



UVB-280



Deep UV-LED, AlGaIn

UVA-280 is an AlGaIn based, narrow bandwidth, 280nm LED available in different configurations . Deep UV-LEDs are widely used for water sterilization, air purification, germicidal and medical applications, diagnostics, and laboratory testing.

Specifications

- Structure: AlGaIn
- Peak Wavelength: 280 nm
- Optical Output Power: typ. 1.4 mW
- Life Time: 50 hours

Packaging Options

- Bare chip die
- TO-39 open can
- TO-39 flat window
- TO-5 flat window
- TO-5 hemispherical lens

Absolute Maximum Ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Value	Unit
Power Dissipation, DC	P_D	220	mW
Forward Current, DC	I_F	40	mA
Reverse Voltage ($I_R=10\mu\text{A}$)	V_R	>2	V
Reverse Current ($V_R=5\text{V}$)	I_R	<200	μA
Operating Temperature	T_{opr}	-20 ... +50	$^\circ\text{C}$
Storage Temperature	T_{stg}	-20 ... +85	$^\circ\text{C}$
Soldering Temperature (max. 5s)	T_{sol}	190 $^\circ$	$^\circ\text{C}$

General Characteristics ($T_a=25^\circ\text{C}$)

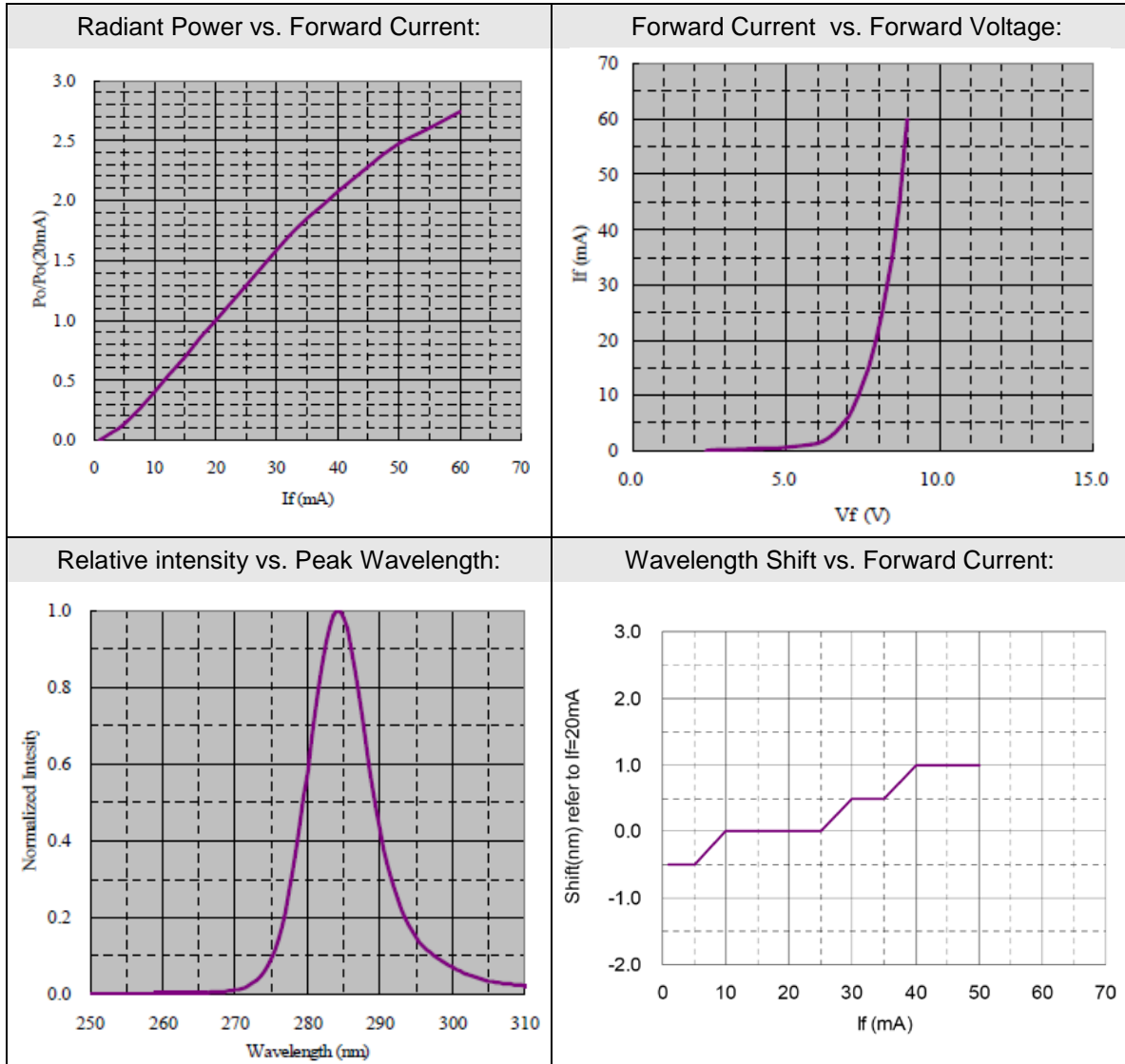
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Peak Wavelength	λ_p	$I_F = 20 \text{ mA}$	280	284	290	nm
Optical Power	P_O	$I_F = 20 \text{ mA}$		1.3		mW
Beam Angle	φ	$I_F = 20 \text{ mA}$		160		degree
Forward Voltage	U_F	$I_F = 20 \text{ mA}$	-	8		V
Half Width (FWHM)	$\Delta\lambda$	$I_F = 20 \text{ mA}$	-	9	-	nm
Life time		$I_F = 20 \text{ mA}$	-	50	-	h

