



ROITHNER LASERTECHNIK GmbH

WIEDNER HAUPTSTRASSE 76
TEL. +43 1 586 52 43 -O. FAX. -44

1040 VIENNA AUSTRIA
OFFICE@ROITHNER-LASER.COM



LD-488-60MG

- Cyan Laser Diode
- 488 nm, 60 mW
- Singlemode
- TO56 package, Flat Window
- Zener Diode



Description

LD-488-60MG is a direct emitting, **GaN based**, 488nm cyan laser diode in 5.6 mm TO-Can with **integrated photodiode** and **Zener diode**. It offers single transverse mode emission and >100 Mhz modulation bandwidth. It is an efficient radiation source for many applications like **laser projection**, holography, metrology, biomedical application...

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

| Parameter | Symbol | Values | | Unit |
|---------------------------------|------------|--------|-------|-------------|
| | | Min. | Max. | |
| Operating Current | I_F | | 150 | mA |
| Operating Temperature | T_{CASE} | - 40 | + 60 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | - 40 | + 85 | $^{\circ}C$ |
| Reverse Current | I_R | | 20 | mA |
| Soldering Temperature (max. 3s) | T_{SOL} | | + 260 | $^{\circ}C$ |
| Junction Temperature | T_J | | + 150 | $^{\circ}C$ |



Electro-Optical Characteristics ($T_{CASE} = 25^{\circ}C, P_O = 60mW$)

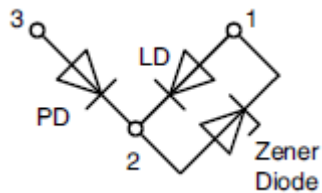
| Parameter | Symbol | Values | | | Unit | |
|---------------------------------------|-----------------|------------------|------------|------------|-----------|------|
| | | Min. | Typ. | Max. | | |
| Peak Wavelength | λ_P | 486 | 488 | 490 | nm | |
| Spectral Width (FWHM) | $\Delta\lambda$ | | 2 | | nm | |
| Operating Voltage | V_F | | 6.0 | 7.5 | V | |
| Threshold Current | I_{th} | | 25 | 40 | mA | |
| Operating Current | I_F | | 85 | 100 | mA | |
| Modulation Frequency | f | | 100 | | MHz | |
| Polarization | P_{GR} | | 100:1 | | | |
| Beam Divergence (FWHM) | parallel | $\Theta_{ }$ | 4 | 6 | 8 | deg. |
| | perpendicular | Θ_{\perp} | 16 | 23 | 26 | deg. |
| Thermal Resistance (junction to case) | R_{th} | | 34 | | K/W | |
| Monitor Current | I_M | | 40 | | μA | |



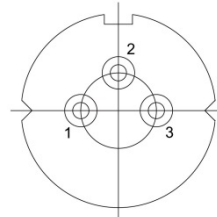
Electrical Connection

Pin Configuration

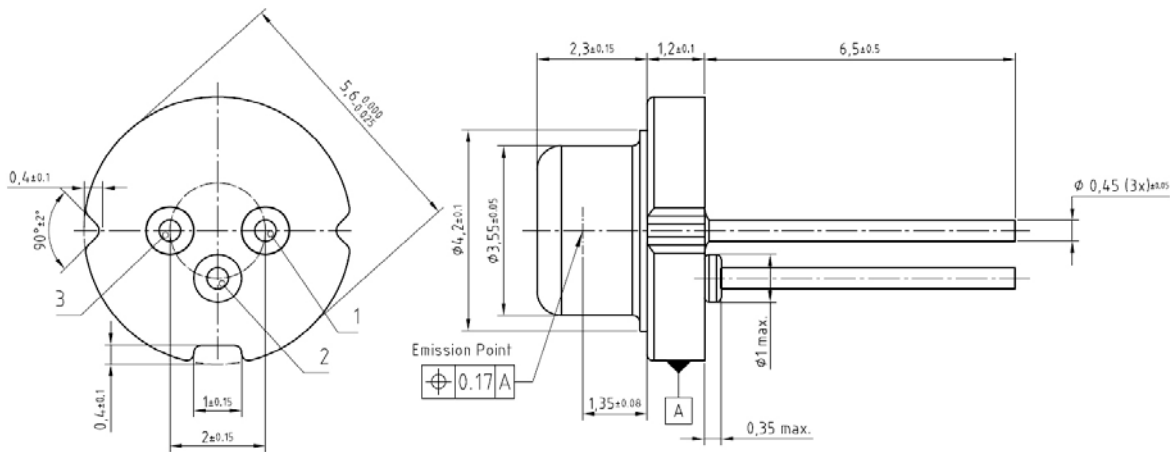
| Pin # | Function |
|-------|-------------------------------|
| Pin 1 | LD Anode |
| Pin 2 | PD Cathode, LD Cathode (case) |
| Pin 3 | PD Anode |



