

Cree® XLamp™ 4550 LEDs



Cree XLamp 4550 LEDs bring the power of brightness to a wide range of lighting and backlighting applications including portable lighting, computer and television screens, signaling, architectural, landscaping and entertainment/advertising. Cree XLamp 4550 LEDs combine the brightness of power LED chips with a rugged package capable of operating in excess of half of a watt. XLamp LEDs lead the solid-state lighting industry in brightness while providing a reflow solderable design that is optimized for ease-of-use and thermal management. Lighting applications featuring XLamp LEDs maximize light output and increase design flexibility, while minimizing environmental impact.

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BENEFITS

- Industry's first 125mA package
- Surface mount technology — reflow solderable
- Wide range of colors
 - Royal Blue, Blue, Green, Amber and Red
- Low operating voltage
- Full dimming
- RoHS compliant — lead-free
- Integrated lens
- Small footprint — 4.5 mm x 5.0 mm
- ESD > 2000V



Characteristics

Color	Dominant wavelength (nm) or CCT (K)		Typical Luminous or Radiant flux @ 125mA
	Min.	Max.	
Royal Blue	455nm	465nm	65 mW
Blue	465nm	475nm	4.5 lm
Green	520nm	535nm	18 lm
Amber	585nm	595nm	8.4 lm
Red	620nm	635nm	12 lm

