PRODUCT DATASHEET

MvpLED™ SL-V-B15AA
High Power BLUE LED

BLUE LED
Introduction

The advantages of the patented and proprietary MvpLED™ design especially in Thermal management, and Optical efficacy, are realized in light quality, lifetime, color consistency, reliability and overall efficiency of the luminaire. Available in UV, Violet, Blue and Green, SemiLEDs high efficiency chips bring real benefits to any lamp or luminaire manufacturer.

SemiLEDs chips have a patented Copper-Alloy base that is a better conductor of heat than any other substrate on the market. This is a major advantage for any lamp or luminaire manufacturer. No matter how good a thermal design is, if the contact material to the junction is a poor conductor then the cooling effects of the heat-sink are significantly reduced.

Using a proprietary surface texturing technique, SemiLEDs LEDs maximize light extraction and efficiency. Coupled with the lack of Sapphire and a 90% efficient Reflective Layer, SemiLEDs chips exhibit an almost perfect Lambertian radiation pattern.

SemiLEDs' patented and unique process consumes no Sapphire, significantly reducing the Carbon footprint. The lack of a Sapphire base also removes a thermal management bottleneck while providing the most environmentally friendly LED on the market.

RoHS and REACH Compliant

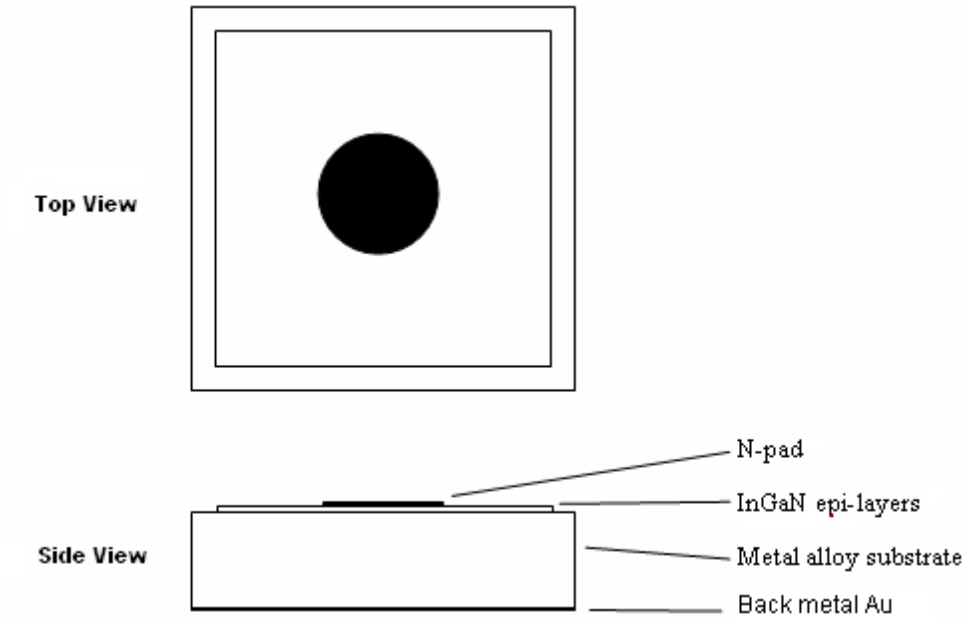
Feature

Metal alloy base---------- Low cost high thermal conductivity
Thickness 80 µm ----------Less thermal distance
P-N junction high at 75µm---------- Silver epoxy die attachment compatible
One pad structure----------Low package cost
Nearly Perfect Lambertian emission pattern----------Ideal for white light design
Patterned surface ----------Maximum light extraction

Applications

Illumination
Outdoor Video Display Board
Mobile phone LCD backlight
Digital Camera Flash light
High Power LED
Automotive lighting
Signalling
Signage
Miniature Light Engine

Chip Mechanical Diagram



Mechanical Specifications

P-N junction area	340 µm X 340 µm	± 20 µm
Base area	400 µm X 400 µm	± 25 µm
Chip thickness	80 µm	± 15 µm
Bond pad size	115 µm	± 10 µm
Bond pad thickness	2.5 µm	± 0.5 µm
Junction height	75 µm	± 15 µm

Optical and Electrical Characteristics at 20mA, Ta at 25℃

Parameter	Symbol	Min	Typ	Max	Remark
Forward voltage:	Vf		3.2	3.5	Volt
Spectra half width	Δλ		20	40	nm
Reverse current	Ir			2 μA	Vr= 5 Volt

Measured by SemiLEDs on bare chip

Absolute Maximum Ratings, Ta at 25℃

Forward Current (DC)	50 mA
Peak Forward Current (1/10 duty cycle @ 1KHz)	120 mA
LED Junction Temperature	125℃
Reverse Voltage	5 V
Operating Temperature	-40℃ to +110℃
Storage Temperature	-40℃ to +110℃
Temperature during packaging (reflow)	280℃ < 10 sec

Maximum ratings are strongly package dependent and may differ between different packaged devices. The values given were collected by SemiLEDs' in-house package.

