

XLamp® CXB3050 Pro9™ LED



PRODUCT DESCRIPTION

The XLamp CXB Standard Density LED family delivers excellent efficacy at lower drive currents, as well as the highest level of reliability for COB LEDs through Cree LED's expertise in ceramic substrates. Featuring a full range of LES sizes, color options and performance levels, the CXB family provides an easy upgrade path for existing CXA family-based designs.

Pro9™ version LEDs deliver up to 15% higher efficacy for 90 and 95 color rendering index (CRI) over standard version LEDs without sacrificing color rendering quality. Pro9 LEDs feature the industry's highest operating temperature rating of 105 °C and the same maximum current as the standard versions. In addition, all Pro9 LEDs share the same mechanical and electrical characteristics as the standard versions.

FEATURES

- 23-mm optical source
- Mechanical and optical design consistent with other CXA30 and CXB30 LEDs
- EasyWhite® 2- and 3-step binning
- Premium Color 2- and 3-step binning
- Pro9 LEDs available in 90 and 95 CRI minimum options
- Forward voltage option: 36-V class
- 85 °C binning and characterization
- Extremely uniform color over viewing angle
- Top-side solder connections
- Thermocouple attach point

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CHARACTERISTICS

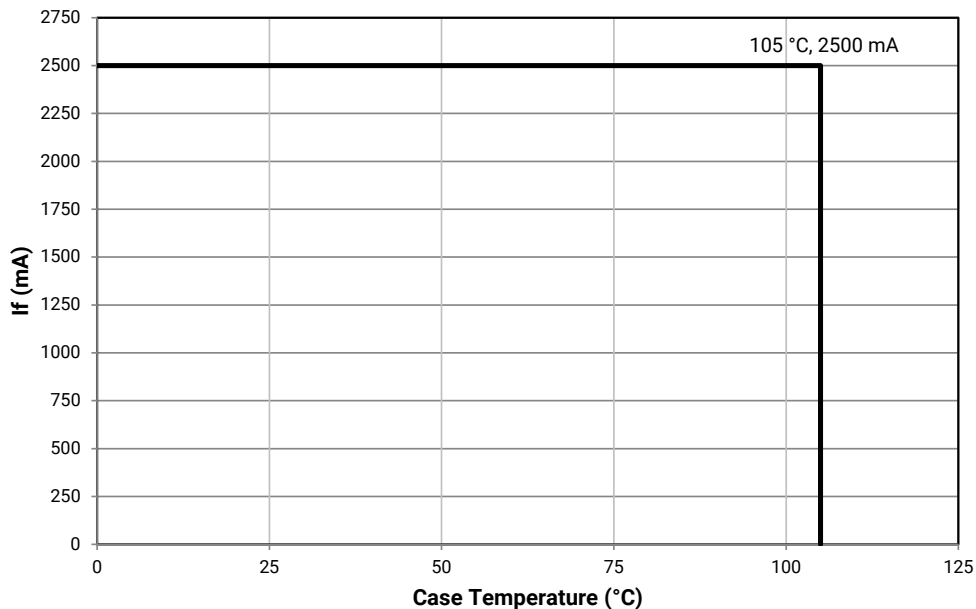
Characteristics	Unit	Minimum	Typical	Maximum
Viewing angle (FWHM)	degrees		115	
ESD withstand voltage (HBM per Mil-Std-883D)	V			8000
DC forward current	mA			2500*
Reverse current	mA			0.1
Forward voltage (@ 1400 mA, T _j = 85 °C)	V		34	36

* Refer to the Operating Limits section.

OPERATING LIMITS

The maximum current rating of the CXB3050 Pro9 LED depends on the case temperature (T_c) 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. Please refer to the Mechanical Dimensions section on page 13 for the location of the T_c measurement point.

Another important factor in good thermal management is the temperature of the Light Emitting Surface (LES). Cree LED recommends a maximum LES temperature of 135 °C to ensure optimal LED lifetime. Please refer to the Thermal Design section on page 14 for more information on LES temperature measurement.



FLUX CHARACTERISTICS, EASYWHITE® ORDER CODES AND BINS (I_F = 1400 mA, T_J = 85 °C)

The following tables provide order codes for XLamp CXB3050 Pro9 LEDs. For a complete description of the order code nomenclature, please see the Bin and Order Code Formats section (page 13).

Nominal CCT	CRI*		Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)	2-Step		3-Step	
	Min.	Typ			Group	Order Code	Group	Order Code
5000 K	90	92	7125	7917			50G	CXB3050-0000-00PN0U0A50G
4000 K	90	92	7345	8161	40H	CXB3050-0000-00PN0U0A40H	40G	CXB3050-0000-00PN0U0A40G
	95	98	6611	7345	40H	CXB3050-0000-00PN0Z0A40H		
3500 K	90	92	7177	7974	35H	CXB3050-0000-00PN0U0A35H	35G	CXB3050-0000-00PN0U0A35G
	95	98	6459	7177	35H	CXB3050-0000-00PN0Z0A35H		
3000 K	90	92	7035	7817	30H	CXB3050-0000-00PN0U0A30H	30G	CXB3050-0000-00PN0U0A30G
	95	98	6191	6879	30H	CXB3050-0000-00PN0Z0A30H		
2700 K	90	92	6812	7569	27H	CXB3050-0000-00PN0U0A27H	27G	CXB3050-0000-00PN0U0A27G
	95	98	6131	6812	27H	CXB3050-0000-00PN0Z0A27H		

FLUX CHARACTERISTICS, PREMIUM ORDER CODES AND BINS (I_F = 1400 mA, T_J = 85 °C)