Subject to change without notice.
www.xlamp.com



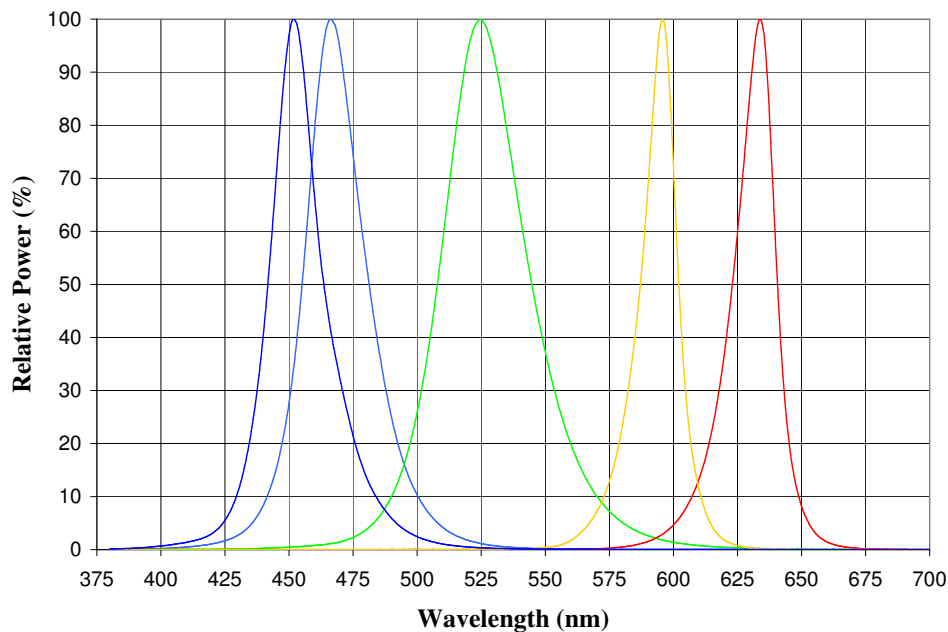
Datasheet: DS-00001, Revision C

Characteristics

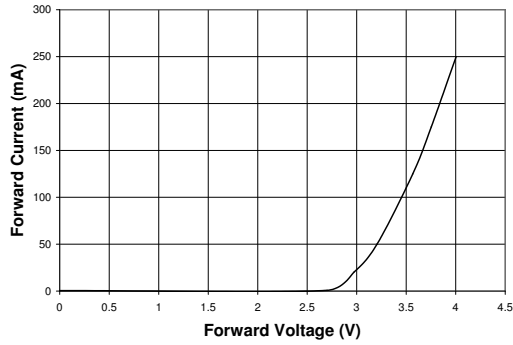
Characteristics	Unit	XLamp 4550
Thermal Resistance, junction to solder point	°C/W	35
Maximum forward voltage @ 125mA (royal blue, blue, green)	V	4
Maximum forward voltage @ 125mA (amber, red)	V	3
Viewing angle	degrees	100
Temperature coefficient of voltage (royal blue, blue, green)	mV/°C	-3.0 to -2.8
Temperature coefficient of voltage (amber, red)	mV/°C	-3.2 to -3.0
ESD Classification (HBM per Mil-Std-883D)		Class 2
Maximum DC Forward Current	mA	125
Maximum Reverse Voltage	V	5
Maximum LED Junction Temperature	°C	125
Minimum Operating Temperature	°C	-20
Maximum Operating Temperature	°C	85

Note: For details on Cree's procedures for sorting, binning and labeling and a list of standard order codes, see application note: *Cree XLamp 4550 LED Binning and Labeling*.

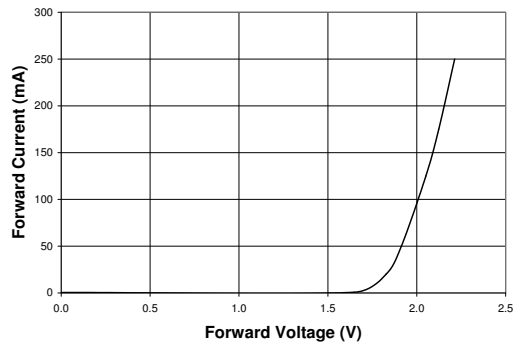
Relative Spectral Power



Electrical Characteristics



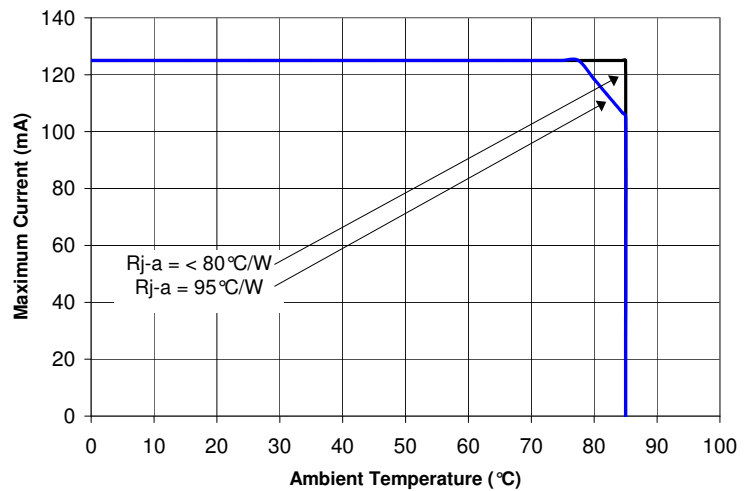
Royal Blue, Blue, Green



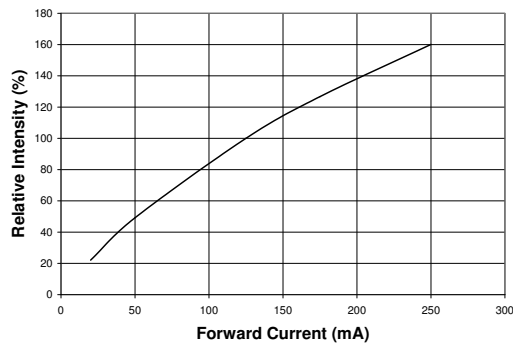
Red, Amber

Thermal Design

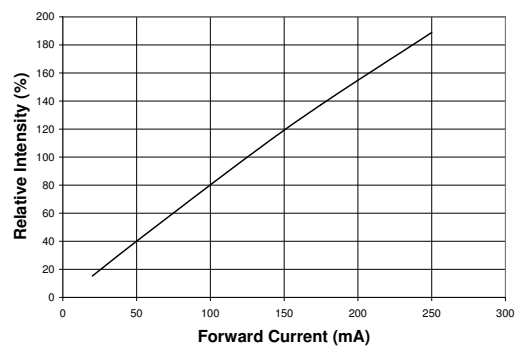
The maximum forward current is determined by the thermal resistance between the LED junction and ambient. Given an existing thermal resistance of 35 °C/W between the junction and the solder point, it is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



