper or brass, gold over nickel finish or silver
 clad with silver over nickel finish
 Actuator thermoplastic
 Terminals brass with gold over nickel or silver over nickel
 Case thermoplastic
 Frame and support bracket steel with tin over copper finish
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key				TP	B		1	1	C	G	RA	ES	0	04				
Type																				
TP	Tiny pushbutton series																			
Bushing																				
B	round .188 (4.78) dia. bushing not threaded																			
F	round 1/4-40 UNS 2B thread																			
Actuator																				
blank	standard																			
F	flush (available with B bushings only)																			
Number of Poles																				
1	single pole																			
Contact rating																				
1	0.4VA Gold																			
Function																				
C	single throw, momentary																			
F	double throw, momentary																			
Plating																				
G	Gold																			
Terminals																				
PC	printed circuit board																RA	right angle (right angle, ES available with B and C bushing only)		
Process Seal																				
ES	process sealed with disposable boot, epoxied double case																			
Button Color																				
0	black				2		red		6		blue									
Material																				
04	RoHS compliant																			

TP_ES Series, Tiny, Process Sealed (Continued)

Bushing

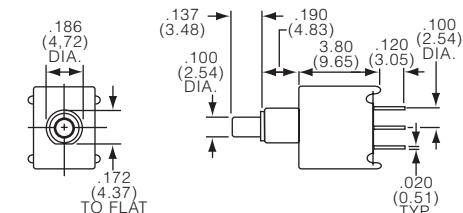


B, Round .188 (4.78) dia. bushing not threaded

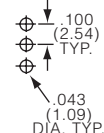
printed circuit board



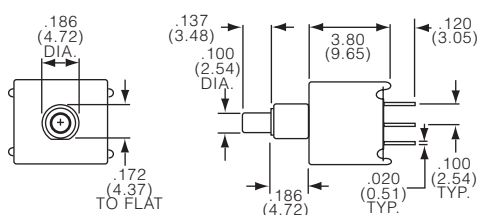
TPB11CGPCES



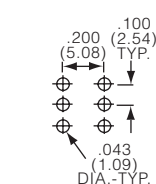
Note: no center terminal on 'C' function switch



TPB21RGPCES



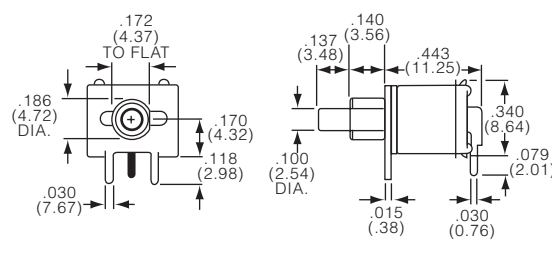
Note: no center terminals on 'M' function switch



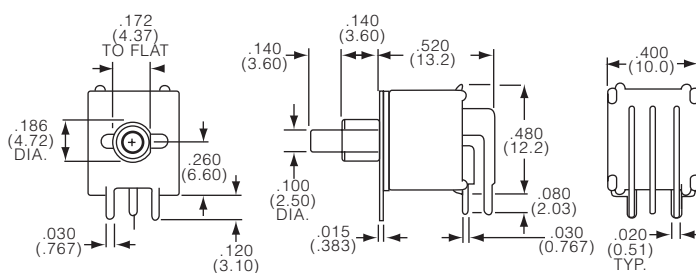
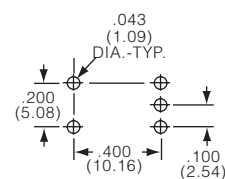
right angle



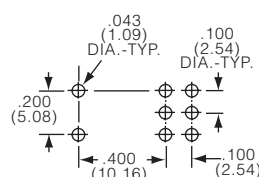
TPB11CGRAES



Note: no center terminal on 'C' function switch



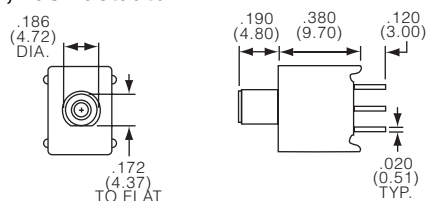
Note: no center terminals on 'M' function switch



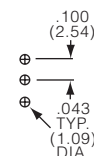
printed circuit board, flush actuator



TPBF11CGPCES

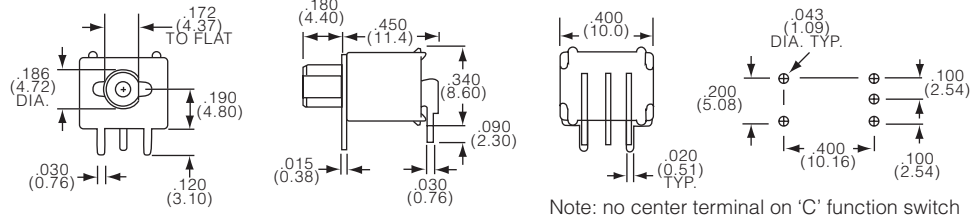


Note: no center terminal on 'C' function switch



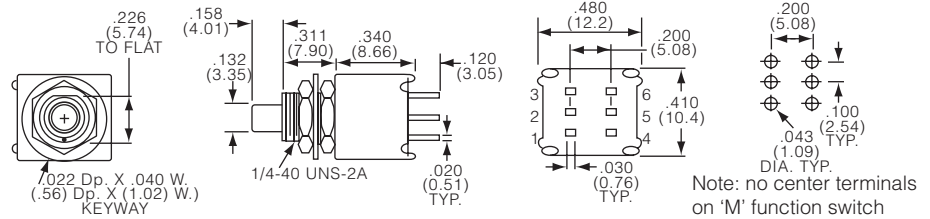
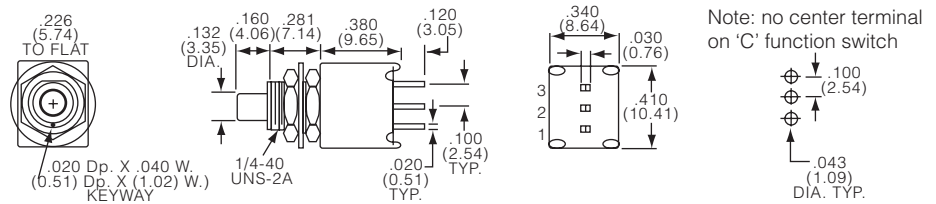
TP_ES Series, Tiny, Process Sealed (Continued)

right angle, flush actuator



F, Round 1/4-40 UNS 2B thread

printed circuit board



Product key	Bushing	Act.	Poles	Rating	Function			Plating	Terminals	Btn.	Material	Part Number
TPB11CGPCES004	round	std	1	0.4VA	Off-(On)	Off	1-3	Gold	pcb	black	RoHS compliant	1825097-3
TPB11CGRAES004	.188 (4.78)								right angle	red		1825097-5
TPB11CGRAES204	dia											1825097-7
TPB11FGPCES204	bushing, not threaded				On-(On)	1-2	2-3		pcb			1-1825097-0
TPB11FGRAES004									right angle	black		1-1825097-4
TPB11FGRAES604										blue		1-1825097-5
TPBF11CGPCES004		flush			Off-(On)	Off	1-3		pcb	black		2-1825097-0
TPBF11CGRAES004									right angle			2-1825097-2
TPBF11FGPCES004					On-(On)	1-2	2-3		pcb			2-1825097-3
TPBF11FGRAES004									right angle			2-1825097-6
TPF11CGPCES004	1/4-40	std			Off-(On)	Off	1-3		pcb			1825100-3
TPF11FGPCES004	UNS 2B				On-(On)	1-2	2-3					1-1825100-0

MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed

Features

- Glass to metal hermetic seal
- Magnetic return (no springs)
- Wire lug or pc terminals
- Actuator cap and mounting hardware supplied



Typical performance characteristics

Contact configuration SPST
 Contact timing Break-Before-Make
 Contact rating max. 1.0 VA (100 mA max. 100 VDC max.)
 Electrical life at 0.1 VA: 5,000,000 cycles
 at 5 VA: 50,000 cycles
 Contact resistance, initial. max.100 mOhms'
 Insulation resistance 1,000 MOhms min.
 Dielectric strength 1,000 Volts rms @ sea level
 Actuation force tactile "keyboard feel" 1.15 to 2 N (115 to 200 gf.)
 "breakaway reducing immediately
 to 0.43 N (43gf.) "follow-through"
 Actuator travel.078" (2.0 mm)

Environmental specification

Operating temperature -10°C to +80°C
 Storage temperature -10°C to +80°C
 Solder heat resistance hand solder
 Seal glass to metal

Material specifications

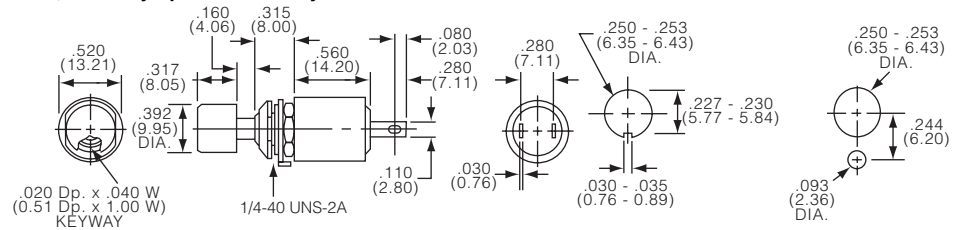
Contacts copper alloy gold plated over nickel
 Actuator polyamide
 Terminals copper alloy gold plated over nickel
 Case steel
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		MSPM	101	B	1	04
Type								
MSPM	Pushbutton, magnetic reed, long life, hermetically sealed							
Version								
101	standard version							
Action								
B	normally closed, black button							
C	normally open, red cap							
Button								
blank	with button soft detent							
S	without button audible detent							
Terminals								
blank	pin	2	pin					
0	pin	1	wire lug					
Material								
04	RoHS compliant							

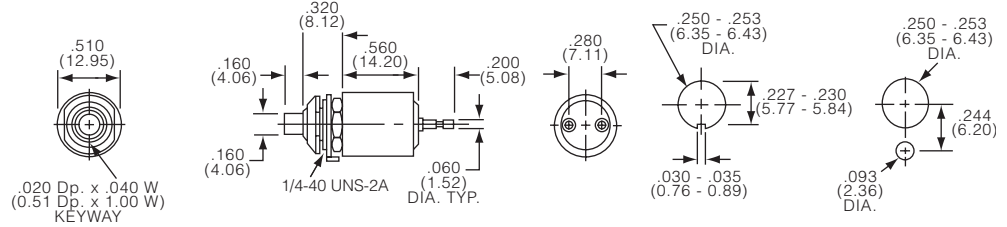
MSPM Series, Magnetic Reed, Long Life, Hermetically Sealed (Continued)

Button 

blank with button, soft detent, normally open or normally closed



S without button, audible detent, normally open or normally closed



Product key	Action	Button	Terminals	Material	Part Number
MSPM101B004	normally closed	with button	pin	RoHS	1825538-1
MSPM101B104	black button	soft detent	wire lug	compliant	1825538-2
MSPM101C104	normally open				1825538-3
MSPM101C204	red button		pin		1825538-4
MSPM101BS04	normally closed	without button			1825539-1
MSPM101BS104	black button	audible detent	wire lug		1825539-2
MSPM101CS04	normally open		pin		1825539-3
MSPM101CS104	red button		wire lug		1825539-4

MSPF Series, Front or Rear Mount, 15/32 Bushing

Features

- Versatile front or rear entry mounting
- Relative small depth for 15/32-32 size threaded switch
- Decroitive mounting hardware supplied, others available
- Various button (actuator) colors



Typical performance characteristics

Contact configuration SPST and 2 circuit
Contact timing Break-Before-Make
Contact rating max. 0.5 A @ 125 VAC
Electrical life 10,000 cycles
Contact resistance, initial max.100 mOhms
Insulation resistance 1,000 MOhms min.
Dielectric strength 1,000 Volts rms @ sea level
Actuation force 4.5 N (450 gf.)
Actuator travel098" (2.5 mm)

Environmental specification

Operating temperature -20°C to +80°C
Storage temperature -20°C to +80°C
Solder heat resistance hand solder
Seal epoxy sealed terminals

Material specifications

Contacts copper alloy silver plated
Actuator (button) thermoplastic
Terminals copper alloy silver plated
Case thermoset plastic
RoHS Directive 2002/95/EC compliant

Product key

Typical product key

MSPF 101 B

Type

MSPF Pushbutton switch, front or rear mount, 15/32-32 bushing

Version

101 standard version

Action

B NC, normally closed, black button

C NO, normally open, red button

BC NO & NC, 2 circuit normally open and normally closed

Button color (BC Action only)

0	black	6	blue
2	red	9	white

MSPF Series, Front or Rear Mount, 15/32 Bushing (Continued)

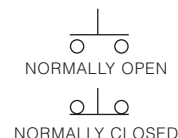
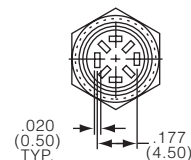
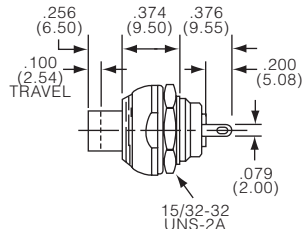
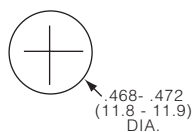
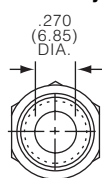
Action



Codes B, C normally closed or normally open, 1 circuit



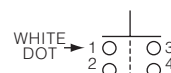
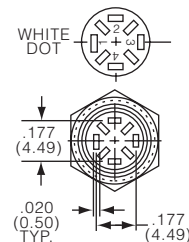
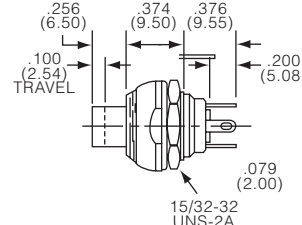
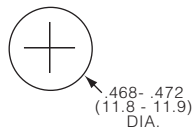
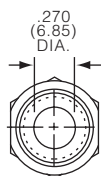
MSPF101B



Code BC normally closed and normally open, 2 circuits

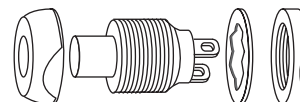


MSPF101BC



Mounting

Application note: Illustration shows versatile front or rear entry usage with hardware supplied



Product key	Action	Type	Button color	Terminals	Part Number
MSPF101B	normally closed	SPST	black	wire lug	8-1437567-8
MSPF101C	normally open		red		9-1437567-3
MSPF101BC0	NO/NC	2 circuit	black		8-1437567-9
MSPF101BC2			red		9-1437567-0
MSPF101BC6			bluw		9-1437567-1
MSPF101BC9			white		9-1437567-2

MPA103 Series, Panel Mount

Features

- Relatively high current carrying capacity for size of switch
- One piece bushing and shoulder designed to reduce tear off
- Decorative hardware supplied



Typical performance characteristics

Contact configuration	SPST SPDT
Contact timing	Break-Before-Make
Contact rating max.	3A @ 125VAC
Electrical life	10,000 cycles
Contact resistance, initial	20 mOhms max
Insulation resistance	1,000 MOhms min
Dielectric strength	1,000 Volts rms @ sea level
Actuator travel	.098" (2.5mm)
Actuator Force	SPST: 2.8 N (.283)
	SPDT: 4.5 N (.453kg)

Environmental specification

Operating temperature	-20°C to +70°C
Storage temperature	-40°C to +80°C
Solder heat resistance	hand solder 420°C max. 3 seconds max.

Material specifications

Contacts	copper alloy silver clad
Actuator (button)	phenol resin
Terminals	copper alloy silver plated
Case	thermoset plastic
RoHS Directive 2002/95/EC	compliant

Product key

Typical product key

MPA 103 C 04

Type

MPA Sub-Miniature Pushbutton

Version

103 standard

Action

B Normally Closed, momentary

C Normally Open, momentary

D

Push on/Push off - (tactile)

F

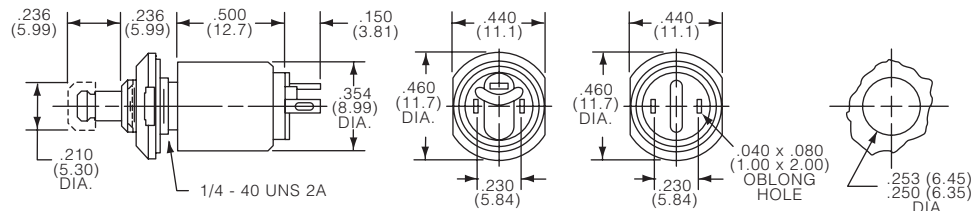
Momentary - (tactile)

Material

04 RoHS compliant



MPA103C



Black cap supplied. Other colors available, order separately (see accessories pushbuttons).

Product key	Action	Type	Terminals	Material	Part Number
MPA103B04	N/C	SPST	Wire Lug	RoHS compliant	1825403-1
MPA103C04	N/O				1825403-2
MPA103D04	Push on/Push off	SPDT			1825404-1
MPA103F04	Momentary				1825404-2

MSP103 Series, 2.5mm Travel, Panel Mount

Features

- MSP series over-travel design (self cleaning contacts) 3A
- MSPS butt contact design 0.5 A
- One piece bushing and sholder designed to reduce tear off
- Mounting hardware supplied, decorative hardware available



Typical performance characteristics

Contact configuration	SPST
Contact timing	Break-Before-Make
Contact rating max.	MSP: 3 A @ 125 VAC MSPS: 0.5 A @ 125 VAC
Electrical life	10,000 cycles
Contact resistance, initial	100 mOhms max.
Insulation resistance	1,000 mega ohms min.
Dielectric strength	1,000 Volts rms @ sea level
Actuator travel	.098" (2.5 mm)

Environmental specification

Operating temperature	-20°C to +80°C
Storage temperature	-20°C to +80°C
Solder heat resistance	hand solder 420°C max. 3 seconds max.

Material specifications

Contacts	copper alloy silver plated
Actuator (Button)	thermoplastic
Terminals	copper alloy silver plated
Case	MPS: phenol resin, MSPS: thermoset plastic
RoHS Directive 2002/95/EC	compliant

Product key		Typical product key	MSP	103	B	04
Type						
MSP	Pushbutton switch, 2.5mm travel, panel mount					
Contact						
103	3 A @125 VAC					
S103	0.5 A @125 VAC					
Action/button color						
B	NC, normally closed, black actuator					
C	NO, normally open, red actuator (contact version 103 only)					
C0	NO, normally open, black actuator					
C2	NO, normally open, red actuator, long bushing					
Material						
04	RoHS compliant		blank	RoHS compliant		

MSP103 Series, 2.5mm Travel, Panel Mount (Continued)

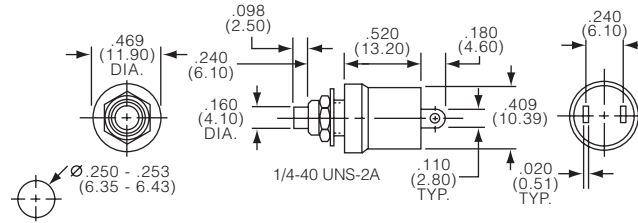
Contact



103 3 A contact



MSP103B

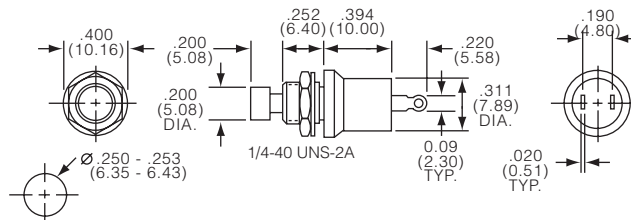


Contact	Action	Bushing len.
103	B	6.00mm (.236)
	C	6.00mm (.236)
	C0	6.00mm (.236)
	C2	9.50mm (.374)

S103 0.5 A contact



MSPS103B



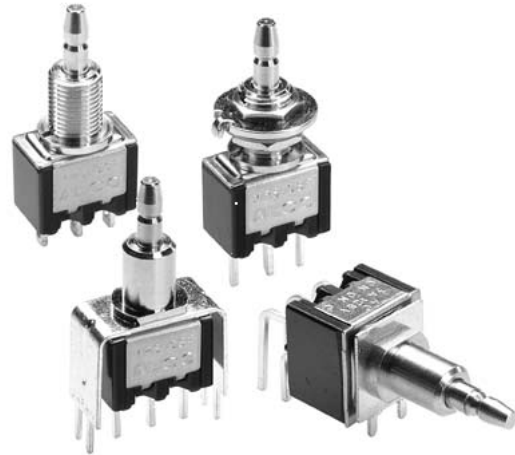
Contact	Action	Bushing len.
S103	B	6.22mm (.245)
	C0	6.22mm (.245)
	C2	6.22mm (.245)

Product key	Contact	Action	Type	Button color	Terminals	Material	Part Number
MSP103B04	3 A	N/C	SPST	black	wire lug	RoHS	1825516-1
MSP103C04	@125 VAC	N/O		red		compliant	1825516-2
MSP103C004				black			1825516-3
MSP103C204				red			1825516-4
MSPS103B	0.5 A	N/C		black			1437568-5
MSPS103C0	@125 VAC	N/O					1437568-7
MSPS103C2				red			1437568-6

MPS Series, Snap Action

Features

- Wire lug or pc terminals
- Customer selected actuator cap size and color
- Entire series epoxy sealed terminals
- Actuator guards, decorative hardware, and silicone boot seals available



Typical performance characteristics

Contact configuration SPDT, DPDT
 Contact timing Break-Before-Make
 Contact rating max. 3 A @ 125 VAC
 Electrical life 50,000 cycles
 Contact resistance, initial 10 mOhms max.
 Insulation resistance 1,000 MOhms min.
 Dielectric strength 1,500 Volts rms @ sea level
 Actuation force 200-700 gf
 Actuator travel momentary .04 (1.0mm)
 push on/off .098 (2.5mm)

Environmental specification

Operating temperature -15°C to +70°C
 Storage temperature -15°C to +70°C
 Solder heat resistance wave solder capable to 265°C
 and hand solder
 Seal epoxy sealed terminals

Material specifications

Contacts phosphor bronze silver clad
 Actuator copper alloy nickel plated
 Terminals copper alloy silver plated
 Case epoxy resin
 Frame stainless steel
 Support Bracket brass tin plated
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		MPS	1	03	F	PC	04
Type									
MPS	Pushbutton Switches, Snap Action, 3Amp								
Poles									
1	1 pole		2	2 poles					
Contact									
03	3 A @125 VAC								
Function									
D	single pole		N	double pole					
F	Push-On/Push-Off momentary		R	Push-On/Push-Off momentary					
Terminals									
blank	wire lug		RA	right angle PC terminal					
PC	printed circuit board		WW	wire wrap or extended PC					
PCV	printed citrcuit board, with support								
Material									
04	RoHS compliant								

MPS Series, Snap Action (Continued)

Function



Fct.	Poles				
D	1	On	On	3-2	3-1
F	1	On	(On)	3-2	3-1
N	2	On	On	3-2, 6-5	3-1, 6-4
R	2	On	(On)	3-2, 6-5	3-1, 6-4

Off indicates a mechanical position with no electrical connection

(On) indicates momentary connection

Terminals



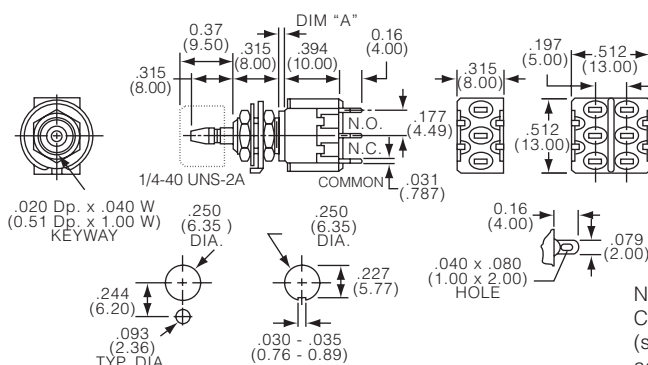
blank wire lug



MPS103F



MPS203R



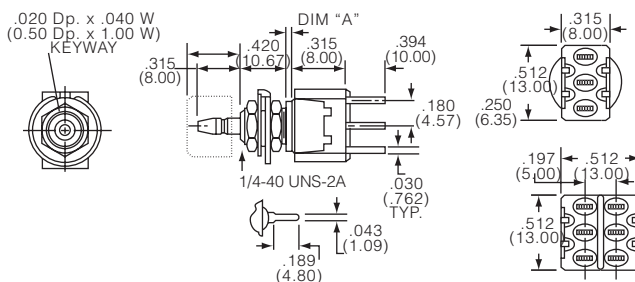
Funct	Action	Dim A
D	1p, push-On/Off	2.54 (.100)
F	1p, momentary	1.016 (.040)
N	2p, push-On/Off	2.54 (.100)
R	2p, momentary	1.016 (.040)

Note: hardware included with switches.
Caps not supplied, order separately
(see cap model C22 and C23 under
accessories)

PC printed circuit board



MPS203RPC



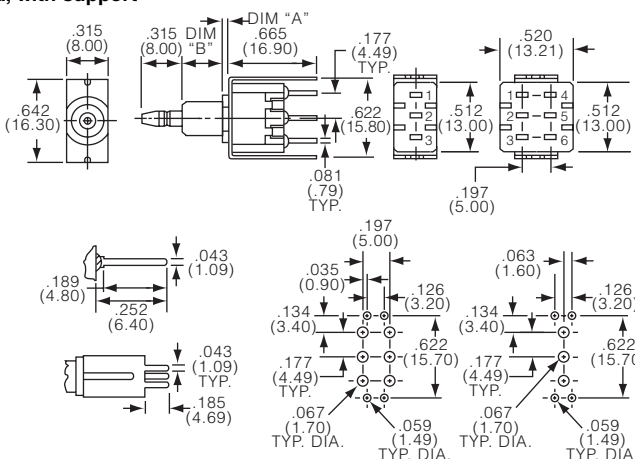
Funct	Action	Dim A
D	1p, push-On/Off	2.54 (.100)
F	1p, momentary	1.016 (.040)
N	2p, push-On/Off	2.54 (.100)
R	2p, momentary	1.016 (.040)

Caps not supplied, order separately (see cap model C22 and C23 under accessories)

PCV printed circuit board, with support



MPS203RPCV

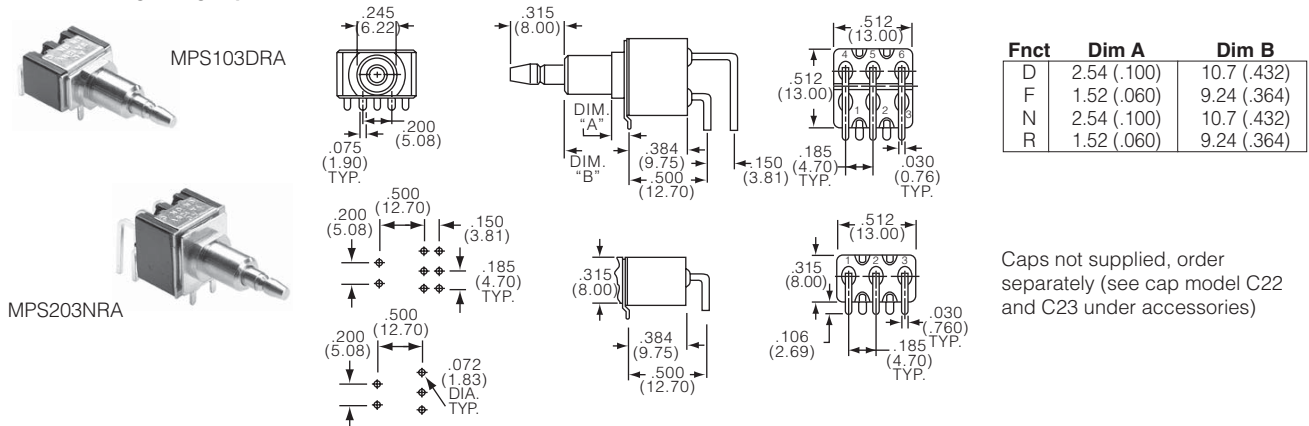


Funct	Dim A	Dim B
D	2.03 (.080)	8.00 (.315)
F	1.01 (.040)	7.49 (.295)
B	1.01 (.040)	7.49 (.295)

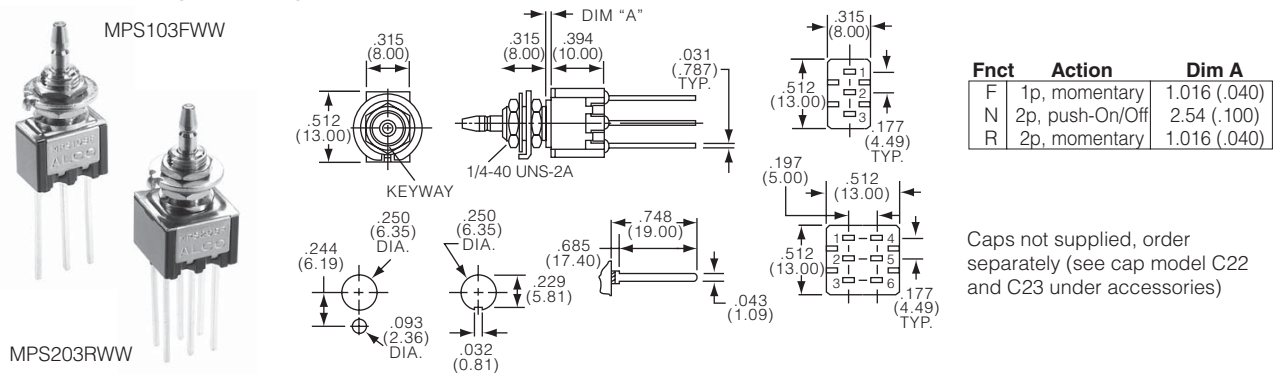
Caps not supplied, order separately (see cap model C22 and C23 under accessories)

MPS Series, Snap Action (Continued)

RA right angle, printed circuit board



WW wire wrap, extended pcb



Product key	Poles	Contact	Function	Terminals	Material	Part Number
MPS103D04	single pole	3 A @125 VAC	Push-On/Push-Off	solder lug	RoHS compliant	1825092-1
MPS103DPC04				printed circuit board		1825399-1
MPS103DPCV04				PCB, with support		1825401-1
MPS103DRA04				right angle PCB		1825400-1
MPS103F04	double pole		momentary	solder lug		1825092-2
MPS103FPC04				printed circuit board		1825399-2
MPS103FPCV04				PCB, with support		1825401-2
MPS103FRA04				right angle PCB		1825400-2
MPS103FWW04			Push-On/Push-Off	wire wrap		1825402-1
MPS203N04				solder lug		1825092-3
MPS203NPC04				printed circuit board		1825399-3
MPS203NPCV04				PCB, with support		1825401-3
MPS203NRA04				right angle PCB		1825400-3
MPS203R04			momentary	solder lug		1825092-4
MPS203RPC04				printed circuit board		1825399-4
MPS203RPCV04				PCB, with support		1825401-4
MPS203RRA04				right angle PCB		1825400-4
MPS203RWW04				wire wrap		1825402-2

MP / A / E / G, Green Series

Features

- Wire lug or pC terminals
- Customer selected actuator cap size and color on MPA series
- MPE series sealed to IP65
- Entire series with epoxy sealed terminals
- Actuator guards, decorative hardware, and silicone boot seals available



Typical performance characteristics

Contact configuration SPDT, DPDT, 3PDT, 4PDT
 Contact timing Break-Before-Make
 Contact rating max. 6 A @ 125 VAC, 3 A @ 250 VAC
 Electrical life push on/push off: 30,000 cycles
 momentary: . 20,000 cycles
 Contact resistance, initial. 10 mOhms max.
 Insulation resistance 1,000 MOhms min.
 Dielectric strength. 1,500 Volts rms @ sea level
 Actuation force 4 to 20 N (400 to 2000 gf)
 Actuator travel 3.55 mm

Environmental specification

Operating temperature -20°C to +80°C
 Storage temperature -40°C to +80°C
 Solder heat resistance wave solder capable to 265°C
 Seal mpe switches IP65

Material specifications

Contacts copper alloy silver clad
 Actuator brass nickel plated
 Terminals copper alloy gold plated
 Case alkyd polyester (green)UL94 V-O
 Frame stainless steel
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		MP	A	1	06	D	04
Type	MP	Green Series Pushbutton Switches, panel mount							
Bushing style		A	1/4-40 3.4mm actuator						
	E	1/4-40 3.4mm actuator with 'O' rings							
	G	15/32-32 large actuator							
Number of poles		1	single pole	3	3 poles				
	2	double pole		4	4 poles				
Rating		06	6 Amp						
Function		D	1 & 3 pole push-on/push-off	N	2 & 4 pole push-on/push-off				
	F	momentary		R	momentary				
Terminals		blank	wire lug	PC	printed circuit board				
Material		04	RoHS compliant						

MP / A / E / G, Green Series (Continued)

Bushing style A

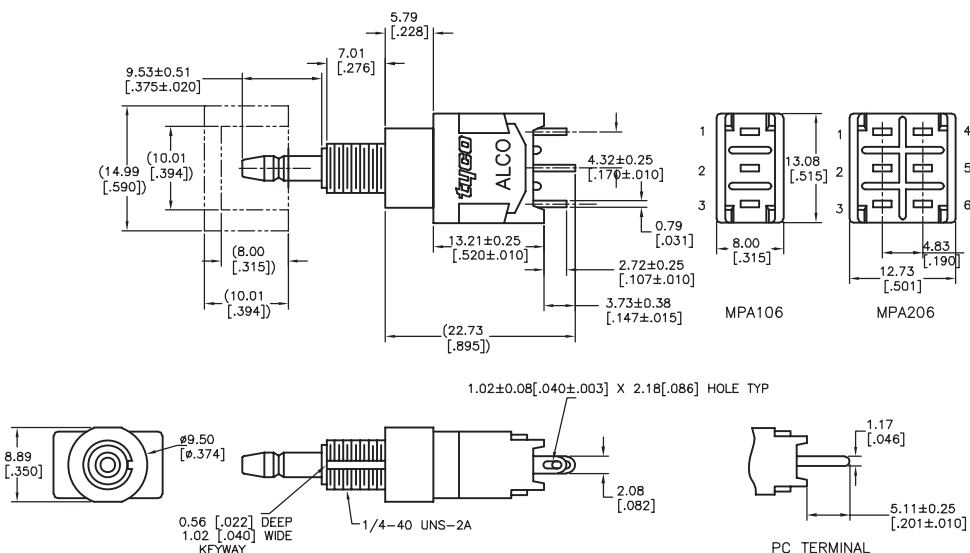


single & double pole



MPA106D

MPA206N

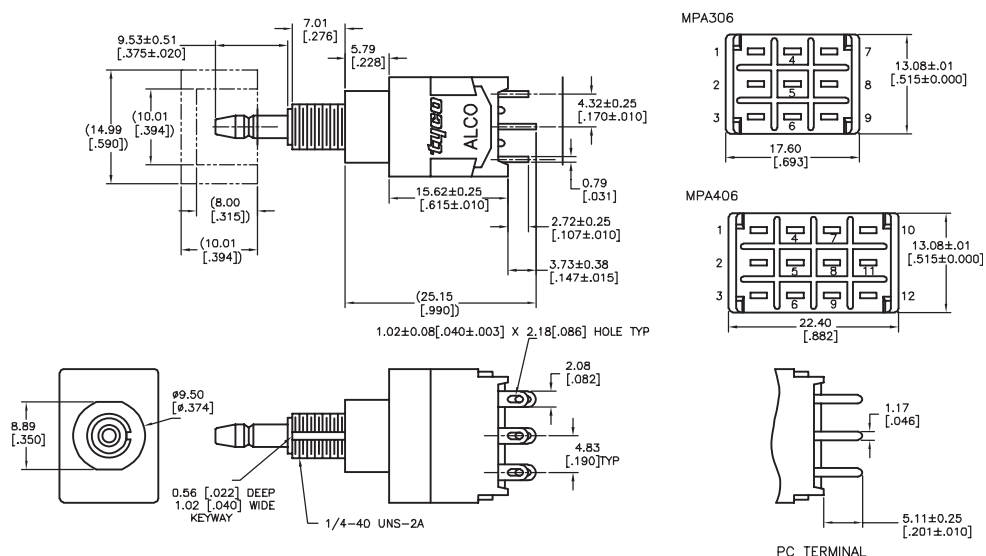


3 & 4 pole



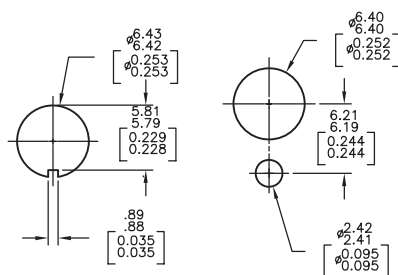
MPA306D

MPA406N

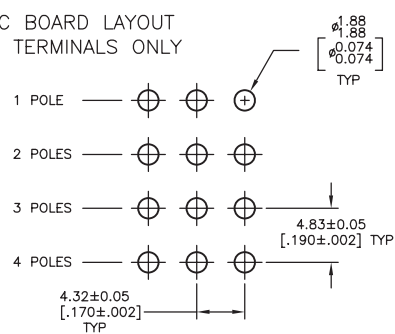


mounting

RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION



PC BOARD LAYOUT PC TERMINALS ONLY



MP / A / E / G, Green Series (Continued)

Bushing style E

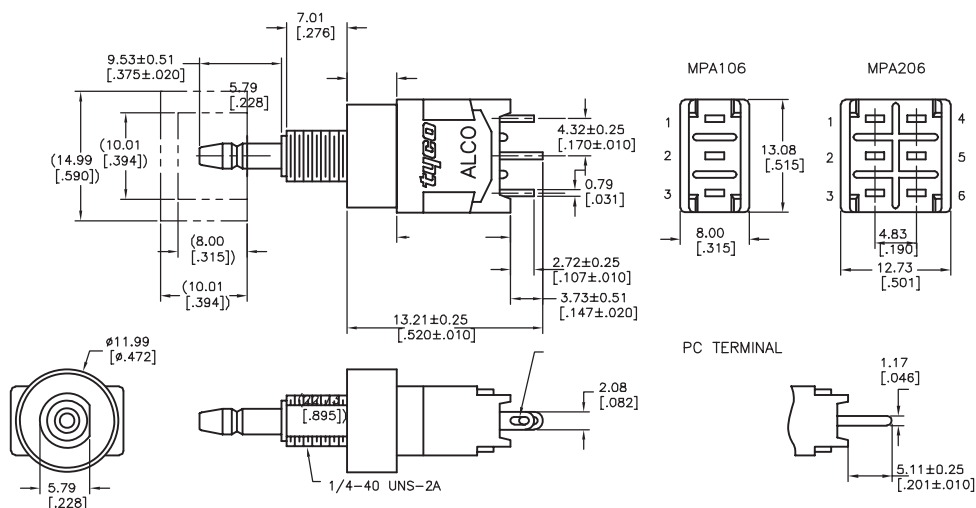


single & double pole



MPE106D

MPE206N

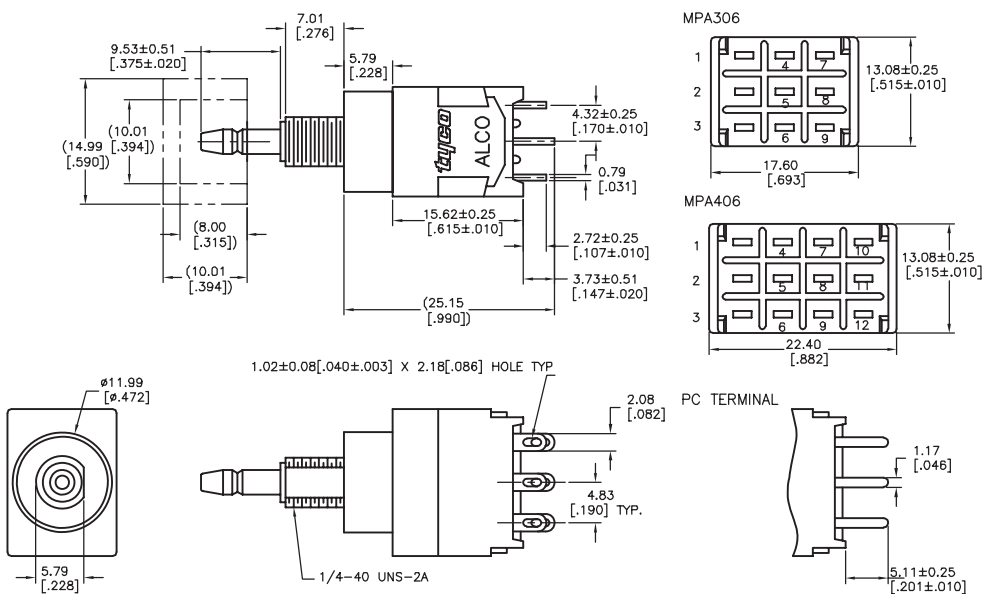


3 & 4 pole



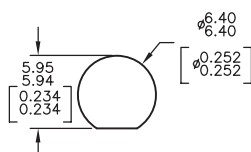
MPE306F

MPE406N

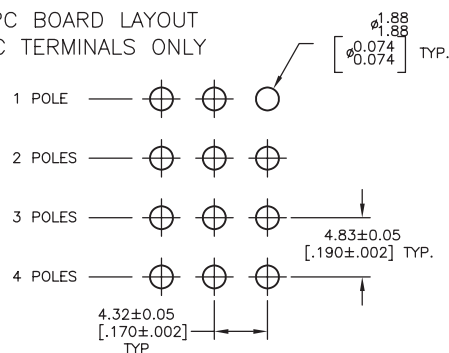


mounting

RECOMMENDED HOLE LAYOUT
TO PREVENT ROTATION



PC BOARD LAYOUT
PC TERMINALS ONLY



MP / A / E / G, Green Series (Continued)

Bushing style G

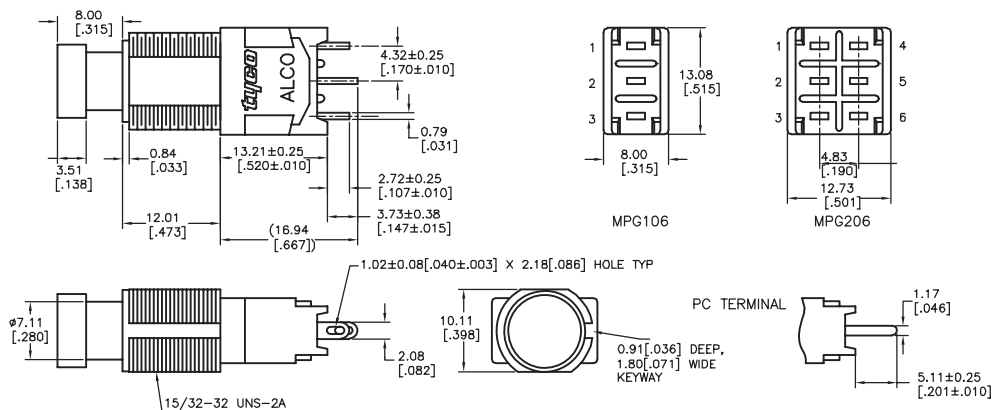


single & double pole



MPG106D

MPG206NPC

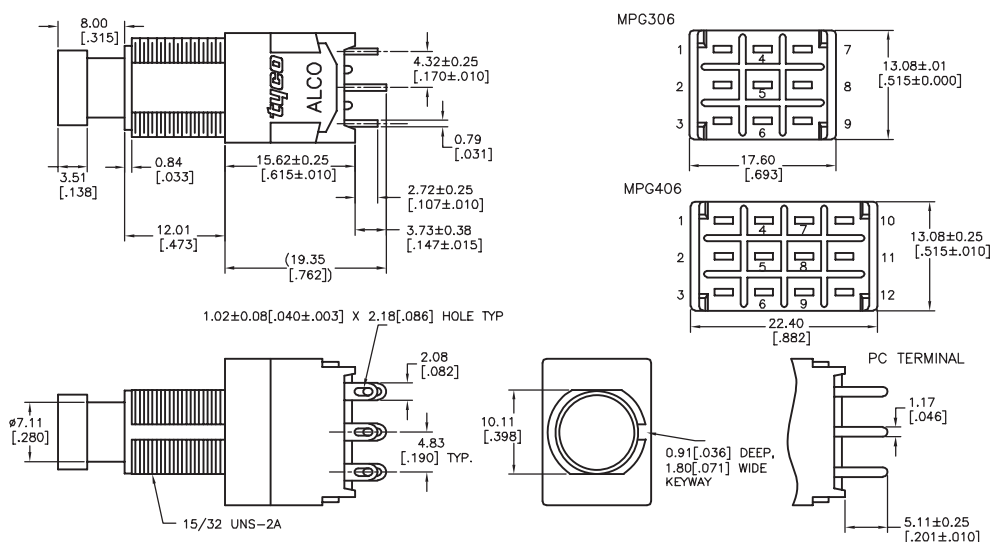


3 & 4 pole



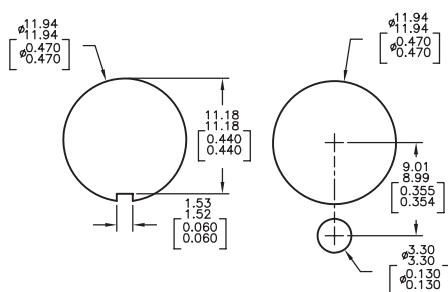
MPG306D

MPG406N

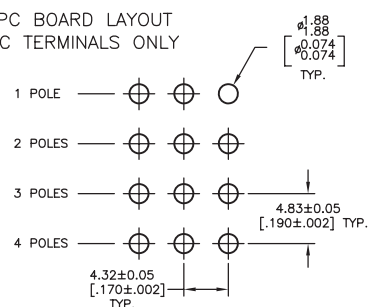


mounting

RECOMMENDED HOLE LAYOUT TO PREVENT ROTATION



PC BOARD LAYOUT PC TERMINALS ONLY



MP / A / E / G, Green Series (Continued)

Function



Fct.	Poles				
D	1	On	On	2-1	2-3
F	1	On	(On)	2-1	2-3
N	2	On	On	2-1, 5-4	2-3, 5-6
R	2	On	(On)	2-1, 5-4	2-3, 5-6
D	3	On	On	2-1, 5-4, 8-7	2-3, 5-6, 8-9
F	3	On	(On)	2-1, 5-4, 8-7	2-3, 5-6, 8-9
N	4	On	On	2-1,5-4,8-7,11-10	2-3,5-6,8-9,11-12
R	4	On	(On)	2-1,5-4,8-7,11-10	2-3,5-6,8-9,11-12

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection

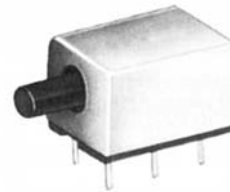
Product key	Bushing	No. of poles	Rating	Function	Terminals	Material	Part Number
MPA106D04	1/4-40	single pole	6 Amps	push-on/push-off	wire lug	RoHS compliant	1825040-1
MPA106F04	3.4mm			momentary			1825040-2
MPA106DPC04	actuator			push-on/push-off	pcb		1825040-3
MPA106FPC04				momentary			1825040-4
MPA206N04		double pole		push-on/push-off	wire lug		1825040-5
MPA206NPC04					pcb		1825040-6
MPA206R04				momentary	wire lug		1825040-7
MPA206RPC04					pcb		1825040-8
MPA306D04		3 poles		push-on/push-off	wire lug		1825040-9
MPA306F04				momentary			1-1825040-0
MPA406N04		4 poles		push-on/push-off			1-1825040-1
MPA406R04				momentary			1-1825040-2
MPE106D04	1/4-40	single pole		push-on/push-off			1825041-1
MPE106F04	3.4mm			momentary			1825041-2
MPE206N04	actuator	double pole		push-on/push-off			1825041-3
MPE206R04	with 'O' ring			momentary			1825041-4
MPE306D04		3 poles		push-on/push-off			1825041-5
MPE306F04				momentary			1825041-6
MPE406N04		4 poles		push-on/push-off			1825041-7
MPE406R04				momentary			1825041-8
MPG106D04	15/32-32	single pole		push-on/push-off			1825042-1
MPG106DPC04	large			push-on/push-off	pcb		1825042-2
MPG106F04	actuator			momentary	wire lug		1825042-3
MPG106FPC04					pcb		1825042-4
MPG206N04		double pole		push-on/push-off	wire lug		1825042-5
MPG206NPC04					pcb		1825042-6
MPG206R04				momentary	wire lug		1825042-7
MPG206RPC04					pcb		1825042-8
MPG306D04		3 poles		push-on/push-off	wire lug		1825042-9
MPG306F04				momentary			1-1825042-0
MPG406N04		4 poles		push-on/push-off			1-1825042-1
MPG406R04				momentary			1-1825042-2

Preferred parts in bold print

A60 Series, THT

Features

- Approved construction
- 2 different actuator lengths
- 2 Change-over contacts
- Versions with sealed base available



Typical performance characteristics

Contact configuration	DPDT
Contact timing	Break-before-Make timing
Contact rating max	0,5 A @ 60 V AC/DC
Electrical life	>10,000 cycles (200 mA @ 15 VAC)
Mechanical life	20,000 cycles
Contact resistance	max 40 mOhm
Insulation resistance	min. 10,000 MOhm
Dielectric strength	500 VAC
Actuator travel	momentary 3.3 mm

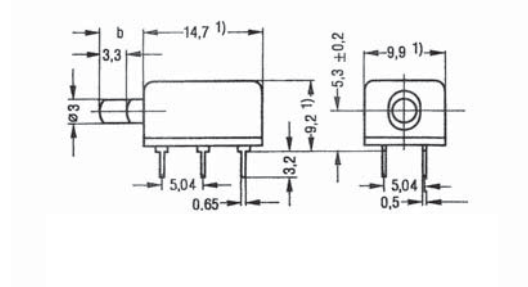
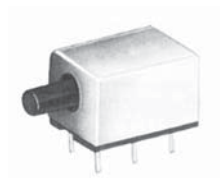
Environmental specification

Operating temperature	-25°C to +85°C
Storage temperature	-25°C to +85°C
Solder heat resistance	265°C/ 10s wave

Material specifications

Base	pc-gf
Cover	psu
Contacts	copper alloy gold finish
Terminals	copper alloy tin finish
actuator	pom
RoHS compliance	compliant

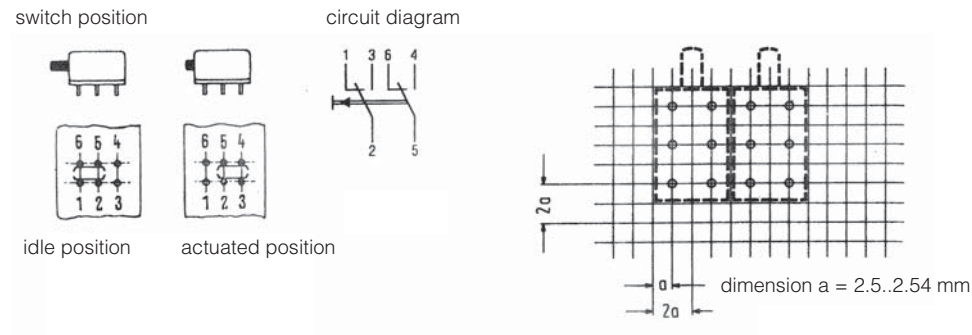
Dimensions



dimension b = 5.4 mm or 9.4 mm

A60 Series, THT (Continued)

Function, Mounting

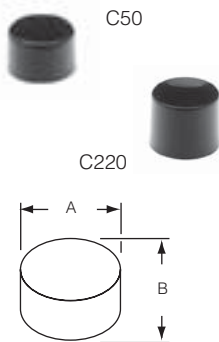


Product key	Actuator	Sealed base	Material	Part Number
C42315A60A3	standard	no	RoHS	1393683-1
C42315A60A4	long	no	compliant	1393683-2
C42315A60A13	standard	yes		1393683-3
C42315A60A14	long	yes		1393683-4

Accessories

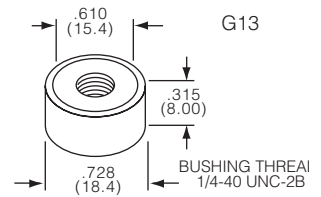
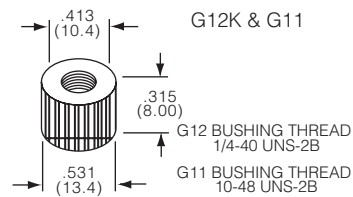


Caps



Product key	for	Color	Diam A	Length B	Material	Part Number
C50	MPA3	black	4.95 (.195)	3.05 (.120)	RoHS compliant	6-1437627-2
C52		red				6-1437627-3
C55		green				6-1437627-5
C59		white				6-1437627-6
C80		black	7.87 (.310)	4.06 (.160)		6-1437627-7
C82		red				6-1437627-8
C85		green				6-1437627-9
C89		white				7-1437627-0
C9004	MPG	black	9.00 (.354)	3.47 (.137)		1825070-1
C9204		red				1825070-2
C9604		orange				1825070-3
C9904		yellow				1825070-4
C22004	MPS/MSPM	black	10.2 (.402)	8.00 (.315)		1825068-1
C22204	MPE/MPA6	red				1825068-2
C22304		orange				1825068-3
C22404		yellow				1825068-4
C22504		green				1825068-5
C22604		blue				1825068-6
C22904		white				1825068-7
C23004		black	15.2 (.600)	10.0 (.394)		1825069-1
C23204		red				1825069-2
C23304		orange				1825069-3
C23404		yellow				1825069-4
C23504		green				1825069-5
C23604		blue				1825069-6
C23904		white				1825069-7

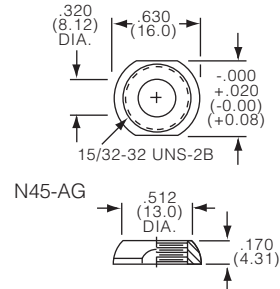
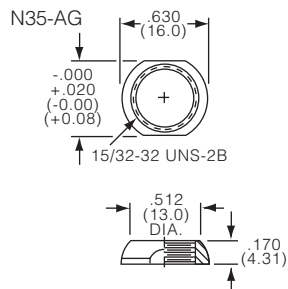
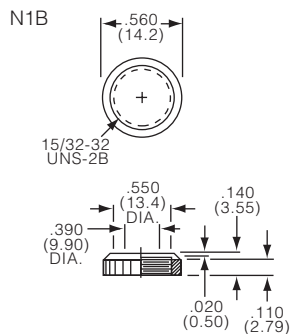
Guards



Product key	Thread	Color	Texture	Material	Part Number
G11A	10-48	natural Aluminum	smooth	RoHS compliant	7-1437627-6
G11B		black Aluminum			7-1437627-7
G11C		chrome brass			7-1437627-8
G11KA		natural Aluminum	straight knurl		7-1437627-9
G11KB		black Aluminum			8-1437627-0
G12A	1/4-40	natural Aluminum	smooth		8-1437627-1
G12B		black Aluminum			8-1437627-2
G12C		chrome brass			8-1437627-3
G12KA		natural Aluminum	straight knurl		8-1437627-4
G12KB		black Aluminum			8-1437627-5
G12KC		chrome brass			8-1437627-6
G13A		natural Aluminum	smooth		8-1437627-7
G13B		black Aluminum			8-1437627-8
G13C		chrome brass			8-1437627-9
G13KA		natural Aluminum	straight knurl		9-1437627-0
G13KB		black Aluminum			9-1437627-1
G13KC		chrome brass			9-1437627-2
G15	15/32-32		smooth		9-1437627-3

Accessories (Continued)

Decorative Hardware



Product key	Thread	Material	Part Number
N1B04	15/32-32	RoHS compliant	1825622-2
N3504			1825621-2
N4504			1825623-3

BP Series Boot Seals

Features

- One piece design, nut over molded "bonded" to silicone boot element
- Silicone rubber eliminates cure dates
- Protects against moisture, oil, dirt, dust, most solvents, and some acids



Environmental specification

Operating temperature -65°C to 265°C

Material specifications

Boot material silicone rubber
Threaded nut material, and finish..... brass nut, black oxide finish
RoHS Directive 2002/95/EC compliant

Product key

Typical product key

BP 1532 0 04

Type

BP Pushbutton boot seals

Nut thread

1048 10-48 UNS 2-B
A1440 1/4-40 UNS 2-B
1440 1/4-40 UNS 2-B
1532 15/32-32 UNS 2-B
2010 1/4-40 UNS 2B with knurl

Color

0 black **2** red **8** gray

Material

04 RoHS compliant

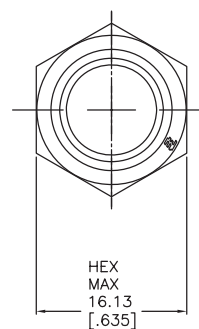
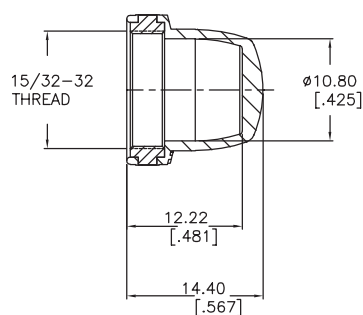
Nut thread



1048 10-48 UNS 2-B, suited for MSPF and MPG series switches



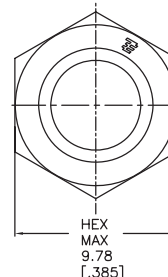
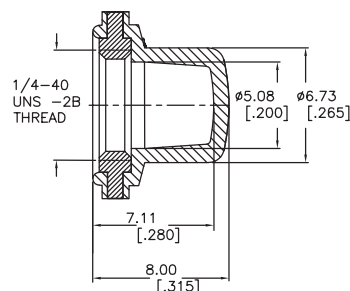
BP1048004



A1440 1/4-40 UNS 2-B, suited for MSPMBS, MSPMCS, MSP3, MPA3, TP series switches



BPA1440004

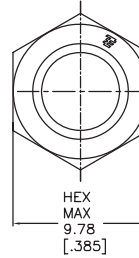
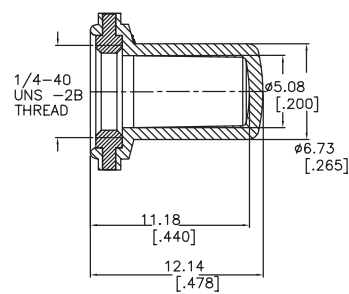


BP Series Boot Seals (Continued)

1440 1/4-40 UNS 2-B, suited for MSPM,MPA3,MPS and TP series switches



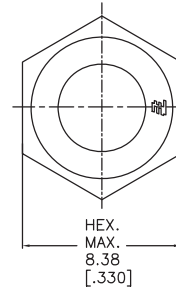
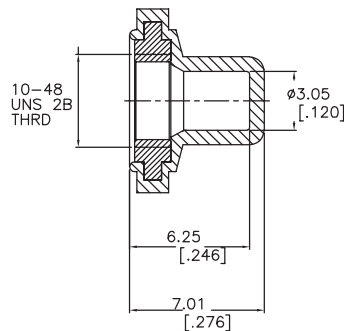
BP1440004



1532 15/32-32 UNS 2-B, suited for TP series switches



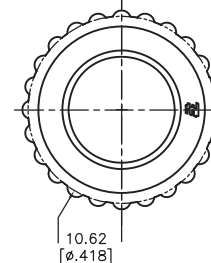
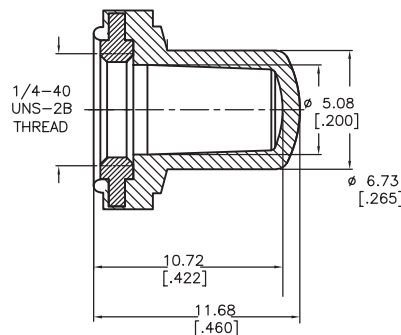
BP1532004



2010 1/4-40 UNS 2B with knurl, suited for MSPM,MSP3,MPA3, and TP series switches



BP201004



Product key	Used on switch type	Nut thread	Color	Material	Part Number
15/32-32 Pushbutton Boot Seals					
BP1532004	MSPF and MPG series	15/32-32	black	RoHS compliant	1825603-1
BP1532204			red		1825603-2
BP1532804			gray		1825603-3
1/4-40 Pushbutton Boot Seals					
BPA1440004	MSPMBS,MSPMCS,MSP3,MPA3,TP series	1/4-40	black	RoHS compliant	1825604-1
BPA1440204			red		1825604-2
BPA1440804			gray		1825604-3
BP1440004	MSPM,MPA3,MPS and TP series		black		1825610-1
BP1440204			red		1825610-2
BP1440804			gray		1825610-3
10-48 Pushbutton Boot Seals					
BP1048004	TP series	10-48	black	RoHS compliant	1825615-1
BP1048204			red		1825615-2
1/4-40 Knurled Pushbutton Boot Seal					
BP201004	MSPM,MSP3,MPA3, and TP series	1/4-40	black	RoHS compl.	1825617-2

BP Series Panel Seal

Features

- Unique design allows 1/4-40 threaded switch on almost any panel thickness
- Fits in a 15/32" (11.9mm) or 1/2" (12.7mm) diameter panel hole.
- Multiple cap colors available



Material specifications

Cap material..... silicone rubber
Housing material..... ABS thermoplastic black
Jam nut, spacer material & finish..... brass nickel plated
RoHS Directive 2002/95/EC..... compliant

Product key

Typical product key

BP M 1532 0 04

Type

BP Pushbutton switch panel seal

Switch series

M MPA Series
T TP & TP_ES Tiny Series

Nut thread

1532 15/32-32 UNS 2-A

Color

0 black **2** red **8** gray

Material

04 RoHS compliant

BP Series Panel Seal (Continued)

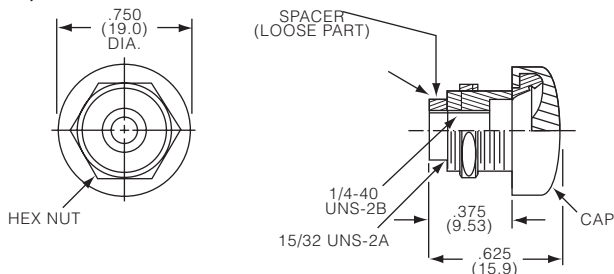
Switch series



BPM BPM Series panel seal, suited for MPA series switches



BPM1532004

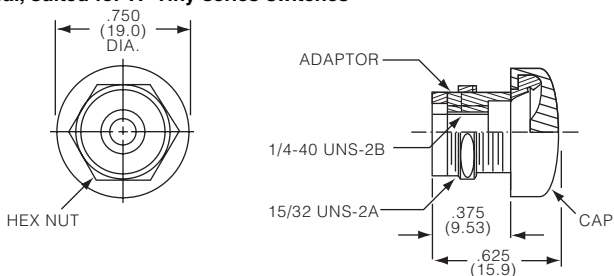


For use with Miniature Pushbutton
The BPM seal adaptor accommodates all
Tyco MPA Series of pushbutton switches
utilizing the 1/4-40 threaded bushing.

BPT BPT Series panel seal, suited for TP Tiny series switches



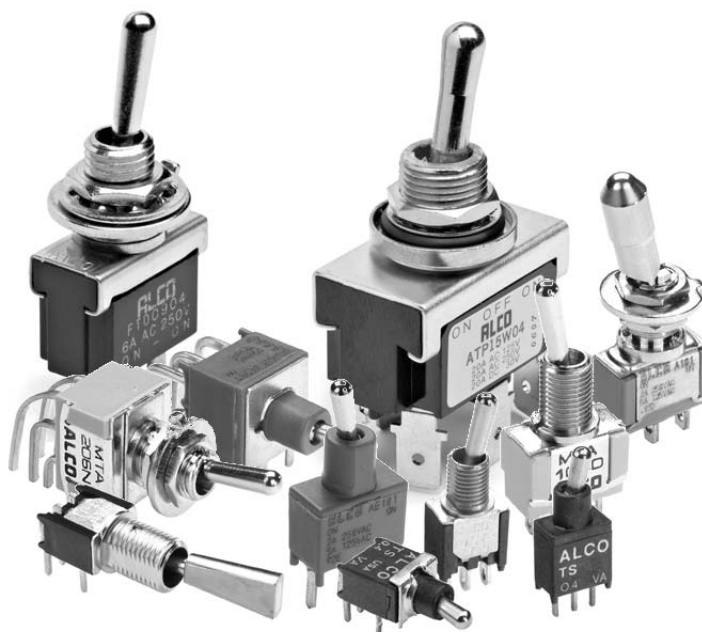
BPT1532804



For use with Tiny Series TPF Pushbutton
The BPT seal adaptor accommodates all
Tyco TPF Series Tiny Pushbutton switches
utilizing the 1/4-40 threading bushing.

Product key	Used on switch type	Color	Material	Part Number
BPM1532004	MPA series	black	RoHS compliant	1825618-1
BPM1532204		red		1825618-2
BPM1532804		gray		1825618-3
BPT1532004	TP Tiny series	black		1825599-3
BPT1532204		red		1825599-1
BPT1532804		gray		1825599-2

Product Range



Toggle Switches

- **Tiny Toggles:** TT and TST Series
- **Miniature Toggles:** Gemini Series and Green Series
- **Power Toggles:** F and AW Series

Main features:

- Up to 4 poles
- Wide range of different switch functions
- Gold or silver contacts
- Up to 20 A
- Sealed or unsealed versions
- Horizontal and vertical right angle versions
- Many different actuator styles
- Locking versions
- Different bushings with or without thread
- THT and wire lug terminals
- Accessories: Boot seals, decorative mounting hardware



TST Tiny Toggle, Process Sealedpage E3



TT Tiny Toggle Switchpage E6

Product Range (Continued)



Gemini A Seriespage E15



Gemini AE Series, Sealed IP67page E26



MT Green Seriespage E32



F Series, Panel Mounting, 6Apage E43



AW Series, Panel Mounting, Waterproofpage E46



Hardware and Accessoriespage E49



Boot Sealspage E50

Toggle Switches

- Washable process sealed construction (Internal "O" ring)
- Compact design
- Liquid Crystal Polymer (LCP) case



Contact configuration		spst, spdt
Contact timing		break-before-make
Contact rating, max		gold 0.4 VA @ 20 VAC/DC
Electrical life		D = 80,000 cycles (2 position) E = 60,000 cycles (3 position) F and G = 30,000 cycles (momentary 2 and 3 position)
Contact resistance, initial		max.20 mOhms
Insulation resistance		1,000 mega Ohms @ 500 VDC
Dielectric strength		1,000 Vrms @ sea Level
Actuator travel		22° for D and E function 18° for F and G function

Operating temperature	-30°C to +85°C
Storage temperature	-55°C to +85°C
Solder heat resistance	wave solder capable to 265°C
Seal	process sealed with internal "O" ring

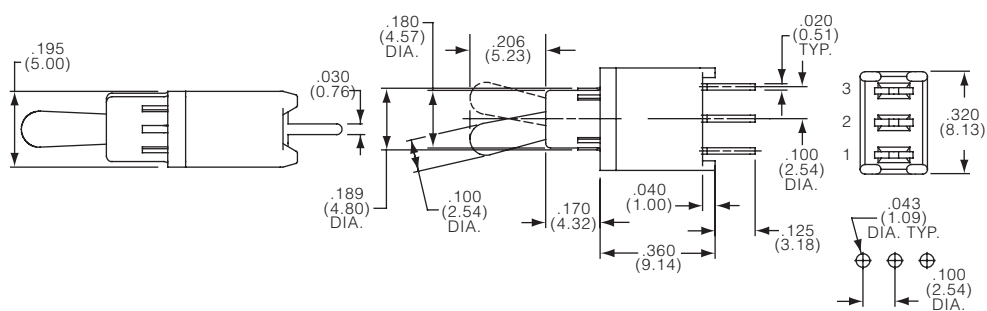
Contacts	copper or brass alloy, gold over nickel finish
Bat	brass alloy, nickel finish
Terminals	brass with gold over nickel in contact area
.	tin over nickel in solder area
Case	theroplastic (LCP)
Spring	music wire zinc plated
Support bracket	steel tin plated
Seal	"O" ring rubber
RoHS Directive 2002/95/EC	compliant

Catalogue No. 8-1773450-9
Issued 09/2008

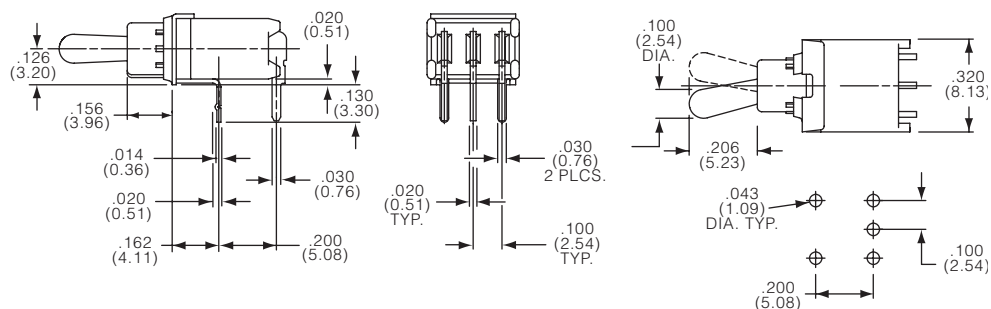
Function	D	E	F	G	Terminals
Off	On	None	On	On	
(On)	On	Off	On	On	
None	On (On)	None	On (On)	On (On)	
	1-2	-	2-3		

A small electronic component, likely a relay or switch, with a cylindrical top and four pins at the base. The text "ALCO TS Q4 VA" is printed on its side.

