ROITHNER LASERTECHNIK GmbH
WIEDNER HAUPTSTRASSE 76 1040 VIENNA AUSTRIA
TEL. +43 1 586 52 43 -0, FAX. -44 OFFICE@ROITHNER-LASER.COM

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UVTOP240

- Deep Ultraviolet Light Emission Source
- 245 nm, 30-70 µW
- AlGaN structure
- ⟹ Optical Sensing, Imaging



RoHS COMPLIANT Pb Pb-Free

Description

UVTOP240 is a series of **AlGaN** based deep UV-LEDs with a typical peak wavelength of **245 nm** and optical output power of **30-70 µW**. It comes in hermetically sealed TO39 or TO18 metal can package with ball lens, hemispherical lens, or flat glass window configuration. **UVTOP240** is widely used for optical sensing and imaging of dyes, inks and markers

Maximum Ratings (T_{CASE} = 25°C)

Parameter	Symbol	Values Min.	Values Max.	Unit
Power Dissipation, DC	P_D		150	mW
Forward Current, DC	I_F		25	mA
Pulsed Current (1% duty cycle, 1kHz)	I_{FP}		200	mA
Reverse Voltage	U_R	-6		V
Operating Temperature	T_{opr}	-30	+55	°C
Storage Temperature	T_{stg}	-30	+100	°C
Soldering Temperature (max. 5s)	T_{sol}		+190	°C

General Characteristics (T_{CASE} = 25°C, I_F = 20mA)

Parameter	Symbol	Values Min.	Values Typ.	Values Max.	Unit
Peak Wavelength	λ_P	240	245	250	nm
Half Width (FWHM)	$\Delta\lambda$		12	15	nm
Forward Voltage	U_F		10	13	V

*wavelength measurement tolerance: ± 2 nm, forward voltage measurement tolerance: ± 2 %

Electro-Optical Characteristics (T_{CASE} = 25°C, I_F = 20mA)

Part Number	Package	Window	Optical Power P_{OUT} (µW) Min.	Optical Power P_{OUT} (µW) Typ.	View. Angle $2\Theta_{1/2}$ (°) Typ.
UVTOP240-FW-TO39	TO-39	Flat Window	30	70	120
UVTOP240-TFW-TO39		Flat Window	10	30	120
UVTOP240-TFWR-TO39		Flat Window	20	40	120
UVTOP240-HL-TO39		Hemisph. Lens	20	40	7
UVTOP240-BL-TO39		Ball Lens	30	70	7
UVTOP240-FW-TO18	TO-18	Flat Window	20	40	120
UVTOP240-BL-TO18		Ball Lens	20	40	10

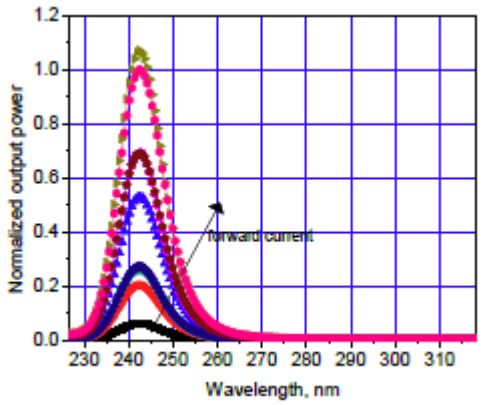
*output power measurement tolerance: ± 10 %

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

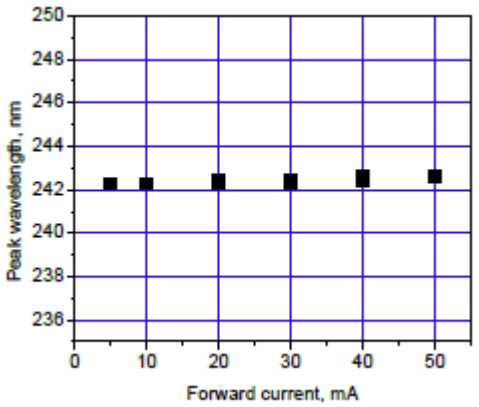
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Performance Characteristics

