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## UVTOP250-HL-TO39

- Deep Ultraviolet Light Emission Source
- 255 nm, 0.3 mW
- TO39 Package
- Hemispherical Sapphire Lens
-  Biological and Chemical Analysis



### Description

**UVTOP250-HL-TO39** is a deep ultraviolet light emission source, based on **AlGaIn** quantum structures, typically emitting at **255 nm** with an optical output power of **0.3 mW**. It comes in hermetically sealed TO39 metal can package with a hemispherical sapphire lens, is Lead-free, and RoHS compliant. **UVTOP250-HL-TO39** is widely used for biological and chemical analysis, disinfection, optical sensing, and fluorescent spectroscopy applications.

### Maximum Rating ( $T_{CASE} = 25^{\circ}C$ )

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation, DC	$P_D$		180	mW
Forward Current*	$I_F$		30	mA
Operating Temperature*	$T_{OPR}$	- 30	+ 55	$^{\circ}C$
Storage Temperature	$T_{STG}$	- 30	+ 100	$^{\circ}C$
Soldering Temperature	$T_{SOL}$		+ 190	$^{\circ}C$

\* Operation close to the absolute maximum ratings may affect device reliability

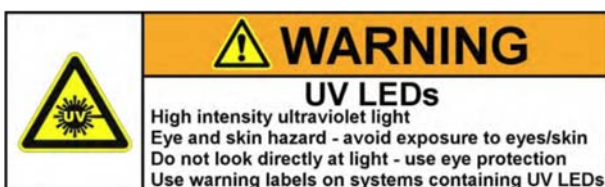
### Electro-Optical Characteristics ( $T_{CASE} = 25^{\circ}C$ , $I_F = 20$ mA)

Parameter	Symbol	Values			Unit
		Min.	Typ.	Max.	
Peak Wavelength* <sup>1</sup>	$\lambda_P$	250		260	nm
Spectral Width (FWHM)	$\Delta\lambda$		11	15	nm
Forward Voltage* <sup>2</sup>	$V_F$		6.0	7.5	V
Radiated Power* <sup>3</sup>	$P_O$	0.1	0.3		mW
Beam Angle	$2\theta_{1/2}$		7		deg.
Thermal Resistance	$R_{th}$		50		$^{\circ}C/W$

\*<sup>1</sup>wavelength measurement tolerance:  $\pm 3$  nm

\*<sup>2</sup>forward voltage measurement tolerance:  $\pm 3$  %

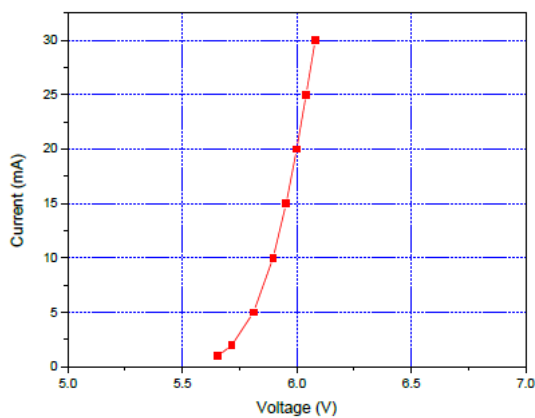
\*<sup>3</sup>output power measurement tolerance:  $\pm 10$  %



