

# Cree® 5-mm Oval LED

## C566C-RFS&AFS

### 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 tinted and diffused. 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):
  - » Red (621)
  - » Amber (591)
- Luminous Intensity (mcd)
  - » Red (1100-4180)
  - » Amber (1520-4180)
- Viewing Angle: 70 x 35 degree
- 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
		Red and Amber	
Forward Current	$I_F$	50 <sup>Note1</sup>	mA
Peak Forward Current <sup>Note2</sup>	$I_{FP}$	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)	
Electrostatic Discharge Classification (MIL-STD-883E)	ESD	Class 2	

### 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  $\leq 0.1$  msec, duty  $\leq 1/10$ .

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

Characteristics	Color	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	Red/Amber	$V_F$	$I_F = 20$ mA	V		2.1	2.6
Reverse Current	Red/Amber	$I_R$	$V_R = 5$ V	$\mu\text{A}$			100
Dominant Wavelength	Red	$\lambda_D$	$I_F = 20$ mA	nm	619	621	624
	Amber	$\lambda_D$	$I_F = 20$ mA	nm	584	591	596
Luminous Intensity	Red	$I_V$	$I_F = 20$ mA	mcd	1100	2200	
	Amber	$I_V$	$I_F = 20$ mA	mcd	1520	2500	



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

Red

Bin Code	Min. (mcd)	Max. (mcd)
T0	1100	1520
U0	1520	2130
V0	2130	3000
W0	3000	4180

Amber

Bin Code	Min. (mcd)	Max. (mcd)
U0	1520	2130
V0	2130	3000
W0	3000	4180

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

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

Red

Bin Code	Min. (nm)	Max. (nm)
RB	619	624

Amber

Bin Code	Min. (nm)	Max. (nm)
A2	584	587
A3	587	590
A4	590	593
A5	593	596

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



## Order Code Table\*

Color	Kit Number	Luminous Intensity (mcd)		Dominant Wavelength				Package	Standoff
		Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)		
Red	C566C-RFS-CT0W0BB1	1100	4180	RB	619	RB	624	Bulk	Yes
Red	C566C-RFS-CU0V0BB1	1520	3000	RB	619	RB	624	Bulk	Yes
Red	C566C-RFS-CV0W0BB1	2130	4180	RB	619	RB	624	Bulk	Yes
Red	C566C-RFS-CT0W0BB2	1100	4180	RB	619	RB	624	Ammo	Yes
Red	C566C-RFS-CU0V0BB2	1520	3000	RB	619	RB	624	Ammo	Yes
Red	C566C-RFS-CV0W0BB2	2130	4180	RB	619	RB	624	Ammo	Yes

Color	Kit Number	Luminous Intensity (mcd)		Dominant Wavelength				Package	Standoff
		Min.	Max.	Color Bin	Min. (nm)	Color Bin	Max. (nm)		
Amber	C566C-AFS-CU0W0251	1520	4180	A2	584	A5	596	Bulk	Yes
Amber	C566C-AFS-CU0V0341	1520	3000	A3	587	A4	593	Bulk	Yes
Amber	C566C-AFS-CV0W0341	2130	4180	A3	587	A4	593	Bulk	Yes
Amber	C566C-AFS-CU0W0252	1520	4180	A2	584	A5	596	Ammo	Yes
Amber	C566C-AFS-CU0V0342	1520	3000	A3	587	A4	593	Ammo	Yes
Amber	C566C-AFS-CV0W0342	2130	4180	A3	587	A4	593	Ammo	Yes

### 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.

### Important Bins Notes:

- Packaging methods are available for selection; please refer to the "Cree LED Lamp Packaging Standard" document.
- Please refer to the "Cree LED Lamp Reliability Test Standards" document for reliability test conditions.
- Please refer to the "Cree LED Lamp Soldering & Handling" document for information about how to use this LED product safely.

# Graphs

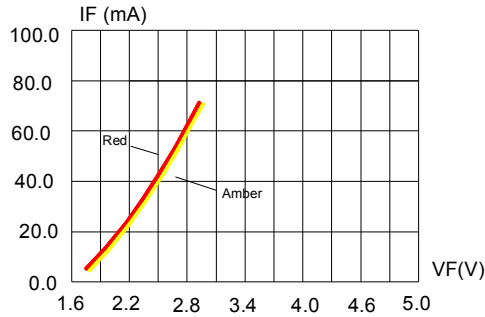


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE.

