

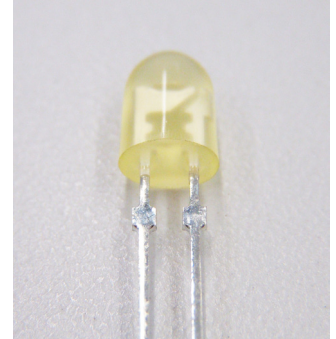
Cree® Screen Master® 5-mm Oval LED

C5SMB-AJS

Data Sheet

This oval LED is specifically designed for variable-message signs and passenger-information signs. The oval-shaped radiation pattern and high luminous intensity ensure that these devices are excellent for wide-field-of-view outdoor applications where a wide viewing angle and readability in sunlight are essential.

These lamps are made with an advanced optical-grade epoxy that offers superior high-temperature and high-moisture-resistance performance in outdoor signal and sign applications. The encapsulation resin contains anti-UV material in order to reduce the effects of long-term exposure to direct sunlight.



FEATURES

- Size (mm): 5
- Color and Typical Dominant Wavelength (nm):
 - » Amber (591)
- Luminous Intensity (mcd)
 - » C5SMB - Amber (390-1520)
- Lead-Free
- RoHS-Compliant

APPLICATIONS

- Electronic Signs & Signals (ESS)
- Full-Color Video Screen
- Motorway Signs
- Variable-Message Sign (VMS)
- Advertising Signs
- Petrol Signs

Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$)

Items	Symbol	Absolute Maximum Rating	Unit
Forward Current	I_F	50 ^{Note1}	mA
Peak Forward Current ^{Note2}	I_{FP}	200	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	130	mW
Operation Temperature	T_{opr}	-40 ~ +95	$^\circ\text{C}$
Storage Temperature	T_{stg}	-40 ~ +100	$^\circ\text{C}$
Lead Soldering Temperature	T_{sol}	Max. 260 $^\circ\text{C}$ for 3 sec. max. (3 mm from the base of the epoxy bulb)	

Notes:

1. For long-term performance, the drive currents between 10 mA and 30 mA are recommended. Please contact a Cree sales representative for more information on recommended drive conditions.
2. Pulse width ≤ 0.1 msec, duty $\leq 1/10$.

Typical Electrical & Optical Characteristics ($T_A = 25^\circ\text{C}$)

Characteristics	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	V_F	$I_F = 20$ mA	V		2.3	2.6
Reverse Current	I_R	$V_R = 5$ V	μA			100
Dominant Wavelength	λ_D	$I_F = 20$ mA	nm	584	591	596
Luminous Intensity	I_V	$I_F = 20$ mA	mcd	390	600	

Intensity Bin Limit ($I_F = 20 \text{ mA}$)

Amber

Bin Code	Min. (mcd)	Max. (mcd)
Q0	390	550
R0	550	770
S0	770	1100
T0	1100	1520

Tolerance of measurement of luminous intensity is $\pm 15\%$.

Color Bin Limit ($I_F = 20 \text{ mA}$)

Amber

Bin Code	Min.(nm)	Max.(nm)
AA	584	596

Tolerance of measurement of dominant wavelength is $\pm 1 \text{ nm}$.

Order Code Table*

Color	Kit Number	Luminous Intensity (mcd)		Dominant Wavelength				Pack- age
		Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)	
Amber	C5SMB-AJS-CQ0T0AA1	390	1520	AA	584	AA	596	Bulk
Amber	C5SMB-AJS-CQ0T0AA2	390	1520	AA	584	AA	596	Ammo

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 reel. Single intensity-bin, 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

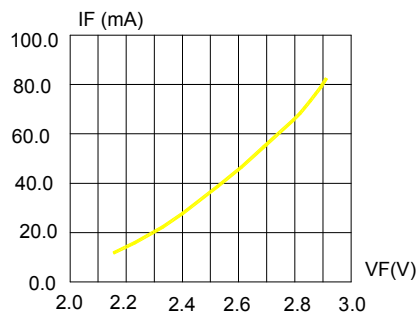


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

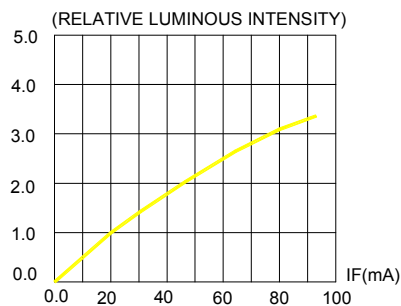


FIG.2 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

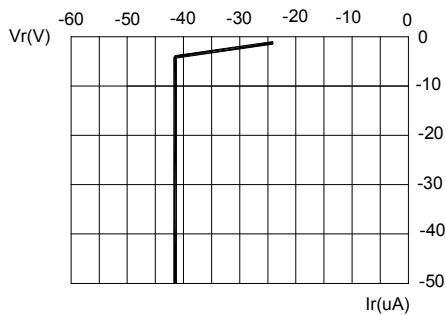


FIG.3 REVERSE CURRENT VS. REVERSE VOLTAGE.