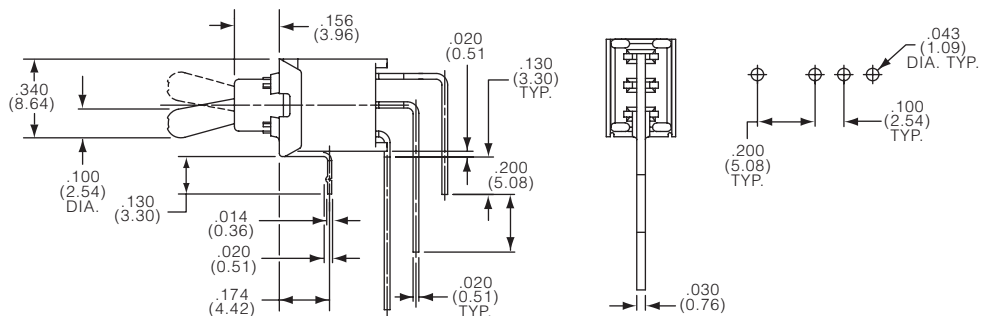
TST11DGPC1D



TST11DGRA1D



TST11DGVRA1D

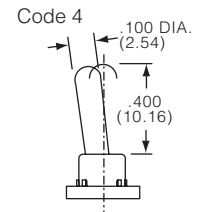
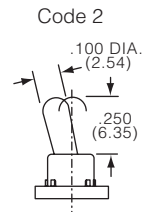
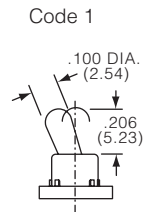


TST, Tiny Toggle, Process Sealed(Continued)

Actuator



Codes 1,2,4 actuator lengths



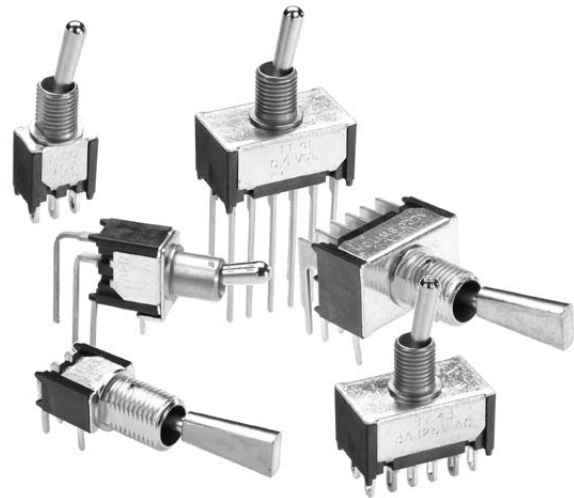
Product key	Poles	Rating	Function	Plating	Terminals	Actuator	Bushing	Material	Part Number
TST11DGPC1D04	1 pole	0.4VA	On None On	Gold	pcb	.206 (5.23)	plain,	RoHS	1825455-1
TST11DGPCV1D04					pcb w brack		not	compliant	1825455-2
TST11DGRA1D04					right angle		threaded		1825455-3
TST11DGVRA1D04			On Off On		vertical r.a.				1825455-4
TST11EGPC4D04					pcb	.400 (10.16)			1825455-5

Preferred parts in bold print

TT, Tiny Toggle Switch

Features

- **Compact design**
- **Vertical and horizontal right angle versions available**



Typical performance characteristics

Contact configuration	1, 2 and 4 pole
Contact timing	make before break
Contact rating, max	gold 0.4 VA @ 20 VDC or peak AC resistive
	silver (2 position): 3 A @ 125 VAC or 28 VDC resistive
	silver (4 position): 2 A @ 125 VAC or 28 VDC resistive
Electrical life	0.4 VA: 80,000 (2 pos.), 60,000 (3 pos.)
	2 A: 10,000 cycles
	3 A: 20,000 cycles
Contact resistance, initial	max.20 mOhms
Insulation resistance	1,000 MOhms @ 500 VDC
Dielectric strength	1,000 Vrms @ sea Level
Actuator travel	22° for D and E function
	18° for F and G function

Environmental specification

Operating temperature	-30°C to +85°C
Storage temperature	-55°C to +85°C
Solder heat resistance	wave solder capable to 265°C
Terminal Seal	single pole: epoxy, double pole: epoxy optional
Process Sealed	TTE version only

Material specifications

Contacts	copper or brass alloy, gold over nickel finish
	or silver clad copper alloy
Actuator	brass alloy, nickel finish or
	stainless steel or thermoplastic
Terminals	brass with gold over nickel in contact area
	brass alloy, gold over nickel finish
	or silver clad copper alloy tin over nickel in solder area
Case	thermoplastic
Bushing	brass alloy finish nickel over copper
Internal actuator	thermoplastic or PTFE
Spring	music wire zinc plated
Support Bracket	steel tin plated
RoHS Directive 2002/95/EC	compliant

TT, Tiny Toggle Switch (Continued)

Product key	Typical product key	TT	1	1	D	G	PC	9	T1/4	04
Type	TT Tiny toggle switch									
Environmental seal										
blank	no seal									
E	environmental seal (splash proof), not available with actuator 7 or with terminals VRA									
Number of Poles										
1	single pole									
2	double pole									
4	4 pole									
Contact rating										
1	0.4VA Gold									
3	1 Amp, Silver with wire lug and pc terminals only									
Function										
single pole										
A	On Off Versions A and K available with wire lug & pc terminals only									
D	On On									
E	On Off On									
F	On (On)									
2 & 4 pole										
K	On Off									
N	On On									
P	On Off On									
R	On (On)									
Plating										
G	Gold									
blank	Silver									
Terminals										
blank	wire lug									
PC	printed circuit									
RA	right angle									
VRA	vertical right angle									
WW	wire wrap									
Actuator length										
#10 or Unthreaded Bushing										
1	.221 (5.61), bat									
2	.296 (7.52), bat									
3	.381 (9.68), bat									
5	na									
6	.401 (10.19), round, colored									
7	na									
8	na									
9	.516 (13.11), bat									
1/4 Bushing										
1	.125 (3.18), bat									
2	.200 (5.1), bat									
3	.286 (7.26), bat									
5	paddle									
6	.306 (7.77), round, colored									
7	.457 (11.61), flat									
8	.567 (14.40), locking									
9	.421 (10.693), bat									
Bushing										
blank	unthreaded									
T	#10-48									
T1/4	1/4-40									
Actuator color for actuator code 6 only										
0	black									
2	red									
6	blue									
9	white									
Material										
04	RoHS compliant									

Function

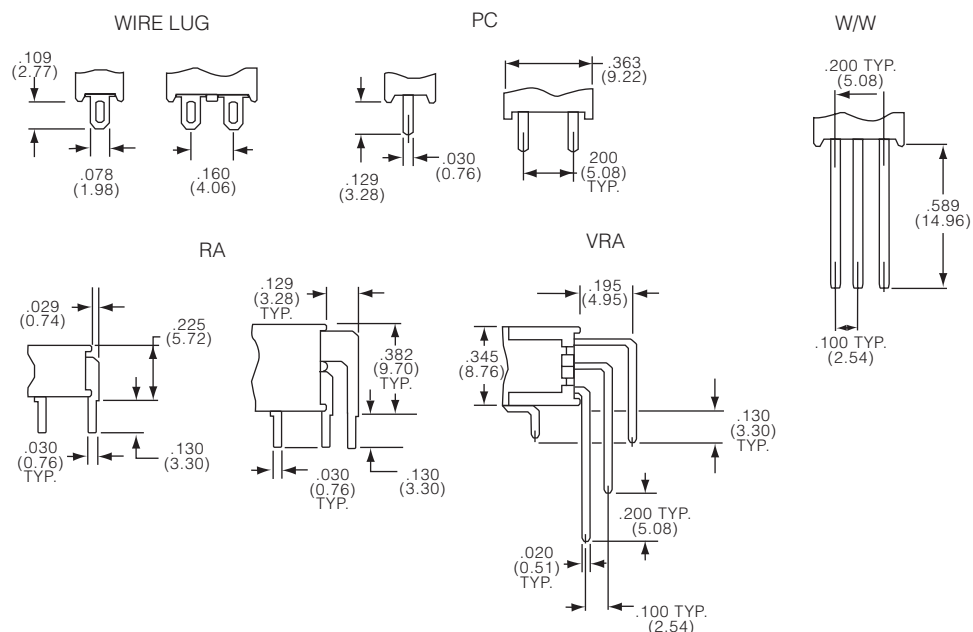


Function	Poles	↖	↓	↗	↖	↓	↗
A	1 pole	On	None	Off	1-3	-	-
D		On	None	On	1-2	-	2-3
E		On	Off	On	1-2	-	2-3
F		On	None	(On)	1-2	-	2-3
K	2 poles	On	None	Off	1-3, 4-6	-	-
N		On	None	On	1-2, 4-5	-	2-3, 5-6
P		On	Off	On	1-2, 4-5	-	2-3, 5-6
R		On	None	(On)	1-2, 4-5	-	2-3, 5-6

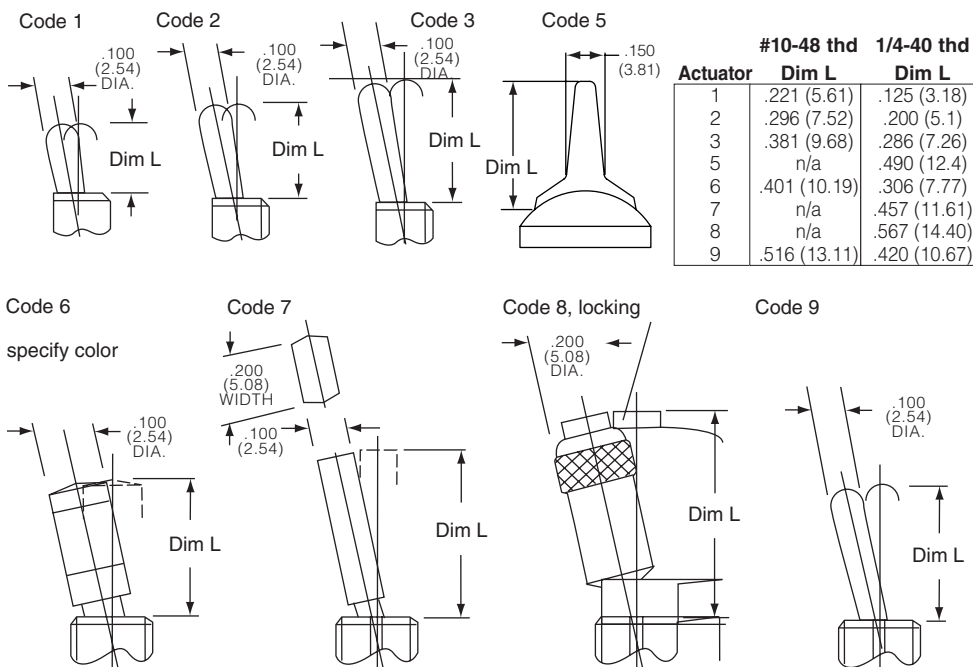
Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

TT, Tiny Toggle Switch (Continued)

Terminals



Actuator



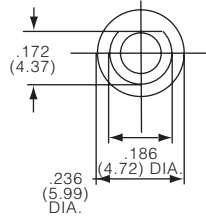
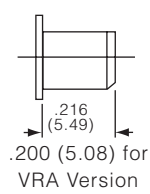
TT, Tiny Toggle Switch (Continued)

Bushing

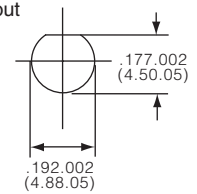


blank

unthreaded

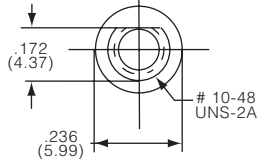
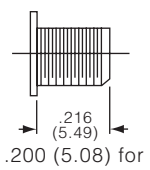


panel cutout

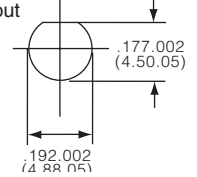


T

10-48 UNS-2A thread

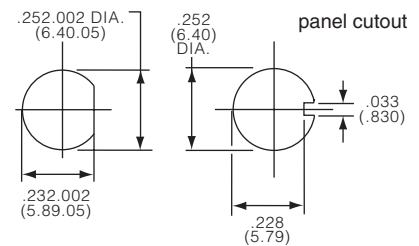
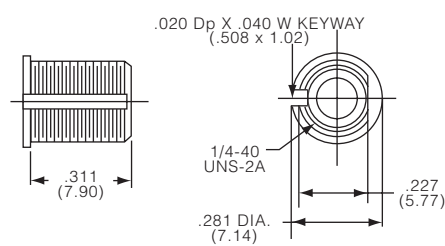


panel cutout



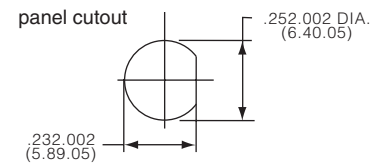
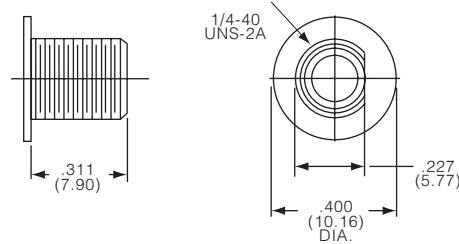
T1/4

1/4-40 UNS-2A thread for non environmental sealed version



T1/4

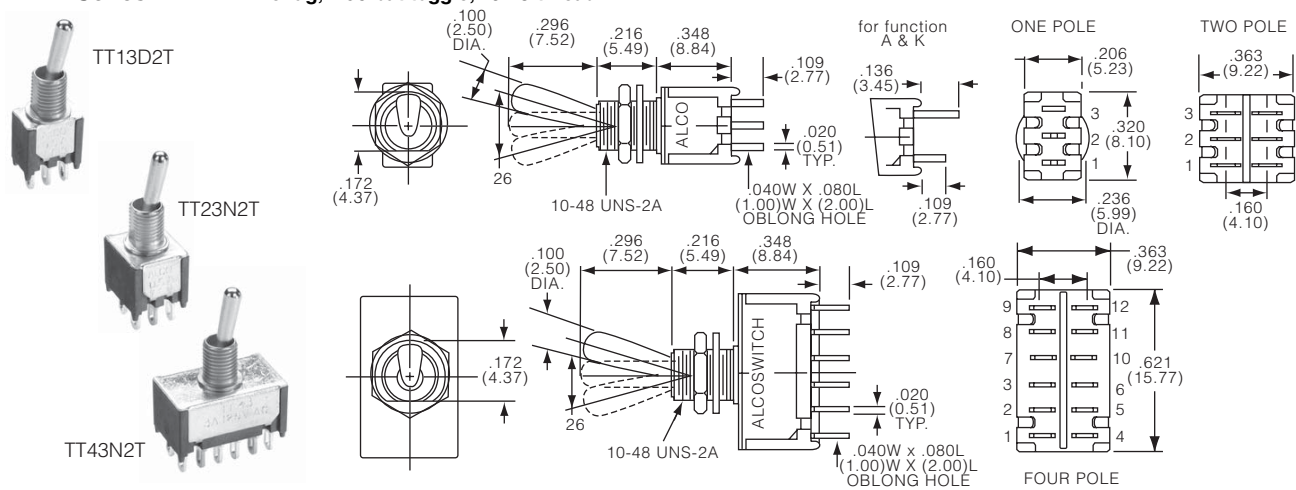
1/4-40 UNS-2A thread for environmental sealed version



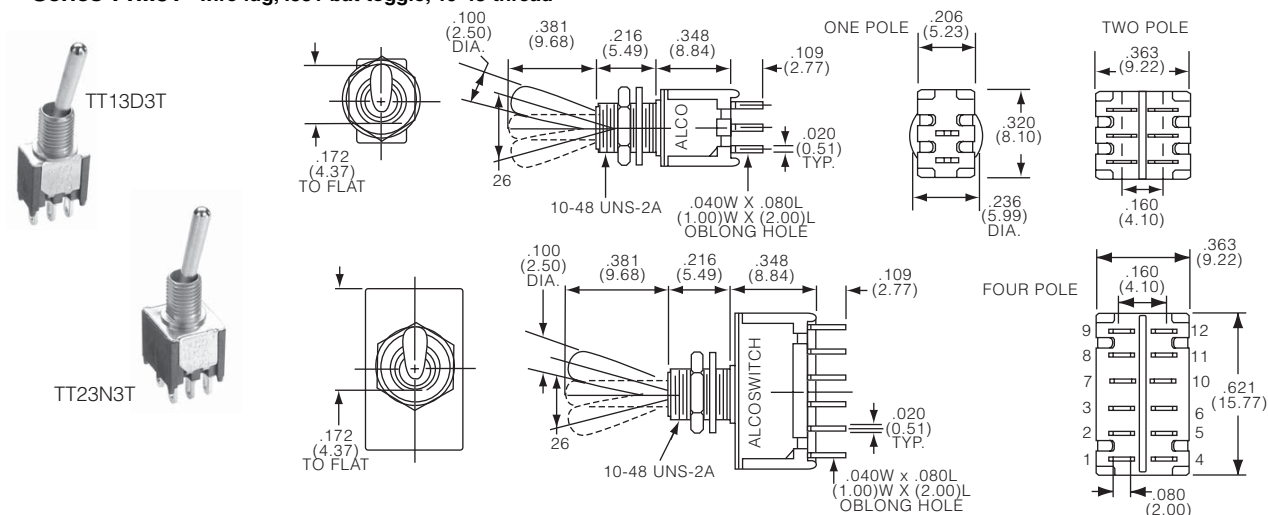
TT, Tiny Toggle Switch (Continued)

Dimensions

Series TT...2T wire lug, .296 bat toggle, 10-48 thread



Series TT...3T wire lug, .381 bat toggle, 10-48 thread

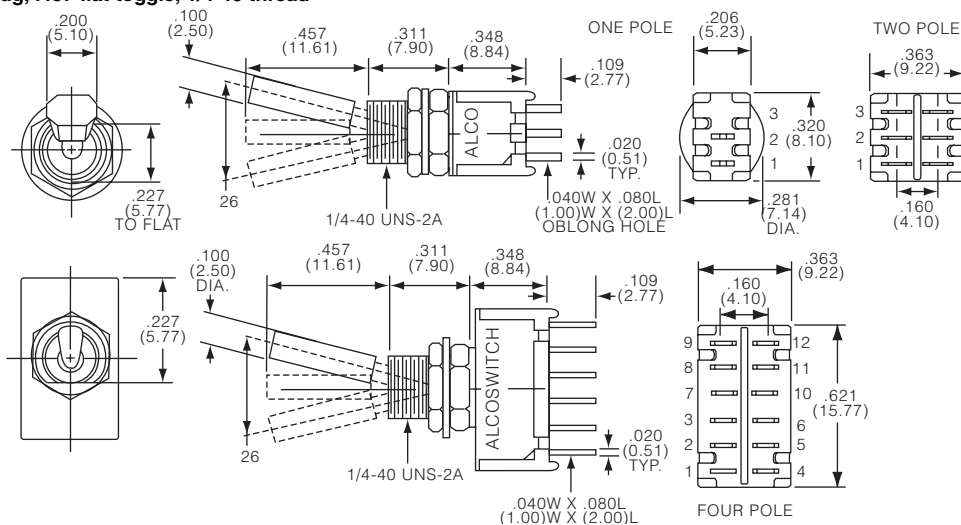


Toggle Switches

TT13D7T14

TT23N7T14

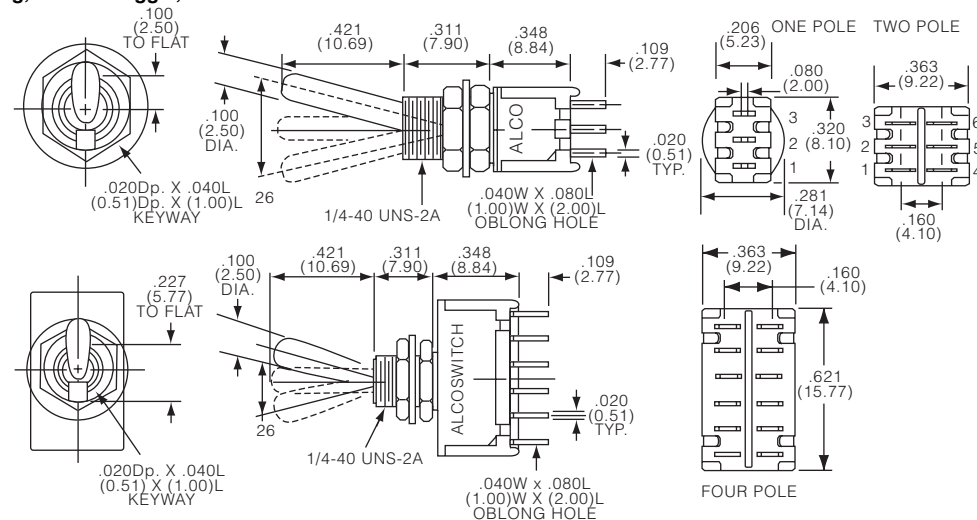
TT43N7T14



TT13A9T14

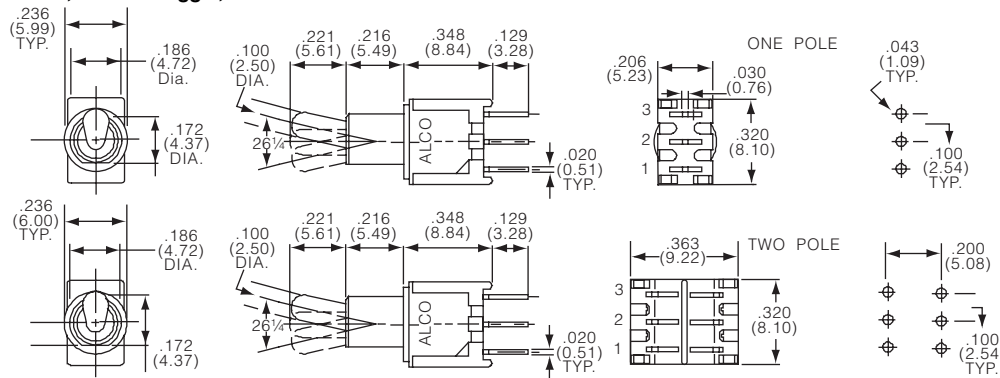
TT23N9T14

TT43N9T14



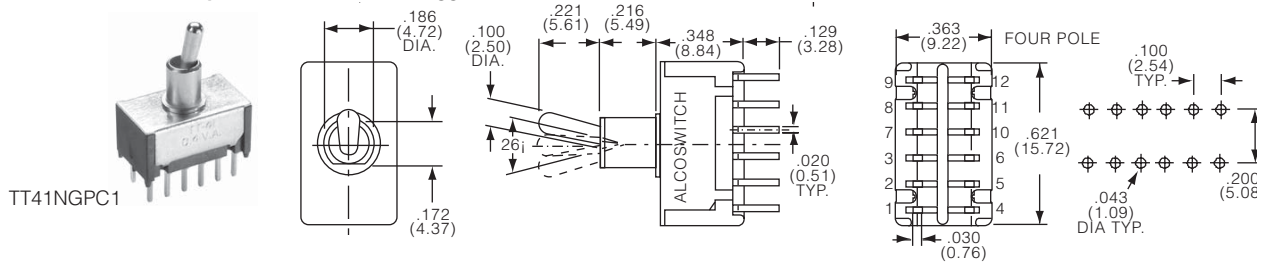
TT11DGPC1

TT21NGPC1

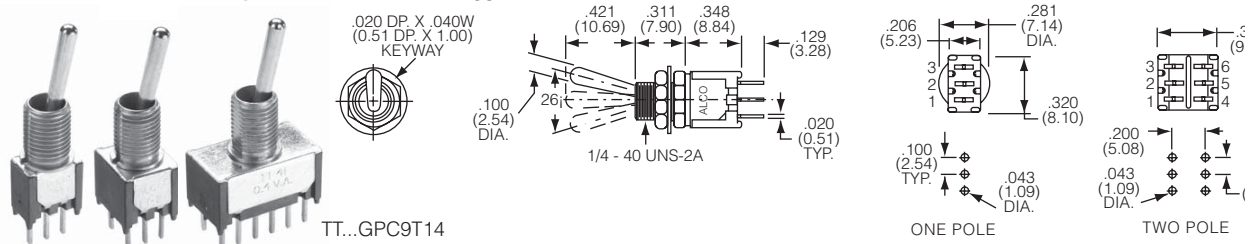


TT, Tiny Toggle Switch (Continued)

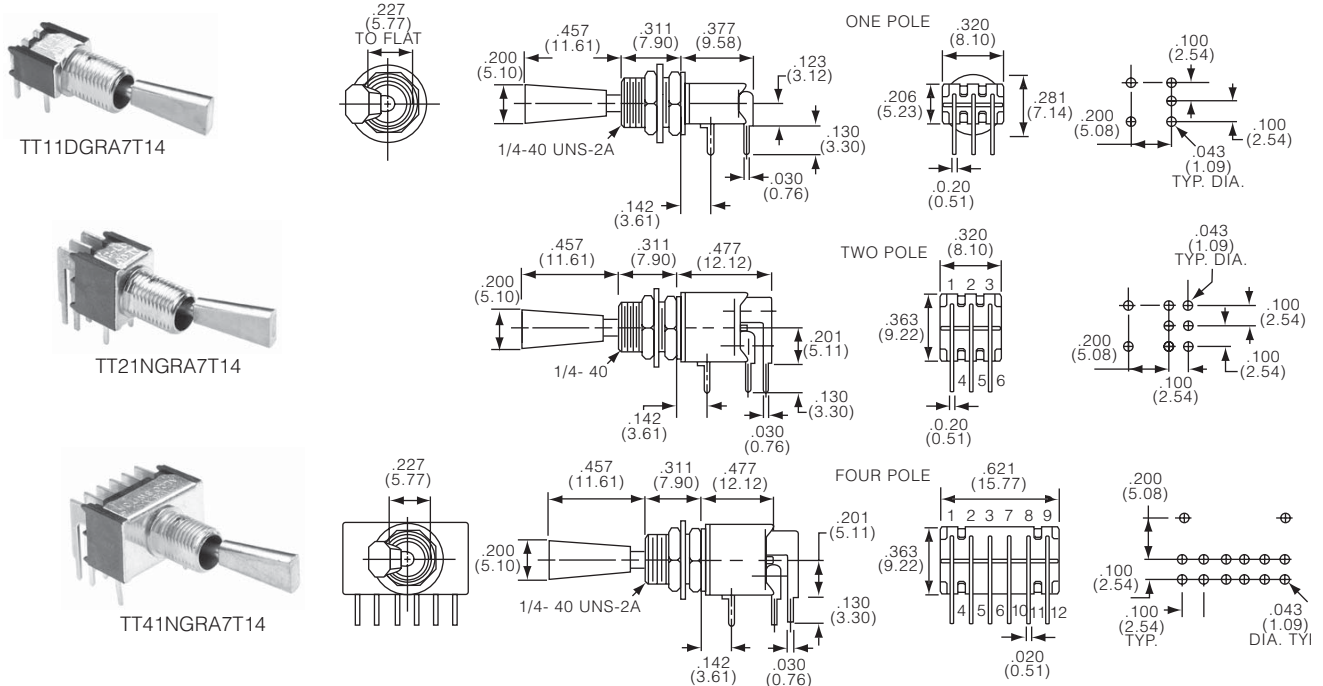
Series TT...PC1 pc terminals, .221 bat toggle, unthreaded



Series TT...PC9T1/4 pc terminals, .420 bat toggle, 1/4-40 thread

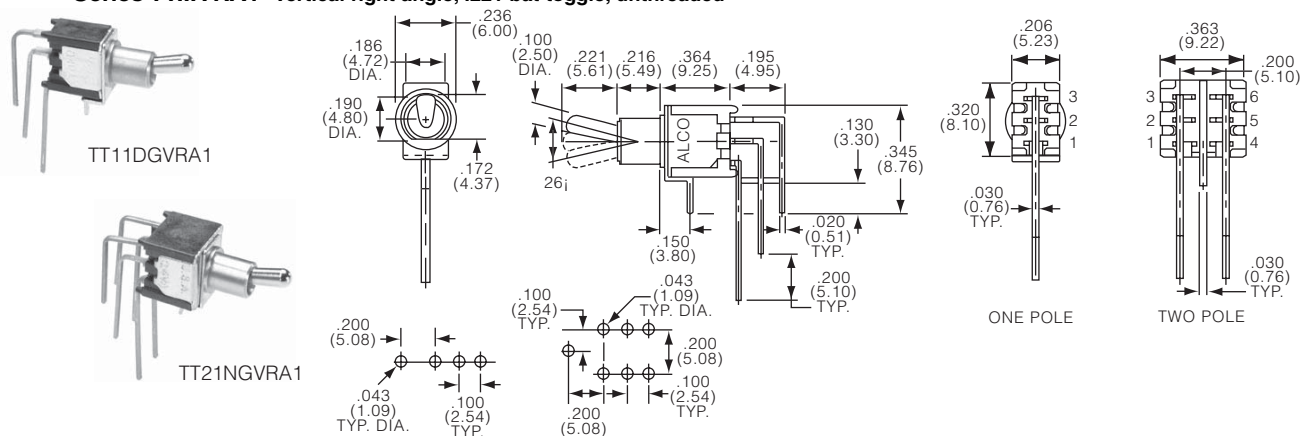


Series TT...RA7T1/4 right angle, .457 flat toggle, 1/4-40 thread

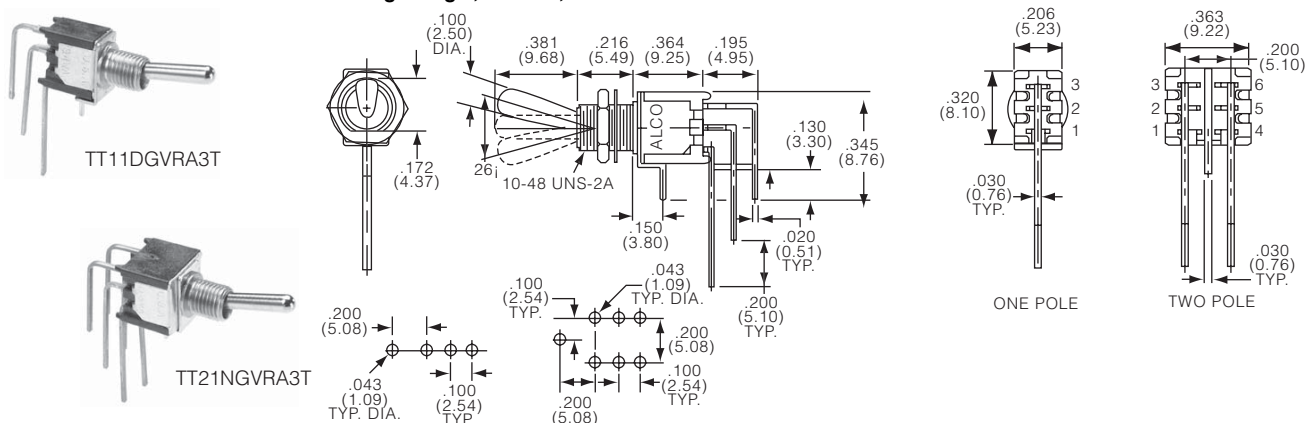


TT, Tiny Toggle Switch (Continued)

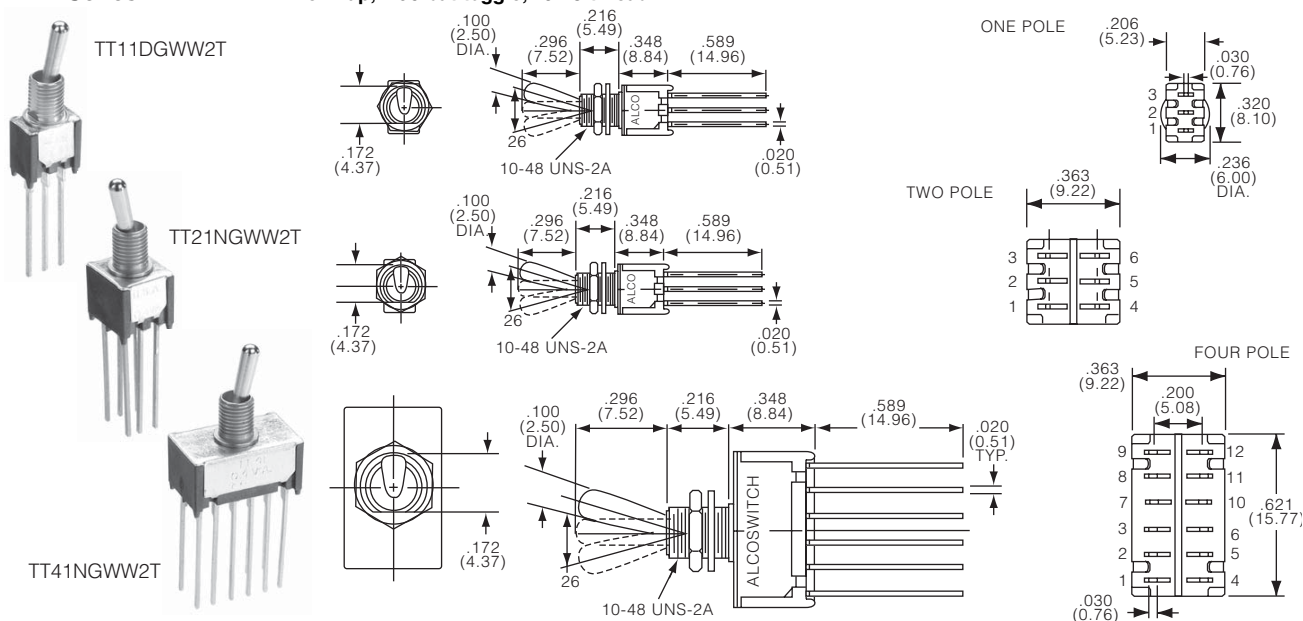
Series TT...VRA1 vertical right angle, .221 bat toggle, unthreaded



Series TT...VRA3T vertical right angle, .381 bat, 10-48 thread



Series TT...WW2T wire wrap, .296 bat toggle, 10-48 thread



TT, Tiny Toggle Switch (Continued)

Product key	E. seal	Poles	Contacts	Function	Terminals	Act. length	Bushing	Material	Part Number
TT11AGPC104	no	1	0.4VA	On Off	pc	.221 (5.61), bat	unthreaded	RoHS	1825219-2
TT11AGPC9T1/404			Gold			.421 (10.69), bat	1/4-40	compliant	1-1825192-8
TT11DGPC104			plated	On On		.221 (5.61), bat	unthreaded		1825219-3
TT11DGPC7T1/404						.457 (11.61), flat	1/4-40		1825226-1
TT11DGPC9T1/404						.421 (10.69), bat			1825192-2
TT11DGRA104					right a.	.125 (3.18), bat	unthreaded		1825219-4
TT11DGRA7T1/404						.457 (11.61), flat	1/4-40		1825226-2
TT11DGRA9T1/404						.421 (10.69), bat			1825192-3
TT11DGVRA104					vert r.a.	.125 (3.18), bat	unthreaded		1825219-5
TT11DGWW2T04					wire wrap	.200 (5.1), bat	#10-48		1825222-1
TT11EGPC104				On Off On	pc	.125 (3.18), bat	unthreaded		1825219-6
TT11EGPC304						.286 (7.26), bat			1825223-1
TT11EGPC5T1/4004						.490 (12.45)	1/4-40		1825224-1
TT11EGPC9T1/404									1825192-4
TT11EGPCV104					pc vert.	.125 (3.18), bat	unthreaded		1825219-7
TT11EGRA104					right a.				1825219-8
TT11EGVRA104					vert r.a.				1825219-9
TT11EGVRA3T04						.286 (7.26), bat	#10-48		1825223-2
TT11FGRA9T1/404				(On) On	right a.	.421 (10.69), bat	1/4-40		1825192-5
TT13A2T04			1 Amp	On Off	wire lug	.200 (5.1), bat	#10-48		1825222-2
TT13A3T04			Silver			.286 (7.26), bat			1825223-3
TT13A6T004			plated			.306 (7.77), rnd, col.			1825225-1
TT13A9T1/404						.421 (10.69), bat	1/4-40		1825192-6
TT13D2T04				On On		.200 (5.1), bat	#10-48		1825222-3
TT13D3T04						.286 (7.26), bat			1825223-4
TT13D7T1/404						.457 (11.61), flat	1/4-40		1825226-3
TT13D9T1/404						.421 (10.69), bat			1825192-7
TT13E2T04				On Off On		.200 (5.1), bat	#10-48		1825222-4
TT13E3T04						.286 (7.26), bat			1825223-5
TT21KGPC104		2	0.4VA	On Off	pc	.125 (3.18), bat	unthreaded		1-1825219-0
TT21NGPC104			Gold	On On					1-1825219-1
TT21NGPC9T1/404			plated			.421 (10.69), bat	1/4-40		1825192-8
TT21NGRA104					right a.	.125 (3.18), bat	unthreaded		1-1825219-2
TT21NGRA7T1/404						.457 (11.61), flat	1/4-40		1825226-4
TT21NGRA9T1/404						.421 (10.69), bat			1825192-9
TT21NGWW2T04					wire wrap	.200 (5.1), bat	#10-48		1825222-5
TT23K2T04			1 Amp	On Off	wire lug				1825222-6
TT23K9T1/404			Silver			.421 (10.69), bat	1/4-40		1-1825192-0
TT23N2T04			plated	On On		.200 (5.1), bat	#10-48		1825222-7
TT23N3T04						.286 (7.26), bat			1825223-6
TT23P3T04				On Off On					1825223-7
TT23P6T004						.306 (7.77), rnd, col.			1825225-2
TT23P8T1/404						.567 (14.40), locking	1/4-40		1825227-1
TT41NGPC104		4	0.4VA	On On	pc	.125 (3.18), bat	unthreaded		1-1825219-3
TT41NGPC9T1/404			Gold			.421 (10.69), bat	1/4-40		1-1825192-1
TT41NGRA104			plated		right a.	.125 (3.18), bat	unthreaded		1-1825219-4
TT41NGRA7T1/404						.457 (11.61), flat	1/4-40		1825226-5
TT41NGRA9T1/404						.421 (10.69), bat			1-1825192-2
TT41NGWW2T04					wire wrap	.200 (5.1), bat	#10-48		1825222-8
TT43N2T04			1 Amp		wire lug				1825222-9
TT43N9T1/404			Silver			.421 (10.69), bat	1/4-40		1-1825192-3
TTE11EG104	yes	1	0.4VA	On Off On		.221 (5.61), bat	unthreaded		1825219-1
TTE11EGPC9T1/4ES04			0.4VA		pc	.421 (10.69), bat	1/4-40		1-1825192-4
TTE13A9T1/404			1 Amp	On Off	wire lug				1-1825192-5
TTE13D2T04			Silver	On On		.200 (5.1), bat	#10-48		1-1825222-0
TTE13D8T1/404			plated			.567 (14.40), locking	1/4-40		1825227-2
TTE13E8T1/404				On Off On					1825227-3
TTE23P8T1/404		2							1825227-4
TTE11AGPC9T1/404		1	0.4VA	On Off	pc	.421 (10.69), bat			1-1825192-7

Preferred parts in bold print

Gemini A Series

Features

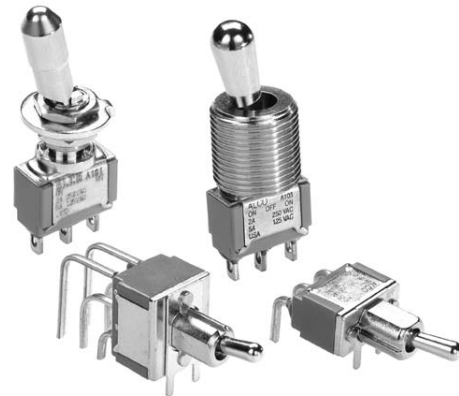
- Gold, gold over silver or silver contacts
- Epoxy sealed terminals
- Stainless steel frame with brass tin plated solder support
- Hardware included
- Boot seals available

Typical performance characteristics

Contact configuration 1, 2, 3, and 4 pole
 Contact timing Break before Make
 Contact rating max. gold: 0.4VA @20V AC or DC
 gold over silver : 5 A @ 125VAC or 28VDC resistive
 or 0.4VA @ 20VAC or DC or 2A @250VAC resistive
 silver: 5 A @ 125VAC or 28VDC resistive
 and 2A @ 250VAC resistive
 Electrical life 6000 cycles
 Contact resistance, initial max.10 mOhms
 Insulation resistance 1,000 MOhms
 Dielectric strength 1,000 Vrms @ sea level
 Actuator travel 22° for D and E function
 18° for F and G function

Environmental specification

Operating temperature -30°C to +85°C
 Storage temperature -30°C to +85°C
 Solder heat resistance wave solder capable to 265° C
 Terminal Seal single pole: epoxy



Material specifications

Contacts contacts B: copper alloy finish gold over nickel
 contacts G: copper alloy finish gold over silver
 contacts Q: copper alloy finish silver
 Actuator brass alloy chrome
 Terminals contacts B: copper alloy finish gold over nickel
 contacts G: copper alloy finish gold over silver
 contacts Q: copper alloy finish silver
 Case thermoplastic
 Bushing brass alloy finish nickel
 Internal actuator phenolic
 Spring music wire
 Support Bracket brass tin plated
 Seal epoxy
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key									
		A		1	01	P3		Z	Q	04	
Type	A Gemini A Series Toggles										
Number of Poles											
1	single pole	2									
Function											
single and double pole											
01	On-On	11									
03	On-Off-On	13									
05	(On)-Off-(On)	15									
07	On-Off-(On)										
08	On-(On)										
Toggles											
S	bat long	T									
K	locking	T1									
K1	locking	L									
M	bat short	L1									
P3	flatted (with bushing code Y only)	L2									
Bushing											
blank	toggles K1 &/ P3: 1/4-40 threaded .35 (8.9) long toggles K, T, T1: unthreaded .28 (7.1) long										
CW	1/4-40 threaded .37 (9.4) long, enviromental seals (toggles codes S & M only)										
D	1/4-40 threaded .28 (7.1) long										
D9	unthreaded .28 (7.1) long	Y									
H	1/4-40 threaded .3 (7.6) long	Y9									
Terminations											
A	right angle	V30									
AV2	vertical right angle	V40									
C	printed circuit										
Contacts											
B	gold	G									
Material											
04	RoHS compliant										

Gemini A Series (Continued)

Function

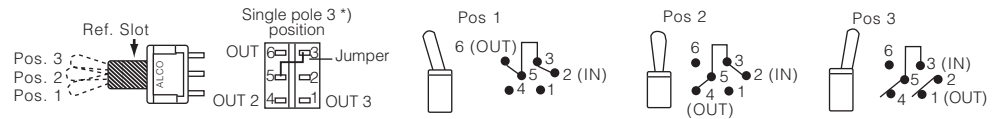


Code	Positions	↖	⬇	↗
01	2 positions	On	None	On
03	3 positions	On	Off	On
05	3 positions	(On)	Off	(On)
07	3 positions	(On)	Off	On
08	2 positions	(On)	None	On
SPDT	Term. conn.	1 - 2	---	2 - 3
DPDT	Terminals connected	1 - 2 4 - 5	---	2 - 3 5 - 6
11*)	3 positions	On	On	On
13*)		(On)	On	On
15*)		(On)	On	(On)
DP3T	Terminals connected	1 - 2	2 - 3	2 - 3
**)		4 - 5	4 - 5	5 - 6

Off mechanical position,
no electrical connection
(On) momentary mechanical position
and electrical connection
None no mechanical position

*) functions available in dual pole case only.
**) SP3T functions achieved with external jumper installed by customer

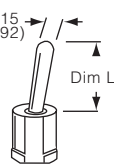
Wiring diagram for functions 11, 13, 15



Toggles

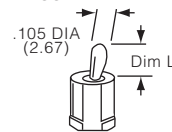


S standard,
bat long

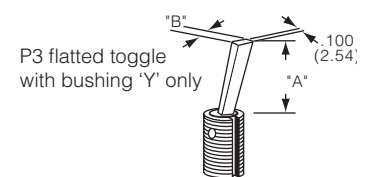


Toggle	Bushing	Dim L
S	CW, H, Y D, D9	10.41 (.410) 12.19 (.480)

M short toggle

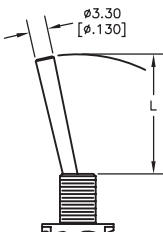


Toggle	Bushing	Dim L
M	CW, H, Y D, D9	5.08 (.200) 6.86 (.270)



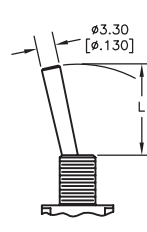
Toggle	Dim
P3	Dim A 11.43 (.450) Dim B 5.08 (.200)

L lever



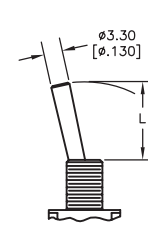
Toggle	Bushing	Dim L
L	H, Y D, D9	21.34 (.840) 23.11 (.910)

L1 lever



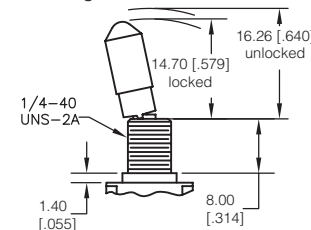
Toggle	Bushing	Dim L
L1	H, Y D, D9	16.26 (.640) 18.03 (.710)

L2 lever

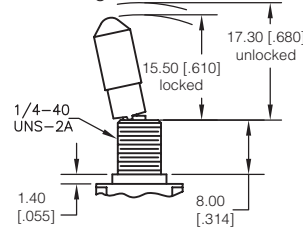


Toggle	Bushing	Dim L
L2	H, Y D, D9	13.97 (.550) 15.75 (.620)

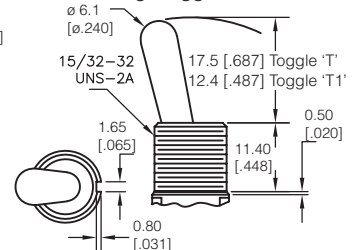
K locking lever



K1 locking lever



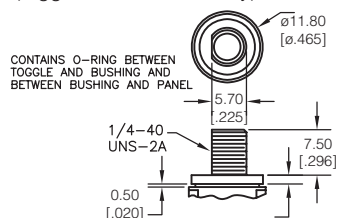
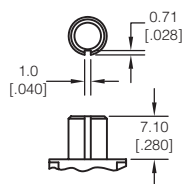
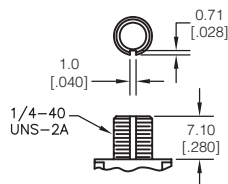
T & T1 large toggle



Toggle Switches

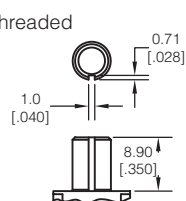
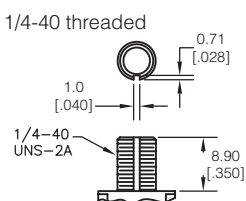
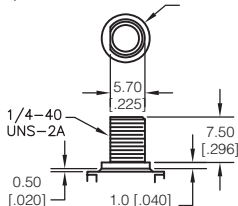
D9 unthreaded

CONTAINS O-RING BETWEEN
TOGGLE AND BUSHING AND
BETWEEN BUSHING AND PAN



Y 1/4-40 threaded

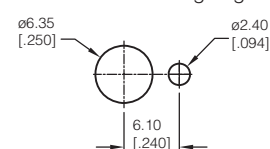
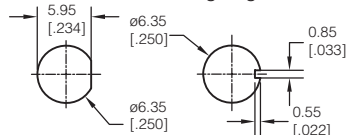
Y9 unthreaded



without locking ring

with standard locking ring

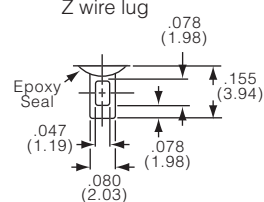
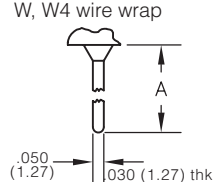
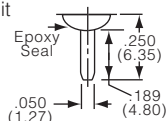
Bushing 1/4



C printed circuit

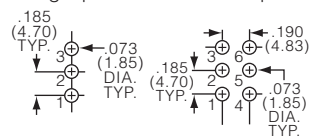
W, W4 wire wrap

Z wire lug



single pole

double pole

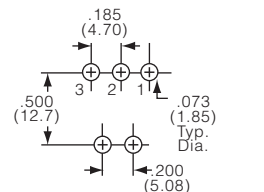
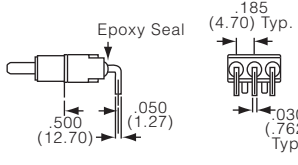
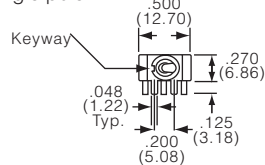


Terminal	Dim A
W	18.69 (.736)
W4	26.98 (1.062)

Code A right angle

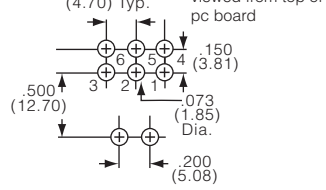
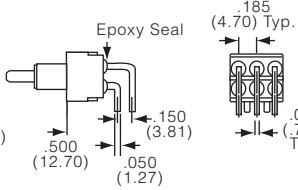
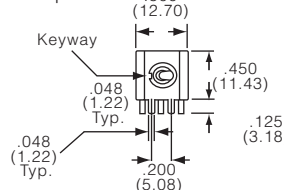
single pole

.185
(.470)



double pole

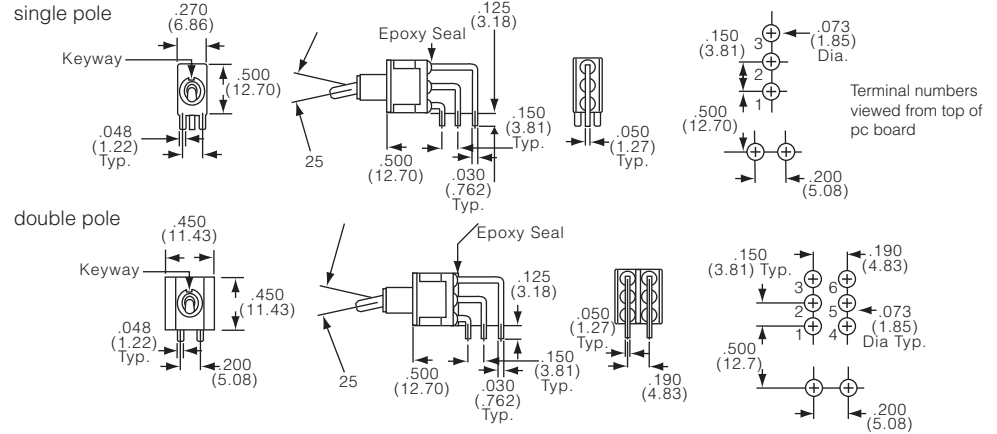
.185



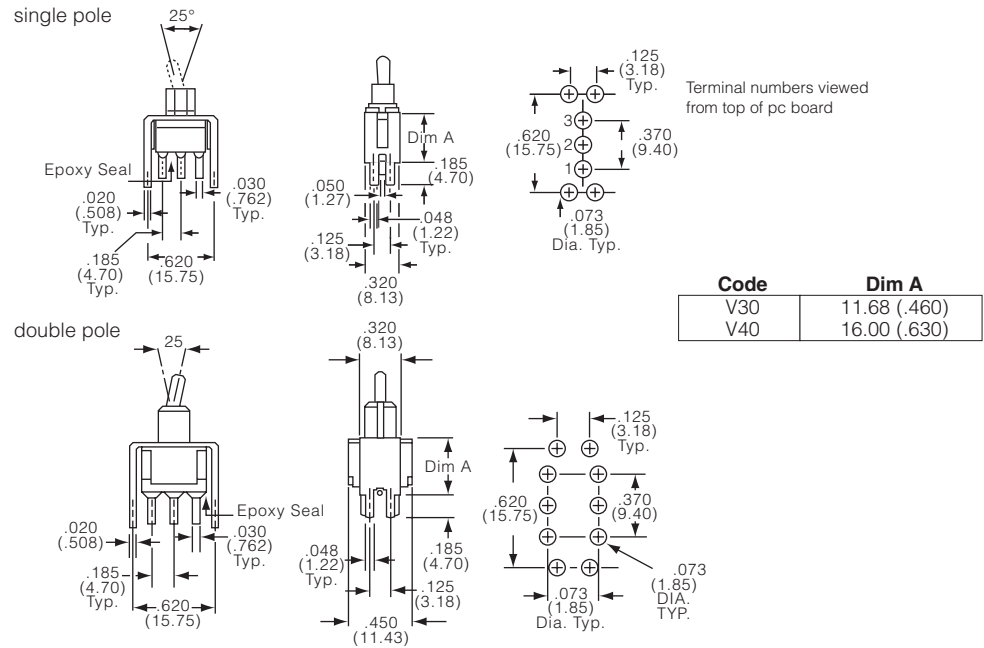
Terminal numbers
viewed from top of
pc board

Gemini A Series (Continued)

Code AV2 vertical right angle



Codes V30, V40 vertical support



Gemini A Series (Continued)

Dimensions

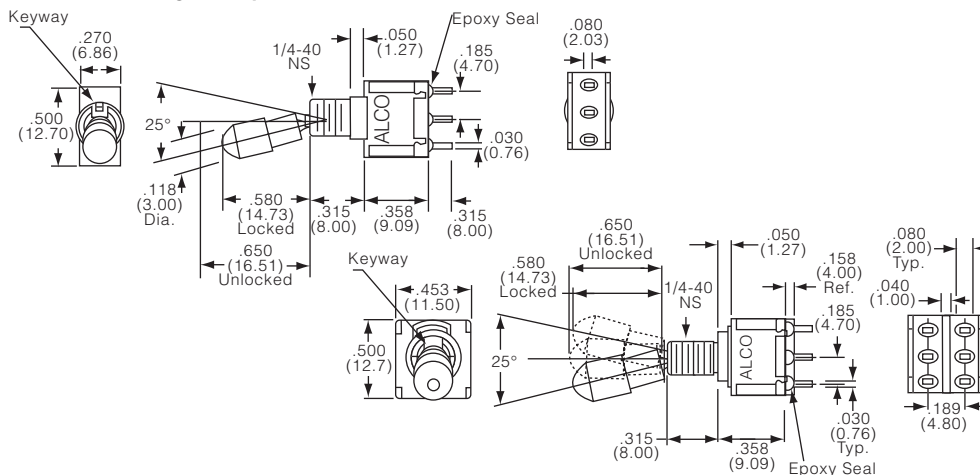
Series A...KZ locking, unthreaded, wire lug, 1 & 2 pole



A101KZQ



A201KZQ



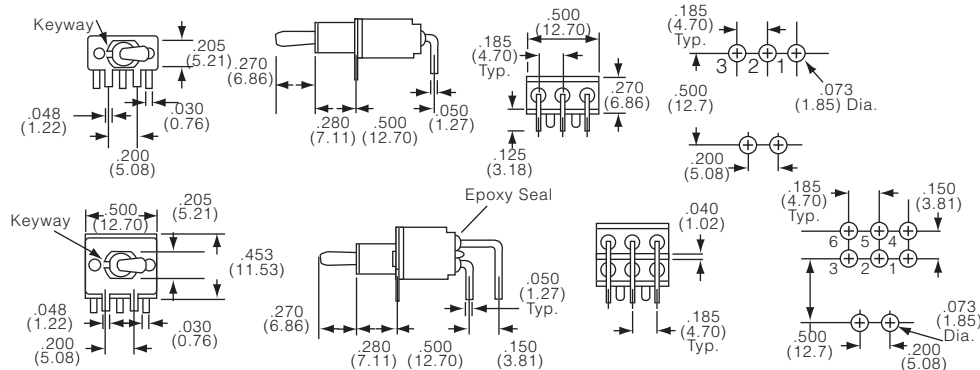
Series A...MD9A short bat, unthreaded bushing, right angle, 1 & 2 pole



A101MD9AQ



A201MD9AQ



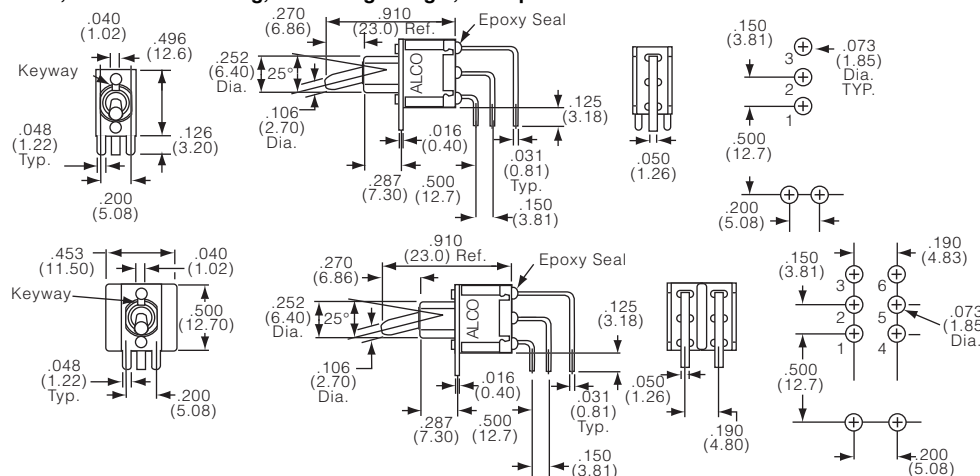
Series A...MD9AV2 short bat, unthreaded bushing, vertical right angle, 1 & 2 pole



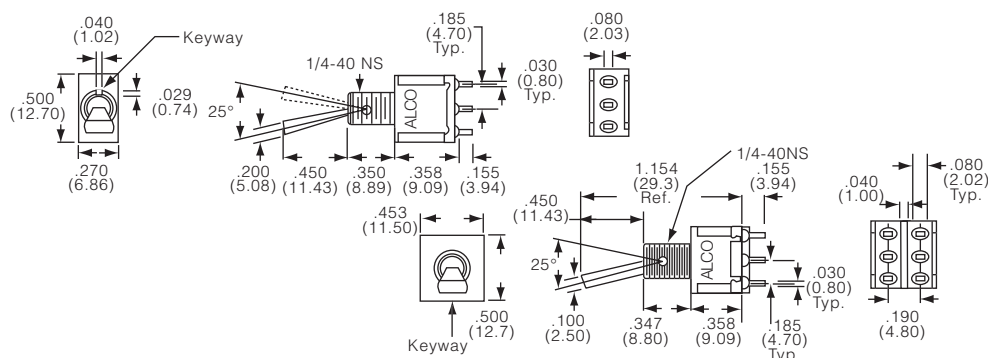
A101MD9AV2Q



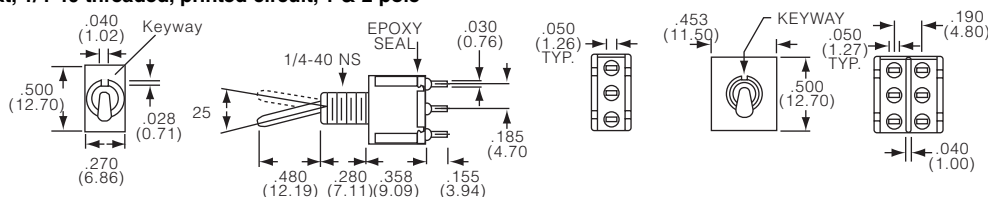
A201MD9AV2Q



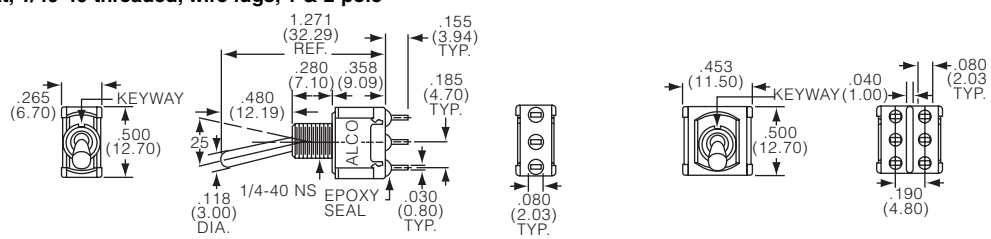
Series A...P3YZ flatted toggle, 1/4-40 threaded, wire lug, 1 & 2 pole



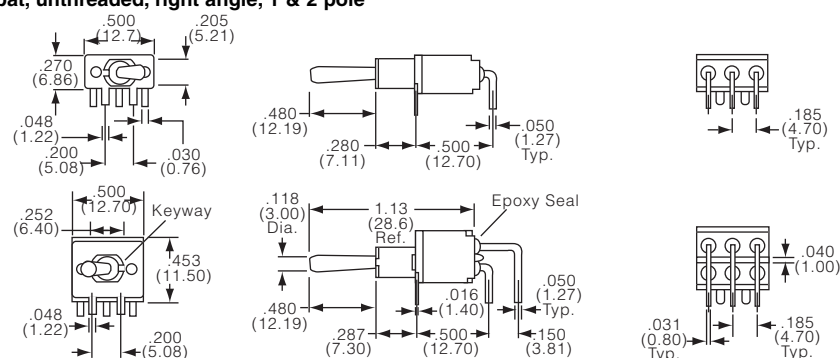
Series A...SDC long bat, 1/4-40 threaded, printed circuit, 1 & 2 pole



Series A...SDZ long bat, 1/40-40 threaded, wire lugs, 1 & 2 pole



Series A...SD9A long bat, unthreaded, right angle, 1 & 2 pole

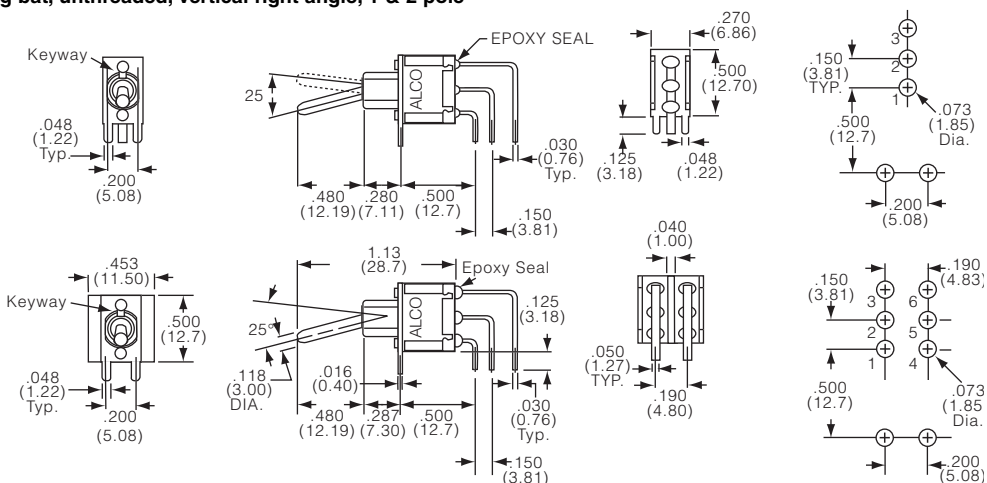


Toggle Switches

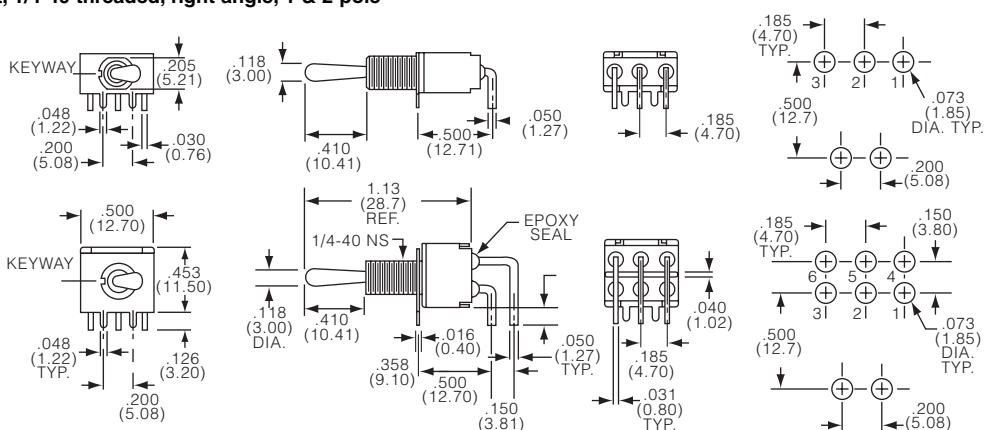
A101SD9AV2Q



A201SD9AV2Q



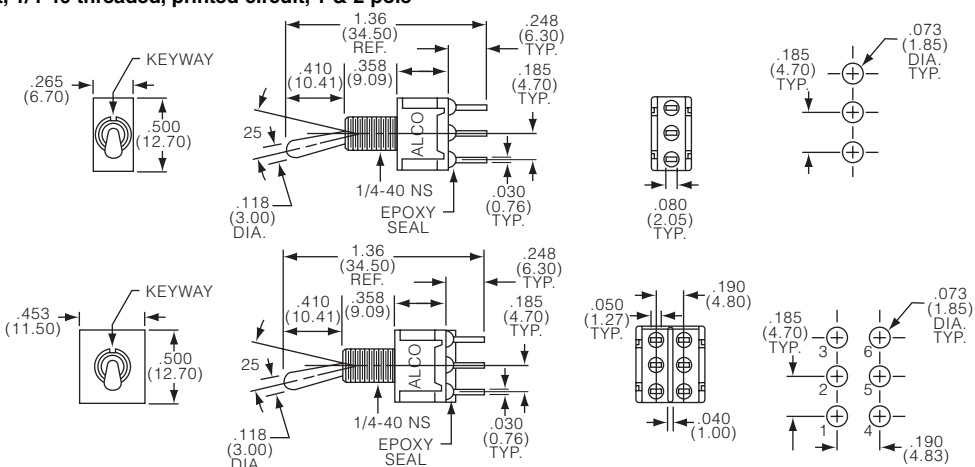
A101SYAB



A101SYCB

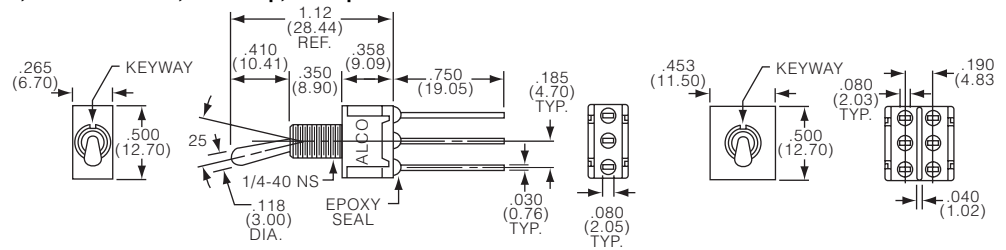


A201SYCB

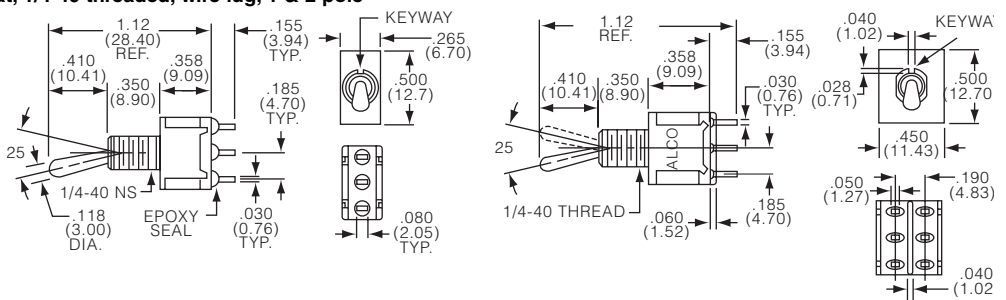


Gemini A Series (Continued)

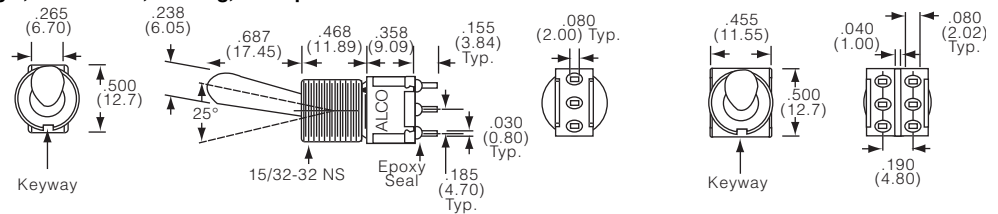
Series A...SYW long bat, 1/4-40 threaded, wire wrap, 1 & 2 pole



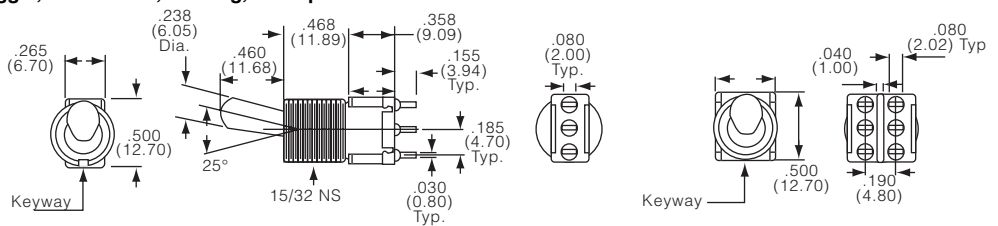
Series A...SYZ long bat, 1/4-40 threaded, wire lug, 1 & 2 pole



Series A...TZ large toggle, unthreaded, wire lug, 1 & 2 pole



Series A...T1Z large toggle, unthreaded, wire lug, 1 & 2 pole



Gemini A Series (Continued)

Product key	Poles	Function	Toggles	Bushing	Terminations	Contacts	Material	Part Number
A101K1V30B04	1	On-On	locking	1/4-40 threaded .35 (8.9)	vertical support	gold	RoHS	1825136-1
A101KAB04				unthreaded .28 (7.1)	right angle	silver	compliant	1825136-2
A101KAQ04								1825136-3
A101KAV2Q04					vertical right angle			2-1825136-8
A101KCQ04					printed circuit			1825136-5
A101KD9AQ04					right angle			1825136-6
A101KZQ04					wire lug			1825136-7
A101L1D9V30Q04			lever		vertical support			1825136-9
A101L1YZB04				1/4-40 threaded .35 (8.9)	wire lug	gold		1-1825136-0
A101LDZQ04				1/4-40 threaded .28 (7.1)		silver		1-1825136-1
A101MD9AB04			bat short	unthreaded .28 (7.1)	right angle	gold		1-1825136-2
A101MD9AG04						Au over Ag		1-1825136-3
A101MD9AQ04						silver		1-1825136-4
A101MD9AV2B04					vertical right angle	gold		1-1825136-5
A101MD9AV2G04						Au over Ag		1-1825136-6
A101MD9AV2Q04						silver		1-1825136-7
A101MD9V30B04					vertical support	gold		1-1825136-8
A101MDAQ04				1/4-40 threaded .28 (7.1)	right angle	silver		1-1825136-9
A101MDAV2B04					vertical right angle	gold		2-1825136-0
A101MDCG04					printed circuit	Au over Ag		2-1825136-1
A101MDZQ04					wire lug	silver		2-1825136-2
A101MYCQ04				1/4-40 threaded .35 (8.9)	printed circuit			2-1825136-3
A101MYZQ04					wire lug			2-1825136-4
A101P3CB04			flatted		printed circuit	gold		2-1825136-6
A101P3YV30B04					vertical support			1825136-4
A101P3ZQ04					wire lug	silver		2-1825136-7
A101SCWCQ004			bat long	1/4-40 threaded .37 (9.4)	printed circuit			3-1825136-0
A101SCWZQ04					wire lug			3-1825136-1
A101SD9AB04				unthreaded .28 (7.1)	right angle	gold		3-1825136-2
A101SD9AQ04						silver		3-1825136-3
A101SD9AV2B04					vertical right angle	gold		3-1825136-4
A101SD9AV2Q04						silver		3-1825136-5
A101SD9V30B04					vertical support	gold		3-1825136-6
A101SD9V30Q04						silver		3-1825136-7
A101SDCQ04				1/4-40 threaded .28 (7.1)	printed circuit			3-1825136-8
A101SDZQ04					wire lug			3-1825136-9
A101SHZQ04				1/4-40 threaded .3 (7.6)				4-1825136-0
A101SY9CQ04				unthreaded .35 (8.9)	printed circuit			4-1825136-1
A101SYAB04				1/4-40 threaded .35 (8.9)	right angle	gold		4-1825136-2
A101SYAQ04						silver		4-1825136-3
A101SYAV2B04					vertical right angle	gold		1825136-8
A101SYCB04					printed circuit			4-1825136-4
A101SYCQ04						silver		4-1825136-5
A101SYWQ04					wire wrap			4-1825136-7
A101SYZB04					wire lug	gold		4-1825136-8
A101SYZQ04						silver		4-1825136-9
A101T1ZB04			lg. tgl. & bushing	unthreaded .28 (7.1)		gold		5-1825136-2
A101T1ZQ04						silver		5-1825136-3
A101TCQ04					printed circuit			5-1825136-4
A101TZQ04					wire lug			5-1825136-5
A103KZQ04		On-Off-On	locking					1825137-1
A103MD9AB04			bat short		right angle	gold		1825137-2
A103MD9AG04						Au over Ag		1825137-3
A103MD9AQ04						silver		1825137-4
A103MD9AV2B04					vertical right angle	gold		1825137-5
A103P3ZQ04			flatted	1/4-40 threaded .35 (8.9)	wire lug	silver		1825137-6
A103SD9AQ04			bat long	unthreaded .28 (7.1)	right angle			1825137-7
A103SD9AV2B04					vertical right angle	gold		1825137-8
A103SD9AV2Q04						silver		1825137-9
A103SDCB04				1/4-40 threaded .28 (7.1)	printed circuit	gold		1-1825137-0
A103SDCQ04						silver		1-1825137-1
A103SDZQ04					wire lug			1-1825137-2
A103SYAQ04				1/4-40 threaded .35 (8.9)	right angle			1-1825137-3
A103SYAV2B04					vertical right angle	gold		2-1825136-5
A103SYAV2Q04						silver		1-1825137-4
A103SYCB04					printed circuit	gold		1-1825137-5
A103SYCQ04						silver		1-1825137-6
A103SYWB04					wire wrap	gold		1-1825137-7
A103SYWQ04					right angle	silver		1-1825137-8
A103SYZB04					wire lug	gold		1-1825137-9
A103SYZQ04						silver		2-1825137-0
A103T1CG04			lg. tgl. & bushing	unthreaded .28 (7.1)	printed circuit	Au over Ag		2-1825137-1
A103T1ZQ04					wire lug	silver		2-1825137-2
A103TZQ04								2-1825137-3

