

Cree® XLamp™ 7090 UVV LEDs

Benefits

Cree XLamp 7090 UVV LEDs provide:

- Industry's most powerful 1-watt package.
- Maximum operating life.
- Easy integration with secondary optics.
- Small footprint — 7 mm x 9 mm.
- ESD > 2000V.
- Designed for automated assembly and reflow.
- Available on reels for high-volume assembly.

**Absolute
Maximum
Ratings**

	Unit	
DC Forward Current	mA	350
Reverse Voltage	V	See Note*
LED Junction Temperature	°C	125
Storage Temperature	°C	-20 to +100
Operating Temperature	°C	-20 to +80
ESD Classification (HBM per Mil-Std-883D)		Class 2

Color	Max Forward Voltage (Volts)	Thermal Resistance, junction to solder point Typical (°C/W)	Radiant Flux (mW) Typical 350 mA
UVV	4.0	17	200

Color	Peak Wavelength Range (nm)	
	Min.	Max.
UVV	390	410

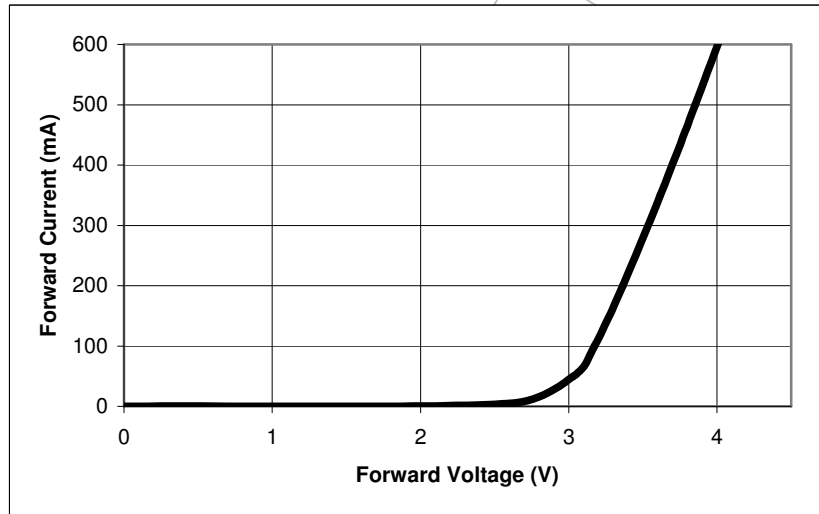
Note: Temperature coefficient of Voltage: -2.8-3.0 mV/°C

Heat management is critical when designing LED-based applications. The coefficient of temperature increase per input of electric power at room temperature is about .05°C/mW at the LED's active layer or higher when LEDs are densely mounted. Operating current should be decided after considering the ambient maximum temperature when the LEDs are operating.

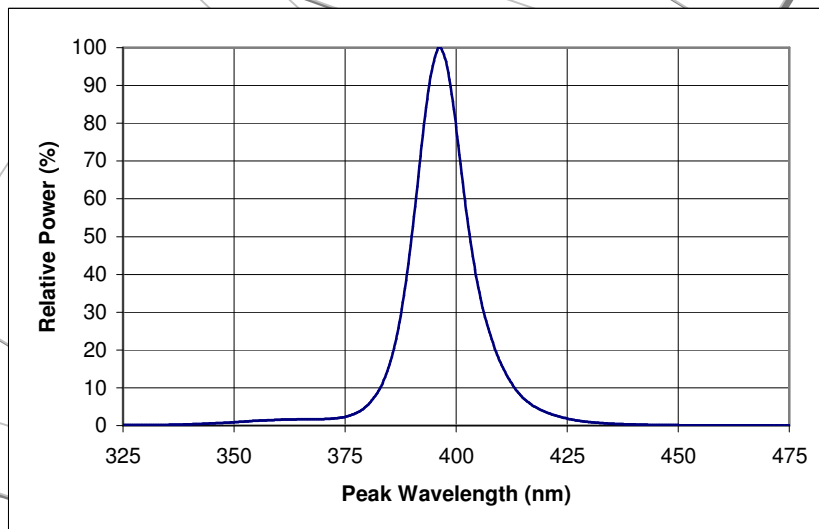
***Note: XLamp 7090 UVV LEDs should never be operated with reverse bias.**

