

CLR6A-TKW: PLCC8 4 in 1 SMD LED



PRODUCT DESCRIPTION

These SMD LEDs are packaged in an · industry standard PLCC8 package. These · high performance 4 color SMT LEDs are designed to work in a wide range of applications. A wide viewing angle and high brightness make these LEDs suitable for signage applications.

FEATURES

- Size (mm): 3.8x 3.8 x 0.8
- Dominant Wavelength/CCT
 Red (619 624nm)
 Green (520 535nm)
 Blue (460 475nm)
 White (2700K/3000K/4000K/5000K/5700K)
- Luminous Flux (lm)
 Red (4.8 12.3)
 Green (10.7 18.1)
 Blue (2.9 4.8)
 White (8.2 18.1)
- Moisture Sensitivity Level: 5a
- Lead-Free
- RoHS Compliant

APPLICATIONS

- · Architecture Lighting
- Decorative Lighting
- Amusement



ABSOLUTE MAXIMUM RATINGS ($T_A = 25$ °C)

la	Ob.d		Unit						
Items	Symbol	R	G	В	w	Onit			
Forward Current Note 1	I _F	65	65	65	65	mA			
Peak Forward Current Note 2	I _{FP}	100	100	100	100	mA			
Reverse Voltage	V_R	5	5	5	5	V			
Power Dissipation	$P_{\scriptscriptstyle D}$	214.5	260	260	260	mW			
Operation Temperature	T _{opr}	-40 ~ +85 °C							
Storage Temperature	T _{stg}		-40 ~ + 100						
Junction Temperature	T_{J}	110	110	110	110	°C			
Junction/ambient	R _{THJA}	97	87	68	72	°C/W			
Junction/solder point	R _{THJS}	93	°C/W						
Electrostatic Discharge Classification(MIL-STD-883K)	ESD			Class 1B					

Note:

- 1. Single-color light
- 2. Pulse width ≤ 0.1 msec, duty $\leq 1/10$.

TYPICAL ELECTRICAL & OPTICAL CHARACTERISTICS ($T_A = 25$ °C)

Characteristics	Condition	Cumbal		Valu	es		Unit
Characteristics	Condition	Symbol	R	G	В	w	Unit
Dominant Wavelength	I _F = 50 mA(R) I _F = 50 mA(G) I _F = 50 mA(B) I _F = 50 mA(W)	$\lambda_{ extsf{DOM}}$	619~624	520~535	460~475	NA	nm
Spectral bandwidth at 50% I _{REL} max	I _F = 50 mA(R) I _F = 50 mA(G) I _F = 50 mA(B) I _F = 50 mA(W)	Δλ	24	38	28	NA	nm
	I _F = 50 mA(R) I _F = 50 mA(G)	$V_{F(avg)}$	2.1	3.0	3.1	2.9	V
Forward Voltage	$I_F = 50 \text{ mA(B)}$ $I_F = 50 \text{ mA(W)}$	V _{F(max)}	2.5	3.5	3.5	3.5	٧
	I _F = 50 mA(R)	$\Phi_{V(min)}$	4.8	10.7	2.9	8.2	lm
Luminous Flux	$I_F = 50 \text{ mA(G)}$ $I_F = 50 \text{ mA(B)}$ $I_F = 50 \text{ mA(W)}$	Ф _{V(avg)}	7.5	15.5	3.3	14	lm
Luminous Intensity(Reference)	I _F = 50 mA(R) I _F = 50 mA(G) I _F = 50 mA(B) I _F = 50 mA(W)	I _{V(avg)}	2700	5200	1050	4800	mcd
Reverse Current (max)	V _R = 5 V	I _R	100	100	100	100	μΑ

Continuous reverse voltage can cause LED damage.



FLUX BIN LIMIT

	Red (50 mA)			Green (50 mA))	Blue (50 mA)				White (50 mA)		
Bin Code	Min.(lm)	Max.(lm)	Bin Code	Min.(lm)	Max.(lm)	Bin Code	Bin Code Min.(Im) Max.(Im)		Bin Code	Min.(lm)	Max.(lm)	
C0	4.8	6.3	F0	10.7	13.9	A0	2.9	3.7	E0	8.2	10.7	
D0	6.3	8.2	G0	13.9.	18.1	В0	3.7	4.8	F0	10.7	13.9	
E0	8.2	10.7							G0	13.9	18.1	
F1	10.7	12.3										

^{*} Tolerance of measurement of luminous flux is ±10%.

