

# CREE® XLAMP™ 7090 LED

## DATA SHEET

Data Sheet: DS-00002 Rev A

### > XLamp™ 7090 Packaged LEDs



Cree XLamp 7090 LEDs combine the brightness of power LED chips with a rugged package capable of operating in excess of one Watt. Cree 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.

Cree XLamp 7090 LEDs bring the power of brightness to a wide range of lighting and backlighting applications including portable lighting and flashlights, computer and television screens, signaling, architectural, landscaping and entertainment/advertising.

### > Benefits

Cree XLamp 7090 LEDs provide:

- Industry's brightest 1-Watt package
- Surface mount technology — reflow solderable
- Wide range of colors
  - White, Royal Blue, Blue, Cyan, Green, Amber, Red-Orange and Red
- Low operating voltage
- Full dimming
- ROHS compliant — lead-free
- Integrated lens
- Small footprint — 7.0 mm x 9.0 mm
- ESD > 2000V

## > Characteristics

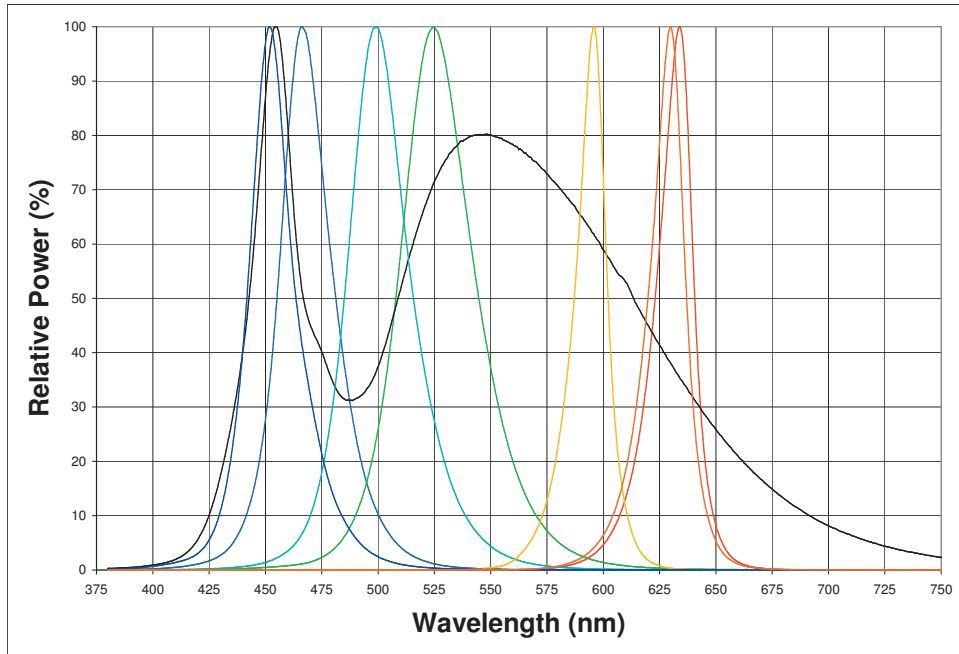
Color	Dominant wavelength (nm) or CCT (K)		Typical Luminous or Radiant flux @ 350mA
	Min.	Max.	
White	4500K	8000K	45lm
Royal Blue	455nm	465nm	255mW
Blue	465nm	475nm	19lm
Cyan	500nm	510nm	30lm
Green	520nm	535nm	45lm
Amber	585nm	595nm	27lm
Red-Orange	610nm	620nm	38lm
Red	620nm	635nm	34lm

\*For details on Cree's procedures for sorting, binning and labeling and a list of standard order codes see application note: Cree XLamp 7090 LED Binning and Labeling

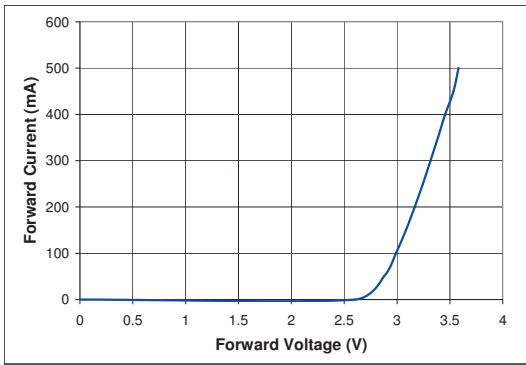
Characteristics	Unit	XLamp 7090
Thermal resistance, junction to solder point	°C/W	17
Maximum forward voltage @ 350mA (white, royal blue, blue, cyan, green)	V	4
Maximum forward voltage @ 350mA (amber, red-orange, red)	V	3
Viewing Angle	degrees	100
Temperature coefficient of voltage (royal blue, blue, cyan, green, white)	mV/°C	-3.0 - -2.8
Temperature coefficient of voltage (amber, red-orange, red)	mV/°C	-3.2 - -3.0
ESD Classification (HBM per Mil-Std-883D)		Class 2

