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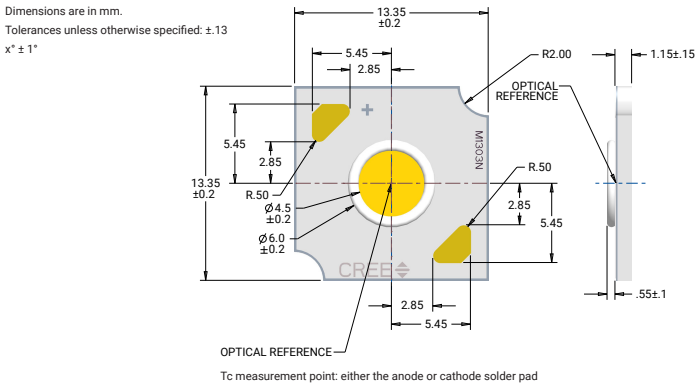
COB LED-Platine 6.5W 700mA 3000K
Artikel-Nr. EG1303930

MECHANICAL DIMENSIONS



PRODUCT DESCRIPTION

Cree's XLamp® High-Current LED Array family is optimized for best-in-class lumen output, efficacy and reliability at high drive currents. XLamp CMA LEDs share the same package design and LES sizes as Cree's industry-leading CXA2 Standard Density LEDs, enabling lighting manufacturers to address a range of performance requirements for applications such as track, downlight and outdoor lighting using a single easy-to-use platform. XLamp High-Current LED Arrays are available in 2-step, 3-step and 5-step EasyWhite® bins.

FEATURES

- 4.5-mm optical source
- Mechanical and optical design consistent with CXA13 and CXB13 LEDs
- Cree EasyWhite® 2-, 3- and 5-step binning
- Premium Color 2- and 3-step binning
- Standard & Premium Color LEDs available in 70, 80, 90 and 95 CRI minimum options
- Forward voltage options: 9-V class, 18-V class & 36-V class
- 85 °C binning and characterization
- Maximum drive current: 1400 mA (9 V), 700 mA (18 V), 350 mA (36 V)
- 116° viewing angle, uniform chromaticity profile
- Top-side solder connections
- RoHS compliant

CHARACTERISTICS

Characteristics	Unit	Minimum	Typical	Maximum
Viewing angle (FWHM)	degrees		116	
ESD withstand voltage (JEDEC JS-001-2012)			Class 3A	
DC forward current (9 V)	mA			1400*
DC forward current (18 V)	mA			700*
DC forward current (36 V)	mA			350*
Reverse current	mA			0.1
Forward voltage (9 V, 700 mA, 85 °C)	V		9.35	10.675
Forward voltage (18 V, 350 mA, 85 °C)	V		18.7	21.35
Forward voltage (36 V, 175 mA, 85 °C)	V		37.4	42.7

* Refer to the Operating Limits section.

FLUX CHARACTERISTICS, ORDER CODES & BINS - STANDARD LEDS - 9 V (I_F = 700 mA, T_J = 85 °C)

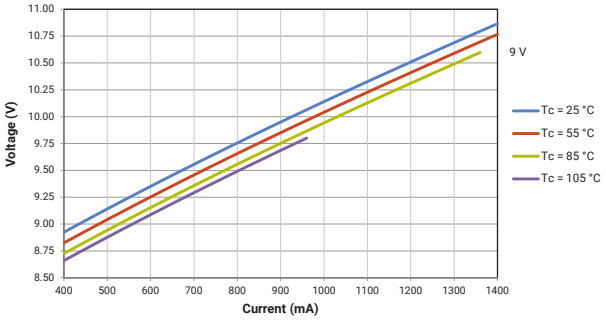
The following table provides order codes for XLamp CMA1303 LEDs. For a complete description of the order code nomenclature, please see the Bin and Order Code Formats section (page 25).

