# 810nm/150mW CircularBeam Laser Diode

## CircuLaser™ Laser Diode

Circular beam with diffraction-limited performance and low divergence in a standard package

- **150mW Kink-free Optical Power**
- **Built-in Monitor Photodiode**
- **Circular, diverging beam with µLens™ technology**
- **Numerical Aperture (NA) ~0.11**
- **Aberration ~l/4 peak to valley**
- **Fabry-Perot index-guided, Single-mode Laser Diode**
- **Hermetically sealed package**
- **Standard 9mm package**

**Absolute Maximum Ratings (case temperature = 25°C)**

| Parameter | Symbol | Minimum | Maximum | Unit |
|---|---|---|---|---|
| Optical Output Power | $P_0$ | - | 150 | mW |
| LD Reverse Voltage | $V_R$ (LD) | - | 3 | V |
| PD Reverse Voltage | $V_R$ (PD) | - | 25 | V |
| Operating Temperature | $T_{opr}$ | -10 | +50 | °C |
| Storage Temperature | $T_{stg}$ | -40 | +80 | °C |

**Optical and Electrical Characteristics (case temperature = 25°C)**

| Parameter | Symbol | Minimum | Typical | Maximum | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| Threshold Current | $I_{th}$ | - | 35 | 45 | mA | |
| Operating Current | $I_{op}$ | - | 210 | 230 | mA | $P_0$ = 150mW |
| Operating Voltage | $V_{op}$ | - | 2.3 | 2.8 | V | $P_0$ = 150mW |
| Optical Output Power | $T_{opr}$ | - | - | 150 | mW | CW, kink-free |
| Slope Efficiency | $\eta$ | 0.75 | 0.85 | - | mW/mA | $P_0$ = 150mW |
| Wavelength | $\lambda$ | 804 | 809 | 813 | nm | $P_0$ = 150mW |
| Circularity | $\phi$ | | - | 1.2:1.0 | Ratio | $P_0$ = 150mW |
| Beam Divergence | $\theta_{//}$ | - | 9 | - | Deg | $P_0$ = 150mW, FWHM |
| Off axis Angle | $\Delta\theta$ | - | - | ±3 | Deg | |
| Monitor Current | Is | 0.1 | - | 20 | mA | $P_0$ = 150mW $V_R$ (PD)=5V |
| Astigmatism | As | - | - | 0.25 | Waves | |

Specifications are subject to change without notice.
Each CircuLaser is provided with test data.

VIN KAROLA INSTRUMENTS

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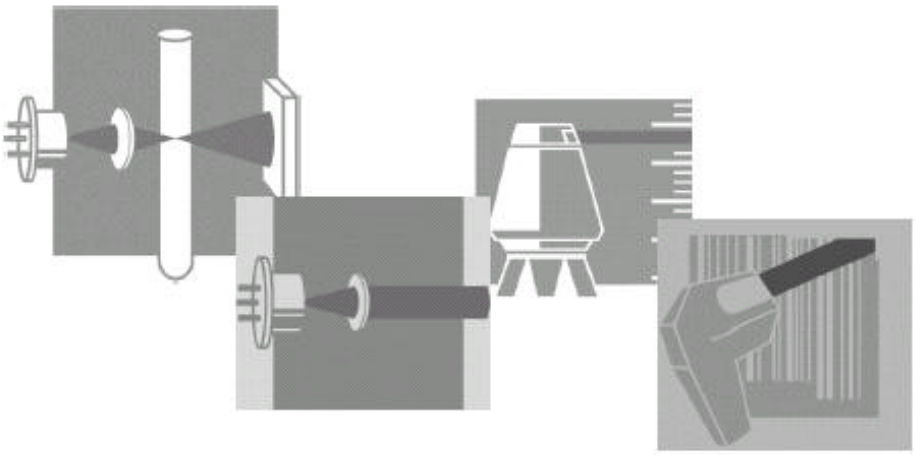
## Circularity, Beam quality, and Beam divergence…….. All in one



## Handling Care, and Precautions for use of CircuLaser Diodes

**1. Absolute Maximum Ratings**

- Do not exceed, even momentarily, the maximum ratings. It can cause at minimum a considerable
  reduction in reliability, and potentially instantaneous failure.
- Surge current generated at power on-off operation may damage laser diodes. Check on the transient characteristics of the power supply to make sure that such surges do not exceed the maximum ratings.
- The maximum ratings are specified for a case temperature of 25°C. As the case temperature goes up, power dissipation as well as maximum light output is reduced. Heat sinking is recommended for longer life, and reliable operation.

**2. Soldering Conditions**

- Maximum solder-tip temperature should be 250°C. The soldering time must be within 3 sec. A minimum solder clearance of ~1.6mm (60 mils) should be maintained from the root of the lead.

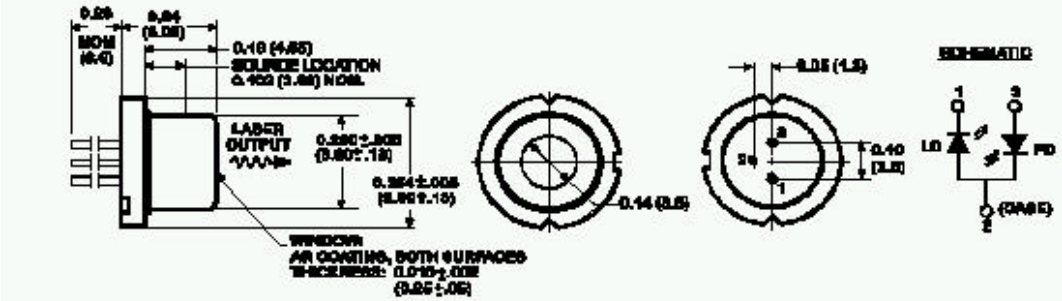
**3. Static Electricity**

- Soldering irons should be grounded.
- All handling should be done while wearing the ground strap.

**4. Safety**

- Avoid looking at the output light of the laser diode directly, or indirectly. It may be harmful.

## Mechanical Package and Layout
## (9mm package)

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