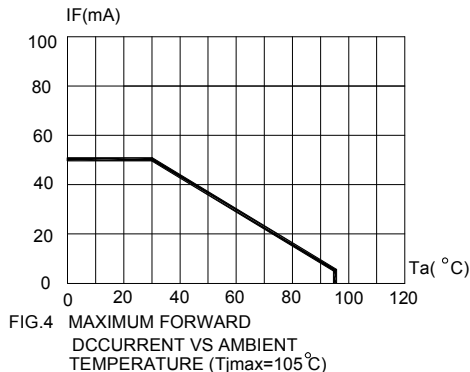


FIG.4 MAXIMUM FORWARD DC CURRENT VS AMBIENT TEMPERATURE ($T_{jmax}=105^{\circ}\text{C}$)

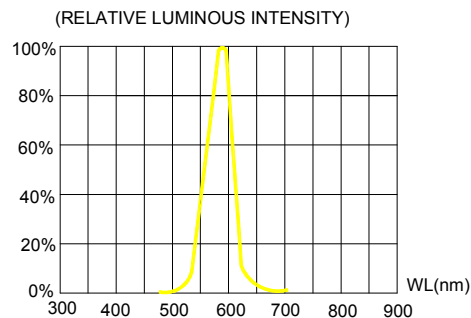


FIG.5 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH.

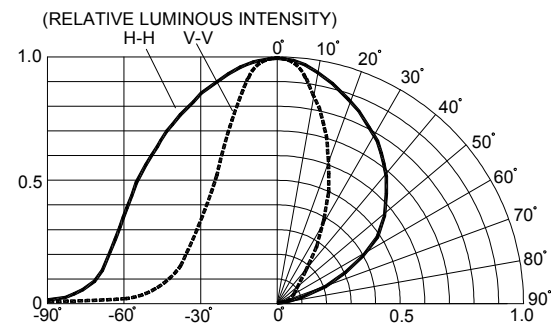


FIG.6 FAR FIELD PATTERN

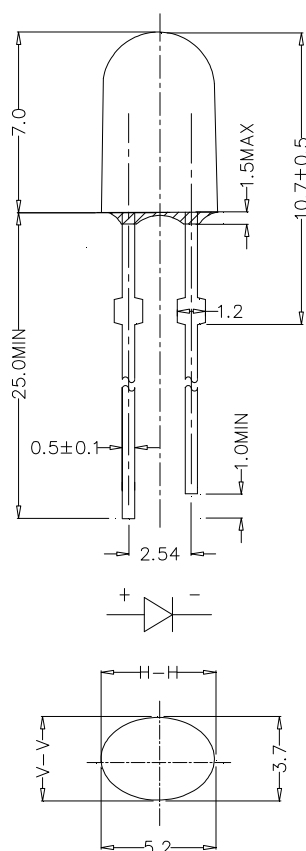
The above data are collected from statistical figures that do not necessarily correspond to the actual parameters of each single LED. Hence, these data will be changed without further notice.

Mechanical Dimensions

All dimensions are in mm. Tolerance is ± 0.25 mm unless otherwise noted.

An epoxy meniscus may extend about 1.5 mm down the leads.

Burr around bottom of epoxy may be 0.5 mm max.



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.