Preferred parts in bold print

Gemini A Series (Continued)

Product key	Poles	Function	Toggles	Bushing	Terminations	Contacts	Material	Part Number
A105MD9AB04	1	(On)-Off-(On)	bat short	unthreaded .28 (7.1)	right angle	gold	RoHS compliant	2-1825137-4
A105MD9AQ04						silver		2-1825137-5
A105MYV30Q04				1/4-40 threaded .35 (8.9)	vertical support			2-1825137-6
A105P3CG04			flatted		printed circuit	Au over Ag		2-1825137-7
A105P3CQ04						silver		2-1825137-8
A105P3ZQ04					wire lug			2-1825137-9
A105SD9AB04			bat long	unthreaded .28 (7.1)	right angle	gold		3-1825137-1
A105SD9AV2Q04					vertical right angle	silver		3-1825137-2
A105SD9V30B04					vertical support	gold		3-1825137-3
A105SYAB04				1/4-40 threaded .35 (8.9)	right angle			3-1825137-4
A105SYAV2B04					vertical right angle			3-1825137-5
A105SYCB04					printed circuit			3-1825137-6
A105SYCQ04						silver		3-1825137-7
A105SYZB04					wire lug	gold		3-1825137-8
A105SYZQ04						silver		3-1825137-9
A105T1ZB04			lg. tgl. & bushing	unthreaded .28 (7.1)		gold		4-1825137-0
A105T1ZQ04						silver		4-1825137-1
A105TZQ04								4-1825137-2
A107KAV2Q04		On-Off-(On)	locking		vertical right angle			4-1825137-3
A107KZB04					wire lug	gold		4-1825137-4
A107MD9AV2B04			bat short		vertical right angle			4-1825137-5
A107MD9CQ04					printed circuit	silver		4-1825137-6
A107MD9V30Q04					vertical support			4-1825137-7
A107P3ZQ04			flatted	1/4-40 threaded .35 (8.9)	wire lug			4-1825137-8
A107SYAQ04			bat long		right angle			4-1825137-9
A107SYCB04					printed circuit	gold		5-1825137-0
A107SYCQ04						silver		5-1825137-1
A107SYZQ04					wire lug			5-1825137-2
A107TZB04			lg. tgl. & bushing	unthreaded .28 (7.1)		gold		5-1825137-3
A108MD9AB04		On-(On)	bat short		right angle			5-1825136-6
A108P3CQ04			flatted	1/4-40 threaded .35 (8.9)	printed circuit	silver		5-1825136-8
A108P3ZQ04					wire lug			5-1825136-9
A108SD9AQ04			bat long	unthreaded .28 (7.1)	right angle			6-1825136-0
A108SDZQ04				1/4-40 threaded .28 (7.1)	wire lug			6-1825136-1
A108SYCB04				1/4-40 threaded .35 (8.9)	printed circuit	gold		6-1825136-2
A108SYCQ04						silver		6-1825136-3
A108SYZQ04					wire lug			6-1825136-4
A201KAB04	2	On-On	locking	unthreaded .28 (7.1)	right angle	gold		1825138-1
A201KD9AQ04						silver		1825138-2
A201KZQ04					wire lug			1825138-3
A201L1D9V30Q04			lever		vertical support			1825138-5
A201MD9AB04			bat short		right angle	gold		1825138-6
A201MD9AQ04						silver		1825138-7
A201MD9AV2B04					vertical right angle	gold		1825138-8
A201MD9AV2Q04						silver		1825138-9
A201MDAQ04				1/4-40 threaded .28 (7.1)	right angle			1-1825138-0
A201MYAQ04				1/4-40 threaded .35 (8.9)				1-1825138-2
A201MYCB04					printed circuit	gold		1-1825138-3
A201MYZQ04					wire lug	silver		1-1825138-4
A201P3ZQ04			flatted					1-1825138-5
A201SCWZB04			bat long	1/4-40 threaded .37 (9.4)		gold		1-1825138-6
A201SD9AQ04				unthreaded .28 (7.1)	right angle	silver		1-1825138-7
A201SD9AV2Q04					vertical right angle			1-1825138-8
A201SDCB04				1/4-40 threaded .28 (7.1)	printed circuit	gold		1-1825138-9
A201SDZQ04					wire lug	silver		2-1825138-0
A201SY9AB04				unthreaded .35 (8.9)	right angle	gold		2-1825138-1
A201SYAB04				1/4-40 threaded .35 (8.9)				2-1825138-2
A201SYAQ04						silver		2-1825138-3
A201SYCB04					printed circuit	gold		2-1825138-4
A201SYCQ04						silver		2-1825138-5
A201SYWQ04					wire wrap			2-1825138-6
A201SYZB04					wire lug	gold		2-1825138-7
A201SYZQ04						silver		2-1825138-8
A201T1ZQ04			lg. tgl. & bushing	unthreaded .28 (7.1)				2-1825138-9
A201TZQ04								3-1825138-1

Preferred parts in bold print

Gemini A Series (Continued)

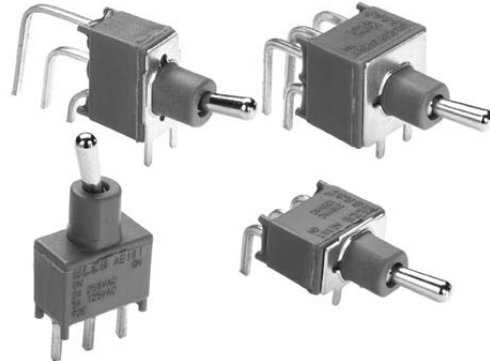
Product key	Poles	Function	Toggles	Bushing	Terminations	Contacts	Material	Part Number
A203KZQ04	2	On-Off-On	locking	unthreaded .28 (7.1)	wire lug	silver	RoHS compliant	1825139-1
A203MD9AB04			bat short		right angle	gold		1825139-2
A203P3AV2Q04			flatted	1/4-40 threaded .35 (8.9)	vertical right angle	silver		1825139-3
A203P3ZQ04					wire lug			1825139-4
A203SD9AV2B04			bat long	unthreaded .28 (7.1)	vertical right angle	gold		1825139-5
A203SD9AV2Q04						silver		1825139-6
A203SDZQ04				1/4-40 threaded .28 (7.1)	wire lug			1825139-7
A203SYCB04				1/4-40 threaded .35 (8.9)	printed circuit	gold		1825139-8
A203SYCQ04						silver		1825139-9
A203SYZQ04					wire lug			1-1825139-0
A203T1ZQ04			lg. tgl. & bushing	unthreaded .28 (7.1)				1-1825139-1
A203TZQ04								1-1825139-2
A205KZB04		(On)-Off-(On)	locking			gold		1-1825139-3
A205P3ZQ04			flatted	1/4-40 threaded .35 (8.9)		silver		1-1825139-4
A205SD9AB04			bat long	unthreaded .28 (7.1)	right angle	gold		1-1825139-5
A205SYCB04				1/4-40 threaded .35 (8.9)	printed circuit			1-1825139-6
A205SYCQ04						silver		1-1825139-7
A205SYZQ04					wire lug			1-1825139-8
A205T1ZQ04			lg. tgl. & bushing	unthreaded .28 (7.1)				1-1825139-9
A205TZQ04								2-1825139-0
A207P3ZQ04		On-Off-(On)	flatted	1/4-40 threaded .35 (8.9)				2-1825139-1
A207SYCB04			bat long		printed circuit	gold		2-1825139-2
A207SYCQ04						silver		2-1825139-3
A207SYZQ04					wire lug			2-1825139-4
A207T1ZQ04			lg. tgl. & bushing	unthreaded .28 (7.1)				2-1825139-5
A207TZQ04								2-1825139-6
A208KZG04		On-(On)	locking			Au over Ag		3-1825138-2
A208P3ZQ04			flatted	1/4-40 threaded .35 (8.9)		silver		3-1825138-3
A208SD9AQ04			bat long	unthreaded .28 (7.1)	right angle			3-1825138-4
A208SD9AV2Q04					vertical right angle			3-1825138-5
A208SYCB04				1/4-40 threaded .35 (8.9)	printed circuit	gold		3-1825138-6
A208SYCQ04						silver		3-1825138-7
A208SYZQ04					wire lug			3-1825138-8
A208T1ZQ04			lg. tgl. & bushing	unthreaded .28 (7.1)				3-1825138-9
A208TZQ04								4-1825138-0
A211KZB04		On-On-On	locking			gold		2-1825139-7
A211MD9AQ04			bat short		right angle	silver		2-1825139-8
A211MYCQ04				1/4-40 threaded .35 (8.9)	printed circuit			2-1825139-9
A211P3CQ04			flatted					3-1825139-0
A211P3V40G04					vertical support	Au over Ag		3-1825139-1
A211P3ZQ04					wire lug	silver		3-1825139-2
A211SCWCQ004			bat long	1/4-40 threaded .37 (9.4)	printed circuit			3-1825139-3
A211SDZQ04				1/4-40 threaded .28 (7.1)	wire lug			3-1825139-4
A211SHZQ04				1/4-40 threaded .3 (7.6)				3-1825139-5
A211SY9AQ04				unthreaded .35 (8.9)	right angle			3-1825139-6
A211SYCQ04				1/4-40 threaded .35 (8.9)	printed circuit			3-1825139-7
A211SYZB04					wire lug	gold		3-1825139-8
A211SYZQ04						silver		3-1825139-9
A211T1ZQ04			lg. tgl. & bushing	unthreaded .28 (7.1)				4-1825139-0
A213SYZQ04		On-On-(On)	bat long	1/4-40 threaded .35 (8.9)				4-1825139-2
A215SD9V30B04		(On)-On-(On)		unthreaded .28 (7.1)	vertical support	gold		4-1825139-3
A215SY9AQ04				unthreaded .35 (8.9)	right angle	silver		4-1825139-4
A215SYZQ04				1/4-40 threaded .35 (8.9)	wire lug			4-1825139-5

Preferred parts in bold print

Gemini AE Series, Sealed IP67

Features

- Meets IP 67 requirements
- Gold, gold over silver or silver contacts
- Stainless steel frame with brass tin plated solder support
- Epoxy sealed terminals



Typical performance characteristics

Contact configuration 1, 2, 3, and 4 pole
Contact timing Break before Make
Contact rating max. gold: 0.4VA @20V AC or DC
 gold over silver : 5 A @ 125VAC or 28VDC resistive
 or 0.4VA @ 20VAC or DC or 2A @250VAC resistive
 silver: 5 A @ 125VAC or 28VDC resistive
 and 2A @ 250VAC resistive
Electrical life 6000 cycles
Contact resistance, initial max.10 mOhms @ 2 to 4VDC, 100mA
Insulation resistance min. 1,000 MOhms
Dielectric strength 1,000 Vrms @ sea level
Actuator travel 22° for D and E function
 18° for F and G function

Environmental specification

Operating temperature -30°C to +85°C
Storage temperature -30°C to +85°C
Solder heat resistance wave solder capable to 265° C
Terminal seal epoxy

Material specifications

Contacts contacts B: copper alloy finish gold over nickel
 contacts G: copper alloy finish gold over silver
 contacts Q: copper alloy finish silver
Actuator brass alloy chrome
Terminals contacts B: copper alloy finish gold over nickel
 contacts G: copper alloy finish gold over silver
 contacts Q: copper alloy finish silver
Case thermoplastic
Bushing brass alloy finish nickel
Internal actuator phenolic
Spring music wire
Support bracket brass tin plated
Seal epoxy
RoHS Directive 2002/95/EC compliant

Product key			Typical product key		AE	1	01	S	D1	C	Q	04
Type												
AE			Gemini AE Series Toggles									
Number of Poles												
1			single pole		2		double pole					
Function												
single and double pole					double pole only							
01			On-On		11		On-On-On					
03			On-Off-On		13		On-On-(On)					
05			(On)-Off-(On)		15		(On)-On-(On)					
07			On-Off-(On)									
08			On-(On)									
Toggles												
S			bat long		M		bat short					
Bushing												
D1			unthreaded									
Terminations												
A			right angle		V30		vertical support		W		wire wrap	
AV2			vertical right angle		V40		vertical support		W4		wire wrap	
C			printed circuit						Z		wire lug	
Contacts												
B			gold		G		gold over silver		Q		silver	
Material												
04			RoHS compliant									

Gemini AE Series, Sealed IP67 (Continued)

Function

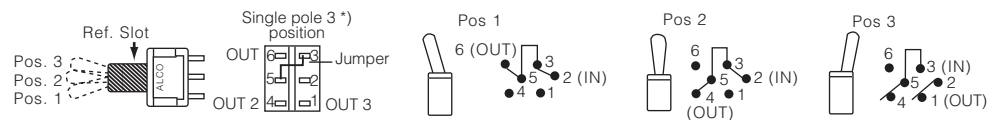


Code	Positions	↙	↓	↘
01	2 positions	On	None	On
03	3 positions	On	Off	On
05	3 positions	(On)	Off	(On)
07	3 positions	(On)	Off	On
08	2 positions	(On)	None	On
SPDT	Term. conn.	1 - 2	---	2 - 3
DPDT	Terminals connected	1 - 2 4 - 5	---	2 - 3 5 - 6
11*)	3 positions	On	On	On
13*)		(On)	On	On
15*)		(On)	On	(On)
DP3T	Terminals connected	1 - 2	2 - 3	2 - 3
**)		4 - 5	4 - 5	5 - 6

Off mechanical position,
no electrical connection
(On) momentary mechanical position
and electrical connection
None no mechanical position

*) functions available in dual pole case only.
**) SP3T functions achieved with external jumper installed by customer

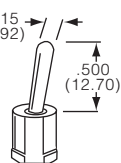
Wiring diagram for functions 11, 13, 15



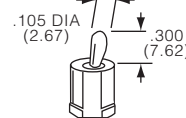
Toggles



S standard,
bat long



M short toggle

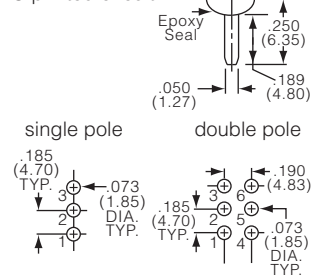


Terminals

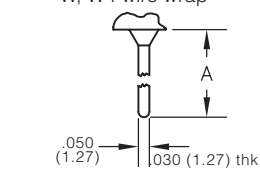


Codes C, W, W4, Z printed circuit, wire wrap and wire lug

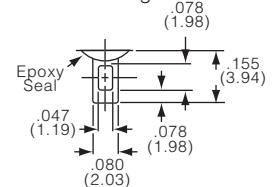
C printed circuit



W, W4 wire wrap



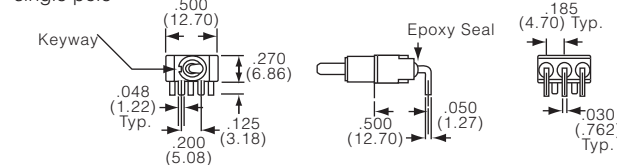
Z wire lug



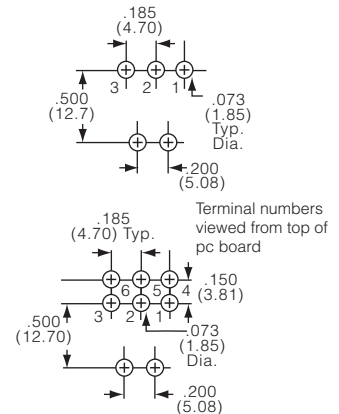
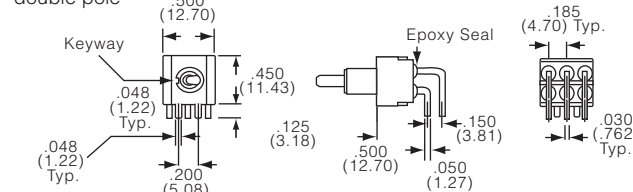
Terminal	Dim A
W	18.69 (.736)
W4	26.98 (1.062)

Code A right angle

single pole



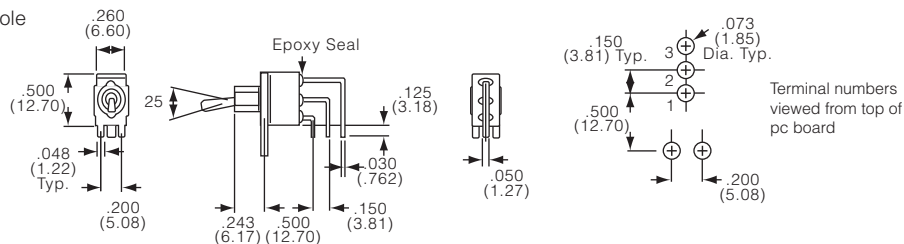
double pole



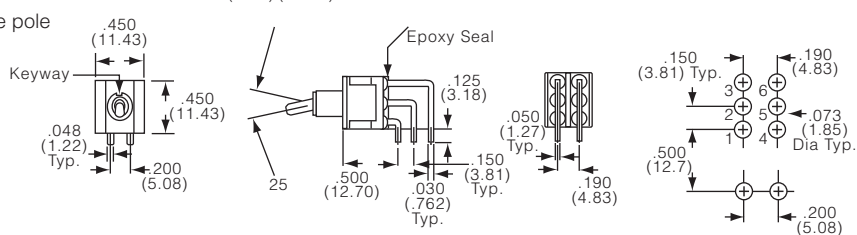
Gemini AE Series, Sealed IP67 (Continued)

Code AV2 vertical right angle

single pole

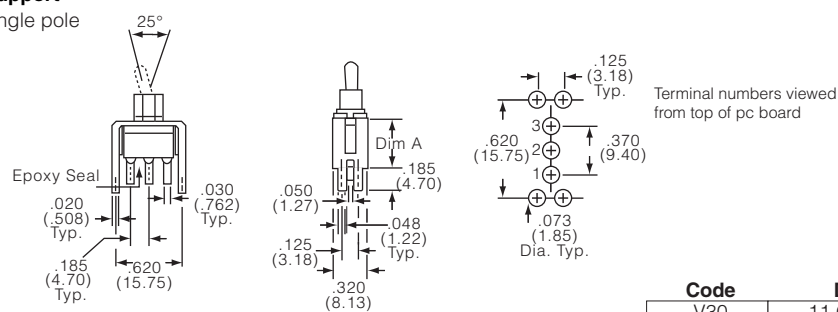


double pole

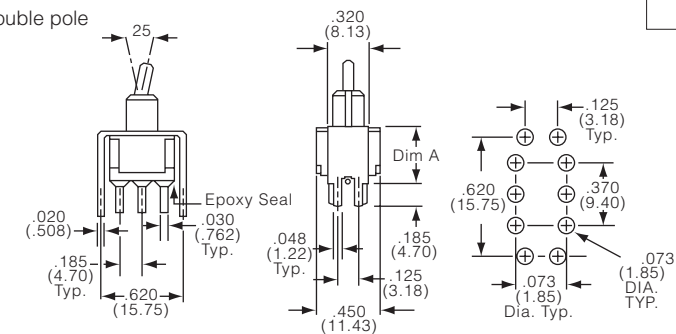


Codes V30, V40 vertical support

single pole



double pole

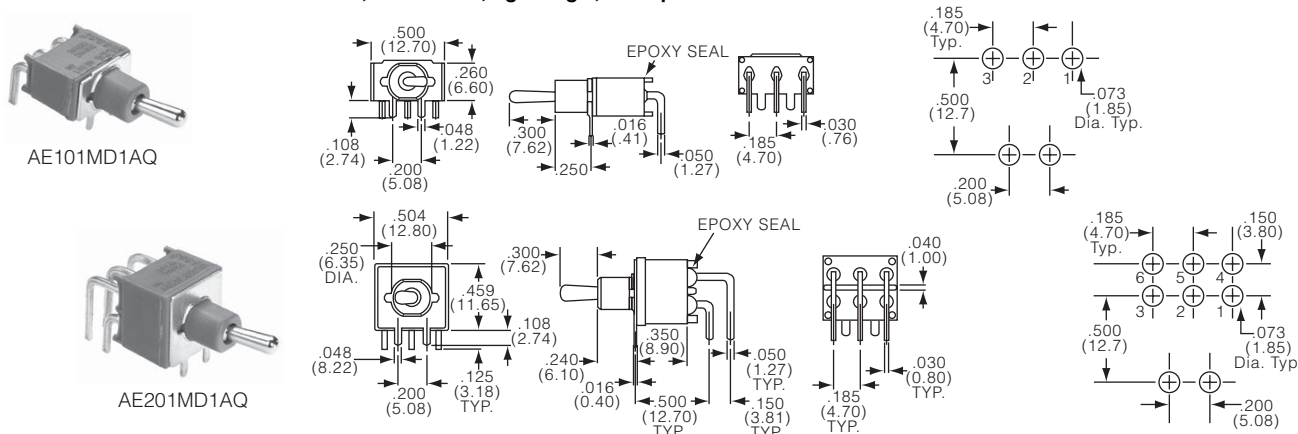


Code	Dim A
V30	11.68 (.460)
V40	16.00 (.630)

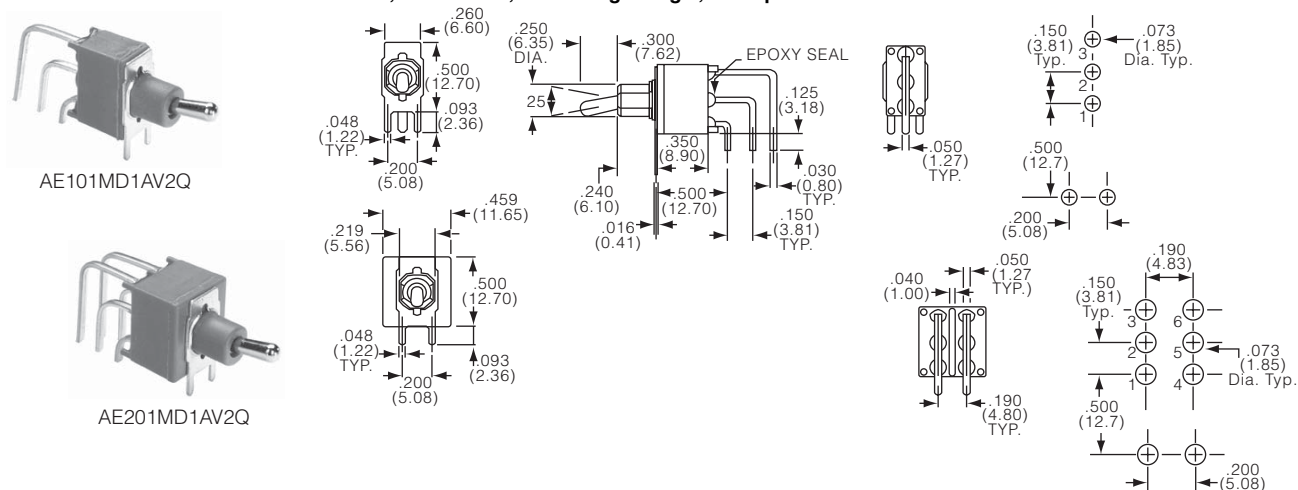
Gemini AE Series, Sealed IP67 (Continued)

Dimensions

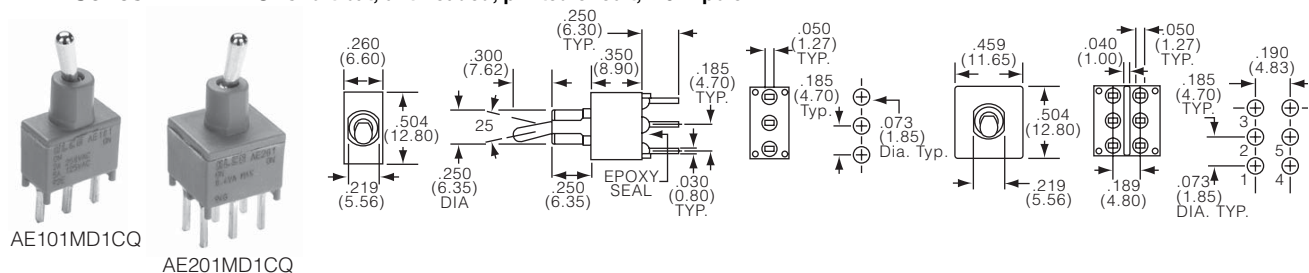
Series AE...MD1A short bat, unthreaded, right angle, 1 & 2 pole



Series AE...MD1AV2 short bat, unthreaded, vertical right angle, 1 & 2 pole

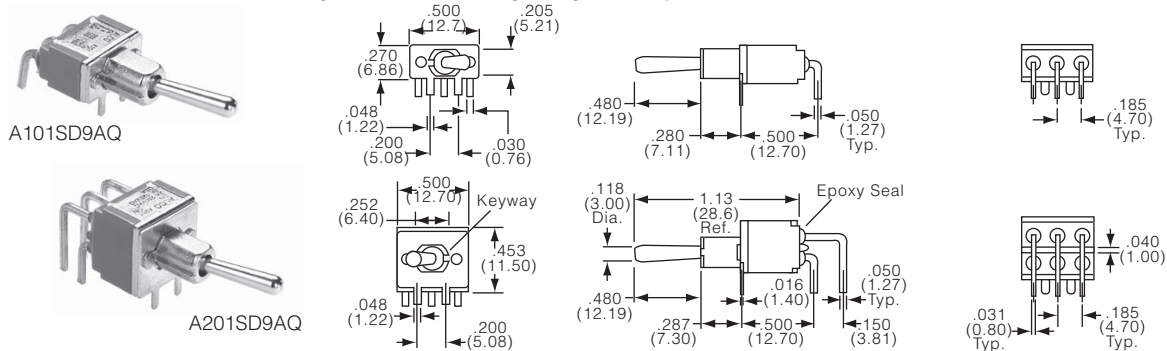


Series AE...MD1C short bat, unthreaded, printed circuit, 1 & 2 pole

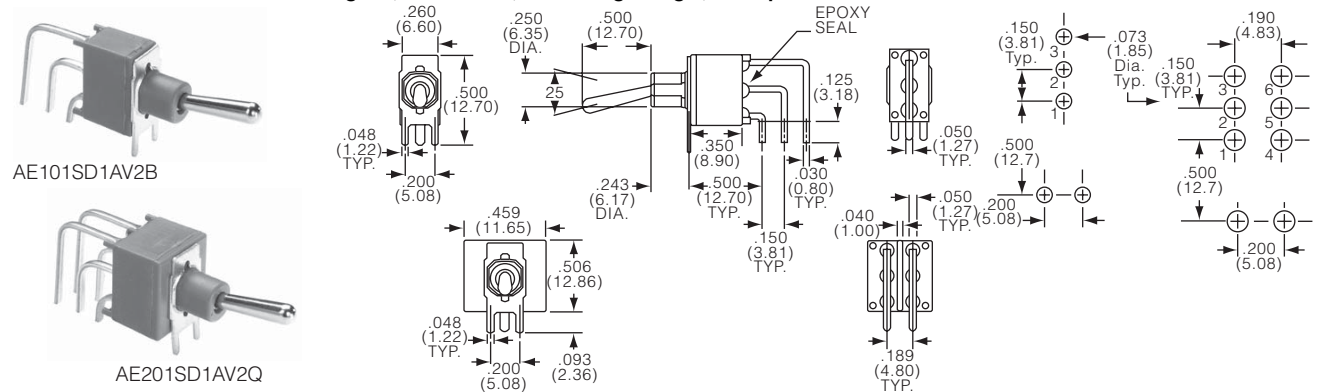


Gemini AE Series, Sealed IP67 (Continued)

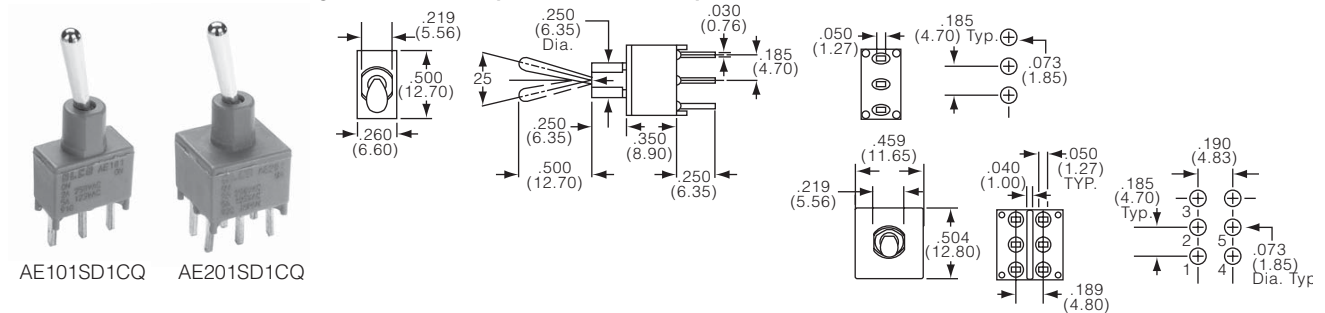
Series AE...SD1A long bat, unthreaded, right angle, 1 & 2 pole



Series AE...SD1AV2 long bat, unthreaded, vertical right angle, 1 & 2 pole



Series AE...SD1C long bat, unthreaded, printed circuit, 1 & 2 pole



Gemini AE Series, Sealed IP67 (Continued)

Product key	Poles	Function	Toggles	Bushing	Terminations	Contacts	Material	Part Number						
AE101MD1AB04	1	On-On	bat short	unthreaded	right angle	gold	RoHS compliant	1825142-1						
AE101MD1AG04						Au over Ag		1825142-2						
AE101MD1AQ04						silver		1825142-4						
AE101MD1AV2B04						gold		1825142-5						
AE101MD1AV2Q04						silver		1825142-6						
AE101MD1CB04						gold		1825142-8						
AE101MD1CG04						Au over Ag		1825142-9						
AE101MD1CQ04						silver		1-1825142-0						
AE101MD1V30B04						gold		1-1825142-1						
AE101MD1V30Q04						silver		1-1825142-2						
AE101MD1W4B04						gold		1-1825142-3						
AE101MD1W4Q04						silver		1-1825142-4						
AE101SD1AB04			bat long		right angle	gold		1-1825142-5						
AE101SD1AQ04						silver		1-1825142-6						
AE101SD1AV2B04						gold		1-1825142-8						
AE101SD1AV2Q04						silver		1-1825142-9						
AE101SD1CB04						gold		2-1825142-0						
AE101SD1CQ04						silver		2-1825142-1						
AE101SD1V30B04						gold		2-1825142-2						
AE101SD1V30Q04						silver		2-1825142-3						
AE103MD1AB04		On-Off-On			right angle	gold		2-1825142-4						
AE103MD1AV2B04						vertical right angle		2-1825142-5						
AE103MD1CB04						printed circuit		2-1825142-6						
AE103MD1W4B04						wire wrap		2-1825142-8						
AE103SD1AV2B04		bat long				vertical right angle			2-1825142-9					
AE103SD1CB04						printed circuit			3-1825142-0					
AE103SD1CQ04								silver	3-1825142-1					
AE103SD1V30B04						vertical support		gold	3-1825142-3					
AE103SD1W4B04						wire wrap			3-1825142-4					
AE105MD1AB04		(On)-Off-(On)	bat short		right angle	gold		3-1825142-5						
AE105MD1AG04						Au over Ag		3-1825142-6						
AE105MD1AV2B04						vertical right angle		gold	3-1825142-7					
AE105MD1W4B04						wire wrap			3-1825142-8					
AE105SD1CB04						bat long		printed circuit		3-1825142-9				
AE105SD1V30B04								vertical support		4-1825142-0				
AE105SD1W4B04								wire wrap		4-1825142-1				
AE107MD1AV2B04		On-Off-(On)				vertical right angle		gold	4-1825142-2					
AE107SD1AB04								right angle		4-1825142-3				
AE107SD1AG04								Au over Ag		4-1825142-4				
AE107SD1CB04								printed circuit	gold	4-1825142-5				
AE107SD1V30B04								vertical support		4-1825142-6				
AE108MD1AQ04		On-(On)						right angle	silver	4-1825142-7				
AE108MD1AV2B04					vertical right angle				gold	4-1825142-8				
AE108MD1AV2Q04					silver				4-1825142-9					
AE108SD1AB04		bat long			gold				5-1825142-0					
AE108SD1AQ04					silver				5-1825142-1					
AE108SD1CQ04					printed circuit					5-1825142-2				
AE108SD1V30B04					vertical support				gold	5-1825142-4				
AE108SD1W4B04					wire wrap					5-1825142-5				
AE201MD1AB04	2	On-On	bat short		right angle					1825143-1				
AE201MD1AQ04						silver			1825143-2					
AE201MD1AV2B04						vertical right angle			gold	1825143-3				
AE201MD1CB04						printed circuit				1825143-4				
AE201MD1CQ04						silver			1825143-5					
AE201MD1W4B04						wire wrap		gold	1825143-6					
AE201SD1AB04						bat long			right angle		1825143-7			
AE201SD1AG04									Au over Ag		1825143-8			
AE201SD1AV2B04									vertical right angle	gold	1825143-9			
AE201SD1CB04									printed circuit		1-1825143-0			
AE201SD1CQ04									silver	1-1825143-1				
AE201SD1W4B04									wire wrap	gold	1-1825143-2			
AE203MD1AB04		On-Off-On			right angle	gold		1-1825143-3						
AE203MD1AQ04						silver		1-1825143-4						
AE203MD1AV2B04						vertical right angle		gold	1-1825143-5					
AE203SD1AB04		bat long				right angle			1-1825143-6					
AE203SD1AV2B04						vertical right angle			1-1825143-7					
AE203SD1AV2Q04								silver	1-1825143-8					
AE203SD1CB04						printed circuit		gold	1-1825143-9					
AE203SD1W4B04						wire wrap			2-1825143-0					
AE205MD1AV2B04		(On)-Off-(On)			vertical right angle	gold		2-1825143-1						
AE205SD1CQ04						silver		2-1825143-2						
AE207MD1AB04		bat short				right angle		gold	2-1825143-4					
AE208SD1W4B04						wire wrap			2-1825143-5					
AE211MD1CB04						On-On-On				printed circuit		2-1825143-6		
AE211MD1V30B04										vertical support		2-1825143-7		

Preferred parts in bold print

MT Green Series

Features

- Wire lug, PC terminals, both right angle and vertical right angle
- MTE series splashproof toggle actuator
- Entire series epoxy sealed terminals
- Actuator guards, decorative hardware, and silicone boot seals available



Typical performance characteristics

Contact configuration SPDT, DPDT, 3PDT, 4PDT
Contact timing Break-before-make
Contact rating max. 6A @ 125VAC, 3A @ 250VAC
Contact resistance, initial max.10 mOhms
Insulation resistance min. 1,000 MOhms
Dielectric strength 1,500 Vrms @ sea level
Actuation force 4 to 20 N (0.4 to 2 kgf)
Actuator travel 24°~26°

Environmental specification

Operating temperature -20°C to +80°C
Storage temperature -40°C to +80°C
Solder heat resistance wave solder capable to 265° C
Seal epoxy sealed terminals
. MTE series splashproof toggle actuator O-ring

Material specifications

Contacts copper alloy silver clad
Toggle brass nickel plated
Terminals copper alloy gold flash
Terminal seal epoxy
Housing alkyd polyester (green)UL94 V-O
Frame stainless steel
Support Bracket steel nickel plated
Spring music wire
RoHS Directive 2002/95/EC compliant

Product key		Typical product key		MT	A	1	06	E	PC	04									
Type																			
MT	Green series toggle switches, panel mount																		
Toggle & bushing																			
A	.410 long round toggle, 1/4-40 bushing																		
A8	.410 long round toggle, 1/4-40 bushing, right angle & vertical right angle																		
B	.600 long round toggle with plastic tip, 1/4-40 bushing																		
E	.410 long round toggle, 1/4-40 bushing with O ring seal																		
F	.485 long flat toggle, 1/4-40 bushing																		
G	.452 long large diameter round toggle, 15/32 bushing																		
G2	.685 long large diameter round toggle, 15/32 bushing																		
L	locking toggle, 1/4-40 bushing																		
M	.270 long round toggle, 1/4-40 bushing																		
M8	.270 long round toggle, 1/4-40 bushing, right angle & vertical right angle																		
Number of Poles																			
1	single pole	3	3 pole																
2	double pole	4	4 pole																
Toggle style																			
06	standard	26	bright nickel, for toggle F	6	standard for toggle G2														
Function																			
1 and 3 pole		2 and 4 pole		1 and 2 pole functionality *)															
D	ON-ON	N	ON-ON	PA	ON-ON-ON														
E	ON-OFF-ON	P	ON-OFF-ON	SA	(ON)-ON-(ON)														
F	ON-(ON)	R	ON-(ON)	TA	ON-ON-(ON)														
G	(ON)-OFF-(ON)	S	(ON)-OFF-(ON)	*) 2 and 4 pole design, internally connected															
H	ON-OFF-(ON)	T	ON-OFF-(ON)	for 1 and 2 pole functionality															
Terminations																			
blank	wire lug	RA	right angle																
PC	printed circuit board	VRA	vertical right angle																
Material																			
04	RoHS compliant																		

MT Green Series (Continued)

MTA



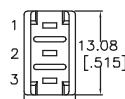
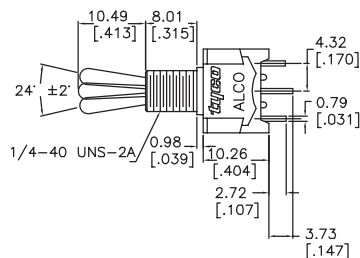
MTA1, MTA2 1 & 2 pole



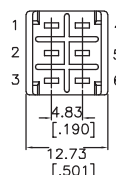
MTA106D04



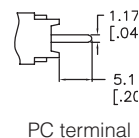
MTA206NPC04



MTA106



MTA206



PC terminal

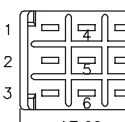
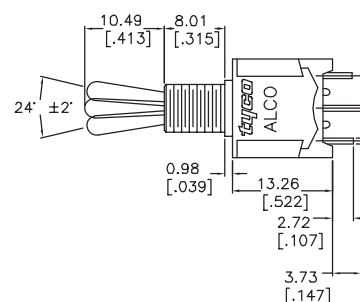
MTA3, MTA4 3 & 4 pole



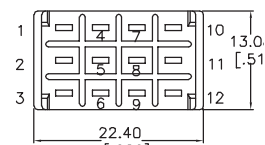
MTA306D04



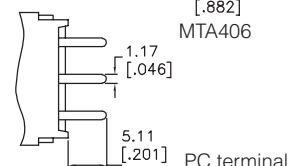
MTA406NPC04



MTA306



MTA406

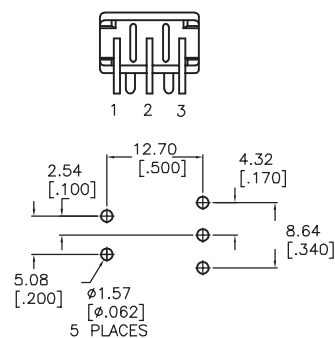
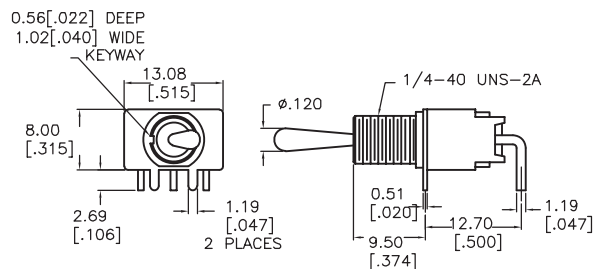


PC terminal

MTA81 RA 1pole, right angle



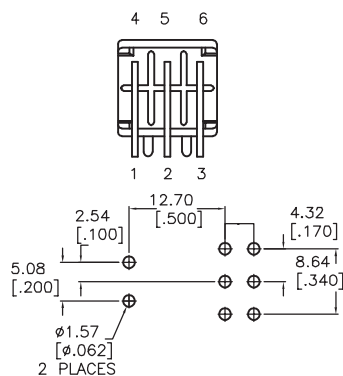
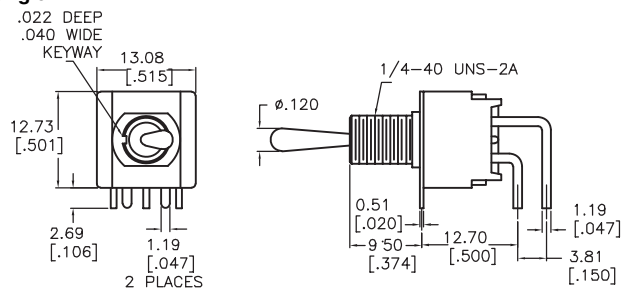
MTA8106DRA04



MTA82 RA 2pole, right angle



MTA8206NRA04

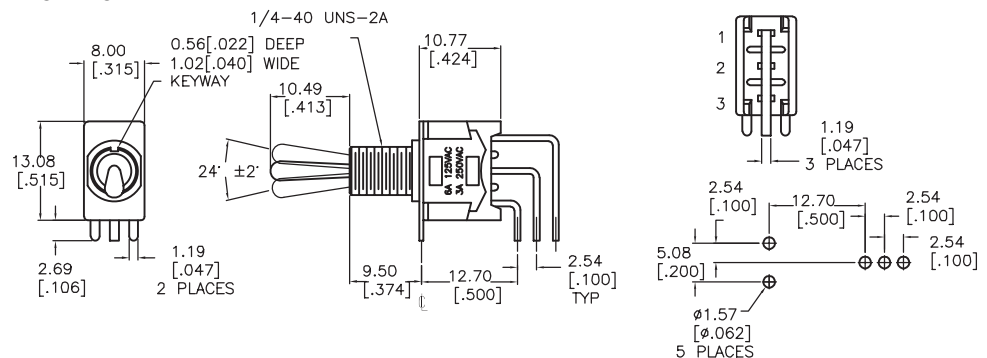


MT Green Series (Continued)

MTA81 VRA 1pole, vertical right angle



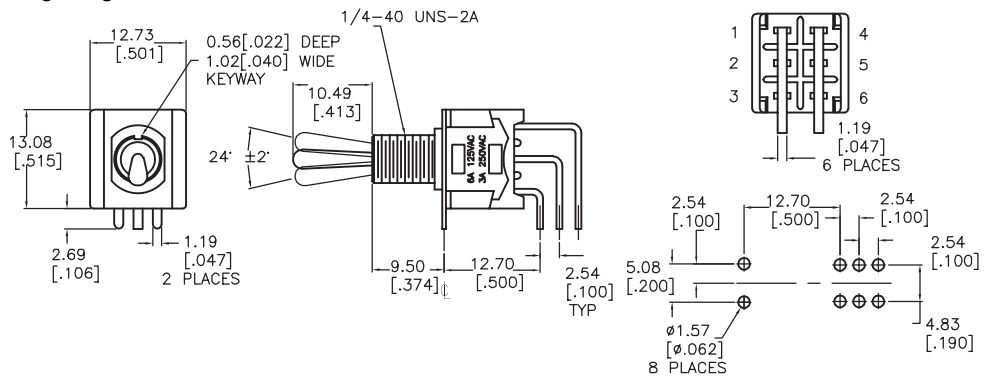
MTA8106DVRA04



MTA82 VRA 2pole, vertical right angle



MTA8206NVRA04



MTB

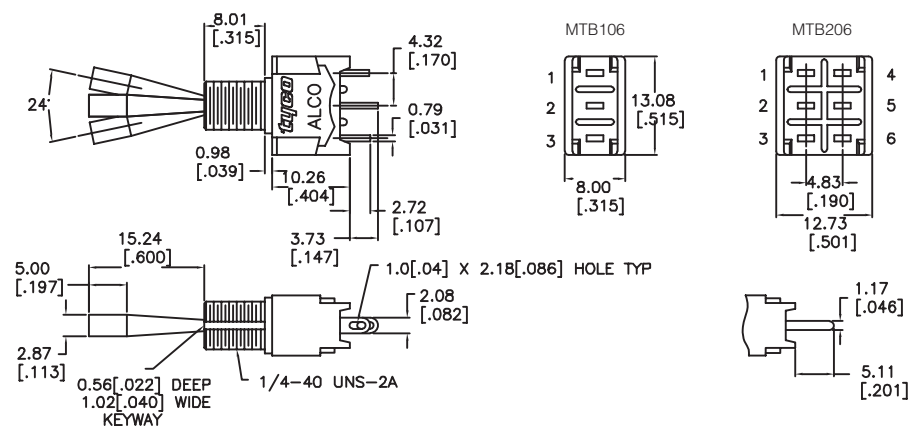
MTB1, MTB2 1 & 2 pole



MTB106D04

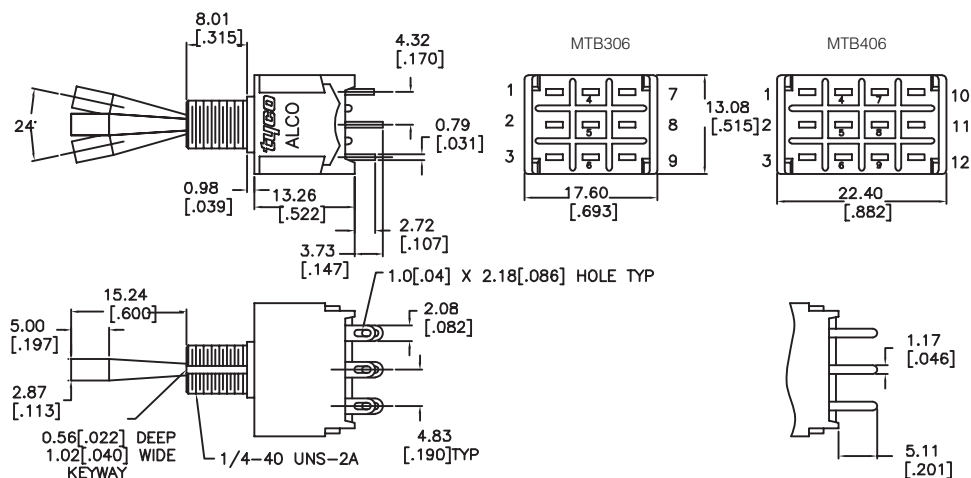


MTB206N04



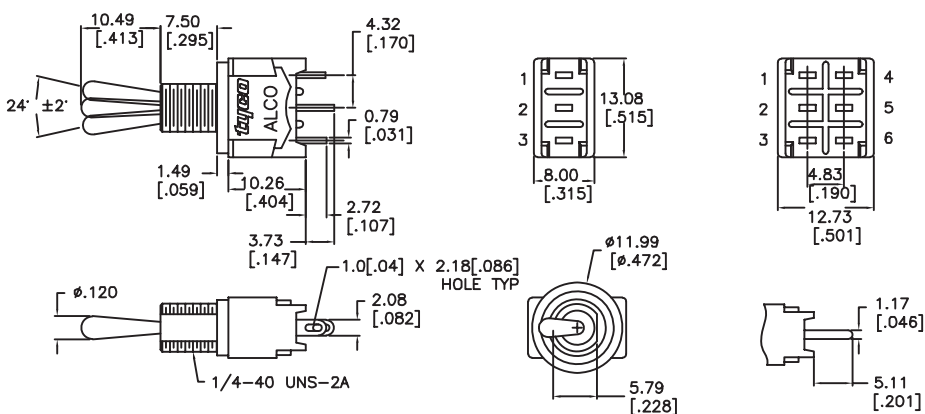
MT Green Series (Continued)

MTB3, MTB4 3 & 4 pole

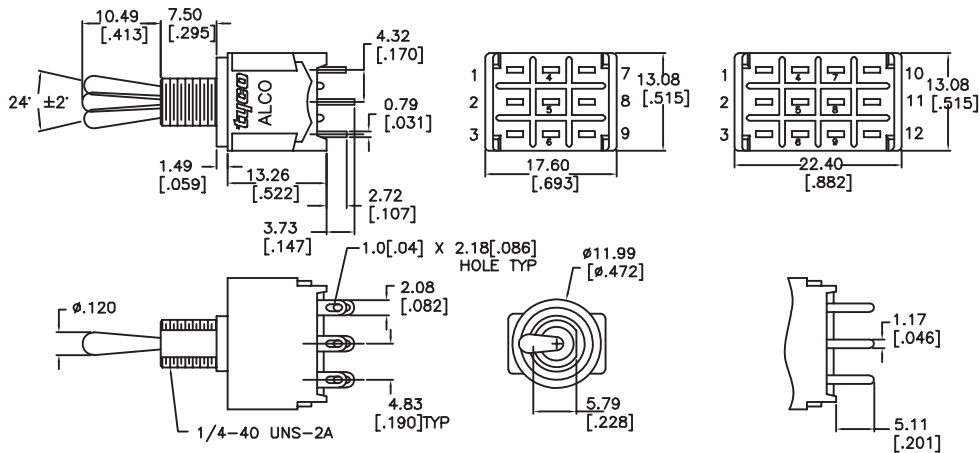


MTE

MTE1, MTE2 1 & 2 pole



MTE3, MTE4 3 & 4 pole

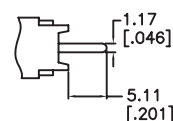
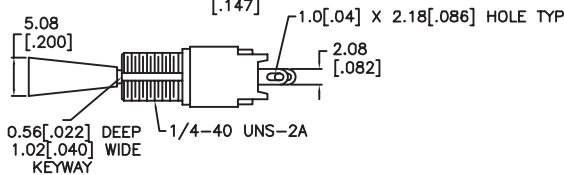
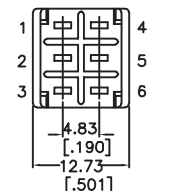
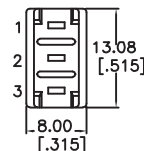
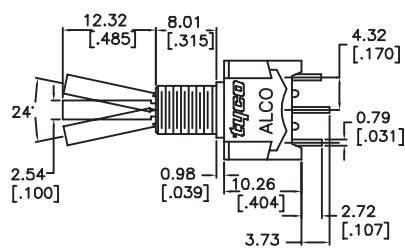


MT Green Series (Continued)

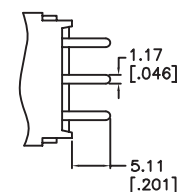
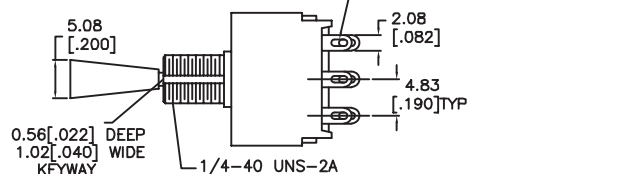
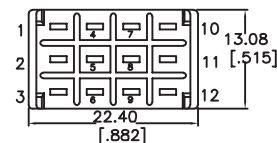
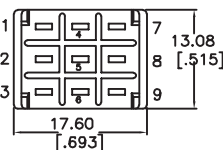
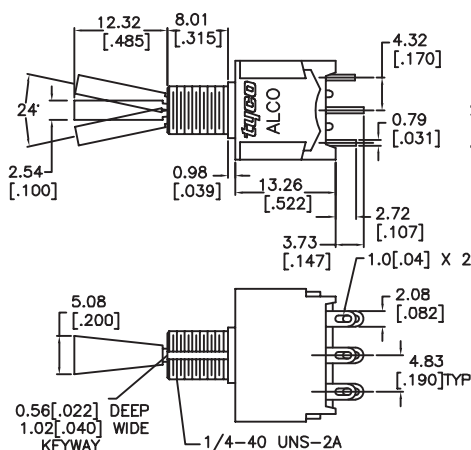
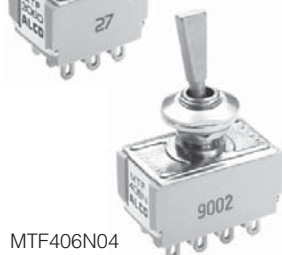
MTF



MTF1, MTF2 1 & 2 pole



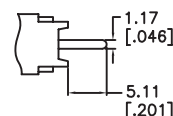
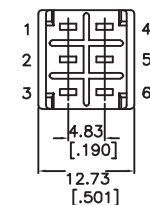
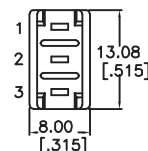
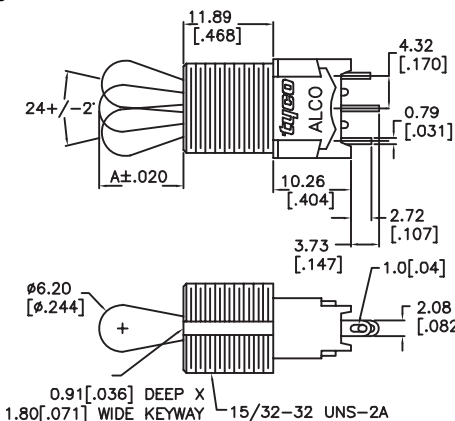
MTF3, MTF4 3 & 4 pole



MTG

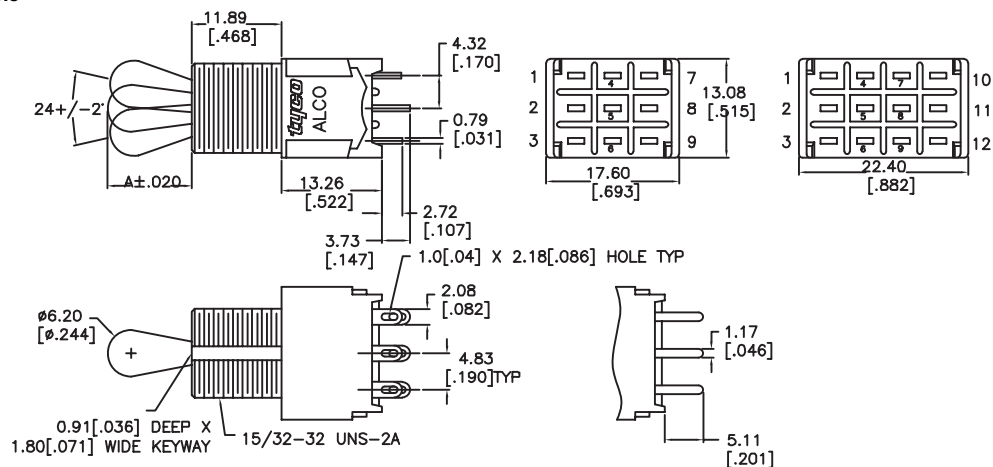


MTG1, MTG2 1 & 2 pole



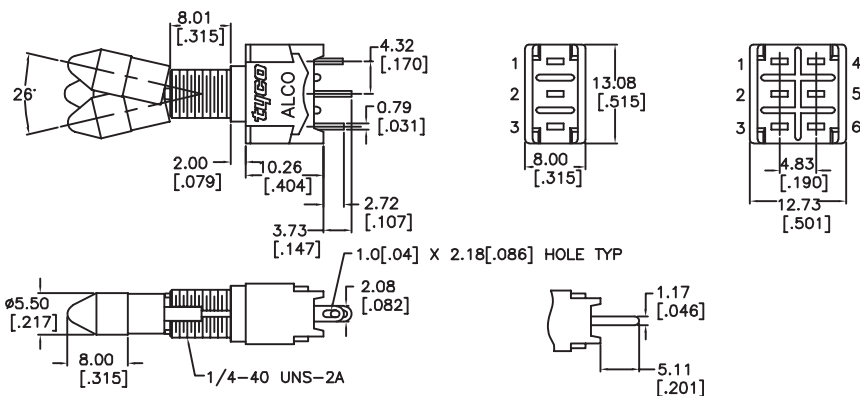
MT Green Series (Continued)

MTG3, MTG4 3 & 4 pole

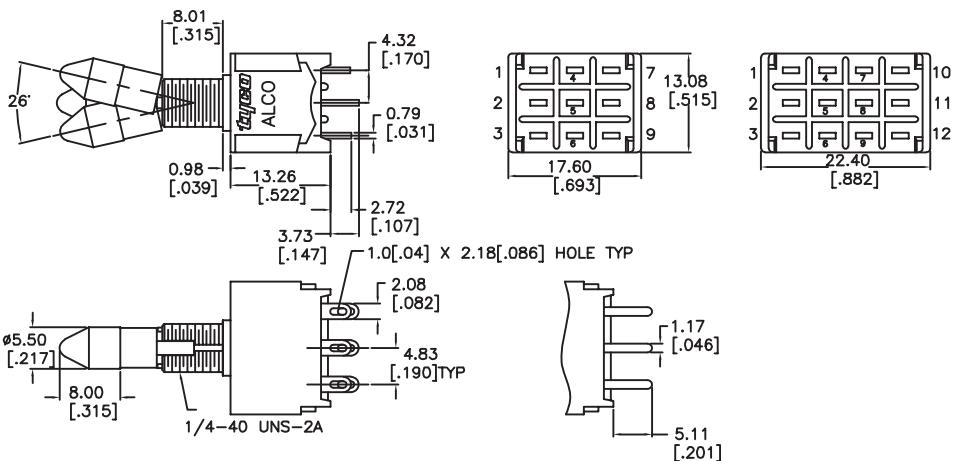


MTL

MTL1, MTL2 1 & 2 pole



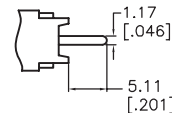
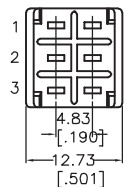
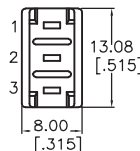
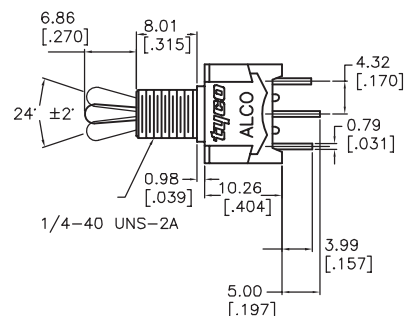
MTL3, MTL4 3 & 4 pole



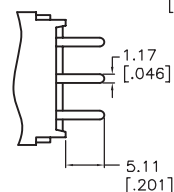
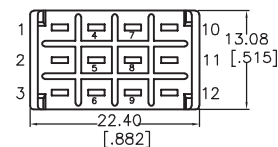
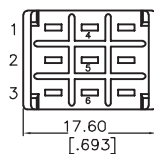
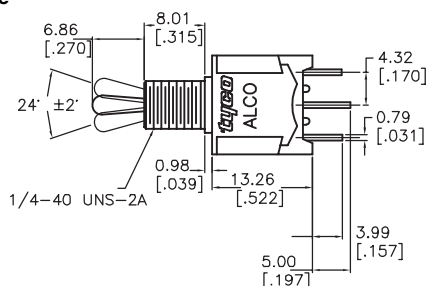
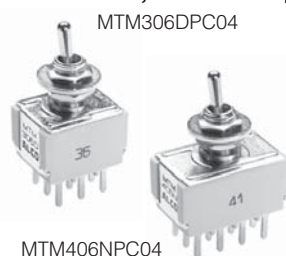
MT Green Series (Continued)

MTM

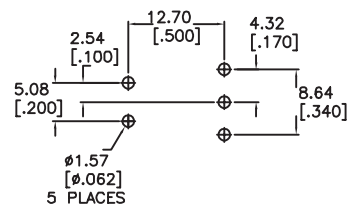
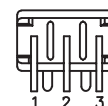
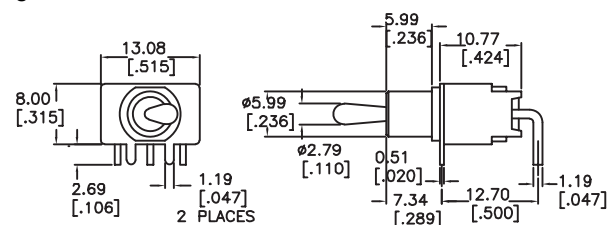
MTM1, MTM2 1 & 2 pole



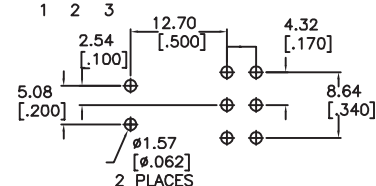
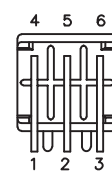
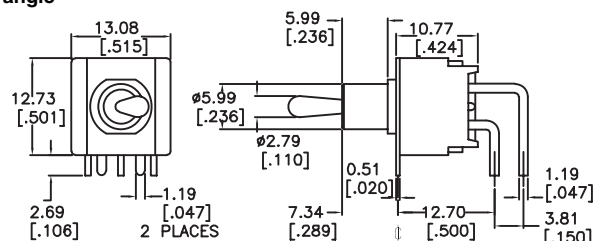
MTM3, MTM4 3 & 4 pole



MTM81 RA 1pole, right angle

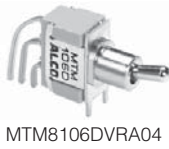


MTM82 RA 2pole, right angle

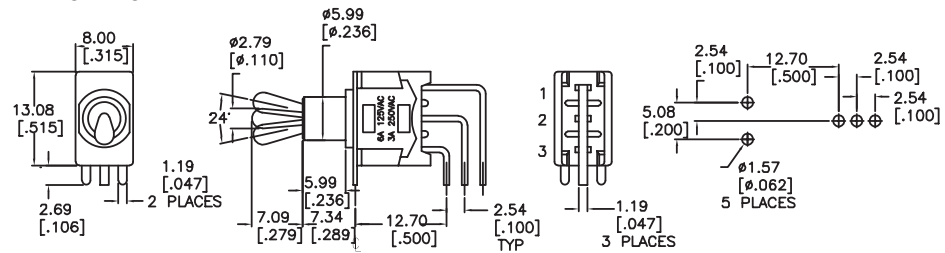


MT Green Series (Continued)

MTM81 VRA 1pole, vertical right angle



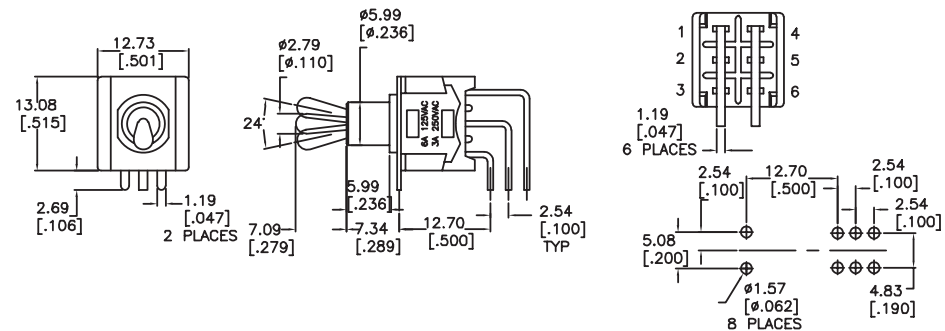
MTM8106DVRA04



MTM82 VRA 2pole, vertical right angle



MTM8206NVRA04



Function

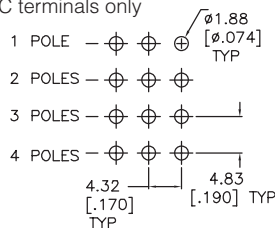


Function	Poles	Throws	1	2	3	4	5	6
A	1	1	On	None	Off	2-3	-	Off
D	1	2	On	None	On	2-3	-	2-1
D	3	2	On	None	On	2-3, 5-6, 8-9	-	2-1, 5-4, 8-7
E	1	2	On	Off	On	2-3	Off	2-1
E	3	2	On	Off	On	2-3, 5-6, 8-9	Off	2-1, 5-4, 8-7
F	1	2	On	None	(On)	2-3	-	2-1
F	3	2	On	None	(On)	2-3, 5-6, 8-9	-	2-1, 5-4, 8-7
G	1	2	(On)	Off	(On)	2-3	Off	2-1
H	1	2	On	Off	(On)	2-3	Off	2-1
H	3	2	On	Off	(On)	2-3, 5-6, 8-9	Off	2-1, 5-4, 8-7
N	2	2	On	None	On	2-3, 5-6	-	2-1, 5-4
N	4	2	On	None	On	2-3, 5-6, 8-9, 11-12	-	2-1, 5-4, 8-7, 11-10
P	2	2	On	Off	On	2-3, 5-6	Off	2-1, 5-4
P	4	2	On	Off	On	2-3, 5-6, 8-9, 11-12	Off	2-1, 5-4, 8-7, 11-10
PA	1 ¹⁾	3	On	On	On	5-6	5-3	5-1
PA	2 ²⁾	3	On	On	On	5-6, 11-12	5-3, 11-9	5-1, 11-7
R	2	2	On	None	(On)	2-3, 5-6	-	2-1, 5-4
S	2	2	(On)	Off	(On)	2-3, 5-6	Off	2-1, 5-4
SA	1 ¹⁾	3	(On)	On	(On)	5-6	5-3	5-1
T	2	2	On	Off	(On)	2-3, 5-6	Off	2-1, 5-4
TA	1 ¹⁾	3	On	On	(On)	5-6	5-3	5-1

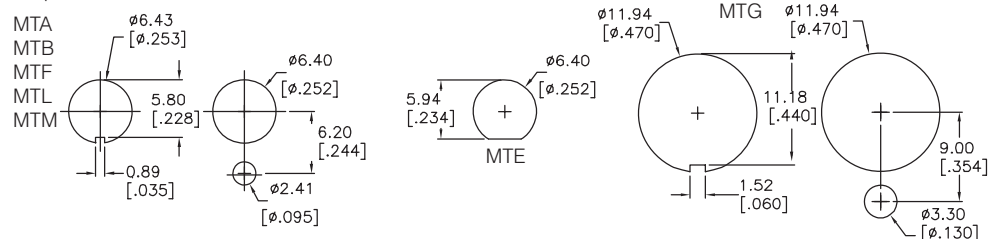
¹⁾ customer installed external jumper between terminals 1 and 4 required for 1 pole 3 throw function
²⁾ customer installed external jumpers between terminals 2 and 4 as well as between 8 and 10 required for 2 pole 3 throw function
 Off indicates a mechanical position with no electrical connection
 (On) indicates momentary connection
 None indicates no mechanical position

Mounting

PC board layout
 PC terminals only



Recommended hole layout
 to prevent rotation



MT Green Series (Continued)

Product key	Toggle	Bushing	Poles	Terminations	Material	Part Number			
MTA106D04	.410 round	1/4-40 bushing	1	wire lug	RoHS compliant	1571920-3			
MTA106DPC04				pc board		1571920-4			
MTA106E04				wire lug		1571920-5			
MTA106EPC04				pc board		1571920-6			
MTA106F04				wire lug		1571920-7			
MTA106FPC04				pc board		1571920-8			
MTA106G04				wire lug		1571920-9			
MTA106GPC04				pc board		1-1571920-0			
MTA106H04				wire lug		1-1571920-1			
MTA106HPC04				pc board		1-1571920-2			
MTA206N04			2	wire lug		1-1571920-5			
MTA206NPC04				pc board		1-1571920-6			
MTA206P04				wire lug		1-1571920-7			
MTA206PA04			1			1-1571920-8			
MTA206PAPC04						1-1571920-9			
MTA206PPC04			2	pc board		2-1571920-0			
MTA206R04				wire lug		2-1571920-1			
MTA206RPC04				pc board		2-1571920-2			
MTA206S04				wire lug		2-1571920-3			
MTA206SA04			1			2-1571920-4			
MTA206SAPC04				pc board		2-1571920-5			
MTA206SPC04			2			2-1571920-6			
MTA206T04				wire lug		2-1571920-7			
MTA206TA04			1			2-1571920-8			
MTA206TPC04				pc board		2-1571920-9			
MTA306D04			3	wire lug		3-1571920-0			
MTA306DPC04				pc board		3-1571920-1			
MTA306E04				wire lug		3-1571920-2			
MTA306EPC04				pc board		3-1571920-3			
MTA306F04				wire lug		3-1571920-4			
MTA306FPC04				pc board		3-1571920-5			
MTA306H04				wire lug		3-1571920-6			
MTA306HPC04				pc board		3-1571920-7			
MTA406N04			4	wire lug		3-1571920-8			
MTA406NPC04				pc board		3-1571920-9			
MTA406P04				wire lug		4-1571920-0			
MTA406PA04			2			4-1571920-1			
MTA406PAPC04				pc board		4-1571920-2			
MTA406PPC04			4			4-1571920-3			
MTA8106DGVRA04	.600 round, w plastic tip	1/4-40 bushing	1	vertical r.a.		1571922-3			
MTA8106DRA04				right angle		1571922-4			
MTA8106DVR04				vertical r.a.		1571922-5			
MTA8106EGRA04				right angle		1571922-6			
MTA8106EGVRA04				vertical r.a.		1571922-7			
MTA8106ERA04				right angle		1571922-8			
MTA8106EVRA04				vertical r.a.		1571922-9			
MTA8106FRA04				right angle		1-1571922-0			
MTA8106FVRA04				vertical r.a.		1-1571922-1			
MTA8206NRA04			2	right angle		1-1571922-4			
MTA8206NVRA04				vertical r.a.		1-1571922-5			
MTA8206PGVRA04						1-1571922-6			
MTA8206PRA04				right angle		1-1571922-7			
MTA8206PVRA04				vertical r.a.		1-1571922-8			
MTA8206RRA04				right angle		1-1571922-9			
MTB106D04			.600 round, w plastic tip	1/4-40 bushing		1	wire lug	1571923-3	
MTB106E04								1571923-4	
MTB106F04								1571923-5	
MTB106G04								1571923-6	
MTB206N04							2		1571923-9
MTB206P04								1-1571923-0	
MTB206T04								1-1571923-1	
MTB306D04							3		1-1571923-2
MTB406N04							4		1-1571923-3

Preferred parts in bold print

MT Green Series (Continued)

