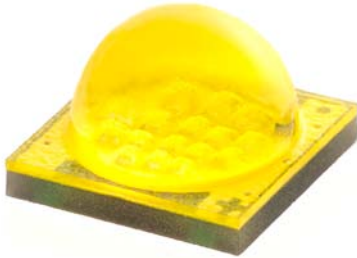


Preliminary

Cree® XLamp® XM-L HVW LEDs



PRODUCT DESCRIPTION

The XLamp XM-L LED is a new and unreleased product. This preliminary data sheet contains initial operational information about this product.

FEATURES

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FLUX CHARACTERISTICS (T_j = 85 °C)

The following table provides several base order codes for XLamp XM-L LEDs. It is important to note that the base order codes listed here are a subset of the total available order codes for the product family. For more order codes, as well as a complete description of the order-code nomenclature, please consult the XLamp XM-L Binning and Labeling document.

Color	CCT Range		Base Order Codes Min Luminous Flux @ 44 mA (lm)		Order Code
	Min.	Max.	Group	Flux (lm)	
Cool White	5,000 K	8,300 K	T3	220	XMLHVW-Q0-0000-0000LT351
			T4	240	XMLHVW-Q0-0000-0000LT451
Neutral White	3,700 K	5,000 K	S6	182	XMLHVW-Q0-0000-0000LS6E5
			T2	200	XMLHVW-Q0-0000-0000LT2E5
Warm White	2,600 K	3,700 K	S5	172	XMLHVW-Q0-0000-0000LS5E7
			S6	182	XMLHVW-Q0-0000-0000LS6E7

Notes:

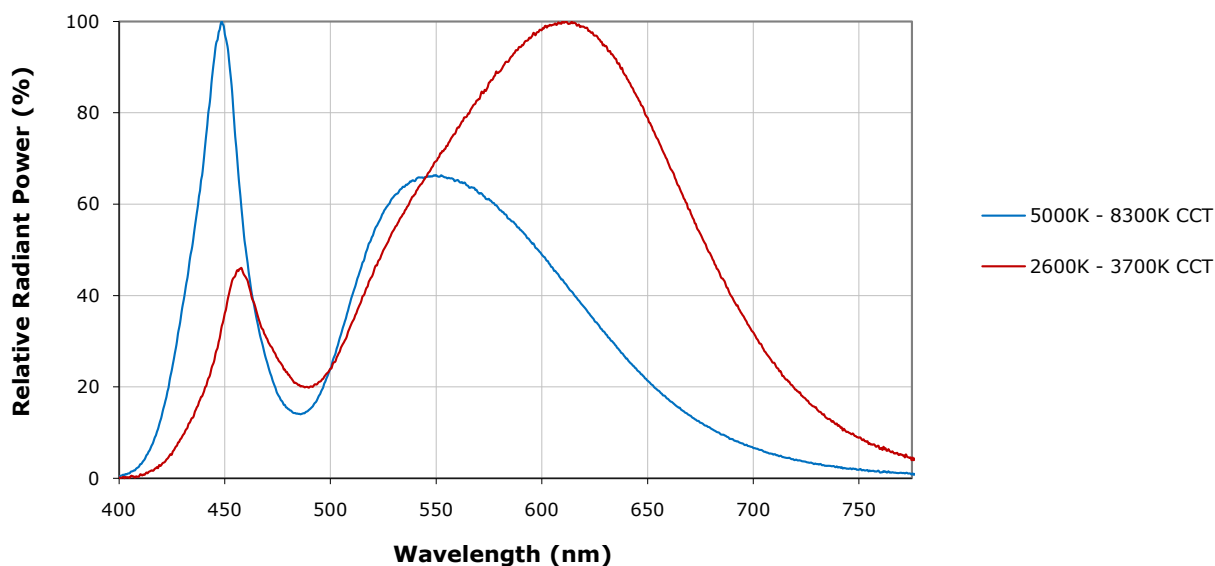
- Cree maintains a tolerance of $\pm 7\%$ on flux and power measurements and ± 2 on CRI measurements .
- Typical CRI for Cool White (5,000 K – 8,300 K CCT) is 68.
- Typical CRI for Neutral White (3,700 K – 5,000 K CCT) is 75.
- Typical CRI for Warm White (2,600 K – 3,700 K CCT) is 82.

