

**Model No. LD780B10C16**  
**780nm 10mW 60°C Laser Diode in TO-18 Ø5.6mm Package**

**FEATURES**

- 780nm 10mW CW AlGaAs Laser Diode
- Package: TO-18 (dia. 5.6mm)
- Built-in photodiode for monitoring laser diode

**APPLICATIONS**

- Industrial optical module
- Sensor
- Laser beam printer

**ABSOLUTE MAXIMUM RATINGS**

| PARAMETER             | SYMBOL    | CONDITION | RATING     | UNIT |
|-----------------------|-----------|-----------|------------|------|
| OPTICAL OUTPUT POWER  | $P_O$     | CW        | 12         | mW   |
| REVERSE VOLTAGE (LD)  | $V_{RL}$  | -         | 2          | V    |
| REVERSE VOLTAGE (PD)  | $V_{RD}$  | -         | 30         | V    |
| OPERATING TEMPERATURE | $T_{opr}$ | -         | -10 to +60 | °C   |
| STORAGE TEMPERATURE   | $T_{stg}$ | -         | -40 to +85 | °C   |

**ELECTRICAL AND OPTICAL CHARACTERISTICS ( $T_c = 25^\circ\text{C}$ )**

| PARAMETER                         | SYMBOL                       | MIN. | TYP. | MAX. | UNIT  | CONDITIONS                                  |
|-----------------------------------|------------------------------|------|------|------|-------|---------------------------------------------|
| LASING WAVELENGTH                 | $\lambda_p$                  | 775  | 788  | 800  | nm    | $P_O = 10\text{mW}$                         |
| THRESHOLD CURRENT                 | $I_{th}$                     | 8    | 12   | 18   | mA    | -                                           |
| OPERATING CURRENT                 | $I_{op}$                     | -    | 22   | 40   | mA    | $P_O = 10\text{mW}$                         |
| DIFFERENTIAL EFFICIENCY           | $\eta$                       | 0.55 | 0.75 | 0.95 | mW/mA | $5\text{mW}/I(10\text{mW}) - I(5\text{mW})$ |
| OPERATING VOLTAGE                 | $V_{op}$                     | 1.5  | 1.8  | 2.4  | V     | $P_O = 10\text{mW}$                         |
| MONITOR CURRENT                   | $I_m$                        | 0.5  | 0.7  | 1.5  | mA    | $P_O = 10\text{mW}$                         |
| PARALLEL DIVERGENCE ANGLE         | $\Theta_{//}$                | 6    | 8    | 13   | deg   | $P_O = 10\text{mW}$                         |
| PERPENDICULAR DIVERGENCE ANGLE    | $\Theta_{\perp}$             | 25   | 31   | 35   | deg   | $P_O = 10\text{mW}$                         |
| PARALLEL FFP DEVIATION ANGLE      | $\Delta \Theta_{//}$         | -2   | 0    | +2   | deg   | $P_O = 10\text{mW}$                         |
| PERPENDICULAR FFP DEVIATION ANGLE | $\Delta \Theta_{\perp}$      | -3   | 0    | +3   | deg   | $P_O = 10\text{mW}$                         |
| ASTIGMATISM                       | $A_s$                        |      |      | 10   | um    | $P_O = 10\text{mW}$                         |
| EMISSION POINT ACCURACY           | $\Delta x \Delta y \Delta z$ | -60  | 0    | +60  | um    | $P_O = 10\text{mW}$                         |

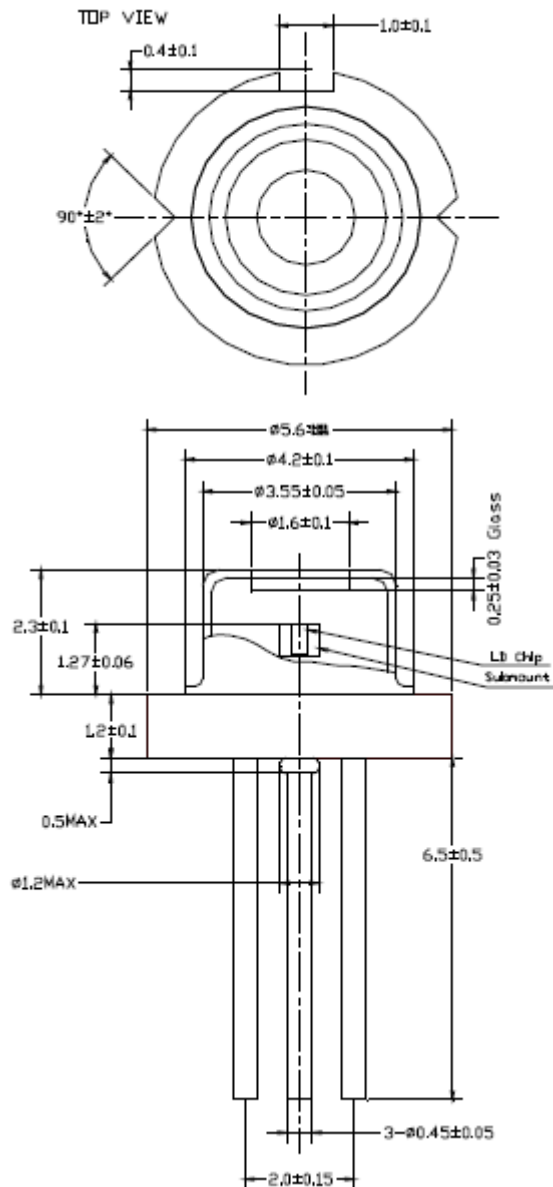
**Note: The above specifications are subject to change without notice.**



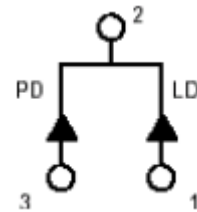
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## MECHANICAL OUTLINE (unit: mm)



## Pin Configuration



## PRECAUTIONS

- Do not operate the device above maximum ratings. Doing so may cause unexpected and permanent damage to the device.
- Take precautions to avoid electrostatic discharge and/or momentary power spikes. A change in the characteristics of the laser or premature failure may result.
- Proper heat sinking of the device assures stability and lifetime. Always ensure that maximum operating temperatures are not exceeded.
- Observing visible or invisible laser beams with human eye directly, or indirectly, can cause permanent damage. Use a camera to observe the laser.
- No laser device should be used in any application or situation where life or property is at risk in the event of device failure.
- Specifications are subject to change without notice. Ensure that you have the latest specification by contacting us prior to purchase or use of the product.

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