

HL6738MG

Visible High Power Laser Diode

HITACHI

ADE-208-601C (Z)
4th Edition
Dec. 2000

Description

The HL6738MG is a 0.68 μm band AlGaInP laser diode (LD) with a multi-quantum well (MQW) structure. It is suitable as a light source for large capacity optical disc memories and various other types of optical equipment.

Hermetic sealing of the small package (ϕ 5.6 mm) assures high reliability.

Application

- Optical disc memories
- Optical equipment

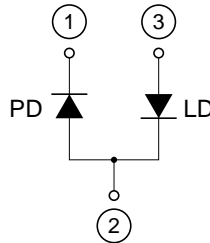
Features

- High output power : 35 mW (CW)
- Visible light output : $\lambda_p = 680$ to 695 nm
- Small package : ϕ 5.6 mm
- Low astigmatism : 6 μm Typ ($P_o = 5$ mW)

Package Type
• HL6738MG: MG



Internal Circuit



Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$)

| Item | Symbol | Value | Unit |
|-----------------------------|-----------------------|------------|------------------|
| Optical output power | P_O | 35 | mW |
| Pulse optical output power | $P_{O(\text{pulse})}$ | 50 * | mW |
| Laser diode reverse voltage | $V_{R(\text{LD})}$ | 2 | V |
| Photo diode reverse voltage | $V_{R(\text{PD})}$ | 30 | V |
| Operating temperature | T_{opr} | -10 to +70 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -40 to +85 | $^\circ\text{C}$ |

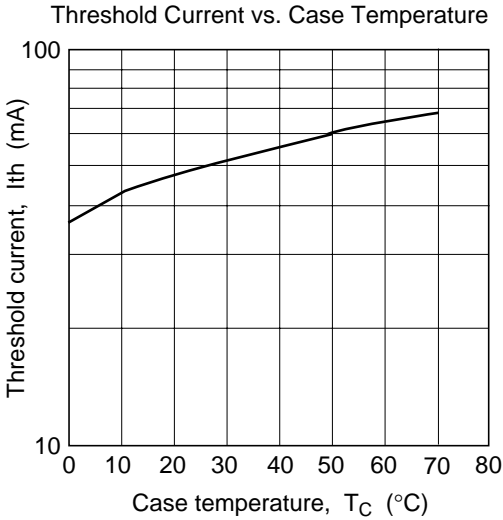
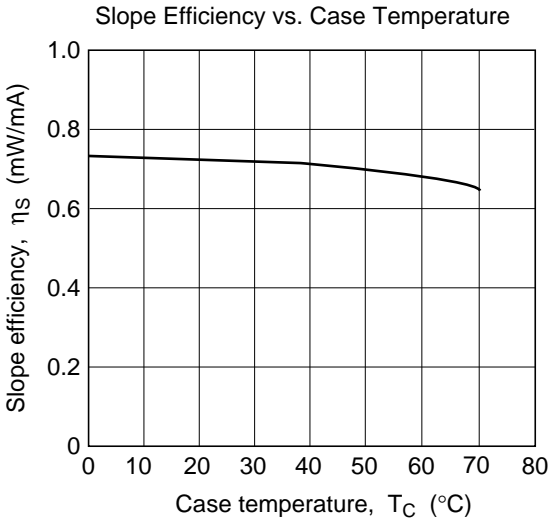
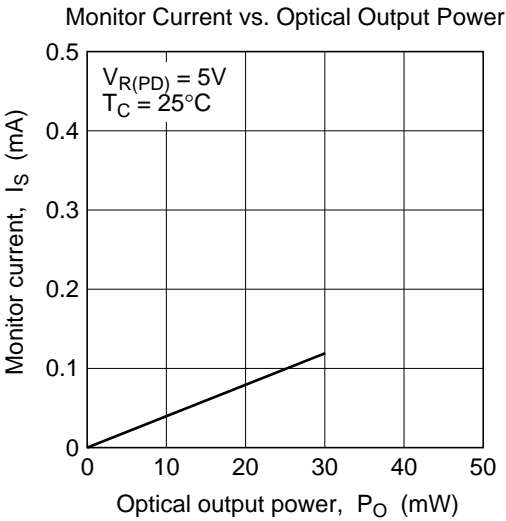
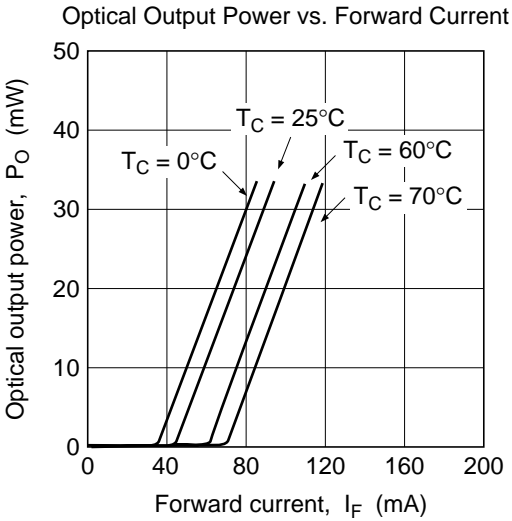
Note: Pulse condition : Pulse width = 100 ns, duty = 50%