COLOR BIN LIMIT

	Red (50 mA)			Green (50 mA)	Blue (50 mA)			
Bin Code	Min.(nm)	Max.(nm)	Bin Code	Min.(nm)	Max.(nm)	Bin Code	Min.(nm)	Max.(nm)	
RB	619	624	G7	520	525	B3	460	465	
			G23	522.5	527.5	B23	462.5	467.5	
			G8	525	530	В4	465	470	
			G45	527.5	532.5	B45	467.5	472.5	
			G9	530	535	B5	470	475	

^{*} Tolerance of measurement of dominant wavelength is ±1 nm.

CRI BIN LIMIT

White (50 mA)									
Bin Code	in Code CRI Min. CRI Max.								
Н	80	85							
J	85	90							

* Tolerance of measurement of CRI is ±2.



PERFORMANCE GROUPS - CHROMATICITY

Region	х	у	Region	x	у	Region	x	у	Region	х	у
	0.3115	0.3391		0.3130	0.3290		0.3099	0.3509		0.3144	0.3186
10	0.3205	0.3481	45	0.3213	0.3373	4.7	0.3196	0.3602	411	0.3221	0.3261
1C	0.3213	0.3373	1D	0.3221	0.3261	1T	0.3205	0.3481	1U	0.3231	0.3120
	0.3130	0.3290		0.3144	0.3186		0.3115	0.3391		0.3161	0.3059
	0.3215	0.3350		0.3207	0.3462		0.3290	0.3538		0.3290	0.3417
2.4	0.3290	0.3417	2B	0.3290	0.3538	20	0.3376	0.3616	20	0.3371	0.3490
2A	0.3290	0.3300	ZB	0.3290	0.3417	2C	0.3371	0.3490	2D	0.3366	0.3369
	0.3222	0.3243		0.3215	0.3350		0.3290	0.3417		0.3290	0.3300
	0.3222	0.3243		0.3196	0.3602		0.3290	0.3690		0.3290	0.3300
2R	0.3290	0.3300	20	0.3290	0.3690	от	0.3381	0.3762	2U	0.3366	0.3369
ZK	0.3290	0.3180	28	0.3290	0.3538	2Т	0.3376	0.3616	20	0.3361	0.3245
	0.3231	0.3120		0.3207	0.3462		0.3290	0.3538		0.3290	0.3180
	0.3371	0.3490		0.3376	0.3616		0.3463	0.3687		0.3451	0.3554
2.4	0.3451	0.3554	O.D.	0.3463	0.3687	20	0.3551	0.3760	3D	0.3533	0.3620
3A	0.3440	0.3427	3B	0.3451	0.3554	3C	0.3533	0.3620		0.3515	0.3487
	0.3366	0.3369		0.3371	0.3490		0.3451	0.3554		0.3440	0.3427
	0.3366	0.3369		0.3381	0.3762	ЗТ	0.3480	0.3840	3U	0.3440	0.3428
20	0.3440	0.3428	20	0.3480	0.3840		0.3571	0.3907		0.3515	0.3487
3R	0.3429	0.3307	3S	0.3463	0.3687		0.3551	0.3760		0.3495	0.3339
	0.3361	0.3245		0.3376	0.3616		0.3463	0.3687		0.3429	0.3307
	0.3670	0.3578		0.3686	0.3649		0.3744	0.3685		0.3726	0.3612
FA1	0.3686	0.3649	FA0	0.3702	0.3722	FA0	0.3763	0.3760	F A 4	0.3744	0.3685
5A1	0.3744	0.3685	5A2	0.3763	0.3760	5A3	0.3825	0.3798	5A4	0.3804	0.3721
	0.3726	0.3612		0.3744	0.3685		0.3804	0.3721		0.3783	0.3646
	0.3702	0.3722		0.3719	0.3797		0.3782	0.3837		0.3763	0.3760
5B1	0.3719	0.3797	5B2	0.3736	0.3874	5B3	0.3802	0.3916	5B4	0.3782	0.3837
201	0.3782	0.3837	562	0.3802	0.3916	203	0.3869	0.3958	364	0.3847	0.3877
	0.3763	0.3760		0.3782	0.3837		0.3847	0.3877		0.3825	0.3798
	0.3825	0.3798		0.3847	0.3877		0.3912	0.3917		0.3887	0.3836
FO1	0.3847	0.3877	500	0.3869	0.3958	500	0.3937	0.4001	504	0.3912	0.3917
5C1	0.3912	0.3917	5C2 0.3937	0.3937	0.4001	5C3	0.4006	0.4044	5C4	0.3978	0.3958
	0.3887	0.3836		0.3912	0.3917		0.3978	0.3958		0.3950	0.3875
	0.3783	0.3646		0.3804	0.3721		0.3863	0.3758		0.3840	0.3681
ED1	0.3804	0.3721	ED2	0.3825	0.3798	EDO	0.3887	0.3836	ED4	0.3863	0.3758
5D1	0.3863	0.3758	5D2	0.3887	0.3836	5D3	0.3950	0.3875	5D4	0.3924	0.3794
	0.3840	0.3681		0.3863	0.3758		0.3924	0.3794		0.3898	0.3716