CHARACTERISTICS

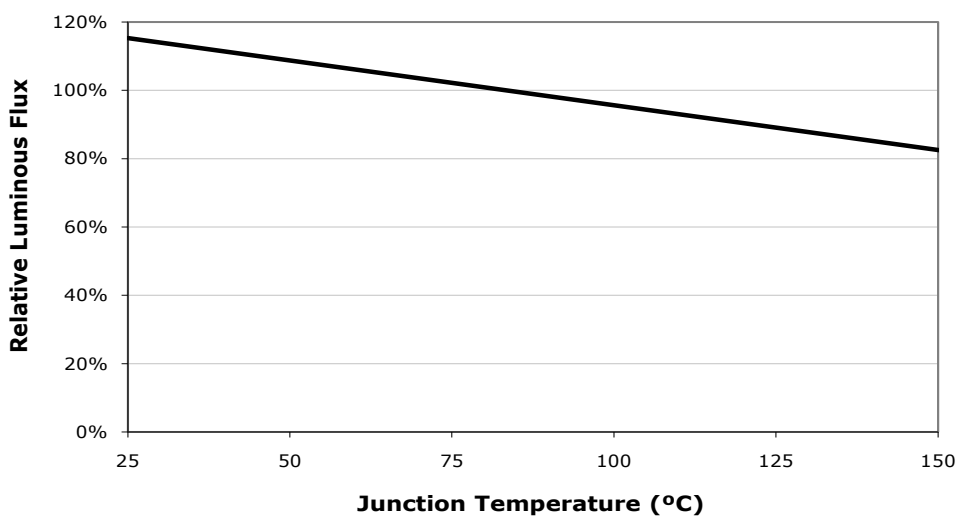
Characteristics	Unit	Minimum	Typical	Maximum
Thermal Resistance, junction to solder point	°C/W		3.5	
Viewing Angle (FWHM)	degrees		115	
Temperature coefficient of voltage	mV/°C		-35	
ESD Classification (HBM per Mil-Std-883D)			Class 2	
DC Forward Current	mA			125
Reverse Current	mA			0.1
Forward voltage (@ 44 mA, 85 °C)	V		46	55
LED Junction Temperature	°C			150

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RELATIVE SPECTRAL POWER DISTRIBUTION

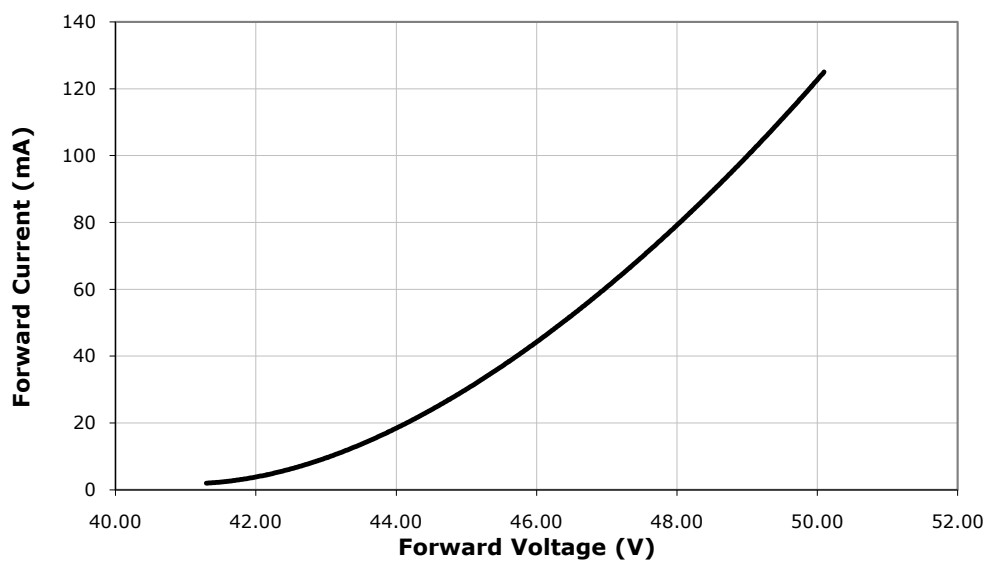


RELATIVE FLUX VS. JUNCTION TEMPERATURE ($I_F = 44$ MA)