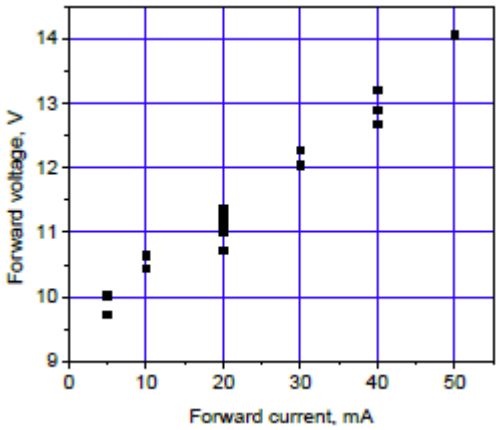
Normalized output power vs. Wavelength



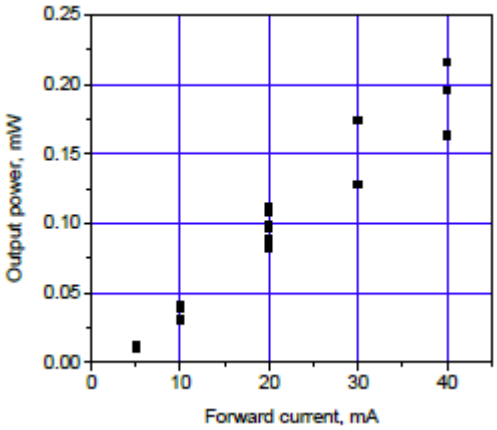
Peak Wavelength vs. Forward Current



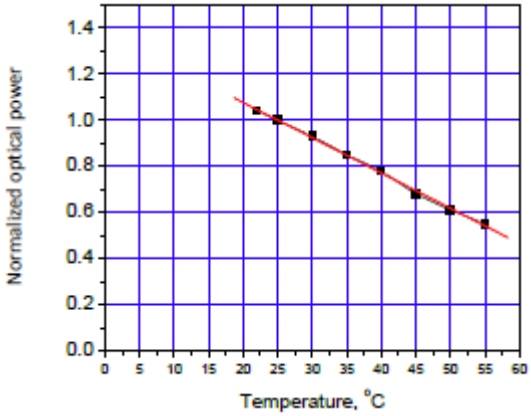
Forward Voltage vs. Forward Current



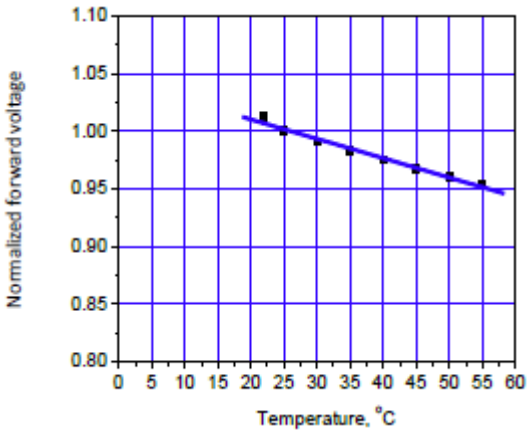
Output Power vs. Forward Current



Normalized Output Power vs. Temperature



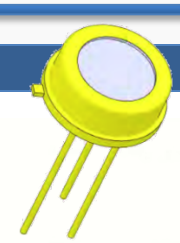
Normalized Forward Voltage vs. Temperature



