

BRIDGELUX BLUE POWER DIE

BXCB 33 mil x 33 mil

PRODUCT DATA SHEET DS-C6

The Bridgelux family of blue power die enables high performance and cost effective solutions to serve solid state lighting market. This next generation chip technology delivers improved efficiency and performance to enable increased light output for a variety of lighting, signaling and display applications.

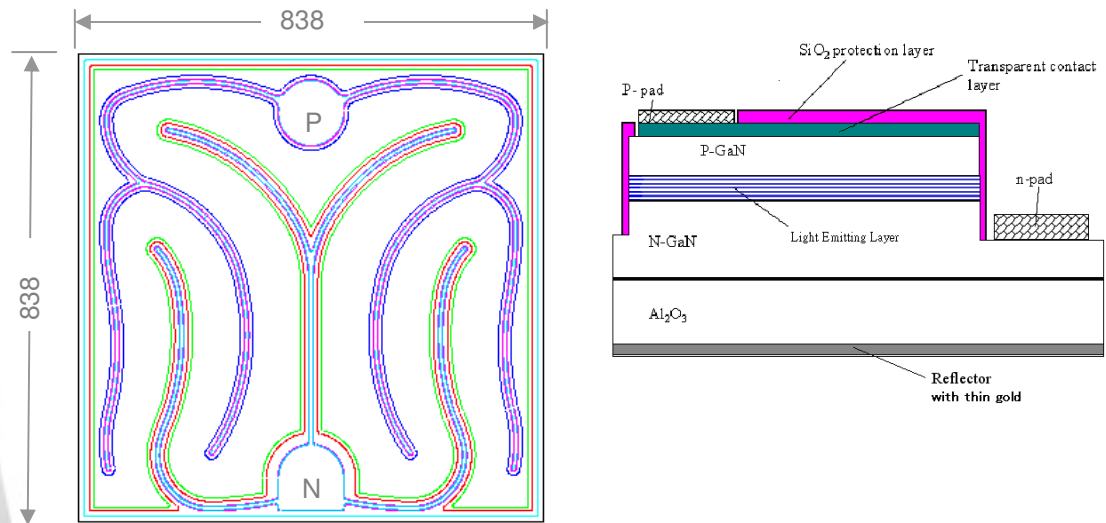
Features

- High lumen output and efficiency
- Long operating life
- 100% Tested and sorted by wavelength, power and forward voltage
- Lambertian emission pattern
- Compatible with Solder paste, solder preform or silver epoxy die attach
- Delivered on medium tack blue tape (20cm±10mm x 20 cm±10mm)

Applications

- General Illumination
- Portable Lighting
- Architectural Lighting
- Directional Lighting
- Display Backlighting
- Digital Camera Flash
- Automotive Lighting
- White LEDs

LED CHIP DIAGRAM



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Mechanical Dimensions

Chip size	838(-10/ +30) μm \times 838(-10/ +30) μm
Wafer thickness	150 \pm 10 μm
Pad Thickness	3.0 \pm 0.3 μm
Pad diameter	P: 120 μm / N: 120 μm

Absolute Maximum Ratings

Parameter	Symbol	UNIT	Condition	Rating
Forward DC Current	I_f	mA	$T_j=125^\circ\text{C}$	350 ⁽¹⁾
Reverse voltage	V_r	V	$T_a=25^\circ\text{C}$	-5V
Junction Temperature	T_j	$^\circ\text{C}$		145
Assembly Process Temp.		$^\circ\text{C}$		325 $^\circ\text{C}$ (<5 sec)

Notes:

1. Maximum drive current depends on junction temperature, die attach methods/materials, and lifetime requirements of the application.
2. Bridgelux LED chips are Class 1 ESD sensitive.
3. The typical spectra half-width of the BXCB3333 blue power die is < 25 nm.
4. Please consult the Bridgelux technical support team for information on how to optimize the light output of our chips in your package.
5. Brightness values are measured in an integrating sphere using gold plated TO39 headers without encapsulation.
6. Tapes should be stored in a vertical orientation, not horizontally stacked. Stacking of tapes can place excessive pressure on the bond pads of the LED, resulting in reduced wire bonding strength.

Environmental Compliance

Bridgelux is committed to providing environmentally friendly products to the solid state lighting market. Bridgelux BXCB3333 blue power die are compliant to the European Union directives on the restriction of hazardous substances in electronic equipment, namely the RoHS directive. Bridgelux will not intentionally add the following restricted materials to BXCB3333 die products: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

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Part Numbering and Bin Definitions

Bridgelux LED chips are sorted into the brightness and dominant wavelength bins shown below at $I_f = 350$ mA. Each blue tape contains die from only one brightness bin and one wavelength bin.