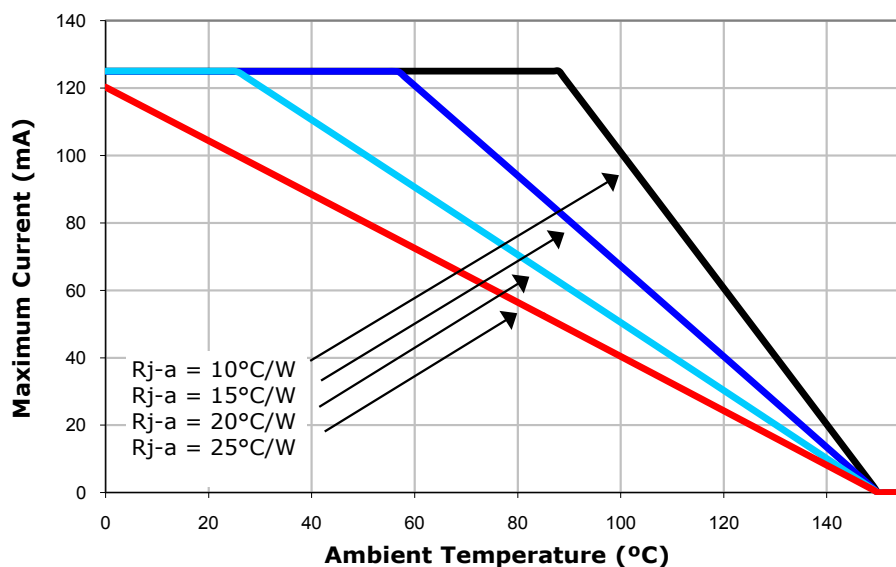


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ELECTRICAL CHARACTERISTICS ($T_j = 85^\circ\text{C}$)

