

MvpLED™ SL-V-U45ACD

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 the lack of Sapphire and a 90% efficient Reflective Layer, SemiLEDs chips exhibit an almost perfect Lambertian radiation pattern.

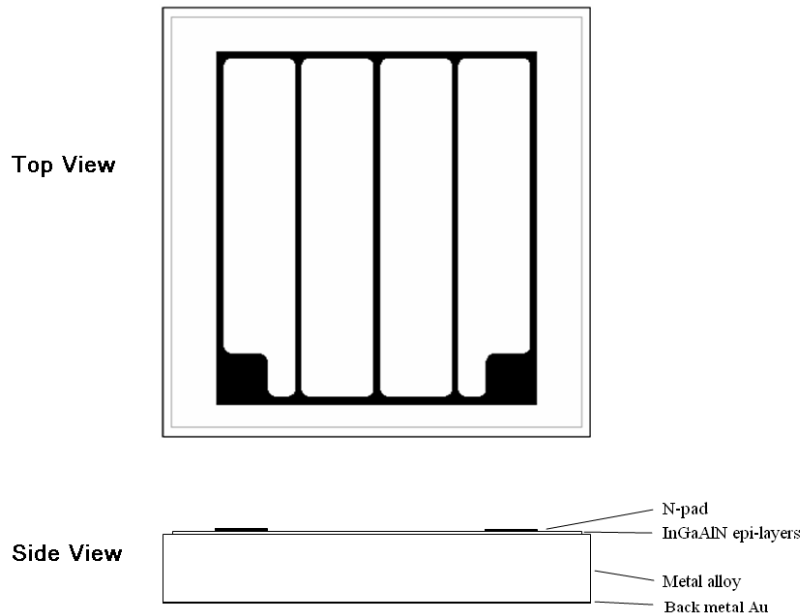
SemiLEDs' patented and unique process consumes no Sapphire, significantly reducing the Carbon footprint. The lack of a Sapphire base also removes a thermal management bottleneck while providing the most environmentally friendly LED on the market.

RoHS and REACH Compliant

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	1050 μm X 1050 μm	$\pm 20 \mu\text{m}$
Base area	1200 μm X 1200 μm	$\pm 50 \mu\text{m}$
Chip thickness	145 μm	$\pm 15 \mu\text{m}$
Bond pad size	140 μm	$\pm 15 \mu\text{m}$
Bond pad thickness	2.5 μm	$\pm 0.5 \mu\text{m}$
Junction high	140 μm	$\pm 15 \mu\text{m}$

Optical and Electrical Characteristics at 350mA, Ta at 25°C

Parameter	Symbol	Min	Typ	Max	Remark
Forward voltage:	Vf		3.7	4.2	Volt
Spectra half width	$\Delta\lambda$		12	20	nm

Measured by SemiLEDs on bare chip

Absolute Maximum Ratings, Ta at 25°C

Forward Current (DC)	500 mA
Peak Forward Current (1/10 duty cycle @ 1KHz)	800 mA
LED Junction Temperature	125°C
Reverse Voltage	Note 2
Operating Temperature	-40°C to +110°C
Storage Temperature	-40°C to +110°C
Temperature during packaging (reflow)	280°C < 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°C)

Wp Range(nm)	30-36mW	36-45mW	45-60mW	60-80mW	80-100mW	
360-365	AQ	AA	AB	AC	AD	
Wp Range(nm)	45-60mW	60-80mW	80-100mW	100-120mW	120-150mW	150-180mW
365-370	BB	BC	BD	BE	BF	
370-375		CC	CD	CE	CF	CG

Note:

- 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.
- 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.

Caution: Users are requested to comply with the laws and public regulations concerning safety.

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 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.
Hsinchu Science Park
Chu-Nan 350, Miao-Li
Taiwan

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