




## UVTOP270

- Deep Ultraviolet Light Emission Source
- 275 nm, 480-800  $\mu$ W
- TO metal can with SiO<sub>2</sub> glass lens
-  Water Sterilization, DNA Sequencing



### Description

**UVTOP270** is a series of **AlGaIn** based deep UV-LEDs with a typical peak wavelength of **275nm** and optical output power of **480-800  $\mu$ W**. It comes in hermetically sealed TO39 or TO18 metal can package with ball lens, hemispherical lens, or flat glass window configuration. **UVTOP270** is widely used for forensic analysis, disinfection, **water sterilization**, protein analysis, DNA sequencing and drug discovery.

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

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation, DC	$P_D$		180	mW
Forward Current, DC	$I_F$		30	mA
Pulsed Current (1% duty cycle, 1kHz)	$I_{FP}$		200	mA
Reverse Voltage	$U_R$	-6		V
Operating Temperature	$T_{opr}$	-30	+55	$^{\circ}C$
Storage Temperature	$T_{stg}$	-30	+100	$^{\circ}C$
Soldering Temperature (max. 5s)	$T_{sol}$		+190	$^{\circ}C$

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

Parameter	Symbol	Values			Unit
		Min.*	Typ.*	Max.*	
Peak Wavelength	$\lambda_P$	270	275	280	nm
Half Width (FWHM)	$\Delta\lambda$		12	15	nm
Forward Voltage	$U_F$		6.2	7.5	V

\*wavelength measurement tolerance:  $\pm 2$  nm, forward voltage measurement tolerance:  $\pm 2$  %

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

Part Number	Package	Window	Optical Power $P_{OUT}$ ( $\mu$ W)		View. Angle $2\theta_{1/2}$ ( $^{\circ}$ ) Typ.
			Min.*	Typ.*	
UVTOP270-FW-TO39	TO-39	Flat Window	480	800	120
UVTOP270-TFW-TO39		Flat Window	180	300	120
UVTOP270-TFWR-TO39		Flat Window	240	400	120
UVTOP270-HL-TO39		Hemisph. Lens	360	600	7
UVTOP270-BL-TO39		Ball Lens	360	600	7
UVTOP270-FW-TO18	TO-18	Flat Window	300	500	120
UVTOP270-BL-TO18		Ball Lens	300	500	10

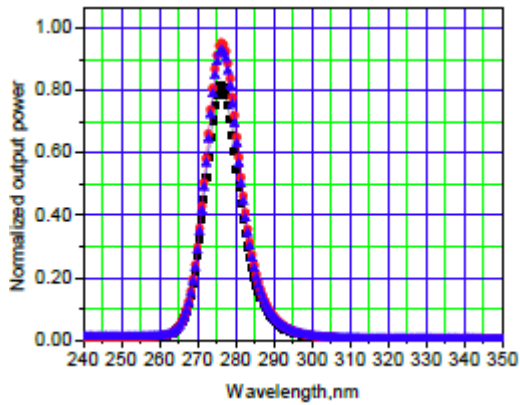
\*output power measurement tolerance:  $\pm 10$  %

 **Open Can version (TO18 or TO39, no cap, no window) available on request**

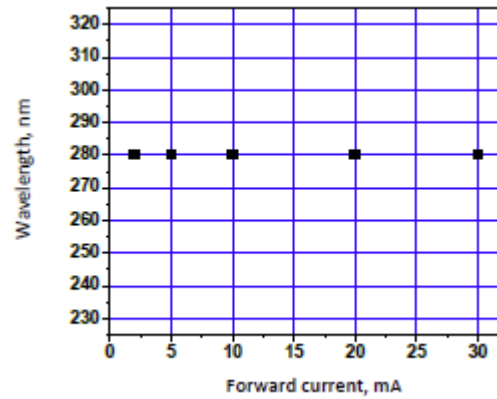


## Performance Characteristics

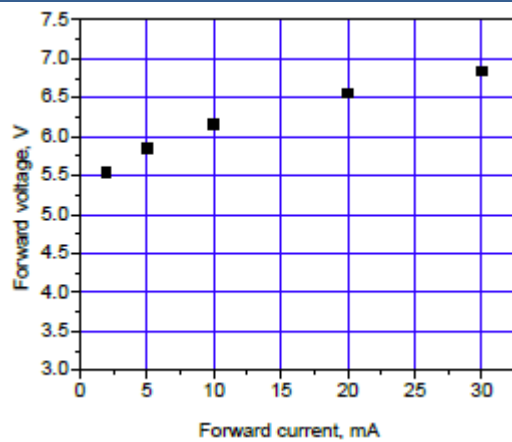
### Normalized output power vs. Wavelength



