PRODUCT DATASHEET

MvpLED™ SL-V-G40AC
High Power Green LED

Green 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 Blue, Green and UV SemiLEDs high efficiency chips bring real benefits to any lamp or luminaire manufacturer.

Among pure metals at room temperature, copper has the second highest electrical and thermal conductivity after silver. Furthermore, due to the high thermal conductivity of the copper alloy layer, the heat generated in our device is effectively conducted. 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 a minimal use of Sapphire and a 90% efficient Reflective Layer, SemiLEDs chips exhibit an almost perfect Lambertian radiation pattern.

SemiLEDs' patented and unique process uses a limited amount of Sapphire, which can be recycled and reused multiple times, significantly reducing the Carbon footprint. The reduced dependence on Sapphire also removes a thermal management bottleneck while providing the most environmentally friendly LED on the market.

RoHS and REACH Compliant

Feature

Metal alloy device--- Low cost high thermal conductivity

Thickness 145 µm ---Less thermal distance

P-N junction high at 140µm--------------------------------------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

LCD backlight

Architecture lighting

High Power LED

Entertainment lighting

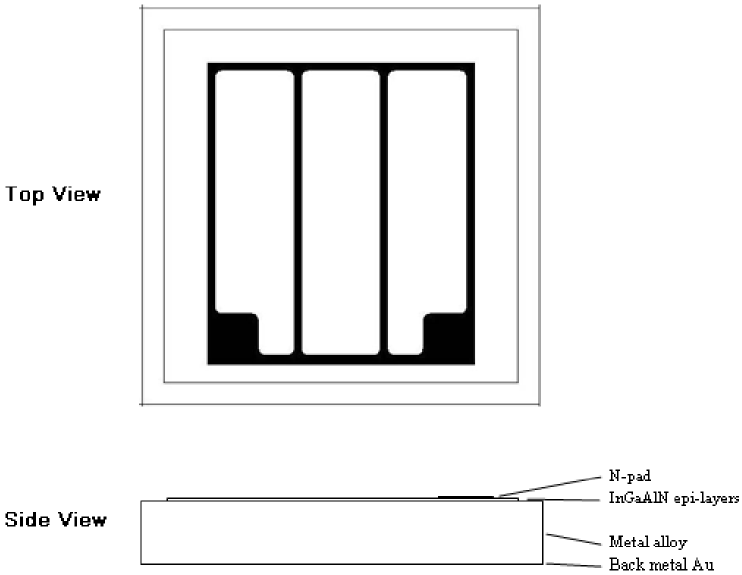
Signalling

Signage

Light Engine

Landscape

Chip Mechanical Diagram



Mechanical Specifications

P-N junction area	970 µm X 970 µm	± 20 µm
Base area	1070 µm X 1070 µm	± 50 µm
Chip thickness	145 µm	± 15 µm
Bond pad size	140 µm	± 15 µm
Bond pad thickness	2.5 µm	± 0.5 µm
Junction height	140 µm	± 15 µm

Optical and Electrical Characteristics at 350mA, Ta at 25℃

Parameter	Symbol	Min	Typ	Max	Remark
Forward voltage:	Vf		3.3	3.6	Volt
Spectra half width	Δλ		35	50	nm
Reverse current	Ir			2 μA	Vr= 5 Volt

Measured by SemiLEDs on bare chip

Absolute Maximum Ratings, Ta at 25℃

Forward Current (DC)	500 mA
Peak Forward Current (1/10 duty cycle @ 1KHz)	800 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 350mA, Ta at 25℃)

Wd Range (nm)	10-12cd	12-14cd	14-16cd	16-18cd	18-20cd	20cd up
500-505	CA	CB	CC	CD		
505-510	DA	DB	DC	DD	DE	
510-515	EA	EB	EC	ED	EE	EF
515-520	FA	FB	FC	FD	FE	FF
520-525	GA	GB	GC	GD	GE	GF
525-530	HA	HB	HC	HD	HE	
530-535	IA	IB	IC	ID	IE	

Performance Diagram

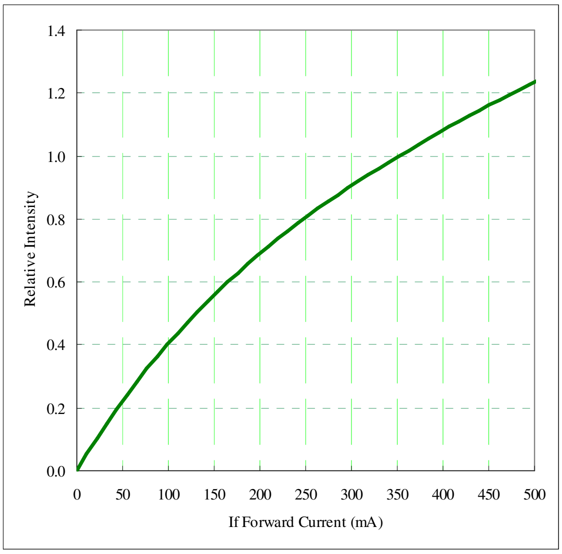


Fig-1 Relative Intensity vs. Forward Current.