Product key	Toggle	Bushing	Poles	Terminations	Material	Part Number
MTE106D04	.410 round	1/4-40, O-ring seal	1	wire lug		1571924-3
MTE106E04						1571924-4
MTE106F04						1571924-5
MTE106G04						1571924-6
MTE106H04						1571924-7
MTE206N04			2			1-1571924-0
MTE206P04						1-1571924-1
MTE206PA04			1			1-1571924-2
MTE206R04			2			1-1571924-3
MTE206S04						1-1571924-4
MTE206T04						1-1571924-5
MTE306D04			3			1-1571924-6
MTE306E04						1-1571924-7
MTE406N04			4			1-1571924-8
MTE406P04						1-1571924-9
MTF106D04	.485 flat	1/4-40 bushing	1			1571925-3
MTF106E04						1571925-4
MTF106F04						1571925-5
MTF106G04						1571925-6
MTF106H04						1571925-7
MTF126D04						1-1571925-0
MTF126E04						1-1571925-1
MTF126F04						1-1571925-2
MTF126G04						1-1571925-3
MTF206N04			2			1-1571925-6
MTF206P04						1-1571925-7
MTF206PA04			1			1-1571925-8
MTF206R04			2			1-1571925-9
MTF206S04						2-1571925-0
MTF206SA04			1			2-1571925-1
MTF206T04			2			2-1571925-2
MTF226N04						2-1571925-5
MTF226P04						2-1571925-6
MTF226PA04			1			2-1571925-7
MTF226R04			2			2-1571925-8
MTF226S04						2-1571925-9
MTF226SA04			1			3-1571925-0
MTF306D04			3			3-1571925-1
MTF326D04						3-1571925-2
MTF406N04			4			3-1571925-3
MTF426N04						3-1571925-4
MTG106D04	.452 large diam. round	15/32 bushing	1			1571926-3
MTG106E04						1571926-4
MTG106F04						1571926-5
MTG106G04						1571926-6
MTG106H04						1571926-7
MTG126D04	.685 large diam. round	15/32 bushing				1-1571926-0
MTG126E04						1-1571926-1
MTG126G04						1-1571926-2
MTG206N04	.452 large diam. round	15/32 bushing	2			1-1571926-5
MTG206NPC04				pc board		1-1571926-6
MTG206P04				wire lug		1-1571926-7
MTG206PA04			1			1-1571926-8
MTG206R04			2			1-1571926-9
MTG206S04						2-1571926-0
MTG206T04						2-1571926-1
MTG226N04	.685 large diam. round	15/32 bushing				2-1571926-4
MTG226P04						2-1571926-5
MTG226PA04			1			2-1571926-6
MTG306D04	.452 large diam. round	15/32 bushing	3			2-1571926-7
MTG306E04						2-1571926-8
MTG326D04	.685 large diam. round	15/32 bushing				2-1571926-9
MTG406N04	.452 large diam. round	15/32 bushing	4			3-1571926-0
MTG406P04						3-1571926-1
MTG426N04	.685 large diam. round	15/32 bushing				3-1571926-2

Preferred parts in bold print

MT Green Series (Continued)

Product key	Toggle	Bushing	Poles	Terminations	Material	Part Number
MTL106D04	locking	1/4-40 bushing	1	wire lug		1571927-2
MTL106E04						1571927-3
MTL206N04			2			1571927-5
MTL206NPC04				pc board		1571927-6
MTL206P04				wire lug		1571927-7
MTL206PA04			1			1571927-8
MTL206S04			2			1571927-9
MTL306D04			3			1-1571927-0
MTL306E04						1-1571927-1
MTL406N04			4			1-1571927-2
MTL406PA04			2			1-1571927-3
MTM106DPC04	.270 round	1/4-40 bushing	1	pc board		1571921-2
MTM106EPC04						1571921-3
MTM106FPC04						1571921-4
MTM206NPC04			2			1571921-6
MTM206PAPC04			1			1571921-7
MTM206PPC04			2			1571921-8
MTM206SPC04						1571921-9
MTM306DPC04			3			1-1571921-0
MTM406NPC04			4			1-1571921-1
MTM8106DGRA04			1	right angle		2-1571922-2
MTM8106DRA04						2-1571922-3
MTM8106DVRA04				vertical r.a.		2-1571922-4
MTM8106ERA04				right angle		2-1571922-5
MTM8106EVRA04				vertical r.a.		2-1571922-6
MTM8106FRA04				right angle		2-1571922-7
MTM8206NRA04			2	right angle		3-1571922-0
MTM8206NVRA04				vertical r.a.		3-1571922-1
MTM8206PRA04				right angle		3-1571922-2
MTM8206PVRA04				vertical r.a.		3-1571922-3
MTM8206RRA04				right angle		3-1571922-4
MTM8206RVRA04				vertical r.a.		3-1571922-5

F Series, Power Toggle, Panel Mounting, 6A

Features

- Wide choice of toggles
- Wide range switch functions available
- Terminals are gold-flashed to prevent oxidation and for ease of soldering
- Up to 4 poles



Typical performance characteristics

Number of poles	1 to 4 pole
Switch functions	ON-ON, ON-(ON), ON-OFF-ON, ON-ON-ON, ON-OFF-(ON), (ON)-OFF-(ON)
Contact rating	6 A @250 VAC, 6 A @125 VAC; gold contact: 0,4 VA max 20 V AC/DC
Electrical life	25,000 to 50,000 cycles
Mechanical life	50,000 to 100,000 cycles
Contact resistance	max 10 mOhm
Insulation resistance	min 1,000 MOhm
Dielectric strength	1,000 VAC for 1 min
Actuation force	max 19,6 N
Panel cut-out	Ø 6,2 mm
Standards and specs	UL, CSA

Environmental specification

Operating temperature	-20 to +70°C
Storage temperature	-20 to +70°C
Vibration resistance	1,5 mm 10-55 Hz
Shock resistance	50 g for 11±1 msec
Terminal strength	24,5 N

Material specifications

Contacts	brass silver alloy finished
Toggle	brass chromium plated
Terminals	brass plate
Case	phenol resin
Cover	steel zinc plated
Seal	rubber seal, insert molded rubber
RoHS compliance	compliant

Product key		Typical product key		F	T	D	0	9	04
Type									
F	F Series power toggle switch								
Number of poles									
blank	1 & 2 pole		3	3 poles					
			4	4 poles					
Model									
T	toggle								
Switch function & poles									
1 & 3 Pole			2 & 4 Pole						
D	ON-ON		N	ON-ON					
E	ON-OFF-ON		P	ON-OFF-ON					
F	ON-(ON)		R	ON-(ON)					
G	(ON)-OFF-(ON)		S	(ON)-OFF-(ON)					
H	ON-OFF-(ON)		T	ON-OFF-(ON)					
			PA	ON-ON-ON					
Actuator									
0	standard toggle		7	long flat toggle					
5	locking lever								
Terminal type									
9	leadwire hooking type								
Contact material									
blank	silver		G	gold					
Material									
04	RoHS compliant								

F Series, Power Toggle, Panel Mounting, 6A (Continued)

Function



Code 0 standard toggle

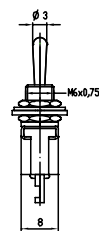
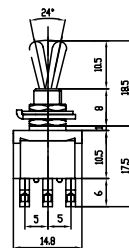
Fct.	Poles	↙	↓	↘	↙	↓	↘
D	1	On	None	On	1-2	-	2-3
E	1	On	Off	On	1-2	Off	2-3
F	1	On	None	(On)	1-2	-	2-3
G	1	(On)	Off	(On)	1-2	Off	2-3
H	1	On	Off	(On)	1-2	Off	2-3
N	2	On	None	On	1-2, 4-5	-	2-3, 5-6
P	2	On	Off	On	1-2, 4-5	Off	2-3, 5-6
R	2	On	None	(On)	1-2, 4-5	-	2-3, 5-6
S	2	(On)	Off	(On)	1-2, 4-5	Off	2-3, 5-6
T	2	On	Off	(On)	1-2, 4-5	Off	2-3, 5-6
PA	2	On	On	On	1-2, 4-5	2-3, 4-5	2-3, 5-6
D	3	On	None	On	1-2, 4-5, 7-8	-	2-3, 5-6, 8-9
N	4	On	None	On	1-2, 4-5, 7-8, 10-11	-	2-3, 5-6, 8-9, 11-12
PA	4	On	On	On	1-2, 4-5, 7-8, 10-11	2-3, 4-5, 7-8, 11-12	2-3, 5-6, 8-9, 11-12

Offi indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

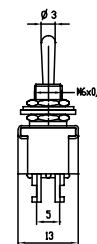
Actuator



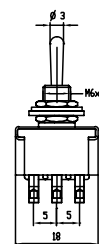
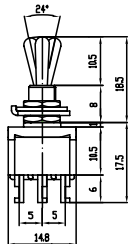
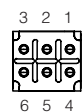
Code 0 standard toggle



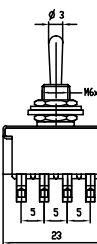
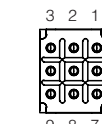
1 pole



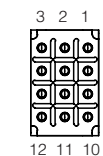
2 pole



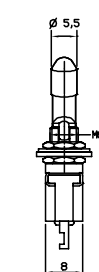
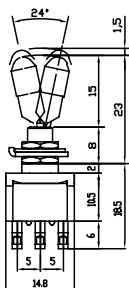
3 pole



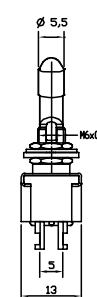
4 pole



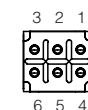
Code 5 locking lever



1 pole

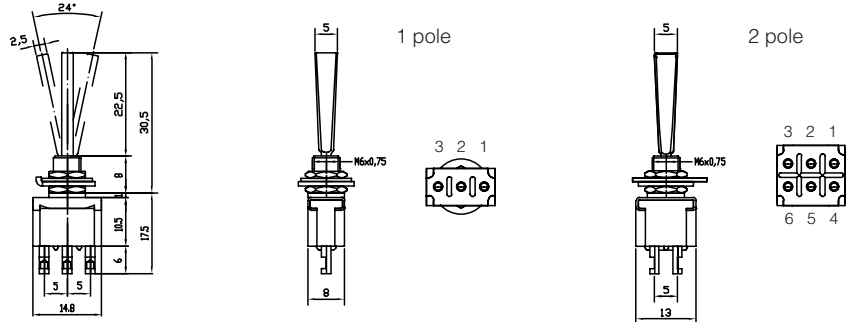


2 pole



F Series, Power Toggle, Panel Mounting, 6A (Continued)

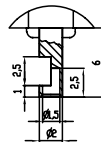
Code 7 long flat toggle



Terminal

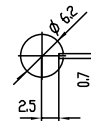


Code 9 leadwire hooking type

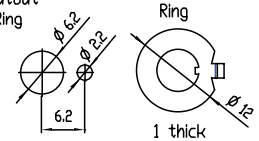


Mounting

Recommended hole layout to prevent rotation



Panel Cutout
using Ring



Product key	Poles	Switch func.	Actuator	Terminal	Contacts	Material	Part Number
F3TD0904	3 poles	ON-ON	standard	leadwire	silver	RoHS	2-6437630-8
F4TN0904	4 poles			hooking		compliant	3-6437630-5
F4TPA0904		ON-ON-ON		type			3-6437630-6
FTD0904	1 pole	ON-ON	standard				2-6437630-0
FTD09G04					gold		3-6437630-4
FTD5904			locking lever		silver		1-6437630-5
FTD59G04					gold		4-6437630-0
FTD7904			flat toggle		silver		5-6437630-3
FTD79G04					gold		5-6437630-4
FTE0904		ON-OFF-ON	standard		silver		6-6437630-2
FTE09G04					gold		5-6437630-1
FTE79G04			flat toggle				5-6437630-8
FTF0904		ON-(ON)	standard		silver		5-6437630-7
FTF09G04					gold		6-6437630-3
FTG0904		(ON)-OFF-(ON)			silver		5-6437630-5
FTG09G04					gold		3-6437630-8
FTH0904		ON-OFF-(ON)			silver		4-6437630-8
FTH09G04					gold		6-6437630-4
FTN0904	2 poles	ON-ON			silver		4-6437630-2
FTN09G04					gold		6-6437630-8
FTN5904			locking lever		silver		3-6437630-9
FTN59G04					gold		6-6437630-1
FTN7904			flat toggle		silver		5-6437630-2
FTN79G04					gold		5-6437630-9
FTP0904		ON-OFF-ON	standard		silver		4-6437630-6
FTPA0904							4-6437630-5
FTR0904		ON-(ON)					4-6437630-4
FTS0904		(ON)-OFF-(ON)					4-6437630-3
FTT0904		ON-OFF-(ON)					4-6437630-1

Preferred parts in bold print

AW Series, Power Toggle, Panel Mounting, Waterproof

Features

- IP67 panel mounting seal
- Sleeve and Frame are sealed.
- Fixed contact molded-inserting construction
- Wide range switch functions available



Typical performance characteristics

Number of poles 1,2 and 4 pole
 Switch functions ON-OFF, ON-ON, ON-(ON),
 ON-OFF-ON, ON-OFF-(ON), (ON)-OFF-(ON)
 Contact rating 20 A @250 VAC, 20 A @125 VAC, 20 A @30 VDC
 Electrical life 20,000 cycles
 Mechanical life 40,000 cycles
 Contact resistance max 10 mOhm
 Insulation resistance min 1,000 MOhm
 Dielectric strength 1,500 VAC for 1 min
 Actuation force max 29,4 N
 Panel cut-out D-cut, 12,5 mm
 Standards and specs UL, CSA

Environmental specification

Operating temperature -20 to +70°C
 Storage temperature -20 to +70°C
 Vibration resistance 1,5 mm 10-55 Hz
 Shock resistance 50 g for 11±1 msec
 Terminal strength 24,5 N

Material specifications

Contacts brass silver alloy finished
 Toggle brass chromium plated
 Terminals brass plate
 Case phenol resin
 Cover steel zinc plated
 Seal rubber seal, insert molded rubber
 RoHS compliance compliant

Product key

Typical product key

A W T T 1 5 04

Type

A A Series power toggle switch, 1 & 2 pole

Sealing

W water proof

Actuator style

T toggle

Switch function & poles

1 pole

A ON-OFF
D ON-ON
E ON-OFF-ON
F ON-(ON)
G (ON)-OFF(ON)
H ON-OFF-(ON)

2 pole

N ON-ON
P ON-OFF-ON
R ON-(ON)
S (ON)-OFF(ON)
T ON-OFF-(ON)

Power rating

1 20 A @ 125/250 VAC

Terminal type

5 .250 quick connect terminal

Material

04 RoHS compliant

AW Series, Power Toggle, Panel Mounting, Waterproof (Continued)

Product key

Typical product key

A 4 T K 1 5 W 04

Type

A A Series power toggle switch, 4 pole

Poles

4 4 pole

Actuator style

T toggle

Switch function

K ON-OFF

N ON-ON

P ON-OFF-ON

R

ON-(ON)

S

(ON)-OFF(ON)

Power rating

1 20 A @ 125/250 VAC

Terminal type

5 .250 quick connect terminal

Sealing

W water proof

Material

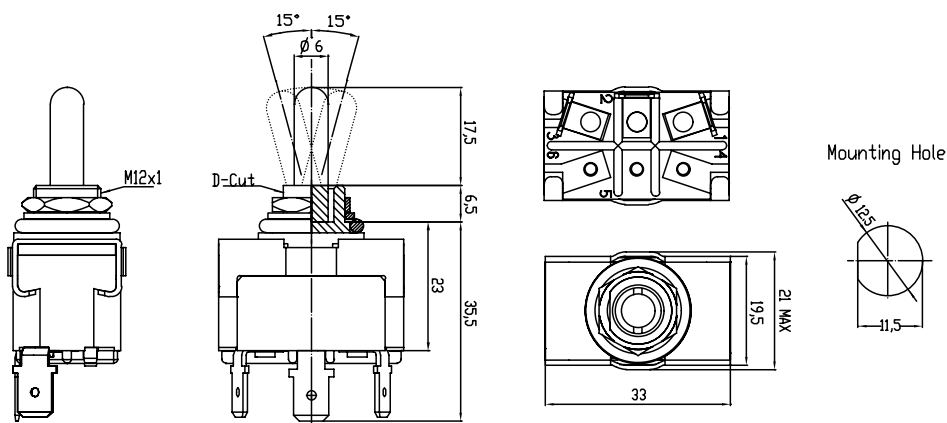
04 RoHS compliant

Poles

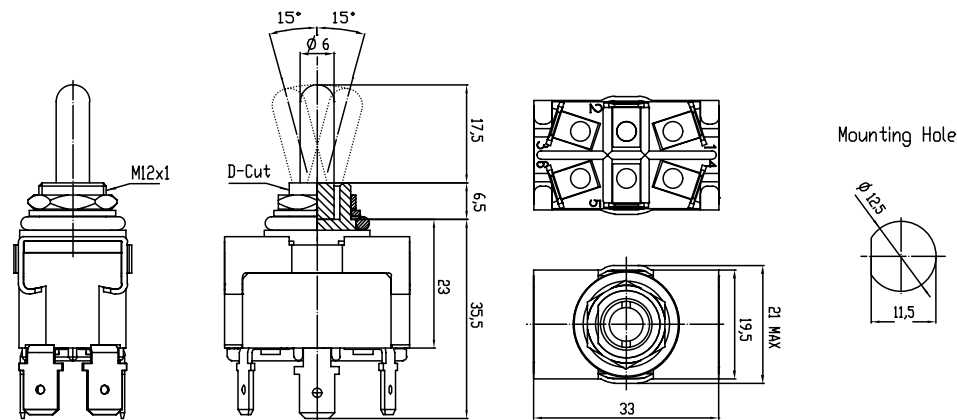
1 pole



AWTA1504

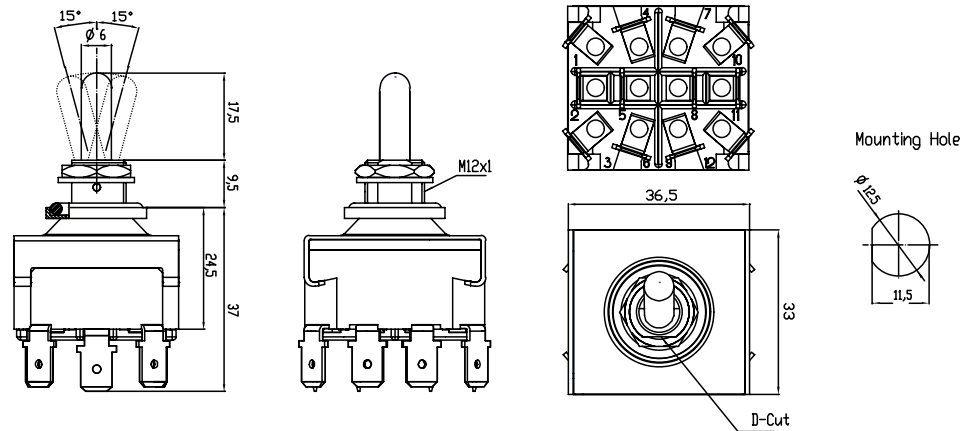


2 pole



AW Series, Power Toggle, Panel Mounting, Waterproof (Continued)

4 pole



Function

Fct.	Poles	1	2	3	4	5	6	7	8	9	10	11	12
A	1	On	None	Off		1-2							Off
D	1	On	None	On		1-2							2-3
E	1	On	Off	On		1-2			Off				2-3
F	1	On	None	(On)		1-2			-				2-3
G	1	(On)	Off	(On)		1-2			Off				2-3
H	1	On	Off	(On)		1-2			Off				2-3
N	2	On	None	On		1-2, 4-5			-				2-3, 5-6
P	2	On	Off	On		1-2, 4-5			Off				2-3, 5-6
R	2	On	None	(On)		1-2, 4-5			-				2-3, 5-6
S	2	(On)	Off	(On)		1-2, 4-5			Off				2-3, 5-6
T	2	On	Off	(On)		1-2, 4-5			Off				2-3, 5-6
K	4	On	None	Off		1-2, 4-5, 7-8, 10-11			-				Off
N	4	On	None	On		1-2, 4-5, 7-8, 10-11			-				2-3, 5-6, 8-9, 11-12
P	4	On	Off	On		1-2, 4-5, 7-8, 10-11			Off				2-3, 5-6, 8-9, 11-12
R	4	On	None	(On)		1-2, 4-5, 7-8, 10-11			-				2-3, 5-6, 8-9, 11-12
S	4	(On)	Off	(On)		1-2, 4-5, 7-8, 10-11			Off				2-3, 5-6, 8-9, 11-12

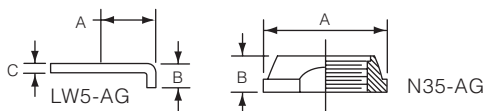
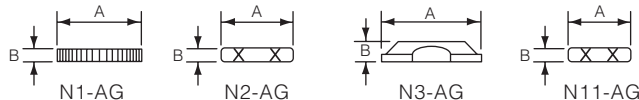
Off indicates a mechanical position with no electrical connection
 (On) indicates momentary connection
 None indicates no mechanical position

Product key	Sealing	Poles	Switch func.	Terminal	Rating	Part Number
A4TK15W04	water	4 poles	ON-OFF	.250	20 A	8-6437630-0
A4TN15W04	proof		ON-ON	quick	@ 125/250 VAC	8-6437630-1
A4TP15W04			ON-OFF-ON	connect		8-6437630-2
A4TR15W04			ON-(ON)	terminal		8-6437630-3
A4TS15W04			(ON)-OFF-(ON)			8-6437630-4
AWTA1504		1 pole	ON-OFF			7-6437630-3
AWTD1504			ON-ON			7-6437630-0
AWTE1504			ON-OFF-ON			7-6437630-1
AWTF1504			ON-(ON)			7-6437630-4
AWTG1504			(ON)-OFF-(ON)			7-6437630-5
AWTH1504			ON-OFF-(ON)			7-6437630-6
AWTN1504		2 poles	ON-ON			7-6437630-2
AWTP1504			ON-OFF-ON			3-6437592-9
AWTR1504			ON-(ON)			5-6437630-0
AWTS1504			(ON)-OFF-(ON)			1-6437630-1
AWTT1504			ON-OFF-(ON)			1-6437630-0

Preferred parts in bold print

Hardware and Accessories

Standard and decorative mounting hardware



Fits all miniature toggle and pushbutton switches 1/4-40 and 15/32-32 bushings.

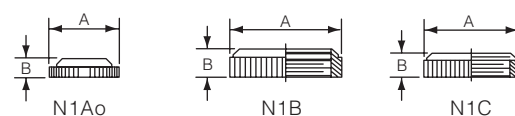
N1 and N3 style nuts are recommended as styling options.

Finger tighten until nut rests on mounting surface.

Finally tighten with the back nut.

Product key	Description	Diameter/Thread	Finish	Dim A	Dim B	Material	Part Number
N1-AG	knurled nut	1/4-40	bright nickel	8.89 (.350)	1.52 (.060)	RoHS	1437628-7
10264-00-120	hex nut			7.87 (.310)	1.52 (.060)	compliant	1437561-9
N304	dress nut			11.7 (.460)	2.29 (.090)		1825621-1
N3504		15/32-32		16.0 (.630)	4.32 (.170)		1825621-2
11106-AG	hex nut	1/4-48		7.11 (.280)	1.27 (.050)		1-1437561-2
11052	int.lock washer	.27		10.2 (.400)	0.61 (.024)		1437579-1
11098	lock washer #10	.19	zinc	7.62 (.300)	0.76 (.030)		1-1437561-1

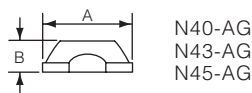
"Perfect Fit" decorative mounting hardware



Use blind threaded nuts for ultimate appearance.

Finger tighten until nut rests on mounting surface.

Finally tighten with the back nut.



Product key	Description	Diameter/Thread	Finish	Dim A	Dim B	Material	Part Number
N1A04	knurled nut	1/4-40	bright nickel	7.87 (.310)	2.03 (.080)	RoHS	1825622-1
N1B04		15/32-32		14.2 (.560)	3.56 (.140)	compliant	1825622-2
N4004	dress nut	1/4-40	matte nickel	9.52 (.375)	3.10 (.122)		1825623-1
N4304			bright nickel	3.10 (.122)	9.52 (.375)		1825623-2
N4504		15/32-32		4.32 (.170)	16.0 (.630)		1825623-3

Toggle switch, legend plate



SPA32

Constructed of .025 gauge brushed aluminum with a matte black enamel.

Easily readable and aesthetically attractive.

Product key	Description	Diameter/Thread	Finish	Dim A	Dim B	Material	Part Number
SPA32	On-Off	1/4"	clear lacquer	9.52 (.375)	22.4 (.880)	RoHS	2-1437628-4
SPA42		15/32"		17.3 (.680)	28.6 (1.12)	compliant	2-1437628-6

Boot Seals

Features

- One piece design, nut over molded "bonded" to silicone boot element and 'O' ring
- Silicone rubber eliminates cure dates
- Protects against moisture, oil, dirt, dust, most solvents and some acids
- Multiple colors available



Environmental specification

Operating temperature -65°C to 265°C

Material specifications

Boot material silicone rubber
Threaded nut material, and finish..... brass nut, black oxide finish

Product key

Typical product key

BT 1532 2 04

Type

B Full boot seals
BT Half boot seals *)
*)Half boot recommended for maintained switch's as full boot may have tendency to pull toggle back

Nut thread

1048 10-48 UNS 2-B
1440 1/4-40 UNS 2-B
1532 15/32-32 UNS 2-B

Color

0 black **2** red **8** gray

Material

04 RoHS compliant

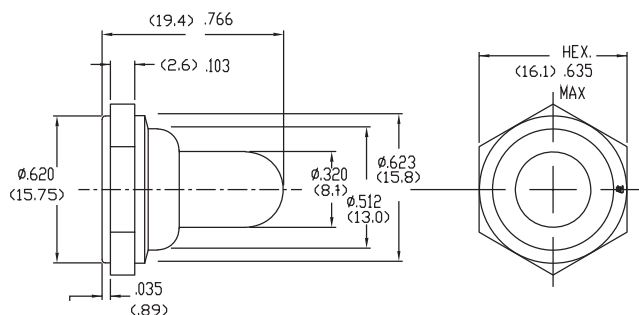
Full boots



1532 Series



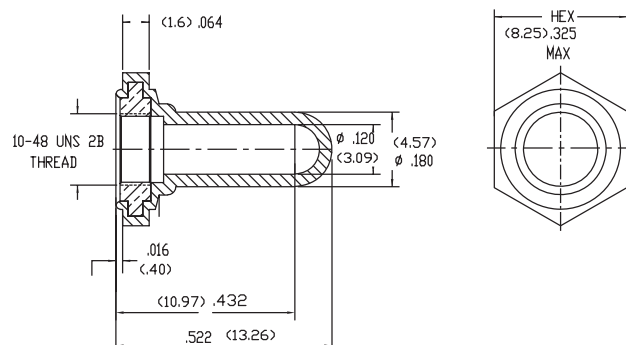
B1532004



1048 Series



B1048004

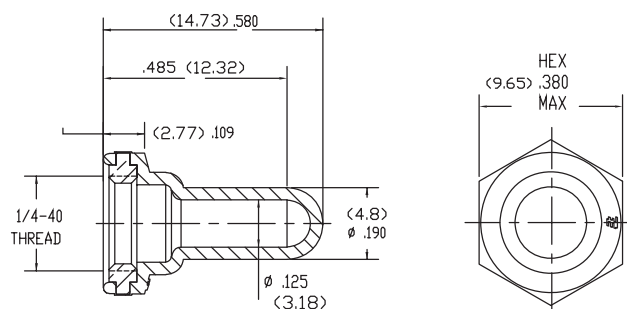


Boot Seals (Continued)

1440 Series



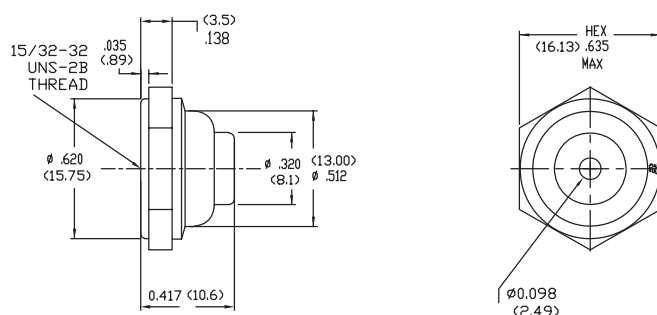
B1440004



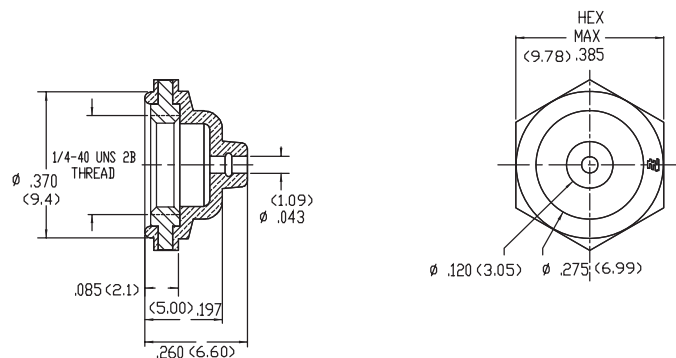
Half boots



1532 Series

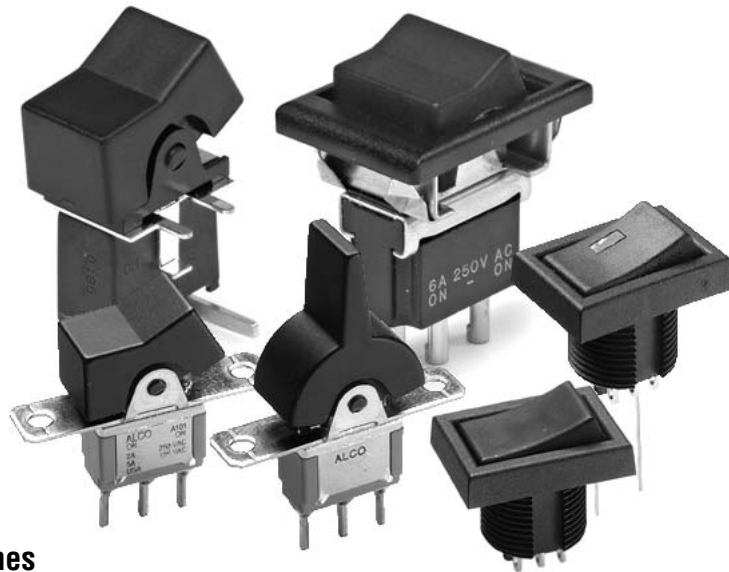


1440 Series



Product key	Used on switch type	Nut thread	Color	Material	Part Number
Full boot					
B1532004	MTG	15/32-32 UNS 2-B	black	RoHS compliant	1825602-1
B1532204			red		1825602-2
B1532804			gray		1825602-3
B1048004	TT Series	10-48 UNS 2-B	black		1825609-1
B1048204			red		1825609-2
B1048804			gray		1825609-3
B1440004	TT,MTA,Gemini	1/4-40 UNS 2-B	black		1825612-1
B1440204			red		1825612-2
B1440804			gray		1825612-3
Half boot					
BT1532004	MTG Series	15/32-32 UNS 2-B	black	RoHS compliant	1825600-1
BT1532204			red		1825600-2
BT1532804			gray		1825600-3
BT1440004	TT, MTA, Gemini	1/4-40 UNS 2-B	black		1825619-1

Product Range



Rocker & Paddle Switches

- **Rocker & Paddle Switches for Panel Mounting:**
F, TRD and Gemini Series
- **Rocker & Paddle Switches for PCB Mounting:**
Gemini Series

Main features:

- Sealed or unsealed versions
- Various switch functions
- Gold or silver contacts
- LED illumination available (also bi-color)
- Multiple rocker/paddle colors available
- Beveled frames available



F Series, Power Rocker, Panel Mounting, 6Apage F2



TRD Series, Rocker/Paddlepage F4



Gemini A Series Rocker/Paddlepage F7



Gemini AE Series Rocker/Paddlepage F17

F Series, Rocker/Paddle, Panel Mounting, 6A

Features

- Wide range switch functions available
- Terminals are gold-flashed to prevent oxidation and for ease of soldering



Typical performance characteristics

Number of poles 1 to 4 pole
Switch functions ON-ON, ON-(ON), ON-OFF-ON, ON-ON-ON,
ON-OFF-(ON), (ON)-OFF-(ON)
Contact rating 6 A @250 VAC, 6 A @125 VAC;
gold contact: 0,4 VA max 20 V AC/DC
Electrical life 25,000 to 50,000 cycles
Mechanical life 50,000 to 100,000 cycles
Contact resistance max 10 mOhm
Insulation resistance min 1,000 MOhm
Dielectric strength 1,000 VAC for 1 min
Actuation force max 19,6 N
Panel cut-out Ø 6,2 mm
Standards and specs UL, CSA

Environmental specification

Operating temperature -20 to +70°C
Storage temperature -20 to +70°C
Vibration resistance 1,5 mm 10-55 Hz
Shock resistance 50 g for 11±1 msec
Terminal strength 24,5 N

Material specifications

Contacts brass silver alloy finished
Toggle brass chromium plated
Terminals brass plate
Case phenol resin
Cover steel zinc plated
Seal rubber seal, insert molded rubber
RoHS compliance compliant

Product key

Typical product key

F L N 1 9 red 04

Type
F F Series power rocker switch

Model
L snap-in lever & rocker

Switch function & poles
1 pole **2 pole**
D ON-ON **N** ON-ON

Actuator
1 long rocker **2** small rocker

Terminal type
9 leadwire hooking type

Contact material
blank silver **G** gold

Rocker color
red red **black** black **white** white

Material
04 RoHS compliant

F Series, Rocker/Paddle, Panel Mounting, 6A (Continued)

Function



Function Poles

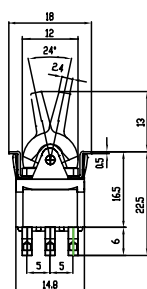
					
D	1	On	On	1-2	2-3
N	2	On	On	1-2, 4-5	2-3, 5-6

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Actuator



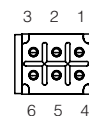
Code 1 long rocker



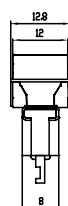
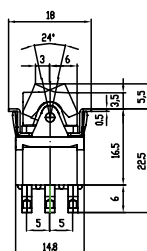
1 pole



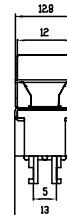
2 pole



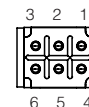
Code 2 small rocker



1 pole



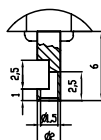
2 pole



Terminal

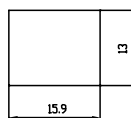


Leadwire hooking type



Mounting

Panel Cutout
thickness 1 to 2.5mm



Product key	Poles	Switch func.	Actuator	Act. Color	Terminal	Contacts	Material	Part Number
FLD19black04	1 pole	On - On	long rocker	black	leadwire	silver	RoHS	3-6437630-2
FLD29black04			small rocker		hooking		compliant	2-6437630-9
FLN19black04	2 poles		long rocker	black	type			3-6437630-7
FLN19red04				red				2-6437630-7
FLN19white04				white				2-6437630-6
FLN29black04			small rocker	black				2-6437630-5
FLN29red04				red				4-6437630-7
FLN29white04				white				2-6437630-3

TRD Series, Rocker/Paddle

Features

- Wire lug, quick connect, or PC terminals
- LED both single and bi-colored available
- Entire series epoxy sealed terminals



Typical performance characteristics

Contact configuration SPST, DPDT
Contact timing break-before-make
Contact rating max 3 A @ 125 VAC with silver Option 3, 0.4 VA @ 20 VDC gold option 1
Electrical life 2 Pos.: 20,000 cycles @ full rated 3 A load
80,000 cycles @ 0.4 VA
3 Pos.: 10,000 cycles @ full rated 3 A load
60,000 cycles @ 0.4 VA
Initial contact resistance max. 20 mOhms
Insulation resistance 1,000 MOhms min. @ 500 VDC
Dielectric strength 500 Volts rms @ sea level

Environmental specification

Operating temperature -20°C to +80°C
Storage temperature -45°C to +93°C
Solder heat resistance
wave solder capable to 265°C
hand solder max. 316°C for less than 5 seconds
with switch in the closed position
Seal epoxy sealed terminals

Material specifications

Contacts movable copper alloy w/silver inlay or gold plated
Actuator brass nickel plated
Terminals/fixed contacts copper alloy w/silver inlay or gold plated
Housing/beveled frame polyamide, black matte finish
Terminal seal epoxy
RoHS Directive 2002/95/EC compliant

Product key		Typical product key		TRD	1	3	D	1	0		WL		04
Type	TRD			Rocker/Paddle Switch									
Number of poles	1		single pole		2	double pole							
Rating	1		0.4 VA @20VDC (Gold)		3	3A @ 125VAC or 28VDC (Silver)							
Function	single pole				double pole								
	D	on-on		N	on-on								
	E	on-off-on		P	on-off-on								
	F	on-(on)		S	(on)-off-(on)								
	G	(on)-off-(on)											
Actuator	1		rocker		2	paddle							
Actuator color	0		black		2	red							
Terminals	WL		wire lug		QC	quick connect							
Mount	blank		11.91 mm (15/32")										
LED illumination	blank		none		LR	LED integral w/rocker (TRD1 only)							
LED color	2		red		5	green		25	bi-color red/green				
Material	blank		RoHS compliant		04	RoHS compliant							

TRD Series, Rocker/Paddle (Continued)

Function



Codes 1, 2 1 and 2 pole





1 Single pole

1-2-3

1-2-3

1-2-3

Function

D	On	None	On
E	On	Off	On
F	On	None	(On)
G	(On)	Off	(On)
Terminals connected	2 - 3	- - -	1 - 2





2 Double pole

1-2-3

1-2-3

1-2-3

Function

N	On	None	On
P	On	Off	On
S	(On)	Off	(On)
Terminals connected	2 - 3 5 - 6	- - - - - -	1 - 2 4 - 5

Off (On)

mechanical position, no electrical connection

None

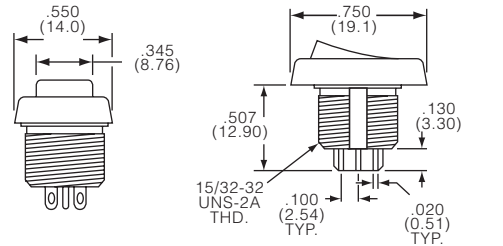
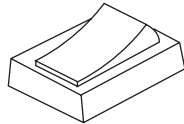
momentary mechanical position and electrical connection

no mechanical position

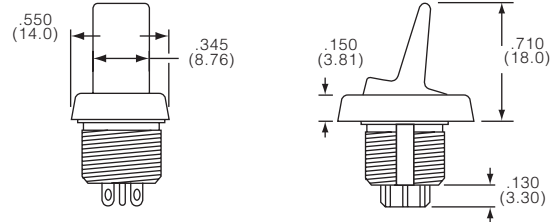
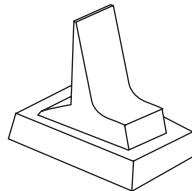
Actuator



1 rocker



2 paddle

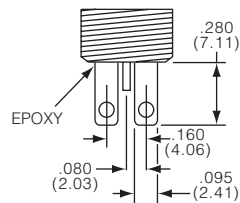


Terminal

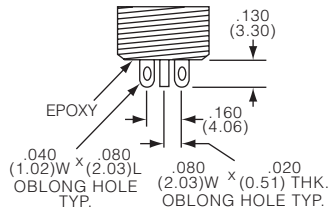


QC, WL

QC, quick connect



WL, wire lug

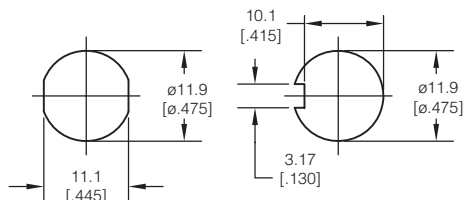


TRD Series, Rocker/Paddle (Continued)

Mount



blank 15/32" round hole



Standard TRD bushing will mount in any hole shown.
Recommended panel thickness: .030" to .250".
One hex nut, one internal tooth lock washer supplied

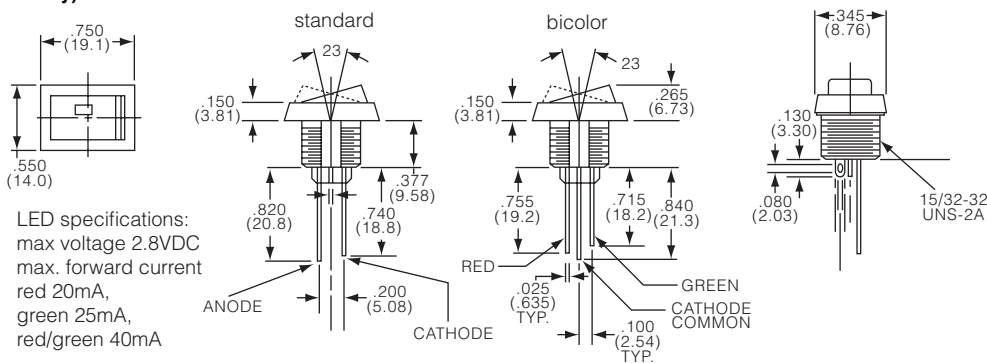
LED



LR integral w/rocker (TRD1 only)



TRD11D10WLLR



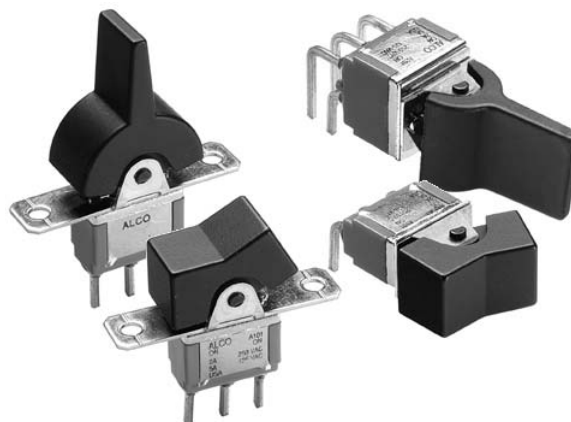
LED specifications:
max voltage 2.8VDC
max. forward current
red 20mA,
green 25mA,
red/green 40mA

Product key	Poles	Rating	Function	Actuator	Act. color	Terminals	LED	LED color	Material	Part Number						
TRD11D10WL	single pole	0.4 VA @ 20VDC gold	on-on	rocker	black	wire	none	none	RoHS compliant	4-1437595-1						
TRD11D10WLLR504			on-(on)			lug	integral	green		1825424-1						
TRD11F10QCLR204						(on)-off-(on)	quick c.			red	1825425-1					
TRD11F10WL			wire				none	none		5-1437595-2						
TRD11G10WL		lug					5-1437595-6									
TRD13D10QC04		3 A @ 125VAC or 28VDC silver	on-on			quick c.				1825422-1						
TRD13D10WL04			wire							1825420-1						
TRD13D10WLLR204						lug	integral	red		1825426-1						
TRD13D10WLLR2504							bi-color			1825426-2						
TRD13D10WLLR504							green			1825426-3						
TRD13E10WLLR204			on-off-on				red			1825426-4						
TRD13F10QC04			on-(on)			quick	none	none		1825422-2						
TRD13F10QCLR204			connect				integral	red		1825427-1						
TRD13F10WL04			wire				none	none		1825420-2						
TRD13G10WL04							lug				1825420-3					
TRD13G10WLLR204						integral	red			1825426-5						
TRD21N10WL	double		0.4 VA gold			on-on					none	none		1437596-3		
TRD21S10WL		(on)-off-(on)										1-1437596-4				
TRD23N10QC04		3 A @ 125VAC or 28VDC silver	on-on			quick c.					wire	lug				1825423-1
TRD23N10WL04																1825421-1
TRD23P10WL04			on-off-on													1825421-2
TRD23S10WL04			(on)-off-(on)													1825421-3

Gemini A Series Rocker/Paddle

Features

- Multiple actuator colors available
- G and Q contacts UL® recognition



Typical performance characteristics

Contact configuration SPST, DPST
Contact timing break before make
Contact rating max. B contacts: 0.4 VA @ 20 V max. AC or DC
 G contacts: 0.4 VA @ 20 V max. AC or DC or
 5 A @ 120 VAC or 28 VDC (resistive) or
 2 A @ 250 VAC (resistive)
 Q contacts: 5 A @ 120 VAC or 28 VDC (resistive) or
 2 A @ 250 VAC (resistive)
Electrical life. 6,000 cycles at rated load
Mechanical life. 40,000 cycles
Contact resistance. max. 10 mOhms initial @ 2-4 VDC, 100 mA
Insulation resistance min. 1,000 MOhms
Dielectric strength. 1,000 Vrms at sea level
Standards and specs. UL® recognition on G & Q contacts

Environmental specification

Operating temperature -30°C to 85°C
Storage temperature -40°C to 85°C
Solder heat resistance wave solder capable to 265°C

Material specifications

Contacts & terminals. B contacts: copper alloy w/ gold over nickel
 G contacts: copper alloy w/ silver
 Q contacts: copper alloy w/ gold over silver
Actuator phenolic
Base DAP® UL94 V-O
Frame. stainless steel
Seal. epoxy UL94 V-1
RoHS Directive 2002/95/EC compliant

Product key

Typical product key

A 1 01 J1 A Q 0 04

Type		A		Rocker/Paddle Switch	
Number of poles		1		single pole	2 double pole
Function		01		On-On	07 On-Off-(On) 13 On-On-(On)
		03		On-Off-On	08 On-(On)
		05		(On)-Off-(On)	11 On-On-On
Actuator		Rocker		Paddle	
		J1 small		J2 small	
		J3 large		J4 large	
		J50 snap-in		J60 snap-in	
		J51 snap-in w/beveled frame		J61 snap-in w/beveled frame	
		J52 snap-in w/beveled frame and LED		J62 snap-in w/beveled frame and LED	
Terminals		A right angle		V3 vertical with support bracket .620(15.75)	
		AV2 vertical R/A		Z wire lug	
		C P.C.		Z3 quick connect	
Contacts		B gold		G gold over silver	Q silver
Actuator color		0 black (std.)		3 orange	6 blue
		1 brown		4 yellow	8 gray
		2 red		5 green	9 white
Beveled frame color		0 black (std.)		3 orange	6 blue
		1 brown		4 yellow	8 gray
		2 red		5 green	9 white
Material		04 RoHS compliant			

Gemini A Series Rocker/Paddle (Continued)

Function



Codes 01, 03, 05, 07, 08, 11 and 13

Code	Positions			
01	2 positions	On	None	On
08		On	None	(On)
	Term. conn.	2 - 3	---	1 - 2
03	3 positions	On	Off	On
05		(On)	Off	(On)
07		On	Off	(On)
	Terminals connected	2 - 3 5 - 6	---	1 - 2 4 - 5
11	3 positions	On	On	On
13		On	On	(On)
	Terminals connected	2 - 3 5 - 6	1 - 2 5 - 6	1 - 2 4 - 5

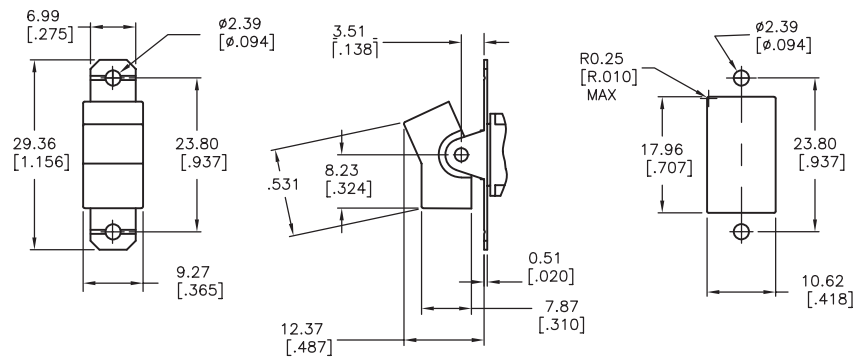
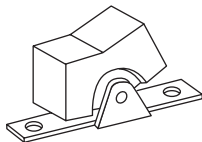
Off
(On)
None

mechanical position, no electrical connection
momentary mechanical position and electrical connection
no mechanical position

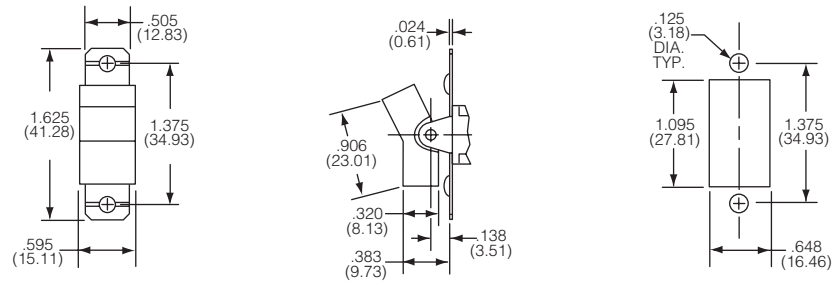
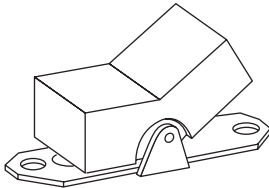
Actuator



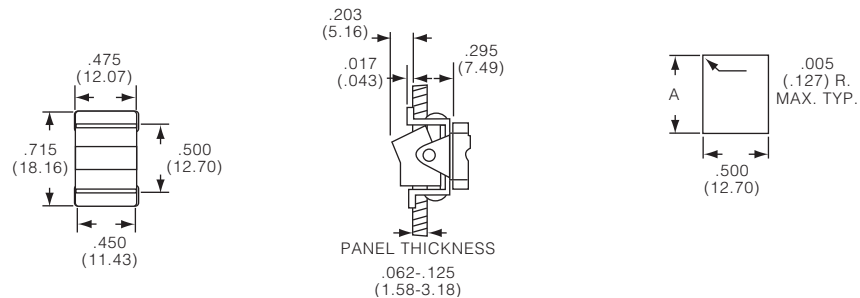
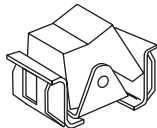
J1 rocker, small



J3 rocker, large

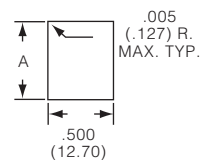
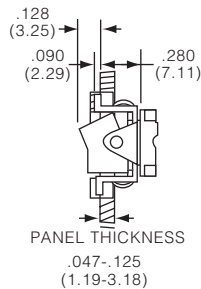
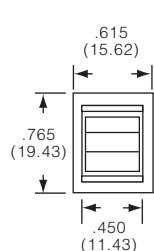
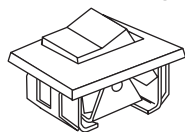


J50 rocker, snap-in

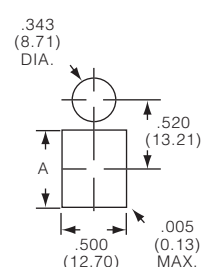
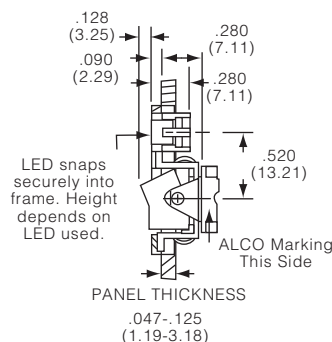
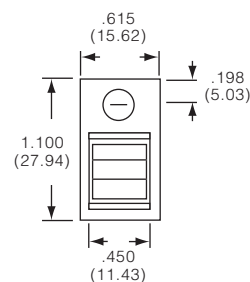
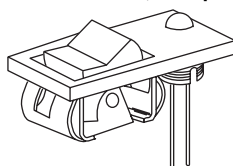


Gemini A Series Rocker/Paddle (Continued)

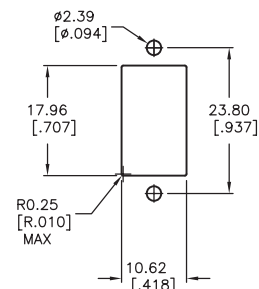
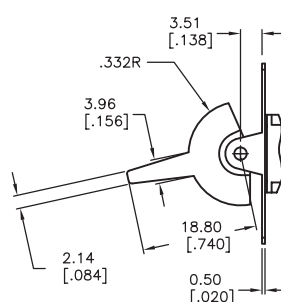
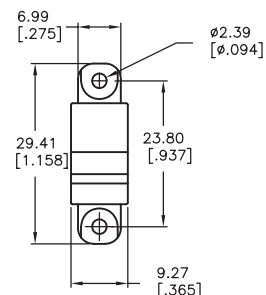
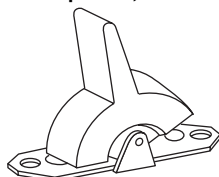
J51 rocker, snap-in w/beveled frame



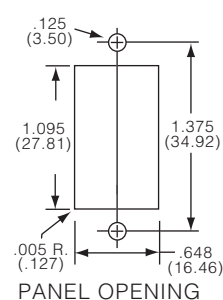
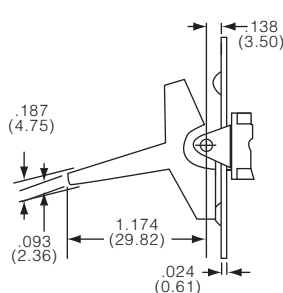
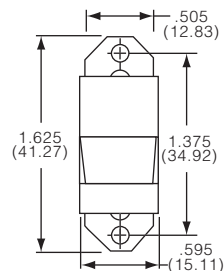
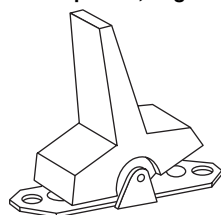
J52 rocker, snap-in, w/beveled frame and LED



J2 paddle, small

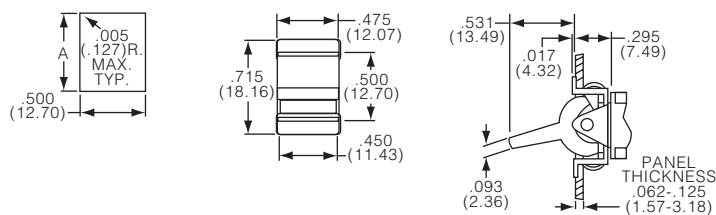
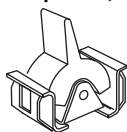


J4 paddle, large

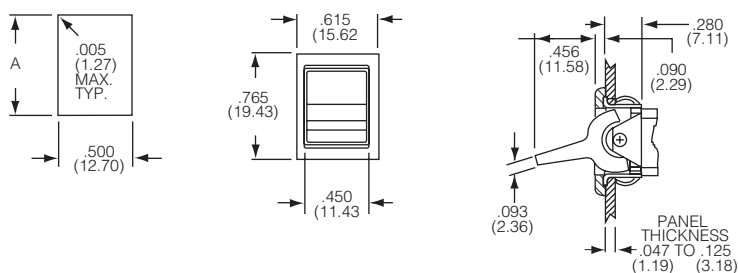
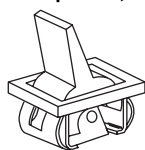


Gemini A Series Rocker/Paddle (Continued)

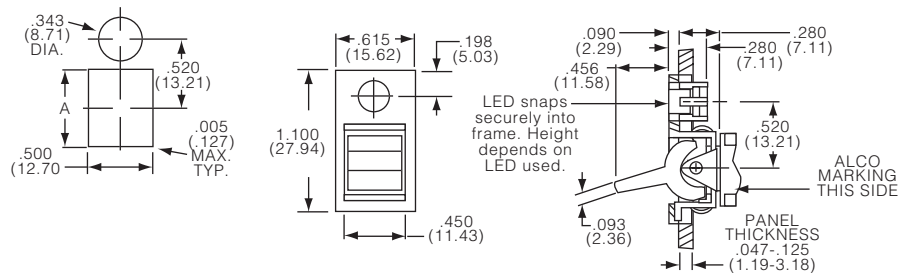
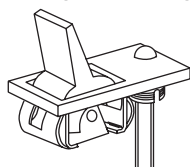
J60 paddle, snap-in



J61 paddle, snap-in w/beveled frame



J62 paddle, snap-in, w/beveled frame and LED



Terminals

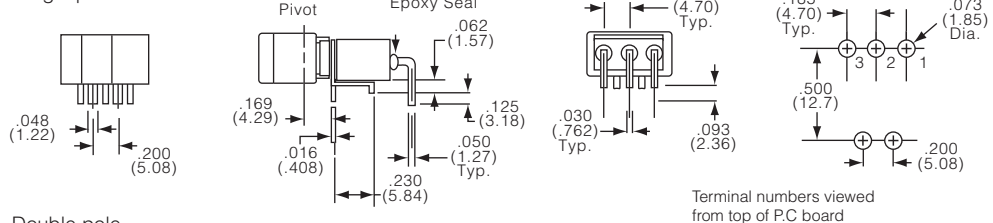


A right angle, rocker



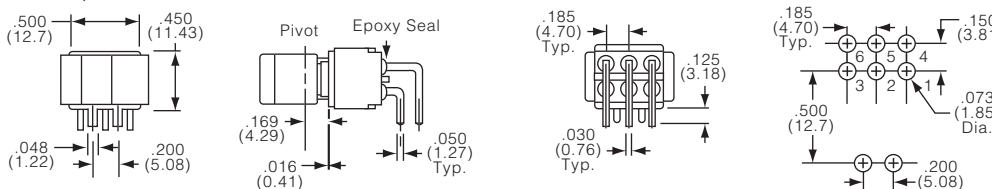
A101J1AQ0

Single pole



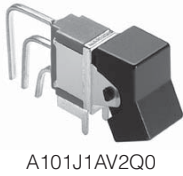
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Double pole

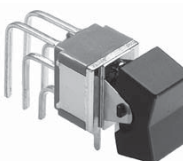
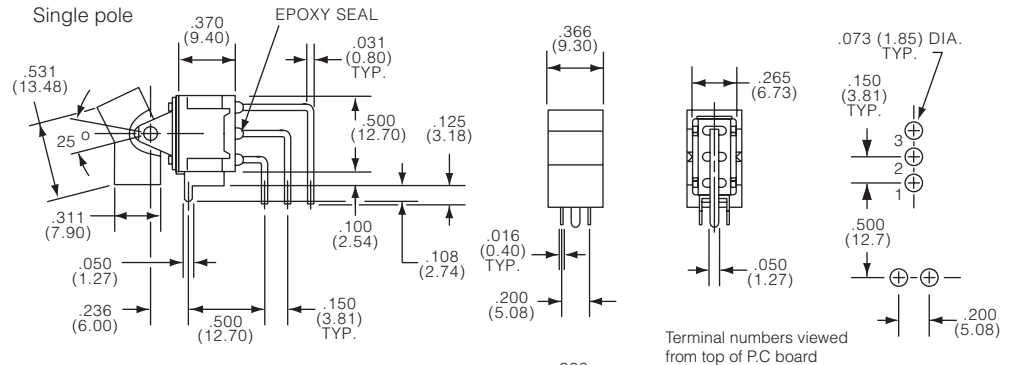


Gemini A Series Rocker/Paddle (Continued)

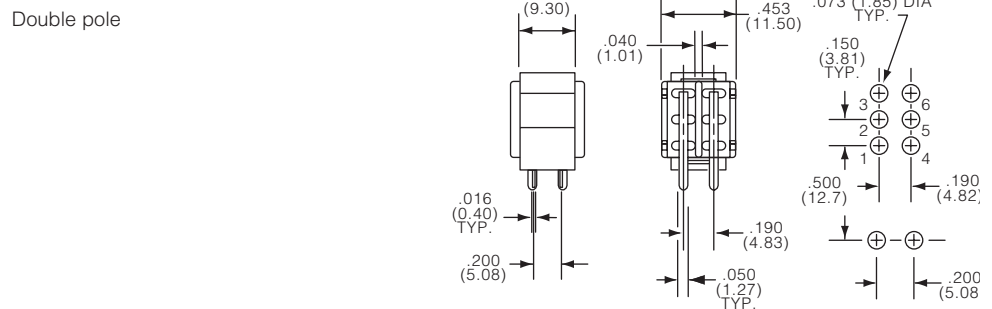
AV2 vertical, right angle, rocker



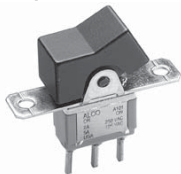
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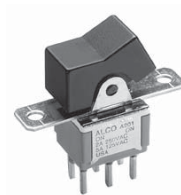
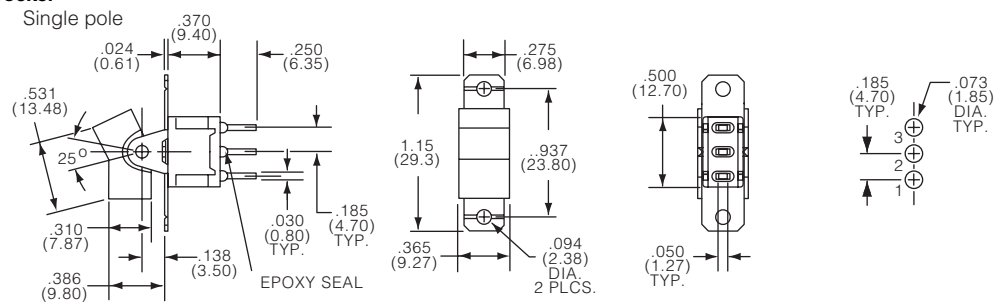
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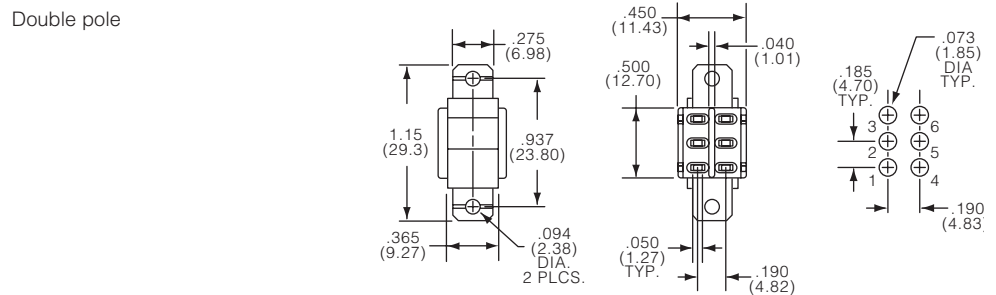
C printed circuit board, rocker



A101J1CQ0



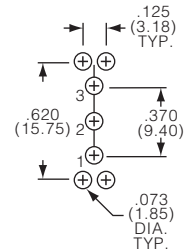
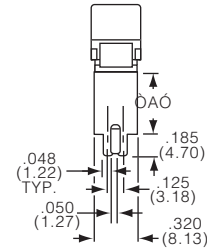
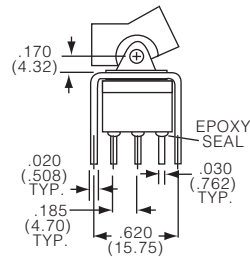
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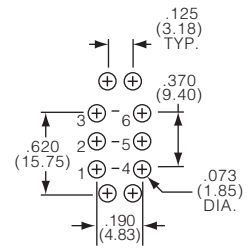
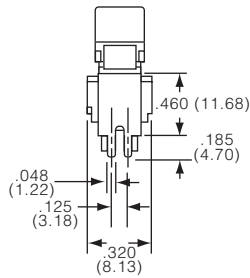
Gemini A Series Rocker/Paddle (Continued)

V3 vertical with support bracket, rocker

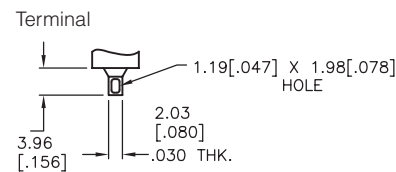
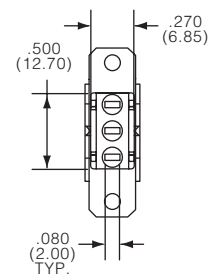
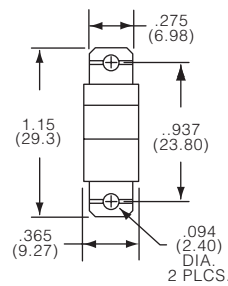
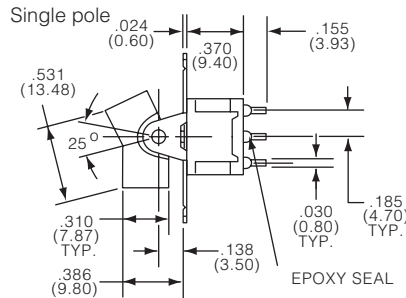
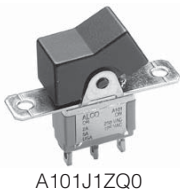
Single pole



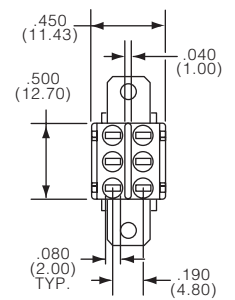
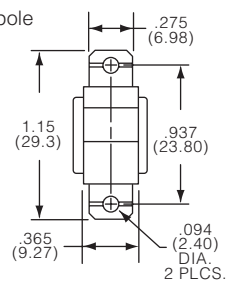
Double pole



Z wire lug, rocker



Double pole



Gemini A Series Rocker/Paddle (Continued)

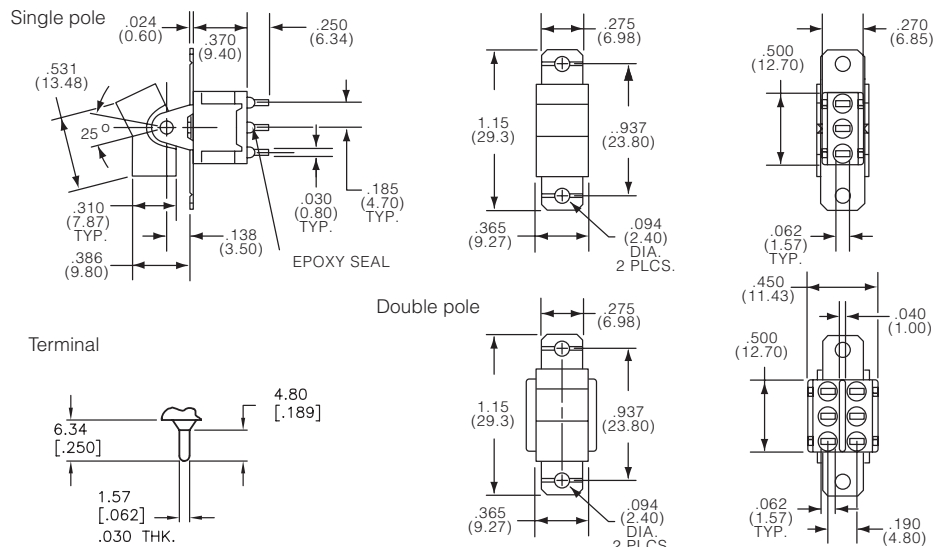
Z3 quick connect, rocker



A101J1ZQ0



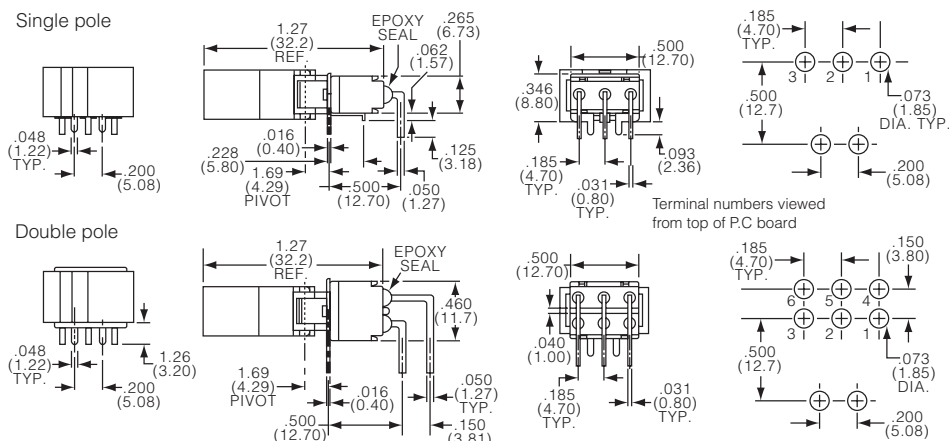
A201J1ZQ0



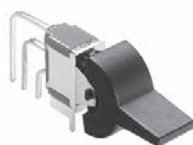
A right angle, paddle



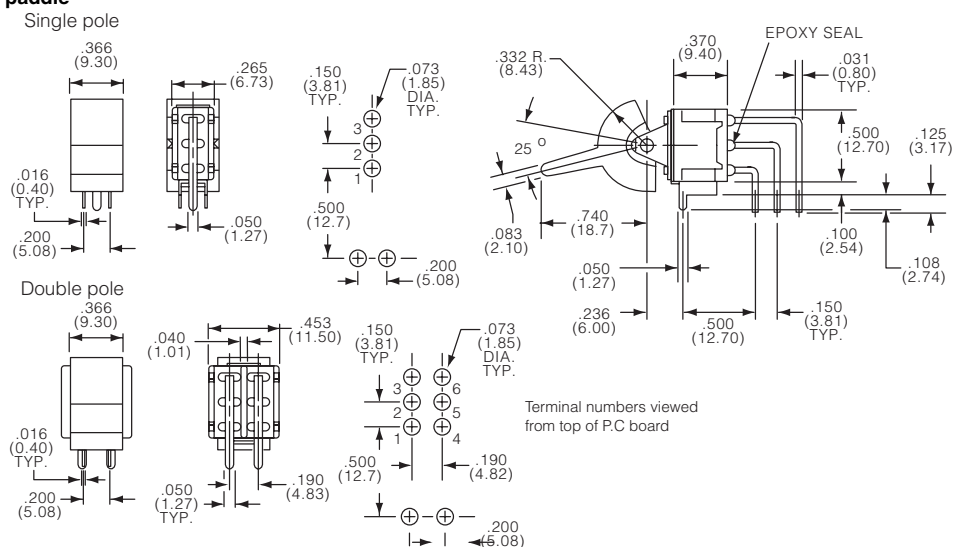
A201J2AQ0



AV2 vertical, right angle, paddle



A105J2AV2Q0



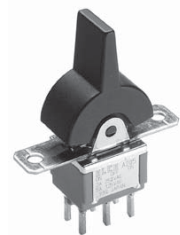
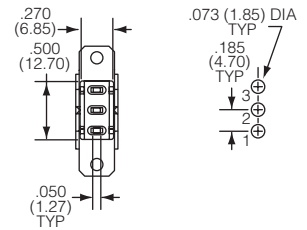
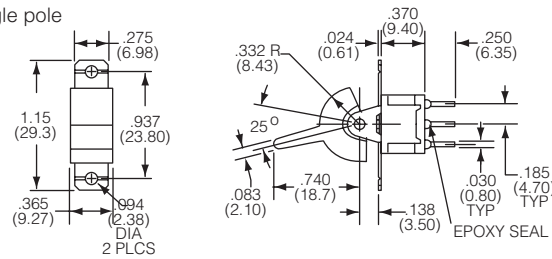
Gemini A Series Rocker/Paddle (Continued)

C printed circuit board, paddle



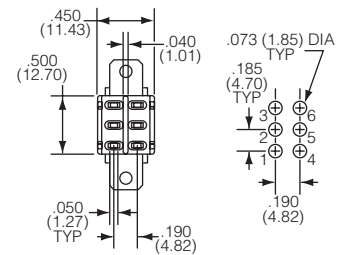
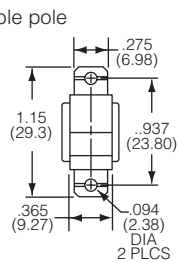
A105J2CQ0

Single pole



A205J2CQ0

Double pole



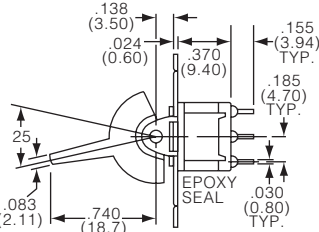
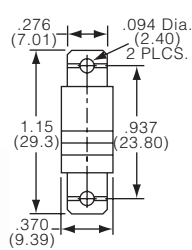
Z wire lug, paddle



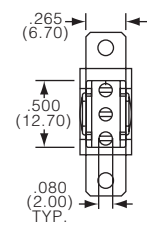
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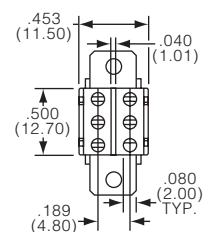
A201J2ZQ0



Single pole



Double pole



Gemini A Series Rocker/Paddle (Continued)