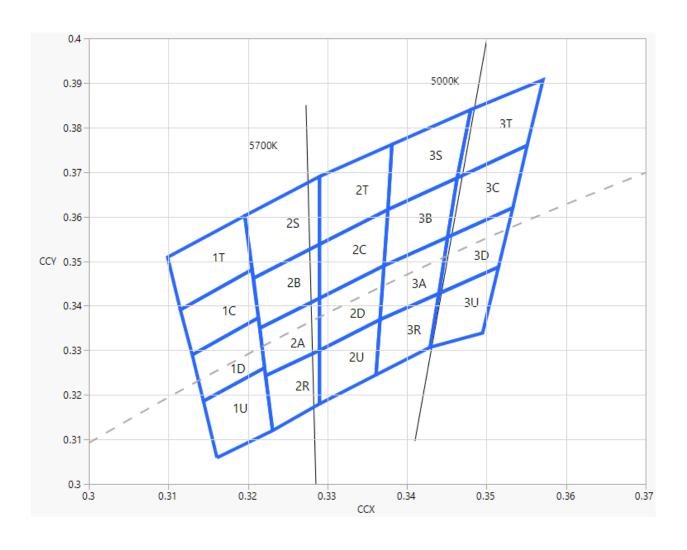


PERFORMANCE GROUPS - CHROMATICITY (CONTINUED)

