PRODUCT DATASHEET

MvpLED™ SL-V-U40AC
High Power UV LED

UV LED
Introduction

Market applications using UV LEDs are diverse and represent a significant opportunity for any LED packager or integrator. Traditional mercury lamps have many disadvantages that limit UV applications, and mercury is a notorious pollutant. Features of the LED including form factor, wavelength and lifetime, add flexibility to UV applications. SemiLEDs' portfolio of mercury free UV products will enhance and in some cases revolutionize the way applications are built in UV market segments such as Curing, Currency/Document Verification, Tanning, Medical, and Sterilization.

All SemiLEDs UV chips are made using our patented metal alloy vertical MvpLED™ technology. This allows for maximum heat transfer from the junction to the board or heat sink. These features along with the optical advantages facilitate designs using higher drive currents to maximize light density.

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.

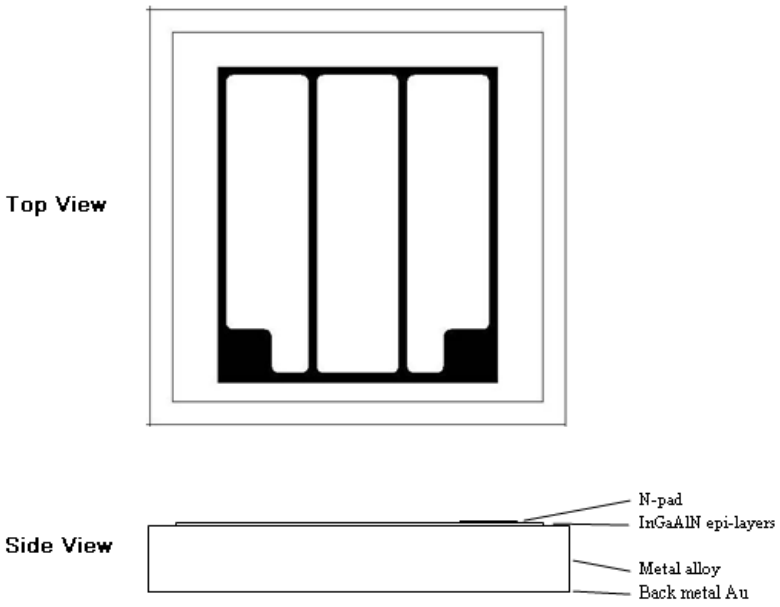
SemiLEDs' patented and unique process uses a limited amount of Sapphire, which can be recycled and reused multiple times, significantly reducing the Carbon footprint. The reduced dependence on Sapphire also removes a thermal management bottleneck while providing the most environmentally friendly LED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

RoHS and REACH Compliant

Applications

LED phosphor lighting
UV air purifier
Medical applications
UV activated applications
Counterfeit detection
Special chemical detection
High resolution optics

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 high	140 µm	± 15 µm

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

Parameter	Symbol	Min	Typ	Max	Remark
Forward voltage:	Vf		3.3	3.8	Volt
Spectra half width	Δλ		12	25	nm

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	Note 2
Operating Temperature	-40℃ to +110℃
Storage Temperature	-40℃ to +110℃
Temperature during packaging (reflow)	280℃ < 10 sec

Note: 1.Maximum ratings are strongly package dependent and may differ between different packaged devices. The values given were collected by SemiLEDs' in-house package.

2. UV LEDs should never be operated with reverse bias.

BIN Table (Output Power at 350mA, Ta at 25℃)

Wp Range(nm)	80-100 mW	100-120 mW	120mW-150mW	150mw-200mw
375-380	DD	DE	DF	DG

Wp Range(nm)	120-150mW	150-200mW	200-250mW	250-300mW	300-350mw
380-385	EF	EG	EH	EI	
385-390		FG	FH	FI	FJ

Wp Range(nm)	300-350mW	350-400mW	400-450mw
390-395	GJ		
395-400	HJ		
400-405	IJ	IK	
405-410	JJ	JK	JL
410-415	KJ	KK	KL
415-420	LJ	LK	LL

Performance Diagram

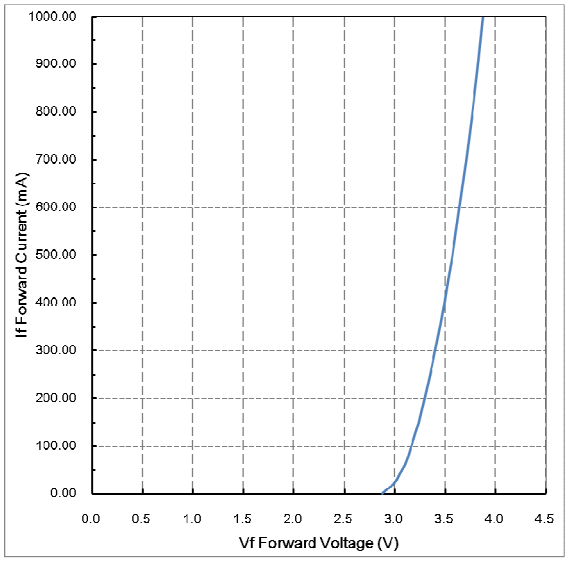


Fig-1 Forward Current vs. Forward Voltage.

