

Cree® 5-mm Oval LED

Model # LO5SMUHR4-B0G-A3

Data Sheet

110-degree, 5-mm oval LED lamp in red color with tinted, diffused lens and stopper

Applications

- Full-Color Displays

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

Items	Symbol	Absolute Maximum Rating	Unit
Forward Current	I_F	50	mA
Peak Forward Current ^{Note}	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	

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

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

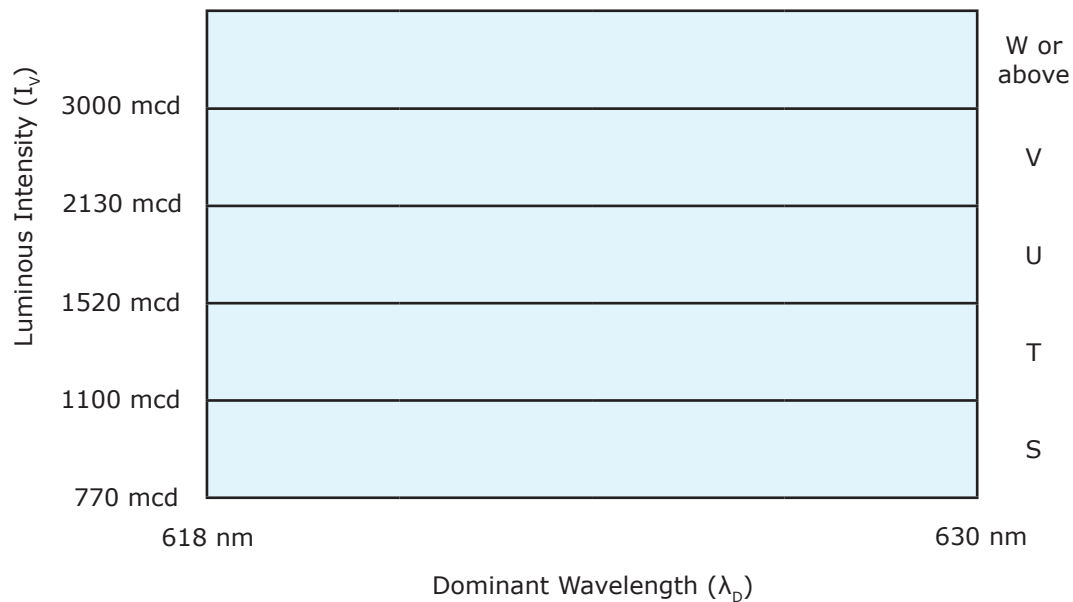
Characteristics	Symbol	Condition	Unit	Minimum	Typical	Maximum
Forward Voltage	V_F	$I_F = 20$ mA	V		2.1	2.6
Reverse Current	I_R	$V_R = 5$ V	μA			100
Dominant Wavelength	λ_D	$I_F = 20$ mA	nm	618	624	630
Luminous Intensity	I_V	$I_F = 20$ mA	mcd	770	1500	
50% Power Angle	$2\theta_{1/2H-H}$	$I_F = 20$ mA	deg		110	
	$2\theta_{1/2V-V}$	$I_F = 20$ mA	deg		40	

Standard Bins for LO5SMUHR4-B0G-A3 ($I_F = 20 \text{ mA}$)

Lamps are sorted to luminous intensity (I_V) and dominant wavelength (λ_D) bins shown.

Orders for LO5SMUHR4-B0G-A3 may be filled with any or all bins contained as below.

All luminous intensity (I_V) and dominant wavelength (λ_D) values shown and specified are at $I_F = 20 \text{ mA}$.



Important Notes:

1. All ranks will be included per delivery; rank ratio will be based on the dice distribution.
2. Pb content <1000 ppm.
3. Tolerance of measurement of luminous intensity is $\pm 15\%$.
4. Tolerance of measurement of dominant wavelength is $\pm 1 \text{ nm}$.
5. Tolerance of measurement of V_F is $\pm 0.05 \text{ V}$.
6. Packaging methods are available for selection; please refer to the "Cree LED Lamp Packaging Standard" document.
7. Please refer to the "Cree LED Lamp Reliability Test Standards" document for reliability test conditions.
8. Please refer to the "Cree LED Lamp Soldering & Handling" document for information about how to use this LED product safely.