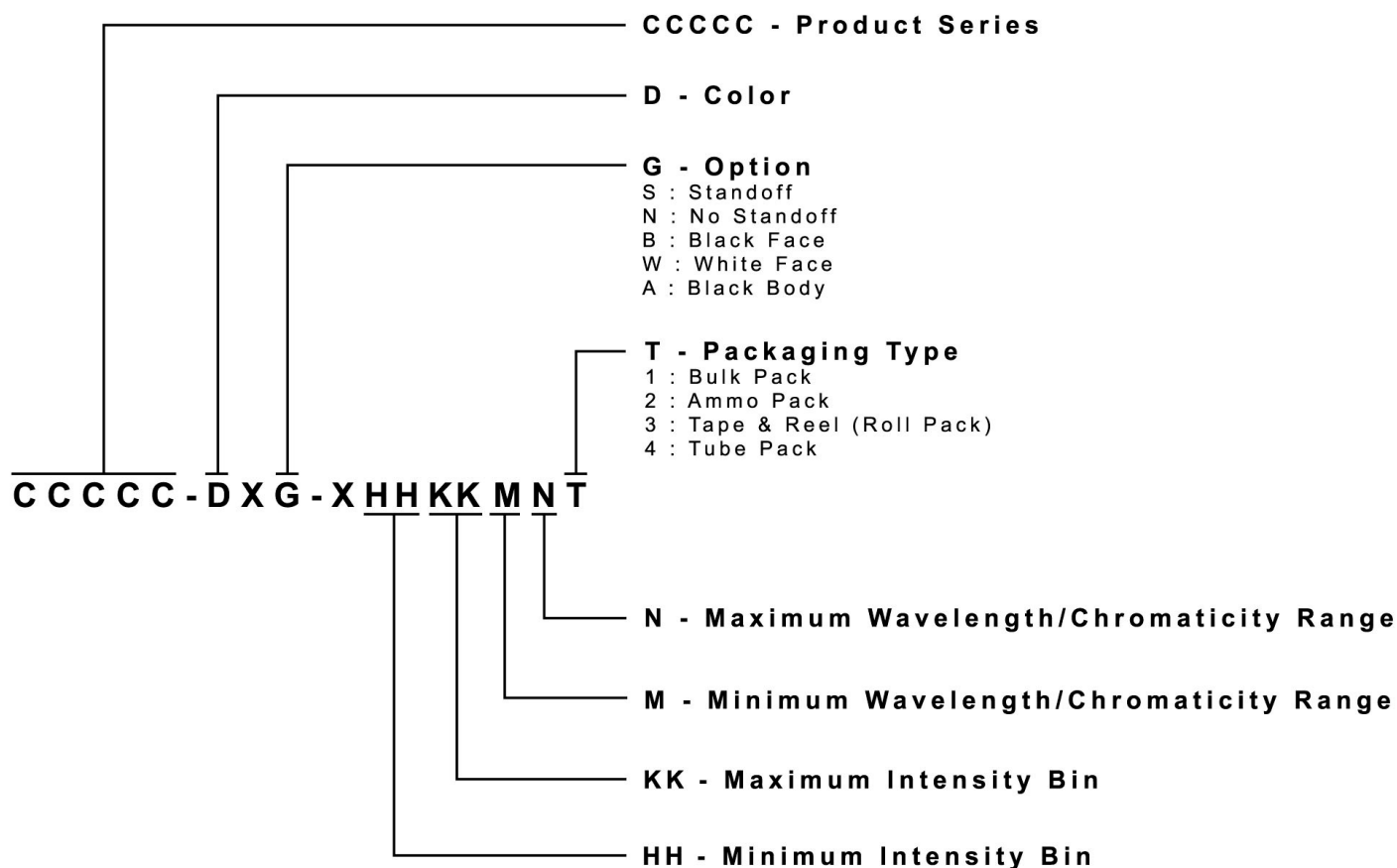
Vision Advisory Claim

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:

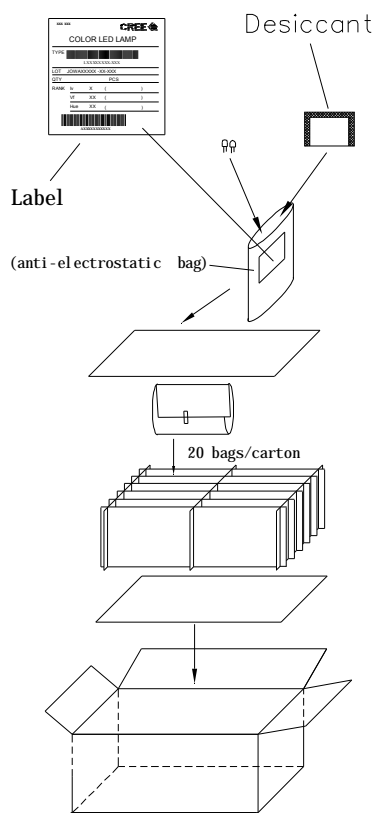


Package

Features:

- 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 shock during transportation.
- The boxes are not water-resistant, and they must be kept away from water and moisture.
- There are two types of packaging: bulk pack and ammo pack.
- Max 500 pcs per bulk and max 2500 pcs per ammo.

Bulk Pack Packaging Type:



Ammo Pack Packaging Type:

