

Technical Notes

Intensity & Wavelength Bin Codes

SunLED products are bin sorted for intensity and wavelength. To ensure intensity and color consistency when using multiple LEDs in an array, it is recommended to use parts within the same bin code. Each bag, reel, or tube of LEDs contain a single intensity and wavelength code and is indicated on the part number label. Refer to below diagram (Fig. 1) for bin code identification and reference below tables for SunLED’s binning methodology.

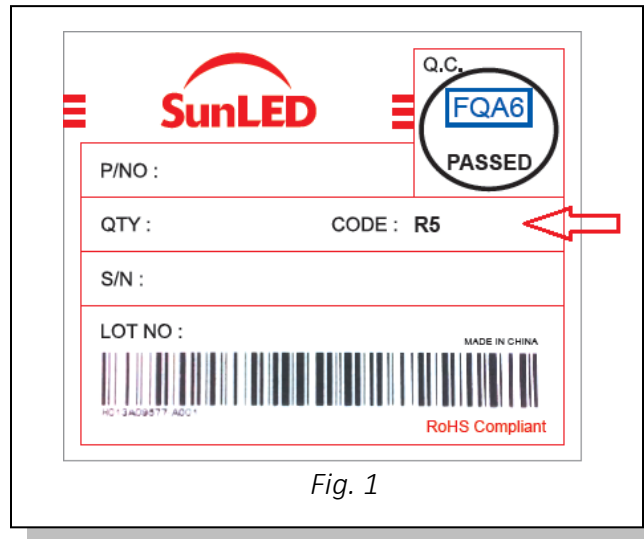


Fig. 1

Intensity Bin Codes

Intensity Bin Codes for High Intensity LEDs (IF=20mA, Ta=25°C, Tolerance=±15%)

Bin Code	Intensity in mcd		Bin Code	Intensity in mcd		Bin Code	Intensity in mcd	
	Min.	Max.		Min.	Max.		Min.	Max.
A	2	3	T	700	1000	ZH	9000	11000
B	3	5	U	1000	1300	ZM	11000	14000
C	5	8	V	1300	1600	ZN	14000	18000
D	8	12	W	1600	1900	ZP	18000	22000
E	12	20	X	1900	2300	ZQ	22000	27000
F	20	40	Y	2300	2700	ZR	27000	35000
G	40	55	Z	2700	3100	ZS	35000	43000
H	55	80	ZA	3100	3600	ZT	43000	55000
M	80	120	ZB	3600	4200	ZU	55000	75000
N	120	200	ZC	4200	5000	ZV	75000	130000
P	200	300	ZD	5000	6000	ZW	130000	200000
Q	300	400	ZE	6000	7000	ZX	200000	320000
R	400	500	ZF	7000	8000	ZY	320000	490000
S	500	700	ZG	8000	9000	ZZ	490000	800000

Intensity Bin Codes cont'd

Intensity Bin Codes for Standard LEDs (IF=10mA, Ta=25°C, Tolerance=±15%)

Bin Code	Intensity in mcd		Bin Code	Intensity in mcd		Bin Code	Intensity in mcd	
	Min.	Max.		Min.	Max.		Min.	Max.
F	0.1	0.2	R	15	20	ZB	550	700
G	0.2	0.35	S	20	30	ZC	700	1000
H	0.35	0.5	T	30	50	ZD	1000	1600
I	0.5	0.8	U	50	80	ZE	1600	2200
K	0.8	1.2	V	80	120	ZF	2200	2800
L	1.2	2	W	120	180	ZG	2800	3400
M	2	4	X	180	250	ZH	3400	4300
N	4	6	Y	250	320	ZM	4300	5200
P	6	10	Z	320	450	ZN	5200	6300
Q	10	15	ZA	450	550	ZP	6300	7400

Intensity Bin Codes for High Powered LEDs (Ta=25°C, Tolerance=±15%)

Bin Code	Luminous Flux in lm		Bin Code	Luminous Flux in lm		Bin Code	Luminous Flux in lm	
	Min.	Max.		Min.	Max.		Min.	Max.
A1	0.5	0.6	B1	10	12	C4	160	180
A2	0.6	0.7	B2	12	14	C5	180	210
A3	0.7	0.8	B3	14	17	C6	210	240
A4	0.8	1	B4	17	20	C7	240	280
A5	1	1.2	B5	20	24	C8	280	320
A6	1.2	1.4	B6	24	29	C9	320	370
A7	1.4	1.7	B7	29	35	C10	370	430
A8	1.7	2	B8	35	42	C11	430	490
A9	2	2.4	B9	42	50	C12	490	560
A10	2.4	2.9	B10	50	60	C13	560	640
A11	2.9	3.5	B11	60	70	C14	640	740
A12	3.5	4.2	B12	70	80	C15	740	850
A13	4.2	5	B13	80	90	C16	850	1000
A14	5	6	B14	90	100	D1	1000	1200
A15	6	7.2	C1	100	120	D2	1200	1400
A16	7.2	8.6	C2	120	140	D3	1400	1600
A17	8.6	10	C3	140	160	D4	1600	1800

Intensity Bin Codes cont'd

Intensity Bin Codes for LED Displays (IF=10mA, Ta=25°C, Tolerance=±15%)

Bin Code	Intensity in ucd		Bin Code	Intensity in ucd		Bin Code	Intensity in ucd	
	Min.	Max.		Min.	Max.		Min.	Max.
C	70	140	L	3600	5600	T	88000	150000
D	140	240	M	5600	9000	U	150000	255000
E	240	360	N	9000	14000	V	255000	433000
F	360	560	P	14000	21000	W	433000	736000
G	560	900	Q	21000	31000	X	736000	1251000
H	900	1400	R	31000	52000	Y	1251000	2126000
I	1400	2200	S	52000	88000	Z	2126000	3614000
K	2200	3600						

Intensity Bin Codes for Infrared Emitting Diodes (IF=20mA, Ta=25°C, Tolerance=±15%)

Bin Code	Intensity in mW/sr		Bin Code	Intensity in mW/sr		Bin Code	Intensity in mW/sr	
	Min.	Max.		Min.	Max.		Min.	Max.
AK	0.8	1.2	C	5	8	F	20	40
AL	1.2	2	D	8	12	G	40	55
A	2	3	E	12	20	H	55	80
B	3	5						

Bin Codes for NPN Phototransistors (Ta=25°C, Tolerance=±15%)

Bin Code	Photocurrent in mA		Bin Code	Photocurrent in mA		Bin Code	Photocurrent in mA	
	Min.	Max.		Min.	Max.		Min.	Max.
F	0.1	0.2	I	0.5	0.8	M	2	4
G	0.2	0.35	K	0.8	1.2	N	4	6
H	0.35	0.5	L	1.2	2	P	6	10

Wavelength Bin Codes

Wavelength (λD) Bin Codes for Yellow LEDs (Ta=25°C, Tolerance=±1nm)

Bin Code	Wavelength in nm		Bin Code	Wavelength in nm		Bin Code	Wavelength in nm	
	Min.	Max.		Min.	Max.		Min.	Max.
1	581	584	4	588	590	7	594	597
2	584	586	5	590	592	8	597	600
3	586	588	6	592	594			

Wavelength Bin Codes cont'd

Wavelength (λ D) Bin Codes for Green LEDs ($T_a=25^\circ\text{C}$, Tolerance= $\pm 1\text{nm}$)

Bin Code	Wavelength in nm		Bin Code	Wavelength in nm		Bin Code	Wavelength in nm	
	Min.	Max.		Min.	Max.		Min.	Max.
0	556	559	3	563	565	6	569	571
1	559	561	4	565	567	7	571	573
2	561	563	5	567	569	8	573	575

Wavelength (λ D) Bin Codes for True Green LEDs ($T_a=25^\circ\text{C}$, Tolerance= $\pm 1\text{nm}$)

Bin Code	Wavelength in nm		Bin Code	Wavelength in nm		Bin Code	Wavelength in nm	
	Min.	Max.		Min.	Max.		Min.	Max.
0	510	515	2	520	525	4	530	535
1	515	520	3	525	530	5	535	540

Wavelength (λ D) Bin Codes for Aqua Green LEDs ($T_a=25^\circ\text{C}$, Tolerance= $\pm 1\text{nm}$)

Bin Code	Wavelength in nm		Bin Code	Wavelength in nm		Bin Code	Wavelength in nm	
	Min.	Max.		Min.	Max.		Min.	Max.
1	497	501	4	506	508	6	510	512
2	501	504	5	508	510	7	512	515
3	504	506						

Wavelength (λ D) Bin Codes for Blue LEDs ($T_a=25^\circ\text{C}$, Tolerance= $\pm 1\text{nm}$)

Bin Code	Wavelength in nm		Bin Code	Wavelength in nm		Bin Code	Wavelength in nm	
	Min.	Max.		Min.	Max.		Min.	Max.
1	445	450	2A	466	469	4B	477	479
2	450	455	2B	469	471	5A	479	481
3	455	460	3A	471	473	5B	481	483
1A	460	463	3B	473	475	5C	483	486
1B	463	466	4A	475	477			