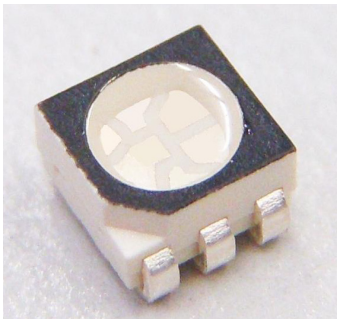
CLD-CT1142.002

Cree® PLCC6 3 in 1 SMD LED CLM6S-BKB/GKB



PRODUCT DESCRIPTION

SMD LEDs are packaged in the industry-standard package. These LEDs have high-reliability performance and are designed to work under a wide range of environmental conditions. This high-reliability feature makes them ideally suited to be used under architectural lighting application conditions.

Their wide viewing angle make these LEDs ideally suited for channel letters or architectural lighting applications. The flat-top emitting surface makes it easy for these LEDs to mate with light pipes.

FEATURES

- Size (mm):3.5 x 3.3
- Color and Typical Dominant Wavelength:
  Blue (470nm)
  Green (527nm)
- Luminous Intensity (mcd)
  CLM6S-BKB:
  (355 - 900)
  CLM6S-GKB:
  (1120 - 2800)
- Viewing angle: 120 degree
- Lead-Free
- RoHS Compliant

APPLICATIONS

- Full-Color Video Screen
- Decorative lighting
- Amusement

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ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Items	Symbol	Absolute Maximum Rating		Unit
		CLM6S-BKB	CLM6S-GKB	
Forward Current Note 1	I_F	3 x 40	3 x 40	mA
Peak Forward Current Note 2	I_{FP}	3 x 100	3 x 100	mA
Reverse Voltage	V_R	5	5	V
Power Dissipation	P_D	3 x 160	3 x 160	mW
Operation Temperature	T_{opr}	-40 ~ +100		°C
Storage Temperature	T_{stg}	-40 ~ +100		°C
Junction Temperature	T_J	110	110	°C
Junction/ambient 1 chip on	R_{THJA}	450	400	°C/W
Junction/ambient 3 chips on	R_{THJA}	680	580	°C/W
Junction/solder point 1 chip on	R_{THJS}	300	280	°C/W
Junction/solder point 3 chips on	R_{THJS}	480	430	°C/W

Note: Pulse width ≤0.1 msec, duty ≤1/10.

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

Characteristics	Color	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	CLM6S-BKB&GKB	V_F	I_F = 20 mA	V		3.4	4.0
Reverse Current	CLM6S-BKB&GKB	I_R	V_R = 5 V	μA			10
Dominant Wavelength	CLM6S-BKB	λ_D	I_F = 3 x 20 mA	nm	460	470	480
	CLM6S-GKB	λ_D	I_F = 3 x 20 mA	nm	520	527	540
Luminous Intensity	CLM6S-BKB	I_V	I_F = 3 x 20 mA	mcd	355	600	
	CLM6S-GKB	I_V	I_F = 3 x 20 mA	mcd	1120	1600	
Viewing Angle at 50%	CLM6S-BKB&GKB	2θ½	I_F = 3 x 20 mA	deg		120	

INTENSITY BIN LIMIT (I_F = 3 × 20 mA)

Blue(CLM6S-BKB)

Bin Code	Min. (mcd)	Max. (mcd)
Tb	355	450
Ua	450	560
Ub	560	710
Va	710	900

Green(CLM6S-GKB)

Bin Code	Min. (mcd)	Max. (mcd)
Wa	1120	1400
Wb	1400	1800
Xa	1800	2240
Xb	2240	2800

Tolerance of measurement of luminous intensity is ±10%.

COLOR BIN LIMIT (I_F = 3 × 20 mA)

Blue (CLM6S-BKB)

Bin Code	Min.(nm)	Max.(nm)
B3	460	465
B4	465	470
B5	470	475
B6	475	480

Green (CLM6S-GKB)

Bin Code	Min.(nm)	Max.(nm)
G7	520	525
G8	525	530
G9	530	535
Ga	535	540

Tolerance of measurement of dominant wavelength is ±1 nm.

