




## UVMAX270-15

- Deep Ultraviolet Light Emission Source
- 275 nm, 10-15 mW
- Multi chip LED array
- Thermistor
- TEC (optionally)
- TO3 metal can with SiO<sub>2</sub> glass lens
-  Water Sterilization, DNA Sequencing



### Description

**UVMAX270** is a series of **AlGaIn** based deep UV multi chip LED arrays, utilizing 4 parallel strings (common cathode) carrying up to 9 pcs of parallel connected chip dies each. **UVMAX270** features total optical output power of **10-15 mW** at a nominal current draw of 720mA, and typical emission wavelength of **275 nm**. It comes in hermetically sealed TO3 metal can package with hemispherical lens or flat glass window configuration, with **integrated thermistor**. **UVMAX270** is widely used for forensic analysis, disinfection, water sterilization, protein analysis, DNA sequencing and drug discovery. **UVMAX270** can optionally be equipped with an **integrated thermo electric cooler**

### Maximum Rating (T<sub>CASE</sub> = 25°C)

Parameter	Symbol	Values		Unit
		Min.	Max.	
Power Dissipation, DC*	P <sub>D</sub>		5.4	W
Forward Current (T <sub>A</sub> =25°C)	I <sub>F</sub>		720	mA
Operating Temperature	T <sub>OPR</sub>	- 30	+ 55	°C
Storage Temperature	T <sub>STG</sub>	- 30	+ 100	°C
Soldering Temperature (max 5s)	T <sub>SOL</sub>		+ 190	°C

\* **Maximum dissipated power must not exceed 200mW without thermal management**

### Electro-Optical Characteristics (T<sub>CASE</sub> = 25°C, I<sub>F</sub> = 720 mA)

Parameter	Symbol	Values			Unit
		Min.	Typ.	Max.	
Peak Wavelength* <sup>1</sup>	λ <sub>P</sub>	270	275	280	nm
Spectral Width (FWHM)	Δλ		12	15	nm
Forward Voltage* <sup>2</sup>	V <sub>F</sub>		6.2	7.5	V
Radiated Power* <sup>3</sup>	P <sub>O</sub>	10		15	mW
Beam Angle (hemispherical lens)	2θ <sub>1/2</sub>		35		deg.
Beam Angle (flat window)	2θ <sub>1/2</sub>		120		deg.

\*<sup>1</sup>wavelength measurement tolerance: ± 2 nm

\*<sup>2</sup>forward voltage measurement tolerance: ± 2 %

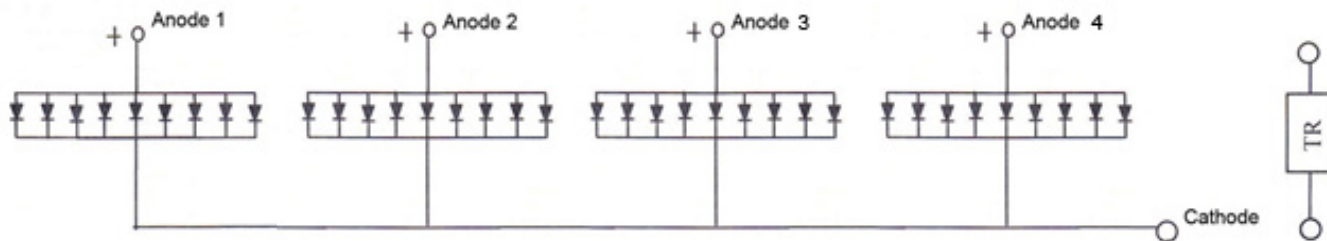
\*<sup>3</sup>output power measurement tolerance: ± 10 %

**NOTE: UVMAX LEDs are accompanied by a test report, overriding the electrical characteristics given in this datasheet**





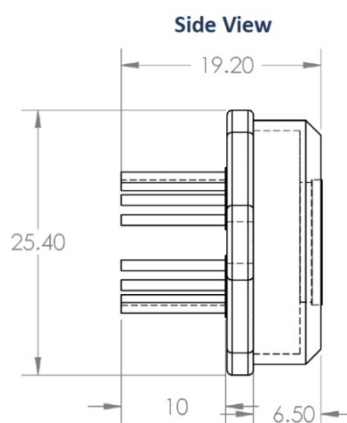
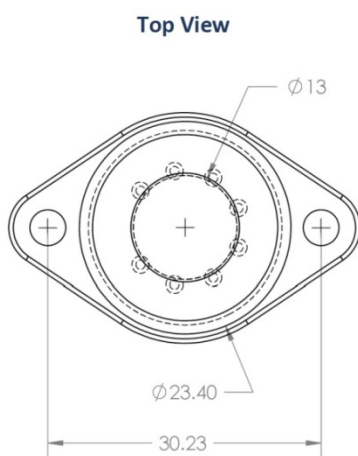
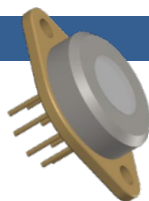
## Electrical Layout