Nominal CCT	CRI		Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)
	Min.	Typ		
3000 K	90	92	626	659

3-Step	
30G	CMA1303-0000-000C0U0A30G

ELECTRICAL CHARACTERISTICS

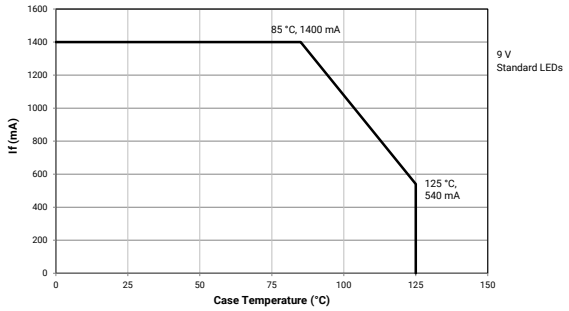
The following graphs are the result of a series of steady-state measurements.



OPERATING LIMITS

The maximum current rating of the CMA1303 depends on the case temperature (Tc) when the LED has reached thermal equilibrium under steady-state operation. The graph shown below assumes that the system design employs good thermal management (thermal interface material and heat sink) and may vary when poor thermal management is employed. Either solder pad shown in the Mechanical Dimensions section on page 26 can be used as the Tc measurement point.

Another important factor in good thermal management is the temperature of the Light Emitting Surface (LES). Cree recommends a maximum LES temperature of 140 °C to ensure optimal LED lifetime. Please refer to the Thermal Design section on page 27 for more information on LES temperature measurement.

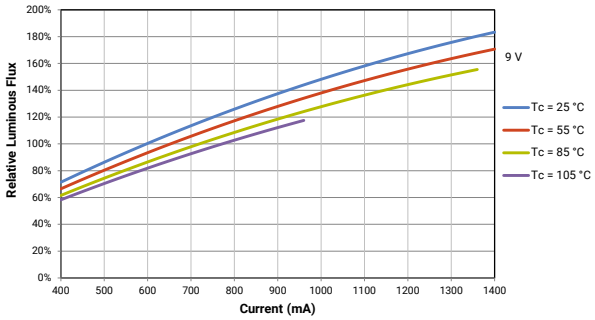


RELATIVE LUMINOUS FLUX

The relative luminous flux values provided below are the ratio of:

- Measurements of CMA1303 at steady-state operation at the given conditions, divided by
- Flux measured during binning, which is a pulsed measurement at 700 mA at T_J = 85 °C for the 9-V CMA1303 LED.

Using the 9-V CMA1303 LED as an example, at steady-state operation of Tc = 25 °C, I_F = 900 mA, the relative luminous flux ratio is 140% in the chart below. A 9-V CMA1303 LED that measures 860 lm during binning will deliver 1204 lm (860 * 1.4) at steady-state operation of Tc = 25 °C, I_F = 900 mA.



THERMAL DESIGN

The CMA family of LED arrays can include over a hundred different LED die inside one package, and thus over a hundred different junction temperatures (T_J). Cree has intentionally removed junction-temperature-based operating limits and replaced the commonplace maximum T_J calculations with maximum ratings based on forward current (I_F) and case temperature (Tc). No additional calculations are required to ensure that the CMA LED is being operated within its designed limits. LES temperature measurement provides additional verification of good thermal design. Please refer to page 4 for the Operating Limit specifications.

There is no need to calculate for T_J inside the package, as the thermal management design process, specifically from solder point (T_{SP}) to ambient (T_a), remains identical to any other LED component. For more information on thermal management of Cree XLamp LEDs, please refer to the Thermal Management application note. For CMA soldering recommendations and information on thermal interface materials (TIM), LES temperature measurement, and connection methods, please refer to the Cree XLamp CM Family LEDs soldering and handling document.

To keep the CMA1303 LED at or below the maximum rated Tc, the case to ambient temperature thermal resistance (R_c-a) must be at or below the maximum R_c-a value shown on the following graphs, depending on the operating environment. The y-axis in each graph is a base 10 logarithmic scale.

As the figure at right shows, the R_c-a value is the sum of the thermal resistance of the TIM (R_tim) plus the thermal resistance of the heat sink (R_hs).