

FEATURES

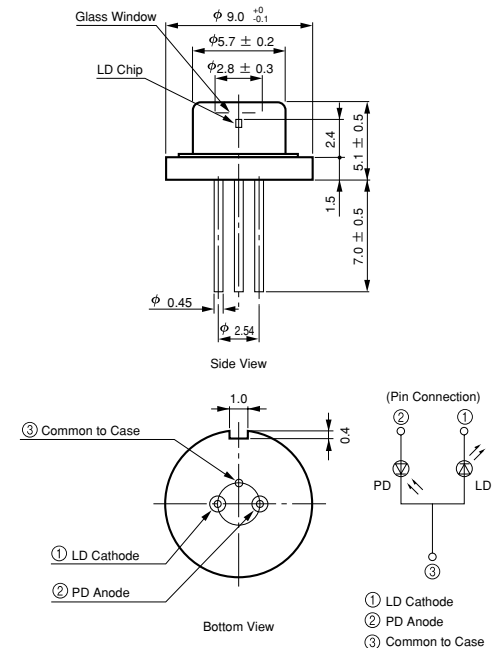
- High duty ratio ($DR \leq 2.5\%$)
- High speed rise time ($t_r = 0.5$ ns typ.)

APPLICATIONS

- Laser radar
- Range finder
- Excitation light source
- Optical trigger
- Security barrier



Figure 1: Dimensional Outline (Unit: mm)



ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Value | Unit |
|-----------------------------|------------------|------------|------|
| Pulsed Forward Current | I _{FP} | 3 | A |
| Reverse Voltage | V _R | 2 | V |
| Pulsed Radiant Output Power | ϕ_{ep} | 3 | W |
| Pulse Duration (FWHM) | t _w | 130 | ns |
| Duty Ratio | DR | 2.5 | % |
| Operating Temperature | T _{op} | -35 to +80 | °C |
| Storage Temperature | T _{stg} | -40 to +85 | °C |

ELECTRICAL AND OPTICAL CHARACTERISTICS (T_a=25°C)

| Parameter | Symbol | Condition | Min. | Typ. | Max. | Unit |
|-----------------------------------|------------------|-----------------------|------|------|------|--------|
| Pulsed Radiant Power | ϕ_{ep} | I _{FP} =2.5A | 1.8 | - | - | W |
| Peak Emission Wavelength | λ_p | | - | 870 | - | nm |
| Spectral Radiation Half Bandwidth | $\Delta \lambda$ | FWHM | - | 3 | - | nm |
| Forward Voltage | V _F | I _{FP} =2.5A | - | 2.7 | - | V |
| Rise Time | t _r | | - | 0.5 | - | ns |
| Beam Spread Angle : Parallel | $\theta_{//}$ | FWHM | 6 | 8 | 10 | degree |
| | θ_{\perp} | I _{FP} =2.5A | 27 | 30 | 33 | degree |
| Lasing Threshold Current | I _{lth} | | - | 0.5 | - | A |
| Monitor PD Current | I _m | I _{FP} =2.5A | - | 0.25 | - | mA |

Note: General operating condition $\phi_{ep} \leq 2$ W, t_w ≤ 100 ns, Repetition frequency ≤ 100 kHz