ORDER CODE TABLE*

Color	Kit Number	Viewing Angle	Luminous Intensity (mcd)		Dominant Wavelength			
			Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)
Blue	CLM6S-BKB-CTbVa363	120	355	900	B3	460	B6	480

Color	Kit Number	Viewing Angle	Luminous Intensity (mcd)		Dominant Wavelength			
			Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)
Green	CLM6S-GKB-CWaXb7a3	120	1120	2800	G7	520	Ga	540

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

GRAPHS

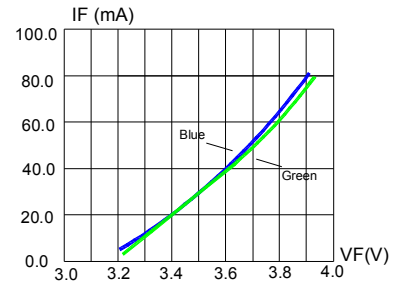


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

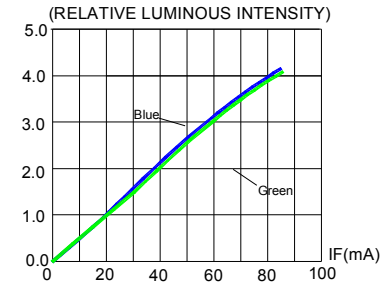


FIG.2 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

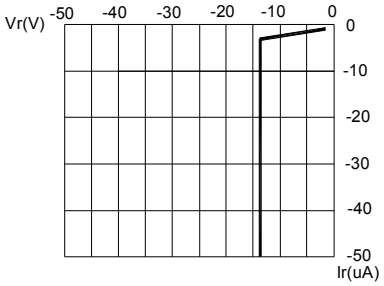


FIG.3 BLUE & GREEN REVERSE CURRENT VS. REVERSE VOLTAGE.

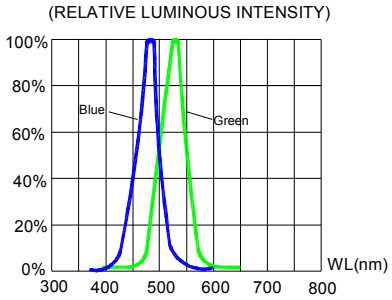


FIG.4 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH.

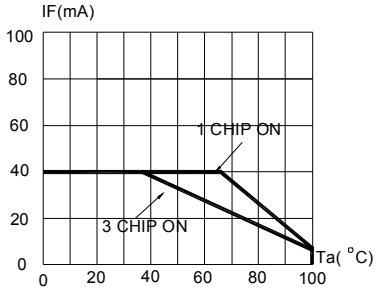


FIG.5 BLUE & GREEN MAXIMUM FORWARD DC CURRENT VS AMBIENT TEMPERATURE

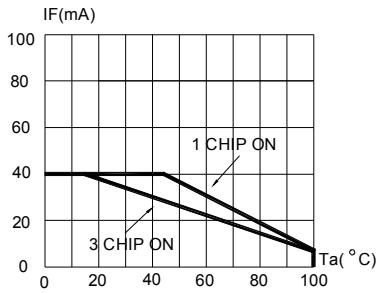


FIG.6 BLUE & GREEN MAXIMUM FORWARD DC CURRENT VS AMBIENT TEMPERATURE

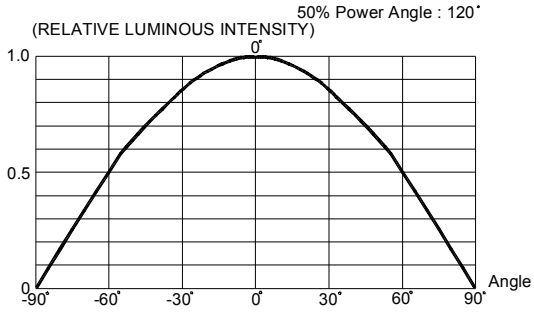
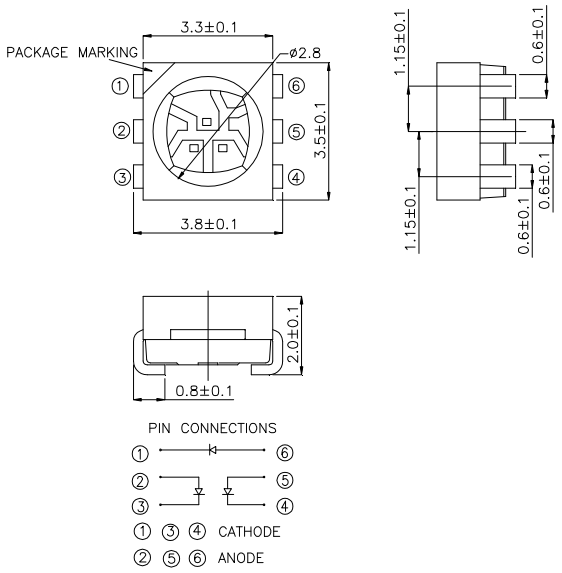


FIG.7 FAR FIELD PATTERN

The above data 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.