Bottom View



Outline Dimensions



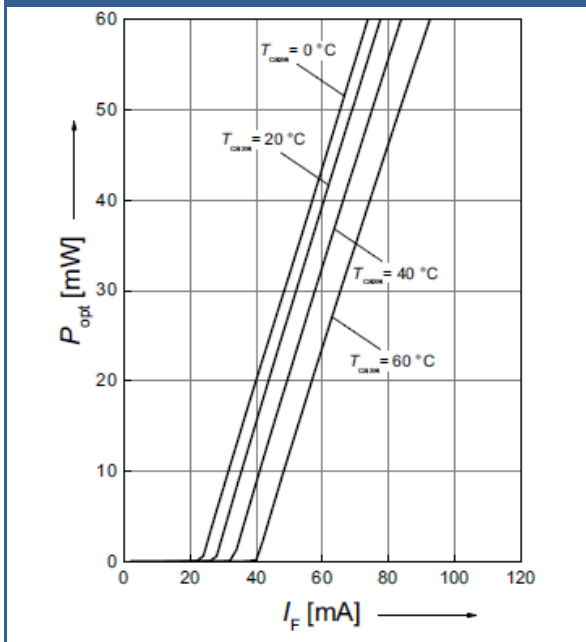
- 1: Cathode LD
- 2: Anode LD, Cathode PD
- 3: Anode PD

All dimensions in mm

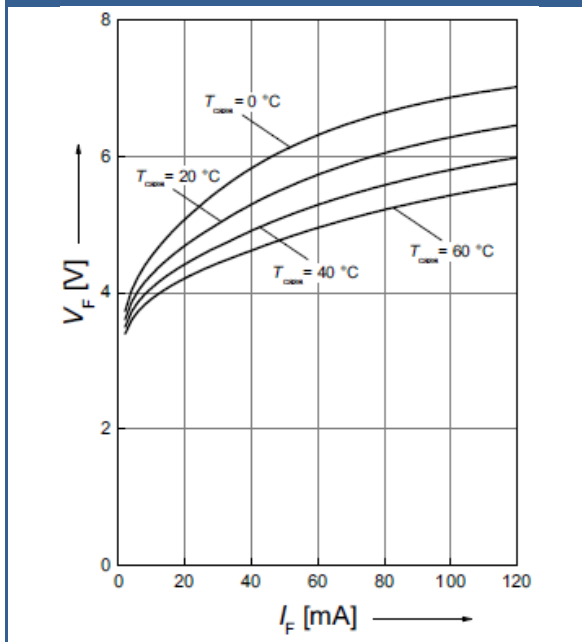


Performance Characteristics

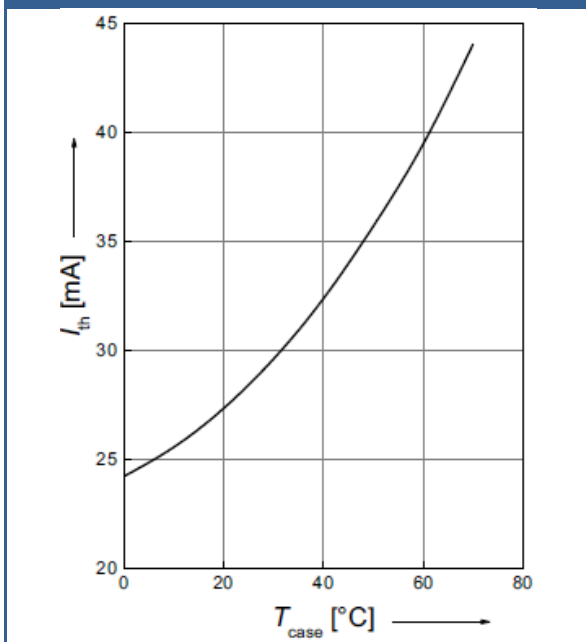
Optical Output Power vs. Operating Current