	Unit	XLamp 7090
Maximum DC Forward Current	mA	350
Maximum Reverse Voltage	V	5
Maximum LED Junction Temperature	°C	125
Minimum Operating Temperature	°C	-20
Maximum Operating Temperature	°C	85

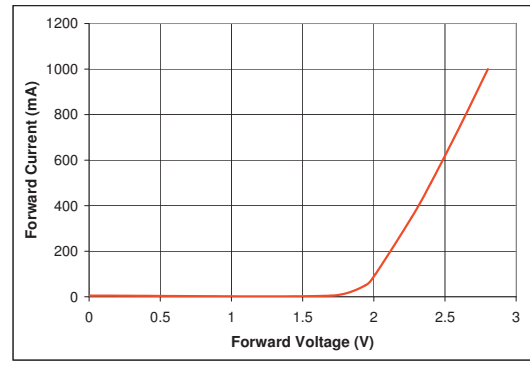
> Relative Spectral Power



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



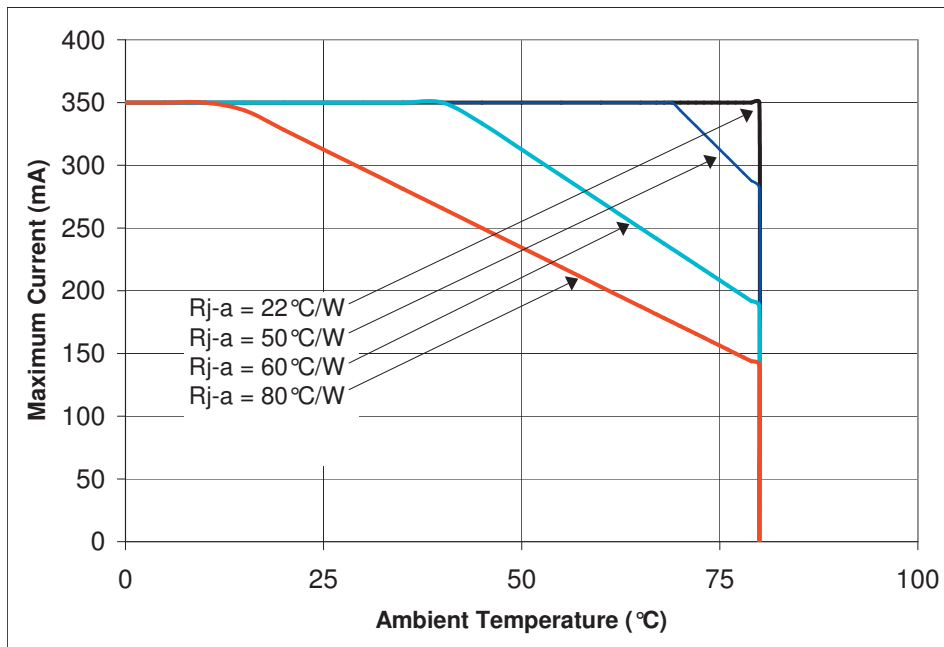
Royal Blue, Blue, Cyan, Green, White



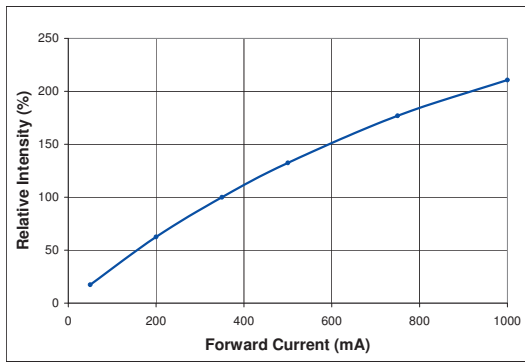
Amber, Red-Orange, Red

## > Thermal Design

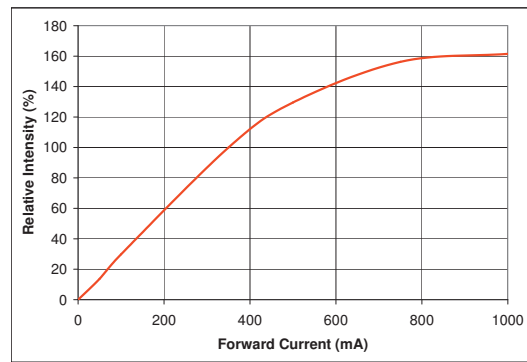
The maximum forward current is determined by the thermal resistance between the LED junction and ambient. Given an existing thermal resistance of  $17^\circ\text{C/W}$  between the junction and the solder point, it is crucial