Electrical Characteristics

Forward
Current vs.
Forward
Voltage
 $T_A = 25^\circ\text{C}$

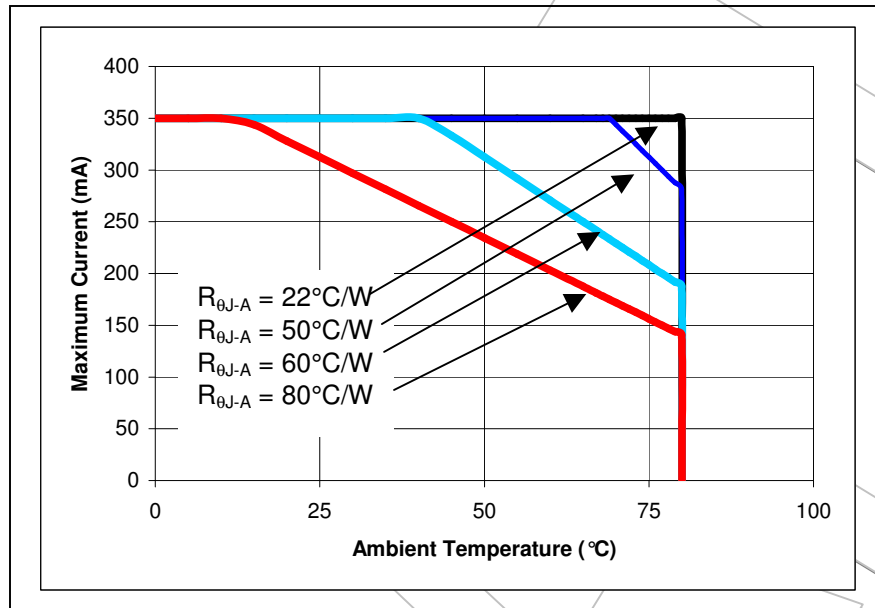


Relative
Power vs.
Peak
Wavelength
 $T_A = 25^\circ\text{C}$
 $I_f = 350\text{mA}$



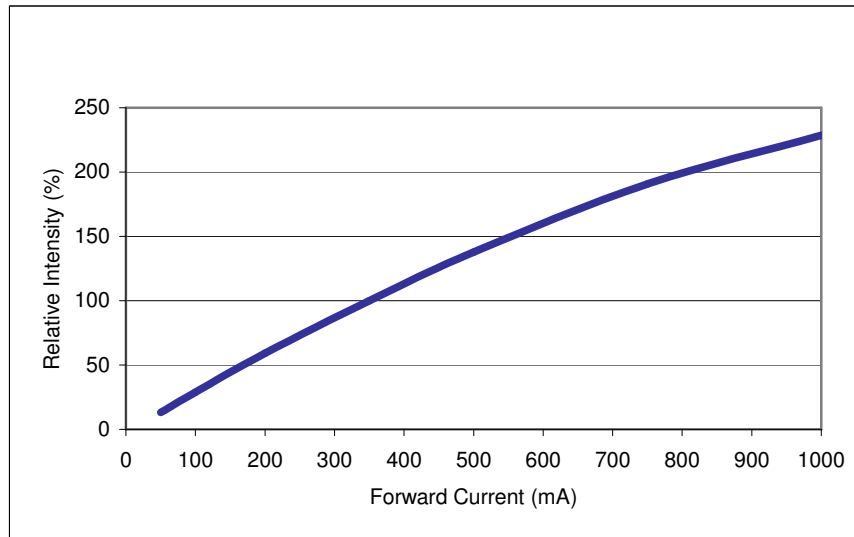
Thermal Design

The maximum forward current is determined by the thermal resistance between the LED junction and ambient. Given an existing thermal resistance of 17 °C/W between the junction and solder point, it is crucial for the application design to minimize the thermal resistance from solder point to ambient in order to optimize lamp life and optical characteristics.