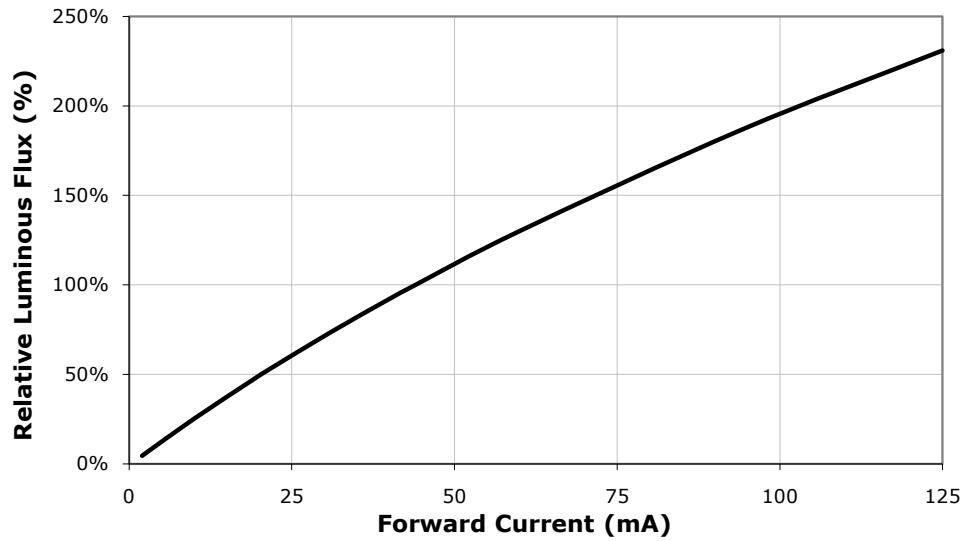


THERMAL DESIGN

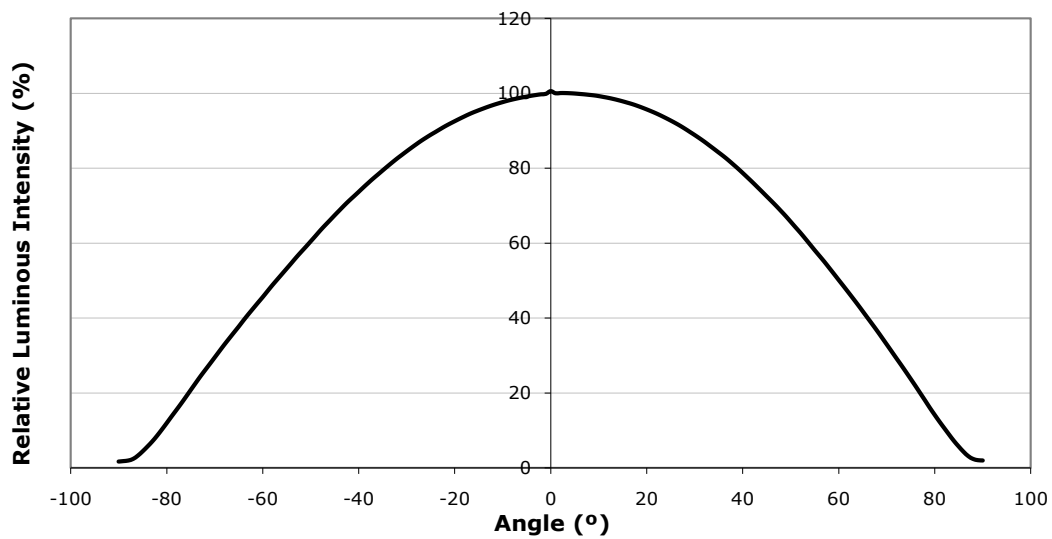


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RELATIVE FLUX VS. CURRENT ($T_j = 85^\circ\text{C}$)



TYPICAL SPATIAL DISTRIBUTION

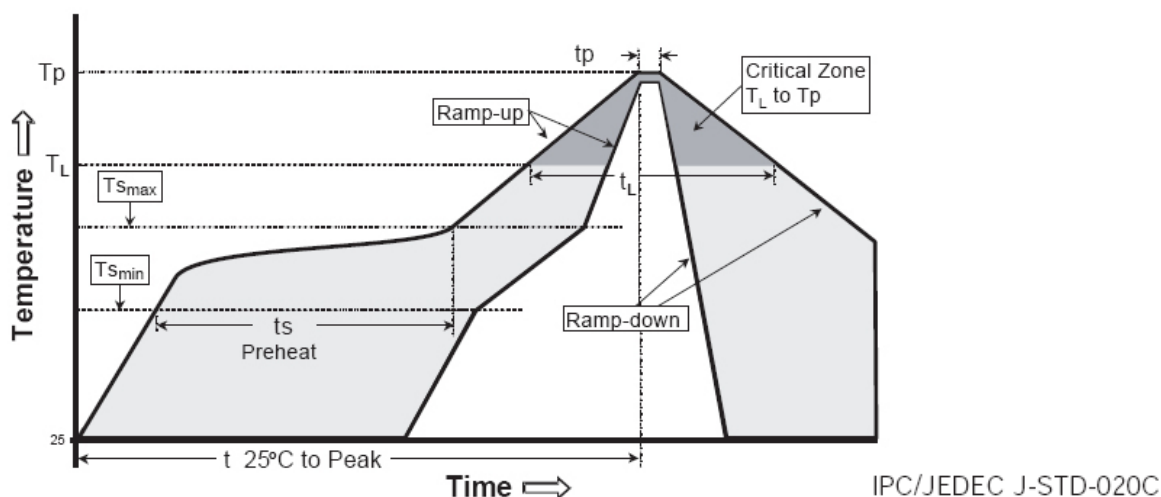


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REFLOW SOLDERING CHARACTERISTICS

In testing, Cree has found XLamp XM-L LEDs to be compatible with JEDEC J-STD-020C, using the parameters listed below. As a general guideline, Cree recommends that users follow the recommended soldering profile provided by the manufacturer of the solder paste used.

Note that this general guideline may not apply to all PCB designs and configurations of reflow-soldering equipment.