for the end product to be designed in a manner that minimizes the thermal resistance from the solder point to ambient in order to optimize lamp life and optical characteristics.



> Relative Intensity vs. Current,  $T_A = 25^\circ\text{C}$

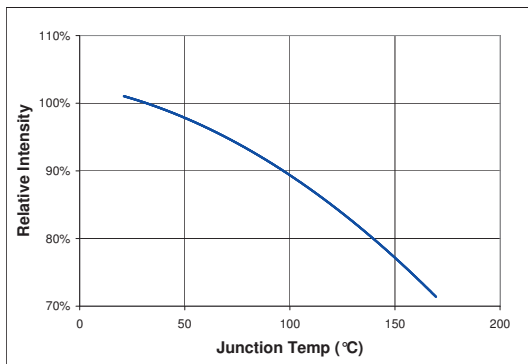


Royal Blue, Blue, Cyan, Green, White

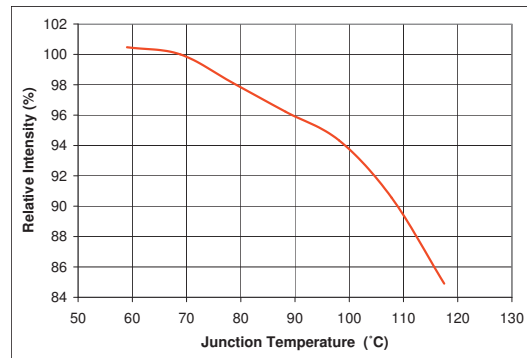


Amber, Red-Orange, Red

> Relative Intensity vs. Junction Temperature,  $I_f = 350\text{mA}$



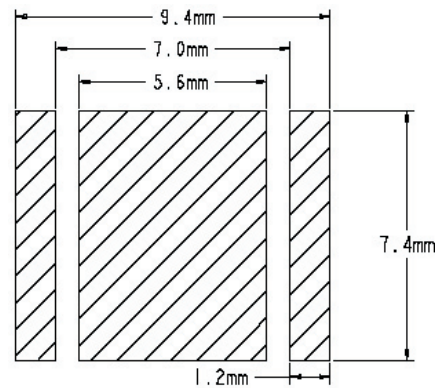
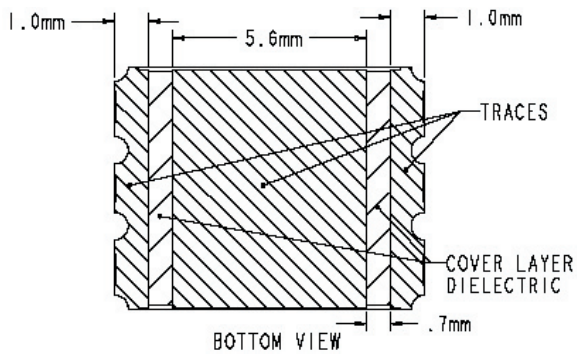
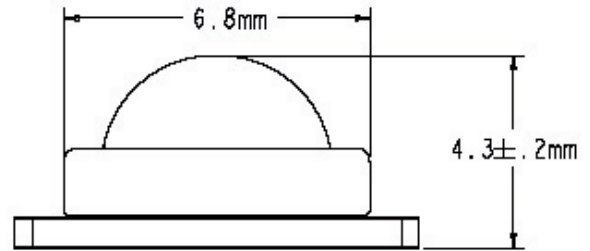
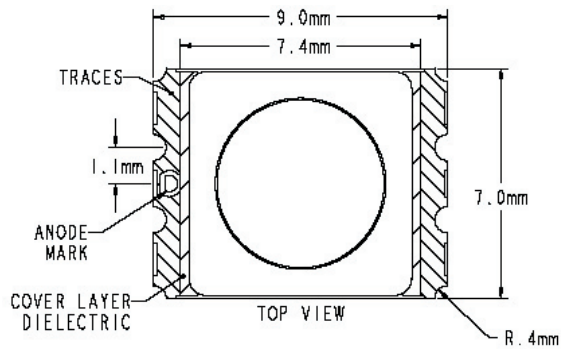
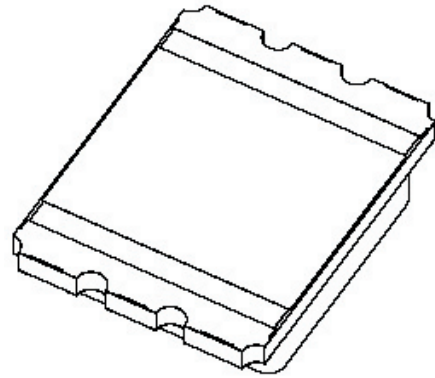
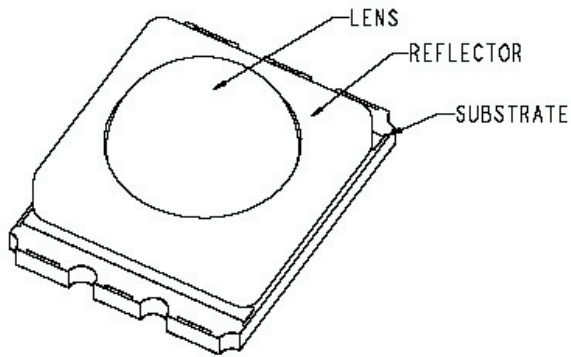
Royal Blue, Blue, Cyan, Green, White