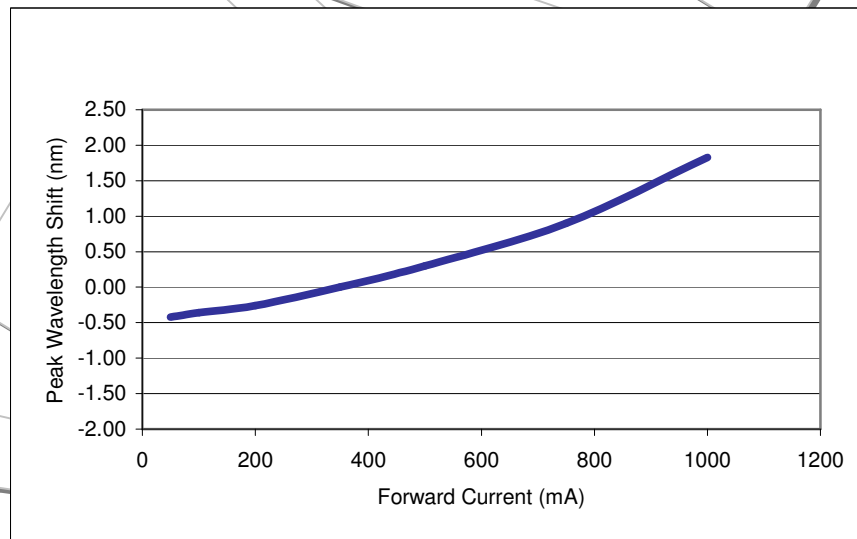


Optical Characteristics

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

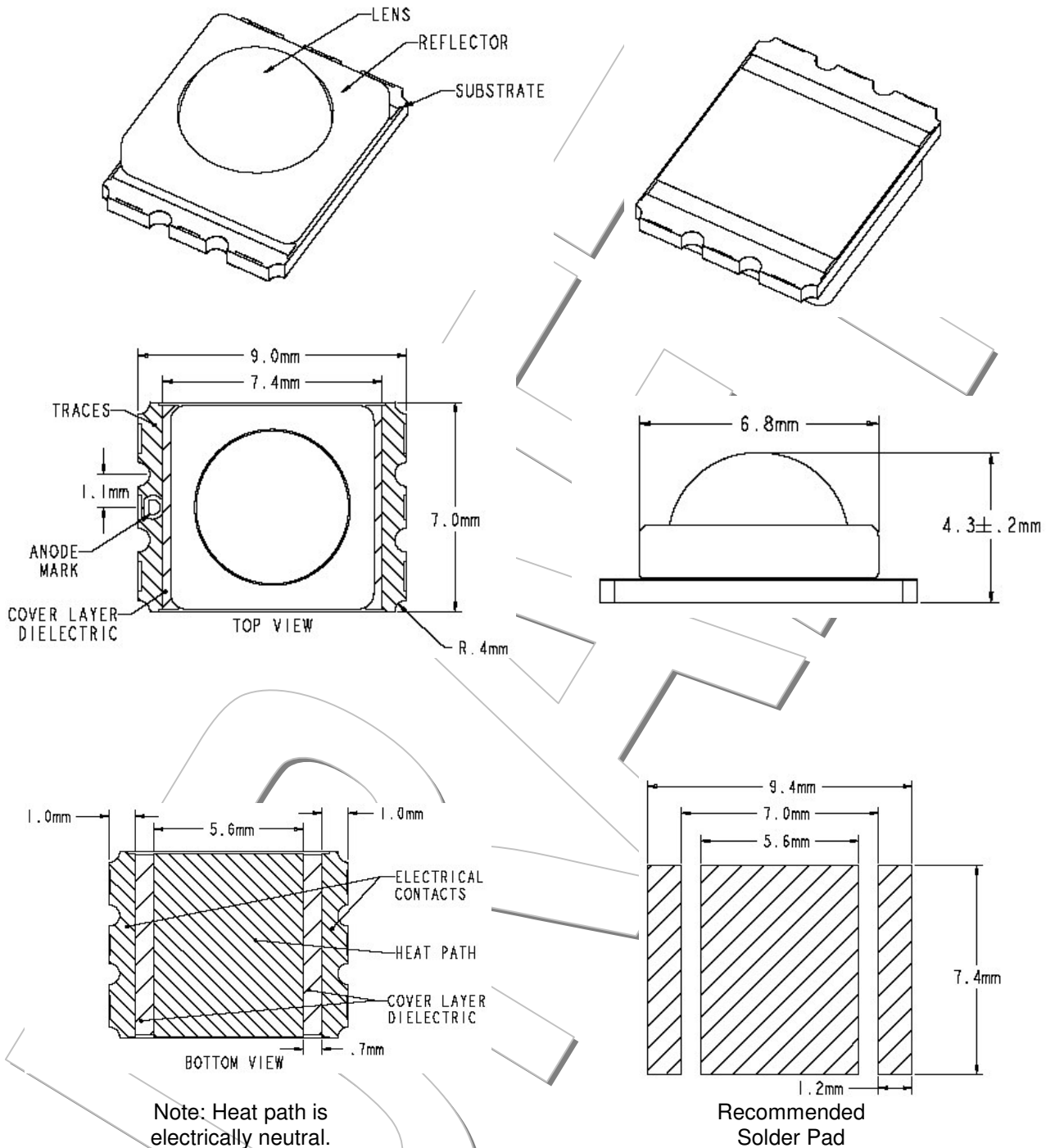


Peak Wavelength Shift vs. Current
 $T_A = 25^\circ\text{C}$