Relative Flux vs. Current ($T_A = 25^\circ\text{C}$)

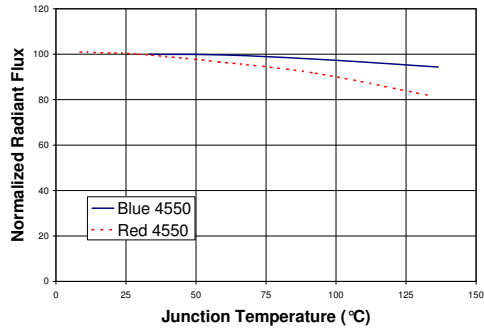


Royal Blue, Blue, Green



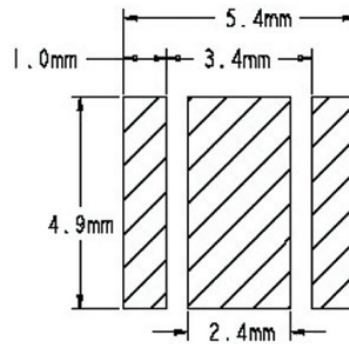
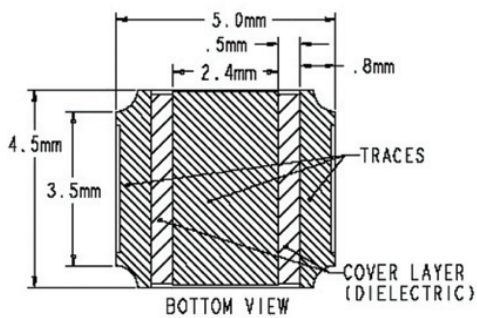
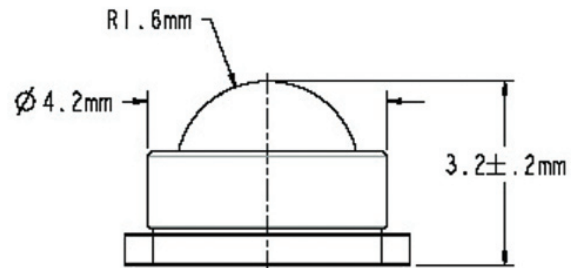
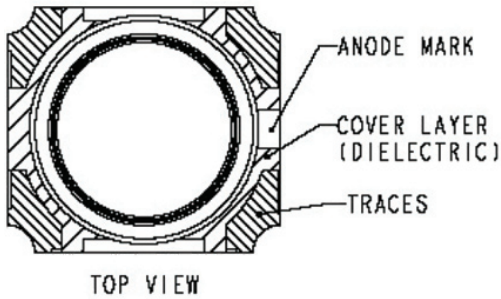
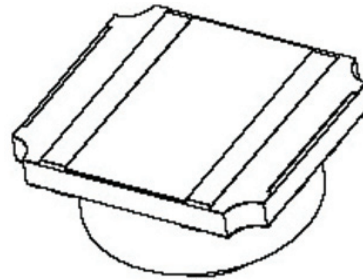
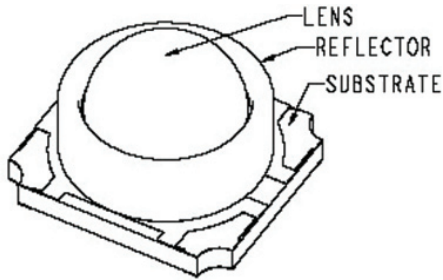
Red, Red-Orange, Amber