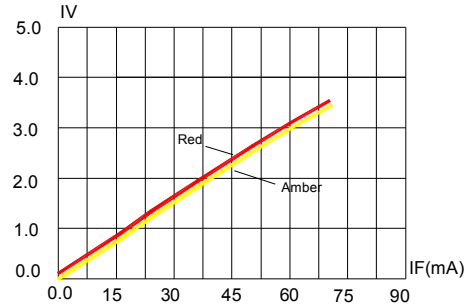


FIG.2 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

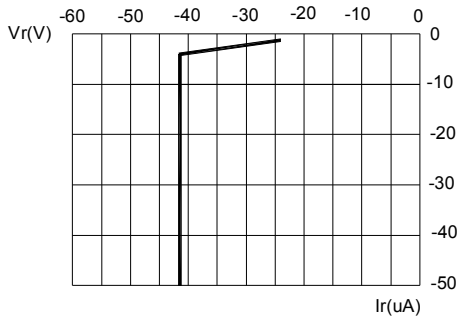


FIG.3 RED & AMBER REVERSE CURRENT VS. REVERSE VOLTAGE.

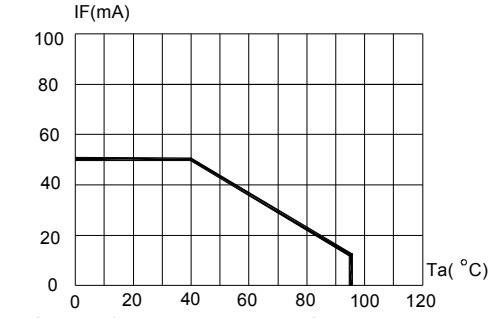


FIG.4 RED & AMBER MAXIMUM FORWARD DCCURRENT VS AMBIENT TEMPERATURE ( $T_{jmax}=105^{\circ}C$ )

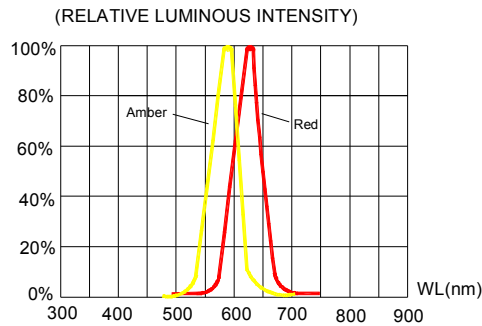


FIG.5 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH.

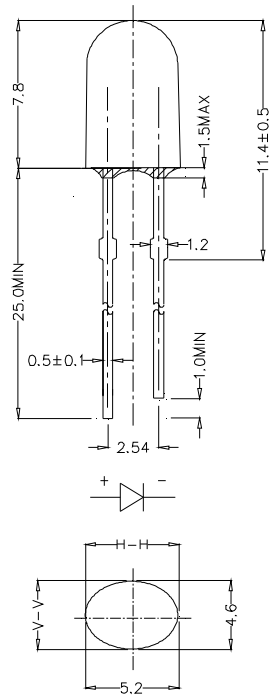
## Mechanical Dimensions

All dimensions are in mm. Tolerance is  $\pm 0.25$  mm unless otherwise noted.

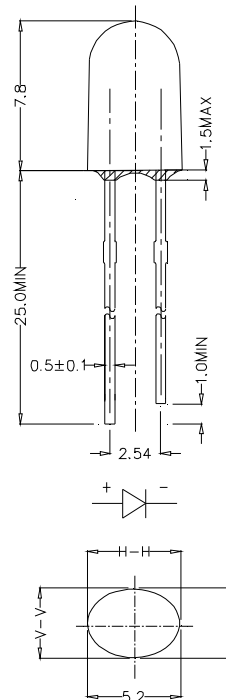
An epoxy meniscus may extend about 1.5 mm down the leads.

Burr around bottom of epoxy may be 0.5 mm max.

C566C-RFS/AFS:



C566C-RFN/AFN:



## 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

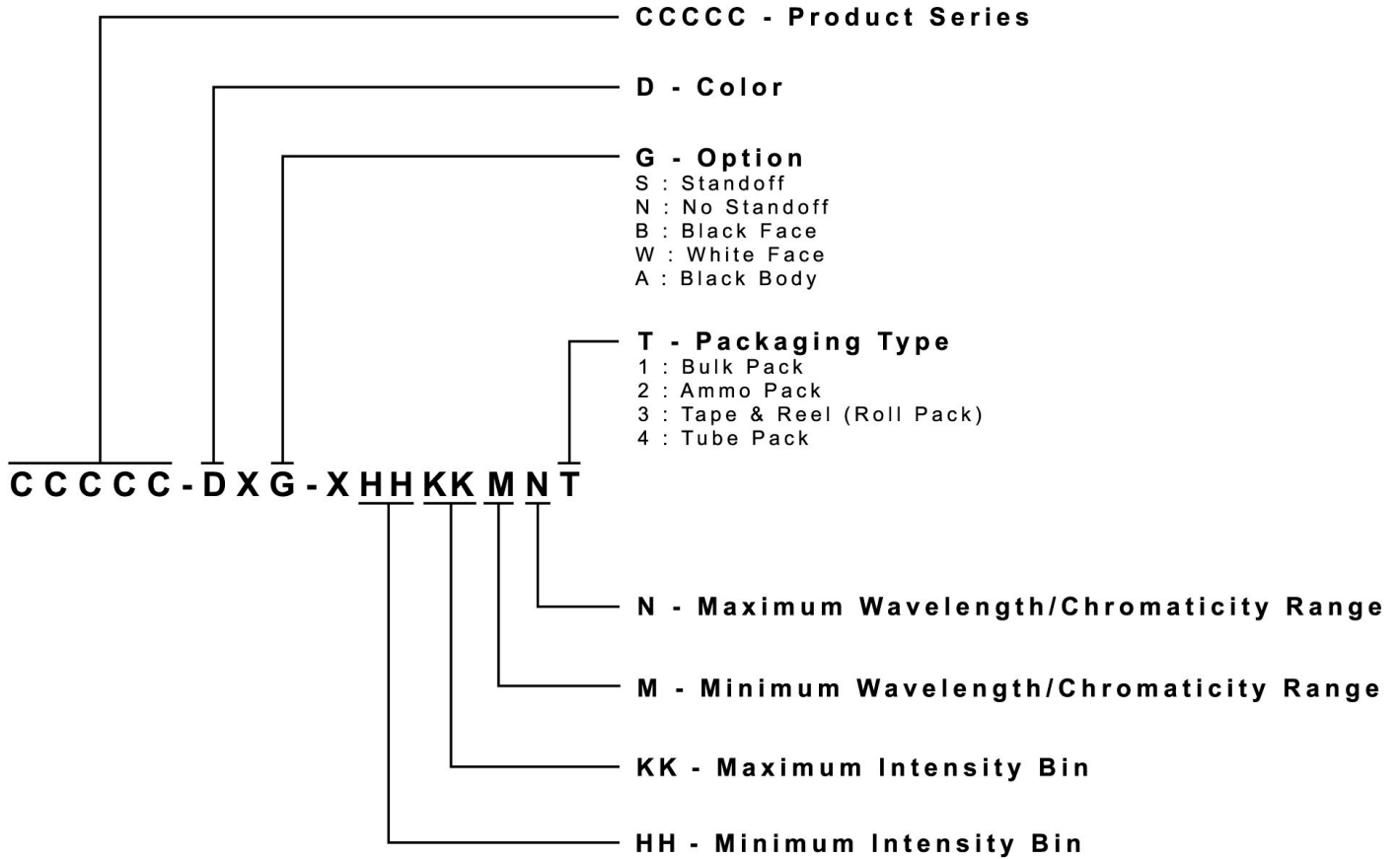
Users should be cautioned not to stare at the light of this LED product. The bright light can damage the eye.



## 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:

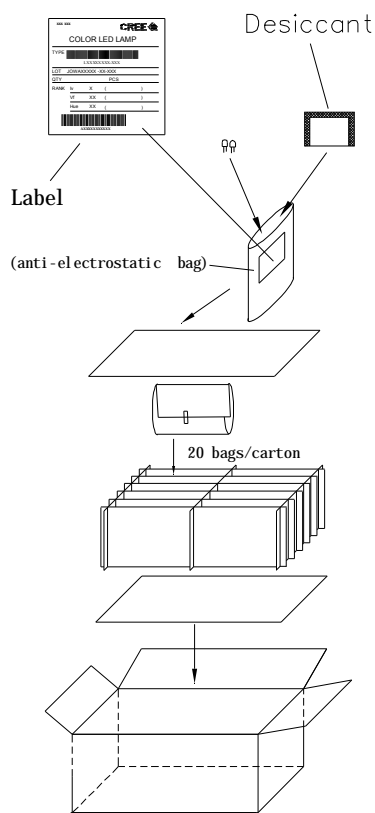


## Package

### 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 3000 pcs per ammo.

### Bulk Pack Packaging Type:



### Ammo Pack Packaging Type:

