

HL6733FM

Visible High Power Laser Diode

HITACHI

ADE-208-516C (Z)

4th Edition

Dec. 2000

Description

The HL6733FM 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.

It does not have a photodiode, and the GND pin is not connected to the LD chip. The outline is the same as MG-type (ϕ 5.6 mm).

Application

- Optical disc memories.
- Optical equipment

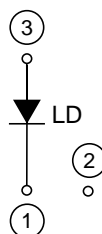
Features

- 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
• HL6733FM: FM



Internal Circuit



Absolute Maximum Ratings (T_C = 25°C)

| Item | Symbol | Rated Value | Unit |
|----------------------------|-----------------------|-------------|------|
| Optical output power | P _O | 35 | mW |
| Pulse optical output power | P _{O(pulse)} | 50 * | mW |
| LD reverse voltage | V _{R(LD)} | 2 | V |
| Operating temperature | Topr | −10 to +70 | °C |
| Storage temperature | Tstg | −40 to +85 | °C |

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

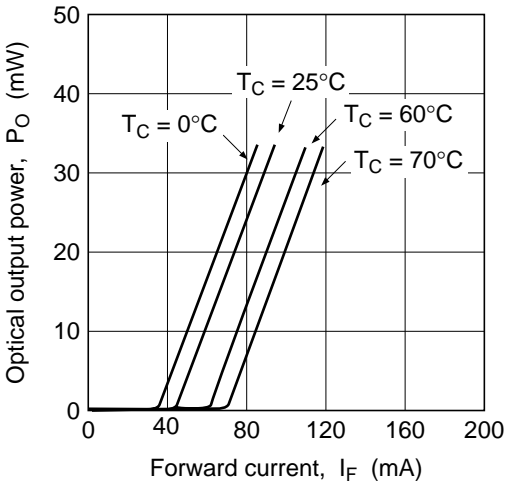
Optical and Electrical Characteristics (T_C = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|---|-----------------------|-----|-----|------|-------|---|
| Optical output power | P _O | 35 | — | — | mW | Kink free * |
| Pulse optical output power | P _{O(pulse)} | 50 | — | — | mW | Kink free * |
| Threshold current | I _{th} | 30 | 45 | 70 | mA | — |
| LD operating voltage | V _{OP} | 2.1 | 2.5 | 2.8 | V | P _O = 30 mW |
| Slope efficiency | η _s | 0.5 | 0.7 | 0.9 | mW/mA | 18 (mW) / (I _(24mW) − I _(6mW)) |
| Beam divergence parallel to the junction | θ// | 7 | 8.5 | 10.5 | deg. | P _O = 30 mW |
| Beam divergence parpendicular to the junction | θ⊥ | 17 | 19 | 23 | deg. | P _O = 30 mW |
| Astigmatism | A _s | — | 6 | — | μA | P _O = 5 mW, NA = 0.55 |
| Lasing wavelength | λ _p | 680 | 690 | 695 | nm | P _O = 30 mW |

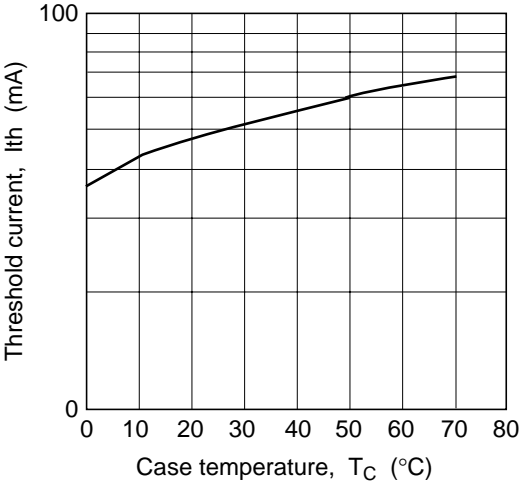
Note: Kink free is confirmed at the temperature of 25°C.

Typical Characteristic Curves

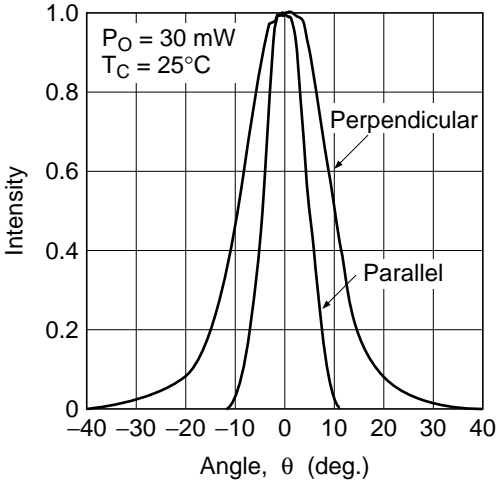
Optical Output Power vs. Forward Current



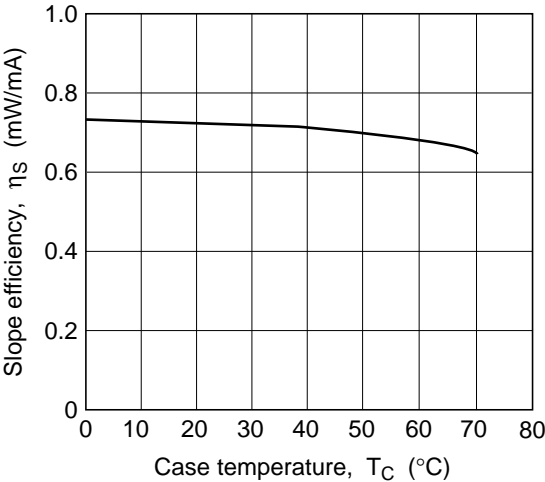
Threshold Current vs. Case Temperature



Far Field Pattern

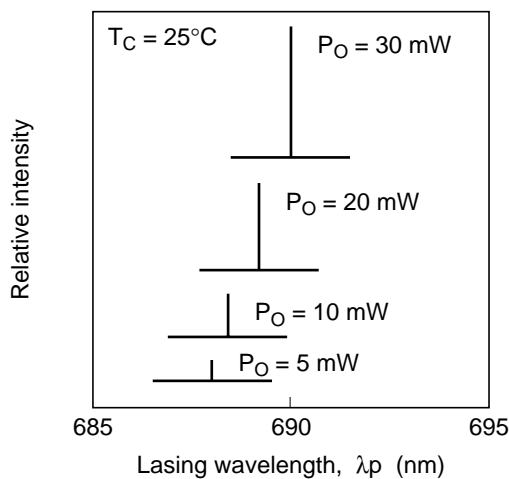


Slope Efficiency vs. Case Temperature

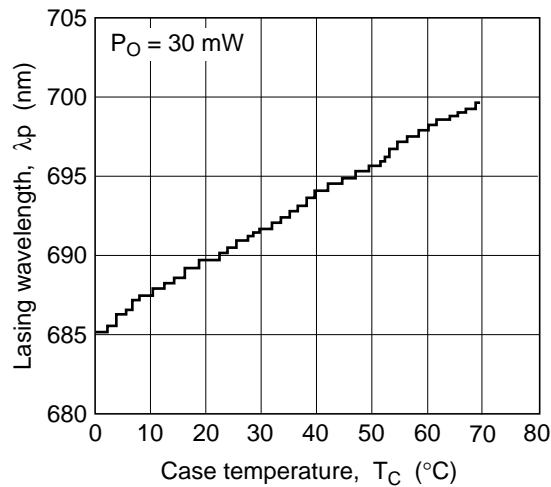


Typical Characteristic Curves (cont)

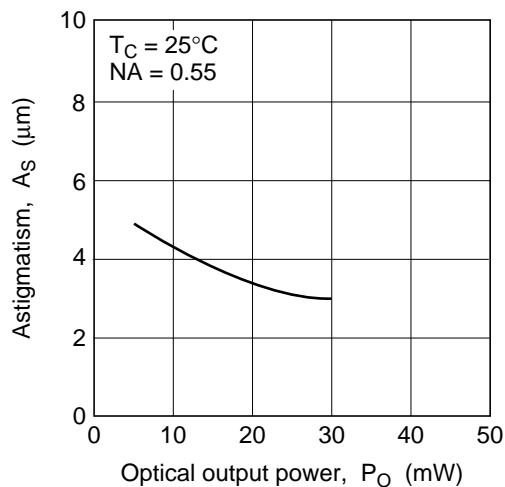
Lasing Spectrum



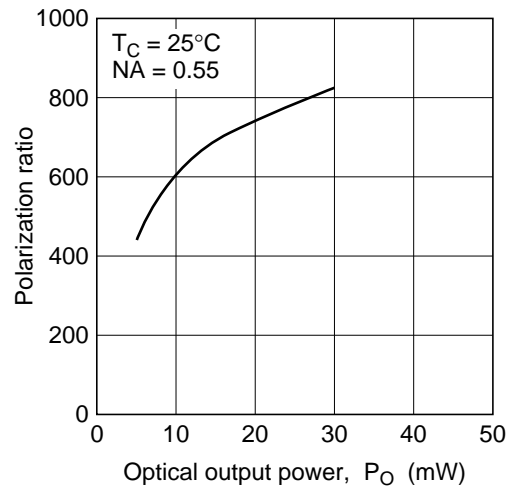
Lasing Wavelength vs. Case Temperature



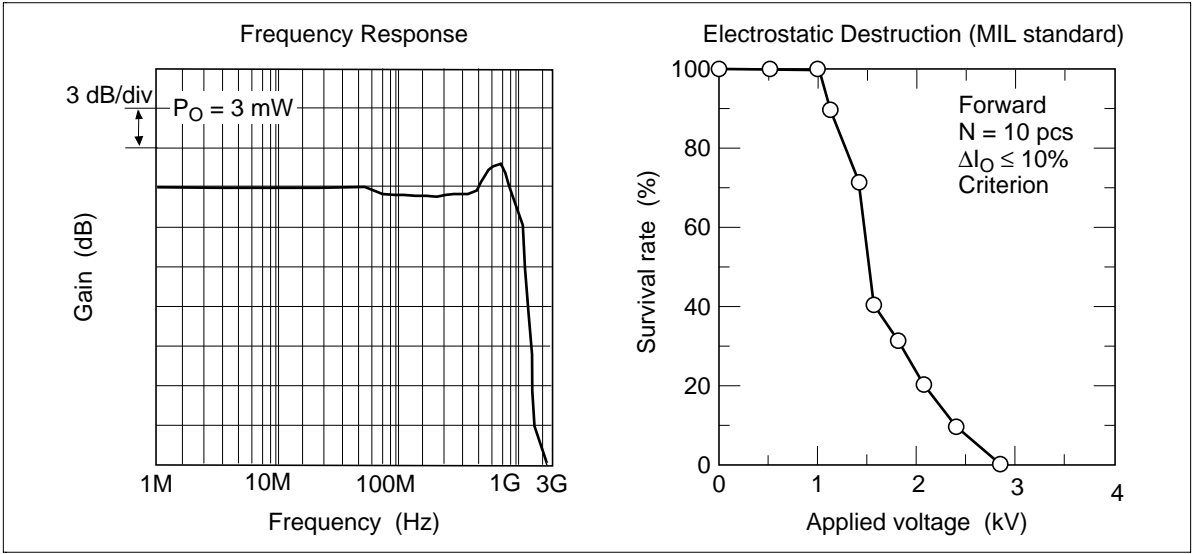
Astigmatism vs. Optical Output Power



Polarization Ratio vs. Optical Output Power

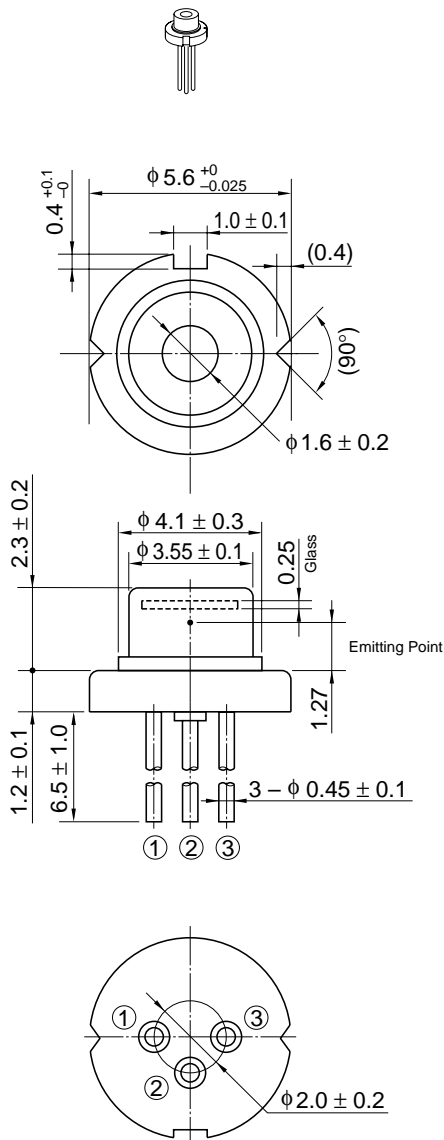


Typical Characteristic Curves (cont)



Package Dimensions

Unit: mm



| | |
|------------------------|-------|
| Hitachi Code | LD/FM |
| 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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