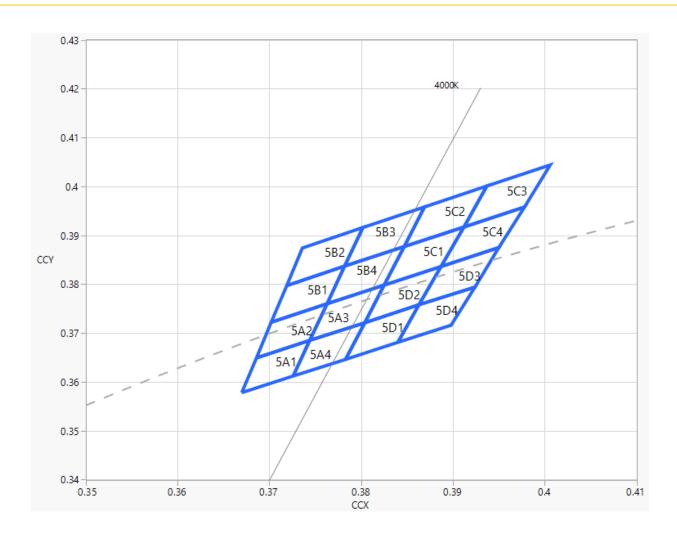
Region	х	у	Region	x	у	Region	х	у	Region	x	у
	0.4147	0.3814		0.4183	0.3898		0.4242	0.3919		0.4203	0.3833
744	0.4183	0.3898	740	0.4221	0.3984	740	0.4281	0.4006	744	0.4242	0.3919
7A1	0.4242	0.3919	7A2	0.4281	0.4006	7A3	0.4342	0.4028	7A4	0.4300	0.3939
	0.4203	0.3833		0.4242	0.3919		0.4300	0.3939		0.4259	0.3853
	0.4221	0.3984		0.4259	0.4073		0.4322	0.4096		0.4281	0.4006
701	0.4259	0.4073	700	0.4299	0.4165	700	0.4364	0.4188	704	0.4322	0.4096
7B1	0.4322	0.4096	7B2	0.4364	0.4188	7B3	0.4430	0.4212	7B4	0.4385	0.4119
	0.4281	0.4006	0.4322 0.4096		0.4385	0.4119		0.4342	0.4028		
	0.4342	0.4028		0.4385	0.4119		0.4449	0.4141		0.4403	0.4049
7C1	0.4385	0.4119	700	0.4430	0.4212	7C3	0.4496	0.4236	7C4	0.4449	0.4141
761	0.4449	0.4141	7C2	0.4496	0.4236	703	0.4562	0.4260	704	0.4513	0.4164
	0.4403	0.4049		0.4449	0.4141		0.4513	0.4164		0.4465	0.4071
	0.4259	0.3853		0.4300	0.3939		0.4359	0.3960		0.4316	0.3873
701	0.4300	0.3939	700	0.4342	0.4028	700	0.4403	0.4049	7D4	0.4359	0.3960
7D1	0.4359	0.3960	7D2 0.4403	0.4049	7D3	0.4465	0.4071	704	0.4418	0.3981	
	0.4316	0.3873		0.4359	0.3960		0.4418	0.3981		0.4373	0.3893
	0.4373	0.3893		0.4418	0.3981		0.4475	0.3994		0.4428	0.3906
8A1	0.4418	0.3981	8A2	0.4465	0.4071	0.4.0	0.4523	0.4085	8A4	0.4475	0.3994
OAT	0.4475	0.3994	OAZ	0.4523	0.4085	8A3	0.4582	0.4099		0.4532	0.4008
	0.4428	0.3906		0.4475	0.3994		0.4532	0.4008		0.4483	0.3919
	0.4465	0.4071		0.4513	0.4164		0.4573	0.4178		0.4523	0.4085
8B1	0.4513	0.4164	8B2	0.4562	0.4260	8B3	0.4624	0.4274	8B4	0.4573	0.4178
ODI	0.4573	0.4178	ODZ	0.4624	0.4274	ODS	0.4687	0.4289	004	0.4634	0.4193
	0.4523	0.4085		0.4573	0.4178		0.4634	0.4193		0.4582	0.4099
	0.4582	0.4099		0.4634	0.4193		0.4695	0.4207		0.4641	0.4112
8C1	0.4634	0.4193	902	0.4687	0.4289	8C3	0.4750	0.4304	8C4	0.4695	0.4207
001	0.4695	0.4207	8C2 0.4750	0.4304	003	0.4813	0.4319	004	0.4756	0.4221	
	0.4641	0.4112		0.4695	0.4207		0.4756	0.4221		0.4700	0.4126
	0.4483	0.3919		0.4532	0.4008		0.4589	0.4021		0.4538	0.3931
8D1	0.4532	0.4008	8D2	0.4582	0.4099	8D3	0.4641	0.4112	904	0.4589	0.4021
801	0.4589	0.4021	8DZ	0.4641	0.4112	803	0.4700	0.4126	8D4	0.4646	0.4034
	0.4538	0.3931		0.4589	0.4021		0.4646	0.4034		0.4593	0.3944

^{*} Tolerance of measurement of the color coordinates is ±0.01.