NOTE: quantity and arrangement of anodes and quantity of dies per each anode may vary

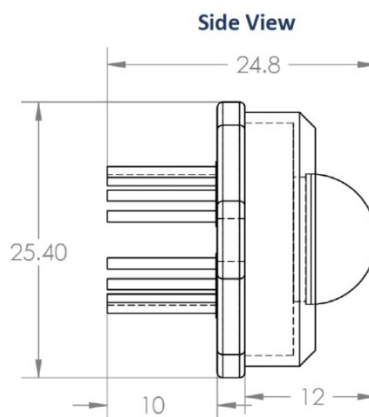
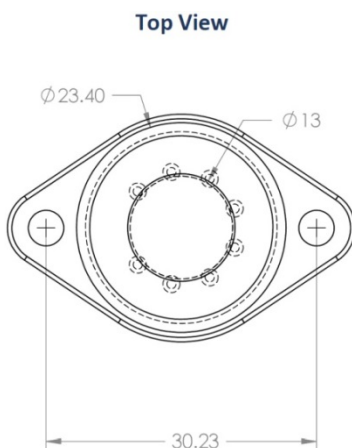
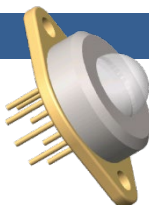
## Outline Dimensions

### FW - Flat window



All dimensions in mm

### HL - Hemispherical lens

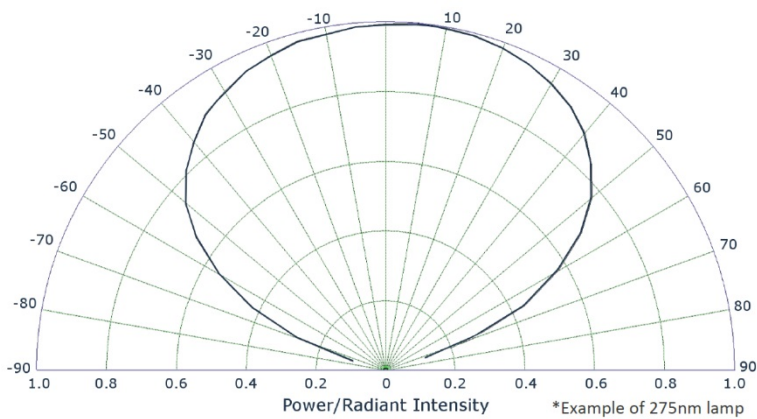
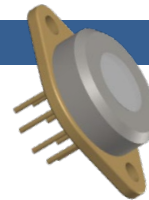


All dimensions in mm

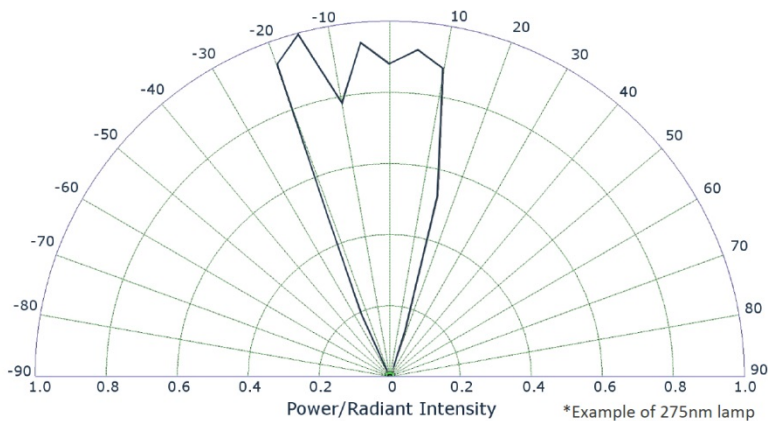


## Emission Characteristics

### FW - Flat window



### HL - Hemispherical Lens



## 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>





## 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:

**LEDs 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:

<b>Class 1</b>		<b>WARNING</b>
		<b>UV LEDs</b> High intensity ultraviolet light Eye and skin hazard - avoid exposure to eyes/skin Do not look directly at light - use eye protection Use warning labels on systems containing UV LEDs

### Operation:

**Do only operate UVMAX 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