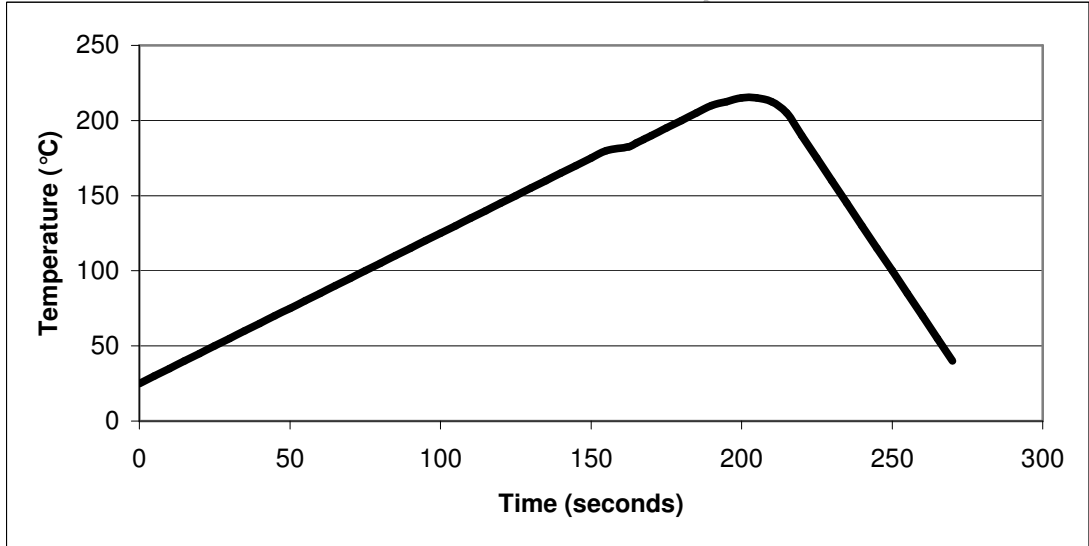
Mechanical Dimensions

All measurements are $\pm .1\text{mm}$ unless otherwise indicated

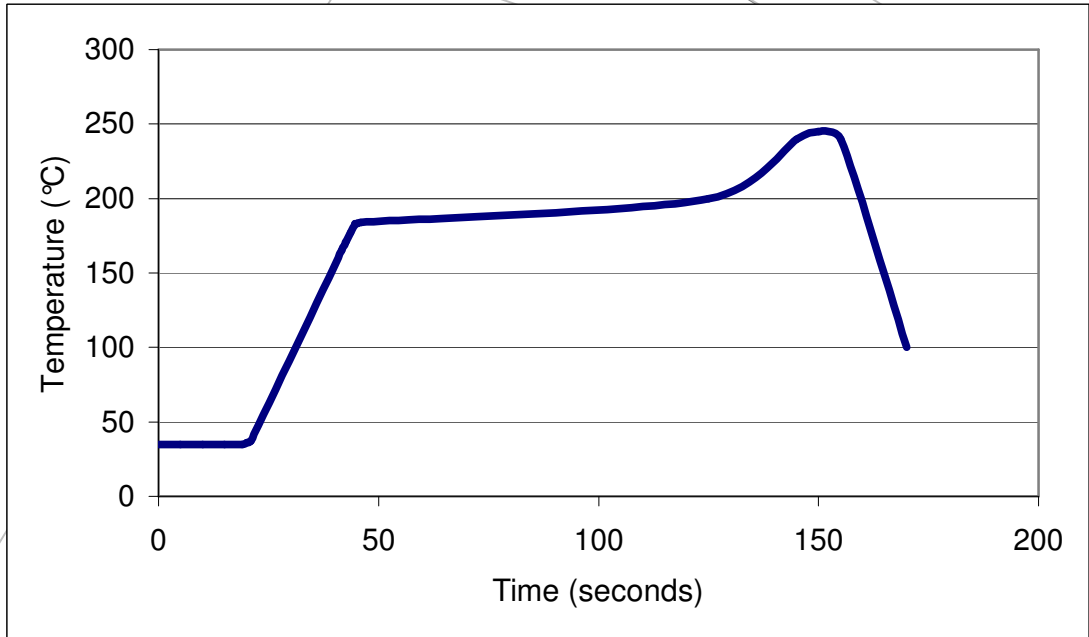


Soldering

Common IR
reflow solder
profile
(peak at
215°C)