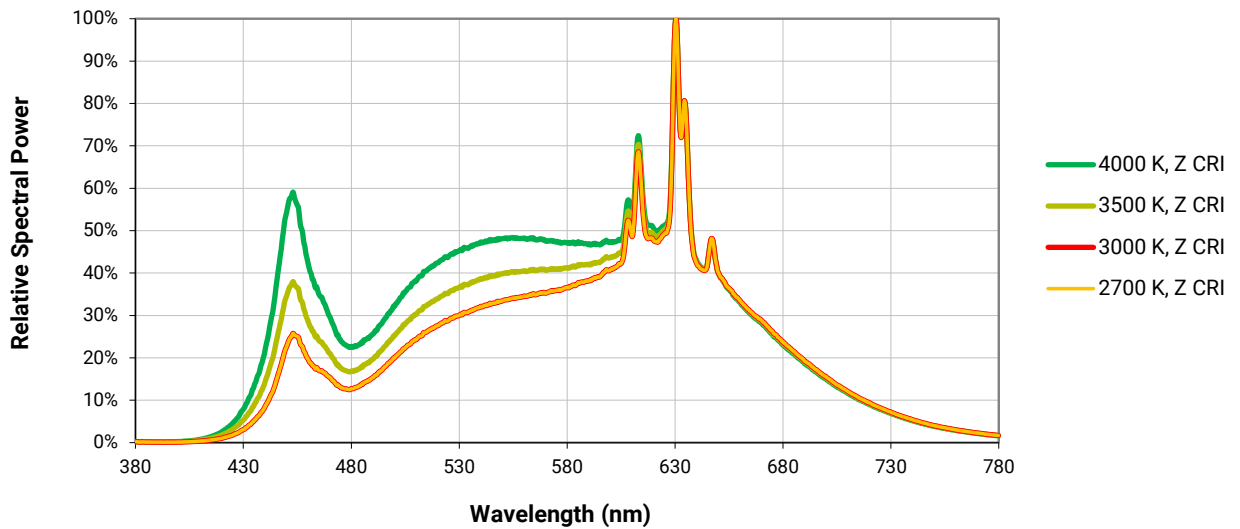
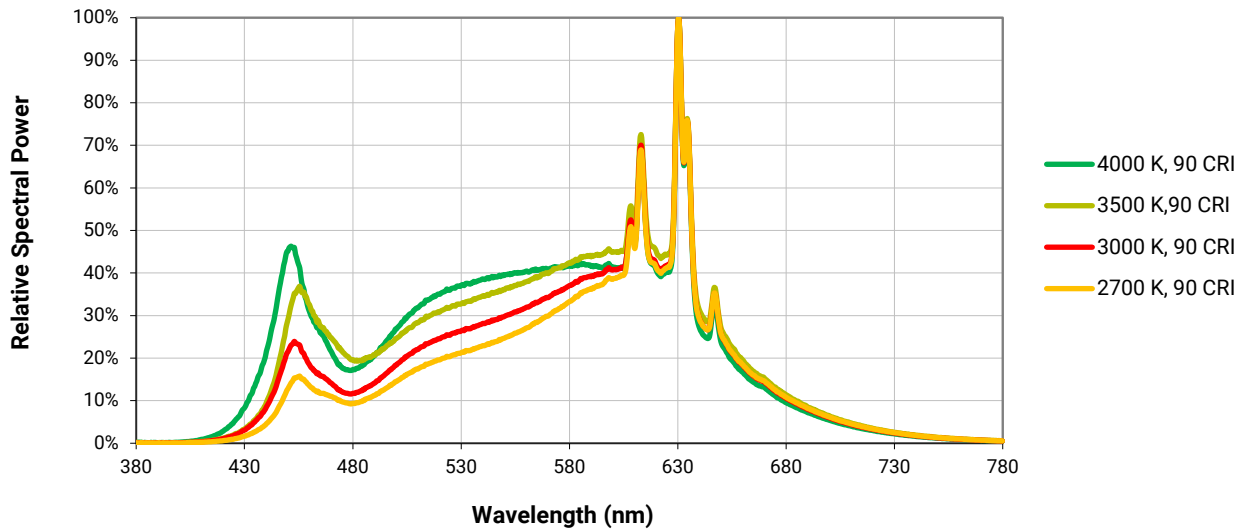
Specialty

Nominal CCT	CRI		Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)	2-Step		3-Step			
	Min.	Typ			Group	Order Code	Group	Order Code	Group	Order Code
3100 K	90	92	7035	7817			31Q	CXB3050-0000-00PN0U0A31Q		
3000 K	90	92	6824	7583					30U	CXB3050-0000-00PN0U0A30U
	90	92	6895	7661			30Q	CXB3050-0000-00PN0U0A30Q		
	95	98	5882	6535	L7C	CXB3050-0000-00PN0Z0AL7C				

- Notes
- Cree LED maintains a tolerance of ±7% on flux and power measurements, ±0.005 on chromaticity (CCx, CCy) measurements and a tolerance of ±2 on CRI measurements. See the Measurements section (page 15).
 - * For 90 CRI minimum LEDs, CRI R9 typical is 60.

RELATIVE SPECTRAL POWER DISTRIBUTION, EASYWHITE®

The following graphs are the result of a series of pulsed measurements at 1400 mA and $T_j = 85^\circ\text{C}$.



RELATIVE SPECTRAL POWER DISTRIBUTION, PREMIUM COLOR

The following graphs are the result of a series of pulsed measurements at 1400 mA and $T_j = 85\text{ }^\circ\text{C}$.

Specialty

