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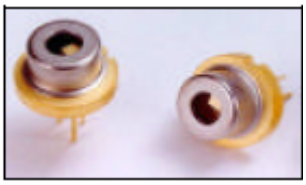
# LD1490-C010



## TECHNICAL DATA

## Infrared Distributed Feedback Laser Diode

### *Features*

- Lasing Mode: single longitudinal mode
- Peak Wavelength : typ. 1490 nm
- Optical Ouput Power: 10 mW, CW
- Package: 5.6 mm, flat window


### *Absolute Maximum Ratings ($T_C$=15°C)*

| Item | Symbol | Value | Unit |
|---|---|---|---|
| CW Output Power | $P_O$ | 20 | mW |
| LD Reverse Voltage | $V_r$ | 2 | V |
| LD Forward Current | $I_{op}$ | 200 | mA |
| PD Reverse Voltage | $V_{rPD}$ | 20 | V |
| PD Forward Current | $I_{PD}$ | 10 | mA |
| Operating Case Temperature | $T_C$ | 0 …70 | °C |
| Storage Temperature | $T_{stg}$ | -40 …85 | °C |

### *Specifications ($T_C$=25°C)*

| Item | Conditions | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| **Optical Specifications** | | | | | | |
| CW Output Power | 0 …70 °C | $P_O$ | - | 10 | - | mW |
| Center Wavelength | 25°C, $P_O$=3mW | $\lambda_C$ | 1487 | 1490 | 1493 | nm |
| | 0..70°C, $P_O$=5mW | | 1482 | - | 1498 | |
| Spectral Width | 25°C, $P_O$=5mW | $\Delta\lambda$ | - | 0.11 | 0.2 | nm |
| Wavelength Temp. Coefficient | 0..70°C, $P_O$=5mW | $\Delta\lambda$ / $\Delta T$ | - | 0.11 | - | nm/K |
| FWHM Beam Divergence | 25°C, $P_O$=3mW | $\Theta_{\parallel}$ | - | 26 | - | deg. |
| | | $\Theta_{\perp}$ | - | 45 | - | deg. |
| Modulation Bandwidth | 25°C, $I_{op}$= $I_{th}$ +16mA | $f_{-3dB}$ | 6 | - | - | GHz |
| | 60°C, $I_{op}$= $I_{th}$ +16mA | | 4 | - | - | |
| Resonance Frequency | 25°C, $I_{op}$= $I_{th}$ +16mA | $f_r$ | - | 5 | - | GHz |
| | 60°C, $I_{op}$= $I_{th}$ +16mA | | - | 4 | - | |
| **Electrical Specifications** | | | | | | |
| Threshold Current | 25 °C | $I_{th}$ | - | 18 | 30 | mA |
| | 70 °C | | - | 35 | | |
| Operating Current | 25°C, $P_O$=5mW | $I_{op}$ | - | 38 | 50 | mA |
| | 70°C, $P_O$=5mW | | - | 65 | | |
| Slope Efficiency | 25°C, $P_O$=5mW | $\eta$ | 0.17 | 0.26 | - | W/A |
| | 70°C, $P_O$=5mW | | | 0.16 | - | |
| Operating Voltage | 25°C, $P_O$=5mW | $V_{op}$ | - | 1.2 | 1.6 | V |
| Serial resistance | 25°C, $P_O$=5mW | $R_S$ | - | 6 | - | Ω |
| Monitor Current | 25°C, $P_O$=5mW | $I_m$ | 40 | 100 | 700 | µA |
| Monitor Dark Current | 25°C, $V_{RPD}$=5V | $I_d$ | - | 0.1 | 1.0 | µA |
| Monitor Capacitance | F=1MHz, $V_{RPD}$=5V | $C_m$ | - | 5 | 10 | pF |

The above specifications are for reference purpose only and subjected to change without prior notice.Distributed