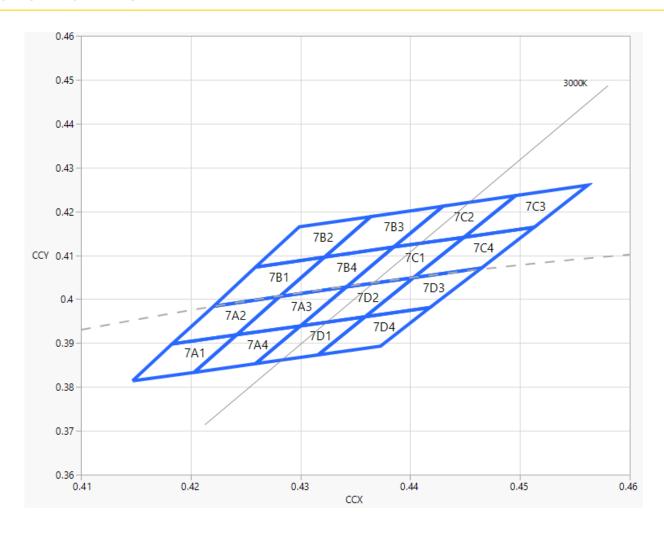




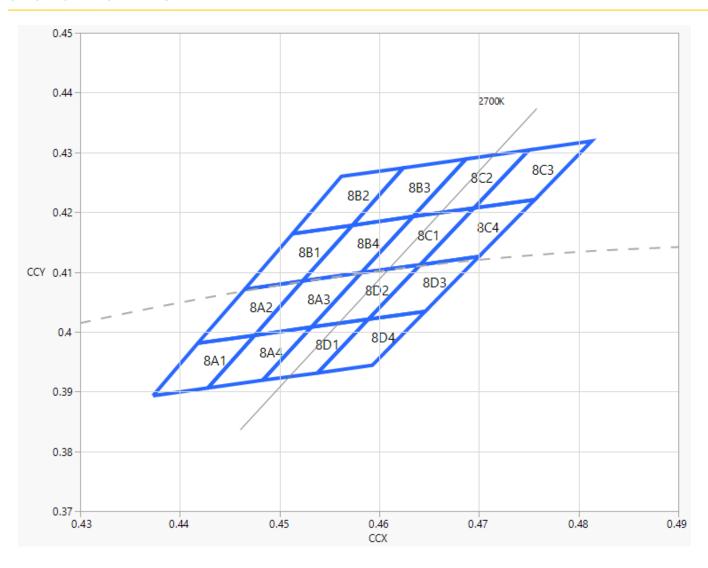














ORDER CODE TABLE

Chron	naticity			Luminous l	ntensity (lm)	D	ominant Wa	velength (n	m)		
Kit	сст	Kit Number	Color	Min.	Max.	Color Bin	Min.(nm)	Color Bin	Max. (nm)	Package	
			Red		sity bin from - F1(12.3)	RB	619	RB	624		
			Green		sity bin from - G0(18.1)	Any 1	hue bin fron	n G7(520)-G	9(535)		
52	5700K	CLR6A-TKW-SD0F0A0E0BB7C3C523	Blue		sity bin from - B0(4.8)	Any 1	hue bin fror	n B3(460)-B	5(475)	Reel	
			White		sity bin from G0(18.1)	1C,1E),1T,1U,2A,2B	3,2C,2D,2R,2S	S,2T,2U		
			Red		sity bin from - F1(12.3)	RB	619	RB	624		
D0	57001/	01.044.7/414.00070.407000700000000000000000000000	Green		sity bin from - G0(18.1)	Any 1	hue bin fron	n G7(520)-G	9(535)	5 1	
P2	5700K	CLR6A-TKW-SD0F0A0E0BB7C3CP23	Blue		sity bin from - B0(4.8)	Any 1	hue bin fror	n B3(460)-B	5(475)	Reel	
			White		sity bin from G0(18.1)		2A,2B,2C,2D),2R,2S,2T,2U	J		
			Red		sity bin from - F1(12.3)	RB	619	RB	624		
Do	50001/		Green		sity bin from - G0(18.1)	Any 1 hue bin from G7(520)-G9(535)			Reel		
P3	5000K	CLR6A-TKW-SD0F0A0E0BB7C3CP33	Blue		sity bin from - B0(4.8)	Any 1 hue bin from B3(460)-B5(475)					
			White		sity bin from G0(18.1)		3A,3B,3C,3D,3R,3S,3T,3U				
			Red		sity bin from - F1(12.3)	RB	619	RB	624		
	40001/	OLDCA TVW 0D050A050DD7020552	Green		sity bin from - G0(18.1)	Any 1	hue bin fron	n G7(520)-G	9(535)	D. 1	
E5	4000K	CLR6A-TKW-SD0F0A0E0BB7C3CE53	Blue		sity bin from - B0(4.8)	Any 1 hue bin from B3(460)-B5(475)				Reel	
			White		sity bin from G0(18.1)		5A2,5A3,5A4 5C2,5C3,5C4				
			Red		sity bin from - F1(12.3)	RB	619	RB	624		
F7	20001	CLD6 A TVW CD0F0 A0F0DD7020F72	Green		sity bin from - G0(18.1)	Any 1 hue bin from G7(520)-G9(535)					
E7	3000K	CLR6A-TKW-SD0F0A0E0BB7C3CE73	Blue		sity bin from - B0(4.8)	Any 1 hue bin from B3(460)-B5(475)			5(475)	Reel	
		White		sity bin from G0(18.1)		7A2,7A3,7A4 7C2,7C3,7C4					
			Red		sity bin from - F1(12.3)	RB	619	RB	624		
FO	27001/	CLDSA TVW CD0E040F0DD7020F02	Green		sity bin from - G0(18.1)	Any 1	Any 1 hue bin from G7(520)-G9(535)				
E8	2700K	CLR6A-TKW-SD0F0A0E0BB7C3CE83	Blue		sity bin from - B0(4.8)	Any 1	Any 1 hue bin from B3(460)-B5(475)				
			White		sity bin from G0(18.1)	- ,	8A2,8A3,8A4 8C2,8C3,8C4	,- ,- ,-	- / -		