Amber, Red-Orange, Red

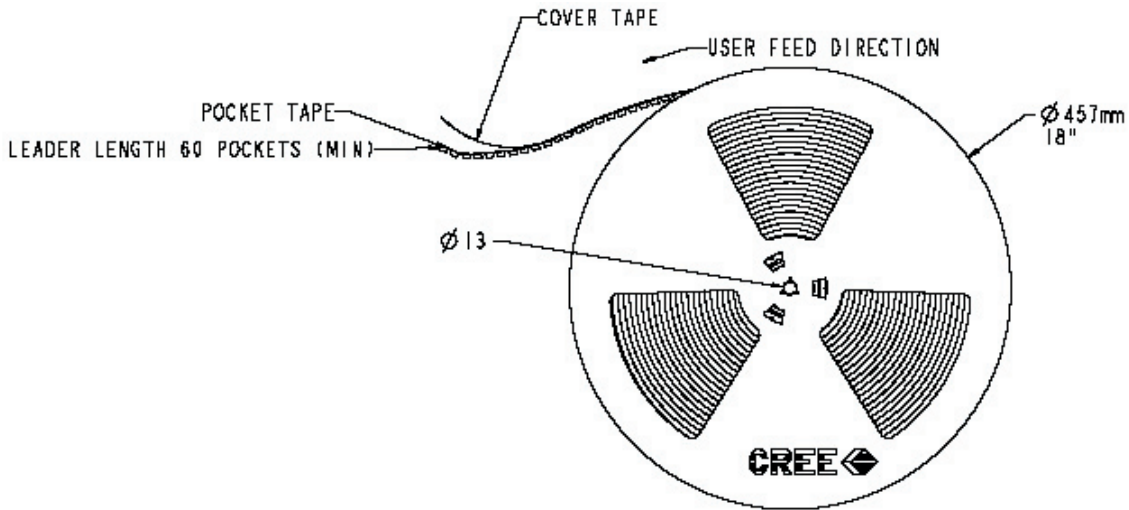
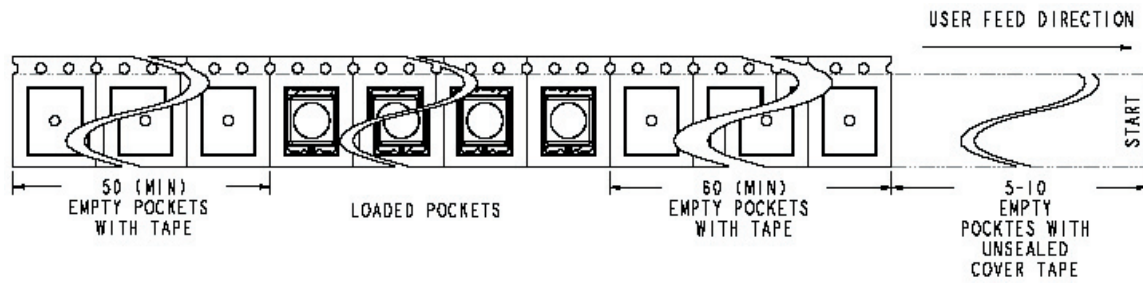
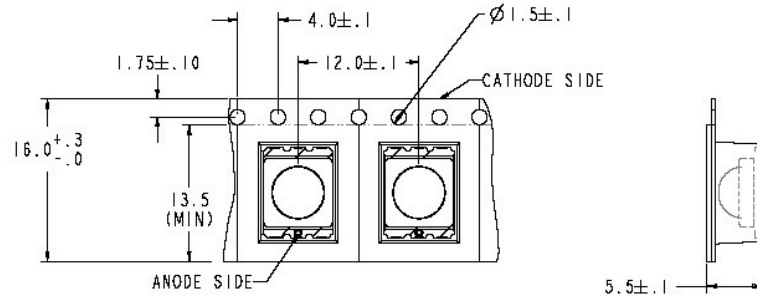
## > Mechanical Dimensions

