HL6323MG

AlGaInP Laser Diode

HITACHI

ADE-208-1410 (Z)
1st Edition
Mar. 2001

Description

The HL6323MG is a 0.63 μm band AlGaInP laser diode (LD) with a multi-quantum well (MQW) structure. It is suitable as a longer distance operating range for laser markers and a higher speed for positioning control sensors. The HL6323MG is packaged in the small can (ϕ5.6 mm), enabling end products to be kept small.

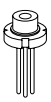
Application

- Laser markers
- Measurement equipment

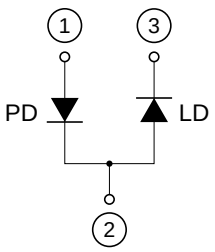
Features

- High output power : 35 mW (CW)
- Visible light output : λp = 639 nm Typ
- Small package : ϕ5.6 mm
- TM mode oscillation

Pakage Type
• HL6323MG: MG



Internal Circuit



Hitachi semiconductor

Absolute Maximum Ratings (T_C = 25°C ± 3°C)

Item	Symbol	Value	Unit
Optical output power	P_O	35 *1	mW
Optical output power (Puise)	P_O	50 *2	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	Topr	–10 to +50	°C
Storage temperature	Tstg	–40 to +85	°C

Notes: 1. This value is not the same as the specification for long term reliability, such as lifetime.
2. Pulse condition : Pulse width pw = 100 ns , duty = 20%

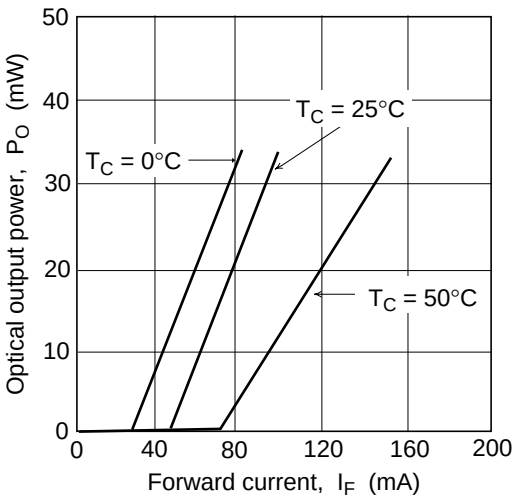
Optical and Electrical Characteristics (T_C = 25°C ± 3°C)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Optical output power	P_O	35	—	—	mW	Kink free *
Optical output power (Puise)	P_O	50	—	—	mW	Kink free *
Threshold current	Ith	30	45	65	mA	
Slope efficiency	ηs	0.4	0.6	0.9	mW/mA	18(mW) / ($I_{(24mW)}$ – $I_{(6mW)}$)
Operating current	I_{OP}	—	95	130	mA	P_O = 30 mW
Operating voltage	V_{OP}	—	2.3	2.8	V	P_O = 30 mW
Beam divergence parallel to the junction	θ//	7	8.5	11	deg.	P_O = 30 mW
Beam divergence parpendicular to the junction	θ⊥	26	30	34	deg.	P_O = 30 mW
Lasing wavelength	λp	635	639	642	nm	P_O = 30 mW
Monitor current	I_S	0.05	0.15	0.25	mA	P_O = 30 mW, $V_{R(PD)}$ = 5 V

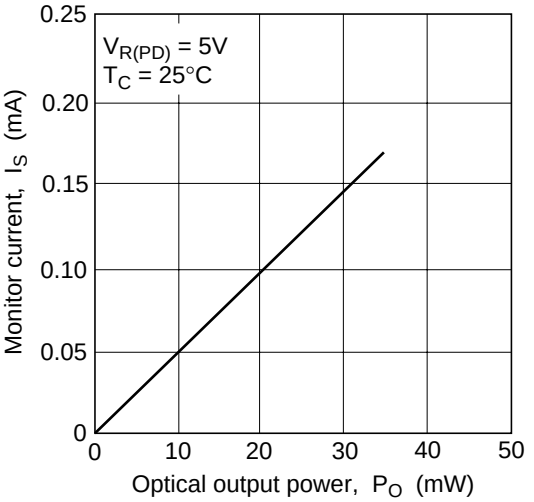
Note: Kink free is confirmed at the temperature of 25°C.