The forward voltage is 3.2-4.0 V and the maximum forward voltage ($V_f \text{ max}$) = 4.0 V.

Dominant Wavelength	Power Bin B2 (200 – 220 mW)	Power Bin C1 (220-240 mW)	Power Bin C2 (240-255 mW)
450 to 452.5nm	BXCB3333450-B2-z	BXCB3333450-C1-z	BXCB3333450-C2-z
452.5 to 455nm	BXCB3333452-B2-z	BXCB3333452-C1-z	BXCB3333452-C2-z
455 to 457.5nm	BXCB3333455-B2-z	BXCB3333455-C1-z	BXCB3333455-C2-z
457.5 to 460nm	BXCB3333457-B2-z	BXCB3333457-C1-z	BXCB3333457-C2-z
460 to 462.5nm	BXCB3333460-B2-z	BXCB3333460-C1-z	BXCB3333460-C2-z
462.5 to 465nm	BXCB3333462-B2-z	BXCB3333462-C1-z	BXCB3333462-C2-z

Dominant Wavelength	Power Bin D1 (255 – 275 mW)	Power Bin D2 (275 – 295 mW)
450 to 452.5nm	BXCB3333450-D1-z	BXCB3333450-D2-z
452.5 to 455nm	BXCB3333452-D1-z	BXCB3333452-D2-z
455 to 457.5nm	BXCB3333455-D1-z	BXCB3333455-D2-z
457.5 to 460nm	BXCB3333457-D1-z	BXCB3333457-D2-z
460 to 462.5nm	BXCB3333460-D1-z	BXCB3333460-D2-z
462.5 to 465nm	BXCB3333462-D1-z	BXCB3333462-D2-z

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Product Nomenclature

B X C B 3333 X X X - Y - Z

Where:

BXCB: Designates product family

3333: Designates die size (50 mil x 50 mil)

XXX: Designates dominant wavelength bin

Y: Designates radiometric power bin

Z: Designates forward voltage bin

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Performance vs. Current

The following curves represent typical performance of the BXCB3333 blue power die. Actual performance will vary slightly for different power and dominant wavelength bins.

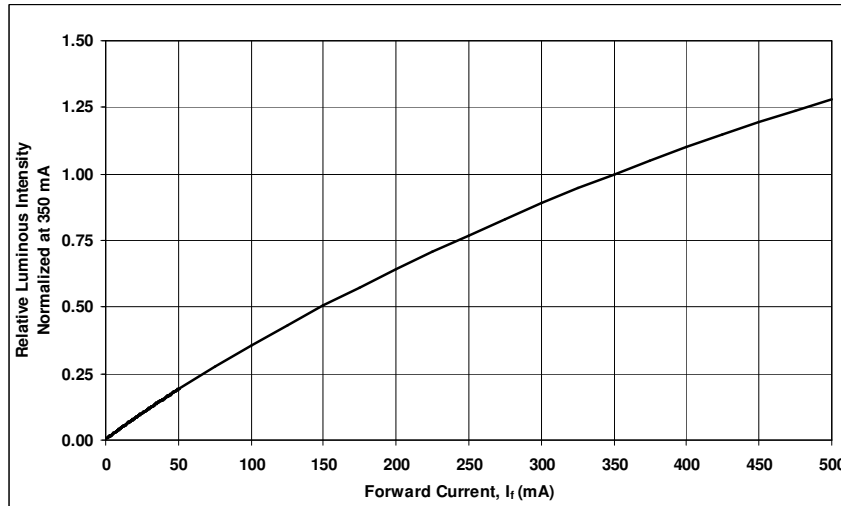


Figure 1: Relative Luminous Intensity vs. Forward Current (device tested on a probe station)

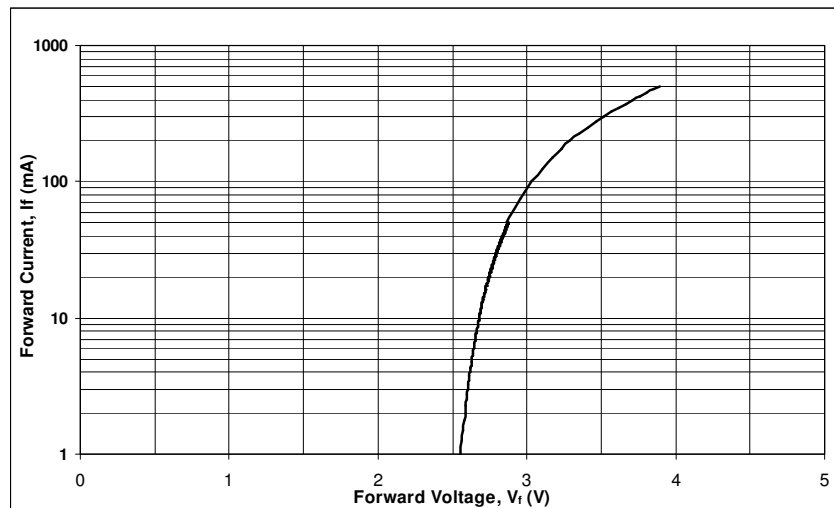


Figure 2: Forward Current vs. Forward Voltage ($T_j = 25^\circ\text{C}$)