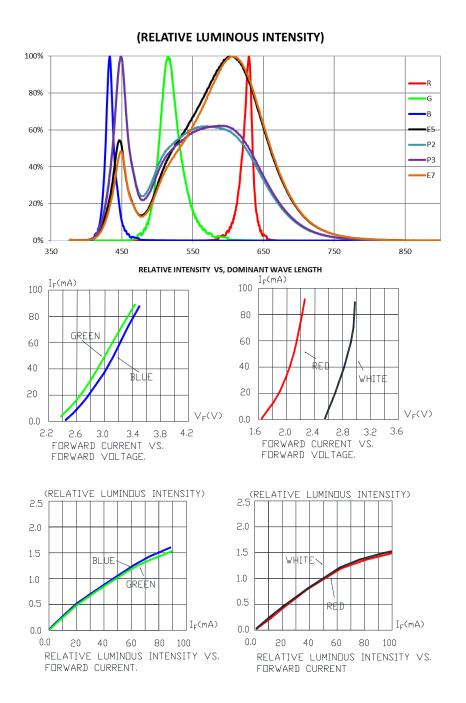
Notes:

- The above kit numbers represent order codes that include multiple flux-bin and color-bin codes. Only one flux-bin code and one color-bin code will be shipped on each bulk. Single flux-bin code and single color-bin codes will not be orderable.
- Please refer to the HB LED Lamp Reliability Test Standards document for reliability test conditions.
- · Please refer to the HB LED Lamp Soldering & Handling document for information about how to use this LED product safely.



GRAPHS

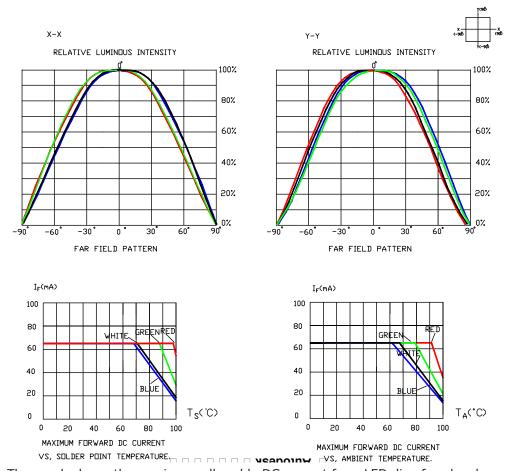
The data below are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.





