

Features

- High Performance
 - 12.0mW (395nm) UV
 - 12.0mW (405nm) UV
- Single Wire Bond Structure
- Class I ESD Rating

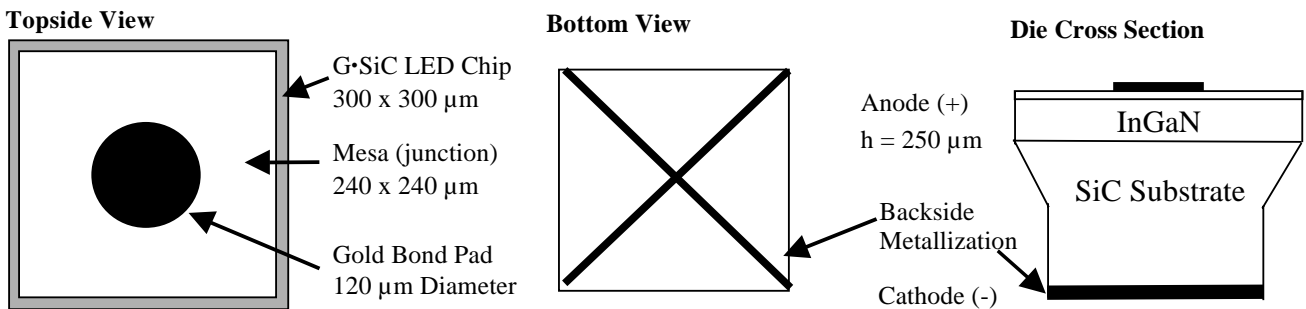
Applications

- Automotive Dashboard Lighting
- White LEDs
- Backlighting

Description

Cree's Ultraviolet series of MegaBright LEDs are a new generation of solid state LED emitters which combine highly efficient InGaN materials with Cree's proprietary SiC substrate to deliver superior price performance for high intensity UV and white LEDs. These LED chips have a geometrically enhanced vertical chip structure to maximize light extraction efficiency, and require only a single wire bond connection. Cree's Ultraviolet series chips are individually tested for conformity to optical and electrical specifications and the ability to withstand 400V ESD. These LEDs are useful in a broad range of applications such as automotive lighting and white LEDs, yet can also be used in high volume applications such as LCD backlighting. Cree's Ultraviolet series chips are compatible with most radial and SMT LED assembly processes.

CXXX-MB290-E400 Chip Diagram



G•SiC[®] Technology
Ultraviolet LEDs
CXXX-MB290-E400

Maximum Ratings at $T_A = 25^\circ\text{C}$ Notes 1&3

CXXX-MB290-E400	
DC Forward Current	30mA
Peak Forward Current (1/10 duty cycle @ 1kHz)	100mA
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) <small>Note 2</small>	400 V
Electrostatic Discharge Classification (MIL-STD-883E) <small>Note 2</small>	Class 1

Typical Electrical/Optical Characteristics at $T_A = 25^\circ\text{C}$, $I_f = 20\text{mA}$ Note 3

Part Number	Forward Voltage (V_f , V)		Radiant Flux (P, mW)		Reverse Current [$I(V_r=5V)$, μA]	Peak Wavelength (λ_p , nm)			Halfwidth (λ_p , nm)	Optical Rise Time (τ , ns)
	Typ	Max	Min	Typ	Max	Min	Typ	Max	Typ	Typ
C405	3.7	4.0	10.0	12.0	10	400	405	410	26	30
C395	3.7	4.0	10.0	12.0	10	390	395	400	26	30

Mechanical Specifications Note 4

CXXX-MB290-E400		
Description	Dimension	Tolerance
P-N Junction Area (μm)	240 x 240	± 25
Top Area (μm)	300 x 300	± 50
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 Metal Width (μm)	15	-5, +10

Notes:

- 1) Maximum ratings are package dependent. The above ratings were determined using a T-1 3/4 package (with Hysol OS1600 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 200°C maximum.
- 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 20 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 OS1600 epoxy). Optical characteristics were measured in a Photoresearch Spectrascan Integrating Sphere. Illuminance E.
- 4) All Products conform to the listed mechanical specifications within the tolerances shown.
- 5) **Caution: To obtain optimum output efficiency, the maximum height of die attach epoxy on the side of the chip should not exceed 80 μm .**