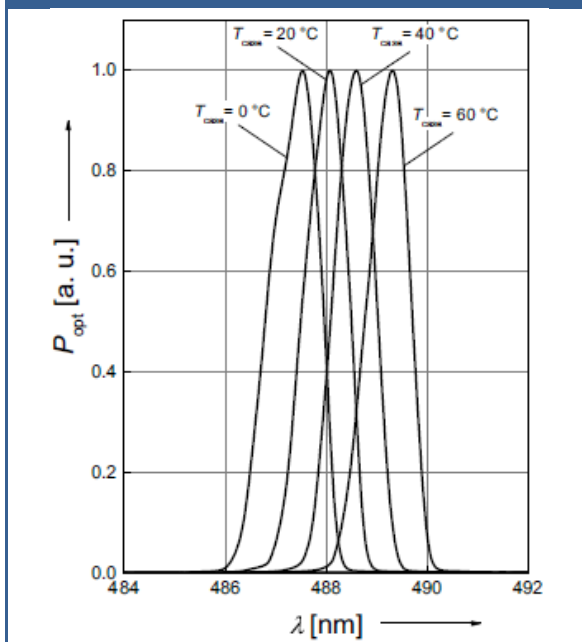
Operating Voltage vs. Operating Current



Threshold Current vs. Temperature

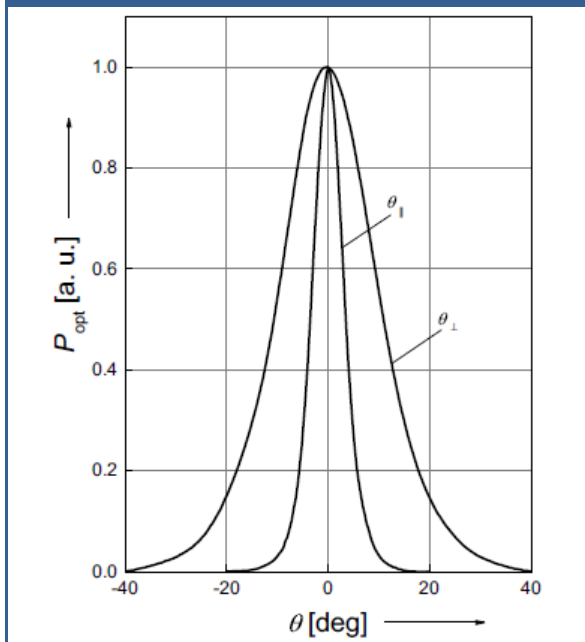


Relative Output Power vs. Wavelength





Beam Divergence



Precautions

Safety

Caution: Laser light emitted from any laser diode may be **harmful to the human eye**. Avoid looking directly into the laser diode's aperture when the diode is in operation.

Note: The use of optical lenses with this laser diode will increase eye hazard

ESD caution

Always do handle laser diodes with extreme care to **prevent electrostatic discharge**, the primary cause of unexpected diode failure. To prevent ESD related failures, it is strongly advised to always **wearing wrist straps**, and **grounding all applicable work surfaces**, when handling laser diodes

Operating Considerations

It is strongly advised to only operate this laser diode with a current source. The current of a laser diode is an exponential function of the voltage across it. **Usage of current regulated drive circuits is mandatory.** Laser diodes may be damaged by excessive drive currents or switching transients

It is advised, to operate the laser diode at the lowest temperature possible, and to never exceed maximum specifications as outlined in the datasheet. Device degradation will accelerate with increased temperature. **Proper heat sinking will greatly enhance stability and life time of the laser diode**