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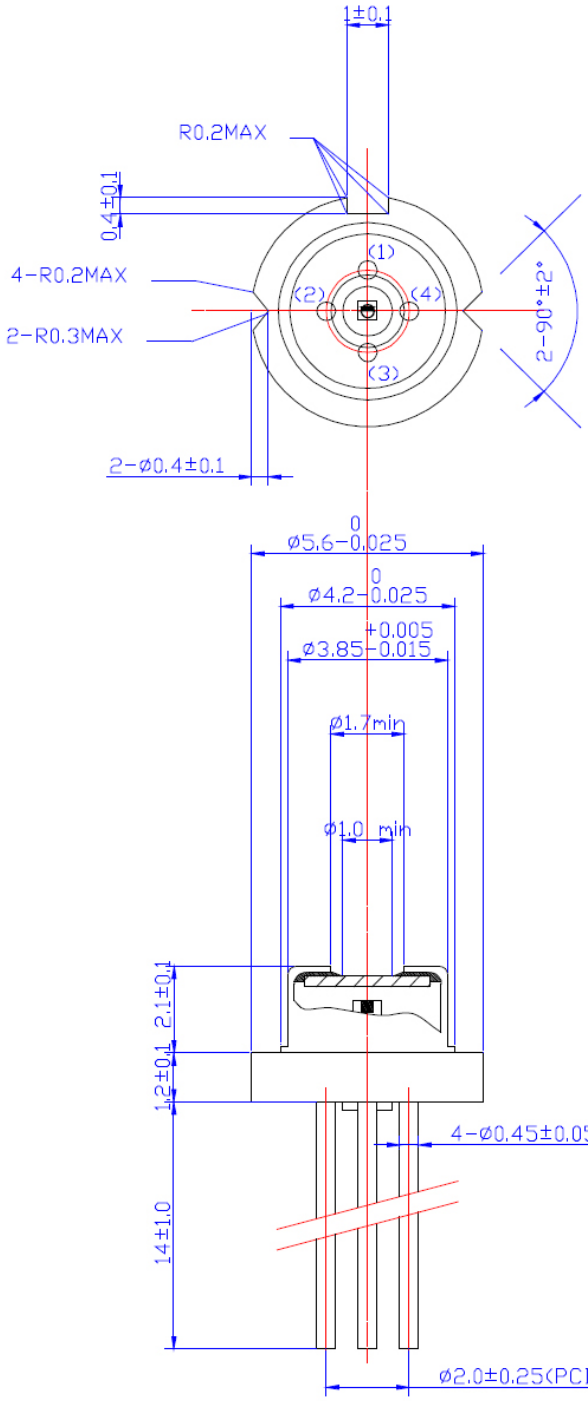
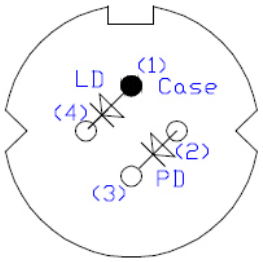
## *Package Dimensons*

**5.6 mm Package (*Unit:mm*)**




**Bottom View**




| PIN | Funciton |
|---|---|
| 1 | Case, LD Anode |
| 2 | PD Anode |
| 3 | PD Cathode |
| 4 | LD Cathode |

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## *Safety of Laser light*


- Laser Light can damage the human eyes and skin. Do not expose the eye or skin directly to any laser light and/or through optical lens. When handling the LDs, wear appropriate safety glasses to prevent laser light, even any reflections from entering to the eye. Focused laser beam through optical instruments will increase the chance of eye hazard.
- The LD emitts invisible light

## *Cautions*

### *1. Operating methode*

- This LD shall change its forward voltage requirement and optical ouput power according to temperature change. Also, the LD will require more operation current to maintain same ouput power as it degrades. In order to maintain output power, use of APC (Automatic Power Control) is recommended. Which use monitor feedback to adjust the operation current.
- Confirm that electrical spike current generated by switching on and off does not exceed the maximum operating current level specified herein above as absolute maximum rating. Also, employ appropriat countermeasures to reduce chattering and/or overshooting in the circuit.

### *2. Static Electricity*

- Static electricity or electrical surges will reduce and degrade the reliability of the LDs. It is recommended to use a wrist trap or anti-electrostatic glove when handeling the product.

### *3. Absolute Maximum Rating*

- Active layer of LDs shall have high current density and generate high electric field during its operation. In order to prevent excessive damage, the LD must be operated striclty below absolute maximum rating.