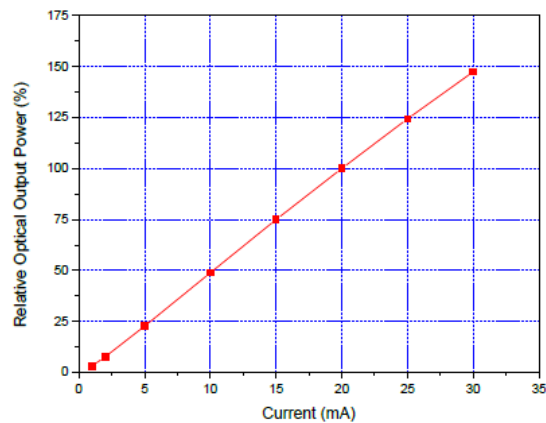


## Performance Characteristics

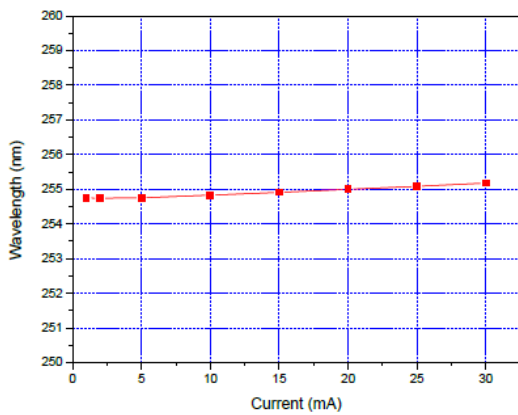
### Forward Current vs. Forward Voltage



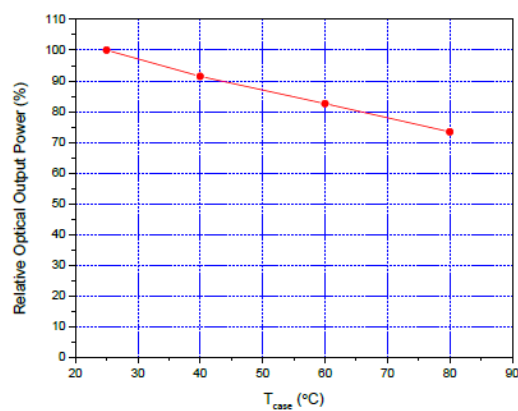
### Rel. Optical Power vs. Forward Current



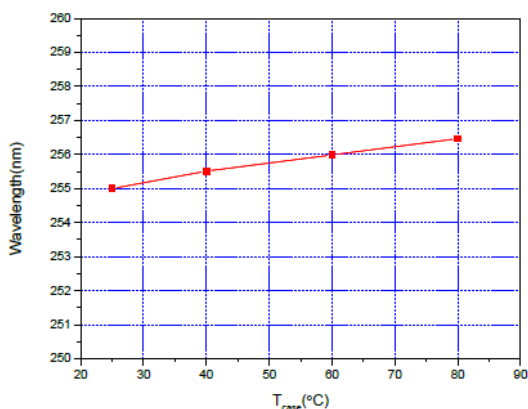
### Peak Wavelength vs. Forward Current



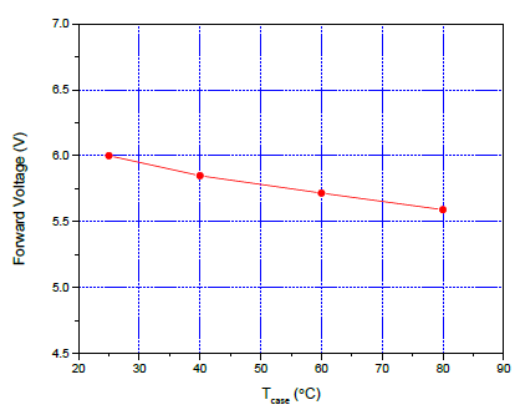
### Rel. Optical Power vs. Case Temperature



### Peak Wavelength vs. case Temperature

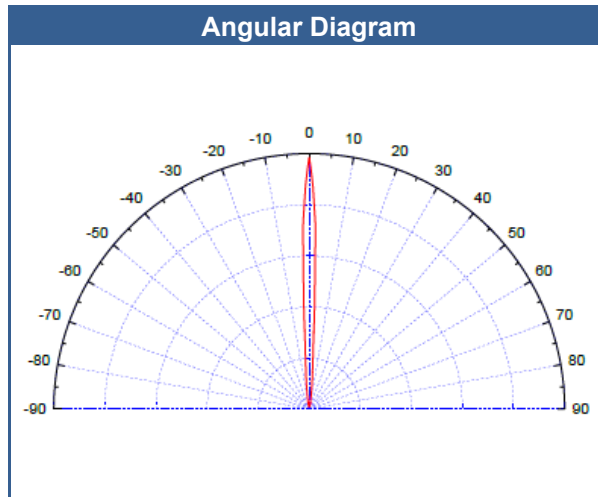
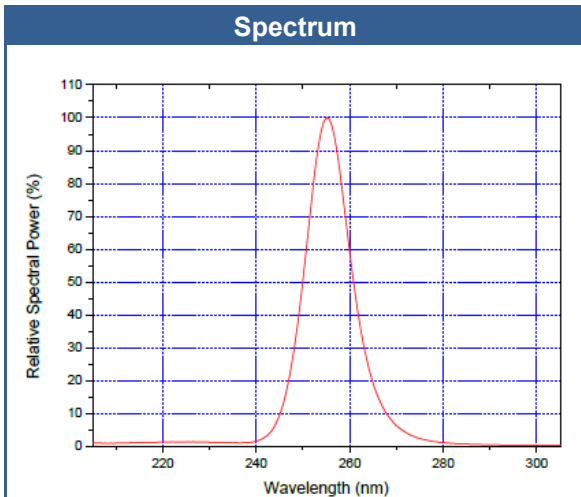