Optical and Electrical Characteristics ($T_C = 25^\circ\text{C}$)

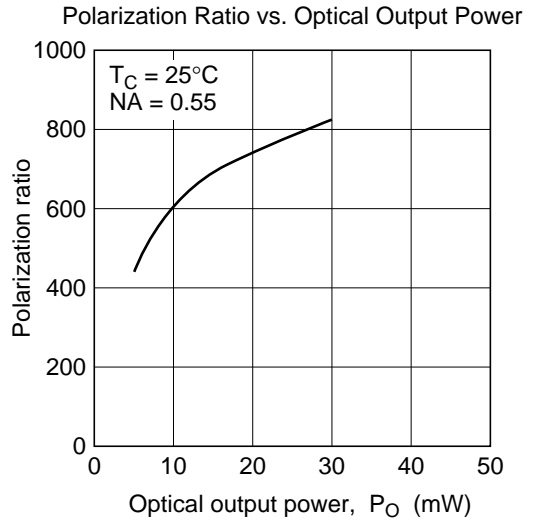
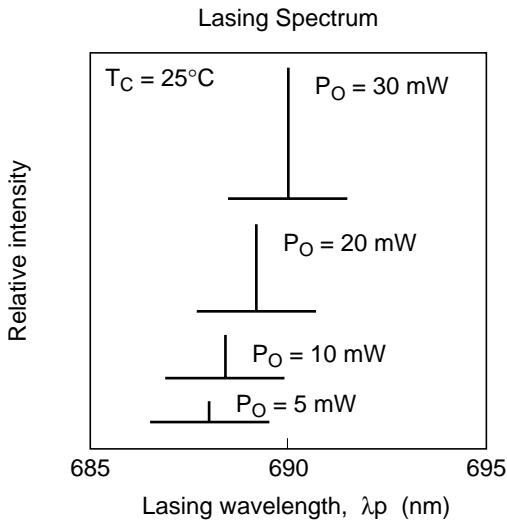
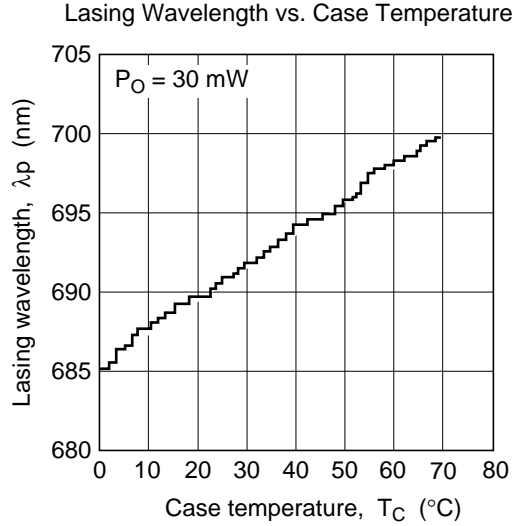
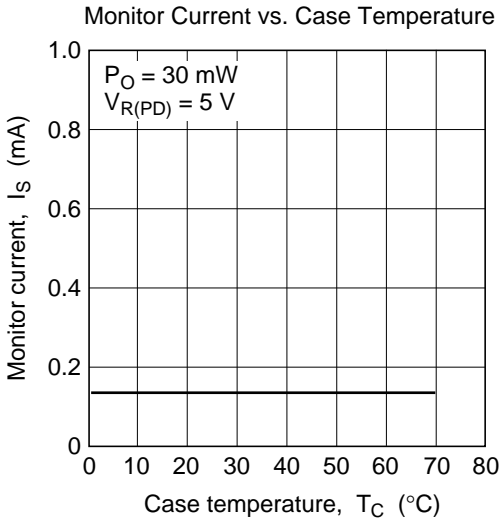
| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|-----------------------|------|-----|------|---------------|--|
| Optical output power | P_O | 35 | — | — | mW | Kink free * |
| Pulse optical output power | $P_{O(\text{pulse})}$ | 50 | — | — | mW | Kink free * |
| Threshold current | I_{th} | 30 | 45 | 70 | mA | — |
| Operating voltage | V_{OP} | 2.1 | 2.5 | 2.8 | V | $P_O = 30 \text{ mW}$ |
| Slope efficiency | η_s | 0.5 | 0.7 | 0.9 | mW/mA | $18(\text{mW}) / (I_{(24\text{mW})} - I_{(6\text{mW})})$ |
| Beam divergence parallel to the junction | $\theta_{//}$ | 7 | 8.5 | 10.5 | deg. | $P_O = 30 \text{ mW}$ |
| Beam divergence perpendicular to the junction | θ_{\perp} | 17 | 19 | 23 | deg. | $P_O = 30 \text{ mW}$ |
| Asigmatism | A_s | — | 6 | — | μm | $P_O = 5 \text{ mW}$, $NA = 0.55$ |
| Lasing wavelength | λ_p | 680 | 690 | 695 | nm | $P_O = 30 \text{ mW}$ |
| Monitor current | I_s | 0.02 | 0.1 | 0.45 | mA | $P_O = 30 \text{ mW}$, $V_{R(\text{PD})} = 5 \text{ V}$ |