Wavelength measurements tolerance is +/- 2%
Output power measurement tolerance is +/- 10%
Voltage measurement tolerance is +/- 2%



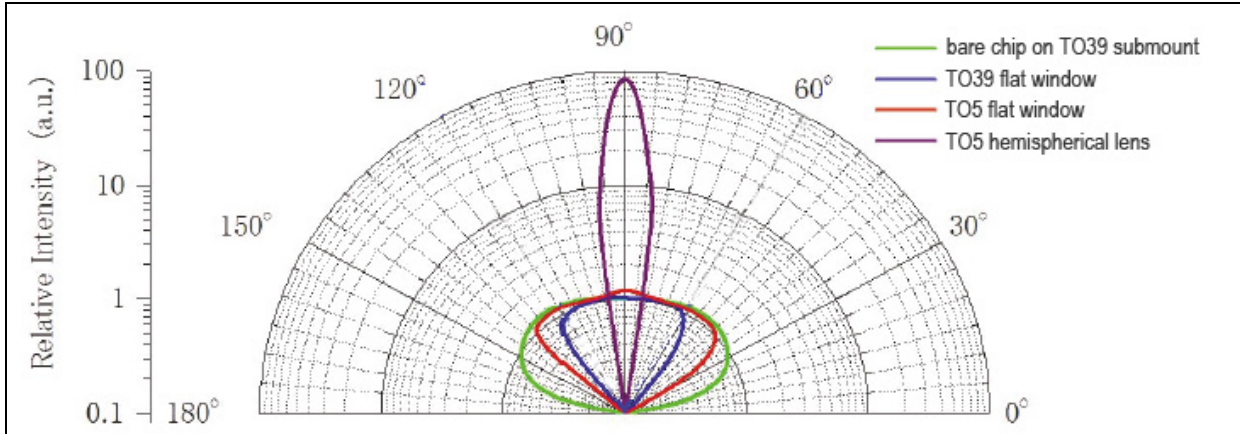


Typical Performance Characteristics

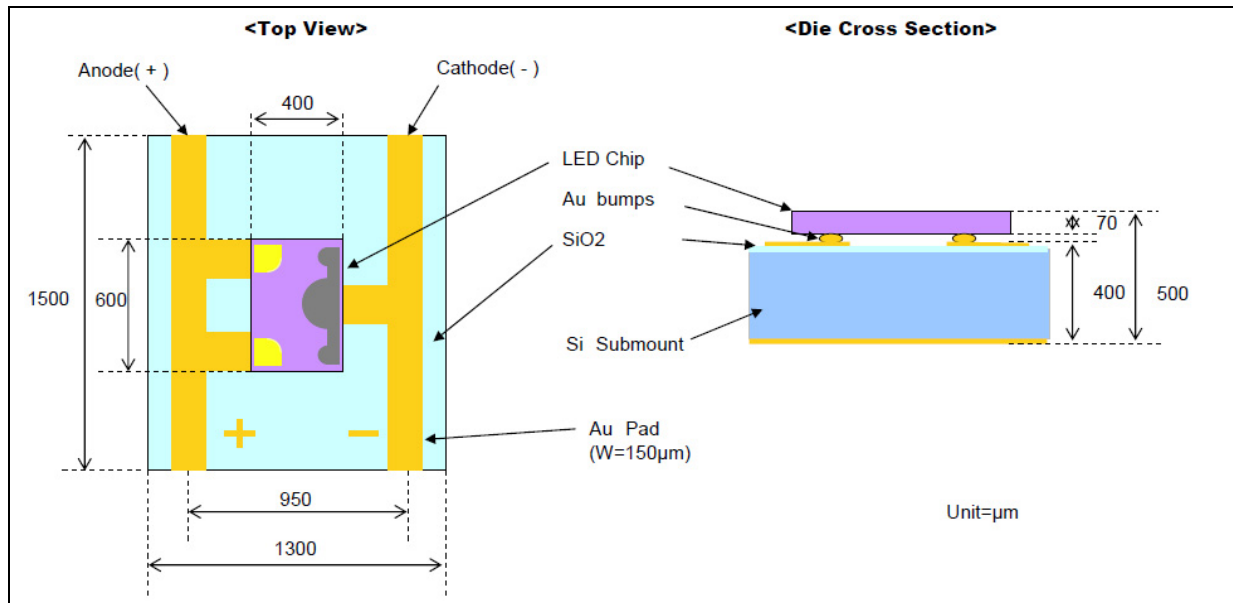




Far Field Pattern ($I_{OP}=25\text{ mA}$)



Chip Die Layout (all dimensions in μm)



Solder (Au-Sn) or Resin (Ag) is recommended for bonding of the submount



Precautions

Operation

In order to ensure the correct functioning of these LEDs, compliance to the maximum electrical specifications is paramount. These LEDs are particularly sensitive to any current value that exceeds the absolute maximum rating of the product. Any applied current in excess of the maximum specification will cause damage and possible complete and may result in complete failure of the product.

The current flowing in a LED is an exponential function of the voltage across it. A small change in voltage can produce a very large change in current and lead to complete failure of the LED. The use of a current regulated drive circuit is recommended for these products.