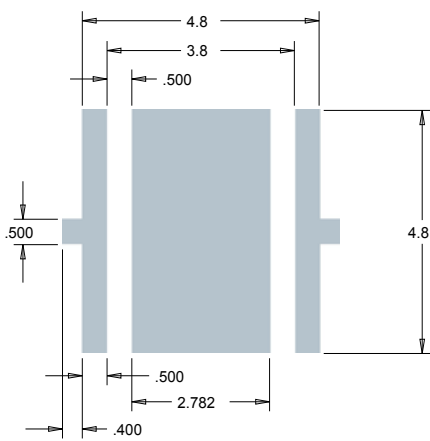
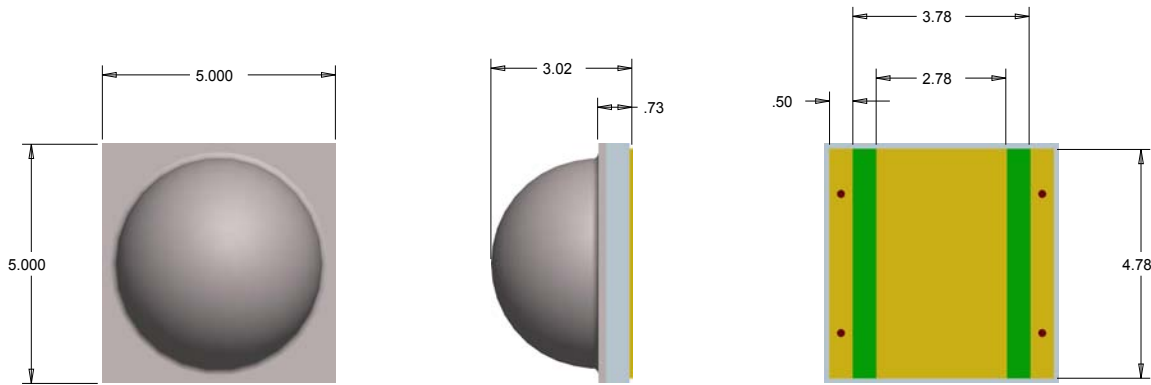
Profile feature	Lead-based solder	Lead-free solder
Average ramp-up rate ($T_{S_{MAX}}$ to T_p)	3 °C/second max	3 °C/second max
Preheat: Temperature min ($T_{S_{MIN}}$)	100 °C	150 °C
Preheat: Temperature max ($T_{S_{MAX}}$)	150 °C	200 °C
Preheat: Time ($t_{S_{MIN}}$ to $t_{S_{MAX}}$)	60-120 seconds	60-180 seconds
Time maintained above: temperature (T_L)	183 °C	217 °C
Time maintained above: time (t_L)	60-150 seconds	60-150 seconds
Peak/classification temperature (T_p)	215 °C	260 °C
Time within 5 °C of actual peak temperature (t_p)	10-30 seconds	20-40 seconds
Ramp-down rate	6 °C/second max	6 °C/second max
Time 25 °C to peak temperature	6 minutes max	8 minutes max

Note: All temperatures refer to topside of the package, measured on the package body surface.

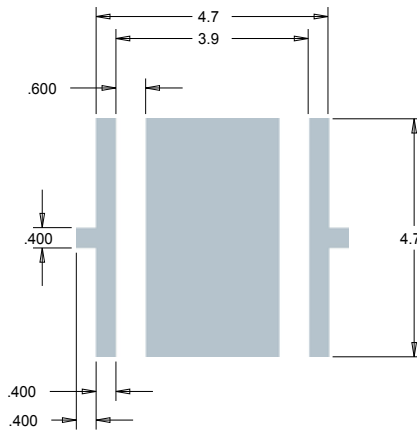
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MECHANICAL DIMENSIONS

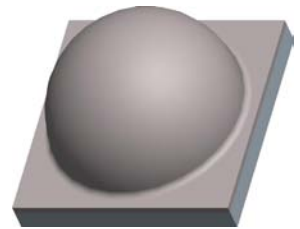
All measurements are $\pm .13$ mm unless otherwise indicated.