Product key	Poles	Function	Actuator	Terminals	Contacts	Act. color	Fr. color	Material	Part Number
A101J1AB004	single pole	On-On	small	right angle	gold	black	n/a	RoHS compliant	1571986-7
A101J1AQ004					silver	red			1571986-8
A101J1AQ204									1571986-9
A101J1AV2B004				vertical R/A	gold	black			1-1571986-0
A101J1AV2Q004					silver				1-1571986-1
A101J1CG004				P.C.	Au on Ag				1-1571986-2
A101J1CQ004					silver				1-1571986-3
A101J1V3B004				br. .620(15.75)	gold				1-1571986-4
A101J1V3Q004					silver				1-1571986-5
A101J1ZB004				wire lug	gold				1-1571986-6
A101J1ZQ004					silver				1-1571986-7
A101J2AV2Q004				vertical R/A					1-1571986-8
A101J2ZB904				wire lug	gold	white			1-1571986-9
A101J2ZQ004					silver	black			2-1571986-0
A101J3V3Q204			large	br. .620(15.75)		red			2-1571986-1
A101J3ZQ004				wire lug		black			2-1571986-2
A101J4ZQ004									2-1571986-3
A101J4ZQ804						gray			2-1571986-4
A101J50AV2Q004			snap-in	vertical R/A		black			2-1571986-5
A101J50V3Q004				br. .620(15.75)					2-1571986-6
A101J50V3Q204						red			2-1571986-7
A101J50ZQ004				wire lug		black			2-1571986-8
A101J51CB0004			snap-in, frame	P.C.	gold		black		2-1571986-9
A101J51Z3G0004				quick c.	Au on Ag				3-1571986-0
A101J51Z3Q0004					silver				3-1571986-1
A101J51ZB0004				wire lug	gold				3-1571986-3
A101J51ZQ0004					silver				3-1571986-4
A101J51ZQ2004						red			3-1571986-5
A101J61ZQ0004						black			3-1571986-6
A103J1AV2B004		On-Off-On	small	vertical R/A	gold		n/a		3-1571986-8
A103J1AV2Q004					silver				3-1571986-9
A103J1V3Q004				br. .620(15.75)					4-1571986-0
A103J1ZQ004				wire lug					4-1571986-1
A103J2CB004				P.C.	gold				4-1571986-2
A103J2ZQ004				wire lug	silver				4-1571986-3
A103J3ZQ004			large						4-1571986-4
A103J51ZQ0004			snap-in, frame				black		4-1571986-5
A103J61ZQ0004									4-1571986-6
A105J1AQ004		(On)-Off-(On)	small	right angle			n/a		4-1571986-9
A105J1AV2Q004				vertical R/A					5-1571986-0
A105J1CQ004				P.C.					5-1571986-1
A105J1V3B004				br. .620(15.75)	gold				5-1571986-2
A105J1ZQ004				wire lug	silver				5-1571986-3
A105J2AQ004				right angle					5-1571986-4
A105J2AV2Q004				vertical R/A					5-1571986-5
A105J2ZQ004				wire lug					5-1571986-6
A105J3CQ004			large	P.C.					5-1571986-7
A105J3CQ2004						red	black		5-1571986-8
A105J3ZQ004				wire lug		black	n/a		5-1571986-9
A105J4ZQ004									6-1571986-0
A105J51ZQ0004			snap-in, frame				black		6-1571986-1
A105J52ZQ2004			snap-in, f., LED			red			6-1571986-2
A105J61ZG0004			snap-in, frame		Au on Ag	black			6-1571986-3
A105J61ZQ0004					silver				6-1571986-4
A107J51ZQ0004		On-Off-(On)							6-1571986-5
A107J61ZQ0004									6-1571986-6
A108J1V3Q004		On-(On)	small	br. .620(15.75)			n/a		6-1571986-7
A108J1ZQ004				wire lug					6-1571986-8
A108J51ZQ0004			snap-in, frame				black		6-1571986-9
A108J61ZQ0004									7-1571986-0

Gemini A Series Rocker/Paddle (Continued)

Product key	Poles	Function	Actuator	Terminals	Contacts	Act. color	Fr. color	Material	Part Number
A201J1AQ004	double pole	On-On	small	right angle		black	n/a	RoHS compliant	1571987-2
A201J1AQ204						red			1571987-3
A201J1AV2Q004				vertical R/A		black			1571987-4
A201J1CQ004				P.C.					1571987-5
A201J1V3Q004				br. .620(15.75)					1571987-6
A201J1ZQ004				wire lug					1571987-7
A201J2CQ004				P.C.					1571987-8
A201J2ZQ004				wire lug					1571987-9
A201J3ZB004			large		gold				1-1571987-0
A201J3ZQ004					silver				1-1571987-1
A201J50AV2Q004			snap-in	vertical R/A					1-1571987-2
A201J50AV2Q804						gray			1-1571987-3
A201J50ZQ004				wire lug		black			1-1571987-4
A201J51ZQ0004			snap-in, frame				black		1-1571987-5
A201J51ZQ9904						white	white		1-1571987-7
A201J61Z3Q0004				quick c.		black	black		1-1571987-8
A201J61ZQ0004				wire lug					1-1571987-9
A203J1AQ004		On-Off-On	small	right angle			n/a		2-1571987-0
A203J1AV2Q004				vertical R/A					2-1571987-1
A203J1CQ204				P.C.		red			2-1571987-2
A203J1ZQ004				wire lug		black			2-1571987-4
A203J51ZQ0004			snap-in, frame				black		2-1571987-6
A203J61ZQ0004									2-1571987-7
A205J1AV2Q004		(On)-Off-(On)	small	vertical R/A			n/a		2-1571987-9
A205J1ZQ004				wire lug					3-1571987-0
A205J2CQ004				P.C.					3-1571987-1
A205J2ZQ004				wire lug					3-1571987-2
A205J51ZQ0004			snap-in, frame				black		3-1571987-3
A205J61ZQ0004									3-1571987-4
A207J1ZQ004		On-Off-(On)	small				n/a		3-1571987-5
A207J3ZQ004			large						3-1571987-6
A207J51ZQ0004			snap-in, frame				black		3-1571987-7
A207J61ZQ0004									3-1571987-8
A208J1V3Q004		On-(On)	small	br. .620(15.75)			n/a		4-1571987-0
A208J51ZQ0004			snap-in, frame	wire lug			black		4-1571987-1
A208J61ZQ0004									4-1571987-2
A211J51ZQ0004		On-On-On							4-1571987-3
A213J61ZQ0004		On-On-(On)							4-1571987-4

Rocker & Paddle Switches

- Multiple actuator colors available
- G and Q contacts UL® recognition
- Sealed to IP67 select series



Contact configuration	SPST, DPST
Contact timing	break-before-make
Contact rating max.	B contacts: 0.4 VA @ 20 V max. AC or DC G contacts: 0.4 VA @ 20 V max. AC or DC or 5 A @ 120 VAC or 28 VDC (resistive) or 2 A @ 250 VAC (resistive) Q contacts: 5 A @ 120 VAC or 28 VDC (resistive) or 2 A @ 250 VAC (resistive)
Electrical life	6,000 cycles at rated load
Mechanical life	40,000 cycles
Contact resistance	max. 10 mOhms initial @ 2-4 VDC, 100 mA
Insulation resistance	min. 1,000 MOhms
Dielectric strength	1,000 Vrms at sea level
Standards and specs.	UL® recognition on G & Q contacts

Environmental specification

Operating temperature	-30°C to 85°C
Storage temperature	-40°C to 85°C
Solder heat resistance	wave solder capable to 265°C

Material Specifications

Contacts & terminals	B contacts: copper alloy w/ gold over nickel
	G contacts: copper alloy w/ silver
	Q contacts: copper alloy w/ gold over silver
Actuator	phenolic
Case	nylon red, UL94 V-0
Support bracket	brass/ tin plated
Seal	epoxy UL94 V-1
O ring	pvc, black
Spring	music wire
Mounting bracket & rocker cap	nylon UL94 V-1
Retainer	stainless steel
RoHS Directive 2002/95/EC	compliant

Type	AE Rocker/Paddle Switches		
Number of poles			
1	single pole	2	double pole
Function			
01	On-On	07	On-Off-(On)
05	(On)-Off-(On)	08	On-(On)
Actuator			
Rocker	Paddle		
J1	standard	J2	standard
J50	small	J60	small
Terminals			
A	right angle	W	wire wrap .736 (18.7)
AV2	vertical R/A	W4	wire wrap 1.062 (27.00)
C	P.C.	Z	wire lug
V3, V4	vertical with support bracket	Z3	quick connect
Contacts			
B	gold	G	gold over silver
		Q	silver
Actuator color			
0	black (std.)	2	red
Material			
04	RoHS compliant		

Gemini AE Series Rocker/Paddle (Continued)

Function



Codes 01, 05, 07 and 08

Code	Positions			
01	2 positions	On	None	On
08		On	None	(On)
	Term. conn.	1 - 2	---	2 - 3
05	3 positions	(On)	Off	(On)
07		On	Off	(On)
	Terminals connected	1 - 2	---	2 - 3
		4 - 5	---	5 - 6

Off
(On)
None

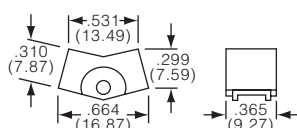
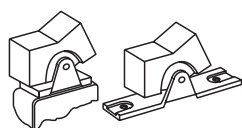
mechanical position, no electrical connection
momentary mechanical position and electrical connection
no mechanical position

Actuator



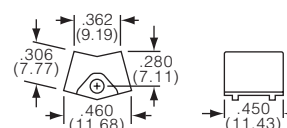
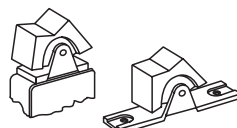
J1, J50 rockers standard and small rocker

J1 standard rocker



mounting provided with C or Z terminal types

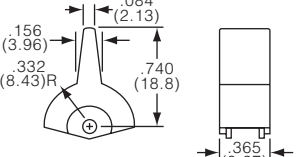
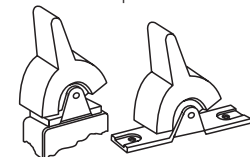
J50 small rocker



mounting provided with C or Z terminal types

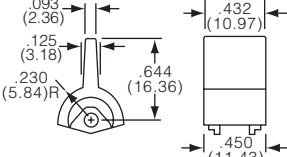
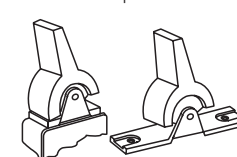
J2, J60 paddles standard and small paddle

J2 standard paddle



mounting provided with C or Z terminal types

J60 small paddle



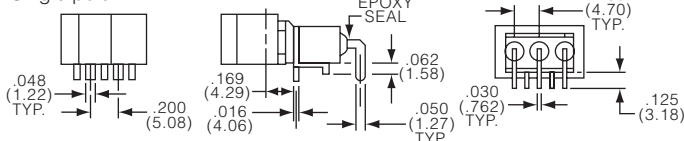
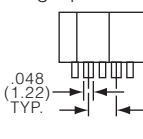
mounting provided with C or Z terminal types

Terminals

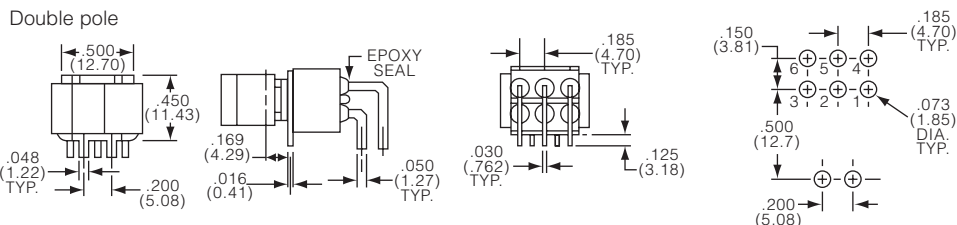
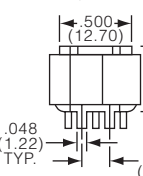


A right angle

Single pole

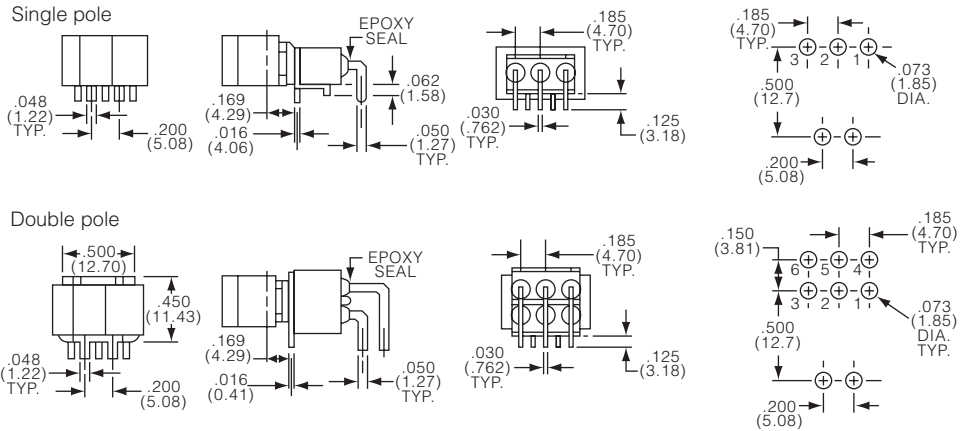


Double pole

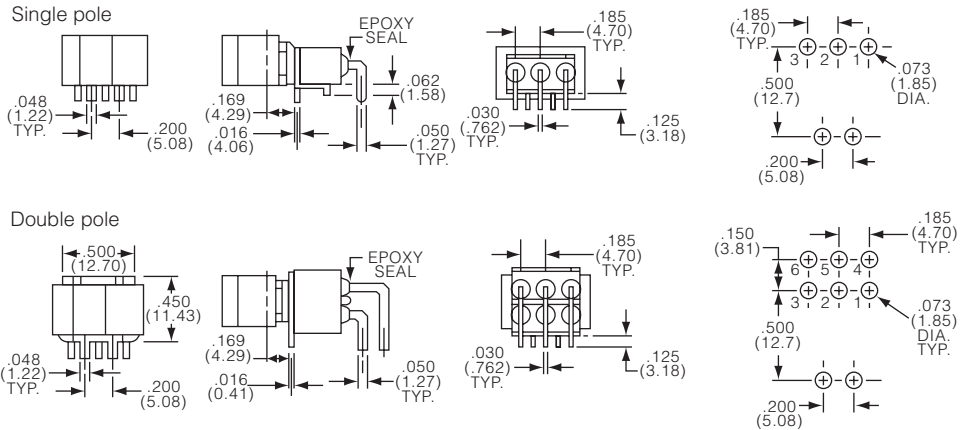


Gemini AE Series Rocker/Paddle (Continued)

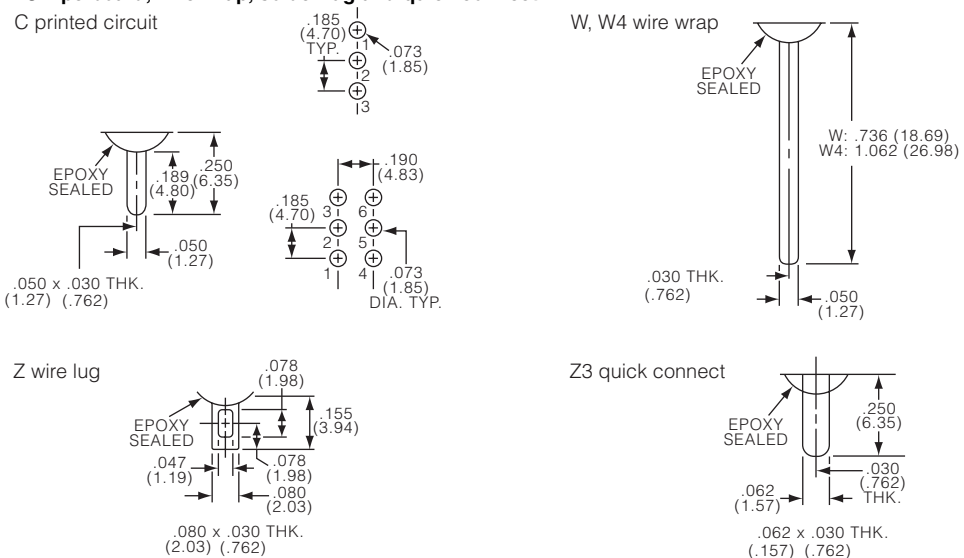
AV2 vertical right angle



V3, V4 vertical with support bracket



Codes C, W, W4, Z and Z3 rpc board, wire wrap, solder lug and quick connect



Gemini AE Series Rocker/Paddle (Continued)

Product key	Poles	Function	Actuator	Terminals	Contacts	Act. color	Material	Part Number
AE101J1AB004	single pole	On-On	standard	right angle	gold	black	RoHS compliant	1571988-1
AE101J1AQ004					silver			1571988-2
AE101J1AQ404						yellow		1571988-3
AE101J1AV2Q004				vertical R/A		black		1571988-4
AE101J1V3B004				br. .620(15.75)	gold			1571988-5
AE101J1V3Q004					silver			1571988-6
AE103J50V3B004		On-Off-On	small		gold			1571988-7
AE103J60V3Q204					silver	red		1571988-8
AE105J1AQ004		(On)-Off-(On)	standard	right angle		black		1571988-9
AE105J1V3B004				br. .620(15.75)	gold			1-1571988-0
AE105J1ZB004				wire lug				1-1571988-1
AE105J60V3B004			small	br. .620(15.75)				1-1571988-2
AE107J1AQ004		On-Off-(On)	standard	right angle	silver			1-1571988-3
AE107J1ZQ004				wire lug				1-1571988-4
AE108J1ZQ004		On-(On)						1-1571988-5
AE108J60V3B004			small	br. .620(15.75)	gold			1-1571988-6
AE201J1AQ004	double pole	On-On	standard	right angle	silver			1571989-1
AE201J1AV2Q004				vertical R/A				1571989-2
AE201J1V3B004				br. .620(15.75)	gold			1571989-3
AE201J2AQ204				right angle	silver	red		1571989-4
AE203J1AQ004		On-Off-On				black		1571989-5
AE205J50V3B004		(On)-Off-(On)	small	br. .620(15.75)	gold			1571989-6
AE205J60V3B004								1571989-7
AE208J50V3B004		On-(On)						1571989-8

Product Range



Power Rocker Switches

- **Single Pole Power Rocker Switches:**
PRB, PRG and PRH Series
- **Single and Double Pole Power Rocker Switches:**
PRA and PRC Series
- **Double Pole Power Rocker Switches:**
PRD, PRE and PRF Series

Main features:

- Wide range of switch functions
- Dust resistant, up to IP66 sealing (PRC Series)
- Optional splashproof cover
- Many different panel cut-out sizes
- Easy snap-in mounting
- Full illuminated rocker or lamp window option
- Different colors
- Wide range of marking options
- Approvals available: VDE, ENEC, UL, CSA



PRAS Series, Power Rocker, 13.0 x 19.2mm Panel Cut-outpage G3



PRAD Series, Power Rocker, 13.0 x 19.2mm Panel Cut-outpage G6

Product Range (Continued)



PRB Series, Power Rocker, 13.8 x 27.6mm Panel Cut-outpage G8



PRC Series, Power Rocker, 21.2 x 36.6mm Panel Cut-out, IP66page G11



PRD Series, Power Rocker, 25.4 x 27.6mm Panel Cut-outpage G14



PRE Series, Power Rocker, 19.4 x 22.2mm Panel Cut-outpage G16



PRF Series, Power Rocker, 22.2 x 30.2mm Panel Cut-outpage G18



PRG Series, Power Rocker, 11.2 x 30.2mm Panel Cut-outpage G20



PRH Series, Power Rocker, 7.0 x 19.2mm Panel Cut-outpage G22

PRAS Series, Power Rocker, 13.0 x 19.2mm Panel Cut-out

Features

- Easy snap-in mounting
- Single pole
- Full illuminated rocker option
- Lamp window illuminated option
- Different colors
- Wide range of marking options and functions available
- Degree of protection: IP40
- Optional splashproof cover



Typical performance characteristics

Number of poles	1
Switch functions	ON-OFF, (ON)-OFF, ON-ON
Contact rating	UL: 16 A @ 125 VAC, 1/3hp/10 A @ 250 VAC, 1/2 hp VDE/ENEC: 10 A @ 125 VAC, 6(3) A @ 250 VAC
Electrical life	>6,000 cycles
Mechanical life	>100,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	>1,000 VAC for 1 min
Actuation force	1.4 N - 6.3 N
Panel cut-out	13.0 x 19.2 mm
Standards and specs	UL, VDE / ENEC
Approvals	UL-E46765; VDE/ENEC-40006757

Environmental specification

Operating temperature	-20 to +85 °C
Vibration resistance	1,5 mm 10-55 Hz
Terminal strength	24.5 N - 66.6 N

Material specifications

Contacts	silver-tin oxide
Terminals	copper alloy
Actuator	nylon 66 / PC (illuminated)
Housing & frame	nylon 66
Plunger	nickel plated copper alloy
RoHS compliance	compliant

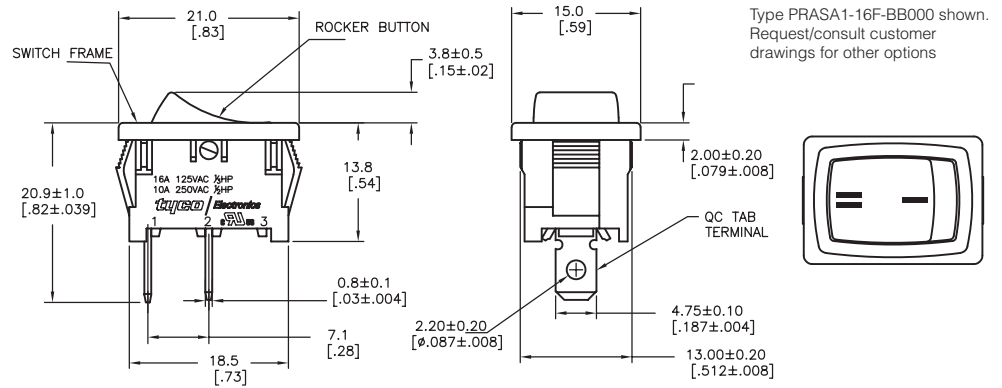
Product key		Typical product key		PR	A	S	A1	-16	F	-B	B	0	0	0	
Type															
PR		Power rocker switch													
Panel cut-out size															
A		13.0 x 19.2 mm													
Number of poles															
S		single pole													
Switch function															
A1		ON-OFF; opaque, single-color rocker													
A2		ON-OFF; opaque, dual-color rocker													
A3		(ON)-OFF; opaque, single-color rocker													
A4		ON-(OFF); opaque, single-color rocker													
B1		ON-OFF; transparent, 100-125 V lamp													
B2		ON-OFF; opaque, with 100-125 V lamp													
B3		ON-OFF; transparent, 200-250 V lamp													
B4		ON-OFF; opaque, with 200-250 V lamp													
C1		ON-OFF; opaque, LED-illuminated rocker													
D1		ON-ON; opaque, single-color rocker													
D2		ON-(ON); opaque, single-color rocker													
D3		ON-OFF-ON; opaque, single-color rocker													
D4		ON-OFF-(ON); opaque, single-color rocker													
D5		(ON)-OFF-(ON); opaque, single-color rocker													
Power rating															
16		16 A @ 125 VAC 1/3 hp, 10 A @ 250 VAC 1/2 hp; 10 A @ 125 VAC, 6(3) A @ 250 VAC													
Terminal type															
F		quick connect		L		solder lug		R		right angle solder					
Frame color															
B		black		W		white									
Rocker color															
A		amber		C		clear		R		red					
B		black		G		green		Y		yellow					
2nd Rocker color															
0		none		A		amber		C		clear		R		red	
				B		black		G		green		W		white	
Legend pattern															
0		none		C		O I		F		- O =		J		O-	
A		•		D		- =		G		I O II		K		< O >	
B		O -		E		I II		H		ON OFF					
Legend color															
0		none		B		black		G		green		R		red	
												W		white	

PRAS Series, Power Rocker, 13.0 x 19.2mm Panel Cut-out (Continued)

Number of poles



S single pole



Function



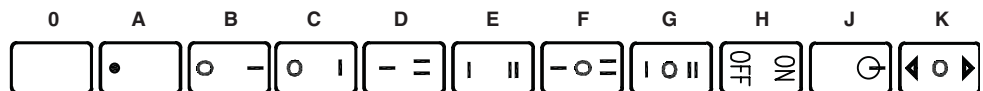
Function	▲	▲	▲	▲	▲	▲
A1	On	None	Off	1-2	-	-
A2	On	None	Off	1-2	-	-
A3	(On)	None	Off	1-2	-	-
A4	On	None	(Off)	1-2	-	-
B1	On	None	Off	1-2	-	-
B2	On	None	Off	1-2	-	-
B3	On	None	Off	1-2	-	-
B4	On	None	Off	1-2	-	-
C1	On	None	Off	1-2	-	-
D1	On	None	On	1-2	-	2-3
D2	On	None	(On)	1-2	-	2-3
D3	On	Off	On	1-2	Off	2-3
D4	On	Off	(On)	1-2	Off	2-3
D5	(On)	Off	(On)	1-2	Off	2-3

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Legend Pattern



Codes 0, A, B, C, D, E, F, G, H, J, K



PRAS Series, Power Rocker, 13.0 x 19.2mm Panel Cut-out (Continued)

Product key	Panel cut-out	Poles	Switch function	Power rating	Terminal	Frame	Rocker color	2nd R. color	Legend	Legend color	Part Number
PRASA1-16F-BB000	13.0	single	ON-NONE-OFF	16 A	quick	black	black	none	none	none	1571076-9
PRASA1-16F-BB0BW	x	pole		@	connect				O –	white	1-1571076-0
PRASA1-16F-BB0CW	19.2 mm			125 VAC	4.8 (.187)				O I		1-1571076-1
PRASA1-16F-BB0HW				10 A					ON OFF		2-1571076-0
PRASA1-16F-BR000				@			red		none	none	6-1571076-5
PRASA1-16L-BB000				250 VAC	solder		black		none		1-1571076-2
PRASA1-16L-BB0BW					lug				O –	white	1-1571076-3
PRASA1-16L-BB0CW									O I		1-1571076-4
PRASA1-16L-BR000							red		none	none	6-1571076-6
PRASA1-16L-BR0BW									O –	white	3-1571076-0
PRASA2-16F-BBRBR					quick		black	red	O –	red	6-1571076-7
PRASA3-16F-BB0JW			(ON)-NONE-OFF		connect			none	O –	white	2-1571076-1
PRASB1-16F-BR000			ON-NONE-OFF		4.8 (.187)		red		none	none	5-1571078-2
PRASB2-16F-BBR00							black	red	none		1571078-4
PRASC1-16F-BBR00									none		1571083-2
PRASD1-16F-BB000			ON-NONE-ON					none	none		1571079-4
PRASD1-16F-BB0DW									– =	white	1571079-5
PRASD1-16F-BB0EW									I II		1571079-6
PRASD2-16F-BB000			ON-NONE-(ON)						none	none	1-1571079-0
PRASD2-16F-BB0DW									– =	white	1-1571079-1
PRASD2-16F-BB0EW									I II		1-1571079-2
PRASD3-16F-BB000			ON-OFF-ON						none	none	1571079-7
PRASD3-16F-BB0FW									– O =	white	1571079-8
PRASD3-16F-BB0GW									I O II		1571079-9
PRASD4-16F-BB000			ON-OFF-(ON)						none	none	1-1571079-3
PRASD4-16F-BB0FW									– O =	white	1-1571079-4
PRASD4-16F-BB0GW									I O II		1-1571079-5
PRASD5-16F-BB0KW			(ON)-OFF-(ON)						< O >		1-1571079-6
splashproof cover											5-1571786-1

Preferred parts in bold print

PRAD Series, Power Rocker, 13.0 x 19.2mm Panel Cut-out

Features

- Easy snap-in mounting
- Double pole
- Different colors
- Wide range of marking options and functions available
- Degree of protection: IP40
- Optional splashproof cover



Typical performance characteristics

Number of poles	2
Switch functions	ON-(OFF), ON (ON), ON-OFF, (ON)-OFF, ON-ON (ON)-OFF-(ON), ON-OFF-ON, ON-OFF-(ON)
Contact rating	12 A @125 VAC, 6 A @ 250 VAC
Electrical life	>6,000 cycles
Mechanical life	>100,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	>1,000 VAC for 1 min
Actuation force	3.9 N - 13.7 N
Panel cut-out	13.0 x 19.2 mm
Standards and specs	UL
Approvals	UL-E46765

Environmental specification

Operating temperature	-20 to +85 °C
Vibration resistance	1,5 mm 10-55 Hz
Terminal strength	66.6 N

Material specifications

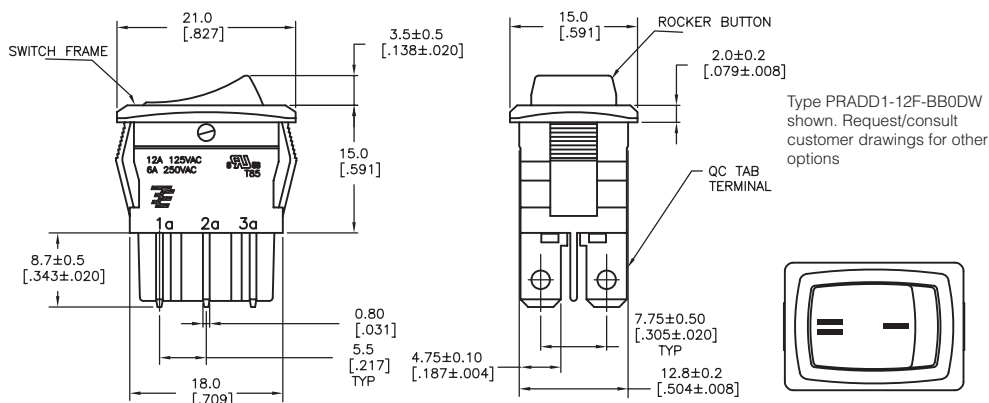
Contacts	copper alloy
Terminals	copper alloy
Actuator	nylon 66
Housing & frame	nylon 66
Plunger	nickel plated brass
RoHS compliance	compliant

Product key		Typical product key																										
Type	PR	Power rocker switch	PR	A	D	A1	-12	F	-B	B	0	0	0															
Panel cut-out size		A	13.0 x 19.2 mm																									
Number of poles		D	double pole																									
Switch function		A1	ON-OFF; opaque, single-color rocker	D2	ON-(ON); opaque, single-color rocker	A3	(ON)-OFF; opaque, single-color rocker	D3	ON-OFF-ON; opaque, single-color rocker	A4	ON-(OFF); opaque, single-color rocker	D4	ON-OFF-(ON); opaque, single-color rocker	D1	ON-ON; opaque, single-color rocker	D5	(ON)-OFF-(ON); opaque, single-color rocker											
Power rating		12	12 A @ 125 VAC, 6 A @ 250 VAC																									
Terminal type		F	quick connect																									
Frame color		B	black	W	white																							
Rocker color		B	black	R	red	W	white								G	green	Y	yellow										
2nd Rocker color		0	none																									
Legend pattern		0	none	C	O I	F	– O =										A	•	D	– =	G	I O II	B	O –	E	I II	H	ON OFF
Legend color		0	none	B	black	G	green	R	red	W	white																	

PRAD Series, Power Rocker, 13.0 x 19.2mm Panel Cut-out (Continued)

Number of poles

D double pole

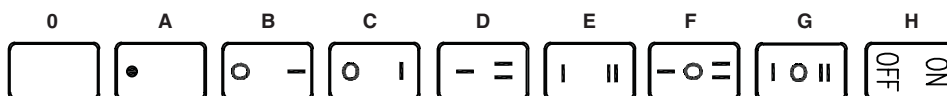


Function

Function						
A1	On	None	Off	1a-2a, 1b-2b	-	-
A3	(On)	None	Off	1a-2a, 1b-2b	-	-
A4	On	None	(Off)	1a-2a, 1b-2b	-	-
D1	On	None	On	1a-2a, 1b-2b	-	2a-3a, 2b-3b
D2	On	None	(On)	1a-2a, 1b-2b	-	2a-3a, 2b-3b
D3	On	Off	On	1a-2a, 1b-2b	Off	2a-3a, 2b-3b
D4	On	Off	(On)	1a-2a, 1b-2b	Off	2a-3a, 2b-3b
D5	(On)	Off	(On)	1a-2a, 1b-2b	Off	2a-3a, 2b-3b

Off	indicates a mechanical position with no electrical connection
(On)	indicates momentary connection
None	indicates no mechanical position

Legend Pattern

Codes 0, A, B, C, D, E, F, G, H

Product key	Panel cut-out	Poles	Switch function	Power rating	Terminal	Frame	Rocker color	2nd R. color	Legend	Legend color	Part Number
PRADA1-12F-BB000	13.0	double	ON-NONE-OFF	12 A	quick	black	black	none	none	none	1977068-1
PRADA1-12F-BB0BW	x	pole		@	connect				O -	white	1977068-2
PRADA1-12F-BB0CW	19.2 mm			125 VAC	4.8 (.187)				O I		1977068-3
PRADA1-12F-BR000				6 A			red		none	none	1977068-4
PRADA1-12F-BR0BW				@					O -	white	1977068-5
PRADA1-12F-BB0HW				250 VAC			black		ON OFF		1977068-6
PRADD1-12F-BB000			ON-NONE-ON						none	none	1977069-1
PRADD1-12F-BB0DW									- =	white	1977069-2
PRADD1-12F-BB0EW									I II		1977069-3
PRADD3-12F-BB000			ON-OFF-ON						none	none	1977069-4
PRADD3-12F-BB0FW									- O =	white	1977069-5
PRADD3-12F-BB0GW									I O II		1977069-6
PRADD2-12F-BB000			ON-NONE-(ON)						none	none	1977069-7
PRADD2-12F-BB0DW									- =	white	1977069-8
PRADD2-12F-BB0EW									I II		1977069-9
PRADD4-12F-BB000			ON-OFF-(ON)						none	none	1-1977069-0
PRADD4-12F-BB0FW									- O =	white	1-1977069-1
PRADD4-12F-BB0GW									I O II		1-1977069-2
PRADD5-12F-BB000			(ON)-OFF-(ON)						none	none	1-1977069-3
splashproof cover											5-1571786-

Preferred parts in bold print

PRB Series, Power Rocker, 13.8 x 27.6mm Panel Cut-out

Features

- Easy snap-in mounting
- Single pole
- Full illuminated rocker option
- Lamp window illuminated option
- Different colors
- Wide range of marking options and functions available
- Degree of protection: IP40



Typical performance characteristics

Number of poles 1
 Switch functions ON-OFF, (ON)-OFF, ON-ON
 ON-(ON), ON-OFF-ON, (ON)-OFF-(ON)
 Contact rating UL: 16 A @ 125 VAC, 1/3hp/10 A @ 250 VAC, 1/2 hp
 VDE/ENEC: 10(4) A @ 250 VAC
 Electrical life >6,000 cycles
 Mechanical life >100,000 cycles
 Contact resistance max 50 mOhm
 Insulation resistance min 100 MOhm
 Dielectric strength >1,000 VAC for 1 min
 Actuation force 2,9 N - 6,8 N
 Panel cut-out 13,8 x 27,6 mm
 Standards and specs VDE/ENEC
 Approvals UL-E46765, VDE/ENEC-40020315

Environmental specification

Operating temperature -20 to +85°C
 Vibration resistance 1,5 mm 10-55 Hz
 Terminal strength 24.5 N to 98.0 N

Material specifications

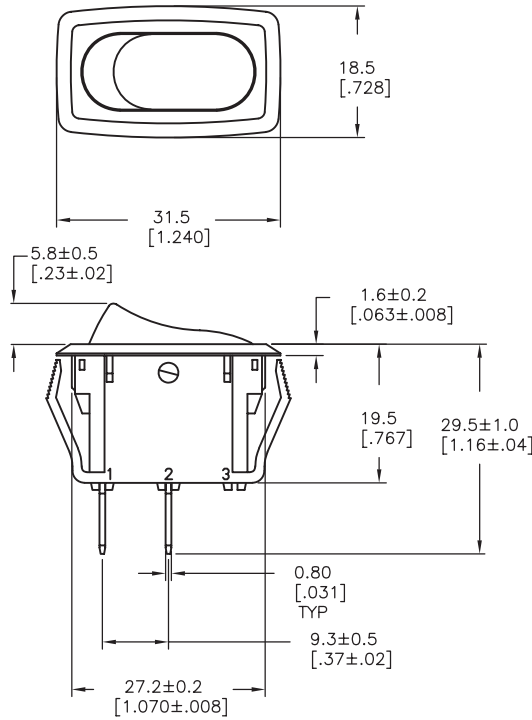
Contacts silver-tin oxide
 Terminals silver plated copper alloy
 Actuator nylon 66 / PC (illuminated)
 Housing & frame nylon 66
 Plunger nickel plated copper alloy
 RoHS compliance compliant

Product key		Typical product key											PR	B	D	A1	-16	F	-B	B	0	0	0																																	
Type																																																								
PR		Power rocker switch																																																						
Panel cut-out size																																																								
B		13.8 x 27.6 mm																																																						
Number of poles																																																								
S		single pole																																																						
Switch function																																																								
A1		ON-OFF; opaque, single-color rocker											C2 (ON)-OFF; opaque, LED-illuminated rocker																																											
A2		ON-OFF; opaque, dual-color rocker											D1 ON-ON; opaque, single-color rocker																																											
B1		ON-OFF; transparent, 100-125 V lamp											D2 ON-(ON); opaque, single-color rocker																																											
B3		ON-OFF; transparent, 200-250 V lamp											D3 ON-OFF-ON; opaque, single-color rocker																																											
C1		ON-OFF; opaque, LED-illuminated rocker											D5 (ON)-OFF-(ON); opaque, single-color rocker																																											
Power rating																																																								
16		16 A @ 125 VAC, 1/3 hp; 10 A @ 250 VAC, 1/2 hp; 10(4) A @ 250 VAC																																																						
Terminal type																																																								
F		quick connect											L solder lug																																											
Frame color																																																								
B		black											W white																																											
Rocker color																																																								
A		amber											C clear											R red																																
B		black											G green											W white																																
2nd Rocker color																																																								
0		none											A amber											C clear											R red																					
													B black											G green											W white																					
Legend pattern																																																								
0		none											C O I											F – O =																																
A		•											D – =											G I O II																																
B		O –											E I II											H ON OFF																																
Legend color																																																								
0		none											B black											G green											R red											W white										

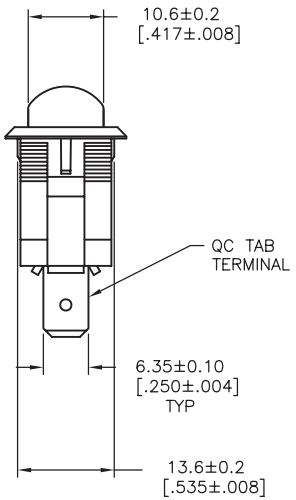
PRB Series, Power Rocker, 13.8 x 27.6mm Panel Cut-out (Continued)

Panel cutout size

B 13.8 x 27.6 mm panel cutout



Type PRBSA1-16F-BB000 shown.
Request/consult customer
drawings for other options



Function



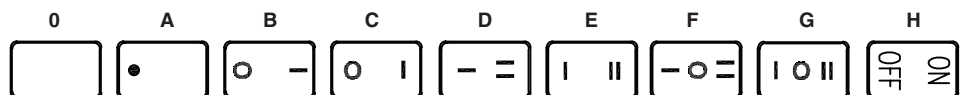
Function	On	None	Off	1-2	-	-
A1	On	None	Off	1-2	-	-
A2	On	None	Off	1-2	-	-
B1	On	None	Off	1-2	-	-
B3	On	None	Off	1-2	-	-
C1	On	None	Off	1-2	-	-
C2	(On)	None	Off	1-2	-	-
D1	On	None	On	1-2	-	2-3
D2	On	None	(On)	1-2	-	2-3
D3	On	Off	On	1-2	Off	2-3
D5	(On)	Off	(On)	1-2	Off	2-3

Off indicates a mechanical position with
no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Legend Pattern



Codes 0, A, B, C, D, E, F, G, H



PRB Series, Power Rocker, 13.8 x 27.6mm Panel Cut-out (Continued)

Product key	Panel cut-out	Poles	Switch function	Power rating	Terminal	Frame	Rocker color	2nd R. color	Legend	Legend color	Part Number
PRBSA1-16F-BB000	13.8	single	ON-NONE-OFF	16 A	quick	black	black	none	none	none	1571091-1
PRBSA1-16F-BB0BW	x	pole		@	connect				O –	white	1571091-2
PRBSA1-16F-BB0CW	27.6 mm			125 VAC	6.3 (.250)				O I		1571091-3
PRBSA1-16F-BB0HW				10 A					ON OFF		1571091-9
PRBSA1-16F-BR000				@			red		none	none	5-1571091-7
PRBSA1-16F-BR0HW				250 VAC					ON OFF	white	6-1571091-0
PRBSA1-16F-BW000							white		none	none	1-1571091-1
PRBSA1-16F-BW0HB									ON OFF	black	1-1571091-2
PRBSA1-16L-BB000					solder		black		none	none	1571091-4
PRBSA1-16L-BB0BW					lug				O –	white	1571091-5
PRBSA1-16L-BB0CW									O I		1571091-6
PRBSA1-16L-BR000							red		none	none	5-1571091-8
PRBSA2-16F-BBRAR					quick		black	red	•	red	5-1571131-1
PRBSB1-16F-BA000					connect		amber	none	none	none	1571092-3
PRBSB1-16F-BC000					6.3 (.250)		clear				1571092-4
PRBSB1-16F-BR000							red				1571092-1
PRBSC1-16F-BBR00							black	red			1571087-1
PRBSC1-16L-BBR00					solder lg.						1571087-2
PRBSD1-16F-BB000			ON-NONE-ON		quick			none			1571094-1
PRBSD1-16F-BB0DW					connect				– =	white	1571094-2
PRBSD1-16F-BB0EW					6.3 (.250)				I II		1571094-3
PRBSD3-16F-BB000			ON-OFF-ON						none	none	1571094-4
PRBSD3-16F-BB0FW									– O =	white	1571094-5
PRBSD3-16F-BB0GW									I O II		1571094-6
PRBSD3-16F-BW000							white		none	none	1571094-7

PRC Series, Power Rocker, 21.2 x 36.6mm Panel Cut-out, IP66

Features

- Easy snap-in mounting
- Single & double pole options
- Different colors
- Wide range of marking options and functions available
- Degree of protection: IP66



Typical performance characteristics

Number of poles	1 or 2
Switch functions	(ON)-OFF-(ON), ON-OFF, (ON)-OFF, ON-ON ON-OFF-ON, ON-OFF-(ON)
Contact rating	20 A @125 VAC, 10 A @250 VAC, 12 A @ 125 VAC, 3/4hp/10 A @ 277 VAC. 3/4 hp
Electrical life	>6,000 cycles
Mechanical life	>100,000 cycles
Contact resistance	max 100 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	>1,000 VAC for 1 min
Actuation force	3.9 N - 11.7 N
Panel cut-out	21.2 x 36.6 mm
Standards and specs	UL
Approvals	UL-E46765

Environmental specification

Operating temperature	-20 to +85 °C
Vibration resistance	1,5 mm 10-55 Hz
Terminal strength	66 N - 88 N

Material specifications

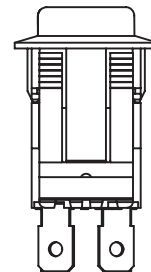
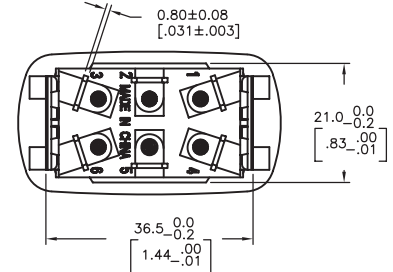
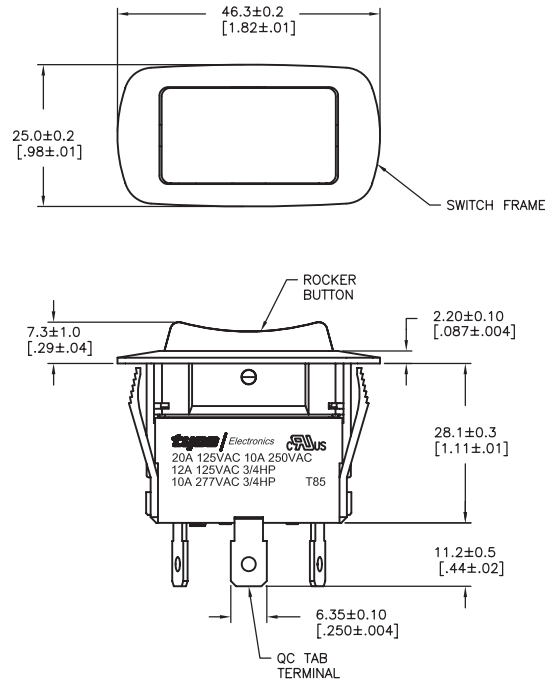
Contacts	silver-tin oxide
Terminals	copper alloy
Actuator	nylon 66
Housing & frame	nylon 66
Plunger	prenolic
RoHS compliance	compliant

Product key		Typical product key		PR	C	D	A1	-20	F	-B	B	0	0	0
Type														
PR		Power rocker switch												
Panel cut-out size														
C		21.2 x 36.6 mm												
Number of poles														
S		single pole		D		double pole								
Switch function														
A1		ON-OFF; opaque, single-color rocker		D2		ON-(ON); opaque, single-color rocker								
A3		(ON)-OFF; opaque, single-color rocker		D3		ON-OFF-(ON); opaque, single-color rocker								
A4		ON-(OFF); opaque, single-color rocker		D4		ON-OFF-(ON); opaque, single-color rocker								
D1		ON-ON; opaque, single-color rocker		D5		(ON)-OFF-(ON); opaque, single-color rocker								
Power rating														
20		20 A @ 125 VAC, 10 A @ 250 VAC, 12 A @ 125 VAC 3/4 hp, 10 A @ 250 VAC 3/4 hp												
Terminal type														
F		quick connect		L		solder lug		S		screw 6-32				
Frame color														
B		black		W		white								
Rocker color														
B		black		R		red		W		white				
G		green		Y		yellow								
2nd Rocker color														
0		none												
Legend pattern														
0		none		C		O I		F		- O =				
A		•		D		- =		G		I O II				
B		O -		E		I II								
Legend color														
0		none		B		black		G		green		R		red
												W		white

PRC Series, Power Rocker, 21.2 x 36.6mm Panel Cut-out, IP66 (Continued)

Panel cutout size

C 21.2 x 36.6 mm panel cutout



Type PRCD4-20F-BB000 shown. Request/consult customer drawings for other options

Function

Fct.	Poles	On	None	Off	On	None	Off
A1	1	On	None	Off	2-3	-	-
A3	1	(On)	None	Off	2-3	-	-
A4	1	On	None	(Off)	2-3	-	-
D1	1	On	None	On	2-3	-	-
D2	1	On	None	(On)	2-3	-	-
D3	1	On	Off	On	2-3	Off	1-2
D4	1	On	Off	(On)	2-3	Off	1-2
D5	1	(On)	Off	(On)	2-3	Off	1-2
A1	2	On	None	Off	2-3, 5-6	-	-
A3	2	(On)	None	Off	2-3, 5-6	-	-
A4	2	On	None	(Off)	2-3, 5-6	-	-
D1	2	On	None	On	2-3, 5-6	-	-
D2	2	On	None	(On)	2-3, 5-6	-	-
D3	2	On	Off	On	2-3, 5-6	Off	1-2, 4-5
D4	2	On	Off	(On)	2-3, 5-6	Off	1-2, 4-5
D5	2	(On)	Off	(On)	2-3, 5-6	Off	1-2, 4-5

Off indicates a mechanical position with no electrical connection
 (On) indicates momentary connection
 None indicates no mechanical position

Legend Pattern

Codes 0, A, B, C, D, E, F, G



PRC Series, Power Rocker, 21.2 x 36.6mm Panel Cut-out (Continued)

Product key	Panel cut-out	Poles	Switch function	Power rating	Terminal	Frame	Rocker color	2nd R. color	Legend	Legend color	Part Number
PRCDA1-20F-BB000	21.2 x 36.6 mm	double pole	ON-NONE-OFF	20 A @ 125 VAC	quick connect 6.3 (.250)	black	black	none	none	none	1571102-1
PRCDA1-20F-BB0BW				10 A @ 250 VAC			red		O –	white	1571102-2
PRCDA1-20F-BB0CW							black		O I		1571102-3
PRCDA1-20F-BR000							red		none	none	1571102-7
PRCDA1-20L-BB000					solder lug		black		none	white	1571102-4
PRCDA1-20L-BB0BW									O –		1571102-5
PRCDA1-20L-BB0CW									O I		1571102-6
PRCDA1-20L-BR000							red		none	none	1571102-8
PRCDA1-20S-BB000					screw 6-32 UNC		black		none	white	1571102-9
PRCDA1-20S-BB0BW									O –		1-1571102-0
PRCDA1-20S-BB0CW									O I		1-1571102-1
PRCDD1-20F-BB000			ON-NONE-ON		quick connect 6.3 (.250)				none	none	1571099-1
PRCDD1-20F-BB0DW									– =	white	1571099-2
PRCDD1-20F-BB0EW									I II		1571099-3
PRCDD1-20S-BB000					screw 6-32 UNC				none	none	1-1571099-0
PRCDD1-20S-BB0DW									– =	white	1-1571099-1
PRCDD1-20S-BB0EW									I II		1-1571099-2
PRCDD3-20F-BB000			ON-OFF-ON		quick connect 6.3 (.250)				none	none	1571099-4
PRCDD3-20F-BB0FW									– O =	white	1571099-5
PRCDD3-20F-BB0GW									I O II		1571099-6
PRCDD4-20F-BB000			ON-OFF-(ON)						none	none	1571099-7
PRCDD4-20F-BB0FW									– O =	white	1571099-8
PRCDD4-20F-BB0GW									I O II		1571099-9
PRCDD5-20F-BB000			(ON)-OFF-(ON)						none	none	1-1571099-3
PRCSA1-20F-BB000		single pole	ON-NONE-OFF						O –	white	1571095-1
PRCSA1-20F-BB0BW									O I		1571095-2
PRCSA1-20F-BB0CW									none	none	1571095-3
PRCSA1-20F-BR000							red		none	none	1571095-7
PRCSA1-20L-BB000					solder lug		black		O –	white	1571095-4
PRCSA1-20L-BB0BW									O I		1571095-5
PRCSA1-20L-BB0CW									none	none	1571095-6
PRCSA1-20L-BR000							red		none	none	1571095-8
PRCSA1-20S-BB000					screw 6-32 UNC		black		O –	white	1571095-9
PRCSA1-20S-BB0BW									O I		1-1571095-0
PRCSA1-20S-BB0CW									none	none	1-1571095-1
PRCSD1-20F-BB000			ON-NONE-ON		quick connect 6.3 (.250)				– =	white	1571100-1
PRCSD1-20F-BB0DW									I II		1571100-2
PRCSD1-20F-BB0EW									none	none	1571100-3
PRCSD1-20S-BB000					screw 6-32 UNC				– =	white	1-1571100-0
PRCSD1-20S-BB0DW									I II		1-1571100-1
PRCSD1-20S-BB0EW									none	none	1-1571100-2
PRCSD3-20F-BB000			ON-OFF-ON		quick connect 6.3 (.250)				none	none	1571100-4
PRCSD3-20F-BB0FW									– O =	white	1571100-5
PRCSD3-20F-BB0GW									I O II		1571100-6
PRCSD4-20F-BB000			ON-OFF-(ON)						none	none	1571100-7
PRCSD4-20F-BB0FW									– O =	white	1571100-8
PRCSD4-20F-BB0GW									I O II		1571100-9

Preferred parts in bold print

PRD Series, Power Rocker, 25.4 x 27.6mm Panel Cut-out

Features

- Easy snap-in mounting
- Double pole
- Full illuminated rocker option
- Different colors
- Wide range of marking options and functions available
- Degree of protection: IP40



Typical performance characteristics

Number of poles	2
Switch functions	ON-OFF, ON-ON, ON-OFF-ON
Contact rating	10 A @250 VAC, 16 A @125 VAC
	UL: 16 A @ 125 VAC, 1/3hp; 10 A @ 250 VAC, 1/2 hp
	VDE/ENEC: 10(4) A @ 250 VAC
Electrical life	>6,000 cycles
Mechanical life	>100,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	>1,000 VAC for 1 min
Actuation force	8,3 N - 12,2 N
Panel cut-out	25,4 x 27,6 mm
Standards and specs	VDE/ENEC
Approvals	UL-E46765, VDE/ENEC-40020317

Environmental specification

Operating temperature	-20 to +85°C
Vibration resistance	1,5 mm 10-55 Hz
Terminal strength	98 N

Material specifications

Contacts	silver-tin oxide
Terminals	silver plated copper alloy
Actuator	nylon 66 / PC (illuminated)
Housing & frame	nylon 66
Plunger	nickel plated copper alloy
RoHS compliance	compliant

Product key

Typical product key

PR D D A1 -16 F -B B 0 0 0

Type

PR Power rocker switch

Panel cut-out size

D 25.4 x 27.6 mm

Number of poles

D double pole

Switch function

A1 ON-OFF; opaque, single-color rocker
B1 ON-OFF; transparent, 100-125 V lamp
B3 ON-OFF; transparent, 200-250 V lamp

D1 ON-ON; opaque, single-color rocker
D3 ON-OFF-ON; opaque, single-color rocker

Power rating

16 16 A @ 125 VAC 1/3 hp, 10 A @ 250 VAC 1/2 hp, 10(4) A @ 250 VAC

Terminal type

F quick connect

Frame color

B black **W** white

Rocker color

A amber **C** clear green **R** red
B black **G** green **W** white

2nd Rocker color

0 none

Legend pattern

0 none **C** O I **F** - O =
A • **D** - = **G** I O II
B O - **E** I II **H** ON OFF

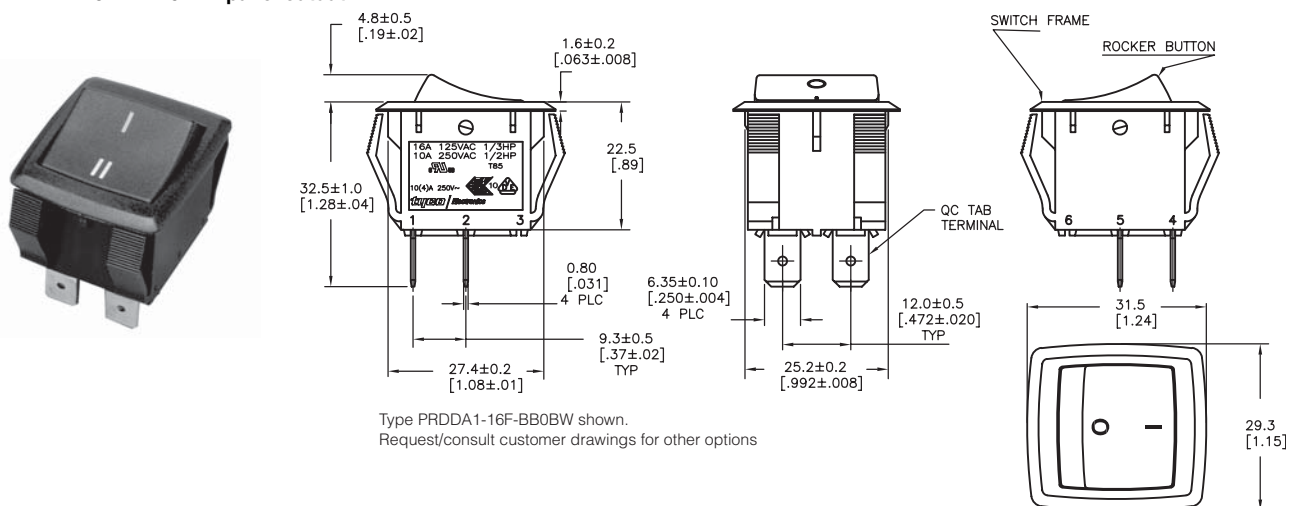
Legend color

0 none **B** black **G** green **R** red **W** white

PRD Series, Power Rocker, 25.4 x 27.6mm Panel Cut-out (Continued)

Panel cutout size

D 25.4 x 27.6 mm panel cutout



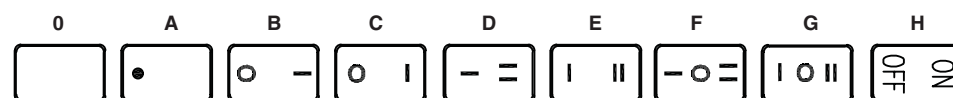
Function

Function	▲	■	▲	▲	■	▲
A1	On	None	Off	1-2, 4-5	-	-
B1	On	None	Off	1-2, 4-5	-	-
B3	On	None	Off	1-2, 4-5	-	-
D1	On	None	On	1-2, 4-5	-	2-3, 5-6
D3	On	Off	On	1-2, 4-5	Off	2-3, 5-6

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Legend Pattern

Codes 0, A, B, C, D, E, F, G, H



Product key	Panel cut-out	Poles	Switch function	Power rating	Terminal	Frame	Rocker color	2nd R. color	Legend	Legend color	Part Number
PRDDA1-16F-BB000	25.4	double	ON-NONE-OFF	16 A	quick	black	black	none	none	none	1571103-1
PRDDA1-16F-BB0BW	x	pole		@	connect				O -	white	1571103-2
PRDDA1-16F-BB0CW	27.6 mm			125 VAC	6.3 (.250)				O I		1571103-3
PRDDA1-16F-BB0HW				10 A					ON OFF		1571103-5
PRDDA1-16F-BR000				@			red		none	none	5-1571103-4
PRDDA1-16F-BR0HW				250 VAC					ON OFF	white	5-1571103-6
PRDDB1-16F-BA000							amber		none	none	1571112-2
PRDDB1-16F-BR000							red				1571112-1
PRDDD1-16F-BB000			ON-NONE-ON				black				1571113-1
PRDDD1-16F-BB0DW									- =	white	1571113-2
PRDDD1-16F-BB0EW									I II		1571113-3
PRDDD3-16F-BB000			ON-OFF-ON						none	none	1571113-4
PRDDD3-16F-BB0FW									- O =	white	1571113-5
PRDDD3-16F-BB0GW									I O II		1571113-6
PRDDD3-16F-BR000							red		none	none	5-1571113-7

PRE Series, Power Rocker, 19.4 x 22.2mm Panel Cut-out

Features

- Easy snap-in mounting
- Double pole
- Full illuminated rocker option
- Different colors
- Wide range of marking options and functions available
- Dust resistant



Typical performance characteristics

Number of poles	2
Switch functions	ON-OFF, ON-ON ON-OFF-ON, ON-OFF-(ON), (ON)-OFF-(ON)
Contact rating	6 A @250 VAC, 10 A @ 125 VAC
Inrush current	6 A @ 250 VAC, 10 A @ 125 VAC
Electrical life	10,000 cycles
Mechanical life	100,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	1,500 VAC for 1 min
Actuation force	4.5±1.5 N
Panel cut-out	19.4 x 22.2 mm
Standards and specs	UL, CSA, VDE, ENEC
Approvals	UL-E46765; VDE/ENEC-40006757; CSA-219402

Environmental specification

Operating temperature	-20 to +85°C
Storage temperature	-20 to +85°C
Vibration resistance	4 mm, 5-55 Hz
Terminal strength	solder lugs: 50 N, quick connect terminals: 90 N

Material specifications

Contacts	cooper alloy silver finish
Terminals	silver plated cooper alloy
Actuator	nylon 66 / PC (illuminated)
Housing & frame	nylon 66
Plunger	nickel plated cooper alloy
RoHS compliance	compliant

Product key

Typical product key

PR E D A1 -07 F -B B 0 0 0

Type

PR Power rocker switch

Panel cut-out size

E 19.4 x 22.2 mm

Number of poles

D double pole

Switch function

A1	ON-OFF; opaque	D3	ON-OFF-ON; opaque
B1	ON-OFF; transparent, lamp-illuminated	D4	ON-OFF-(ON); opaque
D1	ON-ON; opaque	D5	(ON)-OFF-(ON); opaque

Power rating

07 6 A @ 250 VAC, 10 A @ 125 VAC

Terminal type

F quick connect terminal **L** solder lug

Frame color

B black **W** white

Rocker color

B black **R** red
G green **W** white

2nd Rocker color

0 none **B** black **R** red
G green **W** white

Legend pattern

0 none **B** O – **E** – =
C O I **F** I O II
D I II **G** – O =

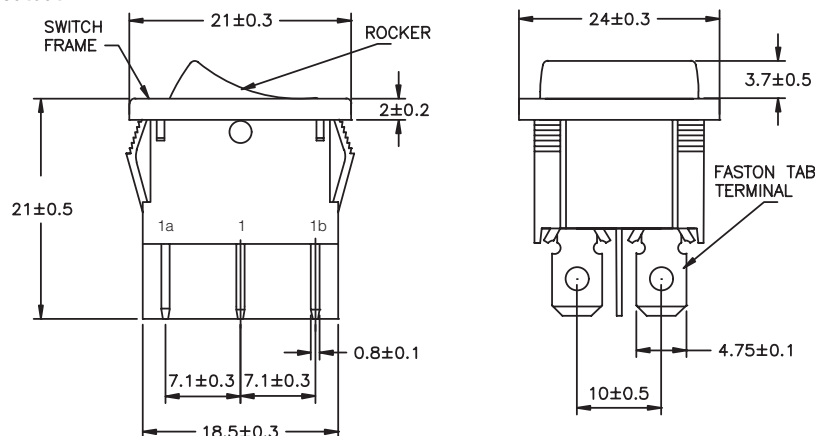
Legend color

0 none **B** black **R** red
G green **W** white

PRE Series, Power Rocker, 19.4 x 22.2mm Panel Cut-out (Continued)

Panel cutout size

E 19.4 x 22.2 mm panel cutout



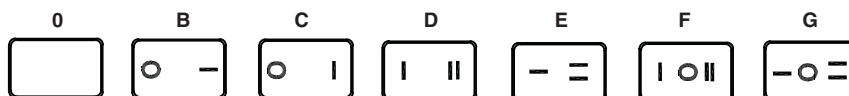
Function

Function	▲	■	▲	▲	■	▲
A1	On	None	Off	1a-1, 2a-2	-	-
B1	On	None	Off	1a-1, 2a-2	-	-
D1	On	None	On	1a-1, 2a-2	-	1-1b, 2-2b
D3	On	Off	On	1a-1, 2a-2	Off	1-1b, 2-2b
D4	On	Off	(On)	1a-1, 2a-2	Off	1-1b, 2-2b
D5	(On)	Off	(On)	1a-1, 2a-2	Off	1-1b, 2-2b

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Legend Pattern

Codes 0, B, C, D, E, F, G



Product key	Panel cut-out	Poles	Switch function	Power rating	Terminal	Frame	Rocker color	2nd R. color	Legend	Legend color	Part Number
PREDA1-07F-BB000	19.4 x 22.2 mm	double pole	ON-OFF opaque	6 A @ 250 VAC	quick connect	black	black	none	none	none	1634200-1
PREDA1-07F-BB0BW									O -	white	1634200-2
PREDA1-07F-BB0CW				10 A @ 125 VAC	solder lug				O I	none	1634200-3
PREDA1-07L-BB000									none	none	1634200-4
PREDA1-07L-BB0BW									O -	white	1634200-5
PREDA1-07L-BB0CW									O I	none	1634200-6
PREDB1-07F-BR000			ON-OFF transparent with lamp		quick c.				none	none	1634200-7
PREDB1-07L-BR000					solder l.						1634200-8
PREDB1-07F-BG000					quick c.						1634200-9
PREDB1-07L-BG000					solder l.						1-1634200-0
PREDD1-07F-BB000			ON-ON opaque		quick connect				I II	white	1-1634200-1
PREDD1-07F-BB0DW									- =		1-1634200-3
PREDD1-07F-BB0EW									none	none	1-1634200-4
PREDD1-07L-BB000					solder lug				I II	white	1-1634200-5
PREDD1-07L-BB0DW									- =		1-1634200-6
PREDD1-07L-BB0EW									I O II		1-1634200-7
PREDD3-07F-BB0FW			ON-OFF-ON opaque		quick connect				- O =		1-1634200-8
PREDD3-07F-BB0GW					solder lug				I O II		1-1634200-9
PREDD3-07L-BB0FW									- O =		2-1634200-0
PREDD3-07L-BB0GW									none	none	2-1634200-1
PREDD4-07F-BB000			ON-OFF-(ON) opaque		quick connect				I O II	white	2-1634200-2
PREDD4-07F-BB0FW									- O =		2-1634200-3
PREDD4-07F-BB0GW									none	none	2-1634200-4
PREDD5-07F-BB000			(ON)-OFF-(ON) opaque						I O II	white	2-1634200-5
PREDD5-07F-BB0FW									- O =		2-1634200-6
PREDD5-07F-BB0GW											

Preferred parts in bold print

PRF Series, Power Rocker, 22.2 x 30.2mm Panel Cut-out

Features

- Easy snap-in mounting
- Double pole
- Full illuminated rocker option
- Different colors
- Wide range of marking options and functions available
- Dust resistant



Typical performance characteristics

Number of poles	2
Switch functions	ON-OFF, ON-ON, ON-OFF-ON
Contact rating	10 A @250 VAC
Inrush current	10 A
Electrical life	6,000 cycles
Mechanical life	100,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	1,500 VAC for 1 min
Actuation force	6.0±1.5 N
Panel cut-out	22.2 x 30.2 mm
Standards and specs	UL, CSA, VDE, ENEC
Approvals	UL-E46765; VDE/ENEC-40006757; CSA-219402

Environmental specification

Operating temperature	-20 to +85°C
Storage temperature	-20 to +85°C
Vibration resistance	4 mm, 5-55 Hz
Terminal strength	90 N

Material specifications

Contacts	cooper alloy silver finish
Terminals	silver plated cooper alloy
Actuator	nylon 66 / PC (illuminated)
Housing & frame	nylon 66
Plunger	nickel plated cooper alloy
RoHS compliance	compliant

Product key

Typical product key

PR F D A1 -16 F -B B 0 0 0

Type

PR Power rocker switch

Panel cut-out size

F 22.2 x 30.2 mm

Number of poles

D double pole

Switch function

A1 ON-OFF; opaque **D1** ON-ON; opaque
B1 ON-OFF; transparent, lamp-illuminated **D3** ON-OFF-ON; opaque

Power rating

16 10 A @ 250 VAC, 16 A @ 125 VAC

Terminal type

F quick connect terminal

Frame color

B black **W** white

Rocker color

B black **R** red
G green **Y** yellow

2nd Rocker color

0 none **B** black **R** red
G green **W** white

Legend pattern

0 none **B** O – **E** – =
C O I **G** – O =
D I II

Legend color

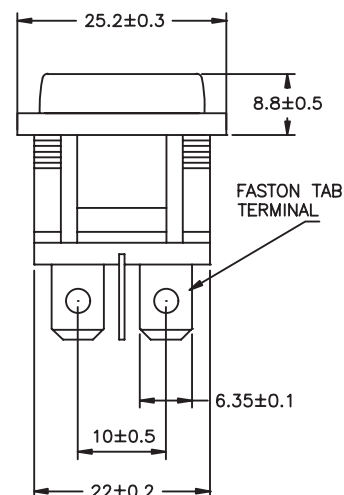
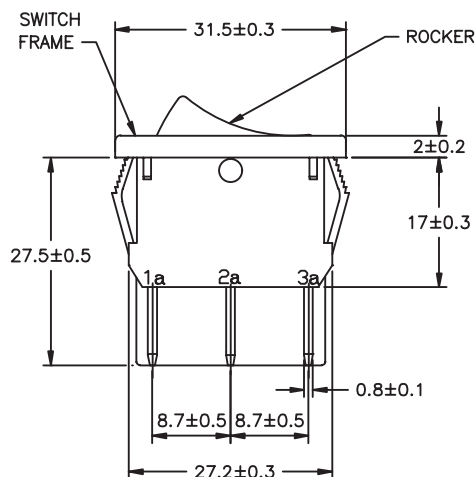
0 none **B** black **R** red
G green **W** white

PRF Series, Power Rocker, 22.2 x 30.2mm Panel Cut-out (Continued)

Panel cutout size



F 22.2 x 30.2 mm panel cutout



Function



Function	▲	▲	▲	▲	▲	▲
A1	On	None	Off	1a-2a, 1b-2b	-	-
B1	On	None	Off	1a-2a, 1b-2b	-	-
D1	On	None	On	1a-2a, 1b-2b	-	2a-3a, 2b-3b
D3	On	Off	On	1a-2a, 1b-2b	Off	2a-3a, 2b-3b

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Legend Pattern



Codes 0, B, C, D, E, G



Product key	Panel	Poles	Switch	Power	Terminal	Frame	Rocker	2nd R.	Legend	Legend	Part Number
PRFDA1-16F-BB000	22.2	double	ON-OFF	10 A	quick	black	black	none	none	none	1634201-1
PRFDA1-16F-BB0BW	x	pole	opaque	@	connect				O -	white	1634201-2
PRFDA1-16F-BB0CW	30.2 mm			250 VAC	terminal				O I		1634201-3
PRFDB1-16F-BR000			ON-OFF	16 A			red		none	none	1634201-4
PRFDB1-16F-BG000			transparent	@			green				1634201-5
PRFDB1-16F-BY000			with lamp	125 VAC			yellow				1634201-6
PRFDD1-16F-BB000			ON-ON				black				1634201-7
PRFDD1-16F-BB0DW			opaque								1634201-8
PRFDD1-16F-BB0EW											1634201-9
PRFDD3-16F-BB000			ON-OFF-ON								1-1634201-0
PRFDD3-16F-BB0EW			opaque						- O =	white	1-1634201-1
PRFDD3-16F-BB0GW											1-1634201-2

Preferred parts in bold print

PRG Series, Power Rocker, 11.2 x 30.2mm Panel Cut-out

Features

- Easy snap-in mounting
- Single pole
- Full illuminated rocker option
- Different colors
- Dust resistant



Typical performance characteristics

Number of poles	1
Switch functions	ON-OFF
Contact rating	10 A @250 VAC
Inrush current	10 A
Electrical life	10,000 cycles
Mechanical life	100,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	1,500 VAC for 1 min
Actuation force	4.5±1.5 N
Panel cut-out	11,2 x 30,2 mm
Standards and specs	UL, CSA, VDE, ENEC
Approvals	UL-E46765; VDE/ENEC-40006757; CSA-219402

Environmental specification

Operating temperature	-20 to +85°C
Storage temperature	-20 to +85°C
Vibration resistance	4 mm, 5-55 Hz
Terminal strength	90 N

Material specifications

Contacts	cooper alloy silver finish
Terminals	silver plated cooper alloy
Actuator	nylon 66 / PC (Illuminated)
Housing & frame	nylon 66
Plunger	nickel plated cooper alloy
RoHS compliance	compliant