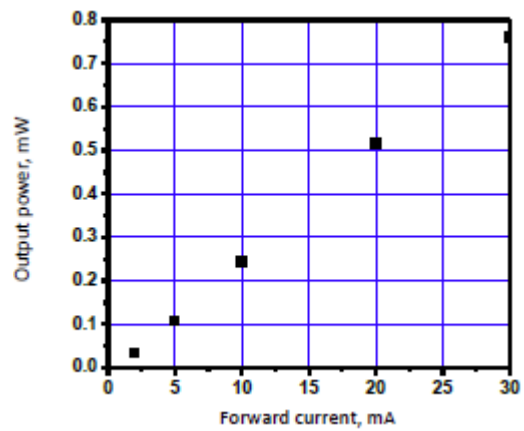
### Peak Wavelength vs. Forward Current



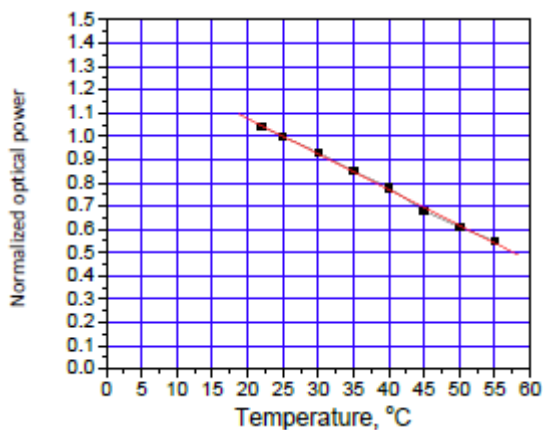
### Forward Voltage vs. Forward Current



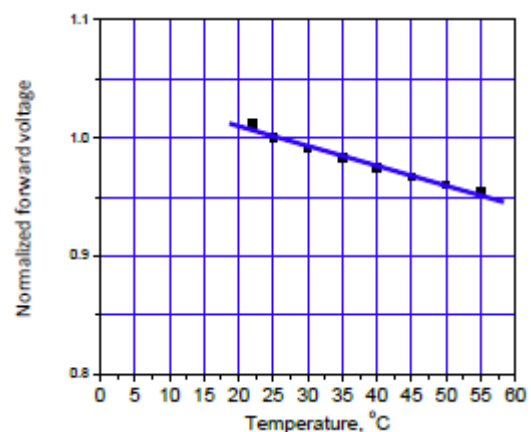
### Output Power vs. Forward Current



### Normalized Output Power vs. Temperature



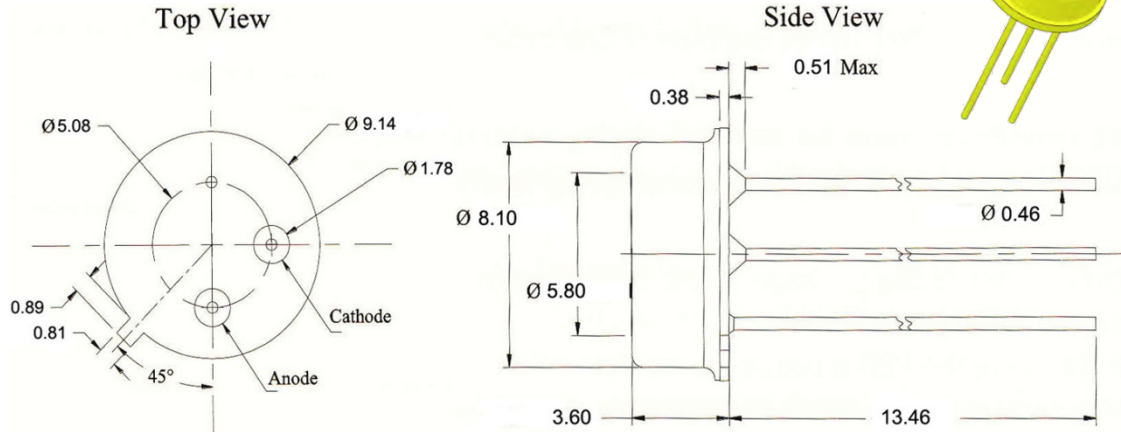
### Normalized Forward Voltage vs. Temperature