Graphs

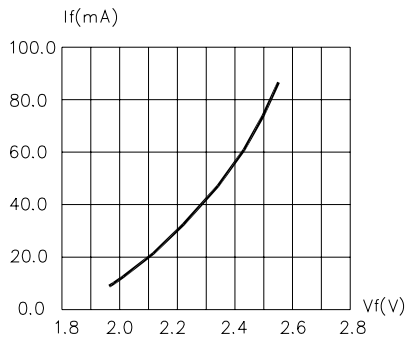


FIG.1 FORWARD CURRENT VS. FORWARD VOLTAGE

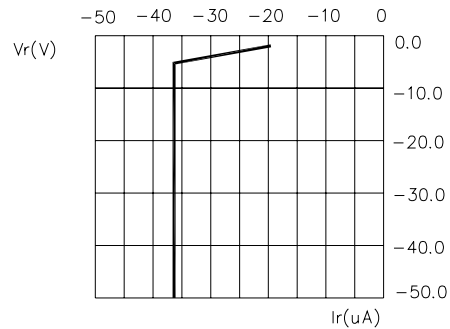


FIG.2 REVERSE CURRENT VS. REVERSE VOLTAGE

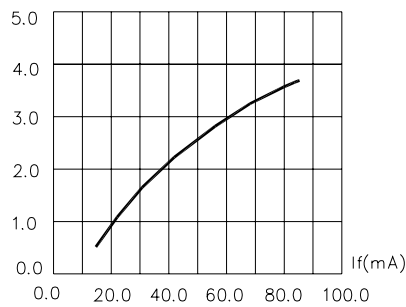


FIG.3 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

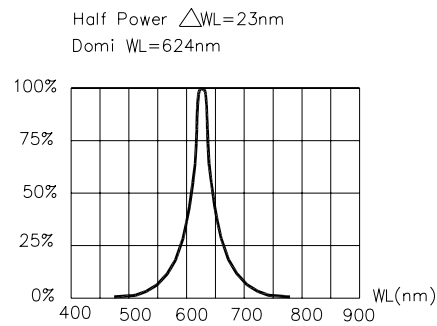


FIG.4 RELATIVE LUMINOUS INTENSITY VS. WAVELENGTH

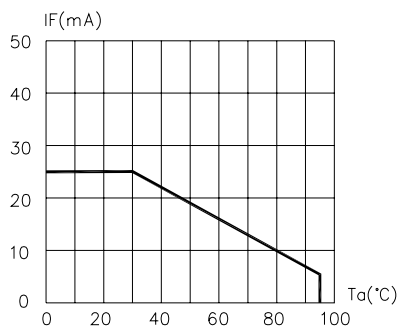


FIG.5 MAXIMUM FORWARD CURRENT VS. AMBIENT TEMPERATURE ($T_{j\text{max}}=105^{\circ}\text{C}$)

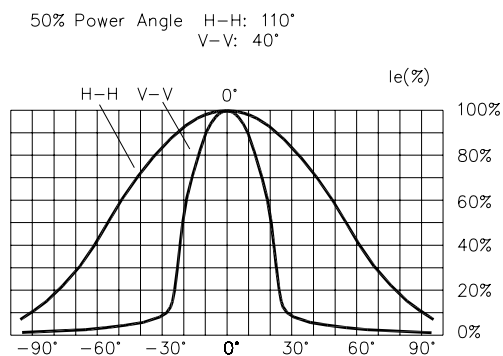


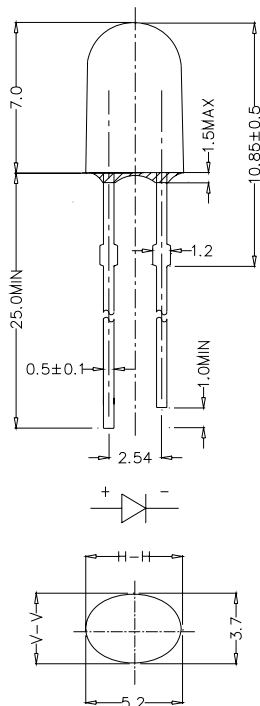
FIG.6 FAR FIELD PATTERN

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.

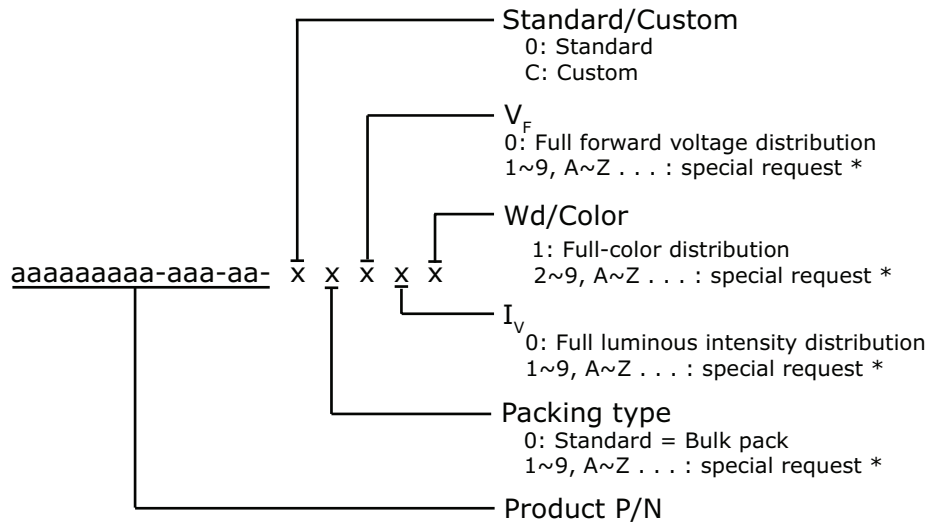
Vision Advisory Claim

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:



* Contact your Cree sales representative for ordering information.

Standard Available Kits*

Kit Number	Description
LO5SMUHR4-B0G-A3-00001	5mm Oval 110 Red, Full Rank, Bulk Pack
LO5SMUHR4-B0G-A3-00002	5mm Oval 110 Red, IV: Full Rank, Hue: Sort by 5nm, Bulk Pack
LO5SMUHR4-B0G-A3-00011	5mm Oval 110 Red, IV: Consecutive 4 Quarter Iv Bins of min. S, Bulk Pack
LO5SMUHR4-B0G-A3-00012	5mm Oval 110 Red, IV: Consecutive 4 Quarter Iv Bins of min. S, Hue: Sort by 5nm, Bulk Pack
LO5SMUHR4-B0G-A3-00021	5mm Oval 110 Red, IV: T, U, V, Bulk Pack
LO5SMUHR4-B0G-A3-00022	5mm Oval 110 Red, IV: T, U, V, Hue: Sort by 5nm, Bulk Pack
LO5SMUHR4-B0G-A3-00031	5mm Oval 110 Red, IV: Consecutive 4 Quarter Iv Bins of min. T, Bulk Pack
LO5SMUHR4-B0G-A3-00032	5mm Oval 110 Red, IV: Consecutive 4 Quarter Iv Bins of min. T, Hue: Sort by 5nm

* Please contact your Cree representative about the availability of non-standard kits.