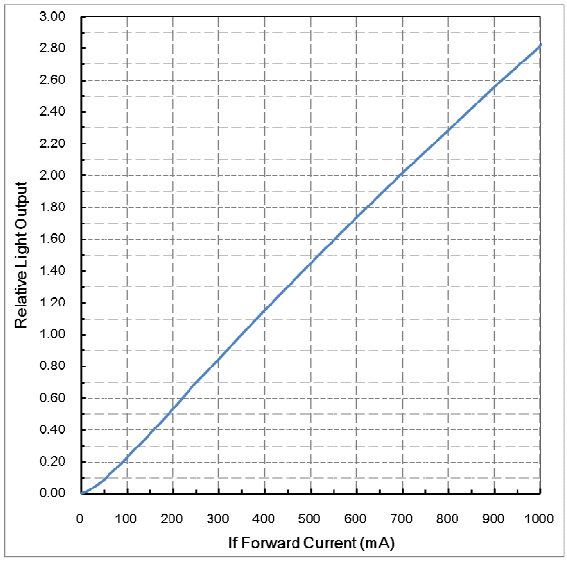


Fig-2 Relative Light Output vs. Forward Current.

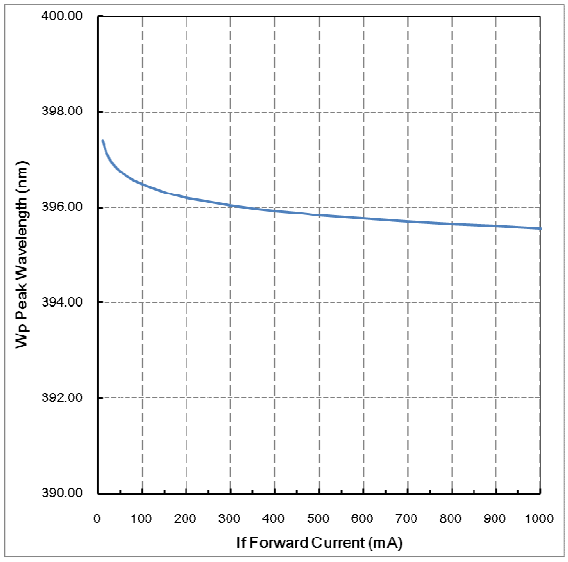


Fig-3 Dominant Wavelength vs. Forward Current.

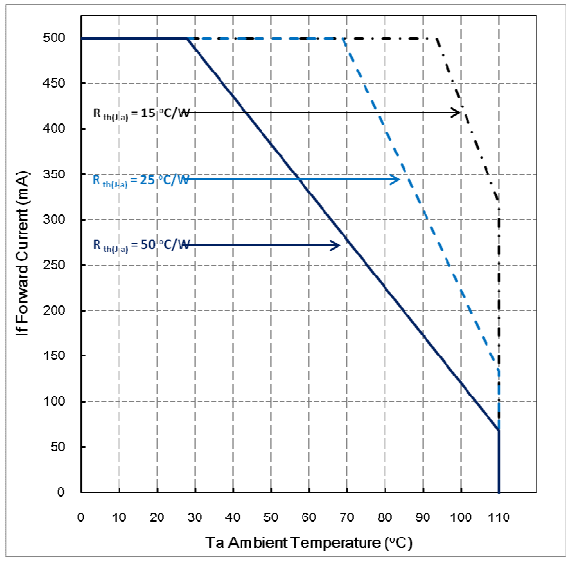


Fig-4 Maximum Driving Forward DC Current vs. Ambient Temperature.

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 Corporation is a US based manufacturer of ultra-high brightness 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. In December 2008, The World Economic Forum recognized SemiLEDs innovations with the 2009 Technology Pioneer Award. SemiLEDs is fully ISO 9001:2008 Certified

SemiLEDs is a publicly traded company on NASDAQ Global Select Market (stock symbol "LEDS"). For investor information, please contact us at **investors@semileds.com**.

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