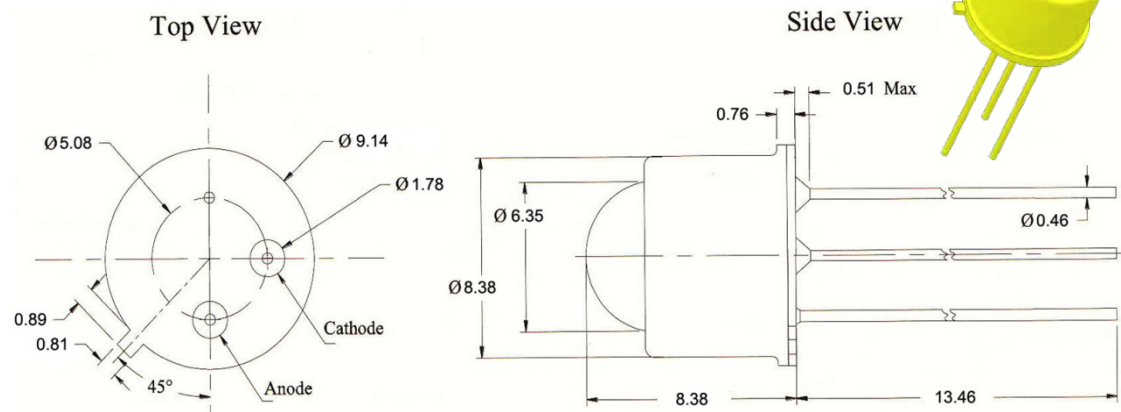
## Outline Dimensions

### TO-39 Flat Window



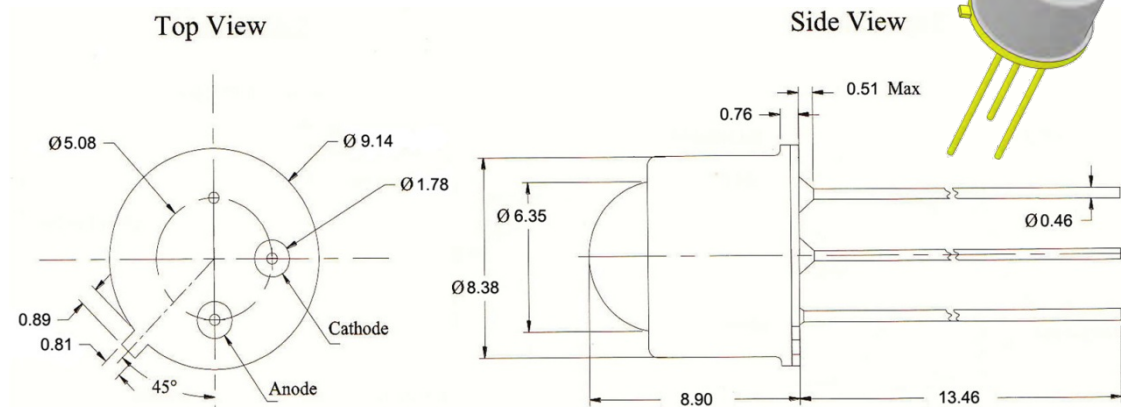
All dimensions in mm

### TO-39 Hemispherical Lens



All dimensions in mm

### TO-39 Ball Lens

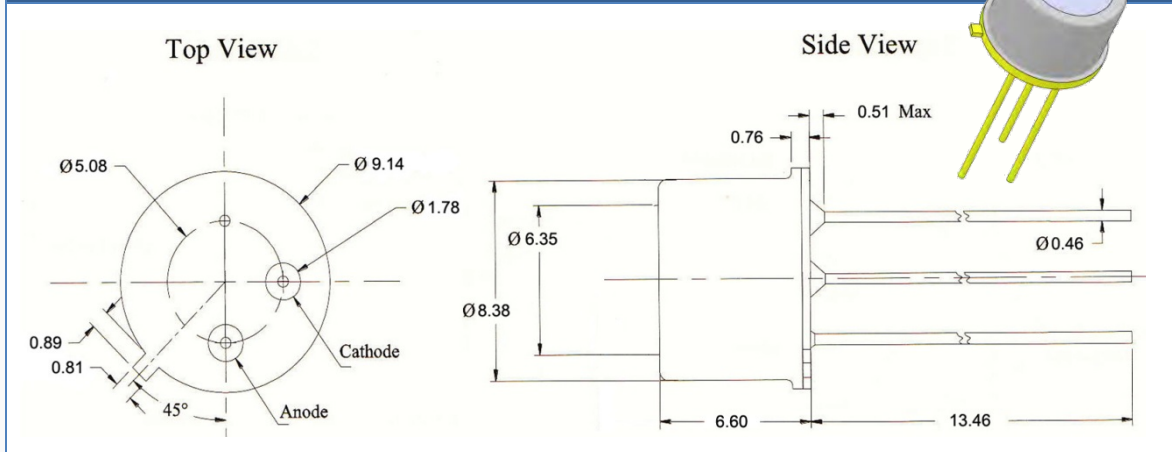


All dimensions in mm



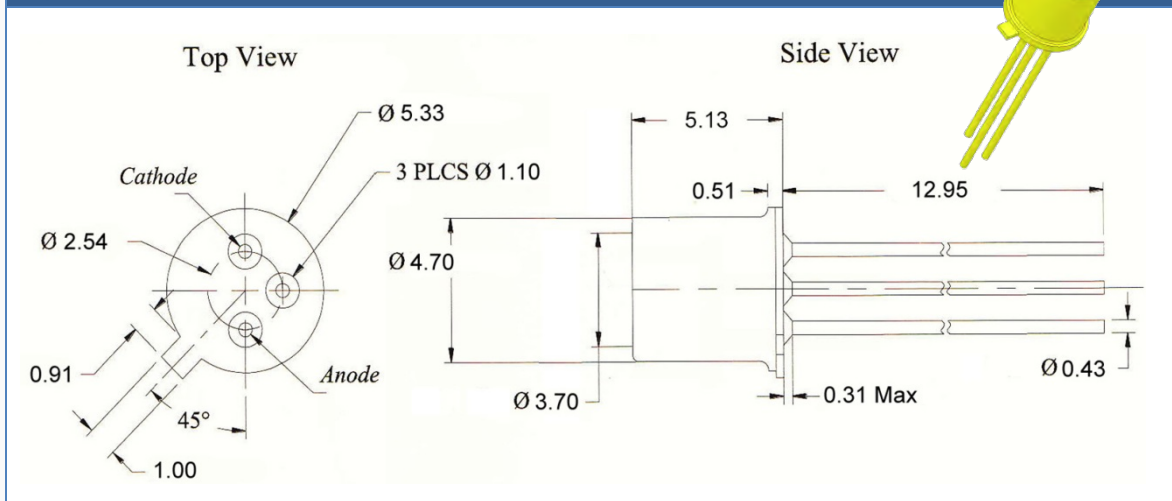
## Outline Dimensions

### TO-39 Tall Flat Window & Tall Flat Window w. Reflector



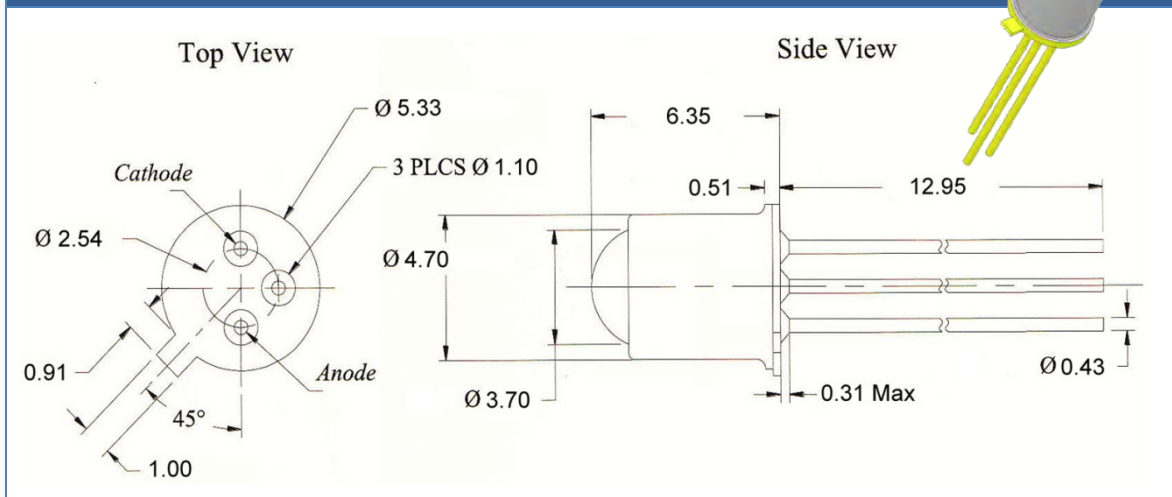