BIN Table (Output Power at 20mA, Ta at 25℃)

Wd Range(nm)	20-24mW	24-29mW	29-35mW
450-452.5	AC	AD	AE
452.5-455	BC	BD	BE
455-457.5	CC	CD	CE
457.5-460	DC	DD	DE
460-462.5	EC	ED	EE
462.5-465	FC	FD	FE
465-467.5	BC	GD	
467.5-470	HC	HD	
470-472.5	IC	ID	
475.2-475	JC	JD	

Performance Diagram

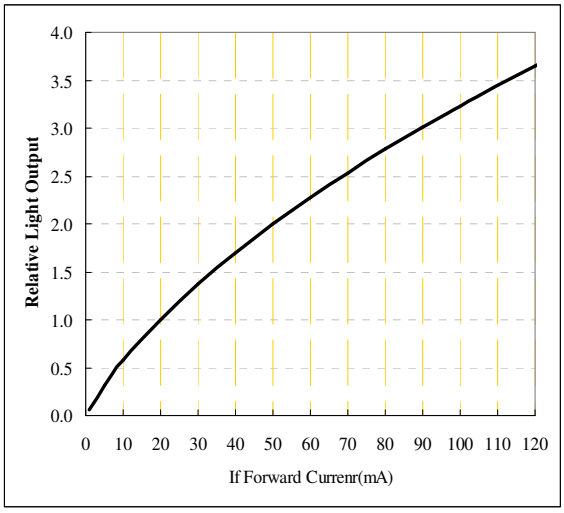


Fig-1 Relative Output Power vs. Forward Current.

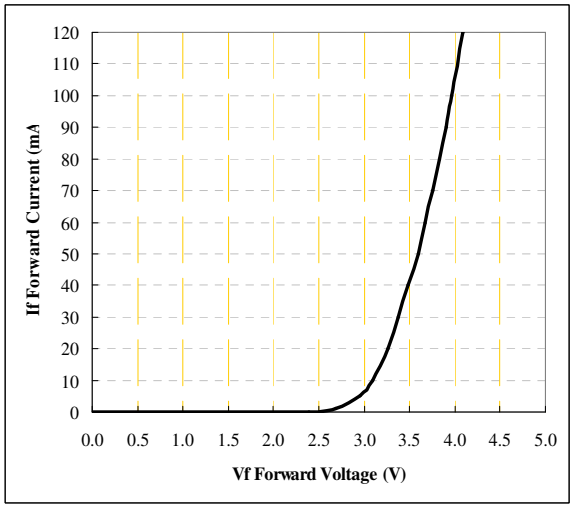


Fig-2 Forward Current vs. Forward Voltage.

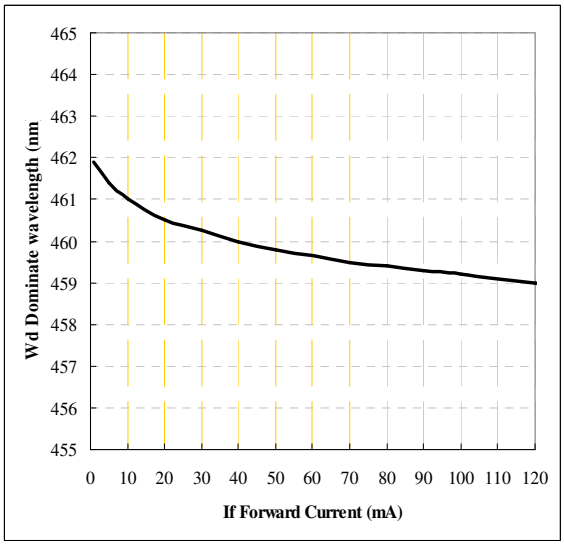


Fig-3 Forward Dominate Wavelength vs. Forward Current.

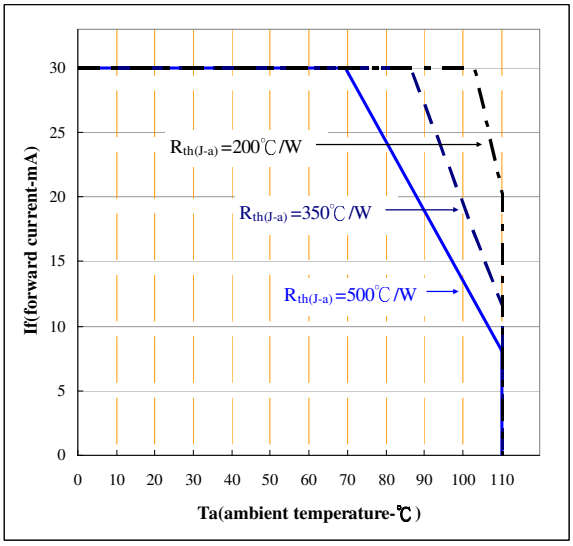


Fig-4 Maximum Driving Forward DC Current vs. Ambient Temperature.

Note:

a. Minimum and maximum value refers to the limits and set up of SemiLEDs' testers. All other measurement data are defined as long-term production mean values and are only given for information.

b. A critical component is a component used in a life-support device or system whose failure can reasonably be expected to cause the failure of that life-support device or system, or to affect its safety or effectiveness of that device or system. Life support devices or systems are intended (i) to be implanted in the human body, or (ii) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered. Components used as a critical component must be approved in writing by SemiLEDs.

About Us

SemiLEDs is a US based manufacturer of ultra-high bright LED chips with state of the art fabrication facilities in Hsinchu Science Park, Taiwan. SemiLEDs specializes in the development and manufacturing of vertical LED chips in blue (white), green and UV using a patented copper-alloy base. This unique design allows for higher performance and longer lumen maintenance. SemiLEDs new high power I-core MvpLEDs can deliver 120lm/W. In December 2008 The World Economic Forum recognized SemiLEDs' innovations with the 2009 Technology Pioneer Award.

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