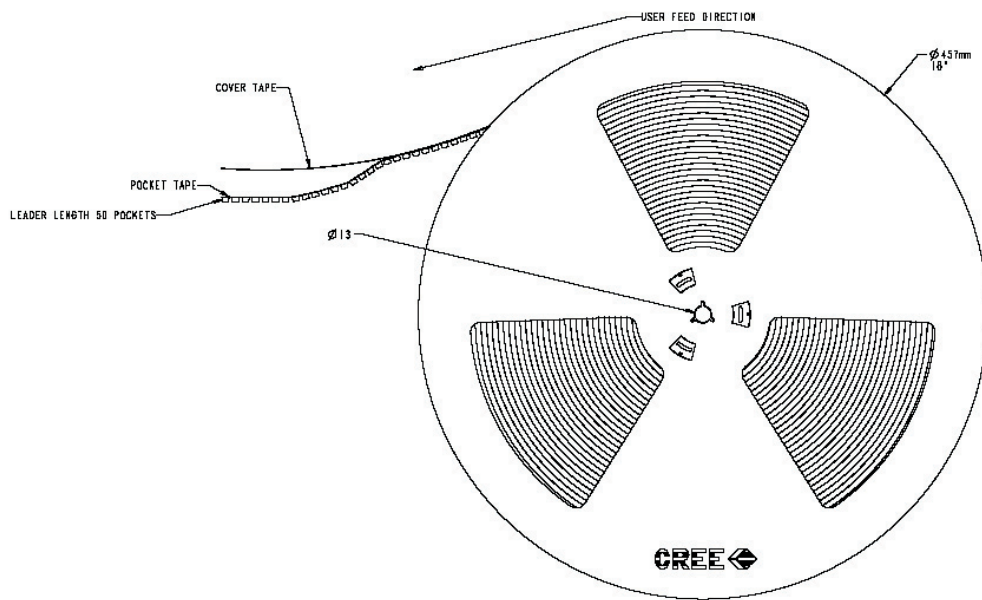
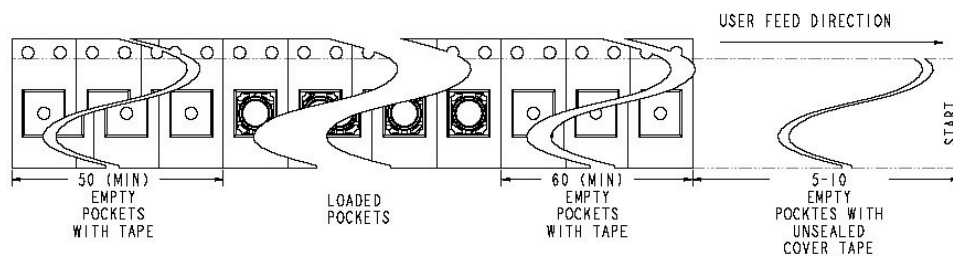
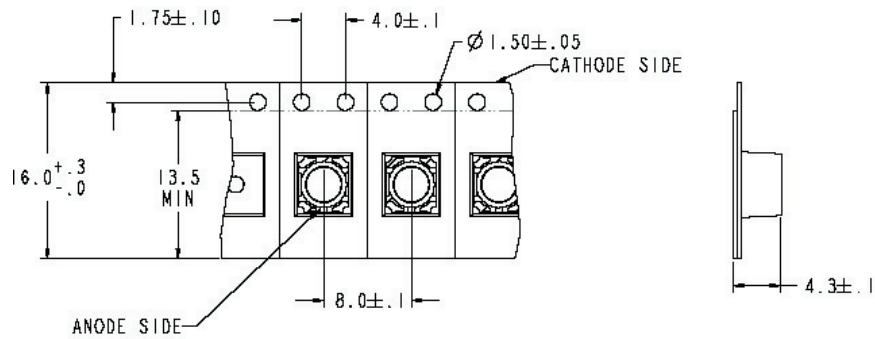
Relative Intensity vs. Junction Temperature ($I_f = 125\text{mA}$)