RECOMMENDED PCB SOLDER PAD



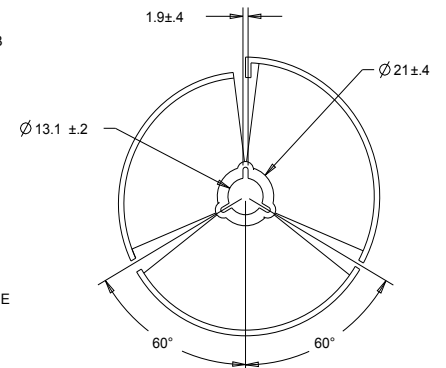
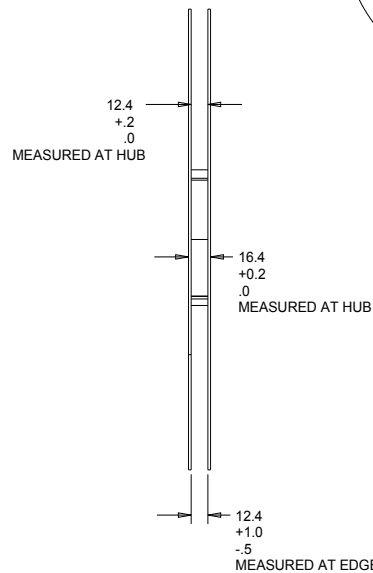
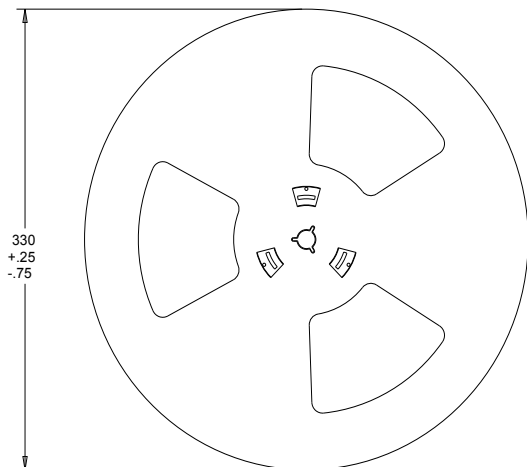
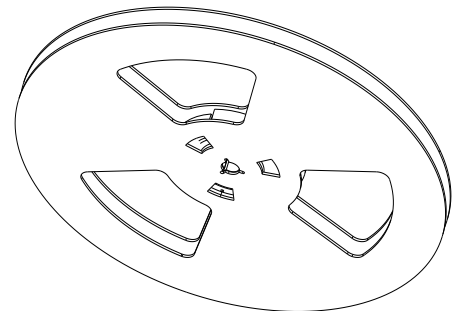
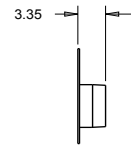
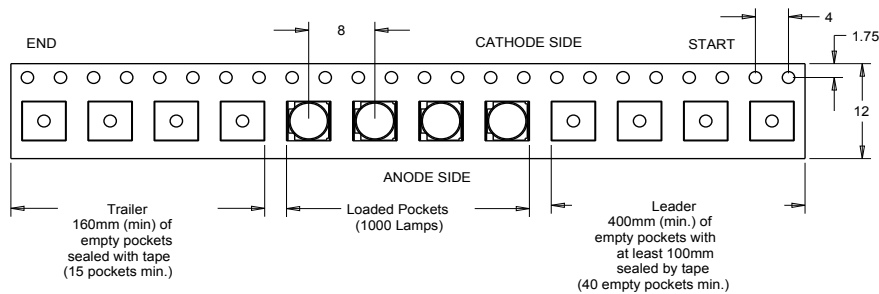
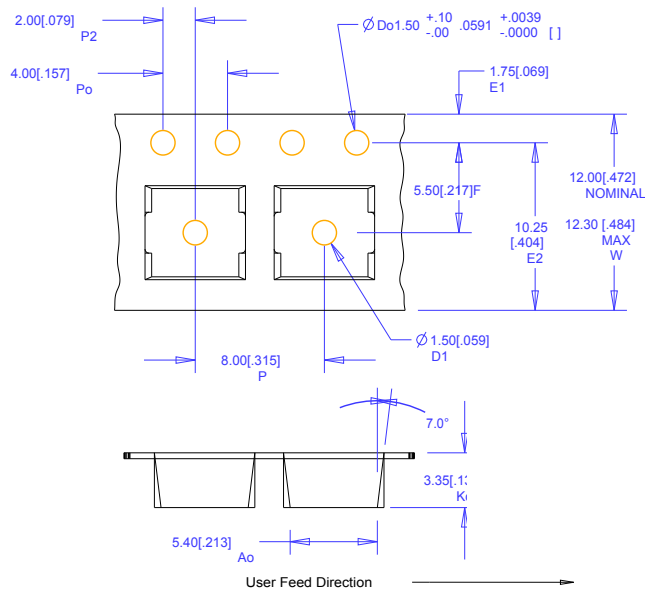
RECOMMENDED STENCIL PATTERN
SHADED AREA IS OPEN



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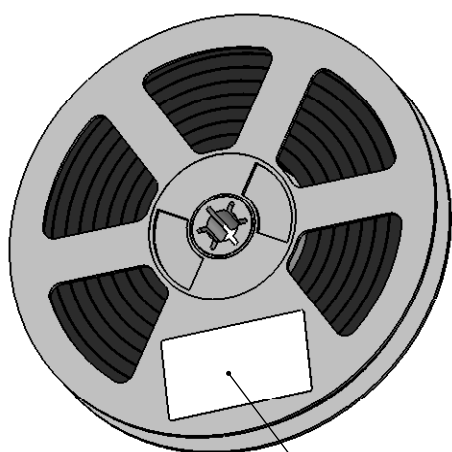
TAPE AND REEL

All dimensions in mm.