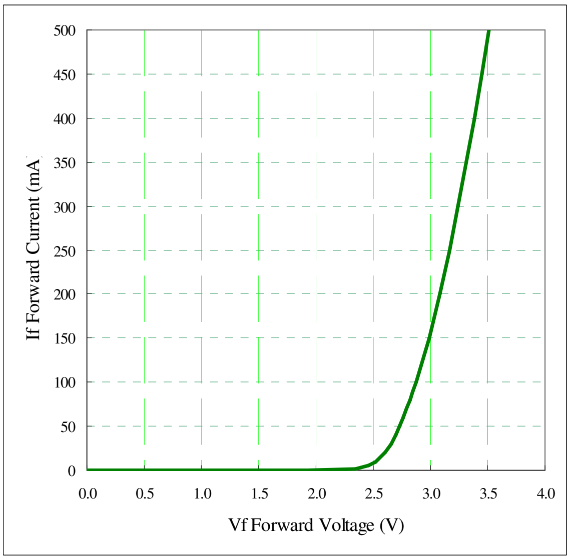


Fig-2 Forward Current vs. Forward Voltage.

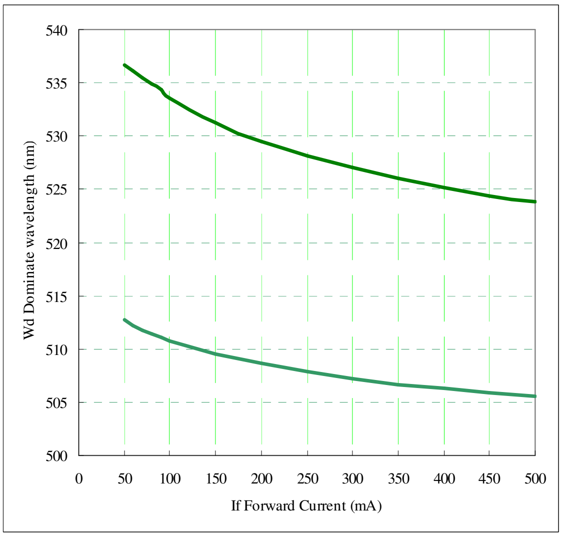


Fig-3 Forward Dominate Wavelength vs. Forward Current.

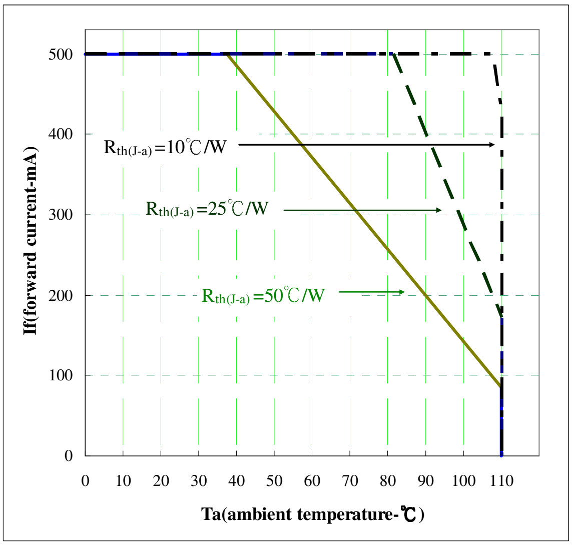


Fig-4 Maximum Driving Forward DC Current vs. Ambient Temperature.

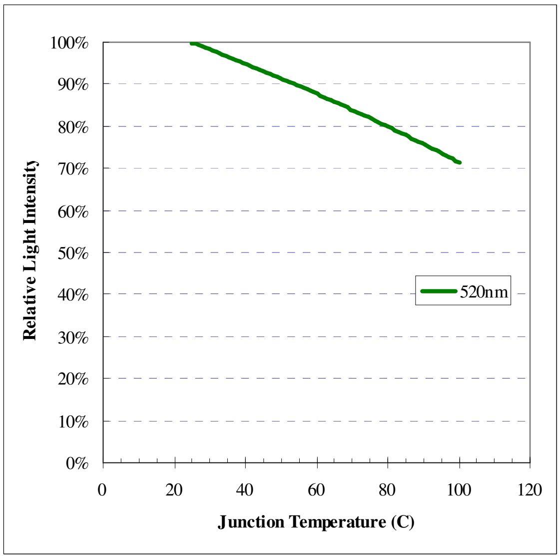


Fig-5 Relative Intensity vs. Junction Temperature.

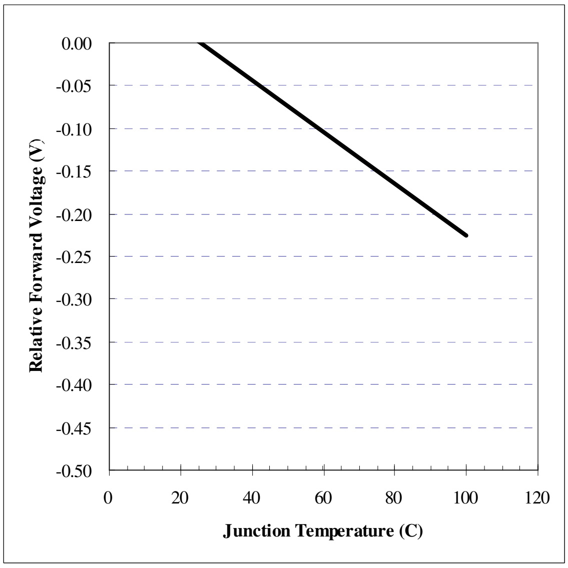


Fig-6 Relative Forward Voltage vs. Junction Temperature.

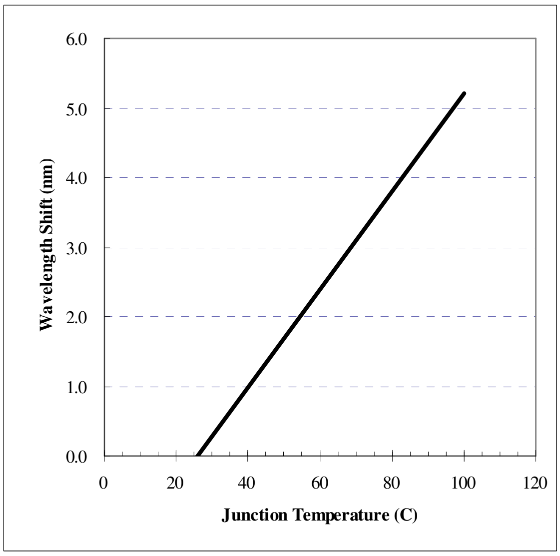


Fig-7 Wavelength Shift vs. Junction Temperature.

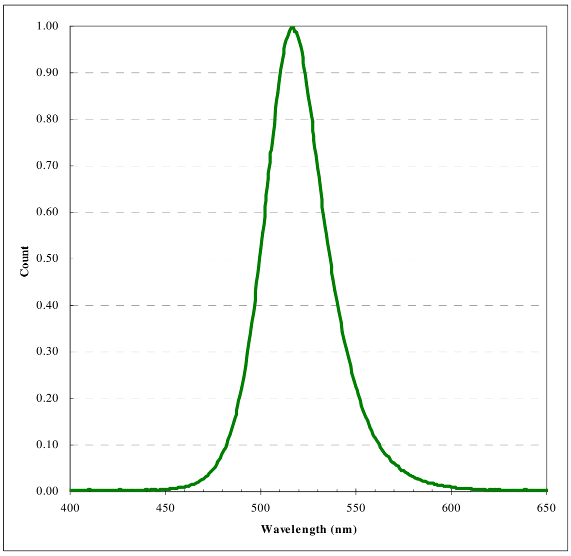


Fig-8 Relative Intensity vs. Peak Wavelength.

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 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 metal alloy vertical LED chips in blue (white), green and UV using our patented and proprietary MvpLED™ technology. This unique design allows for higher performance and longer lumen maintenance. SemiLEDs new high power I-core MvpLEDs™ can deliver over 120lm/W. In December 2008 The World Economic Forum recognized SemiLEDs innovations with the 2009 Technology Pioneer Award.

www.semileds.com

AMERICAS
SemiLEDs Corporation
999 Main Street, Suite 1010
Boise, ID 83702
United States

Tel +1.208.389.7426
Fax +1.208.389.7515
sales@semileds.com

ASIA PACIFIC
3F, No. 11, KeJung Rd.
Chu-Nan Site
Hsinchu Science Park
Chu-Nan 350, Miao-Li County
Taiwan, ROC

Tel: +886-37-586788
Fax: +886-37-582688
sales@semileds.com