### Forward Voltage vs. Case Temperature



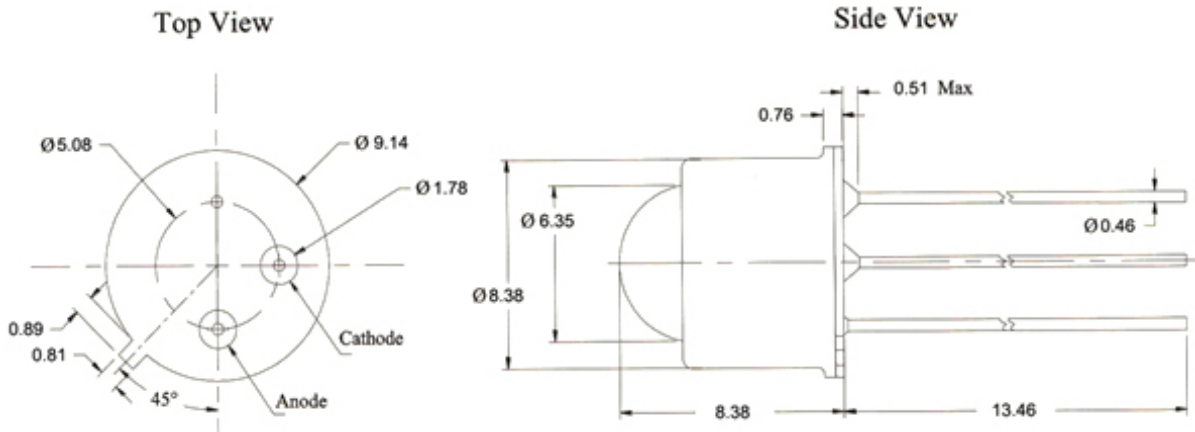


## Performance Characteristics



## Outline Dimensions

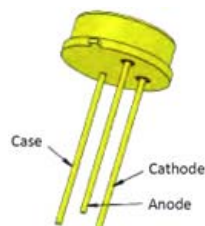
### TO-39 hemispherical lens



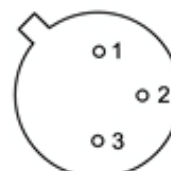
All dimensions in mm

## Electrical Connection

Pin #	Function
Pin 1	Anode
Pin 2	Cathode
Pin 3	Case



### Bottom View:





## Precautions

### Soldering:

- Do avoid overheating of the LED
- Do avoid electrostatic discharge (ESD)
- Do avoid mechanical stress, shock, and vibration
- Do only use non-corrosive flux.
- Do only solder the leads. Soldering of header or cap will damage the LED
- Do only cut the leads at room temperature with an ESD protected tool
- Do not solder closer than 3 mm from base of the header
- Do form leads prior to soldering
- Do not impose mechanical stress on the header when forming the leads
- Do not apply current to the LED until it has cooled down to room temperature after soldering

### Recommended soldering conditions:

dip soldering		hand soldering	
pre-heat time	max 30 s	soldering time	max 5 s
dipping time	max 5 s		
solder bath temperature	max 190 °C	solder temperature	max 190 °C

It is strongly advised to perform soldering at the shortest time and lowest temperature possible.



### Cleaning:

**Cleaning with isopropyl alcohol, propanol, or ethyl alcohol is recommended**

DO NOT USE acetone, chloroform, trichloroethylene, or MKS

DO NOT USE ultrasonic cleaners

### Static Electricity:

**UVTOP are sensitive to electrostatic discharge (ESD).** Precautions against ESD must be taken when handling or operating these LEDs. Surge voltage or electrostatic discharge can result in complete failure of the device.

### UV-Radiation:

During operation these LEDs do emit **high intensity ultraviolet light**, which is hazardous to skin and eyes, and may cause cancer. Do avoid exposure to the emitted UV light. **Protective glasses are recommended.** It is further advised to attach a warning label on products/systems that do utilize UV-LEDs:



### Operation:

**Do only operate UVTOP LEDs with a current source.**

Running these LEDs from a voltage source *will* result in complete failure of the device.

Current of a LED is an exponential function of the voltage across it. Usage of current regulated drive circuits is mandatory





## Device Materials

Pin #	Material
Header	Fe-Ni alloy, plated Ni-Au
Leads	Fe-Ni alloy, plated Ni-Au
Bonding wires	Au
Lens	SiO <sub>2</sub>



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The above specifications are for reference purpose only and subjected to change without prior notice