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

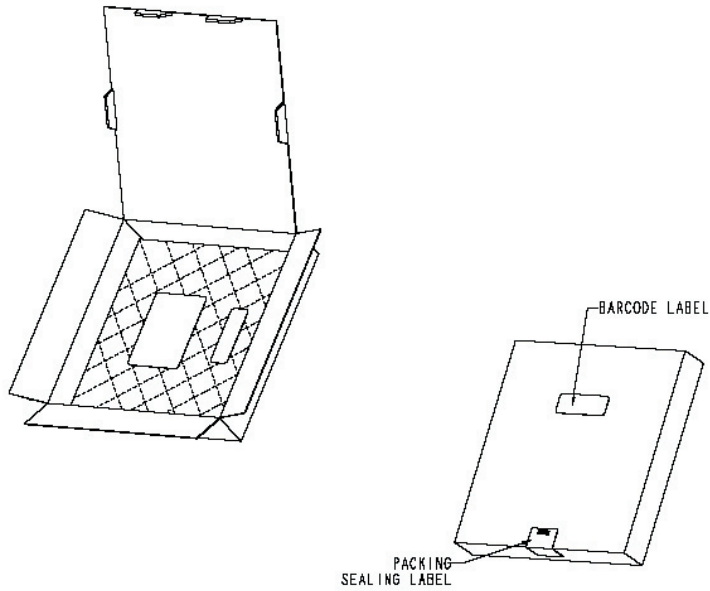
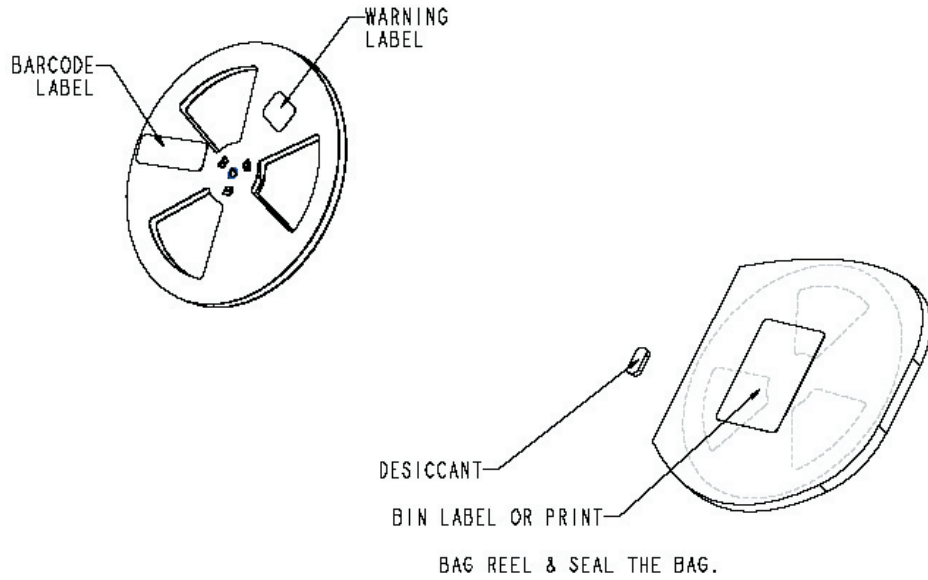


> Tape and Reel

All dimensions in mm.



> Dry Packing and Packaging



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