Product key

Typical product key

PR G S A1 -16 F -B B 0 0 0

Type

PR Power rocker switch

Panel cut-out size

G 11.2 x 30.2 mm

Number of poles

S single pole

Switch function

A1 ON-OFF; opaque **B1** ON-OFF; transparent, lamp-illuminated

Power rating

16 10 A @ 250 VAC, 16 A @ 125 VAC

Terminal type

F quick connect terminal

Frame color

B black **W** white

Rocker color

B black **R** red
G green **Y** yellow

2nd Rocker color

0 none **B** black **R** red
G green **W** white

Legend pattern

0 none **A** • **B** O –

Legend color

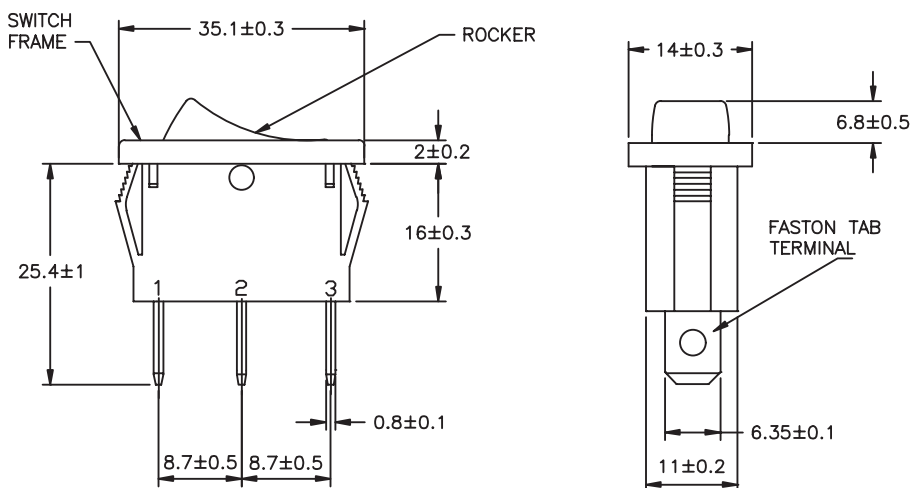
0 none **B** black **R** red
G green **W** white

PRG Series, Power Rocker, 11.2 x 30.2mm Panel Cut-out (Continued)

Panel cutout size



G 11.2 x 30.2 mm panel cutout



Function



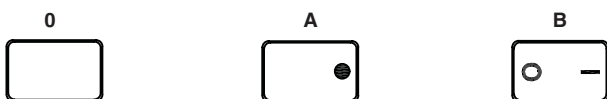
Function	▲	▲	▲	▲
A1	On	Off	1-2	-
B1	On	Off	1-2	-

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Legend Pattern



Codes 0, A, B



Product key	Panel	Poles	Switch	Power	Terminal	Frame	Rocker	2nd R.	Legend	Legend	Part Number
PRGSA1-16F-BB000	11.2	single	ON-OFF	10 A	quick	black	black	none	none	none	1634202-1
PRGSA1-16F-BB0AW	x	pole	opaque	@	connect				•	white	1634202-2
PRGSA1-16F-BB0BW	30.2 mm			250 VAC					O -		1634202-3
PRGSA1-16F-BR000				16 A			red		none	none	1634202-4
PRGSB1-16F-BR000			ON-OFF	@							1634202-5
PRGSB1-16F-BG000			trans.w. lamp	125 VAC			green				1634202-6

Preferred parts in bold print

PRH Series, Power Rocker, 7.0 x 19.2mm Panel Cut-out

Features

- Easy snap-in mounting
- Single pole
- Different colors
- Wide range of marking options and functions available
- Degree of protection: IP40



Typical performance characteristics

Number of poles	1
Switch functions	(ON)-OFF, ON-OFF
Contact rating	UL: 8 A @125 VAC, 4 A @ 250 VAC, ENEC/FI: 6 A @ 250 VAC
Electrical life	>6,000 cycles
Mechanical life	>100,000 cycles
Contact resistance	max 50 mOhm
Insulation resistance	min 100 MOhm
Dielectric strength	>1,000 VAC for 1 min
Actuation force	0.98 N - 6.37 N
Panel cut-out	7.0 x 19.2 mm
Standards and specs	UL, ENEC/FI
Approvals	UL-E46765, ENEC FI:2003036/A1

Environmental specification

Operating temperature	-20 to +85°C
Vibration resistance	1.5 mm, 10-55 Hz
Terminal strength	98 N

Material specifications

Contacts	silver-tin oxide
Terminals	silver plated copper alloy
Actuator	nylon 66
Housing & frame	nylon 66
RoHS compliance	compliant

Product key

Typical product key

PR H S A1 08 F -B B 0 0 0

Type

PR Power rocker switch

Panel cut-out size

H 7.0 x 19.2 mm

Number of poles

S single pole

Switch function

A1 ON-OFF; opaque, single-color rocker
A3 (ON)-OFF; opaque, single-color rocker

Power rating

08 8 A @ 125 VAC, 4 A @ 250 VAC

Terminal type

F quick connect

Frame color

B black **W** white

Rocker color

B black **G** green **R** red **W** white

2nd Rocker color

0 none **B** black **G** green **R** red **W** white

Legend pattern

0 none **B** O – **H** ON OFF
A • **C** O I

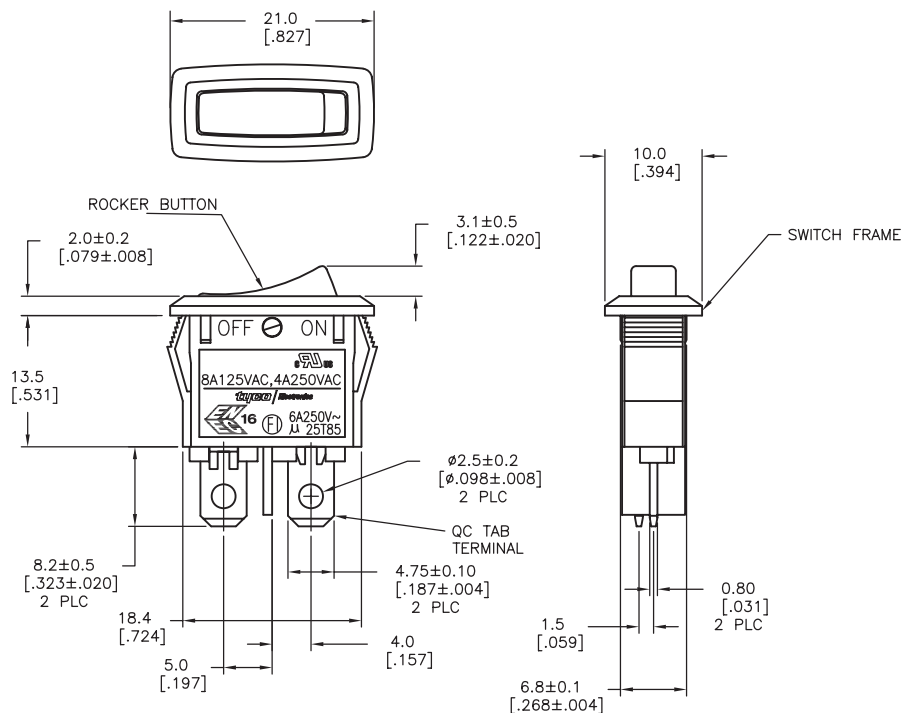
Legend color

0 none **B** black **G** green **R** red **W** white

PRH Series, Power Rocker, 7.0 x 19.2mm Panel Cut-out (Continued)

Panel cutout size

H 7.0 x 19.2 mm panel cutout



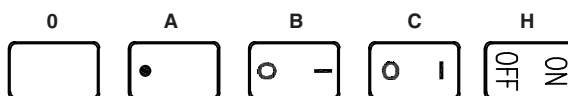
Function

Function	On	Off	1-2	-
A1	On	Off	1-2	-
A3	(On)	Off	1-2	-

Off indicates a mechanical position with no electrical connection
(On) indicates momentary connection
None indicates no mechanical position

Legend Pattern

Codes 0, A, B, C, H



Product key	Panel cut-out	Poles	Switch function	Power rating	Terminal	Frame	Rocker color	2nd R. color	Legend	Legend color	Part Number
PRHSA1-08F-BB000	7.0 x	single	ON-NONE-OFF	8A@125V	quick con.	black	black	none	none	none	1571500-1
PRHSA3-08F-BB000	19.2 mm	pole	(ON)-NONE-OFF	4A@250V	4.8 (.187)						1571500-2

Product Range



Snap Action Switches

- **Ultraminiature Snap Action Switch:**
UP Series
- **Sub Miniature Snap Action Switch:**
SP Series
- **Miniature Snap Action Switch:**
MP Series

Main features:

- C/O contact configuration
- Low current versions
- Different actuation forces
- Different levers
- PCB, solder or qick connect terminals
- Right angle versions



UP Ultraminiature Snap Action Switchpage H2



SP Subminiature Snap Action Switchpage H5



MP Miniature Snap Action Switchpage H8

UP Ultraminiature Snap Action Switch

Features

- SPDT Type
- PC mount both straight and right angle
- 2 different actuation forces
- With or Without levers



Typical performance characteristics

Contact Rating 3 A or 0.1 A @ 125 VAC
 Initial Contact Resistance max 100 milliohms
 Insulation Resistance min. 100M ohms
 Dielectric Withstanding Voltage 1,000 VAC
 Actuator Force, no lever 150 or 80 grams
 Actuator Force, normal lever 50 or 30 grams
 Life Expectancy up to 1,000,000 Cycles (electrical)
 up to 10,000,000 Cycles (mechanical)

Environmental specification

Operating Temperature 0.1 A version: -40°C to +85°C
 3 A version: -40°C to +55°C
 Storage Temperature -40°C to +85°C

Material specifications

Terminal copper alloy w/ gold plating
 Housing nylon UL 94V-0
 Cover pbt UL 94V-0
 Button nylon UL 94V-0
 Spring Contact copper alloy
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		UP	01	DT	A	OL	A	04
Type										
UP	Ultraminiature snap action switch									
Rating										
01	.1 A @ 30 VDC									
3	3A @ 125 VAC									
Function										
DT	double throw									
Terminal type										
A	PCB			B	PCB left					
				C	PCB right					
Lever type										
OL	no lever			NL	normal lever					
Operating force										
	no lever				normal lever					
A	1.5N (150gf)			A	0.5N (50gf)					
B	0.8N (80gf)			B	0.3N (30gf)					
Material										
04	RoHS compliant									

UP Ultraminiature Snap Action Switch (Continued)

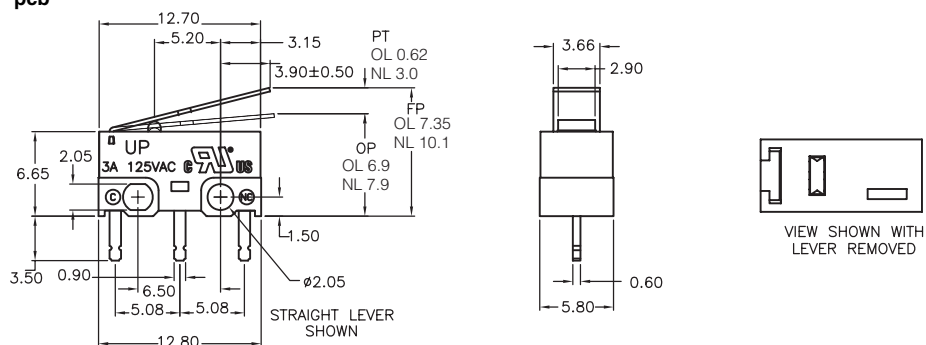
Terminal type



A

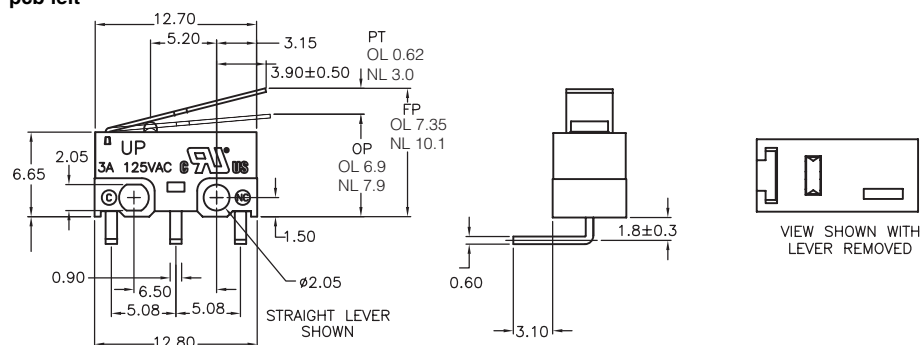


pcb



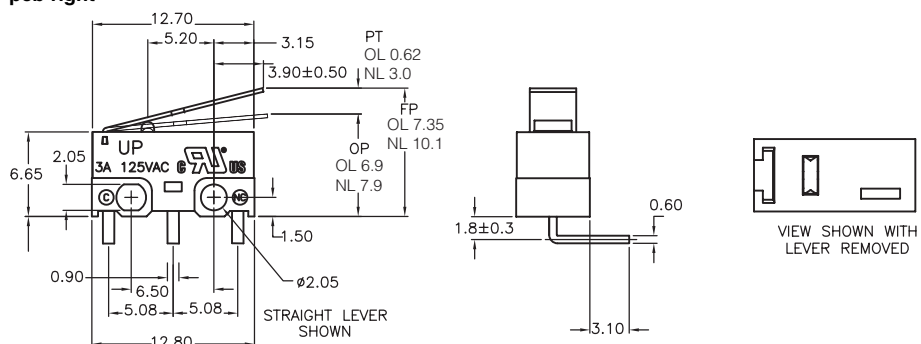
B

pcb left



C

pcb right



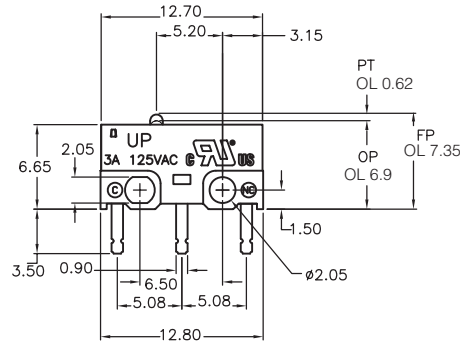
UP Ultraminiature Snap Action Switch (Continued)

Lever type



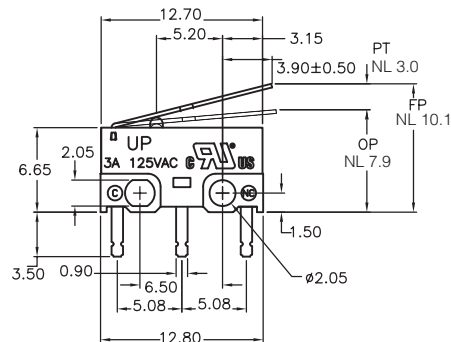
OL

no lever



NL

normal lever



Snap Action Switches

Product key	Rating	Function	Terminal	Lever	Operating force	Material	Part Number
UP01DTAOLA04	.1 A@30 VDC	double throw	pcb	none	1.5N (150gf)	RoHS compliant	1825043-1
UP01DTAOLB04					0.8N (80gf)		1825043-2
UP01DTANLA04				normal lever	0.5N (50gf)		1825043-3
UP01DTANLB04					0.3N (30gf)		1825043-4
UP01DTBOLA04			pcb left	none	1.5N (150gf)		1825043-5
UP01DTBOLB04					0.8N (80gf)		1825043-6
UP01DTBNLA04				normal lever	0.5N (50gf)		1825043-7
UP01DTBNLB04					0.3N (30gf)		1825043-8
UP01DTCOLA04			pcb right	none	1.5N (150gf)		1825043-9
UP01DTCOLB04					0.8N (80gf)		1-1825043-0
UP01DTCNLA04				normal lever	0.5N (50gf)		1-1825043-1
UP01DTCNLB04					0.3N (30gf)		1-1825043-2
UP3DTAOLA04	3 A@125 VAC		pcb	none	1.5N (150gf)		1-1825043-3
UP3DTAOLB04					0.8N (80gf)		1-1825043-4
UP3DTANLA04				normal lever	0.5N (50gf)		1-1825043-5
UP3DTANLB04					0.3N (30gf)		1-1825043-6
UP3DTBOLA04			pcb left	none	1.5N (150gf)		1-1825043-7
UP3DTBOLB04					0.8N (80gf)		1-1825043-8
UP3DTBNLA04				normal lever	0.5N (50gf)		1-1825043-9
UP3DTBNLB04					0.3N (30gf)		2-1825043-0
UP3DTCOLA04			pcb right	none	1.5N (150gf)		2-1825043-1
UP3DTCOLB04					0.8N (80gf)		2-1825043-2
UP3DTCNLA04				normal lever	0.5N (50gf)		2-1825043-3
UP3DTCNLB04					0.3N (30gf)		2-1825043-4

Preferred parts in bold print

SP Sub Miniature Snap Action Switches

Features

- Various actuator and mounting options
- 5 different standard lever styles
- 3 different terminal types
- high reliability and low costs



Typical performance characteristics

Contact configuration SPDT
 Contact rating 5A @ 250 VAC
 Electrical life min. 10,000 ops
 Mechanical life min. 1,000,000 ops
 Contact resistance max. 50 mOhm
 Insulation resistance min. 100 MOhm
 Dielectric strength 1,000 VAC
 Actuation force 1.6 N
 Standards and specs UL, ENEC

Environmental specification

Operating temperature -25°C to +85°C

Material specifications

Case and Cover PBT
 Contacts silver alloy
 Terminals copper alloy / silver plating
 Housing PBT
 Plunger PBT
 Lever stainless steel
 RoHS compliance compliant

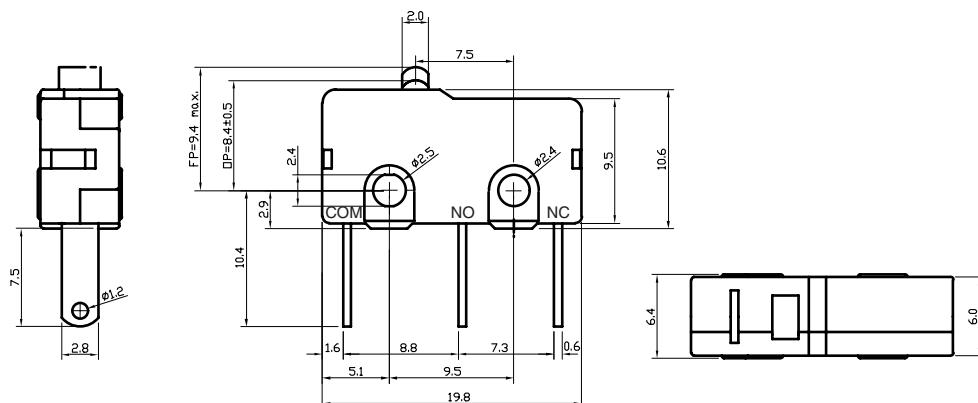
Product key		Typical product key		SP	5	DT	C	OL	E
Type									
SP	Sub miniature snap action switch								
Rating									
5	5 A @ 250 VAC								
Function									
DT	single pole, double throw, SPDT								
Terminal type									
A	solder terminal								
B	pcb terminal								
C	.110 quick connect								
Lever type									
OL	no lever	NR	normal roller						
NL	normal lever	SM	simulated roller						
LL	long lever								
Operating force (without lever)									
E	1.6N (160gf)								

SP Sub Miniature Snap Action Switches (Continued)

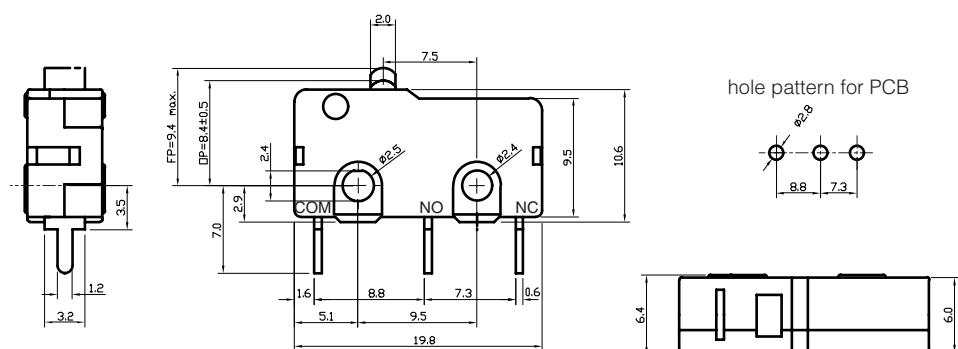
Terminla type



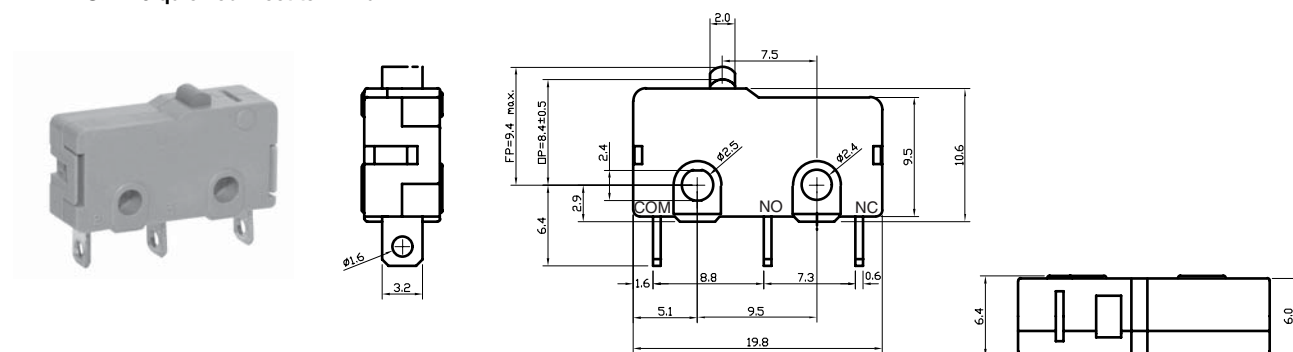
A solder terminal



B pcb terminal



C .110 quick connect terminal



SP Sub Miniature Snap Action Switches (Continued)

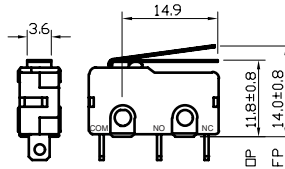
Lever type



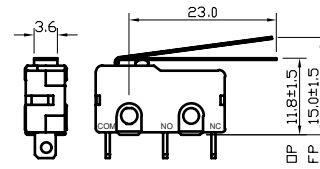
Codes NL, LL normal and long lever



normal lever



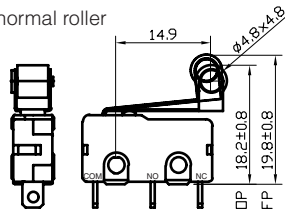
long lever



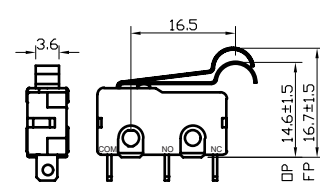
Codes NR, SM normal and simulated roller



normal roller



simulated roller



Operating force, displacement

Lever style	OP	PT	OF	RF
OL No Lever	8.4 mm	0.6 mm	160 gf	35 gf
NL Normal Lever	9.4 mm	3.0 mm	45 gf	8 gf
LL Long Lever	10.0 mm	3.7 mm	25 gf	5 gf
NR Normal Roller	15.0 mm	2.5 mm	40 gf	8 gf
SM Simulated Roller	10.8 mm	2.6 mm	45 gf	10 gf

OF - operating force; OP - operating position; PT - pre-travel; RF - release force

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number
SP5DTCOLE	5 A @ 250 VAC	SPDT	.110 quick connect	no lever	1,6N (160gf)	1-1478600-1
SP5DTCNLE				normal lever	0,45N (45gf)	1-1478600-2
SP5DTCNLE				long lever	0,25N (25gf)	1-1478600-3
SP5DTCNRE				normal roller	0,40N (40gf)	1-1478600-4
SP5DTCNRE				simulated roller	0,45N (45gf)	1-1478600-5
SP5DTBOLE			pcb terminal	no lever	1,6N (160gf)	1-1478601-1
SP5DTBNLE				normal lever	0,45N (45gf)	1-1478601-2
SP5DTBLLE				long lever	0,25N (25gf)	1-1478601-3
SP5DTBNRE				normal roller	0,40N (40gf)	1-1478601-4
SP5DTBSME				simulated roller	0,45N (45gf)	1-1478601-5
SP5DTAOLE			solder terminal	no lever	1,6N (160gf)	1-1478602-1
SP5DTANLE				normal lever	0,45N (45gf)	1-1478602-2
SP5DTALLE				long lever	0,25N (25gf)	1-1478602-3
SP5DTANRE				normal roller	0,40N (40gf)	1-1478602-4
SP5DTASME				simulated roller	0,45N (45gf)	1-1478602-5

Preferred parts in bold print

MP Miniature Snap Action Switches

Features

- available in a current range from 0,1A up to 16A
- SPDT, SPNO, SPNC circuitry
- 7 different standard lever styles
- 2 different terminal types
- high reliability and low costs



Typical performance characteristics

Contact configuration SPDT, SPNO, SPNC
Contact rating 16A or 0,1A @ 250 VAC
Electrical life min 50,000 ops
Mechanical life min 1,000,000 ops
Contact resistance max 50 mOhm
Insulation resistance min 100 MOhm
Dielectric strength 1000 VAC
Actuation force 1.0...3.5 N
Standards and Specs UL, ENEC

Environmental specification

Operating temperature -25°C to +130°C

Material specifications

Case and Cover PBT
Contacts silver alloy
Terminals copper alloy / silver plating
Housing 0.1 A version: PET, 16 A version: PBT
Plunger 0.1 A version: PPS, 16 A version: PBT
Lever stainless steel
RoHS compliance compliant

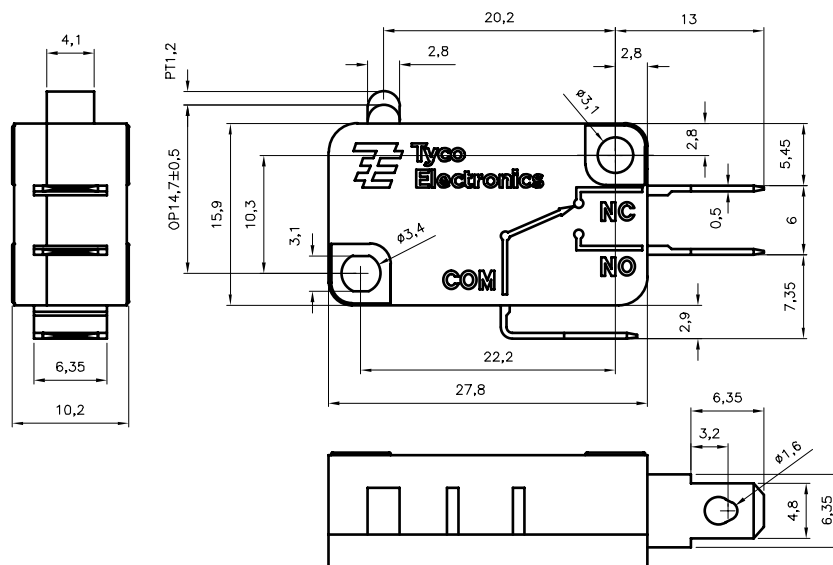
Product key		Typical product key		MP	16	DT	C	OL	D
Type									
MP	Miniature snap action switch								
Rating									
01	.1 A @ 250 VAC								
16	16 A @ 250 VAC								
Function									
DT	single pole, double throw, SPDT								
NC	single pole, normally closed, SPNC								
NO	single pole, normally open, SPNO								
Terminal type									
A	.187 quick connect for solder use								
C	.250 quick connect								
Lever type									
OL	no lever			SR	short roller				
SL	small lever			NR	normal roller				
NL	normal lever			SM	simulated roller				
LL	long lever								
Operating force (without lever)									
D	1.0N (100gf) for MP01 only			G	2.0N (200gf)				
E	1.6N (160gf)			K	3.5N (350gf)				
note: not all combinations actuation force - lever style available									

MP Miniature Snap Action Switches (Continued)

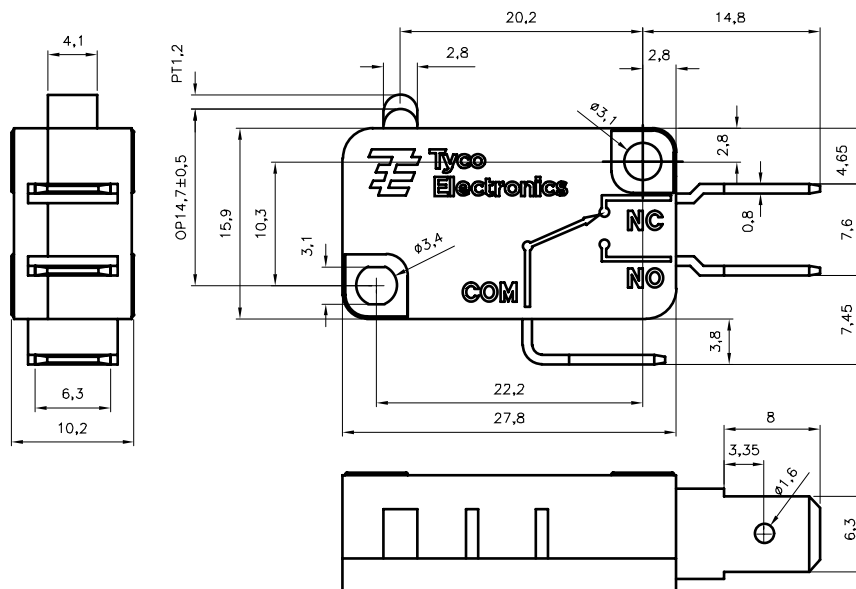
Terminal type



A .187 quick connect for solder use



C .250 quick connect



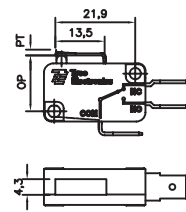
MP Miniature Snap Action Switches (Continued)

Lever type

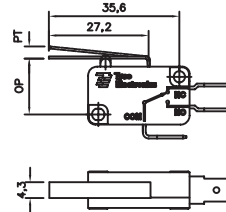


Codes SL, NL, LL small, normal lever and long lever

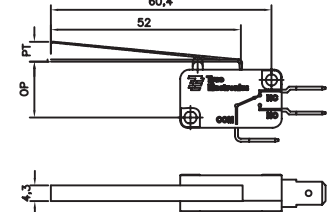
small lever



normal lever

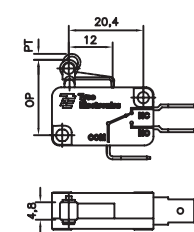


long lever

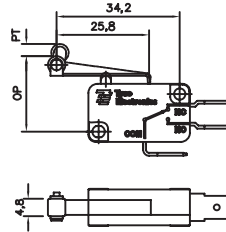


Codes SR, NR, SM short roller, normal roller and simulated roller

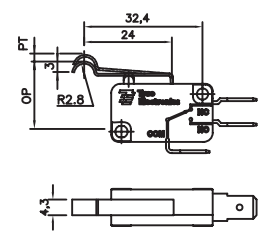
short roller



normal roller



simulated roller



Operating force, displacement

OF without lever

D	E	G	K
100gf	160gf	200gf	350gf

Lever style	OP	PT	OF	RF	OF	RF	OF	RF	OF	RF
OL No Lever	14.7 mm	1.2 mm	100 gf	20 gf	160 gf	50 gf	200 gf	55 gf	350 gf	80 gf
SL Short Lever	15.3 mm	1.6 mm	100 gf	20 gf	160 gf	50 gf	200 gf	55 gf	350 gf	80 gf
NL Normal Lever	15.3 mm	3.3 mm	50 gf	15 gf	75 gf	30 gf	95 gf	40 gf	170 gf	50 gf
LL Long Lever	15.3 mm	6.2 mm	25 gf	8 gf	40 gf	15 gf	50 gf	20 gf	85 gf	30 gf
SR Short Roller	20.7 mm	1.6 mm	100 gf	20 gf	160 gf	50 gf	200 gf	55 gf	350 gf	80 gf
NR Normal Roller	20.7 mm	3.7 mm	40 gf	10 gf	60 gf	25 gf	75 gf	30 gf	140 gf	45 gf
SM Simulated Roller	18.7 mm	2.8 mm	55 gf	15 gf	85 gf	30 gf	105 gf	40 gf	180 gf	50 gf

OF - operating force; OP - operating position; PT - pre-travel; RF - release force

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number
MP16DTAOLE	16 A @ 250 VAC	SPDT	.187 quick connect	no lever	1,6N (160gf)	1-1478603-1
MP16DTASLE				short lever	1,6N (160gf)	1-1478603-2
MP16DTANLE				normal lever	0,75N (75gf)	1-1478603-3
MP16DTALLE				long lever	0,4N (40gf)	1-1478603-4
MP16DTASRE				short roller	1,6N (160gf)	1-1478603-5
MP16DTANRE				normal roller	0,6N (60gf)	1-1478603-6
MP16DTASME				simulated roller	0,85N (85gf)	1-1478603-7
MP16DTAOLG				no lever	2,0N (200gf)	1-1478604-1
MP16DTASLG				short lever	2,0N (200gf)	1-1478604-2
MP16DTANLG				normal lever	0,95N (95gf)	1-1478604-3
MP16DTALLG				long lever	0,5N (50gf)	1-1478604-4
MP16DTASRG				short roller	2,0N (200gf)	1-1478604-5
MP16DTANRG				normal roller	0,75N (75gf)	1-1478604-6
MP16DTASMG				simulated roller	1,05N (105gf)	1-1478604-7
MP16DTAOLK				no lever	3,5N (350gf)	1-1478605-1
MP16DTASLK				short lever	3,5N (350gf)	1-1478605-2
MP16DTANLK				normal lever	1,7N (170gf)	1-1478605-3
MP16DTALLK				long lever	0,85N (85gf)	1-1478605-4
MP16DTASRK				short roller	3,5N (350gf)	1-1478605-5
MP16DTANRK				normal roller	1,4N (140gf)	1-1478605-6
MP16DTASMK				simulated roller	1,8N (180gf)	1-1478605-7

MP Miniature Snap Action Switches (Continued)

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number
MP16DTCOLE	16 A @ 250 VAC		.250 quick connect	no lever	1,6N (160gf)	1-1478606-1
MP16DTCOLE				short lever	1,6N (160gf)	1-1478606-2
MP16DTCNLE				normal lever	0,75N (75gf)	1-1478606-3
MP16DTCNLE				long lever	0,4N (40gf)	1-1478606-4
MP16DTCNRE				short roller	1,6N (160gf)	1-1478606-5
MP16DTCNRE				normal roller	0,6N (60gf)	1-1478606-6
MP16DTCNRE				simulated roller	0,85N (85gf)	1-1478606-7
MP16DTCNRE				no lever	2,0N (200gf)	1-1478607-1
MP16DTCNRE				short lever	2,0N (200gf)	1-1478607-2
MP16DTCNRE				normal lever	0,95N (95gf)	1-1478607-3
MP16DTCNRE				long lever	0,5N (50gf)	1-1478607-4
MP16DTCNRE				short roller	2,0N (200gf)	1-1478607-5
MP16DTCNRE				normal roller	0,75N (75gf)	1-1478607-6
MP16DTCNRE				simulated roller	1,05N (105gf)	1-1478607-7
MP16DTCNRE				no lever	3,5N (350gf)	1-1478608-1
MP16DTCNRE				short lever	3,5N (350gf)	1-1478608-2
MP16DTCNRE				normal lever	1,7N (170gf)	1-1478608-3
MP16DTCNRE				long lever	0,85N (85gf)	1-1478608-4
MP16DTCNRE				short roller	3,5N (350gf)	1-1478608-5
MP16DTCNRE				normal roller	1,4N (140gf)	1-1478608-6
MP16DTCNRE				simulated roller	1,8N (180gf)	1-1478608-7
MP16NCAOLE		SPNC	.187 quick connect	no lever	1,6N (160gf)	1-1478609-1
MP16NCAOLE				short lever	1,6N (160gf)	1-1478609-2
MP16NCAOLE				normal lever	0,75N (75gf)	1-1478609-3
MP16NCAOLE				long lever	0,4N (40gf)	1-1478609-4
MP16NCAOLE				short roller	1,6N (160gf)	1-1478609-5
MP16NCAOLE				normal roller	0,6N (60gf)	1-1478609-6
MP16NCAOLE				simulated roller	0,85N (85gf)	1-1478609-7
MP16NCAOLE				no lever	2,0N (200gf)	1-1478610-1
MP16NCAOLE				short lever	2,0N (200gf)	1-1478610-2
MP16NCAOLE				normal lever	0,95N (95gf)	1-1478610-3
MP16NCAOLE				long lever	0,5N (50gf)	1-1478610-4
MP16NCAOLE				short roller	2,0N (200gf)	1-1478610-5
MP16NCAOLE				normal roller	0,75N (75gf)	1-1478610-6
MP16NCAOLE				simulated roller	1,05N (105gf)	1-1478610-7
MP16NCAOLE				no lever	3,5N (350gf)	1-1478611-1
MP16NCAOLE				short lever	3,5N (350gf)	1-1478611-2
MP16NCAOLE				normal lever	1,7N (170gf)	1-1478611-3
MP16NCAOLE				long lever	0,85N (85gf)	1-1478611-4
MP16NCAOLE				short roller	3,5N (350gf)	1-1478611-5
MP16NCAOLE				normal roller	1,4N (140gf)	1-1478611-6
MP16NCAOLE				simulated roller	1,8N (180gf)	1-1478611-7
MP16NCCOLE			.250 quick connect	no lever	1,6N (160gf)	1-1478612-1
MP16NCCOLE				short lever	1,6N (160gf)	1-1478612-2
MP16NCCOLE				normal lever	0,75N (75gf)	1-1478612-3
MP16NCCOLE				long lever	0,4N (40gf)	1-1478612-4
MP16NCCOLE				short roller	1,6N (160gf)	1-1478612-5
MP16NCCOLE				normal roller	0,6N (60gf)	1-1478612-6
MP16NCCOLE				simulated roller	0,85N (85gf)	1-1478612-7
MP16NCCOLE				no lever	2,0N (200gf)	1-1478613-1
MP16NCCOLE				short lever	2,0N (200gf)	1-1478613-2
MP16NCCOLE				normal lever	0,95N (95gf)	1-1478613-3
MP16NCCOLE				long lever	0,5N (50gf)	1-1478613-4
MP16NCCOLE				short roller	2,0N (200gf)	1-1478613-5
MP16NCCOLE				normal roller	0,75N (75gf)	1-1478613-6
MP16NCCOLE				simulated roller	1,05N (105gf)	1-1478613-7
MP16NCCOLE				no lever	3,5N (350gf)	1-1478614-1
MP16NCCOLE				short lever	3,5N (350gf)	1-1478614-2
MP16NCCOLE				normal lever	1,7N (170gf)	1-1478614-3
MP16NCCOLE				long lever	0,85N (85gf)	1-1478614-4
MP16NCCOLE				short roller	3,5N (350gf)	1-1478614-5
MP16NCCOLE				normal roller	1,4N (140gf)	1-1478614-6
MP16NCCOLE				simulated roller	1,8N (180gf)	1-1478614-7

Preferred parts in bold print

MP Miniature Snap Action Switches (Continued)

Product key	Rating	Function	Terminal	Lever	Operating force	Part Number		
MP16NOAOLE	16 A @ 250 VAC	SPNO	.187 quick connect	no lever	1,6N (160gf)	1-1478615-1		
MP16NOASLE				short lever	1,6N (160gf)	1-1478615-2		
MP16NOANLE				normal lever	0,75N (75gf)	1-1478615-3		
MP16NOALLE				long lever	0,4N (40gf)	1-1478615-4		
MP16NOASRE				short roller	1,6N (160gf)	1-1478615-5		
MP16NOANRE				normal roller	0,6N (60gf)	1-1478615-6		
MP16NOASME				simulated roller	0,85N (85gf)	1-1478615-7		
MP16NOAOLG				no lever	2,0N (200gf)	1-1478616-1		
MP16NOASLG				short lever	2,0N (200gf)	1-1478616-2		
MP16NOANLG				normal lever	0,95N (95gf)	1-1478616-3		
MP16NOALLG				long lever	0,5N (50gf)	1-1478616-4		
MP16NOASRG				short roller	2,0N (200gf)	1-1478616-5		
MP16NOANRG				normal roller	0,75N (75gf)	1-1478616-6		
MP16NOASMG				simulated roller	1,05N (105gf)	1-1478616-7		
MP16NOAOLK				no lever	3,5N (350gf)	1-1478617-1		
MP16NOASLK				short lever	3,5N (350gf)	1-1478617-2		
MP16NOANLK				normal lever	1,7N (170gf)	1-1478617-3		
MP16NOALLK				long lever	0,85N (85gf)	1-1478617-4		
MP16NOASRK				short roller	3,5N (350gf)	1-1478617-5		
MP16NOANRK				normal roller	1,4N (140gf)	1-1478617-6		
MP16NOASMK				simulated roller	1,8N (180gf)	1-1478617-7		
MP16NOCOLE			.250 quick connect			no lever	1,6N (160gf)	1-1478618-1
MP16NOCOLE						short lever	1,6N (160gf)	1-1478618-2
MP16NOCNLE						normal lever	0,75N (75gf)	1-1478618-3
MP16NOCNLE						long lever	0,4N (40gf)	1-1478618-4
MP16NOCNLE						short roller	1,6N (160gf)	1-1478618-5
MP16NOCNRE						normal roller	0,6N (60gf)	1-1478618-6
MP16NOCNRE						simulated roller	0,85N (85gf)	1-1478618-7
MP16NOCOLG						no lever	2,0N (200gf)	1-1478619-1
MP16NOCOLG						short lever	2,0N (200gf)	1-1478619-2
MP16NOCNLG						normal lever	0,95N (95gf)	1-1478619-3
MP16NOCNLG						long lever	0,5N (50gf)	1-1478619-4
MP16NOCNRG						short roller	2,0N (200gf)	1-1478619-5
MP16NOCNRG						normal roller	0,75N (75gf)	1-1478619-6
MP16NOCNRG						simulated roller	1,05N (105gf)	1-1478619-7
MP16NOCOLK						no lever	3,5N (350gf)	1-1478620-1
MP16NOCOLK						short lever	3,5N (350gf)	1-1478620-2
MP16NOCNLK						normal lever	1,7N (170gf)	1-1478620-3
MP16NOCNLK						long lever	0,85N (85gf)	1-1478620-4
MP16NOCNRK						short roller	3,5N (350gf)	1-1478620-5
MP16NOCNRK						normal roller	1,4N (140gf)	1-1478620-6
MP16NOCNRK						simulated roller	1,8N (180gf)	1-1478620-7
MP01DTAOLD	0.1 A @ 250VAC	DT	.187 quick connect	no lever	1,0N (100gf)	1-1478670-1		
MP01DTASLD				short lever	1,0N (100gf)	1-1478670-2		
MP01DTANLD				normal lever	0,5N (50gf)	1-1478670-3		
MP01DTALLD				long lever	0,25N (25gf)	1-1478670-4		
MP01DTASRD				short roller	1,0N (100gf)	1-1478670-5		
MP01DTANRD				normal roller	0,4N (40gf)	1-1478670-6		
MP01DTASMD				simulated roller	0,55N (55gf)	1-1478670-7		
MP01NCAOLD		SPNC				no lever	1,0N (100gf)	1-1478671-1
MP01NCASLD						short lever	1,0N (100gf)	1-1478671-2
MP01NCANLD						normal lever	0,5N (50gf)	1-1478671-3
MP01NCALLD						long lever	0,25N (25gf)	1-1478671-4
MP01NCASRD						short roller	1,0N (100gf)	1-1478671-5
MP01NCANRD						normal roller	0,4N (40gf)	1-1478671-6
MP01NCASMD						simulated roller	0,55N (55gf)	1-1478671-7
MP01NOAOLD		SPNO				no lever	1,0N (100gf)	1-1478672-1
MP01NOASLD						short lever	1,0N (100gf)	1-1478672-2
MP01NOANLD						normal lever	0,5N (50gf)	1-1478672-3
MP01NOALLD						long lever	0,25N (25gf)	1-1478672-4
MP01NOASRD						short roller	1,0N (100gf)	1-1478672-5
MP01NOANRD						normal roller	0,4N (40gf)	1-1478672-6
MP01NOASMD						simulated roller	0,55N (55gf)	1-1478672-7

Product Range



Rotary Switches

- **Wire hooking versions:**
MRC Series
- **PCB versions:**
MRJ and 6000 Series

Main features:

- Adjustable stop on 1, 2 and 3 pole
- Different output coding
- Wiping contacts
- Metal shaft
- with or without knob
- PCB terminal versions
- Splashproof versions



MRC Series, 500m Amppage I2



MRJ Series, 0.4 VApage I5



6000 Seriespage I8

MRC Series, 500m Amp

Features

- 36° throw
- Adjustable stop on 1, 2, and 3 pole
- Insert molded terminals
- Wiping contacts



Typical performance characteristics

Contact timing non-shorting
 Contact rating 500 mA @ 125 VAC or 28 VDC resistive
 Electrical life up to 10,000 cycles @ full contact rating
 up to 25,000 cycles @ 150 mA @ 125 VAC
 or 250 mA @ 28 VDC
 Contact resistance, initial 50 mOhms max.
 Insulation resistance 100 MOhms min.
 Dielectric strength 1,000 Vrms @ sea level
 Rotation torque 9.8 Ncm max
 Plunger/actuator travel 36°

Environmental specification

Operating temperature -20°C to 80°C
 Storage temperature -20°C to 100°C
 Solder heat resistance manual: 270°C for 3 seconds
 wave: 245°C for 3 seconds

Material specifications

Contacts silver
 Case material aluminum
 Actuator material brass
 Terminals/fixed contacts silver plated brass
 Terminal seal insert molded, DAP base
 Bushing nickel plated brass

Product key

Typical product key

MRC 110 04

Type
MRC Rotary switches, 500m Amp

Number of poles, positions
110 1 pole, 2 to 10 positions **33** 3 poles, 2 to 3 positions
25 2 poles, 2 to 5 positions **42** 4 poles, 2 positions (fixed)

Knob
S shaft, no knob **blank** knob included

Material
04 RoHS compliant

MRC Series, 500m Amp (Continued)

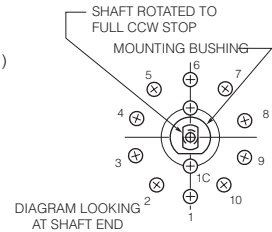
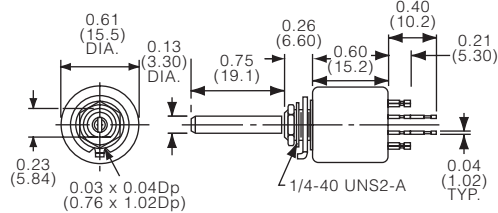
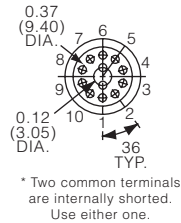
Number of poles, positions



110 1 pole, 2-10 positions, shaft without knob



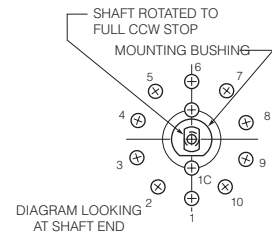
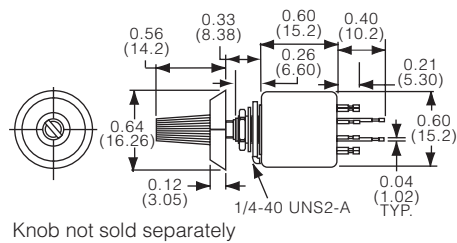
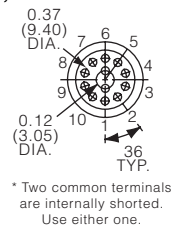
MRC110S04



110 1 pole, 2-10 positions, with knob



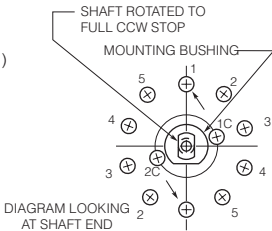
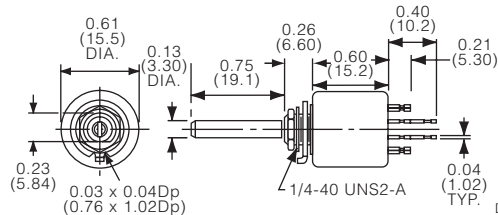
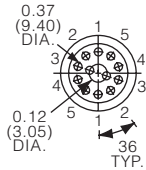
MRC11004



25 2 pole, 2-5 positions, shaft without knob



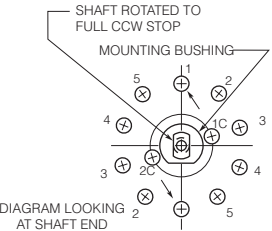
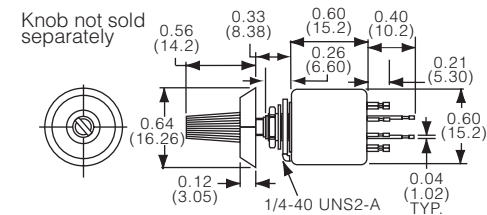
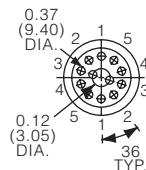
MRC25S04



25 2 pole, 2-5 positions, with knob



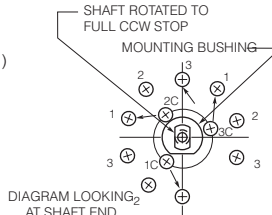
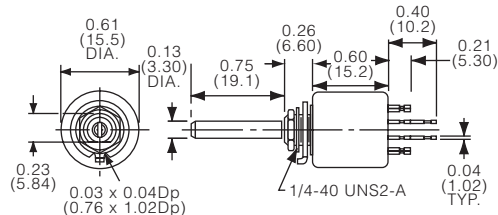
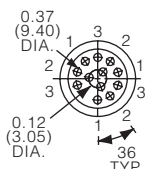
MRC2504



33 3 pole, 2-3 positions, shaft without knob



MRC33S04

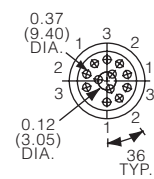


MRC Series, 500m Amp (Continued)

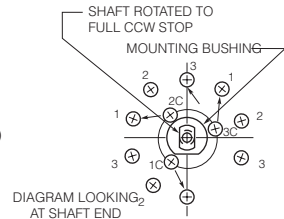
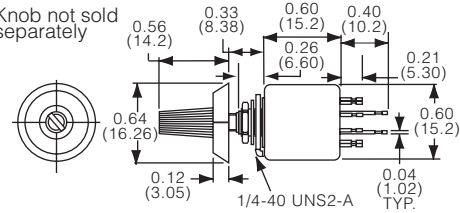
33 3 pole, 2-3 positions, with knob



MRC3304



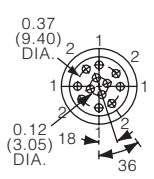
Knob not sold separately



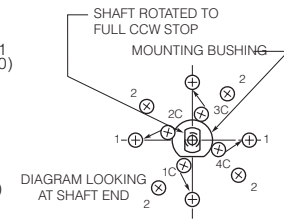
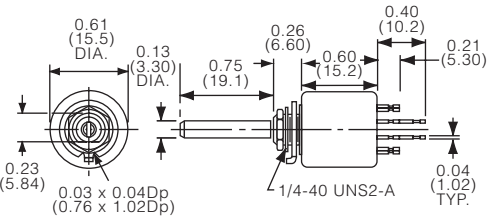
42 4 pole, 2 positions, shaft without knob



MRC42S04



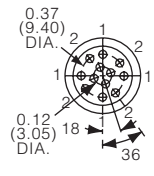
Knob not sold separately



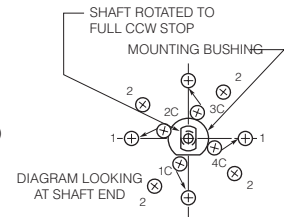
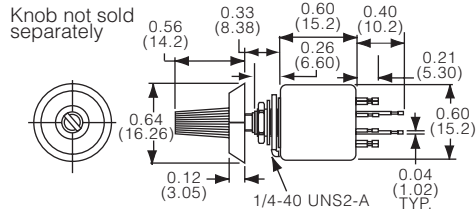
42 4 pole, 2 positions, with knob



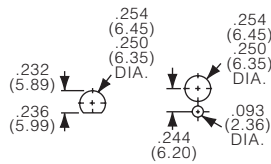
MRC4204



Knob not sold separately



Mounting



Product key	Poles	Positions	Knob	Part Number
MRC11004	1 pole	2 to 10	yes	1825495-1
MRC110S04			no	1825496-1
MRC2504	2 pole	2 to 5	yes	1825497-1
MRC25S04			no	1825498-1
MRC3304	3 pole	2 to 3	yes	1825499-1
MRC33S04			no	1825500-1
MRC4204	4 pole	2 (fixed)	yes	1825501-1
MRC42S04			no	1825502-1

MRJ Series, 0.4 VA

Features

- 30° throw
- PC mount
- Splashproof versions



Typical performance characteristics

Contact timing non-shorting
 Contact rating 0.4 VA max. @ 20 VDC or peak VAC
 Electrical life up to 10,000 cycles @ full contact rating
 up to 30,000 cycles @ 0.1 mA, 12 VDC
 Contact resistance, initial 30 mOhms max.
 Insulation resistance 10,000 MOhms min.
 Dielectric strength 1,000 Vrms @ sea level
 Rotation torque 100 Nmm (14 inch oz) max.
 Plunger/actuator travel 30°C

Environmental specification

Operating temperature -20°C to 70°C
 Storage temperature -20°C to 70°C
 Solder heat resistance 285°C ± 3°C for 15 seconds

Material specifications

Contacts gold plate over nickel plate
 Case material zinc die cast
 Actuator material brass
 Terminals/fixed contacts gold plated
 Terminal seal molded-in epoxy base
 Process seal MRJB and MRJE

Product key

Typical product key

MRJ B 112 04

Type

MRJ Rotary switches, 0.4 VA

Actuator shaft

blank standard shaft
E standard shaft, splashproof
B screwdriver slot, splashproof

Number of poles, positions

standard
112 1 pole, 2 to 12, adjustable or continuous rotation
26 2 poles, 2 to 6, adjustable
34 3 poles, 2 to 4, adjustable
43 4 poles, 2 to 3, adjustable
splashproof
112 1 pole, 12 continuous rotation (splashproof)
26 2 poles, 6 fixed (splashproof)
34 3 poles, 4 fixed (splashproof)
43 4 poles, 3 fixed (splashproof)

Material

04 RoHS compliant

MRJ Series, 0.4 VA (Continued)

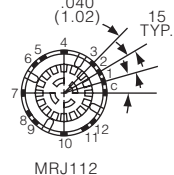
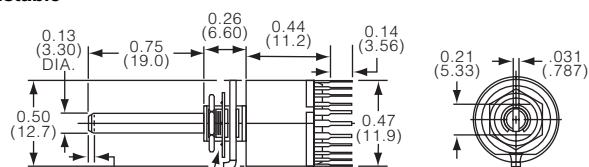
Actuator shaft



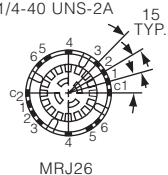
blank standard shaft, adjustable



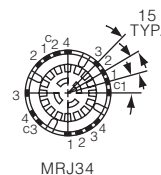
MRJ2604



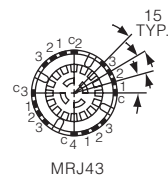
MRJ112



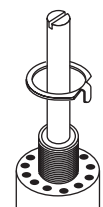
MRJ26



MRJ34



MRJ43

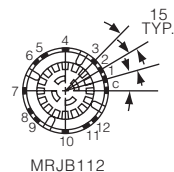
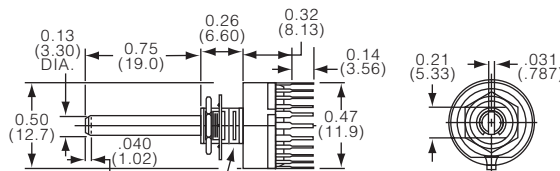


adjustable shaft

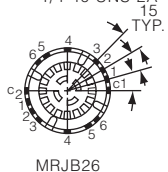
E standard shaft, splashproof



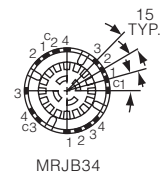
MRJE2604



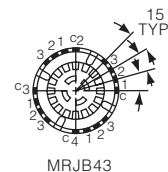
MRJB112



MRJB26



MRJB34

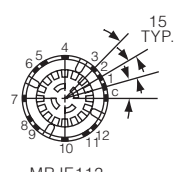
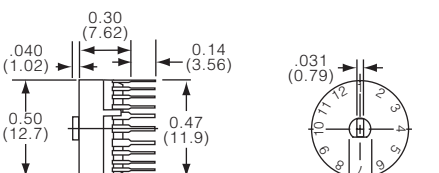


MRJB43

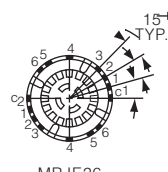
B screwdriver slot, splashproof



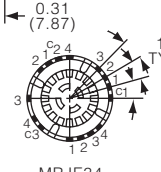
MRJB2604



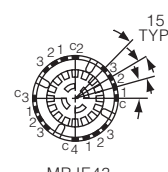
MRJE112



MRJE26

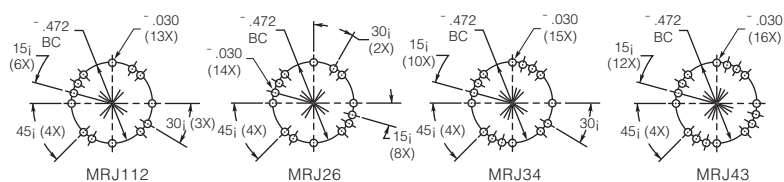


MRJE34



MRJE43

Mounting



MRJ112

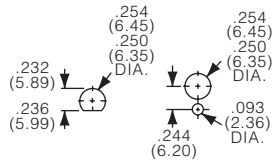
MRJ26

MRJ34

MRJ43

MRJ Series, 0.4 VA (Continued)

Mounting



Product key	Actuator shaft	Poles	Positions	Pos. conditions	Part Number
MRJ11204	standard shaft	1 pole	2 to 12 or 12	adjustable or cont. rot.	1825535-1
MRJ2604		2 pole	2 to 6	adjustable	1825535-2
MRJ3404		3 pole	2 to 4		1825535-3
MRJ4304		4 pole	2 to 3		1825535-4
MRJB11204	standard shaft	1 pole	12	continous rotation	1825536-1
MRJB2604	splashproof	2 pole	6	fixed	1825536-2
MRJB3404		3 pole	4		1825536-3
MRJB4304		4 pole	3		1825536-4
MRJE11204	screwdriver slot	1 pole	12	continous rotation	1825537-1
MRJE2604		2 pole	6	fixed	1825537-2
MRJE3404		3 pole	4		1825537-3
MRJE4304		4 pole	3		1825537-4

6000 Series

Features

- **Compact design**
- **Positive detent action**
- **Variety of outputs**
- **Large readable characters**



Typical performance characteristics

Contact timing	non-shorting
Contact rating	0.4 VA max. @ 20 VDC or peak VAC
Electrical life	10,000 cycles @ full contact rating
	30,000 cycles @ 0.1 mA, 12 VDC
Contact resistance, initial	30 mOhms max.
Insulation resistance	10,000 MOhms min.
Dielectric strength	1,000 Vrms @ sea level
Rotation torque	100 Nmm (14 inch oz) max.
Plunger/actuator travel	30°
Product specification	108-7514
Instruction sheet	408-7523
Application specification	114-7005

Environmental specification

Environmental specification

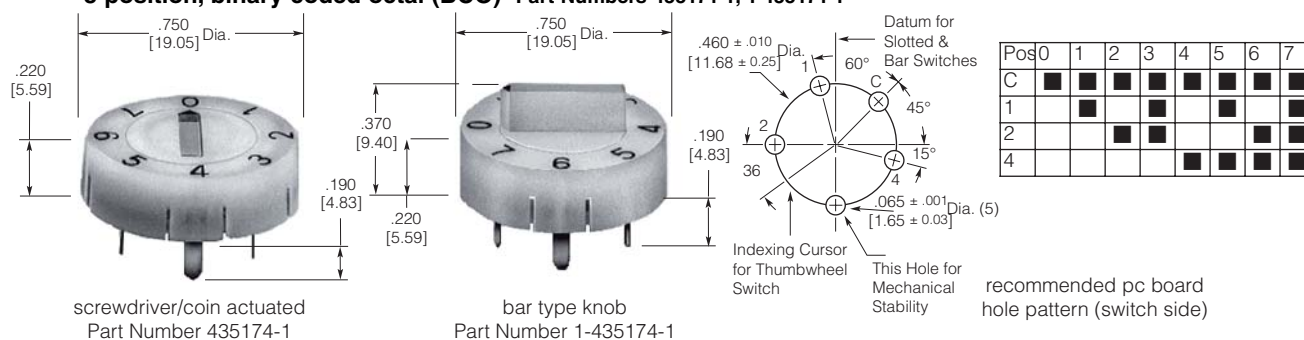
Operating temperature	-18°C to 88°C
Storage temperature	-45°C to 88°C
Humidity	+40°C and 95% RH for 96 hours

Material specifications

Contacts	phosphor bronze, gold over nickel plated
Solder tabs and pins	beryllium copper, tin plated
Coded switches	beryllium copper, tin plated
Single pole switches	brass, tin plated
Structural parts	thermoplastic

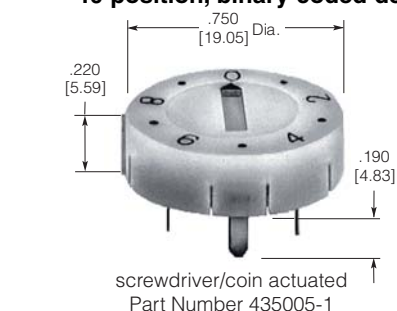
6000 Series, rotary switches, pc mount

8 position, binary coded octal (BCO) Part Numbers 435174-1, 1-435174-1

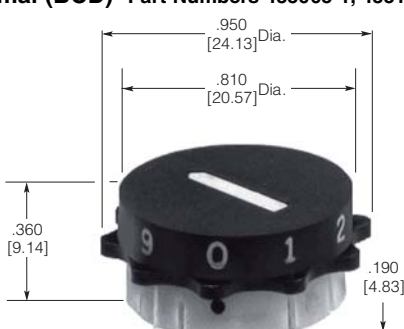


6000 Series (Continued)

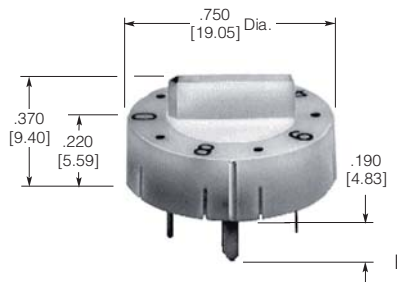
10 position, binary coded decimal (BCD) Part Numbers 435005-1, 435123-1, 435128-1



screwdriver/coin actuated
Part Number 435005-1

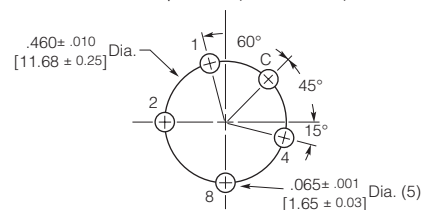


thumbwheel
Part Number 435128-1



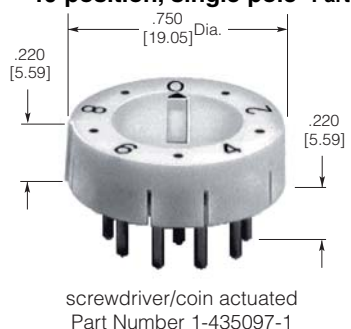
bar type knob
Part Number 1-435123-1

recommended pc board
hole pattern (switch side)

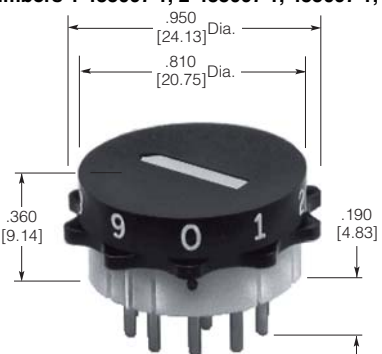


Pos	0	1	2	3	4	5	6	7	8	9
C	■	■	■	■	■	■	■	■	■	■
1		■		■		■		■		■
2			■	■			■	■		
4					■	■	■	■		
8									■	■

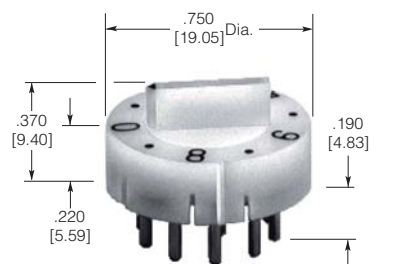
10 position, single pole Part Numbers 1-435097-1, 2-435097-1, 435097-1, 435097-2



screwdriver/coin actuated
Part Number 1-435097-1

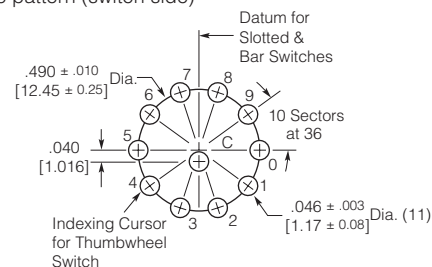


thumbwheel
Part Number 435097-1 (shown)
Part Number 435097-2 (with numbers 1-10)



bar type knob
Part Number 2-435097-1

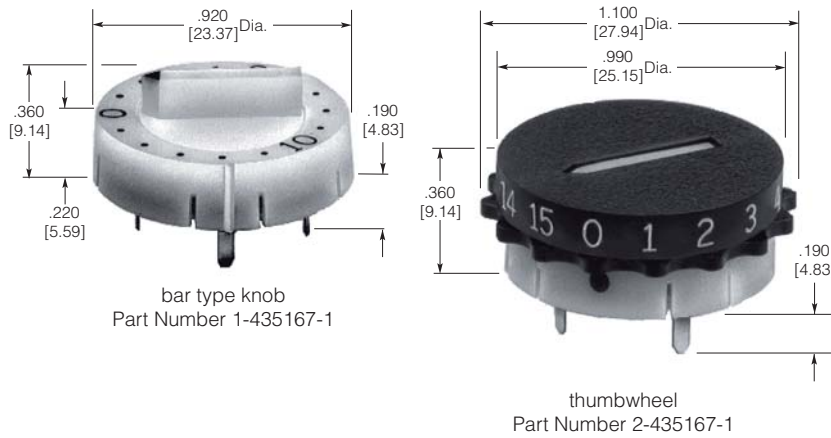
recommended pc board
hole pattern (switch side)



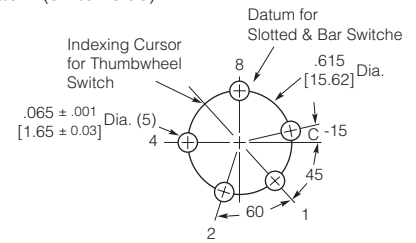
P.	0	1	2	3	4	5	6	7	8	9
C	■	■	■	■	■	■	■	■	■	■
0	■									
1		■								
2			■							
3				■						
4					■					
5						■				
6							■			
7								■		
8									■	
9										■

6000 Series (Continued)

16 position, hexadecimal Part Numbers 1-435167-1, 2-435167-1



recommended pc board
hole pattern (switch side)



P.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C																
1																
2																
4																
8																

Positions	Actuator type	Coding	Part Number
10	screwdriver/coin	single pole	1-435097-1
16	bar	hexadecimal	1-435167-1
8		binary coded octal	1-435174-1
10		single pole	2-435097-1
16	thumbwheel	hexadecimal	2-435167-1
10	screwdriver/coin	BCD	435005-1
10	thumbwheel	single pole	435097-1
10	bar	BCD	435123-1
8	screwdriver/coin	binary coded octal	435174-1

Product Range



Keylock Switches

■ **Medium Security Keylock Switches:**
2SWK, SKF Series

■ **High Security Keylock Switches:**
SWK Series

Main features:

- SPST type - 5 disc tumbler versions
- SPST type - 8 disc tumbler versions
- DPDT type - 4 disc tumbler versions
- All keylocks are supplied with 2 brass keys on a ring



2SWK 13/23 Series, Medium Securitypage J2



SKF Series, Medium Securitypage J4



SWK 12 Series, High Securitypage J6



SKT Series, 2 Positionpage J8

2SWK 13/23 Series, Medium Security

Features

- SPST type - 5 disc tumblers
- All keylocks are supplied with 2 brass keys on a ring



Typical performance characteristics

Contact timing non-shortening
 Contact rating 1 A @ 120 VAC resistive
 Electrical life up to 10,000 cycles
 Contact resistance, initial 50 mOhms max.
 Plunger/actuator travel 90°
 Key changes 25 standard

Material specifications

Contacts silver
 Cylinder material zinc alloy
 Lock body zinc alloy
 Key material brass
 Terminals/fixed contacts screw type
 Beveled frame finish 302 stainless steel
 RoHS Directive 2002/95/EC compliant

Product key				Typical product key	2SWK	131	AL101
Type							
2SWK Medium security key switch							
Action and key removal							
	position 1	position 2		remove key pos.			
131	OFF	ON		pos. 1			
132	OFF	ON		pos. 1 or pos. 2			
133	ON	OFF		pos. 1			
231	OFF	(ON)		pos. 1			
233	ON	(OFF)		pos. 1			
Key coding							
AL101	AL102	AL103	AL104	AL105			

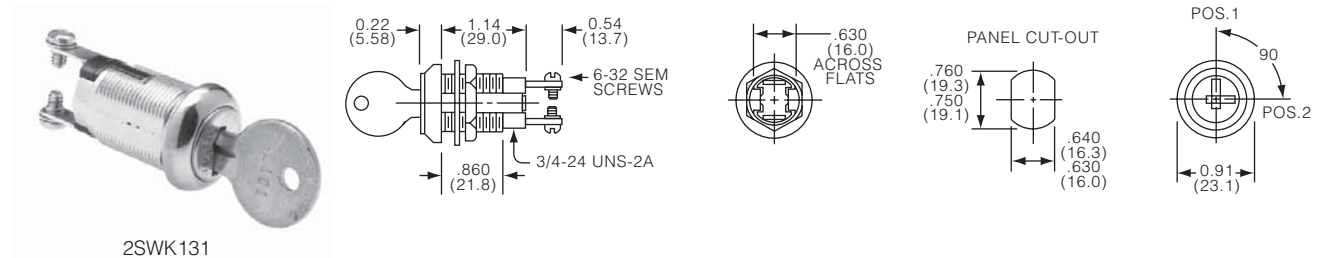
Note: (On) or (Off) = Indicates momentary position

2SWK 13/23 Series, Medium Security (Continued)

Action and key position



Codes 131 - 233



Product key	Pos 1	Pos2	Remove key	Key coding	Part Number
2SWK131AL101	Off	On	Position 1	AL101	1-1437597-7
2SWK131AL102				AL102	1-1437597-8
2SWK131AL103				AL103	1-1437597-9
2SWK131AL104				AL104	2-1437597-0
2SWK131AL105				AL105	2-1437597-1
2SWK132AL101			Position 1 or 2	AL101	2-1437597-3
2SWK132AL102				AL102	2-1437597-4
2SWK132AL103				AL103	2-1437597-5
2SWK133AL104	On	Off	Position 1	AL104	2-1437597-6
2SWK231AL101	Off	(On)		AL101	2-1437597-7
2SWK231AL102				AL102	2-1437597-8
2SWK231AL103				AL103	2-1437597-9
2SWK231AL104				AL104	3-1437597-0
2SWK231AL105				AL105	3-1437597-1
2SWK233AL101	On	(Off)		AL101	3-1437597-2
2SWK1323AL101	spare key			AL101	4-1437597-3
2SWK1323AL102	spare key			AL102	2-1437597-2

SKF Series, Medium Security

Features

- SPST type - 4 disc tumblers
- All keylocks are supplied with 2 brass keys on a ring



Typical performance characteristics

Contact timing non-shorting
 Contact rating 1 A @ 120 VAC resistive
 Electrical life 10,000 cycles
 Contact resistance, initial 50 mOhms max.
 Actuator travel 90°
 Key changes 10 standard

Environmental specification

Operating temperature -30°C to +85°C
 Storage temperature -30°C to +85°C

Material specifications

Contacts silver
 Cylinder material zinc alloy
 Lock body zinc alloy
 Key material brass
 Terminals/fixed contacts screw type
 Beveled frame finish brushed chrome
 RoHS Directive 2002/95/EC compliant

Product key				Typical product key	2SKF	131	AEL01
Type							
2SKF Medium security key switch							
Action and key removal							
	position 1	position 2		remove key pos.			
131	OFF	ON		pos. 1			
132	OFF	ON		pos. 1 or pos. 2			
133	ON	OFF		pos. 1			
231	OFF	(ON)		pos. 1			
Key coding							
AEL01	AEL03	AEL05	AEL08				
AEL02	AEL04	AEL06					

Note: (On) or (Off) = Indicates momentary position

SKF Series, Medium Security (Continued)

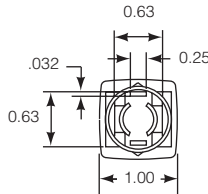
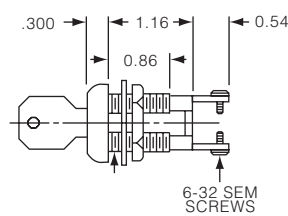
Action and key position



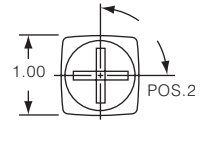
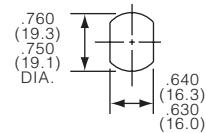
Codes 131 - 231



SKF131



PANEL CUT-OUT



Product key	Pos 1	Pos2	Remove key	Key coding	Part Number
2SKF131AEL01	Off	On	Position 1	AEL01	1437597-1
2SKF131AEL02				AEL02	1437597-2
2SKF131AEL03				AEL03	1437597-3
2SKF131AEL04				AEL04	1437597-4
2SKF131AEL06				AEL06	1437597-5
2SKF131AEL08				AEL08	1437597-6
2SKF132AEL01			Position 1 or 2	AEL01	1437597-7
2SKF132AEL02				AEL02	1437597-8
2SKF132AEL04				AEL04	1437597-9
2SKF133AEL01	On	Off	Position 1	AEL01	1-1437597-0
2SKF231AEL01	Off	(On)		AEL01	1-1437597-1
2SKF231AEL02				AEL02	1-1437597-2
2SKF231AEL03				AEL03	1-1437597-3
2SKF231AEL05				AEL05	1-1437597-4
2SKF231AEL06				AEL06	1-1437597-5
2SKF231AEL08				AEL08	1-1437597-6
SK1323AEL01	spare key			AEL01	3-1437597-4

SWK 12 Series, High Security

Features

- SPST type - 8 disc tumblers
- All keylocks are supplied with 2 brass keys on a ring



Typical performance characteristics

Contact timing non-shorting
 Contact rating 5 A @ 115 VAC, 15 A @ 24 VDC resistive
 Electrical life. 20,000 cycles
 Contact resistance, initial 50 mOhms max.
 Dielectric strength 1,000 VAC @ sea level
 Actuator travel. 90°
 Key changes. 10 standard

Environmental specification

Operating temperature -30°C to +85°C
 Storage temperature -30°C to +85°C

Material specifications

Contacts. silver
 Cylinder material. zinc alloy
 Lock body. zinc alloy
 Key material brass
 Terminals/fixed contacts screw Type
 Beveled frame finish polished chrome
 RoHS Directive 2002/95/EC compliant

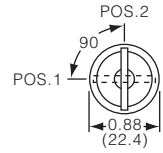
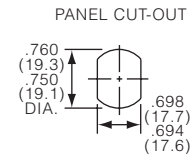
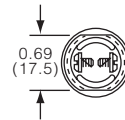
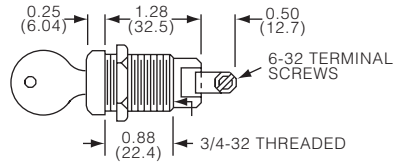
Product key				Typical product key	SWK12	F	315
Type							
SWK12				High security key switch			
Action and key removal							
		position 1	position 2	remove key pos.			
F	ON		OFF	pos. 1			
1F	ON		OFF	pos. 1 or pos. 2			
3F	ON		OFF	pos. 2			
Key coding							
309	311	315	320				

SWK 12 Series, High Security (Continued)

Action and key position



Codes F, 1F, 3F



Product key	Pos 1	Pos2	Remove key	Key coding	Part Number
SWK121F311	On	Off	Position 1 or 2	311	3-1437597-5
SWK121F315				315	3-1437597-6
SWK121F320				320	3-1437597-7
SWK123F315			Position 2	315	3-1437597-8
SWK12F309			Position 1	309	3-1437597-9
SWK12F315				315	4-1437597-0
SWK12F320				320	4-1437597-1
SWK12KF315	spare key			315	4-1437597-2

SKT Series, 2 Position

Features

- All keylocks are supplied with 2 brass keys on a ring
- SPDT and DPDT types - 4 disc tumblers



Typical performance characteristics

Contact timing non-shorting
 Contact rating gold: 0.4 VA max. @ 20 VDC or peak AC
 silver: 3 A @ 125 VAC or 28 VDC resistive
 Contact resistance, initial 20 mOhms max.
 Insulation resistance 1,000 MOhms @ 500 VDC min.
 Dielectric strength 1,000 volts @ sea level
 Actuator travel 80°

Environmental specification

Operating temperature -30°C to +85°C
 Storage temperature -30°C to +85°C
 Solder heat resistance 40 watt iron: 260°C to 316°C for 3 to 5 sec max.
 30 watt iron: 260°C for 10 sec max.