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Performance vs. Junction Temperature

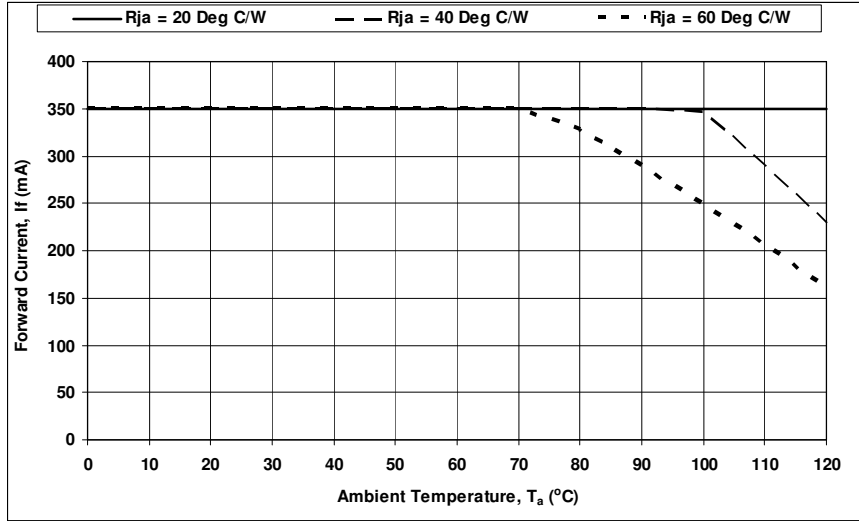


Fig 3 Derating Curves of Forward DC Current vs. Ambient Temperature

At T_j (max) = 145°C

Typical Radiation Pattern

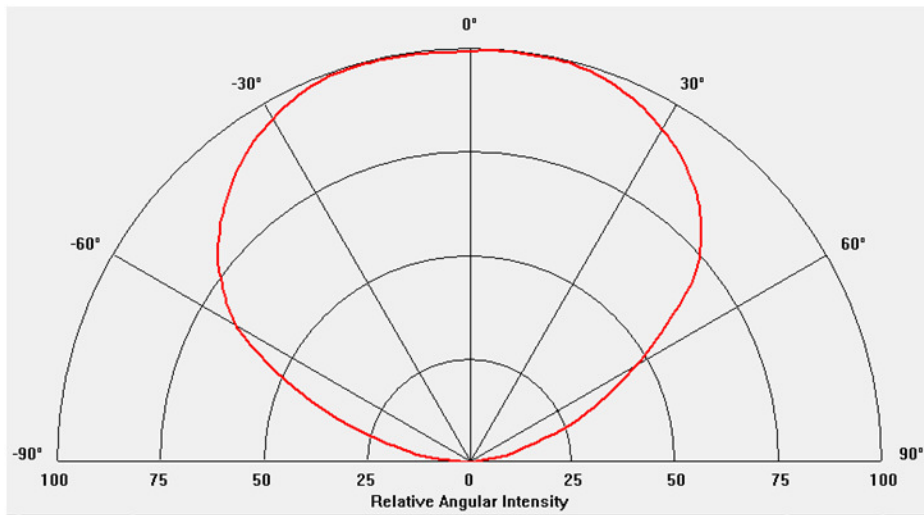


Figure 4: Typical Radiation Pattern (350 mA Operation)

ABOUT BRIDGELUX

Bridgelux is a leading developer and manufacturer of technologies and solutions transforming the \$40 billion global lighting industry into a \$100 billion market opportunity. Based in Livermore, California, Bridgelux is a pioneer in solid-state lighting (SSL), expanding the market for light-emitting diode (LED) technologies by driving down the cost of LED lighting systems. Bridgelux's patented light source technology replaces traditional technologies (such as incandescent, halogen, fluorescent and high intensity discharge lighting) with integrated, solidstate lighting solutions that enable lamp and luminaire manufacturers to provide high performance and energy-efficient white light for the rapidly growing interior and exterior lighting markets, including street lights, commercial lighting and consumer applications. With more than 500 patent applications filed or granted worldwide, Bridgelux is the only vertically integrated LED manufacturer and developer of solid-state light sources that designs its solutions specifically for the lighting industry.

For more information about the company, please visit www.bridgelux.com

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