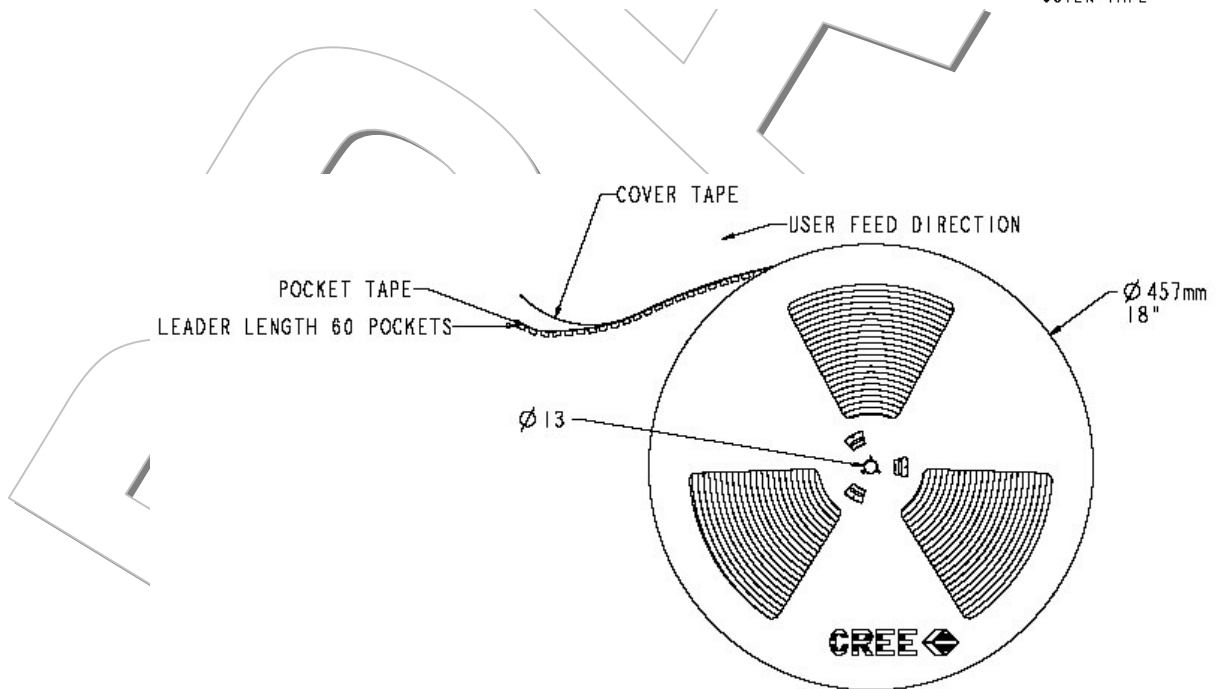
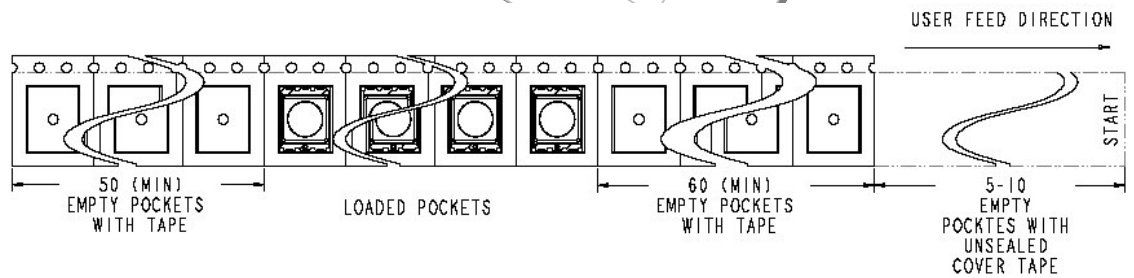
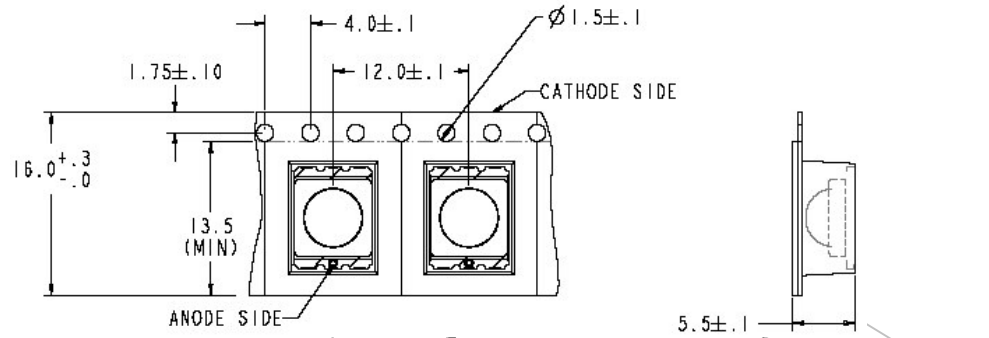