All dimensions in mm

### TO-18 Flat Window



All dimensions in mm

### TO-18 Ball Lens



All dimensions in mm



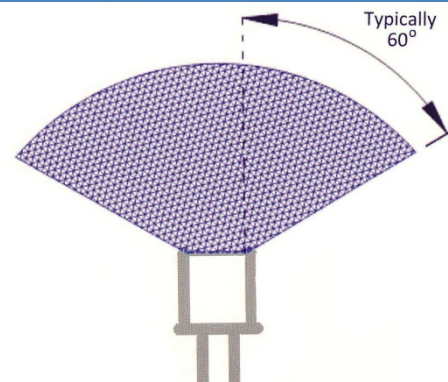
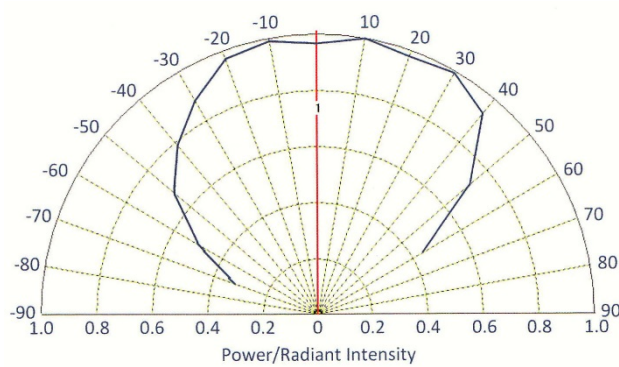


## Device Materials

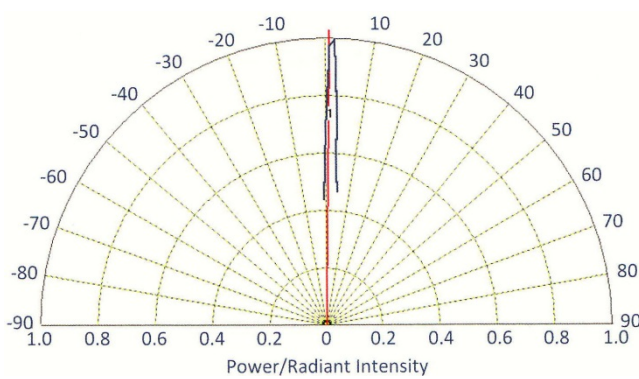
Part	Material
Header	Fe-Ni alloy, plated Ni-Au
Leads	Fe-Ni alloy, plated Ni-Au