Material specifications

Contacts gold or silver
 Cylinder material zinc alloy
 Lock body zinc alloy
 Key material brass
 Terminals/fixed contacts tin lead plate
 Terminal seal epoxy on single pole only
 RoHS Directive 2002/95/EC NOT compliant

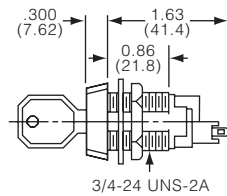
Product key		Typical product key		SKT	1	31	AEL01
Type							
SKT		2 Position Key Switch					
Switch configuration							
1	SPDT	3	DPDT				
Action and key removal							
31	position 1	position 2	remove key pos.				
32	ON	ON	pos. 1				
	ON	ON	pos. 1 or pos. 2				
Contacts							
blank	silver	G	gold				
Key coding							
AEL01	AEL02						

SKT Series, 2 Position (Continued)

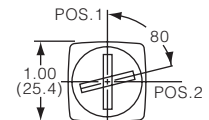
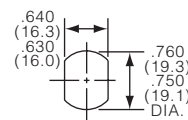
Action and key position



Codes 31 - 32



PANEL CUT-OUT



Product key	Switch type	Pos 1	Pos2	Remove key	Contacts	Key coding	Part Number
SKT131AEL01	SPDT	On	On	Position 1	Silver	AEL01	1437598-4
SKT131GAEL01					Gold		1437598-5
SKT131GAEL02						AEL02	1437598-6
SKT132AEL01				Pos. 1 or 2	Silver	AEL01	1437598-7
SKT132GAEL01	DPDT				Gold		1437598-8
SKT331AEL01				Position 1	Silver		1437598-9
SKT331GAEL01					Gold		1-1437598-0
SKT332AEL01				Pos. 1 or 2	Silver		1-1437598-1
SKT332GAEL01	spare key				Gold		1-1437598-3
SK1323AEL01						AEL01	3-1437597-4

Product Range



Knobs

- **Machined aluminum knobs:** K Series
- **Molded phenolic knobs:** P Series
- **Knob accessories**

Main features:

- Many different designs
- With or without indicator lines and numbers
- Supplied with set screw (anti-vibration feature)
- Shaft hole size adaptors available

K Series, Machined Aluminumpage K2



P Series, Molded Phenolicpage K12



Knob Accessoriespage K21

K Series, Machined Aluminum

Features

- Supplied with Loctite® set-screw (anti-vibration feature)
- With and without indicator line and numbers
- Shaft hole size adaptors available



Typical performance characteristics

Materials machined aluminum
 Set-screw steel
 Finish natural aluminum, or anodizing black
 Adapters brass, with nickel finish
 RoHS Directive 2002/95/EC compliant

Product key		Typical product key		K	S	900	B	1/4
Knob Material								
K	machined aluminum							
Type								
blank	3 flute design with and without indicator line							
A	6 flute design with indicator line							
AS	6 flute design with skirt and indicator lines							
B	control knob with straight knurl and top line indicator							
BS	control know with straight knurl and skirt							
CB	control knob with sawcut indicator							
D	diamond knurl with indicator line							
E	knurl grip with dot indicator							
ES	knurl grip with dot indicator on skirt							
FS	straight knurl with indicator on skirt							
HF	plain body with top and side sawcut indicator							
LN	straight knurl with top and side indicator							
LNS	straight knurl with indicator line on top, side and skirt							
N	straight knurl, with or without spinner, concentric set							
NS	straight knurl with arrowhead indicator on skirt							
PN	straight knurl with pointer and indicator line							
S	3 flute design with skirt and indicator line							
T	square serration with indicator line							
U	serrated diamond trim cut with dot indicator							
US	serrated diamond trim cut with dott indicator and skirt							
Reference diameter								
Series Aluminum								
400	501	700	900	1251				
500	600	701	1250	1755				
Finish								
A	natural aluminum	B	black					
Shaft diameter								
1/8	.126 (3.20mm)	1/4	.251 (6.37mm)					

Note: Product key for reference only, not all combinations are available.

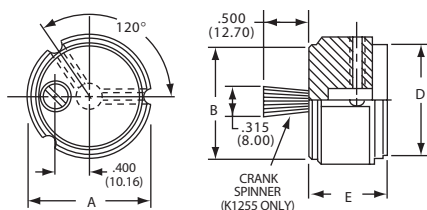
K Series, Machined Aluminum (Continued)

K series



K700B1/4

3 flute design with and without indicator line



Product key	Version	Color	Dim A	Dim B	Dim D	Dim E	Part Number
K500A1/8	with	natural	12.7 (.500)	10.9 (.430)	10.9 (.430)	15.9 (.625)	1437621-7
K500A1/4	indicator						1437621-6
K500B1/8	line	black					1437621-9
K500B1/4							1437621-8
K700A1/4		natural	18.8 (.740)	16.6 (.655)	16.6 (.655)		1-1437621-0
K700B1/4		black					1-1437621-1
K900A1/4		natural	23.8 (.937)	20.8 (.817)	20.8 (.817)		1-1437621-3
K900B1/4		black					1-1437621-4
K1250A1/4		natural	31.8 (1.25)	28.2 (1.11)	28.2 (1.11)	19.1 (.750)	1437621-2
K1250B1/4		black					1437621-3
K1251B1/4	no indicator						1437621-4
K1255BS1/4	crank spinner*						1437621-5

* with crank spinner, without indicator

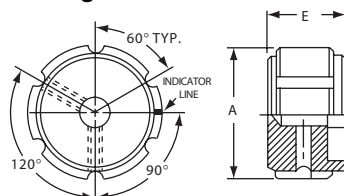
KA series



KA500A1/4



6 flute design with indicator line



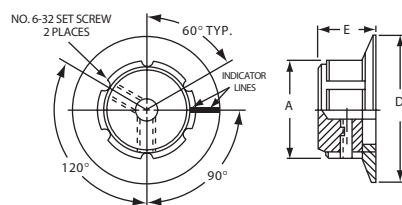
Product key	Version	Color	Dim A	Dim E	Part Number
KA500A1/8	with	natural	12.7 (.500)	15.9 (.625)	2-1437621-0
KA500A1/4	indicator	natural			1-1437621-9
KA500B1/8	line	black			2-1437621-2
KA500B1/4		black			2-1437621-1
KA700A1/4		natural	19.1 (.750)		2-1437621-3
KA700B1/4		black			2-1437621-4
KA900A1/4		natural	28.8 (.937)		2-1437621-5
KA900B1/4		black			2-1437621-6
KA1250B1/4		black	31.8 (1.25)	19.1 (.750)	1-1437621-8

KAS series



KAS500B1/4

6 flute design with aluminum skirt and indicator lines



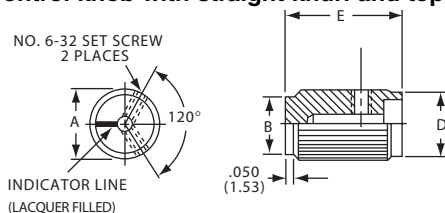
Product key	Version	Color	Dim A	Dim D	Dim E	Part Number
KAS500A1/8	with	natural	12.7 (.500)	18.8 (.740)	16.0 (.630)	2-1437621-8
KAS500A1/4	aluminum					2-1437621-7
KAS500B1/8	skirt	black				3-1437621-0
KAS500B1/4	and					2-1437621-9
KAS700A1/4	indicator	natural	19.1 (.750)	29.0 (1.14)		3-1437621-1
KAS700B1/4	lines	black				3-1437621-2
KAS900A1/4		natural	23.9 (.940)	35.6 (1.40)		3-1437621-3
KAS900B1/4		black				3-1437621-4

K Series, Machined Aluminum (Continued)

KB series



control knob with straight knurl and top line indicator

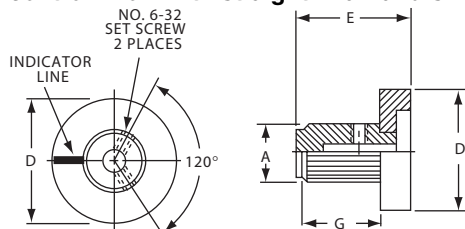


Product key	Color	Dim A	Dim B	Dim D	Dim E	Part Number
KB500A1/8	natural	12.7 (.500)	11.0 (.433)	12.0 (.472)	20.0 (.787)	3-1437621-6
KB500A1/4						3-1437621-5
KB500B1/8	black					3-1437621-9
KB500B1/4						3-1437621-8
KB700A1/4	natural	19.0 (.750)	17.1 (.673)	17.9 (.705)		4-1437621-0
KB700B1/4	black					4-1437621-2
KB900A1/4	natural	23.6 (.930)	22.0 (.866)	22.9 (.902)		4-1437621-4
KB900B1/4	black					4-1437621-5

KBS series



control knob with straight knurl and skirt

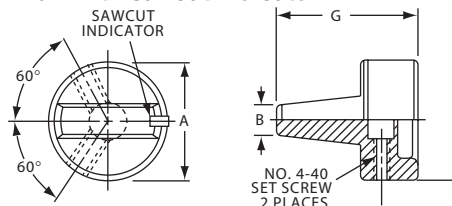


Product key	Version	Color	Dim A	Dim D	Dim E	Part Number
KBS500A101/8	with 0-9	natural	12.7 (.500)	25.4 (1.00)	24.1 (.950)	4-1437621-9
KBS500B101/8	numerals	black				5-1437621-3
KBS500B101/4		black				5-1437621-2
KBS500A1/8	with 0-9	natural				4-1437621-8
KBS500A1/4	indicator	natural				4-1437621-7
KBS500B1/8	line	black				5-1437621-1
KBS500B1/4		black				5-1437621-0

KCB series



control knob with sawcut indicator



Product key	Color	Dim A	Dim B	Dim D	Dim G	Part Number
KCB500A1/8	natural	12.7 (.500)	5.08 (.197)	3.20 (.126)	19.1 (.750)	5-1437621-7
KCB500A1/4				6.40 (.252)		5-1437621-6
KCB500B1/8	black			3.20 (.126)		5-1437621-9
KCB500B1/4				6.40 (.252)		5-1437621-8
KCB600A1/8	natural	15.7 (.618)		3.20 (.126)		6-1437621-0
KCB600B1/8	black					6-1437621-2
KCB600B1/4				6.40 (.252)		6-1437621-1
KCB700A1/4	natural	18.8 (.746)		6.35 (.250)	22.8 (.898)	6-1437621-3
KCB700B1/4	black					6-1437621-4
KCB900A1/4	natural	23.8 (.937)				6-1437621-5
KCB900B1/4	black					6-1437621-7

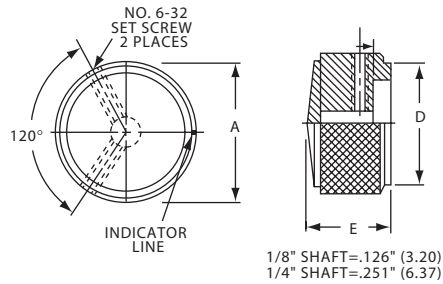
K Series, Machined Aluminum (Continued)

KD series



KD1250B1/4

diamond knurl with indicator line



Product key	Color	Dim A	Dim D	Dim E	Part Number
KD500A1/8	natural	12.7 (.500)	10.9 (.430)	16.0 (.630)	7-1437621-1
KD500A1/4					7-1437621-0
KD500B1/8	black				7-1437621-3
KD500B1/4					7-1437621-2
KD700A1/4	natural	19.1 (.750)	16.8 (.660)		7-1437621-4
KD700B1/4	black				7-1437621-5
KD900A1/4	natural	23.9 (.940)	20.8 (.820)		7-1437621-6
KD900B1/4	black				7-1437621-7
KD1250A1/4	natural	31.8 (1.25)	28.2 (1.11)	19.1 (.750)	6-1437621-8
KD1250B1/4	black				6-1437621-9

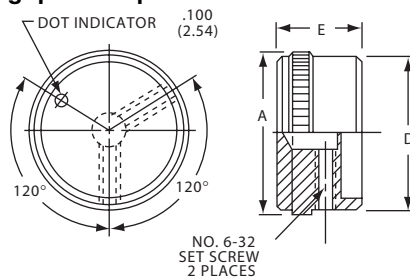
KE series



KE500AB1/4

KE900AB1/4

knurl grip with top dot indicator



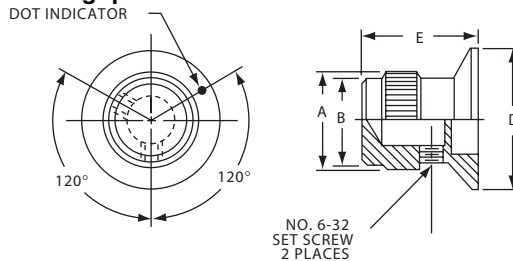
Product key	Color	Dim A	Dim D	Dim E	Part Number
KE500AB1/8	natural -	12.7 (.500)	11.7 (.460)	15.9 (.625)	8-1437621-0
KE500AB1/4	black				7-1437621-9
KE700AB1/4		18.8 (.740)	18.0 (.708)		8-1437621-1
KE900AB1/4		23.8 (.930)	22.9 (.900)		8-1437621-2
KE1250AB1/4		31.8 (1.25)	29.7 (1.17)		7-1437621-8

KES series



KES500AB1/4

knurl grip with dot indicator on skirt



Product key	Color	Dim A	Dim B	Dim D	Dim E	Part Number
KES500AB1/8	natural -	12.7 (.500)	11.7 (.460)	19.1 (.750)	15.9 (.625)	8-1437621-4
KES500AB1/4	black					8-1437621-3
KES700AB1/4		19.1 (.750)	18.1 (.710)	28.7 (1.13)		8-1437621-5

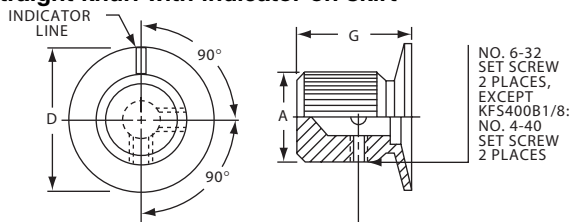
K Series, Machined Aluminum (Continued)

KFS series



KFS400B1/8

straight knurl with indicator on skirt



Product key	Color	Dim A	Dim D	Dim G	Part Number
KFS400B1/8	black matte	9.65 (.380)	12.7 (.500)	15.0 (.591)	8-1437621-6
KFS500B1/8		12.7 (.500)	16.0 (.630)	16.0 (.630)	8-1437621-8
KFS500B1/4		15.7 (.618)	25.4 (1.00)	20.6 (.811)	8-1437621-7
KFS600B1/4					8-1437621-9

KHF series

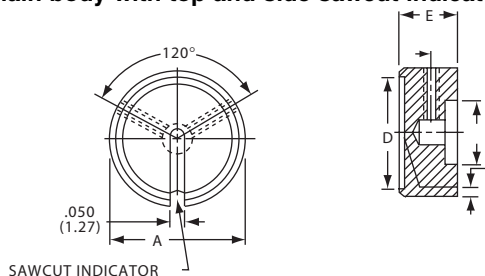


KHF500A1/4



KHF900A1/4

plain body with top and side sawcut indicator



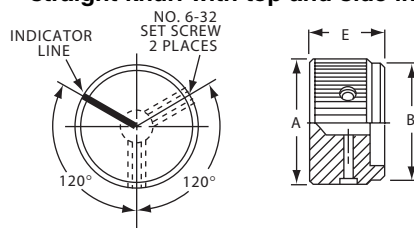
Product key	Color	Dim A	Dim E	Part Number
KHF500A1/4	natural	12.7 (.500)	14.3 (.563)	9-1437621-1
KHF700A1/4		18.8 (.740)		9-1437621-2
KHF900A1/4		23.8 (.937)		9-1437621-3
KHF1250A1/4		31.8 (1.23)		9-1437621-0

KLN series



KLN500A1/4

straight knurl with top and side indicator



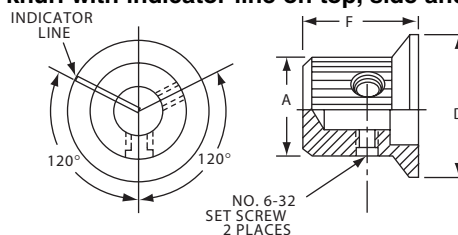
Product key	Color	Dim A	Dim B	Dim E	Part Number
KLN500A1/8	natural	12.7 (.500)	(11. (0.44)	15.9 (.625)	9-1437621-7
KLN500A1/4		12.7 (.500)	(11. (0.44)	15.9 (.625)	9-1437621-6
KLN500B1/8	black	12.7 (.500)	(11. (0.44)	15.9 (.625)	9-1437621-9
KLN500B1/4		12.7 (.500)	(11. (0.44)	15.9 (.625)	9-1437621-8
KLN500S1/4	smoke	12.7 (.500)	(11. (0.44)	15.9 (.625)	1437622-1
KLN700A1/4	natural	18.8 (.740)	17.4 (.685)	15.9 (.625)	1437622-2
KLN700B1/4	black	18.8 (.740)	17.4 (.685)	15.9 (.625)	1437622-3
KLN700B1/8		18.8 (.740)	17.4 (.685)	15.9 (.625)	1437622-4
KLN700S1/4	smoke	18.8 (.740)	17.4 (.685)	15.9 (.625)	1437622-5
KLN900A1/4	natural	23.8 (.937)	22.4 (.882)	15.9 (.625)	1437622-6
KLN900B1/4	black	23.8 (.937)	22.4 (.882)	15.9 (.625)	1437622-7
KLN900S1/4	smoke	23.8 (.937)	22.4 (.882)	15.9 (.625)	1437622-8
KLN1250A1/4	natural	31.8 (1.25)	30.3 (1.19)	15.9 (.625)	9-1437621-4
KLN1250B1/4	black	31.8 (1.25)	30.3 (1.19)	15.9 (.625)	9-1437621-5

K Series, Machined Aluminum (Continued)

KLNS series



straight knurl with indicator line on top, side and skirt

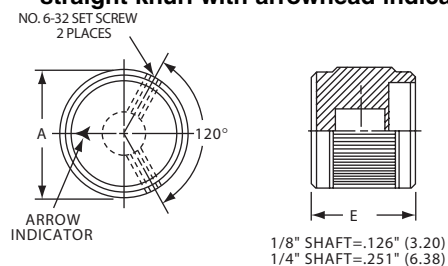


Product key	Color	Dim A	Dim D	Dim F	Part Number
KLNS500A1/8	natural	12.7 (.500)	19.0 (.750)	16.0 (.630)	1-1437622-6
KLNS500A1/4					1-1437622-5
KLNS500B1/8	black				1-1437622-8
KLNS500B1/4					1-1437622-7
KLNS700A1/4	natural	19.0 (.750)	28.7 (1.13)		2-1437622-0
KLNS700B1/4	black				2-1437622-1
KLNS900A1/4	natural	23.9 (.940)	35.5 (1.40)		2-1437622-2
KLNS900B1/4	black				2-1437622-3

KN series



straight knurl with arrowhead indicator

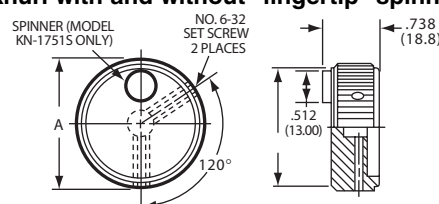


Product key	Version	Color	Dim A	Dim E	Part Number
KN501A1/8	single	natural	12.7 (.500)	15.9 (.625)	5-1437622-1
KN501A1/4	toned	natural			5-1437622-0
KN501B1/8		black			5-1437622-3
KN501B1/4					5-1437622-2
KN701A1/4		natural	19.1 (.750)		6-1437622-2
KN701B1/4		black			6-1437622-3
KN501BA1/8	two	black -	12.7 (.500)		5-1437622-5
KN501BA1/4	toned	natural			5-1437622-4
KN701BA1/8			19.1 (.750)		6-1437622-5
KN701BA1/4					6-1437622-4

KN series



straight knurl with and without "fingertip" spinner



Product key	Version	Color	Dim A	Part Number
KN1751A1/4	without	natural	44.5 (1.75)	3-1437622-2
KN1751B1/4	indicator	black		3-1437622-6
KN1751AB1/4	two	ntl.-blk.		3-1437622-3
KN1751BA1/4	toned	blk.-ntl.		3-1437622-7
KN1750B1/4	with indicator	black		3-1437622-1
KN1751AS1/4	with spinner	natural		3-1437622-5
KN1751BS1/4	without indicator	black		3-1437622-8

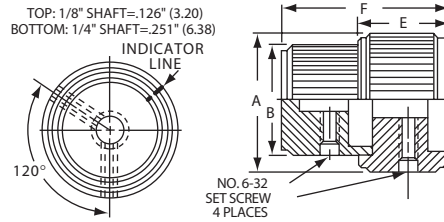
K Series, Machined Aluminum (Continued)

KN series



KN5700B1/4

concentric set with straight knurl with indicator lines



Product key	Color	Dim A	Dim B	Dim E	Dim F	Dim G	Part Number
KN5700A1/4	natural	19.1 (.750)	12.7 (.500)	15.9 (.625)	29.5 (1.16)	7.14 (.281)	5-1437622-6
KN5700B1/4	black						5-1437622-7

KN series

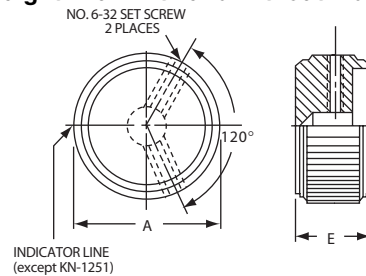


KN500A1/4



KN900BA1/4

straight knurl with and without indicator line

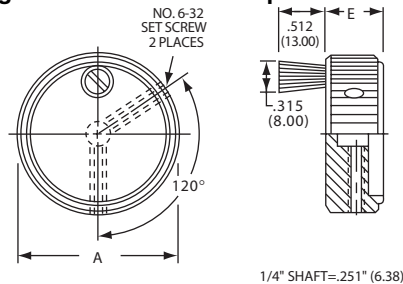


Product key	Version	Color	Dim A	Dim E	Part Number
KN500A1/8	single	natural	12.7 (.500)	15.9 (.625)	4-1437622-3
KN500A1/4	toned				4-1437622-2
KN500B1/8		black			4-1437622-7
KN500B1/4					4-1437622-6
KN700A1/4		natural	19.1 (.750)		5-1437622-8
KN700B1/4		black			6-1437622-0
KN900A1/4		natural	24.1 (.949)		6-1437622-6
KN900B1/4		black			6-1437622-8
KN1250A1/4		natural	31.8 (1.25)		2-1437622-5
KN1250B1/4		black			2-1437622-7
KN500AB1/8	two	ntl.-blk.	12.7 (.500)		4-1437622-5
KN500AB1/4	toned				4-1437622-4
KN500BA1/8		blk.-ntl.			4-1437622-9
KN500BA1/4					4-1437622-8
KN700AB1/4		ntl.-blk.	19.1 (.750)		5-1437622-9
KN700BA1/4		blk.-ntl.			6-1437622-1
KN900AB1/4		ntl.-blk.	24.1 (.949)		6-1437622-7
KN900BA1/4		blk.-ntl.			6-1437622-9
KN1250AB1/4		ntl.-blk.	31.8 (1.25)		2-1437622-6
KN1250BA1/4		blk.-ntl.			2-1437622-8
KN1251A1/4	without	natural			2-1437622-9
KN1251B1/4	indicator	black			3-1437622-0

KN series



straight knurl with "crank" spinner



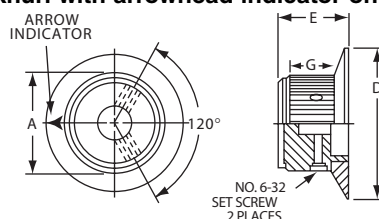
Product key	Color body/spin	Dim A	Dim E	Part Number
KN1755BS1/4	black	44.7 (1.76)	16.0 (.630)	4-1437622-1
KN1755ABS1/4	ntl.-blk./blk.			3-1437622-9
KN1755BAS1/4	blk.-ntl./blk.			4-1437622-0

K Series, Machined Aluminum (Continued)

KNS series



straight knurl with arrowhead indicator on skirt

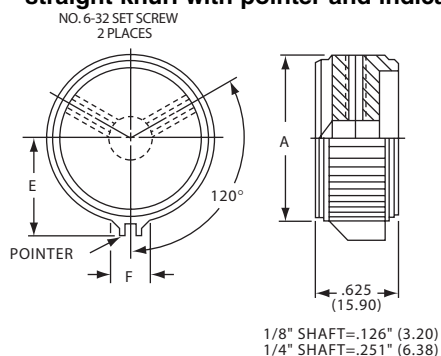


Product key	Version	Color	Dim A	Dim D	Dim E	Dim G	Part Number
KNS501A1/8	single	natural	12.7 (.500)	19.1 (.750)	15.9 (.625)	10.9 (.428)	7-1437622-3
KNS501A1/4	toned						7-1437622-2
KNS501B1/8		black					7-1437622-5
KNS501B1/4							7-1437622-4
KNS701A1/4		natural	19.1 (.750)	28.5 (1.12)			7-1437622-8
KNS701B1/4		black					7-1437622-9
KNS501BA1/8	two	blk.-ntl.	12.7 (.500)	19.1 (.750)			7-1437622-7
KNS501BA1/4	toned						7-1437622-6
KNS701BA1/8			19.1 (.750)	28.5 (1.12)			8-1437622-1
KNS701BA1/4							8-1437622-0

KPN series



straight knurl with pointer and indicator line



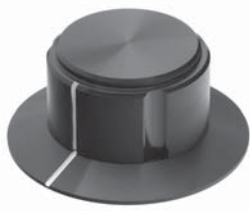
Product key	Color	Dim A	Dim E	Dim F	Part Number
KPN500A1/8	natural	12.7 (.500)	9.35 (.368)	4.95 (.195)	9-1437622-1
KPN500A1/4					9-1437622-0
KPN500B1/8	black				9-1437622-3
KPN500B1/4					9-1437622-2
KPN700A1/4	natural	19.1 (.750)	13.1 (.515)	5.94 (.234)	9-1437622-5
KPN700B1/4	black				9-1437622-6
KPN900A1/4	natural	23.8 (.937)	16.0 (.630)	7.01 (.276)	9-1437622-7
KPN900B1/4	black				9-1437622-9

K Series, Machined Aluminum (Continued)

KS series

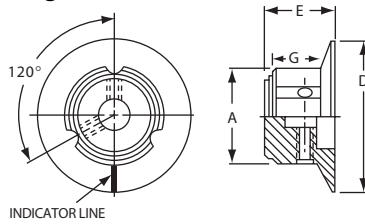


KS500A1/4



KS900B1/4

3 flute design with aluminum skirt and indicator line



1/4" SHAFT=.251" (6.37)

Product key	Color	Dim A	Dim D	Dim E	Dim G	Part Number
KS500A1/8	natural	12.7 (.500)	19.1 (.750)	15.8 (.620)	10.9 (.430)	1437623-3
KS500A1/4						1437623-2
KS500B1/8	black					1437623-5
KS500B1/4						1437623-4
KS700A1/4	natural	19.0 (.750)	28.4 (1.12)			1437623-6
KS700B1/4	black					1437623-7
KS900A1/4	natural	23.9 (.940)	35.6 (1.40)			1437623-8
KS900B1/4	black					1437623-9

KT series

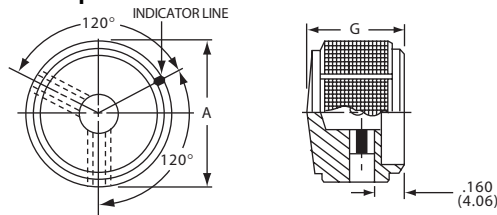


KT500A1/4



KT700A1/4

square separation with indicator line



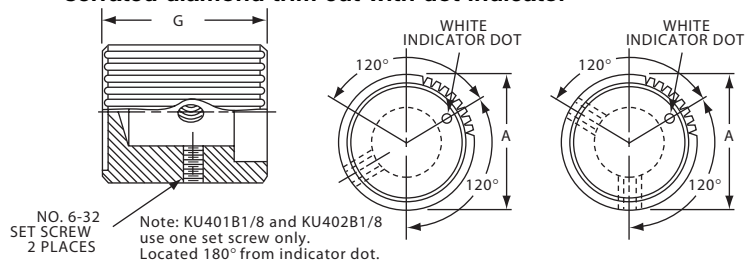
Product key	Color	Dim A	Dim G	Part Number
KT500A1/4	natural	12.7 (.500)	16.0 (.630)	1-1437623-2
KT500B1/8	black			1-1437623-4
KT500B1/4				1-1437623-3
KT700A1/4	natural	18.8 (.740)		1-1437623-6
KT700B1/4	black			1-1437623-7
KT900A1/4	natural	23.9 (.940)		1-1437623-8
KT900B1/4	black			1-1437623-9

KU series



KU402B1/8

serrated diamond trim cut with dot indicator



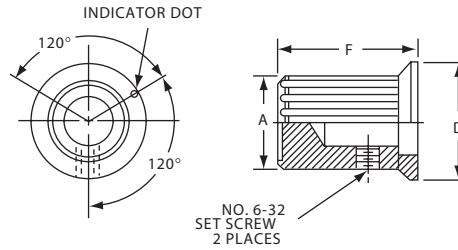
Product key	Color	Dim A	Dim G	Part Number
KU401B1/8	black	9.50 (.374)	7.60 (.299)	2-1437623-1
KU402B1/8			11.4 (.449)	2-1437623-2
KU500B1/8		12.7 (.500)	15.2 (.598)	2-1437623-3
KU700B1/4		18.8 (.740)		2-1437623-4

K Series, Machined Aluminum (Continued)

KUS series



serrated diamond trim cut with dot indicator



Product key	Color	Dim A	Dim D	Dim F	Part Number
KUS402B1/8	black	9.50 (.374)	13.2 (.520)	11.4 (.450)	2-1437623-9
KUS500B1/8		12.7 (.500)	17.8 (.700)	15.2 (.600)	3-1437623-0
KUS700B1/4		18.8 (.740)	26.2 (1.03)		3-1437623-1

P Series, Molded Phenolic

Features

- Supplied with Loctite® set-screw (anti-vibration feature)
- With and without indicator line and numbers
- Shaft hole size adaptors available



Typical performance characteristics

Material theroset phenolic
Molded in bushing insert brass
Set-screw steel
Skirt aluminum
End plate spun aluminum
Finish phenolic black
Adapters brass, with nickel finish
RoHS Directive 2002/95/EC compliant

Product key		Typical product key		P	K	50	B	1/4
Knob Material								
P	phenolic							
Type								
H	straight knurl without indicator line							
K	straight knurl with dot indicator on skirt or on top							
KA	ribbed with line indicator on skirt							
KAP	ribbed with skirt and pointer with indicator line							
KB	fluted with indicator line on skirt							
KD	straight knurl with skirt and arrow indicator or numerals							
KDT	black spin cap with "diamond cut" and arrow indicator or numerals							
KE	fluted with indicator line							
KES	fluted with skirt and indicator line							
KF	plain quadrate with indicator line and arrow							
KG	ribbed with indicator line							
KGP	ribbed with bar pointers and indicator line							
KJ	straight knurl with bar pointers and indicator line							
KJT	straight knurl with bar pointer and indicator line and aluminum spin cap							
KN	line indicator on natural aluminum spin cap							
KNT	black spin cap with "diamond cut" without indicator							
KS	straight knurl with indicator line or numerals on skirt							
KX	ribbed body, matte finish with square indicator on top							
Reference diameter								
Series Phenolic								
50	90	130	1103	1132				
55	100	140	1104	1255				
60	110	150	1105					
70	120	1100	1106					
Finish								
A	B	black						
Shaft diameter								
1/8	.126 (3.20mm)	1/4	.251 (6.37mm)					

Note: Product key for reference only, not all combinations are available.

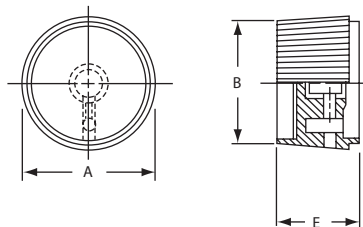
P Series, Molded Phenolic (Continued)

PH series

straight knurl without indicator line



PH15181/4



Product key	Dim A	Dim B	Dim E	Part Number
PH15181/4	25.3 (.996)	24.7 (.972)	17.0 (.669)	1437624-2

PK series

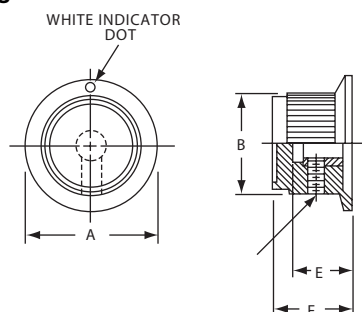
straight knurl with dot indicator on skirt



PK50B1/8



PK70B1/4



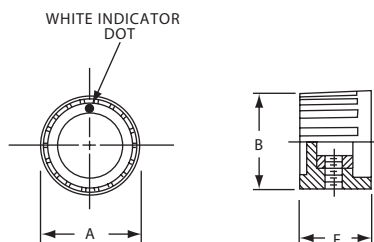
Product key	Dim A	Dim B	Dim E	Dim F	Part Number
PK50B1/8	19.0 (.748)	14.5 (.570)	11.7 (.460)	13.9 (.550)	1437624-7
PK50B1/4					1437624-6
PK70B1/4	25.0 (.984)	18.5 (.728)	12.7 (.500)	14.9 (.590)	1437624-8
PK90B1/4	31.8 (1.25)	25.0 (.985)	11.9 (.470)	15.1 (.595)	1437624-9

PK series

straight knurl with dot indicator on top



PK1100B1/4



Product key	Version	Color	Dim A	Dim B	Dim F	Part Number
PK1100B1/8		natural	17.8 (.700)	16.3 (.643)	13.5 (.530)	1437624-4

P Series, Molded Phenolic (Continued)

PKA series

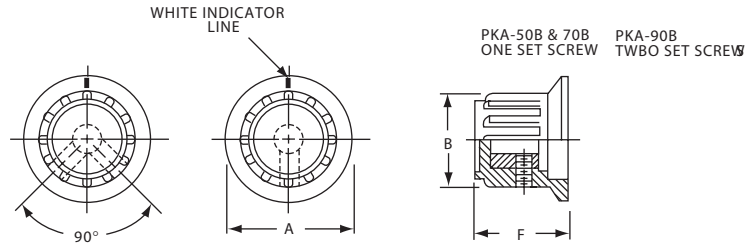
ribbed with line indicator on skirt



PKA50B1/4



PKA90B1/4



Product key	Dim A	Dim B	Dim F	Part Number
PKA50B1/8	20.2 (.795)	14.7 (.580)	15.0 (.590)	1-1437624-1
PKA50B1/4				1-1437624-0
PKA55B1/8	19.8 (.780)		17.2 (.675)	1-1437624-4
PKA55B1/4				1-1437624-3
PKA70B1/4	24.9 (.980)	18.8 (.740)	19.1 (.750)	1-1437624-5
PKA90B1/4	34.9 (1.375)	24.6 (.970)	21.3 (.840)	1-1437624-7

PKAP series

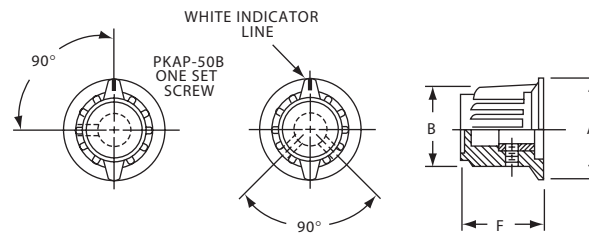
ribbed with skirt and pointer with indicator line



PKAP50B1/8



PKAP90B1/4



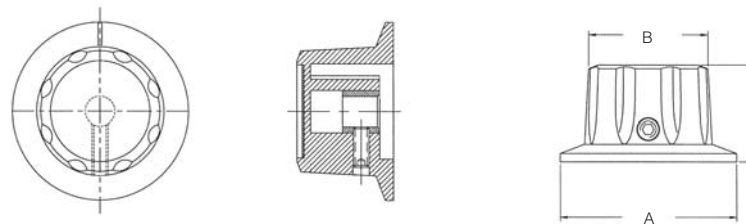
Product key	Dim A	Dim B	Dim F	Part Number
PKAP50B1/4	20.0 (.787)	17.6 (.693)	17.5 (.689)	1-1437624-8
PKAP50B1/8				1-1437624-9
PKAP70B1/4	24.8 (.976)	22.1 (.874)	18.7 (.737)	2-1437624-0

PKB series

fluted with indicator line on skirt



PKB90B1/4



Product key	Dim A	Dim B	Dim F	Part Number
PKB70B1/4	28.3 (1.12)	19.1 (.750)	15.2 (.600)	2-1437624-3
PKB90B1/4	38.1 (1.50)	25.8 (1.02)	20.8 (.820)	2-1437624-4

P Series, Molded Phenolic (Continued)

PKD series

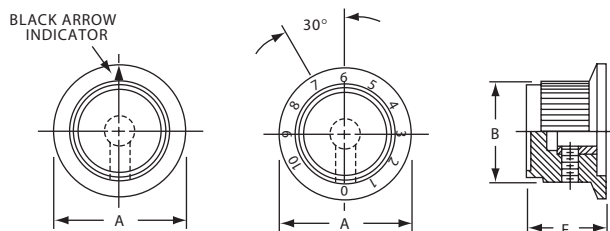
straight knurl, aluminum skirt with arrow indicator or numerals



PKD60B1/4



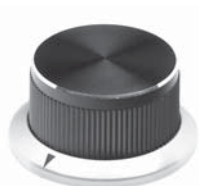
PKD100B101/4



Product key	Version	Dim A	Dim B	Dim F	Part Number
PKD60B1/8	with	19.8 (.780)	14.4 (.566)	14.3 (.563)	2-1437624-8
PKD60B1/4	arrow				2-1437624-7
PKD70B1/4	indicator	25.9 (1.02)	19.1 (.750)	15.5 (.610)	3-1437624-1
PKD100B1/4		32.8 (1.29)	25.4 (1.00)	15.0 (.590)	2-1437624-5
PKD60B101/8	with	19.8 (.780)	14.4 (.566)	14.3 (.563)	3-1437624-0
PKD60B101/4	0 - 10				2-1437624-9
PKD70B101/4	numerals	25.9 (1.02)	19.1 (.750)	15.5 (.610)	3-1437624-2
PKD100B101/4		32.8 (1.29)	25.4 (1.00)	15.0 (.590)	2-1437624-6

PKDT series

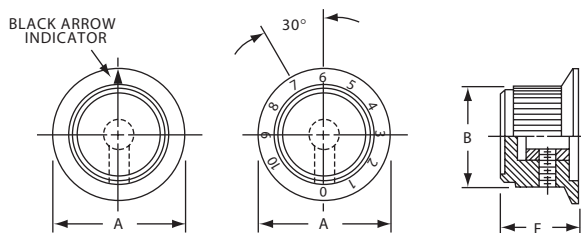
black spin cap with "diamond cut" and arrow indicator or numerals



PKDT100B1/4



PKDT100B101/4



Product key	Version	Dim A	Dim B	Dim F	Part Number
PKDT70B1/4	arrow	26.0 (1.03)	18.8 (.738)	16.1 (.635)	3-1437624-9
PKDT100B1/4	indicator	32.8 (1.29)	25.9 (1.02)	16.2 (.638)	3-1437624-3
PKDT60B101/8	0 - 10	19.8 (.778)	15.4 (.605)	14.3 (.562)	3-1437624-8
PKDT70B101/4	numerals	26.0 (1.03)	18.8 (.738)	16.1 (.635)	4-1437624-0
PKDT100B101/4		32.8 (1.29)	25.9 (1.02)	16.2 (.638)	3-1437624-4

PKE series

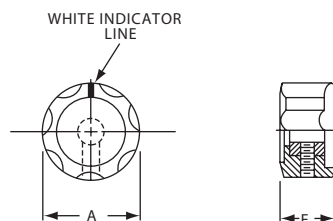
fluted with indicator line



PKE60B1/8



PKE90B1/4



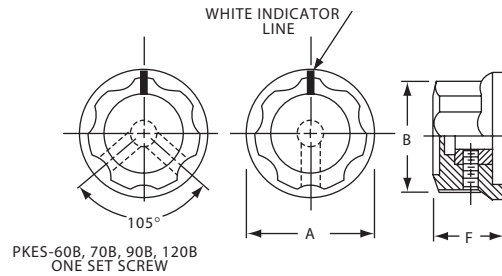
Product key	Dim A	Dim B	Dim F	Part Number
PKE60B1/8	15.9 (.626)	12.0 (.472)	16.1 (.635)	4-1437624-4
PKE60B1/4	15.9 (.626)	12.0 (.472)	16.2 (.638)	4-1437624-3
PKE90B1/4	22.6 (.890)	18.4 (.724)	14.3 (.562)	4-1437624-5

P Series, Molded Phenolic (Continued)

PKES series



fluted with skirt and indicator line

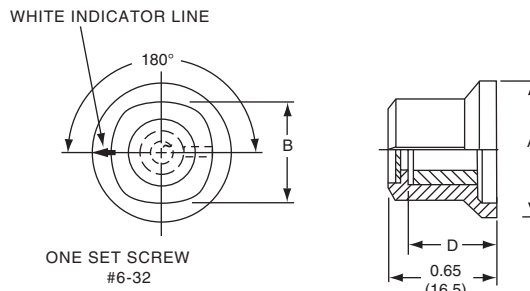


Product key	Dim A	Dim B	Dim F	Part Number
PKES60B1/8	19.0 (.748)	15.7 (.618)	11.9 (.470)	5-1437624-1
PKES60B1/4				5-1437624-0
PKES70B1/4	21.7 (.855)	18.9 (.744)	13.4 (.526)	5-1437624-2
PKES90B1/4	25.7 (1.01)	22.6 (.889)	14.5 (.570)	5-1437624-3
PKES120B1/4	32.9 (1.30)	29.5 (1.16)	16.0 (.628)	4-1437624-6
PKES140B1/4	38.1 (1.50)	34.9 (1.37)	17.6 (.693)	4-1437624-7
PKES150B1/4	44.9 (1.77)	39.4 (1.55)	21.1 (.831)	4-1437624-8

PKF series



plain quadrate with indicator line and arrow

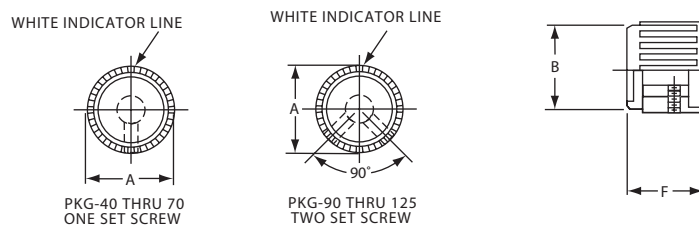


Product key	Dim A	Dim B	Dim D	Part Number
PKF50B1/8	17.0 (.670)	11.5 (.454)	13.2 (.520)	5-1437624-5

PKG series



ribbed with indicator line



Product key	Dim A	Dim B	Dim F	Part Number
PKG40B1/8	11.1 (.437)	10.4 (.410)	12.0 (.472)	5-1437624-9
PKG50B1/8	14.0 (.551)	12.7 (.500)	13.0 (.512)	6-1437624-1
PKG50B1/4				6-1437624-0
PKG60B1/8	16.8 (.660)	15.6 (.615)	14.0 (.551)	6-1437624-6
PKG60B1/4				6-1437624-5
PKG70B1/8	18.8 (.740)	17.7 (.698)	14.2 (.559)	6-1437624-8
PKG70B1/4				6-1437624-7
PKG90B1/8	21.9 (.862)	20.6 (.811)	13.9 (.550)	7-1437624-0
PKG90B1/4				6-1437624-9
PKG100B1/4	26.8 (1.055)	25.5 (1.01)	14.1 (.555)	5-1437624-7
PKG125B1/4	31.7 (1.248)	30.4 (1.20)	14.4 (.565)	5-1437624-8

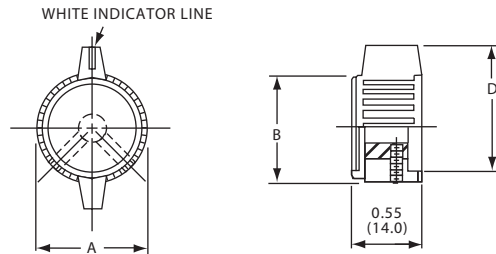
P Series, Molded Phenolic (Continued)

PKGP series

ribbed with bar pointers and indicator line



PKGP70B1/4



Product key	Dim A	Dim B	Dim D	Part Number
PKGP70B1/4	18.8 (.740)	17.8 (.700)	25.2 (.990)	7-1437624-2
PKGP90B1/4	21.8 (.860)	20.6 (.810)	32.5 (1.28)	7-1437624-3
PKGP100B1/4	26.2 (1.05)	25.4 (1.00)	41.2 (1.62)	7-1437624-1

PKJ series

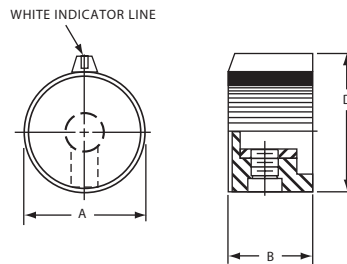
straight knurl with bar pointers and indicator line



PKJ50B1/8



PKJ0B1/4



Product key	Dim A	Dim B	Dim D	Part Number
PKJ50B1/8	12.7 (.500)	13.0 (.512)	14.7 (.577)	7-1437624-5
PKJ50B1/4				7-1437624-4
PKJ60B1/4	16.0 (.630)	13.5 (.530)	19.3 (.758)	7-1437624-6
PKJ70B1/4	19.3 (.760)	14.1 (.555)	23.2 (.915)	7-1437624-7

PKJT series

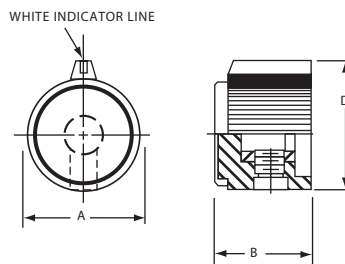
straight knurl with bar pointer and indicator line, aluminum spin cap



PKJT50B1/4



PKJT70B1/4



Product key	Dim A	Dim B	Dim D	Part Number
PKJT50B1/8	13.1 (.515)	14.9 (.585)	15.1 (.595)	7-1437624-9
PKJT50B1/4				7-1437624-8
PKJT60B1/4	16.3 (.640)	15.4 (.605)	19.3 (.760)	8-1437624-0
PKJT70B1/4	19.3 (.760)	15.9 (.625)	23.2 (.915)	8-1437624-1

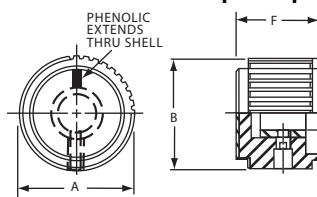
P Series, Molded Phenolic (Continued)

PKN series



PKN60B1/8

natural aluminum spin cap with line indicator



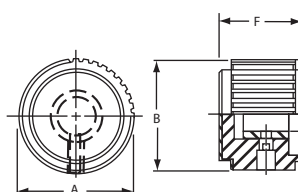
Product key	Dim A	Dim B	Dim F	Part Number
PKN60B1/8	15.0 (.591)	14.7 (.579)	11.5 (.453)	8-1437624-2
PKN60B1/4				1825009-1
PKN70B1/4	20.0 (.787)	19.4 (.764)	15.0 (.591)	8-1437624-3
PKN90B1/4	25.0 (.984)	24.3 (.957)	17.5 (.689)	8-1437624-4

PKNT series



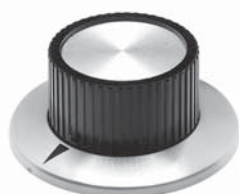
PKNT60B1/4

black spin cap with "diamond cut", without indicator



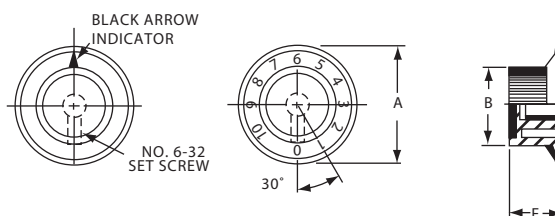
Product key	Dim A	Dim B	Dim F	Part Number
PKNT60B1/8	15.0 (.591)	14.7 (.579)	11.9 (.472)	8-1437624-6
PKNT60B1/4				8-1437624-5
PKNT70B1/4	19.9 (.787)	19.4 (.764)	14.7 (.591)	8-1437624-7
PKNT90B1/4	25.0 (.984)	24.3 (.957)	17.5 (.689)	8-1437624-8

PKS series



PKS90B1/4

straight knurl with aluminum skirt and arrow or 1-10 numbers



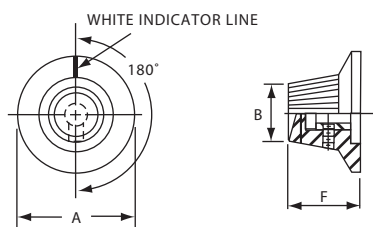
Product key	Marking	Dim A	Dim B	Dim F	Part Number
PKS90B1/4	arrow	36.1 (1.42)	23.3 (.917)	15.1 (.596)	1437625-5
PKS90B101/4	numbers				1437625-6

PKS series



PKS1104B1/4

straight knurl with indicator line on skirt



Product key	Dim A	Dim B	Dim F	Part Number
PKS1104B1/4	28.5 (1.12)	14.4 (.567)	17.0 (.670)	9-1437624-5

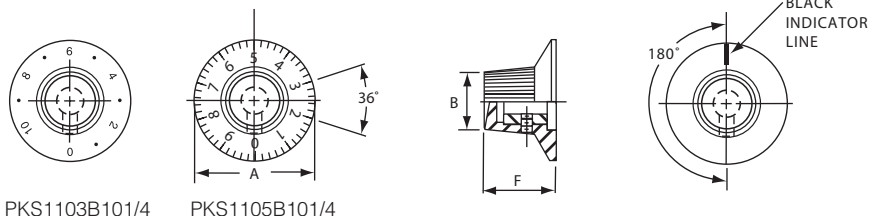
P Series, Molded Phenolic (Continued)

PKS series

straight knurl aluminum skirt with line or 0-9 numbers



PKS1106B1/4



PKS1103B101/4

PKS1105B101/4

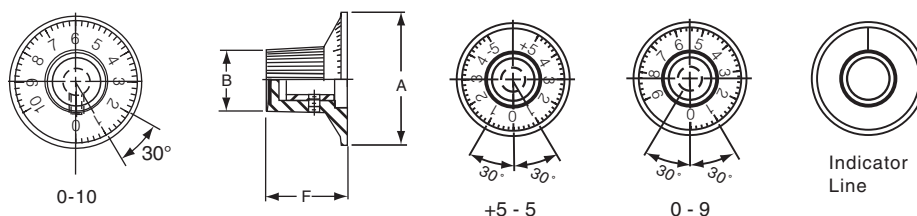
Product key	Marking	Dim A	Dim B	Dim F	Part Number
PKS1103B101/4	numbers	29.6 (1.17)	14.5 (.571)	17.0 (.670)	9-1437624-4
PKS1106B1/4	line				9-1437624-7
PKS1105B101/4	numbers				9-1437624-6

PKS series

straight knurl with 0-9, 0-10, -5+5 numerals



PKS1132B51/4



0-10

+5 - 5

0 - 9

Indicator Line

Product key	Marking	Dim A	Dim B	Dim F	Part Number
PKS1132B51/4	+5-0-5	30.0 (1.18)	14.0 (.551)	19.0 (.748)	1437625-1
PKS1132B91/4	0-9				1437625-2
PKS1132B101/4	0-10				9-1437624-9
*PKS1132B1/4	indicator line				9-1437624-8

*) Set screw 180° from indicator line.



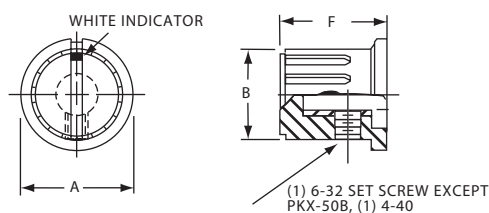
PKS1132B91/4

PKX series

ribbed body, matte finish with square indicator on top



PKX50B1/8



Product key	Dim A	Dim B	Dim F	Part Number
PKX50B1/8	15.0 (.590)	12.0 (.472)	14.0 (.551)	1-1437625-5
PKX50B1/4				1-1437625-4
PKX60B1/8	20.0 (.787)	15.9 (.625)	15.2 (.598)	1-1437625-7
PKX60B1/4				1-1437625-6

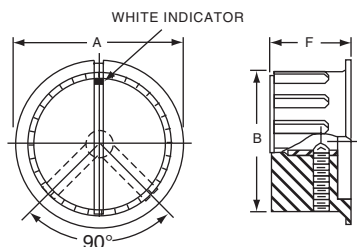
P Series, Molded Phenolic (Continued)

PKX series

ribbed body, matte finish with square indicator on top



PKX110B1/4



Product key	Dim A	Dim B	Dim F	Part Number
PKX100B1/4	29.7 (1.17)	24.6 (.970)	17.1 (.674)	1-1437625-1
PKX110B1/4	34.8 (1.37)	28.45 (1.120)	17.9 (.705)	1-1437625-2
PKX130B1/4	40.0 (1.57)	33.22 (1.308)	19.0 (.750)	1-1437625-3

Knob Accessories

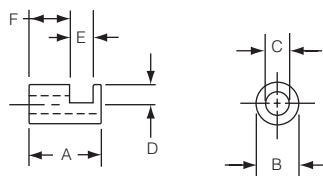
Adaptors

KR

shaft hole size adaptors for aluminum and phenolic knobs



KR1



Prod. key	Version	Dim A	Dim B	Dim C	Dim D	Dim E	Dim F	Part Number
KR104	1/4" to 1/8"	9.50 (.374)	6.35 (.250)	3.25 (.128)	3.10 (.122)	5.51 (.217)	3.10 (.122)	1825620-1
KR204	1/4" to 3/16"	9.53 (.375)		4.83 (.190)		5.49 (.216)	3.12 (.123)	1825620-2
KR304	1/4" to 4mm		6.30 (.248)	4.09 (.161)				1825620-3

Glossary

Technical data

Unless otherwise stated, the stated technical data are based on laboratory tests under standardized conditions and are within the conditions of normal use for these components. The vast number of influencing factors does not allow to test our products for all imaginable applications and processes. The decision on the suitability of a specific component is the solely responsibility of the user. To ensure the suitability of the product for a specific application the user has to test these products before the use under the most stringent conditions they will be exposed to in the actual application.

All product data are intended for users with knowledge and experience in the application of such specifications. The utilization is at the risk of the user.

The user has to verify the accordance with existing regulations and relevant standards for the application; in particular with reference to the insulation requirements as function of applied voltages and ambient conditions.

The standards are based on the principal assumption of heating effects and risk of fire in case electrical currents being conducted and switched. Protection against excessive heat and possible spread of fire under all operation conditions even in case of malfunction can only be ensured by the design of the equipment as well as by application instructions for the end user; it is the responsibility of the manufacturer of the equipment to take the appropriate measures.

Specification

In order to improve the performance and quality we continuously develop our products. We reserve the right to change technical parameters and product specification without prior notice. With the technical data listed are for description purposes of the components only and are not an agreement and do not guarantee specific characteristics and parameters; for detailed questions please contact our application support. Drawings, photos data and descriptions are subject to change without prior notice.

Availability

The ordering code structure does allow a large number of possible variations, but not all possible variations are defined as standard types in the current product portfolio (ordering codes) and thus may not be included in the product range. Special versions to customer specifications can be supplied. Please contact your local sales organisation.
Right to change the availability and delivery conditions reserved.

Actuation force (operating force), actuation torque

The force required to change the actuator of a switch from one position to the other. Unit of measure: N, gf, Nm.

Actuator

A movable part of a switch which causes a change in the electrical configurations of the switch.

Example: toggle, rocker, slider, plunger, paddle, shaft, etc.

Actuator travel

The total distance the actuator moves to change electrical position. See > pretravel, overtravel. Unit of measure: mm, inches, degrees.

Alternate Action

See > Push-Push

Angle of throw

The angle or arc through which an actuator passes during actuation. Typically used to refer to the movement of toggle or rocker actuators. Unit of measure: Degree.

Approvals

With the approval label the independent approval agency and/or test house confirms the compliance with the relevant product standards and/or certain product characteristics.

NOTE: the ordering code structure does allow a large number of possible variations, but not all variations are defined as standard types (ordering codes) and thus some switches may not be included in the list of approved switches. Technical data and approved types on request.

Bifurcated contact

A wiping movable contact consisting of two spring fingers that grip fixed contacts. Typically found in slide switches. Self-cleaning action. See > wiping contact.

Bobbin contact

A movable contact shaped like a thread bobbin that rolls along the stationary contacts. Found only in slide switches.

Bounce

See > contact bounce.

Break contact

See > normally closed contact (NC contact)

Break first contact

See > Break-Before-Make contact.

Break-Before-Make contact

(Non-shorting, Break First, BBM) On actuation, the movable contact breaks contact with one fixed contact before making contact with another fixed contact. Contrast with make-before-break. Typical of toggle and pushbutton switches.

Butt contact

A contact mechanism in which the movable contact makes contact with the fixed (stationary) contact without wiping motion between the surfaces. Typical of toggle and pushbutton switches. See > wiping contact.

Capacitive load

A load in which the initial current on making (closing) of the contacts is higher than the steady state current on breaking (opening) of the contacts, the current is less than steady state. Current leads voltage in capacitive loads. See > resistive load, inductive load, power factor and inrush.

Carrying current

The maximum current that can be passed through the already closed contacts of a switch. Contrast with "Contact Rating."

Glossary (Continued)

Change-Over (CO) contact

Compound contact consisting of a normally open (NO, make) contact and a normally closed (NC, break) contact with a common terminal. On changing the switch position, the contact previously closed opens followed by the closing of the contact that was previously open. See > Break-Before-Make contact. Note: in case of a switching arc the NO and the NC contact may be temporarily electrically connected See > Make-Before-Break contact

Contact (contact area)

The metal surfaces that come into physical contact to complete an electrical circuit. These surfaces are found on moveable contacts (see) and terminals (see).

Contact bounce

An unintentional phenomenon that can occur during the making or breaking of a contact circuit when the contact elements touch successively and separate again before they have reached their final position. Unit of measure: milliseconds.

Contact configuration

According to the different switching functions of the switch contacts, various contact configurations, design and description are specified. See:

- normally open contact, NO contact, make contact
- normally closed contact, NC contact, break contact
- change-over contact, CO contact

Contact current

Electrical current which a switch contact carries before opening or after closing (rated current of the load).

Contact gap

The distance between a stationary contact and a moveable contact in the open position.

Contact rating (non switching)

The power carrying capacity of a switch after contact closure and end of contact bounce. Typically higher than the contact rating (switching rating) of a switch. Unit of measure: Volts and Amps.

Contact rating (switching)

The capacity to switch (connect or interrupt) an electrical load. Unit of measure: Volts, Amps, load characteristic (resistive, inductive, capacitive, power factor). Contrast with contact rating (non-switching).

Contact resistance

Electrical resistance between the switch terminals of a closed contact, measured with indicated measuring current and indicated source voltage. The specified contact resistance is reached reliably only above a particular load. Considerably increased contact resistances can occur with smaller loads.

After a prolonged period of a steady state operate/release position or storage of the switch a certain number of cycles are recommended before measurement of the contact resistance.

Contact timing

Indicates the time sequence of contact opening and closing (e.g. contact opening of normally closed contact vs. closing of normally open contact). See:

- Break-Before-Make contact, non shortening contact
- Make-Before-Break contact, shortening contact

Cycles

The number of times a switch is actuated from one extreme position to the opposite extreme position and back to the original position.

Degree of protection (IEC 60529)

Degrees of protection provided by enclosures (IP Code) for electrical equipment.

Definition of degree of protection (IP code) IEC 60529 outlines an international classification system for the sealing effectiveness of enclosures of electrical equipment against the intrusion into the equipment of foreign bodies (i.e., tools, dust, fingers) and moisture. This classification system utilizes the letters IP (Ingress Protection) followed by two digits.

Degree of protection - First digit

The first digit of the IP code indicates the degree that connection is protected against contact with moving parts and the degree that equipment is protected against solid foreign bodies intruding into an enclosure.

- 0 No special protection
- 1 Protection from a large part of the body such as hand or from solid objects greater than 50 mm in diameter
- 2 Protection against objects not greater than 80 mm in length and 12 mm in diameter
- 3 Protection from entry by tools, wires, etc., with a diameter or thickness greater than 2.5 mm
- 4 Protection from entry by solid objects with a diameter or thickness greater than 1.0 mm
- 5 Protection from the amount of dust that would interfere with the operation of the equipment
- 6 Dust-tight

Degree of protection - Second digit

Second digit indicates the degree of protection of the equipment inside the enclosure against the harmful entry of various forms of moisture (e.g. dripping, spraying, submersion, etc.)

- 0 No special protection
- 1 Protection from vertically dripping water
- 2 Protection from dripping water when tilted up to 15°
- 3 Protection from sprayed water
- 4 Protection from splashed water
- 5 Protection from water projected from a nozzle
- 6 Protection against heavy seas, or powerful jets of water
- 7 Protection against temporary immersion
- 8 Protection against complete continuous submersion in water (up to 1 meter deep for 15 minutes)

Detent

A mechanical stop that holds the contacts in a given position after the actuation force is removed or prevents the changing of contact position at less than a specified actuation force.

Detent angle

The angle or arc between detent positions in rotary switches. Unit of measure: degree.

Dielectric strength

(Dielectric Withstanding Voltage, DWV, Leakage Resistance, Breakdown Voltage) The ability of an insulator to withstand a voltage without arcing across its surface. Most often applies to insulator between switch terminals and metal exposed to operator of switch. Unit of measure: V_{RMS} , VAC.

Dielectric withstand voltage

See > dielectric strength.

Dimensions

Dimensions are in mm and/or inches.

DIP

Dual-in-Line package refers to a component with two rows of PC terminals. The terminals are most commonly on a 2.54mm (.100") pitch with 7.62mm (.300") between rows.

Glossary (Continued)

Double break contacts, double make contacts

A contact mechanism using two sets of contacts to make or break a given circuit. This provides better power handling capacity and longer switch life. Typical of high power industrial switches. See > Single-Break contacts.

Dry circuit

(Low energy, logic level) An application in which power levels do not cause arcing, melting or softening of contacts. Typically requires gold plated contacts for reliable switch operation. Typical definition: 0.4VA max.

DWV

Abbreviation for 'dielectric withstand voltage'. See > dielectric strength.

Electrical life

The number of cycles/operations at a given electrical load that does not result in a degradation of any electrical or mechanical parameter beyond the standard set by the applicable end-of-life criteria. Unit of measure: cycles (on-off operations) (rotations).

End of life criteria

Those specifications that a switch must meet at the end of its specified electrical life. Typically contact resistance and/or heat rise of contacts at full rated load at end of life.

Environmental seal

A seal that totally encapsulates the switch or relay providing a specified level of protection against intrusion of solids, liquids or gases into the body of the device.

Fixed contact

(stationary or static contact) The non-moving contact. Typically integral to the end of the terminal inside the switch body.

Flux

A material added during soldering to the metal surfaces which on heating prevents oxidation and aids the flowing of the solder.

Gas-tight contact

A contact interface (movable to fixed contacts) in which the forces holding the contacts together are high enough to prevent gases from migrating between the members. This prevents static oxidation of the contact and subsequent intermittencies of high contact resistance. Typical forces are 280,000 PSI and higher.

Gold flash

A plating of gold typically less than 0.25µm (10 microinches) thick. Used only as a barrier to oxidation or corrosion of terminals to maintain solderability.

Heat rise

An indirect measurement of contact resistance used by rating agencies. The temperature rise over ambient of a contact set carrying a prescribed current is measured to determine whether it falls within safe limits.

Inductive load

A load in which the initial current on making (closing) of the contacts is lower than the steady state. On breaking (opening) of the contacts, the current is greater than the steady state. Current lags voltage in inductive loads. Motors are the most common inductive load. See > resistive load, capacitive load, power factor.

Inrush

A transitory high-level of current through a contact set on making (closing). A characteristic of capacitive and some resistive loads. The inrush currents can be large and long enough to cause severe degradation of the contacts. See > resistive load, capacitive load, power factor.

Insert molding

In switches and relays used to refer to terminations that are placed in the mold so that plastic is molded around the terminations. The chief benefit is an inherent seal against the intrusion of flux into the body of the device. Therefore no epoxy terminal seal is required.

Insulation resistance

The resistance between insulated parts measured at a specified DC voltage. Unit of measure: Megohm.

IP

An industrial specification used in Europe (and worldwide) to indicate the degree of protection provided by a component against accidental contact, penetration of solids or liquids into or through the component.

Leakage barrier

A ridge or web molded into a switch housing between terminals or contacts to increase the surface distance between them.

Leakage resistance

See > dielectric strength.

Life

See > electrical life, mechanical life.

Logic level

Refers to power levels typical of solid state electronic circuits (TTL, CMOS, etc.). For switch selection see > dry circuit.

Low energy switching

See > dry circuit.

Maintained

A position (throw) of a switch which remains unchanged when actuation force is removed from switch actuator. Contrast with Momentary.

Make contact

See > NO contact

Make First contact

See > Make-Before-Break.

Make-Before-Break contact

(shorting contact, Make First) Movable contact makes the next circuit before breaking the first circuit. Typically found in slide switches. Contrast with Break-Before-Make (MBB).

Mechanical life

Number of cycles without contact load during which the switch remains within the specified characteristics or no degradation of parameters beyond the standard set by the applicable end-of-life criteria occurs.