Common
Pb-free IR
reflow profile

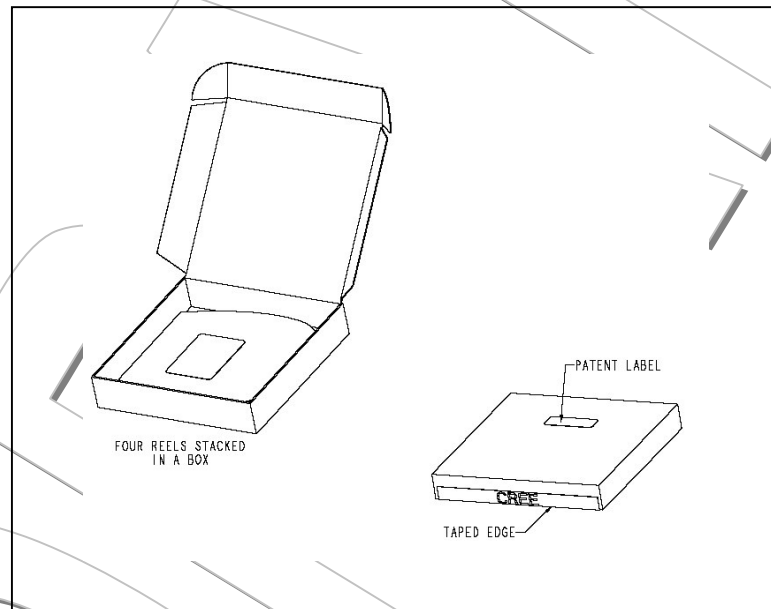
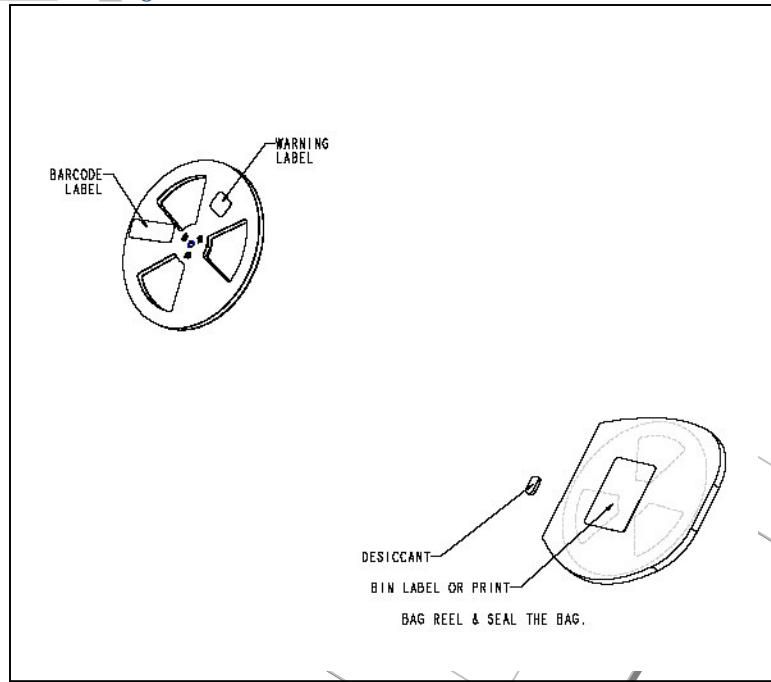


Packaging

Tape and Reel
(Dimensions
in mm)



Dry Packing
and Packaging



CAUTION!

XLamp™ 7090 UVV LEDs EMIT ULTRAVIOLET RADIATION!

These devices radiate intense ultraviolet (UV) light when operated. Most of the UV light emitted is not visible.

Exposure to UV radiation can be harmful to your health. Protect your eyes and skin during operation.

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