Lens	SiO <sub>2</sub>
Bonding Wires	Au

## Emission Characteristics

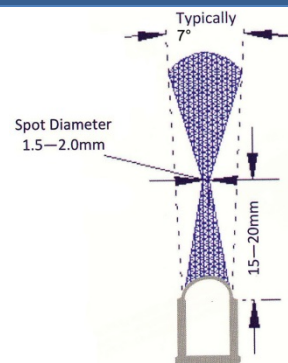
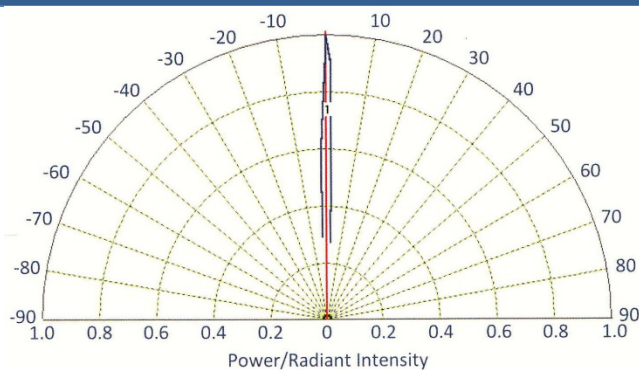
### Flat Window



### Hemispherical Lens



### Ball Lens





## 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

Above table specifies the maximum allowed duration and temperature during soldering. 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