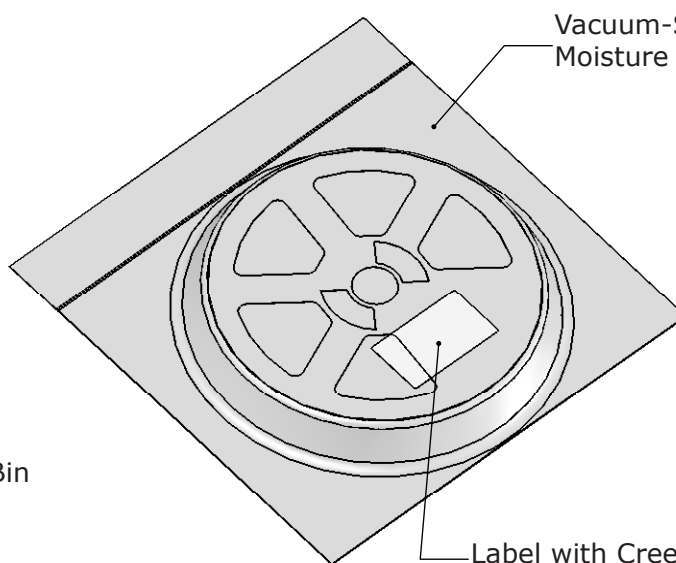


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PACKAGING

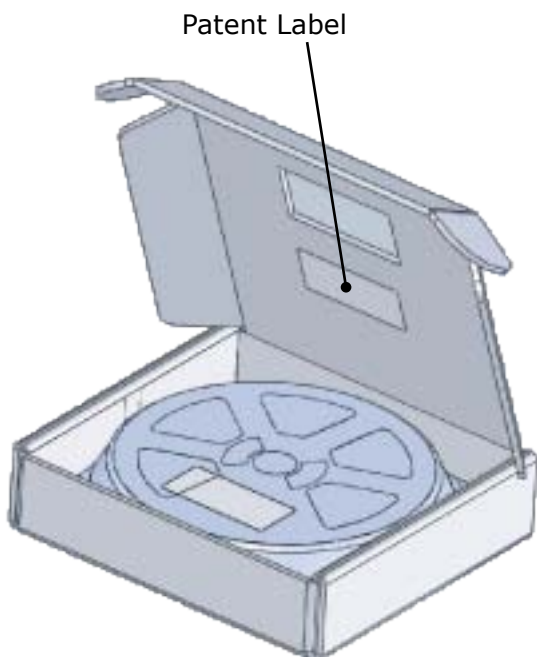


Label with Cree Bin Code, Qty, Lot #

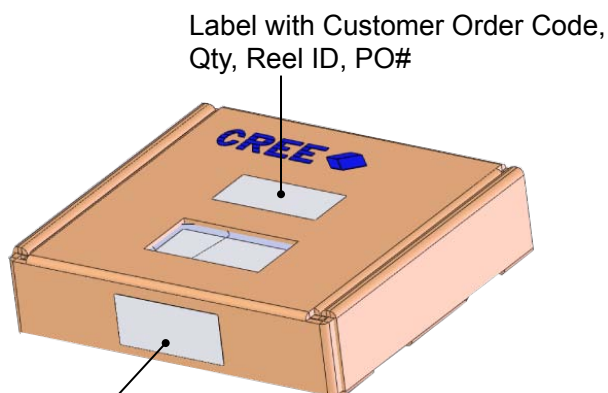


Vacuum-Sealed Moisture Barrier Bag

Label with Cree Bin Code, Qty, Lot #



Patent Label



Label with Customer Order Code, Qty, Reel ID, PO#

Label with Cree Bin Code, Qty, Lot #