MECHANICAL DIMENSIONS

All dimensions are in mm.



NOTES

RoHS Compliance

The levels of environmentally sensitive, persistent biologically toxic (PBT), persistent organic pollutants (POP), or otherwise 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 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS), as amended through April 21, 2006.

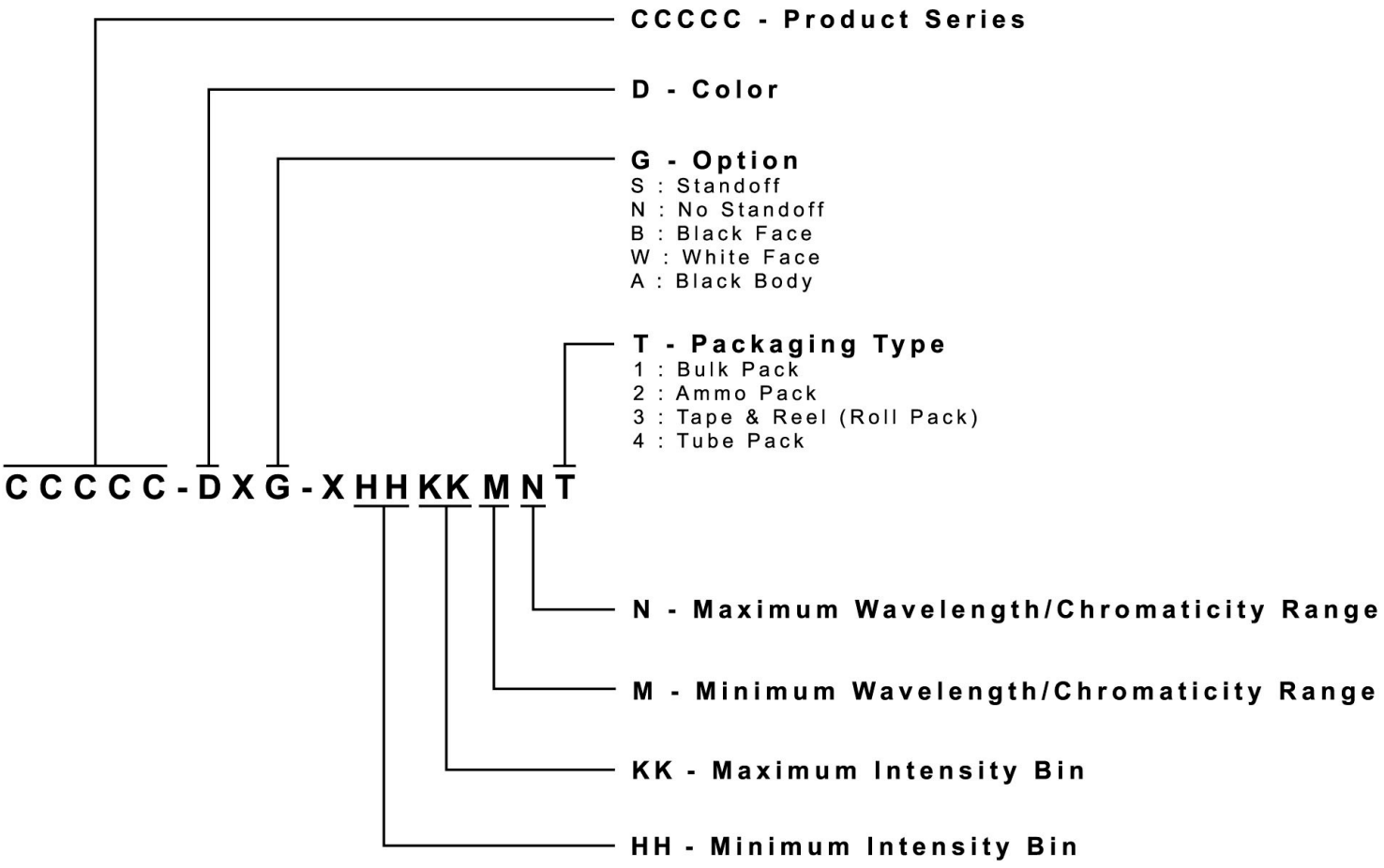
Vision Advisory Claim

Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.

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. Sorted LEDs are packaged for shipping in various convenient options. Please refer to the "Cree LED Lamp Packaging Standard" document for more information about shipping and packaging options.

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



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 1000 pcs per reel.