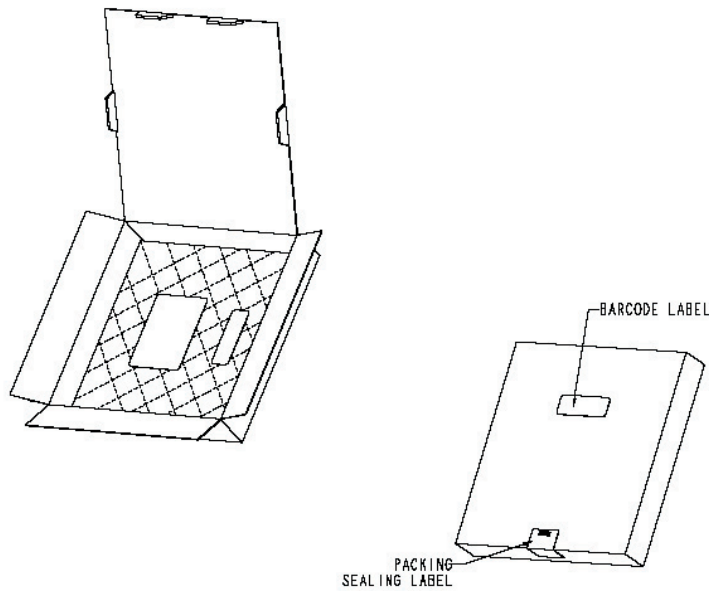
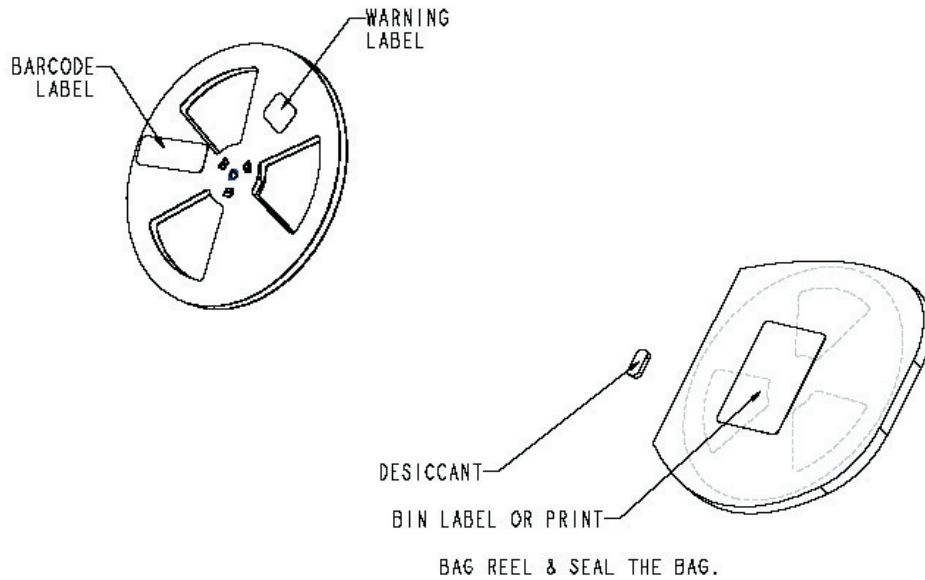


Mechanical Dimensions

All measurements are $\pm 0.1\text{mm}$ unless otherwise indicated.







Notes

If the LEDs have been exposed to greater than 45% relative humidity for more than 168 hours after opening the vacuum-sealed package, the exposed reels must be baked at 80°C for 24 hours. The reels should be removed from the plastic bag before baking. Exposure to temperatures higher than 80°C could result in damage to the tape and/or reel.