The Leader in Silicon Carbide Solid State Technology

G·SiC® Technology
SuperBright LEDs
CXXX-CB230-E1000

Features

- High Performance
  - 1.3 mW (460, 470nm)
  - 650µW (525nm)
- Single Wire Bond Structure
- Class II ESD Rating

Applications

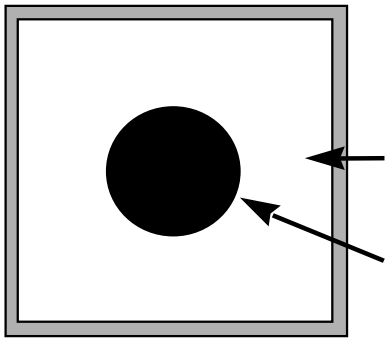
- Communication Handsets
- Backlighting
- High Resolution Video Displays

Description

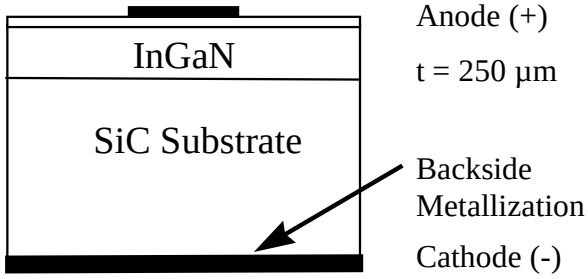
Cree's CB series of SuperBright LEDs are a new generation of solid-state LED emitters which combine highly efficient InGaN with Cree's proprietary SiC substrate to deliver the ultimate price/performance for high intensity blue and green LEDs. The CXXX-CB230-E1000 is ideal for use in backlighting applications, high resolution video displays and high ambient light conditions.

CXXX-CB230-E1000 Chip Diagram

Topside View



Die Cross Section



G·SiC® Technology
SuperBright LEDs
CXXX-CB230-E1000

Maximum Ratings at T_A = 25°C Notes 1&3

	CXXX-CB230-E1000
DC Forward Current	15mA
Peak Forward Current (1/10 duty cycle @ 1kHz)	35mA
LED Junction Temperature	125°C
Reverse Voltage	5 V
Operating Temperature Range	-20°C to +80°C
Storage Temperature Range	-30°C to +100°C
Electrostatic Discharge Threshold (HBM) Note 2	1000 V

Typical Electrical/Optical Characteristics at T_A = 25°C, If = 10mA Note 3

Part Number	Forward Voltage (V_f, V)		Radiant Flux (P, mW)		Reverse Current [I(Vr=5V), µA]	Flux (mlm)	Peak Wavelength (λ_p, nm)	Dominant Wavelength (λ_d, nm)			Halfwidth (λ_D, nm)	Optical Rise Time (τ, ns)
	Typ	Max	Min	Typ	Max	Typ	Typ	Min	Typ	Max	Typ	Typ
C460	3.5	3.7	1.0	1.3	10	100	455	455	460	465	26	30
C470	3.5	3.7	1.0	1.3	10	100	465	465	470	475	26	30
C525	3.5	3.7	.500	.650	10	380	518	520	525	535	35	30

Mechanical Specifications Note 4

	CXXX-CB230-E1000	
Description	**Dimension**	**Tolerance**
P-N Junction Area (µm)	175 x 175	± 25
Bottom Area (µm)	200 x 200	± 25
Chip Thickness (µm)	250	± 25
Au Bond Pad Diameter (µm)	120	± 20
Au Bond Pad Thickness (µm)	1.2	± 0.5
Back Contact Grid Spacing (µm)	125	± 15
Back Contact Metal Width (µm)	15	+10, -5

Notes:

1) Maximum ratings are package dependent. The above ratings were determined using a T-1 3/4 package (with Hysol OS4000 epoxy) for characterization. Seller makes no representations regarding ratings for packages other than the T-1 3/4 package used by Seller. The forward currents (DC and Peak) are not limited by the G •SiC die but by the effect of the LED junction temperature on the package. The junction temperature limit of 125°C is a limit of the T-1 3/4 package; junction temperature should be characterized in a specific package to determine limitations. Assembly processing temperature must not exceed 350°C (< 15 minutes).

2) Product resistance to electrostatic discharge (ESD) is measured by simulating ESD using a rapid avalanche energy test (RAET). The RAET procedures are designed to approximate the maximum ESD ratings shown. Seller gives no other assurances regarding the ability of Products to withstand ESD.

3) All Products conform to the listed minimum and maximum specifications for electrical and optical characteristics, when assembled and operated at 10 mA within the maximum ratings shown above. Efficiency decreases at higher currents. Typical values given are the average values expected by Seller in large quantities and are provided for information only. Seller gives no assurances Products shipped will exhibit such typical ratings. All measurements were made using lamps in T-1 3/4 packages (with Hysol OS4000 epoxy). Optical characteristics were measured in a Photoresearch Spectrascan Integrating Sphere. Illuminance E.

4.) All Products conform to the listed mechanical specifications within the tolerance shown.