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Outline Dimensions

TO-39 Flat Window



All dimensions in mm

TO-39 Hemispherical Lens



All dimensions in mm

TO-39 Ball Lens

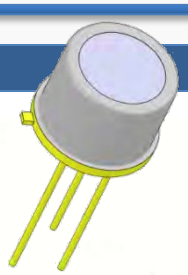


All dimensions in mm

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Outline Dimensions

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



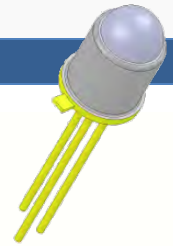
All dimensions in mm

TO-18 Flat Window



All dimensions in mm

TO-18 Ball Lens



All dimensions in mm

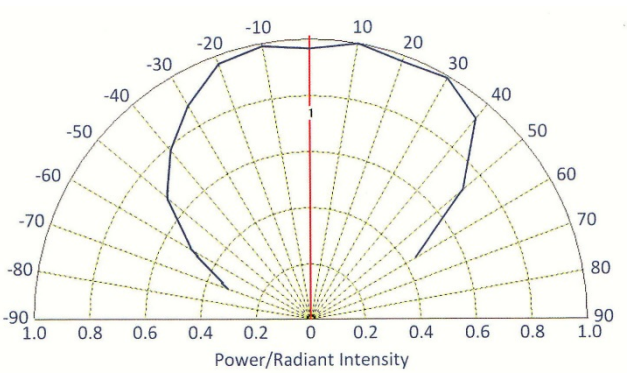
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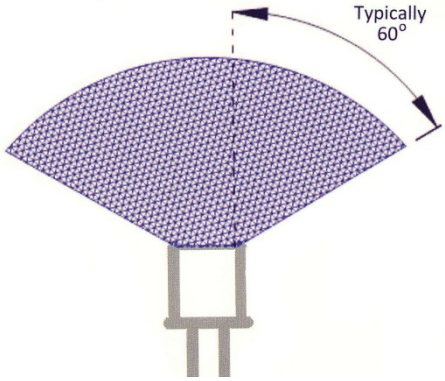
Device Materials

Part	Material
Header	Fe-Ni alloy, plated Ni-Au
Leads	Fe-Ni alloy, plated Ni-Au
Lens	SiO_2
Bonding Wires	Au

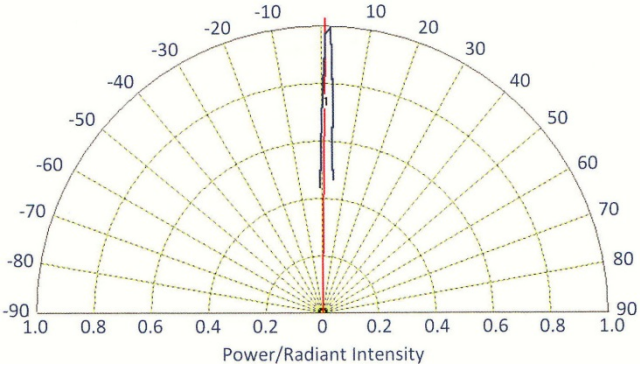
Emission Characteristics

Flat Window



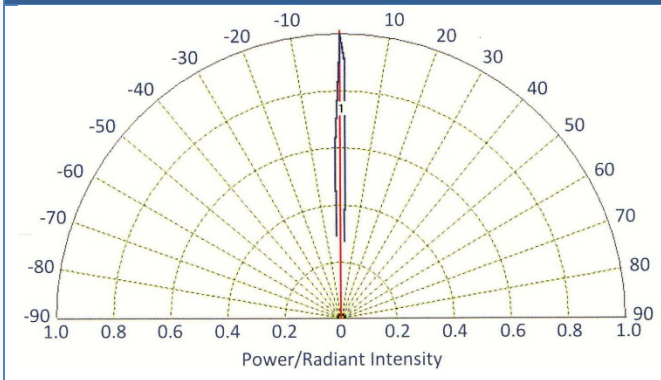


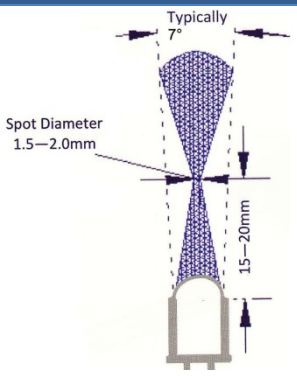
Hemispherical Lens





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, chloroseen, 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:

Class 1



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

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