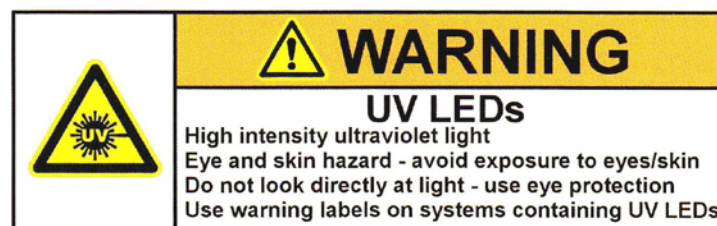
Any attempt to drive these LEDs with a voltage source instead of a current source will cause damage and possible total failure of the product

UV-Radiation

These devices are ultraviolet LEDs. During operation, the LED emit high intensity ultraviolet (UV) light, which is harmful to skin and eyes.

UV light is hazardous to skin and may cause cancer. Avoid exposure to UV light when the LED is operational. Precautions must be taken to avoid looking directly at the UV light without the use of UV protective glasses. Do not look directly at the front of the LED or at the LEDs lens when the LED is operational.

It is advised, to attach a warning label on products/systems that utilize UV LEDs:



Static Electricity

UVTOP LEDs are ESD (electrostatic discharge) sensitive. Static electricity and surge voltages seriously damage UV LEDs and may result in complete failure of the device.

Precautions must be taken against ESD when handling or operating these devices.