

LU0808T040 Industrial Laser Diode Up to 4W Operation Power @ 808nm



Description:

The LU0808T040 series offers an optical power of 4W from a 105µm core, NA 0.15 or NA 0.22 multi-mode fiber. At this common wavelength our Laser Diode offers a very competitive price-performance value for applications in materials processing, illumination and medicine.

Very high life time is achieved due to the Lumics proprietary laser diode facet passivation technology and due to extensive burn-in testing.

Features & Functions:

- Wavelength 808nm
- 105µm core, NA 0.15 or 0.22 fiber
- Hermetically sealed single emitter
- Anode / cathode isolated from base
- Direct modulation up to 100 MHz

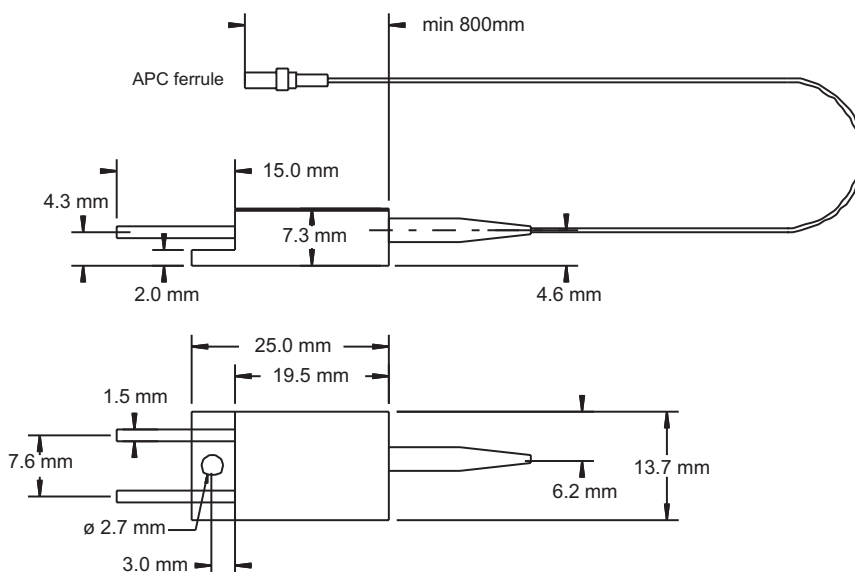
Benefits:

- Ultra long lifetime
- Burn-in tested
- Cost-effective
- Robust design
- Easy to mount

Applications:

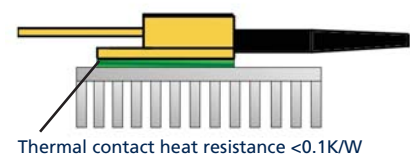
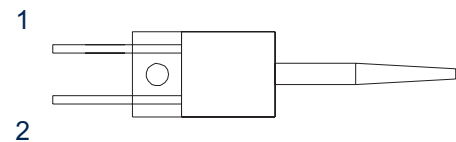
- Printing
- Pumping
- Materials processing
- Illumination
- Medical laser treatment

Modul Drawing (dimensions in mm)



Pin Connections

| Pin | Function | Pin | Function |
|-----|--------------|-----|----------------|
| 1 | LD Anode (+) | 2 | LD Cathode (-) |



Your ideas are welcome.

Electrical and Optical Characteristics Typical Laser specifications at 25°C

| Parameter | Symbol | Typical | Unit |
|--|------------------|---|--------|
| Output Power c.w. | P_{op} (c.w.) | 4 | W |
| Peak Wavelength at P_{op} | λ_{peak} | 808 +/-10 | nm |
| Spectral Width (FWHM) | λ_{FWHM} | 4 | nm |
| Threshold Current | I_{th} | 900 | mA |
| Operating Current | I_{op} | 4.8 | A |
| Operating Voltage | V_{op} | 1.82 | V |
| Rise and Fall Time | t_r | 20 | nsec |
| Connector Type (optional) | | APC ferrule (*SMA, FC/APC, FC/PC connector) | |
| Heat Resistance LD to bottom of base plate | R_{H} | 3.5 | K / W |
| Power Conversion Efficiency | | 45 | % |
| Recommended Case Temperature | T_{op} | 20 - 30 | °C |
| Wavelength Shift vs. Temperature | | 0.35 | nm / K |
| Wavelength Shift vs. Power | | 1.2 | nm / W |

Fiber Specifications

| | | | |
|--------------------------|----|--------------|---------|
| Fiber Core Diameter | | 105 | μ m |
| Fiber Numerical Aperture | NA | 0.15 or 0.22 | |
| Fiber Cladding Diameter | | 125 | μ m |
| Fiber Buffer Diameter | | 250 | μ m |
| Fiber Length | | 1 | m |
| Min. Bend Radius | | 50 | mm |

Application Note:

- (1) For pulsed operation max peak power can be $1.2 \times P_{op}$ if pulse time is $< 100 \mu$ sec and average power is lower than P_{op} (c.w.)
- (2) Keep the heat sink at $\leq 35^\circ$. The heat sink should have a flatness of better than 0.02mm and a roughness grade not less than N7 (i.e. Ra=1.6 μ m)
- (3) A conductive material between TO-220 laser diode module and the modul base is highly recommended. The thermally conductive material should have a sufficient thickness and elasticity to compensate for the non-planarity between the module base and the heat sink surface
- (3) Electrostatic discharge (ESD) can lead to latent or catastrophic failure of a multimode laser diode module
- (4) The power supply should have a transient suppression and an over-voltage protection. Before connecting the module to the power supply and during Power-off the power supply output should be short circuited
- (5) By no means should the fiber be touched by hot solder because this can lead to lower output performance and reliability. During the soldering process the fiber temperature should always be below 85°C

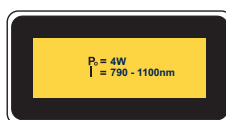
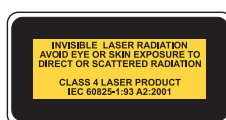
Absolute Maximum Ratings

| Parameter | Symbol | Min | Max | Unit |
|-------------------------------------|----------------------|-----|-----|------|
| Storage Temperature | T_{max} | -30 | 70 | °C |
| Operating Case Temp. | $T_{op, case temp.}$ | -10 | 40 | °C |
| Maximum Processing Temp.-max 10sec. | $T_{op, Processing}$ | | 180 | °C |
| LD Forward Current c.w. | $I_{op, max}$ | | 6 | A |
| LD Reverse Voltage | $V_{R, max}$ | | 2 | V |
| Rel. Humidity | | 0 | 85 | % |

Note:

Absolute maximum ratings may be applied to the laser module for short periode of time only. Exposure to maximum ratings for extended period of time or exposure above one or more max ratings may cause damage or affect the reliability of the device

User Safety



Your ideas are welcome.