INFRARED PULSED LASER DIODE L6690

Figure 2: Typical Radiant Power vs. Pulsed Forward Current

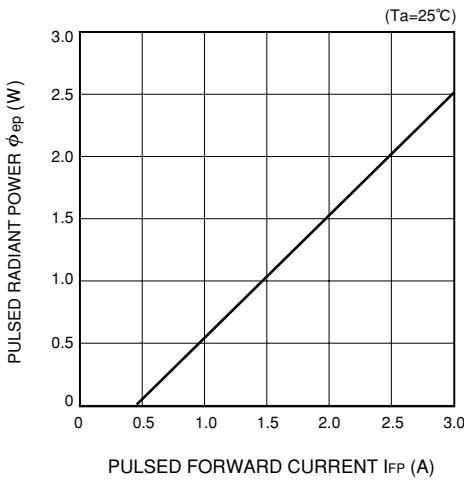


Figure 3: Typical Emission Spectrum

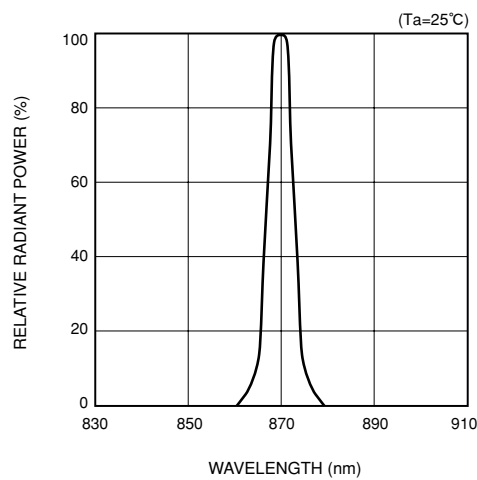
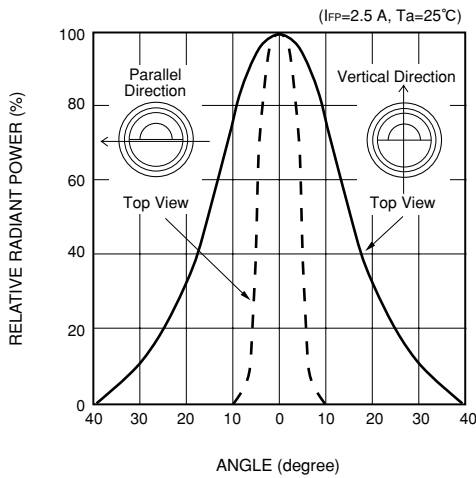


Figure 4: Typical Directivity



Handling Precautions for L6690

1. Precautions for handling

The LD (laser diode) may be damaged or its performance may deteriorate due to such factors as electrostatic discharge from the human body, surge voltages from measurement equipment, leakage voltages from soldering irons, and packing materials. As a countermeasure against static electricity, the device, operator, work place and measuring jigs must all be set at the same electric potential. In using LD, observe the following precautions:

- To protect the device from static electricity charges which accumulate on the operator or the operator's clothes, use a wrist strap etc. to ground the operator's body via a high impedance resistor (1MΩ).
- A semiconductive sheet should be laid on both the work table and the floor in the work area. When soldering, use an electrically grounded soldering iron with an isolation resistance of more than 10MΩ.
- For containers for transportation and packing, use of antistatic material (material that minimizes the generation of static change when rubbed against or separated from itself or other similar materials).

2. Precautions for mounting

(1)Lead forming

To form the leads, hold the base of the leads securely and bend them so that no force is applied to the package. Lead forming should be done before soldering.

(2)Cutting off the leads

If leads are cut when still at a high temperature, this may cause an electrical discontinuity. Always cut off the leads when they are at room temperature. Never cut off the leads immediately after they are soldered.

(3)Soldering

Using a low-temperature melting solder (below 200°C), solder the leads at the temperature and dwell time specified as follows.

Maximum Soldering Temperature: 230°C

Maximum Soldering Time: 5 seconds (1 second for devices having a lead length less than 2mm)

If these conditions cannot be met, it is recommended that some form of heat sink be used at the base of the lead so that the solder heat is not conducted to the package. Also be careful not to apply excessive force to the leads during soldering.

Soldering at excessive temperatures and dwell times may cause the roots of the leads to crack, resulting in performance deterioration. This sometimes leads to wiring breakage. If the leads are soldered while external force is applied to the device, the residual force tends to degrade device performance. Care should also be taken not to apply force to the leads during soldering.

In addition, when soldering an LD, use a soldering iron with its metallic parts grounded to prevent damage to the device from static discharge.

Do not use any flux which is highly acidic, alkaline or inorganic because it may cause the component leads to erode.

Use a rosin flux.

3. Protection against laser beams

The LD is classified into class 3B according to the laser product standards of the IEC825-1 (Radiation safety of laser products Part1: Equipment classification, requirements and user's guide). The operator must avoid eye or skin exposure to the laser beam. When viewing the laser beam, be sure to wear safety goggles that block infrared radiation.

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Cat. No. LLD1002E01

Feb. 1998 T

Printed in Japan (1,000)