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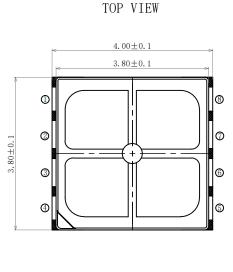
The graph shows the maximum allowable DC current for a LED die of each color.

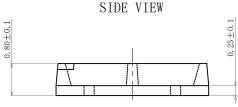


MECHANICAL DIMENSIONS

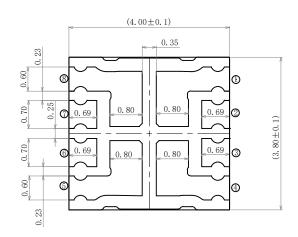
All dimensions are in mm.

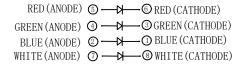
Tolerance of measurement of the dimension is ± 0.1 .





BOTTOM VIEW





NOTES

RoHS Compliance

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented January 2, 2013. RoHS Declarations for this product can be obtained from your Cree LED representative or from the Product Ecology section of the Cree LED website.

Vision Advisory

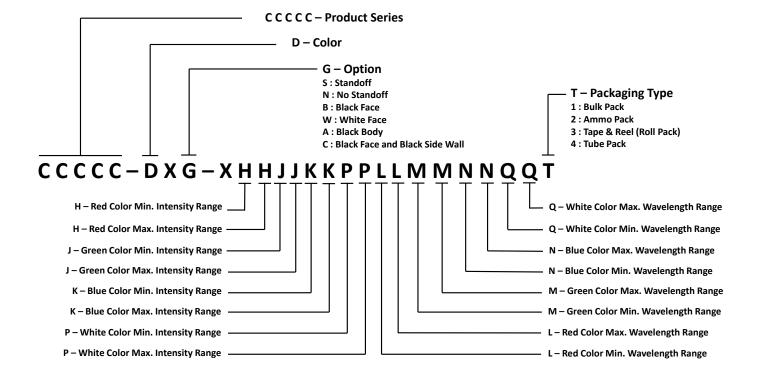
WARNING: Do not look at an exposed lamp in operation. Eye injury can result.



KIT NUMBER SYSTEM

Cree LED lamps are tested and sorted into performance bins. A bin is specified by ranges of color, forward voltage, and brightness.

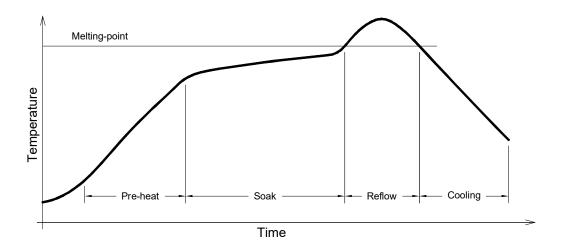
Cree LEDs are sold by order codes in combinations of bins called kits. Order codes are configured in the following manner:





REFLOW SOLDERING

- The CLR6A-TKW is rated as a MSL 5a product.
- The recommended floor life out of bag is 24hrs.
- The temperature profile is as below.

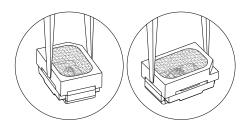


Use only with CLR6A-TKW

Solder
Average ramp-up rate = 4 °C/second max.
Soak temperature = 150°C-200°C
Soak time = 120 seconds max.
Duration above 217 °C = 60 seconds max.
Peak temperature = 250°C max
Time within 5 °C of peak temperature = 10 seconds max.
Ramp-down rate = 6 °C/second max.

NOTES

- The packaging sizes of these SMD products are very small and the resin is still soft after solidification. Users are required to handle with care. Never touch the resin surface of SMD products.
- To avoid damaging the product's surface and interior device, it is recommended to choose a special nozzle to pick up the SMD products during the process of SMT production. If handling is necessary, take special care when picking up these products. The following method is necessary:





PACKAGING

- The boxes are not water resistant and they must be kept away from water and moisture.
- The LEDs are packed in cardboard boxes after packaging in normal or anti-electrostatic bags.
- · Cardboard boxes will be used to protect the LEDs from mechanical shocks during transportation.
- · The reel pack is applied in SMD LED.
- Max 2000 pcs per reel.