Minimum switching power

Product of the switching current and switching voltage for reliable switching. Low contact resistance is reached reliably only above a particular load. Considerably increased contact resistances can occur with smaller loads.

Momentary (spring return)

A momentary switch position (throw) is held only for duration of force applied to the switch actuator.

Movable contact (dynamic contact)

The contact moved by the switch actuator into and away from contact with a fixed contact thus forming the electrical circuits possible for a given device.

N.C.

See > normally closed contact.

N.O.

See > normally open contact.

Glossary (Continued)

NEMA

National Electrical Manufacturers Association. A US Standards setting group for switch products most often applied to switches mounted in various enclosures offering specified degrees of protection against intrusion of liquids, dust, corrosive elements, etc. NEMA ratings are common in industrial or outdoor applications. Also see > IP.

Non-shorting contact

See > Break-Before-Make.

Non-switching rating

See > contact rating - non switching.

Normally closed (NC) contact

Normally closed contacts are closed when switch actuator is in its unactuated position (e.g., the plunger is in the resting position in the case of a pushbutton switch).

Normally open (NO) contact

Normally open contacts are open when the switch actuator is in its unactuated or resting position.

Operating force

See > actuation force.

Operating temperature, ambient temperature

The range of temperature within which the device may be used, indicated as temperature in the vicinity of the switch. The minimum ambient temperature is the minimum operating temperature, the maximum ambient temperature is the maximum operating temperature for the use of the switch or accessory. This temperature range must not be exceeded. Unit of measure: degrees Celsius or Fahrenheit (°C or °F).

Overtravel

The distance the actuator may move between initial contact position and the extreme mechanical position of the actuator without damage to the switch. Unit of measure: mm, inch, degree. See > travel, pretravel.

Packaging unit

Minimum delivery quantity (e.g. per carton/plastic bar) and quantity per box.

Panel seal

A panel seal provides a defined level of protection against penetration of liquids through which the switch and switch-to-panel interface to the rear of a panel. Unit of measure: mm, inches, ft. of water.

Part number

Tyco internal part identifier.

Pole

The number of separate circuits that can be active through a switch at any one time. A single pole switch allows one closed circuit at a time. A double pole switch allows two closed circuits, etc.

Positions

Terminology used for DIP and Rotary switches

DIP switches: 'positions' refer to the number of poles that can be used and selected (e.g. a DIP switch with 8 positions equals to an 8-pole switch)

Rotary switches: 'positions' refer to the number of available selections (e.g. a rotary switch with HEX output format has 16 positions)

Power factor (PF)

A measure of the inductive or capacitive character of an electrical load. Unit of measure: 0 to 1 (e.g. 0.75)

Preferred part

Preferred parts are products within our marketing focus and/or are common and widely used products; e.g. for such products it is more likely to have sample stock available.

Pretravel

The distance or angle through which the actuator moves from the free position to the operating position. Unit of measure: mm, inch, degree. See > travel, overtravel.

Process seal

A seal that prevents damage to or contamination of the switch during the specified mechanical process. See > wave solderable. Surface mountable.

Product key

The ordering code structure does allow a large number of possible variations, but not all possible variations are defined as standard types and thus not included in the product range. Special versions to customer specifications can be supplied. Please contact your local sales organization.

Push-On/Push-Off

See > Push-Push.

Push-Push

(Alternative Action, Push-On/Push-Off) A pushbutton switch style in which the electrical state of the switch is maintained between actuations of the plunger.

Quick connect terminals, flat quick connect terminals

Flat tab or blade style terminals designed to accept push-on female wire connectors (instead of soldering). The most popular sizes are: 6.35mm (.250), 2.79mm (.110) wide.

Rated voltage (contacts)

Rated voltage (switching voltage) is voltage between the switching contacts before closing or after opening of the contact.

Reflow solderable

Indicates the device is suitable for the reflow soldering processes.

Resistive load

A load in which the current and voltage are in phase. See > capacitive load, inductive load, power factor, inrush.

RoHS - Directive 2002/95/EC

Directive on the Restriction of Hazardous Substances (Directive 2002/95/EU, RoHS directive) restricting the use of certain materials as Lead (Pb), Cadmium (Cd), Mercury (Hg), hexavalent Chromium (Cr6), polybrominated Biphenyls (PBB) and polybrominated Diphenylethers (PBDE).

'Compliant'

indicates that the entire product group is compliant with the RoHS directive and none of the above materials is intentionally added and/or are below the limits set forth in the directive.

'Compliant versions'

indicates that certain products within the respective product group are compliant with the RoHS directive. The RoHS compliant selection is indicated together with the information on the RoHS compliance. Some products of that product group however do contain materials (e.g. Cd) listed above and thus are not compliant with the RoHS directive.

Shorting contact

See > Make-Before-Break contact.

Single break contacts, single make contacts

A contact mechanism using one set of contacts to make or break a given circuit. Typical of electronic or low power switches. See > Double-Break contacts.

Soldering process

See > reflow solderable, wave solderable

Splashproof

See > panel seal.

Glossary (Continued)

Spring return

See > Momentary.

Storage temperature

The range of temperature within which the device may be stored. Typically this is a wider range than operating temperature. Unit of measure: degrees Celsius or Fahrenheit (°C or °F).

Surface mount devices, SMT

Components that are compatible with surface mount PC board technology. Holes are not used for component mounting. Component leads are soldered to pads on the surface of the PC boards. For switches typically defined by surface mount terminations (e.g., J-bend, L-bend, butt, etc.) and compatibility with surface mount soldering (e.g., vapor phase reflow, infrared, etc.) and cleaning processes.

Tactile feel (feedback)

A mechanical signal (typically a “snap” or “click”) that indicates contact closure to the operator.

Technical data

All technical data listed is for description purposes only and does not guarantee characteristics. All drawings, photos and descriptions are subject to change without prior notice.
The technical data has been reviewed at time of print and is not subject to internal revision service.
Technical data in this catalog are guidelines for appropriate use under standard conditions. For additional information please contact our technical support.

Terminal

The metal portion of the switch, exterior to the body, that is used to connect the switch to an electrical circuit. Examples: PC, wire lug, turret, quick-connect, wire-wrap, etc.

Throws

Number of circuits that can be controlled by any one pole of a switch. Example: In a single pole - double throw (SPDT) switch, only one circuit may be completed at a time. However, there are two possible circuits (throws) that can be made.

THT

Through Hole Technology

Travel

See > actuator travel.

Washable

Applied to PC board mounted devices indicating compatibility with cleaning processes used after soldering. No degradation of electrical or mechanical parameters occurs.

Wave solderable

Indicates the device is suitable for the wave soldering and cleaning processes as supplied. See > process seal.

Wiping contacts

A contact mechanism in which the movable contact with the fixed contact with a wiping motion. Typical to slide and rotary switches.

Glossary

Part number reference list

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1-1825059-7	ADF04ST04	A21	1-1825143-6	AE203SD1AB04	E26	1437575-6	MMS22R	B40	1571079-7	PRASD3-16F-BB000	G3	1571295-2	FSM4JS	C29
1-1825059-8	ADF04STTR04	A21	1-1825143-7	AE203SD1AV2B04	E26	1437575-8	MMS23	B40	1571079-8	PRASD3-16F-BB0FW	G3	1571296-1	FSM1JSSM	C29
1-1825059-9	ADF05S04	A21	1-1825143-8	AE203SD1AV2Q04	E26	1437575-9	MMS23R	B40	1571079-9	PRASD3-16F-BB0GW	G3	1571296-2	FSM1JSSMTR	C29
1-1825095-0	TP11FGRA04	D6	1-1825143-9	AE203SD1CB04	E26	1437576-2	CST022NK	B67	1571083-2	PRASC1-16F-BB000	G3	1571297-1	FSM2S	C6
1-1825095-1	TP21CCGRA004	D6	1-1825189-0	DIP-shunt	A35	1437576-4	CST023NK	B67	1571087-1	PRBSC1-16F-BB000	G8	1571298-1	FSM2SSM	C6
1-1825095-2	TP21CCGRA204	D6	1-1825190-0	DIP-shunt	A35	1437576-5	CST042NK	B67	1571087-2	PRBSC1-16L-BB000	G8	1571298-2	FSM2SSMTR	C6
1-1825095-3	TP21FFGRA004	D6	1-1825192-1	TT23K9T1/404	E6	1437576-6	CST043NK	B67	1571091-1	PRBSA1-16F-BB000	G8	1571299-1	FSM1SJM	C6
1-1825096-0	TPA11FGRA004	D6	1-1825192-2	TT41NGPC9T1/404	E6	1437576-7	CST062NK	B67	1571091-2	PRBSA1-16F-BB0BW	G8	1571299-2	FSM1SJMTTR	C6
1-1825096-1	TPA11FGRA204	D6	1-1825192-3	TT41NGRA9T1/404	E6	1437577-2	SDS1240RA0	B64	1571091-3	PRBSA1-16F-BB0CW	G8	1571299-3	FSM2SJM	C6
1-1825096-2	TPA11FGRA604	D6	1-1825192-4	TT43N9T1/404	E6	1437577-3	SDS1240RA8	B64	1571091-4	PRBSA1-16L-BB000	G8	1571299-4	FSM2SJMTTR	C6
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1-1825096-4	TPA21CCGRA004	D6	1-1825192-6	TTE13A9T1/404	E6	1437577-5	SDS1340RA8	B64	1571091-6	PRBSA1-16L-BB0CW	G8	1571300-2	FSMRAJASAP	C34
1-1825096-5	TPA21FFGRA204	D6	1-1825192-7	TTE11AGPC9T1/404	E6	1437577-6	SDS2240RA0	B64	1571091-9	PRBSA1-16F-BB0HW	G8	1571402-1	FSMGAJRT	C15
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1-1825097-4	TPB11FGRAES004	D15	1-1825219-4	TT41NGRA104	E6	1437597-3	2SKF131AEL03	J4	1571094-3	PRBSD1-16F-BB0EW	G8	1571500-1	PRHSA1-08F-BB000	G22
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1-1825097-8	TPB21MGP204	D6	1-1825289-0	MHS233K04	B48	1437597-7	2SKF132AEL01	J4	1571094-7	PRBSD3-16F-BW000	G8	1571514-3	FSM2MDSMA	C49
1-1825097-9	TPB21RGR004	D6	1-1825289-1	MHS233K04	B48	1437597-8	2SKF132AEL02	J4	1571095-1	PRCSA1-20F-BB000	G11	1571515-1	FSM1MD	C49
1-1825098-0	TPC13C204	D6	1-1825428-0	ARF043_3KT04	A27	1437597-9	2SKF132AEL04	J4	1571095-2	PRCSA1-20F-BB0BW	G11	1571515-2	FSM4MDAA	C49
1-1825098-1	TPC13CPC004	D6	1-1825498-1	ARF0810KT04	A27	1437598-4	SKT131AEL01	J8	1571095-3	PRCSA1-20F-BB0CW	G11	1571528-1	FSMJMLPTR	C8
1-1825098-2	TPC13F004	D6	1-1825498-2	ARF083_3K04	A27	1437598-5	SKT131GAEL01	J8	1571095-4	PRCSA1-20L-BB000	G11	1571528-2	FSMJMLPATR	C8
1-1825098-3	TPC21MGRA204	D6	1-1825910-0	FSM6JH	C10	1437598-6	SKT131GAEL02	J8	1571095-5	PRCSA1-20L-BB0BW	G11	1571610-1	FSMRAJSA	C32
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1-1825098-6	TPC23R204	D6	1-1825910-3	FSM6JB	C10	1437598-9	SKT331AEL01	J8	1571095-8	PRCSA1-20L-BR000	G11	1571625-1	FSM2JELJXL	C23
1-1825098-7	TPCF11CGPC004	D6	1-1825910-4	FSM6JBH	C10	1437621-2	K1250A1/4	K2	1571095-9	PRCSA1-20S-BB000	G11	1571625-2	FSM2JELJXLTR	C23
1-1825098-8	TPCF11CGRA004	D6	1-1825910-5	FSM6JAH	C10	1437621-3	K1250B1/4	K2	1571099-1	PRCDD1-20F-BB000	G11	1571625-3	FSM2JELJL	C23
1-1825098-9	TPCF11FGRA004	D6	1-1825910-6	FSM6JAAH	C10	1437621-4	K1251B1/4	K2	1571099-2	PRCDD1-20F-BB0DW	G11	1571625-4	FSM2JELJLTR	C23
1-1825099-0	TPD21RGP004	D6	1-1825910-7	FSM10JLH	C10	1437621-5	K1255BS1/4	K2	1571099-3	PRCDD1-20F-BB0EW	G11	1571625-5	FSM2JELJL	C23
1-1825100-0	TPF11FGPCES004	D15	1-1825910-8	FSM10JH	C10	1437621-6	K500A1/4	K2	1571099-4	PRCDD3-20F-BB000	G11	1571625-6	FSM2JELJL	C23
1-1825100-1	TPF11FGRA004	D6	1-1825910-9	FSM10JAH	C10	1437621-7	K500A1/8	K2	1571099-5	PRCDD3-20F-BB0FW	G11	1571625-7	FSM2JELJJA	C23
1-1825100-2	TPF13C004	D6	1-1825955-0	FSM5JH	C10	1437621-8	K500B1/4	K2	1571099-6	PRCDD3-20F-BB0GW	G11	1571625-8	FSM2JELJATR	C23
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1-1825136-3	AT01MD9AG04	E15	1-1977069-0	PRADD4-12F-BB000	G6	1437623-2	KS500A1/4	K2	1571100-7	PRCSD4-20F-BB000	G11	1571630-2	MSS225R004	B52
1-1825136-4	AT01MD9AQ04	E15	1-1977069-1	PRADD4-12F-BB0FW	G6	1437623-3	KS500A1/8	K2	1571100-8	PRCSD4-20F-BB0FW	G11	1571630-3	MSS225R004	B52
1-1825136-5	AT01MD9AV2B04	E15	1-1977069-2	PRADD4-12F-BB0GW	G6	1437623-4	KS500B1/4	K2	1571100-9	PRCSD4-20F-BB0GW	G11	1571634-1	MSS25JX	C25
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1-1825137-5	A103SYCB04	E15	1-1977223-9	FSM6JSMAS	C19	1437624-8	PK7081/4	K12	1571103-1	PRDDA1-16F-BB000	G14	1571636-9	FSM2JELGEA	C23
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1571924-4	MTE106E04	E32	1571999-9	ADP04STRO4	A24	1825027-3	FSMRA1JHA	C17	1825073-5	SL77004	B23	1825136-8	A101SYAV2B04	E15
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1571924-6	MTE106G04	E32	1634200-2	PRED1-07F-BB0BW	G16	1825027-5	FSMRA2JH	C17	1825073-7	SL100004	B23	1825137-1	A103KZQ04	E15
1571924-7	MTE106H04	E32	1634200-3	PRED1-07F-BB0CW	G16	1825027-6	FSMRA2JHA	C17	1825074-1	SLS12004	B25	1825137-2	A103MD9AB04	E15
1571925-3	MTF106D04	E32	1634200-4	PRED1-07L-BB000	G16	1825027-7	FSMRA3JHL	C17	1825075-1	SLS120104	B25	1825137-3	A103MD9AG04	E15
1571925-4	MTF106E04	E32	1634200-5	PRED1-07L-BB0BW	G16	1825027-8	FSMRA3JH	C17	1825076-1	SLS12104	B20	1825137-4	A103MD9AQ04	E15
1571925-5	MTF106F04	E32	1634200-6	PRED1-07L-BB0CW	G16	1825027-9	FSMRA3JHA	C17	1825077-1	SLS121104	B20	1825137-5	A103MD9AV2B04	E15
1571925-6	MTF106G04	E32	1634200-7	PRED1-07F-BR000	G16	1825031-1	SE1DGRA04	B11	1825078-1	SL22004	B25	1825137-6	A103P3ZQ04	E15
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1571927-6	MTL206N04	E32	1634201-8	PRFDA1-16F-BB0BW	G18	1825040-1	MPA106D04	D28	1825086-1	FSMSMLPTR	C8	1825138-8	A201MD9AQ04	E15
1571927-7	MTL206N04	E32	1634201-9	PRFDA1-16F-BB0CW	G18	1825040-2	MPA106F04	D28	1825086-2	FSMSMLPATR	C8	1825138-9	A201MD9AV2B04	E15
1571927-8	MTL206N04	E32	1634202-1	PRGSA1-16F-BB000	G20	1825040-3	MPA106GPC04	D28	1825086-3	FSMSMLPATR	C8	1825139-1	A203KZQ04	E15
1571927-9	MTL206PA04	E32	1634202-2	PRGSA1-16F-BB0BW	G20	1825040-4	MPA106FFC04	D28	1825087-1	SLSA220104	B25	1825139-2	A203MD9AB04	E15
1571927-9	MTL206PA04	E32	1634202-3	PRGSA1-16F-BB0CW	G20	1825040-5	MPA206N04	D28	1825092-1	MPS103D04	D25	1825139-3	A203P3AV2Q04	E15
1571927-9	MTL206PA04	E32	1634202-4	PRGSA1-16F-BR000	G20	1825040-6	MPA206N04	D28	1825092-2	MPS103F04	D25	1825139-4	A203P3ZQ04	E15
1571981-1	SSA1204	B14	1634202-5	PRGSA1-16F-BR000	G20	1825040-7	MPA206R04	D28	1825092-3	MPS203N04	D25	1825139-5	A203SD9AV2B04	E15
1571981-2	SSA2204	B14	1634202-6	PRGSA1-16F-BG000	G20	1825040-8	MPA206R04	D28	1825092-4	MPS203R04	D25	1825139-6	A203SD9AV2Q04	E15
1571981-3	SSA22G04	B14	1634202-6	PRGSA1-16F-BG000	G20	1825040-9	MPA306D04	D28	1825095-1	TP11CGPC004	D6	1825139-7	A203SDZQ04	E15
1571982-1	TSS11DG1PC04	B43	1-6437630-0	AWT11504	E46	1825041-1	MPA306D04	D28	1825095-2	TP11CGPC204	D6	1825139-8	A203SYCB04	E15
1571982-2	TSS11DG1PC04	B43	1-6437630-1	AWT11504	E46	1825041-2	MPA306D04	D28	1825095-3	TP11CGRA004	D6	1825139-9	A203SYCQ04	E15
1571982-3	TSS11EG1PC04	B43	1-6437630-5	FTD5904	E43	1825041-3	MPA306D04	D28	1825095-4	TP11CGRA204	D6	1825142-1	AE101MD1AB04	E26
1571982-4	TSS11EG1PC04	B43	1825002-1	ADF0204	A19	1825041-4	MPA306D04	D28	1825095-5	TP11CGRA604	D6	1825142-2	AE101MD1A0Q4	E26
1571982-5	TSS21KGPC04	B43	1825002-2	ADF02T04	A19	1825041-5	MPA306D04	D28	1825095-6	TP11FGPC004	D6	1825142-3	AE101MD1AV2B04	E26
1571982-6	TSS21KGPC04	B43	1825002-3	ADF0304	A19	1825041-6	MPA306F04	D28	1825095-7	TP11FGPC204	D6	1825142-4	AE101MD1AV2Q04	E26
1571982-7	TSS21KGPC04	B43	1825002-4	ADF03T04	A19	1825041-7	MPA306F04	D28	1825095-8	TP11FGRA004	D6	1825142-5	AE101MD1CB04	E26
1571982-8	TSS21PG1PC04	B43	1825002-5	ADF0404	A19	1825041-8	MPA306F04	D28	1825095-9	TP11FGRA204	D6	1825142-6	AE101MD1CG04	E26
1571982-9	TSS21PG1PC04	B43	1825002-6	ADF04T04	A19	1825042-1	MPG106D04	D28	1825096-1	TPA11CGPC004	D6	1825142-7	AE101MD1AB04	E26
1571983-1	GDOH02S04	A10	1825002-7	ADF0504	A19	1825042-2	MPG106DPC04	D28	1825096-2	TPA11CGPC204	D6	1825143-1	AE201MD1A0Q4	E26
1571983-3	GDOH02STRO4	A10	1825002-8	ADF05T04	A19	1825042-3	MPG106F04	D28	1825096-3	TPA11CGRA004	D6	1825143-2	AE201MD1A0Q4	E26
1571983-4	GDOH04S04	A10	1825002-9	ADF0604	A19	1825042-4	MPG106FFC04	D28	1825096-4	TPA11CGRA204	D6	1825143-3	AE201MD1CB04	E26
1571983-5	GDOH04STRO4	A10	1825006-1	GDS0204	A4	1825042-5	MPG106FFC04	D28	1825096-5	TPA11CGRA604	D6	1825143-4	AE201MD1W4B04	E26
1571983-6	GDOH04STRTNS04	A10	1825006-2	GDS02NTS04	A4	1825042-6	MPG206N04	D28	1825096-6	TPA11CGRA604	D6	1825143-5	AE201SD1AB04	E26
1571983-8	GDOH06S04	A10	1825006-3	GDS02S04	A4	1825042-7	MPG206N04	D28	1825096-7	TPA11FGPC004	D6	1825143-6	AE201SD1AG04	E26
1571983-9	GDOH06STRO4	A10	1825006-4	GDS02STRO4	A4	1825042-8	MPG206R04	D28	1825096-8	TPA11FGPC204	D6	1825143-7	AE201SD1AV2B04	E26
1571984-1	TSS11DGRA04	B43	1825006-5	GDS0404	A4	1825042-9	MPG206R04	D28	1825096-9	TPA11FGPC604	D6	1825159-1	STS121PC04	B30
1571984-2	TSS11EGRA04	B43	1825006-6	GDS04NTS04	A4	1825043-1	UP01DTA0LA04	H2	1825097-1	TPB11CGPC004	D6	1825159-2	STS131PC04	B30
1571984-3	TSS21NGRA04	B43	1825006-7	GDS04S04	A4	1825043-2	UP01DTA0LA04	H2	1825097-2	TPB11CGPC204	D6	1825159-3	STS141PC04	B30
1571984-4	TSS21NGRA04	B43	1825006-8	GDS04STRO4	A4	1825043-3	UP01DTANLA04	H2	1825097-3	TPB11CGRA004	D6	1825159-4	STS151PC04	B30
1571984-5	TSS21PGRA04	B43	1825006-9	GDS0604	A4	1825043-4	UP01DTANLA04	H2	1825097-4	TPB11CGRAES004	D15	1825159-5	STS161PC04	B30
1571985-1	TSS11DG1RA04	B43	1825007-1	DRD10CE04	A46	1825043-5	UP01DTANLA04	H2	1825097-5	TPB11CGRAES204	D15	1825160-1	STS121RA04	B30
1571985-2	TSS11EG1RA04	B43	1825007-2	DRD10CE04	A46	1825043-6	UP01DTANLA04	H2	1825097-6	TPB11CGRAES204	D15	1825160-2	STS131RA04	B30
1571985-3	TSS21NG1RA04	B43	1825007-3	DRD10CE04	A46	1825043-7	UP01DTANLA04	H2	1825097-7	TPB11CGRAES204	D15	1825160-3	STS141RA04	B30
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1571986-8	A101J1AQ004	F7	1825007-6	DRD10CE04	A46	1825043-10	UP01DTANLA04	H2	1825098-1	TPC11CGPC004	D6	1825161-1	STS1300PC04	B30
1571986-9	A101J1AQ204	F7	1825007-7	DRD10CE04	A46	1825043-11	UP01DTANLA04	H2	1825098-2	TPC11CGPC204	D6	1825161-2	STS1400PC04	B30
1571987-2	A201J1AQ004	F7	1825007-8	DRD10CE04	A46	1825043-12	UP01DTANLA04	H2	1825098-3	TPC11CGPC604	D6	1825162-1	STS1300RA04	B30
1571987-3	A201J1AQ204	F7	1825007-9	DRD10CE04	A46	1825043-13	UP01DTANLA04	H2	1825098-4	TPC11FGPC004	D6	1825162-2	STS1400RA04	B30
1571987-4	A201J1AV2Q004	F7	1825008-1	DRD10CE04	A46	1825043-14	UP01DTANLA04	H2	1825098-5	TPC11FGPC204	D6	1825163-1	STS220PC04	B30
1571987-5	A201J1CQ004	F7	1825008-2	DRD10CE04	A46	1825043-15	UP01DTANLA04	H2	1825098-6	TPC11FGPC604	D6	1825163-2	STS230PC04	B30
1571987-6	A201J1V3Q004	F7	1825008-3	DRD10CE04	A46	1825043-16	UP01DTANLA04	H2	1825098-7	TPC11FGPC604	D6	1825163-3	STS240PC04	B30
1571987-7	A201J1ZQ004	F7	1825008-4	DRD10CE04	A46	1825043-17	UP01DTANLA04	H2	1825098-8	TPC11FGPC604	D6	1825163-4	STS250PC04	B30
1571987-8	A201J1ZQ004	F7	1825008-5	DRD10CE04	A46	1825043-18	UP01DTANLA04	H2	1825098-9	TPC11FGPC604	D6	1825163-5	STS260PC04	B30
1571988-1	AE101J1AB004	F17	1825008-6	DRD10CE04	A46	1825043-19	UP01DTANLA04	H2	1825098-10	TPC11FGPC604	D6	1825164-1	STS2300PC04	B30
1571988-2	AE101J1AQ004	F17	1825008-7	DRD10CE04	A46	1825043-20	UP01DTANLA04	H2	1825098-11	TPC11FGPC604	D6	1825165-1	STS2400PC04	B30
1571988-3	AE101J1AQ204	F17	1825008-8	DRD10CE04	A46	1825043-21	UP01DTANLA04	H2	1825098-12	TPC11FGPC604	D6	1825166-1	STS220RA04	B34
1571988-4	AE101J1AV2Q004	F17	1825008-9	DRD10CE04	A46									

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1825192-8	TT21NGPC9T1/404	E6	1825263-1	MSS225004	B52	1825455-5	TST1EGPC4D04	E3	1825967-1	FSMCD1H	C13	2-1437622-1	KLNS700B1/4	K2
1825192-9	TT21NGRA9T1/404	E6	1825263-2	MSS2250G04	B52	1825495-1	MRC11004	I2	1825967-2	FSMCD2H	C13	2-1437622-2	KLNS900A1/4	K2
1825194-1	MSSA135004	B58	1825264-1	MSS420004	B52	1825496-1	MRC110S04	I2	1825968-1	FSMRACD1H	C13	2-1437622-3	KLNS900B1/4	K2
1825194-2	MSSA1350G04	B58	1825264-2	MSS4200G04	B52	1825497-1	MRC2504	I2	1825968-2	FSMRACD2H	C13	2-1437622-5	KN1250A1/4	K2
1825195-1	MSSA1350R04	B58	1825265-1	MSS4200R04	B52	1825498-1	MRC25S04	I2	1825968-3	FSMRACD2AH	C13	2-1437622-6	KN1250AB1/4	K2
1825195-2	MSSA1350RG04	B58	1825265-2	MSS4200RG04	B52	1825499-1	MRC3304	I2	1825968-4	FSMRACD2AH	C13	2-1437622-7	KN1250B1/4	K2
1825196-1	MSSA145004	B58	1825266-1	MSS425004	B52	1825500-1	MRC33S04	I2	1825968-5	FSMRACD2AH	C13	2-1437622-8	KN1250BA1/4	K2
1825196-2	MSSA1450G04	B58	1825267-1	MSS430004	B52	1825501-1	MRC4204	I2	1825968-6	FSMRACD2AH	C13	2-1437622-9	KN1251A1/4	K2
1825197-1	MSSA1450R04	B58	1825267-2	MSS4300G04	B52	1825502-1	MRC42S04	I2	1825968-7	FSMRACD2AH	C13	2-1437623-1	KU401B1/8	K2
1825197-2	MSSA1450RG04	B58	1825268-1	MSS4300R04	B52	1825516-1	MSP103804	D23	1825968-8	FSMRACD2AH	C13	2-1437623-2	KU402B1/8	K2
1825198-1	MSSA235004	B58	1825268-2	MSS4300RG04	B52	1825516-2	MSP103C04	D23	1825968-9	FSMRACD2AH	C13	2-1437623-3	KU500B1/8	K2
1825198-2	MSSA2350G04	B58	1825269-1	MSS433504	B52	1825516-3	MSP103C004	D23	1825968-10	FSMRACD2AH	C13	2-1437623-4	KU700B1/4	K2
1825199-1	MSSA2350R04	B58	1825270-1	MSS4350R04	B52	1825516-4	MSP103C204	D23	1825968-11	FSMRACD2AH	C13	2-1437623-5	KUS402B1/8	K2
1825199-2	MSSA2350RG04	B58	1825270-2	MSS4350RG04	B52	1825534-1	FSMLPTR	C27	1825968-12	FSMRACD2AH	C13	2-1437623-6	PKAF70B1/4	K12
1825200-1	MSSA245004	B58	1825271-1	MSS620004	B52	1825535-1	MRJ11204	I5	1825968-13	FSMRACD2AH	C13	2-1437623-7	PKB70B1/4	K12
1825200-2	MSSA2450G04	B58	1825271-2	MSS6200G04	B52	1825535-2	MRJ2604	I5	1825968-14	FSMRACD2AH	C13	2-1437623-8	PKB90B1/4	K12
1825201-1	MSSA2450R04	B58	1825272-1	MSS625004	B52	1825535-3	MRJ3404	I5	1825968-15	FSMRACD2AH	C13	2-1437623-9	PKD100B1/4	K12
1825201-2	MSSA2450RG04	B58	1825273-1	MSS635004	B52	1825535-4	MRJ4304	I5	1825968-16	FSMRACD2AH	C13	2-1437624-1	PKD100B101/4	K12
1825202-1	MSSA335004	B58	1825274-1	MSS6350R04	B52	1825536-1	MRJB11204	I5	1825968-17	FSMRACD2AH	C13	2-1437624-2	PKD60B1/4	K12
1825202-2	MSSA3350G04	B58	1825280-1	SSJ1204	B18	1825536-2	MRJB2604	I5	1825968-18	FSMRACD2AH	C13	2-1437624-3	PKD60B1/8	K12
1825202-3	MSSA3350R04	B58	1825282-1	SSJ12R04	B18	1825536-3	MRJB3404	I5	1825968-19	FSMRACD2AH	C13	2-1437624-4	PKD60B101/4	K12
1825202-4	MSSA3350RG04	B58	1825283-1	SSJ1304	B18	1825536-4	MRJB4304	I5	1825968-20	FSMRACD2AH	C13	2-1437624-5	SPA32	A49
1825203-1	MSSA3350R04	B58	1825286-1	GDR0204	A8	1825537-1	MRJE11204	I5	1825968-21	FSMRACD2AH	C13	2-1437624-6	SPA42	A49
1825203-2	MSSA3350RG04	B58	1825286-2	GDR02S04	A8	1825537-2	MRJE2604	I5	1825968-22	FSMRACD2AH	C13	2-1437624-7	PRASA1-16F-BB0HW	G3
1825203-3	MSSA3350R04	B58	1825286-3	GDR0404	A8	1825537-3	MRJE3404	I5	1825968-23	FSMRACD2AH	C13	2-1437624-8	PRASA3-16F-BB0JW	G3
1825203-4	MSSA3350RG04	B58	1825286-4	GDR04S04	A8	1825537-4	MRJE4304	I5	1825968-24	FSMRACD2AH	C13	2-1437624-9	MTA206R04	E32
1825204-1	MSSA345004	B58	1825286-5	GDR0604	A8	1825538-1	MSPM101B004	D18	1825968-25	FSMRACD2AH	C13	2-1437625-1	MTA206R04	E32
1825204-2	MSSA3450G04	B58	1825286-6	GDR06S04	A8	1825538-2	MSPM101B104	D18	1825968-26	FSMRACD2AH	C13	2-1437625-2	MTA206R04	E32
1825204-3	MSSA3450R04	B58	1825286-7	GDR0804	A8	1825538-3	MSPM101C104	D18	1825968-27	FSMRACD2AH	C13	2-1437625-3	MTA206S04	E32
1825204-4	MSSA4450G04	B58	1825286-8	GDR08S04	A8	1825538-4	MSPM101C204	D18	1825968-28	FSMRACD2AH	C13	2-1437625-4	MTA206S04	E32
1825205-1	MSSA3450R04	B58	1825286-9	GDR1004	A8	1825539-1	MSPM101BS04	D18	1825968-29	FSMRACD2AH	C13	2-1437625-5	MTA206SAPC04	E32
1825205-2	MSSA3450RG04	B58	1825289-1	MHS22204	B48	1825539-2	MSPM101BS104	D18	1825968-30	FSMRACD2AH	C13	2-1437625-6	MTA206SPC04	E32
1825205-3	MSSA4450R04	B58	1825289-2	MHS222G04	B48	1825539-3	MSPM101CS04	D18	1825968-31	FSMRACD2AH	C13	2-1437625-7	MTA206T04	E32
1825205-4	MSSA4450RG04	B58	1825289-3	MHS222K04	B48	1825539-4	MSPM101CS104	D18	1825968-32	FSMRACD2AH	C13	2-1437625-8	MTA206T04	E32
1825219-1	TTE11EG104	E6	1825289-4	MHS222KG04	B48	1825599-1	BPT1532204	D39	1825968-33	FSMRACD2AH	C13	2-1437625-9	MTA206TPC04	E32
1825219-2	TT11AGPC104	E6	1825289-5	MHS22304	B48	1825599-2	BPT1532804	D39	1825968-34	FSMRACD2AH	C13	2-1437626-1	MTM8106DGRA04	E32
1825219-3	TT11DGPC104	E6	1825289-6	MHS223G04	B48	1825599-3	BPT1532004	D39	1825968-35	FSMRACD2AH	C13	2-1437626-2	MTM8106DRA04	E32
1825219-4	TT11DGRA104	E6	1825289-7	MHS223K04	B48	1825600-1	BT1532004	A49	1825968-36	FSMRACD2AH	C13	2-1437626-3	MTM8106DRA04	E32
1825219-5	TT11DGVRA104	E6	1825289-8	MHS22304	B48	1825600-2	BT1532204	A49	1825968-37	FSMRACD2AH	C13	2-1437626-4	MTM8106DRA04	E32
1825219-6	TT11EGPC104	E6	1825289-9	MHS223G04	B48	1825600-3	BT1532804	A49	1825968-38	FSMRACD2AH	C13	2-1437626-5	MTM8106DRA04	E32
1825219-7	TT11EGPCV104	E6	1825290-1	MHS222RA04	B48	1825602-1	B1532004	A49	1825968-39	FSMRACD2AH	C13	2-1437626-6	MTM8106DRA04	E32
1825219-8	TT11EGRA104	E6	1825290-2	MHS223RA04	B48	1825602-2	B1532204	A49	1825968-40	FSMRACD2AH	C13	2-1437626-7	MTM8106DRA04	E32
1825219-9	TT11EGVRA104	E6	1825290-3	MHS223RA04	B48	1825602-3	B1532804	A49	1825968-41	FSMRACD2AH	C13	2-1437626-8	MTM8106DRA04	E32
1825222-1	TT11DGMW2T04	E6	1825290-4	MHS222GRA04	B48	1825603-1	BP1532004	D37	1825968-42	FSMRACD2AH	C13	2-1437626-9	MTM8106DRA04	E32
1825222-2	TT13A2T04	E6	1825290-5	MHS223GRA04	B48	1825603-2	BP1532204	D37	1825968-43	FSMRACD2AH	C13	2-1437627-1	MTF206S04	E32
1825222-3	TT13D2T04	E6	1825290-6	MHS223GRA04	B48	1825603-3	BP1532804	D37	1825968-44	FSMRACD2AH	C13	2-1437627-2	MTF206S04	E32
1825222-4	TT13E2T04	E6	1825290-7	MHS223GRA04	B48	1825603-4	BP1532804	D37	1825968-45	FSMRACD2AH	C13	2-1437627-3	MTF206S04	E32
1825222-5	TT21NGWVW2T04	E6	1825290-8	MHS223GRA04	B48	1825603-5	BP1532804	D37	1825968-46	FSMRACD2AH	C13	2-1437627-4	MTF206S04	E32
1825222-6	TT23K2T04	E6	1825290-9	MHS223GRA04	B48	1825603-6	BP1532804	D37	1825968-47	FSMRACD2AH	C13	2-1437627-5	MTF206S04	E32
1825222-7	TT23K2T04	E6	1825290-10	MHS223GRA04	B48	1825603-7	BP1532804	D37	1825968-48	FSMRACD2AH	C13	2-1437627-6	MTF206S04	E32
1825222-8	TT23K2T04	E6	1825290-11	MHS223GRA04	B48	1825603-8	BP1532804	D37	1825968-49	FSMRACD2AH	C13	2-1437627-7	MTF206S04	E32
1825222-9	TT23K2T04	E6	1825290-12	MHS223GRA04	B48	1825603-9	BP1532804	D37	1825968-50	FSMRACD2AH	C13	2-1437627-8	MTF206S04	E32
1825223-1	TT11EGPCV104	E6	1825290-13	MHS223GRA04	B48	1825603-10	BP1532804	D37	1825968-51	FSMRACD2AH	C13	2-1437627-9	MTF206S04	E32
1825223-2	TT11EGPCV104	E6	1825290-14	MHS223GRA04	B48	1825603-11	BP1532804	D37	1825968-52	FSMRACD2AH	C13	2-1437628-1	MTF206S04	E32
1825223-3	TT11EGPCV104	E6	1825290-15	MHS223GRA04	B48	1825603-12	BP1532804	D37	1825968-53	FSMRACD2AH	C13	2-1437628-2	MTF206S04	E32
1825223-4	TT11EGPCV104	E6	1825290-16	MHS223GRA04	B48	1825603-13	BP1532804	D37	1825968-54	FSMRACD2AH	C13	2-1437628-3	MTF206S04	E32
1825223-5	TT11EGPCV104	E6	1825290-17	MHS223GRA04	B48	1825603-14	BP1532804	D37	1825968-55	FSMRACD2AH	C13	2-1437628-4	MTF206S04	E32
1825223-6	TT11EGPCV104	E6	1825290-18	MHS223GRA04	B48	1825603-15	BP1532804	D37	1825968-56	FSMRACD2AH	C13	2-1437628-5	MTF206S04	E32
1825223-7	TT11EGPCV104	E6	1825290-19	MHS223GRA04	B48	1825603-16	BP1532804	D37	1825968-57	FSMRACD2AH	C13	2-1437628-6	MTF206S04	E32
1825223-8	TT11EGPCV104	E6	1825290-20	MHS223GRA04	B48	1825603-17	BP1532804	D37	1825968-58	FSMRACD2AH	C13	2-1437628-7	MTF206S04	E32
1825223-9	TT11EGPCV104	E6	1825290-21	MHS223GRA04	B48	1825603-18	BP1532804	D37	1825968-59	FSMRACD2AH	C13	2-1437628-8	MTF206S04	E32
1825224-1	TT11EGPCV104	E6	1825290-22	MHS223GRA04	B48	1825603-19	BP1532804	D37	1825968-60	FSMRACD2AH	C13	2-1437628-9	MTF206S04	E32
1825224-2	TT11EGPCV104	E6	1825290-23	MHS223GRA04	B48	1825603-20	BP1532804	D37	1825968-61	FSMRACD2AH	C13	2-1437629-1	MTF206S04	E32
1825224-3	TT11EGPCV104	E6	1825290-24	MHS223GRA04	B48	1825603-21	BP1532804	D37	1825968-62	FSMRACD2AH	C13	2-1437629-2	MTF206S04	E32
1825224-4	TT11EGPCV104	E6	1825290-25	MHS223GRA04	B48	1825603-22	BP1532804	D37	1825968-63	FSMRACD2AH	C13	2-1437629-3	MTF206S04	E32
1825224-5	TT11EGPCV104	E6	1825290-26	MHS223GRA04	B48	1825603-23	BP1532804	D37	1825968-64	FSMRACD2AH	C13	2-1437629-4	MTF206S04	E32
1825224-6	TT11EGPCV104	E6	1825290-27	MHS223GRA04	B48	1825603-24	BP1532804	D37	1825968-65	FSMRACD2AH	C13	2-1437629-5	MTF206S04	E32
1825224-7	TT11EGPCV104	E6	1825290-28	MHS223GRA04	B48	1825603-25	BP1532804	D37	1825968-66	FSMRACD2AH	C13	2-1437629-6	MTF206S04	E32
1825224-8	TT11EGPCV104	E6	1825290-29	MHS223GRA04	B48	1825603-26	BP1532804	D37	1825968-67	FSMRACD2AH	C13	2-1437629-7	MTF206S04	E32
1825224-9	TT11EGPCV104	E6	1825290-30	M										

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2-1825007-0	DRD16SETR04	A46	2-1825139-2	A207SYCB04	E15	3-1437621-3	KAS900A1/4	K2	3-1825059-2	ADF07SA04	A21	4-1437580-6	MSSA204NRA04	B36
2-1825007-1	DRD10ET04	A46	2-1825139-3	A207SYCQ04	E15	3-1437621-4	KAS900B1/4	K2	3-1825059-3	ADF07SAT04	A21	4-1437580-7	MSSA204P04	B36
2-1825007-2	DRD16ET04	A46	2-1825139-4	A207SYZQ04	E15	3-1437621-5	KB500A1/4	K2	3-1825059-4	ADF07SATR04	A21	4-1437580-8	MSSA211NG04	B36
2-1825010-0	ASE42S04	B2	2-1825139-5	A207T1ZQ04	E15	3-1437621-6	KB500A1/8	K2	3-1825059-5	ADF07ST04	A21	4-1437580-9	MSSA211NG04	B36
2-1825010-1	ASE42RGL04	B2	2-1825139-6	A207T2Q04	E15	3-1437621-8	KB500B1/4	K2	3-1825059-6	ADF07STTR04	A21	4-1437595-1	TRD11D10WL	F4
2-1825010-2	ASE42RL04	B2	2-1825139-7	A211KZB04	E15	3-1437621-9	KB500B1/8	K2	3-1825059-7	ADF08S04	A21	4-1437597-0	SWK12F315	J6
2-1825010-3	ASE42RGS04	B2	2-1825139-8	A211MD9AQ04	E15	3-1437622-0	KN1251B1/4	K2	3-1825059-8	ADF08SA04	A21	4-1437597-1	SWK12F320	J6
2-1825010-4	ASE42RS04	B2	2-1825139-9	A211MYCQ04	E15	3-1437622-1	KN1750B1/4	K2	3-1825059-9	ADF08SAT04	A21	4-1437597-2	SWK12K315	J6
2-1825010-5	ASE4304	B2	2-1825142-0	AE101SD1CB04	E26	3-1437622-2	KN1751A1/4	K2	3-1825136-0	A101SCWCQ004	E15	4-1437597-3	2SWK1323AL01	J2
2-1825010-6	ASE43G04	B2	2-1825142-1	AE101SD1CQ04	E26	3-1437622-3	KN1751AB1/4	K2	3-1825136-1	A101SCWZQ04	E15	4-1437621-0	KB700A1/4	K2
2-1825010-7	ASE43R04	B2	2-1825142-2	AE101SD1V30B04	E26	3-1437622-5	KN1751AS1/4	K2	3-1825136-2	A101SD9AB04	E15	4-1437621-2	KB700B1/4	K2
2-1825010-8	ASE43RG04	B2	2-1825142-3	AE101SD1V30Q04	E26	3-1437622-6	KN1751B1/4	K2	3-1825136-3	A101SD9AQ04	E15	4-1437621-4	KB900A1/4	K2
2-1825010-9	ASE43GL04	B2	2-1825142-4	AE103MD1AB04	E26	3-1437622-7	KN1751BA1/4	K2	3-1825136-4	A101SD9AV2B04	E15	4-1437621-5	KB900B1/4	K2
2-1825011-0	ASF22RSTR04	B2	2-1825142-5	AE103MD1AV2B04	E26	3-1437622-8	KN1751BS1/4	K2	3-1825136-5	A101SD9AV2Q04	E15	4-1437621-7	KB5500A1/4	K2
2-1825011-1	ASF4204	B2	2-1825142-6	AE103MD1CB04	E26	3-1437622-9	KN1755AB51/4	K2	3-1825136-6	A101SD9V30B04	E15	4-1437621-8	KB5500A1/8	K2
2-1825011-2	ASF42G04	B2	2-1825142-7	AE103MD1W4B04	E26	3-1437623-0	KUS500B1/8	K2	3-1825136-7	A101SD9V30Q04	E15	4-1437621-9	KB5500A1/10	K2
2-1825011-3	ASF42R04	B2	2-1825142-8	AE103SD1AV2B04	E26	3-1437623-1	KUS700B1/4	K2	3-1825136-8	A101SDCQ04	E15	4-1437622-0	KN1755BAS1/4	K2
2-1825011-4	ASF42RG04	B2	2-1825143-0	AE203SD1W4B04	E26	3-1437623-2	PKD70B101/8	K12	3-1825136-9	A101SDZQ04	E15	4-1437622-1	KN1755BS1/4	K2
2-1825011-5	ASF42GL04	B2	2-1825143-1	AE205MD1AV2B04	E26	3-1437623-4	PKD70B101/4	K12	3-1825137-1	A105SD9AB04	E15	4-1437622-2	KN500A1/4	K2
2-1825011-6	ASF42GLTR04	B2	2-1825143-2	AE205SD1CQ04	E26	3-1437623-5	PKD70B101/1	K12	3-1825137-2	A105SD9AV2Q04	E15	4-1437622-3	KN500A1/8	K2
2-1825011-7	ASF42L04	B2	2-1825143-3	AE207MD1AB04	E26	3-1437623-6	PKDT100B1/4	K12	3-1825137-3	A105SD9V30B04	E15	4-1437622-4	KN500A1/10	K2
2-1825011-8	ASF42LTR04	B2	2-1825143-4	AE208SD1W4B04	E26	3-1437623-7	PKDT100B101/4	K12	3-1825137-4	A105SYAB04	E15	4-1437622-5	KN500A1/10	K2
2-1825011-9	ASF42GS04	B2	2-1825143-5	AE211MD1CB04	E26	3-1437623-8	PKDT60B101/8	K12	3-1825137-5	A105SYAB2B04	E15	4-1437622-6	KN500B1/4	K2
2-1825013-0	MRD16STR04	A43	2-1825143-6	AE211MD1V30B04	E26	3-1437623-9	PKDT70B1/4	K12	3-1825137-6	A105SYCB04	E15	4-1437622-7	KN500B1/8	K2
2-1825013-1	MRD10CASTR04	A43	2-1825010-0	FSM10JAAH	C10	3-1571076-0	PRASA1-16L-BR0BW	G3	3-1825137-7	A105SYCQ04	E15	4-1437622-8	KN500B1/10	K2
2-1825013-2	MRD10RASTR04	A43	2-1825010-1	FSM12JLH	C10	3-1571920-0	MTA306D04	E32	3-1825137-8	A105SYZB04	E15	4-1437622-9	KN500B1/10	K2
2-1825013-3	MRD16CASTR04	A43	2-1825010-2	FSM12JH	C10	3-1571920-1	MTA306DPC04	E32	3-1825137-9	A105SYZQ04	E15	4-1437623-0	PKDT70B101/4	K12
2-1825013-4	MRD16RASTR04	A43	2-1825010-3	FSM12JAH	C10	3-1571920-2	MTA306E04	E32	3-1825138-1	A201TZQ04	E15	4-1437623-1	PK6E0B1/4	K12
2-1825027-0	FSMRA7JH	C17	2-1825010-4	FSM12JAAH	C10	3-1571920-3	MTA306EPC04	E32	3-1825138-2	A208KZG04	E15	4-1437623-2	PK6E0B1/8	K12
2-1825027-1	FSMRA7JHA	C17	2-1825010-5	FSM14JLH	C10	3-1571920-4	MTA306F04	E32	3-1825138-3	A208P3ZQ04	E15	4-1437623-3	PK6E0B1/10	K12
2-1825027-2	FSMRA8JHL	C17	2-1825010-6	FSM14JH	C10	3-1571920-5	MTA306FPC04	E32	3-1825138-4	A208SD9AQ04	E15	4-1437623-4	PKES120B1/4	K12
2-1825027-3	FSMRA8JH	C17	2-1825010-7	FSM14JAH	C10	3-1571920-6	MTA306H04	E32	3-1825138-5	A208SD9AV2Q04	E15	4-1437623-5	PKES140B1/4	K12
2-1825027-4	FSMRA8JHA	C17	2-1825010-8	FSM14JAAH	C10	3-1571920-7	MTA306HPC04	E32	3-1825138-6	A208SYCB04	E15	4-1437623-6	PKES150B1/4	K12
2-1825033-1	DRW10E04	A49	2-1825055-0	FSM9JAAH	C10	3-1571920-8	MTA406N04	E32	3-1825138-7	A208SYCQ04	E15	4-1571920-0	MTA406P04	E32
2-1825033-6	DRW10CE04	A49	2-1825055-1	FSM11JLH	C10	3-1571920-9	MTA406NFC04	E32	3-1825138-8	A208SYZQ04	E15	4-1571920-1	MTA406PA04	E32
2-1825043-0	UPD30BNLB04	H2	2-1825055-2	FSM11JH	C10	3-1571922-0	MTM8206NRA04	E32	3-1825138-9	A208T1ZQ04	E15	4-1571920-2	MTA406PAPC04	E32
2-1825043-1	UPD30COLA04	H2	2-1825055-3	FSM11JAH	C10	3-1571922-1	MTM8206NRA04	E32	3-1825139-0	A211P3CQ04	E15	4-1571920-3	MTA406PPC04	E32
2-1825043-2	UPD30COLB04	H2	2-1825055-4	FSM11JAAH	C10	3-1571922-2	MTM8206PRA04	E32	3-1825139-1	A211P3V40G04	E15	4-1571986-0	A103J1V30Q04	F7
2-1825043-3	UPD30CNLA04	H2	2-1825055-5	FSM13JLH	C10	3-1571922-3	MTM8206PRA04	E32	3-1825139-2	A211P3ZQ04	E15	4-1571986-1	A103J1ZQ004	F7
2-1825043-4	UPD30CNLB04	H2	2-1825055-6	FSM13JH	C10	3-1571922-4	MTM8206PRA04	E32	3-1825139-3	A211SCWCQ004	E15	4-1571986-2	A103J2CB004	F7
2-1825058-0	ADE08SA04	A16	2-1825055-7	FSM13JAH	C10	3-1571922-5	MTM8206PRA04	E32	3-1825139-4	A211SDZQ04	E15	4-1571986-3	A103J2ZQ004	F7
2-1825058-2	ADE09S04	A16	2-1825055-8	FSM13JAAH	C10	3-1571925-0	MTF226SA04	E32	3-1825139-5	A211SHZQ04	E15	4-1571986-4	A103J3ZQ004	F7
2-1825058-3	ADE09SA04	A16	2-1825055-9	FSM15JLH	C10	3-1571925-1	MTF306D04	E32	3-1825139-6	A211SY9AQ04	E15	4-1571986-5	A103J5ZQ0004	F7
2-1825058-5	ADE10S04	A16	2-1977223-0	FSM8JSMASSTR	C19	3-1571925-2	MTF326D04	E32	3-1825139-7	A211SYCQ04	E15	4-1571986-6	A103J6ZQ0004	F7
2-1825058-6	ADE10SA04	A16	2-1977223-1	FSM8JSMLA	C19	3-1571925-3	MTF360D04	E32	3-1825139-8	A211SYZB04	E15	4-1571986-7	A105J1AQ004	F7
2-1825058-8	ADE12S04	A16	2-1977223-2	FSM8JSMLSTR	C19	3-1571925-4	MTF426N04	E32	3-1825139-9	A211SYZQ04	E15	4-1571987-0	A208J1V30Q04	F7
2-1825058-9	ADE12SA04	A16	2-1977223-3	FSM8JSMASTR	C19	3-1571925-5	MTF46N04	E32	3-1825142-0	AE103SD1CB04	E26	4-1571987-1	A208J5ZQ0004	F7
2-1825059-0	ADF06SA04	A21	2-1977223-4	FSM8JSMASTR	C19	3-1571926-0	MTG406N04	E32	3-1825142-1	AE103SD1CQ04	E26	4-1571987-2	A208J6ZQ0004	F7
2-1825059-1	ADF06SAT04	A21	2-1977223-5	FSM8JSMASTR	C19	3-1571926-1	MTG406N04	E32	3-1825142-2	AE103SD1V30B04	E26	4-1571987-3	A21J15ZQ0004	F7
2-1825059-2	ADF06SATR04	A21	2-1977223-6	FSM8JSMASTR	C19	3-1571986-0	A101J51Z3G0004	F7	3-1825142-4	AE103SD1W4B04	E26	4-1571987-4	A21J36ZQ0004	F7
2-1825059-3	ADF06ST04	A21	2-1977223-7	FSM14JSMLS	C19	3-1571986-1	A101J51Z3Q0004	F7	3-1825142-5	AE105MD1AB04	E26	4-1571999-1	ADPA0204	A24
2-1825059-4	ADF06STTR04	A21	2-1977223-8	FSM14JSMAS	C19	3-1571986-2	A101J51ZB0004	F7	3-1825142-6	AE105MD1AG04	E26	4-1571999-2	ADPA02S04	A24
2-1825059-5	ADF06S04	A21	2-1977223-9	FSM14JSMMAAS	C19	3-1571986-4	A101J51ZQ0004	F7	3-1825142-7	AE105MD1AV2B04	E26	4-1571999-3	ADPA02SA04	A24
2-1825059-6	ADF06SA04	A21	2-435097-1	6000 Series	18	3-1571986-5	A101J51ZQ2004	F7	3-1825142-8	AE105MD1W4B04	E26	4-1571999-4	ADPA0404	A24
2-1825059-7	ADF06SAT04	A21	2-435167-1	6000 Series	18	3-1571986-6	A101J61ZQ0004	F7	3-1825142-9	AE105SD1CB04	E26	4-1571999-5	ADPA04S04	A24
2-1825059-8	ADF06SATR04	A21	2-5161390-0	DIP20	A41	3-1571986-8	A103J1AV2B004	F7	3-1825010-0	FSM16JLH	C10	4-1571999-6	ADPA04SA04	A24
2-1825059-9	ADF06ST04	A21	2-5161390-1	DIP21	A41	3-1571986-9	A103J1AV2Q004	F7	3-1825010-1	FSM16JH	C10	4-1571999-7	ADPA0504	A24
2-1825097-0	TPBF11CGPES004	D15	2-5161390-2	DIP22	A41	3-1571987-0	A205J1ZQ004	F7	3-1825010-2	FSM16JAH	C10	4-1571999-8	ADPA05S04	A24
2-1825097-1	TPBF11CGRA004	D6	2-5161390-3	DIP23	A41	3-1571987-1	A205J2CQ004	F7	3-1825010-3	FSM16JAAH	C10	4-1571999-9	ADPA05SA04	A24
2-1825097-2	TPBF11CGRAES004	D15	2-5161390-4	DIP24	A41	3-1571987-2	A205J2ZQ004	F7	3-1825010-4	FSM18JLH	C10	4-1825010-0	ASEG2R04	B2
2-1825097-3	TPBF11FGPES004	D15	2-5161390-5	DIP25	A41	3-1571987-3	A205J51ZQ0004	F7	3-1825010-5	FSM18JH	C10	4-1825010-1	ASEG2L04	B2
2-1825097-4	TPBF11FGRAES004	D6	2-5161390-6	DIP26	A41	3-1571987-4	A205J61ZQ0004	F7	3-1825010-6	FSM18JAH	C10	4-1825010-2	ASEG2L04	B2
2-1825097-5	TPBF11FGRA204	D6	2-5161390-7	DIP27	A41	3-1571987-5	A207J1ZQ004	F7	3-1825010-7	FSM18JAAH	C10	4-1825010-3	ASEG2S04	B2
2-1825097-6	TPBF11FGRAES004	D15	2-5161390-8	DIP28	A41	3-1571987-6	A207J3ZQ004	F7	3-1825010-8	FSM15JH	C10	4-1825010-4	ASEG2S04	B2
2-1825097-8	TPB21MGR04	D6	2-5161390-9	DIP29	A41	3-1571987-7	A207J51ZQ0004	F7	3-1825010-9	FSM15JAH	C10	4-1825010-5	ASEG2RGL04	B2
2-1825098-0	TPCF13C004	D6	2-5435166-9	7100 Series	A30	3-1571987-8	A207J61ZQ0004	F7	3-182501					

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4-1825136-9	A101SYZQ04	E15	5-1571986-0	A105J1AV2Q004	F7	5435640-6	7100 Series	A30	6-1825011-0	ASF43RSTR04	B2	8-1437565-1	FSMCTATR	C26
4-1825137-0	A105T1ZB04	E15	5-1571986-1	A105J1CQ004	F7	5435640-7	7100 Series	A30	6-1825011-1	ASF6204	B2	8-1437567-8	MSPF101B	D20
4-1825137-1	A105T1ZQ04	E15	5-1571986-2	A105J1V3B004	F7	5435668-1	7100 Series	A30	6-1825011-2	ASF62G04	B2	8-1437567-9	MSPF101BC0	D20
4-1825137-2	A107KAV2Q04	E15	5-1571986-3	A105J1ZQ004	F7	5435668-3	7100 Series	A30	6-1825011-3	ASF62R04	B2	8-1437621-0	KE500AB1/8	K2
4-1825137-3	A107MD9AV2B04	E15	5-1571986-4	A105J2AQ004	F7	5435668-4	7100 Series	A30	6-1825011-4	ASF62RG04	B2	8-1437621-1	KE700AB1/4	K2
4-1825137-4	A107MD9CQ04	E15	5-1571986-5	A105J2AV2Q004	F7	5435668-5	7100 Series	A30	6-1825011-5	ASF62GL04	B2	8-1437621-2	KE900AB1/4	K2
4-1825137-5	A107MD9V30Q04	E15	5-1571986-6	A105J2ZQ004	F7	5435668-7	7100 Series	A30	6-1825011-6	ASF62GLTR04	B2	8-1437621-3	KE5500AB1/4	K2
4-1825137-6	A107MD9V30Q04	E15	5-1571986-7	A105J3CQ004	F7	5435668-9	7100 Series	A30	6-1825011-7	ASF62L04	B2	8-1437621-4	KE5500AB1/8	K2
4-1825137-7	A107P3ZQ04	E15	5-1571986-8	A105J3CQ2004	F7	5435802-1	7000 Series	A30	6-1825011-8	ASF62LTR04	B2	8-1437621-5	KE5500AB1/4	K2
4-1825137-8	A107P3ZQ04	E15	5-1571986-9	A105J3ZQ004	F7	5435802-2	7000 Series	A30	6-1825011-9	ASF62GS04	B2	8-1437621-6	KFS400B1/4	K2
4-1825137-9	A107SYAQ04	E15	5-1571999-0	ADPA0604	A24	5435802-3	7000 Series	A30	6-1825059-0	ADF12STTR04	A21	8-1437621-7	KFS500B1/4	K2
4-1825138-0	A208TZQ04	E15	5-1571999-1	ADPA06S04	A24	5435802-4	7000 Series	A30	6-1825136-0	A108SD9AQ04	E15	8-1437621-8	KFS500B1/8	K2
4-1825139-0	A211T1ZQ04	E15	5-1571999-2	ADPA06SA04	A24	5435802-5	7000 Series	A30	6-1825136-1	A108SDZQ04	E15	8-1437621-9	KFS600B1/4	K2
4-1825139-1	A213SYZQ04	E15	5-1571999-3	ADPA0704	A24	5435802-6	7000 Series	A30	6-1825136-2	A108SYCB04	E15	8-1437622-0	KNS701BA1/4	K2
4-1825139-2	A215SD9V30B04	E15	5-1571999-4	ADPA07S04	A24	5435802-7	7000 Series	A30	6-1825136-3	A108SYCQ04	E15	8-1437622-1	KNS701BA1/8	K2
4-1825139-3	A215SY9AQ04	E15	5-1571999-5	ADPA07SA04	A24	5435802-8	7000 Series	A30	6-1825136-4	A108SYZQ04	E15	8-1437622-2	KNS701BA1/4	K12
4-1825139-4	A215SYZQ04	E15	5-1571999-6	ADPA0804	A24	5435802-9	7000 Series	A30	6-6437630-1	FTN59G04	E43	8-1437622-3	KNS701BA1/8	K12
4-1825139-5	A215SD9V30B04	E15	5-1571999-7	ADPA08S04	A24	5435802-10	7000 Series	A30	6-6437630-2	FTF09G04	E43	8-1437622-4	KNS701BA1/4	K12
4-1825142-0	AE108SD1V30B04	E26	5-1571999-8	ADPA08SA04	A24	5-5435166-0	7000 Series	A30	6-6437630-3	FTF09G04	E43	8-1437622-5	KNS701BA1/8	K12
4-1825142-1	AE108SD1W4B04	E26	5-1571999-9	ADPA0904	A24	5-5435166-1	7000 Series	A30	6-6437630-4	FTH09G04	E43	8-1437622-6	KNS701BA1/4	K12
4-1825142-2	AE107MD1AV2B04	E26	5161390-1	DIP01	A41	5-5435166-2	7000 Series	A30	6-6437630-5	FTN09G04	E43	8-1437622-7	KNS701BA1/8	K12
4-1825142-3	AE107SD1AB04	E26	5161390-2	DIP02	A41	5-5435166-3	7000 Series	A30	6-6437630-6	FTN09G04	E43	8-1437622-8	KNS701BA1/4	K12
4-1825142-4	AE107SD1AG04	E26	5161390-3	DIP03	A41	5-5435166-4	7000 Series	A30	7-1437621-0	KD500A1/4	K2	8-1437622-9	KNS701BA1/8	K12
4-1825142-5	AE107SD1CB04	E26	5161390-4	DIP04	A41	5-6437630-0	AWTR1504	E46	7-1437621-1	KD500A1/8	K2	8-1437623-0	KNS701BA1/4	K12
4-1825142-6	AE107SD1V30B04	E26	5161390-5	DIP05	A41	5-6437630-1	FTN9G04	E43	7-1437621-2	KD500B1/4	K2	8-1437623-1	KNS701BA1/8	K12
4-1825142-7	AE108MD1AQ04	E26	5161390-6	DIP06	A41	5-6437630-2	FTD7904	E43	7-1437621-3	KD500B1/8	K2	8-1437623-2	KNS701BA1/4	K12
4-1825142-8	AE108MD1AV2B04	E26	5161390-7	DIP07	A41	5-6437630-3	FTD7904	E43	7-1437621-4	KD700A1/4	K2	8-1437623-3	KNS701BA1/8	K12
4-1825142-9	AE108MD1AV2Q04	E26	5161390-8	DIP08	A41	5-6437630-4	FTD7904	E43	7-1437621-5	KD700B1/4	K2	8-1437623-4	KNS701BA1/4	K12
435005-1	6000 Series	I8	5161390-9	DIP09	A41	5-6437630-5	FTD7904	E43	7-1437621-6	KD900A1/4	K2	8-1437623-5	KNS701BA1/8	K12
435097-1	6000 Series	I8	5161390-10	DIP10	A41	5-6437630-6	FTF09G04	E43	7-1437621-7	KD900B1/4	K2	8-1437623-6	KNS701BA1/4	K12
435123-1	6000 Series	I8	5-1825011-0	ASF43GSTR04	B2	5-6437630-7	FTF09G04	E43	7-1437621-8	KE1250AB1/4	K2	8-1437623-7	KNS701BA1/8	K12
435174-1	6000 Series	I8	5-1825011-1	ASF43S04	B2	5-6437630-8	FTN79G04	E43	7-1437621-9	KE500AB1/4	K2	8-1437623-8	KNS701BA1/4	K12
4-5435166-9	7000 Series	A30	5-1825011-2	ASF43STR04	B2	6-1437621-0	KCB600A1/8	K2	7-1437622-0	KNS501A1/4	K2	8-1437623-9	KNS501A1/8	K2
4-5435640-0	7100 Series	A30	5-1825011-3	ASF43RGL04	B2	6-1437621-1	KCB600B1/4	K2	7-1437622-1	KNS501A1/8	K2	8-1437624-0	KNS501B1/4	K2
4-5435640-1	7100 Series	A30	5-1825011-4	ASF43RGLTR04	B2	6-1437621-2	KCB600B1/8	K2	7-1437622-2	KNS501B1/8	K2	8-1437624-1	KNS501B1/4	K2
4-5435640-3	7100 Series	A30	5-1825011-5	ASF43RL04	B2	6-1437621-3	KCB700A1/4	K2	7-1437622-3	KNS501B1/8	K2	8-1437624-2	KNS501B1/4	K2
4-6437630-0	FTD59G04	E43	5-1825011-6	ASF43RLTR04	B2	6-1437621-4	KCB700B1/8	K2	7-1437622-4	KNS501B1/4	K2	8-1437624-3	KNS501B1/8	K2
4-6437630-1	FTN0904	E43	5-1825011-7	ASF43RGS04	B2	6-1437621-5	KCB900A1/4	K2	7-1437622-5	KNS501B1/8	K2	8-1437624-4	KNS501B1/4	K2
4-6437630-2	FTN0904	E43	5-1825011-8	ASF43RGSSTR04	B2	6-1437621-6	KCB900B1/4	K2	7-1437622-6	KNS701A1/4	K2	8-1437624-5	KNS701A1/8	K2
4-6437630-3	FTN0904	E43	5-1825011-9	ASF43RS04	B2	6-1437621-7	KD1250AB1/4	K2	7-1437622-7	KNS701B1/4	K2	8-1437624-6	KNS701B1/8	K2
4-6437630-4	FTN0904	E43	5-1825033-1	DRS1604	A49	6-1437621-8	KD1250B1/4	K2	7-1437622-8	KNS701B1/8	K2	8-1437624-7	KNS701B1/4	K2
4-6437630-5	FTN0904	E43	5-1825033-6	DRS16C04	A49	6-1437621-9	KD1250B1/8	K2	7-1437622-9	KNS701B1/4	K2	8-1437624-8	KNS701B1/8	K2
4-6437630-6	FTN0904	E43	5-1825059-0	ADF10SA04	A21	6-1437622-0	KN700B1/4	K2	7-1437623-0	KNS701B1/8	K2	8-1437624-9	KNS701B1/4	K2
4-6437630-7	FTN29red04	F2	5-1825059-1	ADF10SAT04	A21	6-1437622-1	KN701A1/4	K2	7-1437623-1	KNS701B1/4	K2	8-1437625-0	KNS701B1/8	K2
4-6437630-8	FTN0904	E43	5-1825059-2	ADF10SATTR04	A21	6-1437622-2	KN701B1/4	K2	7-1437623-2	KNS701B1/8	K2	8-1437625-1	KNS701B1/4	K2
5-1437580-0	MSSA211NGRA04	B36	5-1825059-3	ADF10ST04	A21	6-1437622-3	KN701B1/8	K2	7-1437623-3	KNS701B1/4	K2	8-1437625-2	KNS701B1/8	K2
5-1437580-1	MSSA211PG04	B36	5-1825059-4	ADF10STTR04	A21	6-1437622-4	KN900A1/4	K2	7-1437623-4	KNS701B1/8	K2	8-1437625-3	KNS701B1/4	K2
5-1437580-2	MSSA214N04	B36	5-1825059-5	ADF12S04	A21	6-1437622-5	KN900A1/8	K2	7-1437623-5	KNS701B1/4	K2	8-1437625-4	KNS701B1/8	K2
5-1437595-2	TRD11F10WL	F4	5-1825059-6	ADF12SAT04	A21	6-1437622-6	KN900AB1/4	K2	7-1437623-6	KNS701B1/8	K2	8-1437625-5	KNS701B1/4	K2
5-1437595-6	TRD11G10WL	F4	5-1825059-7	ADF12SATTR04	A21	6-1437622-7	KN900B1/4	K2	7-1437623-7	KNS701B1/4	K2	8-1437625-6	KNS701B1/8	K2
5-1437621-0	KBS500B1/4	K2	5-1825059-8	ADF12ST04	A21	6-1437622-8	KN900B1/8	K2	7-1437623-8	KNS701B1/4	K2	8-1437625-7	KNS701B1/8	K2
5-1437621-1	KBS500B1/8	K2	5-1825059-9	ADF12ST04	A21	6-1437622-9	KN900B1/4	K2	7-1437623-9	KNS701B1/8	K2	8-1437625-8	KNS701B1/4	K2
5-1437621-2	KBS500B1/101/8	K2	5-1825136-2	A101T1ZB04	E15	6-1437624-0	PKG50B1/4	K12	7-1437624-0	KNS701B1/4	K2	8-1437625-9	KNS701B1/8	K2
5-1437621-3	KBS500B1/01/8	K2	5-1825136-3	A101T1ZQ04	E15	6-1437624-1	PKG50B1/8	K12	7-1437624-1	KNS701B1/8	K2	8-1437626-0	KNS701B1/4	K2
5-1437621-6	KBS500A1/4	K2	5-1825136-4	A101TCQ04	E15	6-1437624-2	PKG50B1/8	K12	7-1437624-2	KNS701B1/4	K2	8-1437626-1	KNS701B1/8	K2
5-1437621-7	KBS500A1/8	K2	5-1825136-5	A101TZQ04	E15	6-1437624-3	PKG70B1/4	K12	7-1437624-3	KNS701B1/8	K2	8-1437626-2	KNS701B1/4	K2
5-1437621-8	KCB500B1/4	K2	5-1825136-6	A108MD9AB04	E15	6-1437624-4	PKG70B1/8	K12	7-1437624-4	KNS701B1/4	K2	8-1437626-3	KNS701B1/8	K2
5-1437621-9	KCB500B1/8	K2	5-1825136-8	A108P3CQ04	E15	6-1437624-5	PKG90B1/4	K12	7-1437624-5	KNS701B1/8	K2	8-1437626-4	KNS701B1/4	K2
5-1437622-0	KN501A1/4	K2	5-1825136-9	A108P3ZQ04	E15	6-1437627-2	C50	D35	7-1437624-6	KNS701B1/4	K2	8-1437626-5	KNS701B1/8	K2
5-1437622-1	KN501A1/8	K2	5-1825137-0	A107SYCB04	E15	6-1437627-3	C52	D35	7-1437624-7	KNS701B1/8	K2	8-1437626-6	KNS701B1/4	K2
5-1437622-2	KN501B1/4	K2	5-1825137-1	A107SYCQ04	E15	6-1437627-4	C55	D35	7-1437624-8	KNS701B1/4	K2	8-1437626-7	KNS701B1/8	K2
5-1437622-3	KN501B1/8	K2	5-1825137-2	A107SYZQ04	E15	6-1437627-5	C59	D35	7-1437624-9	KNS701B1/8	K2	8-1437626-8	KNS701B1/4	K2
5-1437622-4	KN501B1A1/4	K2	5-1825137-3	A107TZB04	E15	6-1437627-6	C80	D35	7-1437625-0	KNS701B1/4	K2	8-1437626-9	KNS701B1/8	K2
5-1437622-5	KN501B1A1/8	K2	5-1825142-0	AE108SD1AB04	E26	6-1437627-7	C82	D35	7-1437625-1	KNS701B1/8	K2	8-1437627-0	KNS701B1/4	K2
5-1437622-6	KN501B1A1/4	K2	5-1825142-1	AE108SD1AQ04	E26	6-1437627-8	C85	D35	7-1437625-2	KNS701B1/8	K2	8-1437627-1	KNS701B1/4	K2
5-1437622-7	KN501B1A1/8	K2	5-1825142-2	AE108SD1CQ04	E26	6-1437627-9	C82	D35	7-1437625-3	KNS701B1/4	K2	8-1437627-2	KNS701B1/8	K2
5-1437622-8	KN501B1A1/4	K2	5-1825142-4	AE108SD1V30B04	E26	6-1437627-10	C85	D35	7-1437625-4	KNS701B1/8	K2	8-1437627-3	KNS701B1/4	K2
5-1437622-9	KN700A1/4	K2	5-1825142-5	AE108SD1W4B04	E26	6-1571076-								