Note: Kink free is confirmed at the temperature of 25°C .

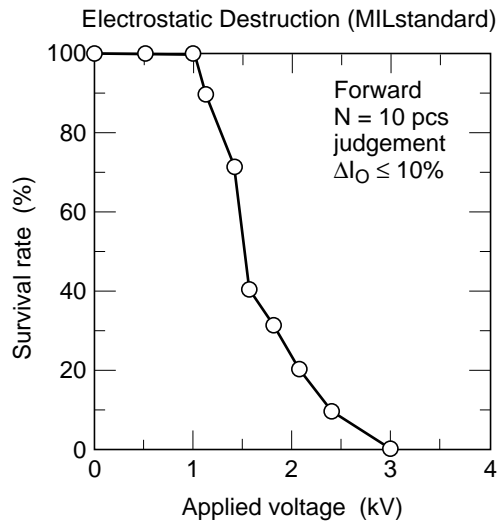
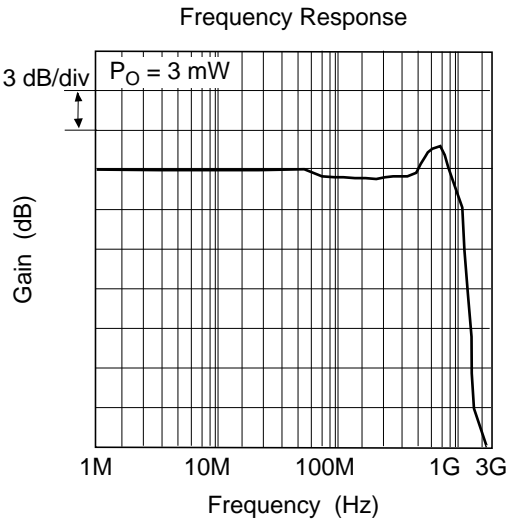
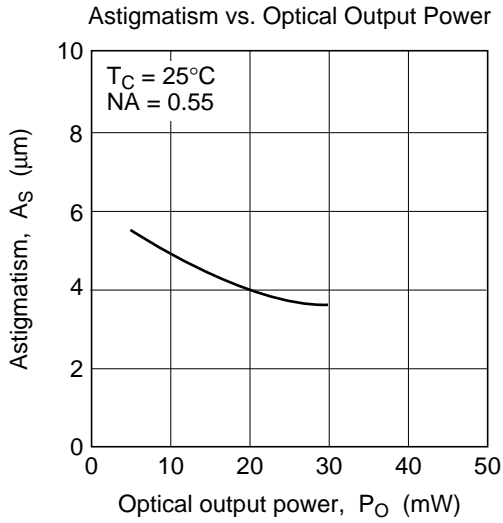
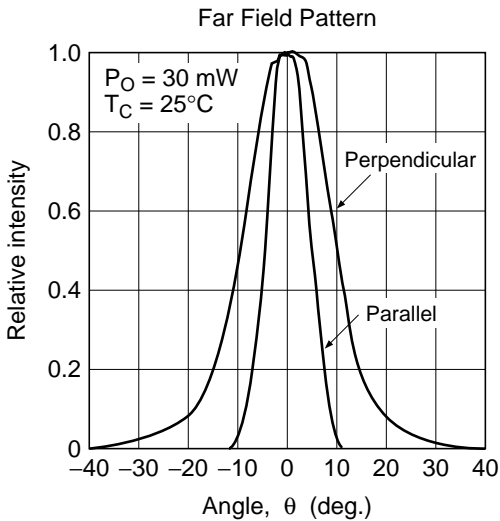
Typical Characteristic Curves



Typical Characteristic Curves (cont)

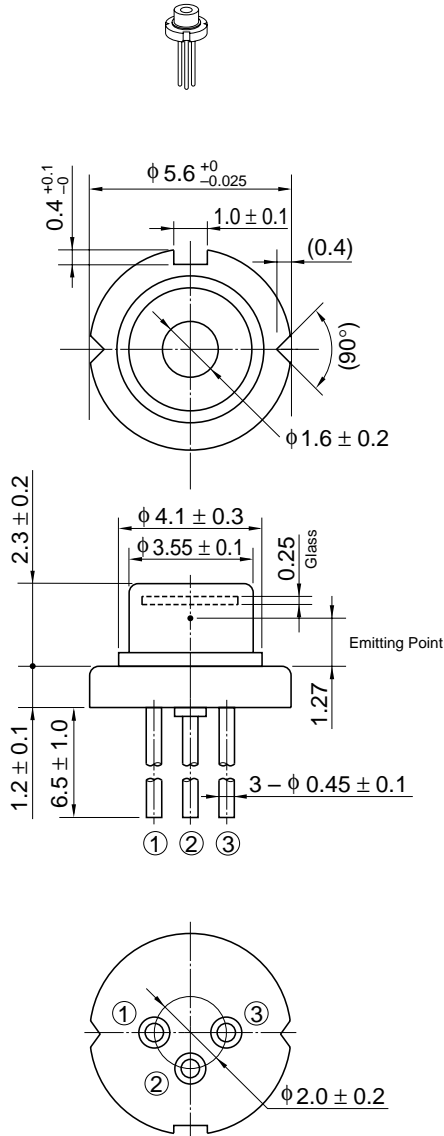


Typical Characteristic Curves (cont)



Package Dimensions

Unit: mm



| | |
|------------------------|-------|
| Hitachi Code | LD/MG |
| JEDEC | — |
| EIAJ | — |
| Mass (reference value) | 0.3 g |

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1. The laser light is harmful to human body especially to eye no matter what directly or indirectly. The laser beam shall be observed or adjusted through infrared camera or equivalent.

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