Typical Characteristic Curves

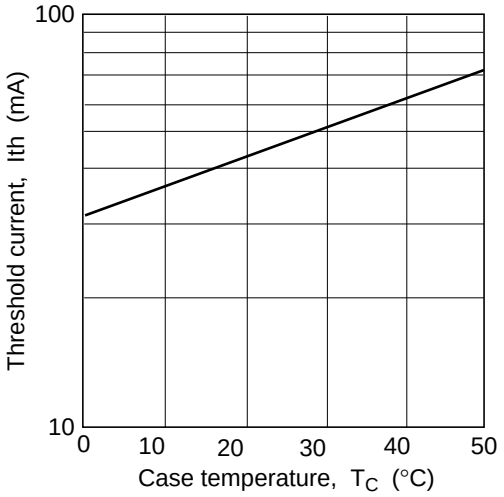
Opticai Output Power vs. Forward Current



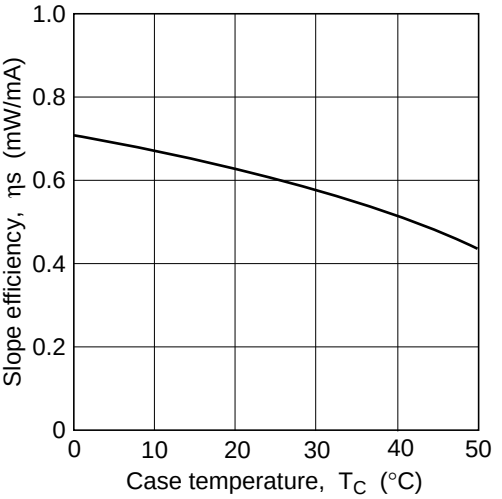
Monitor Current vs. Optical Output Power



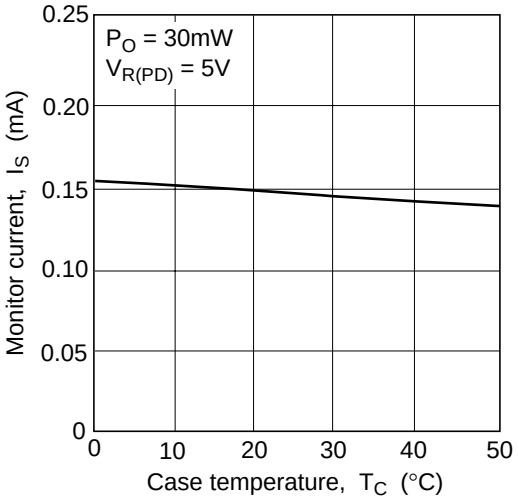
Threshold Current vs. Case Temperature



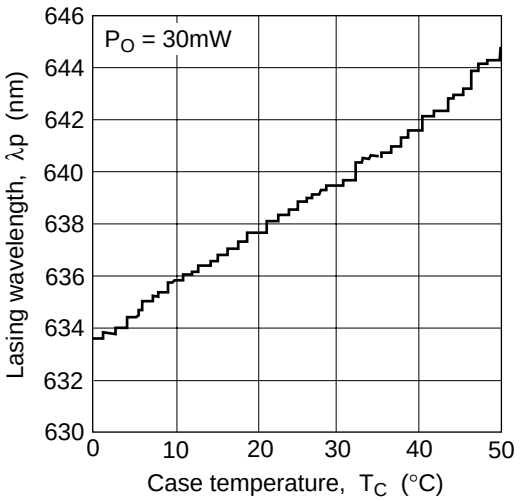
Slope Efficiency vs. Case Temperature



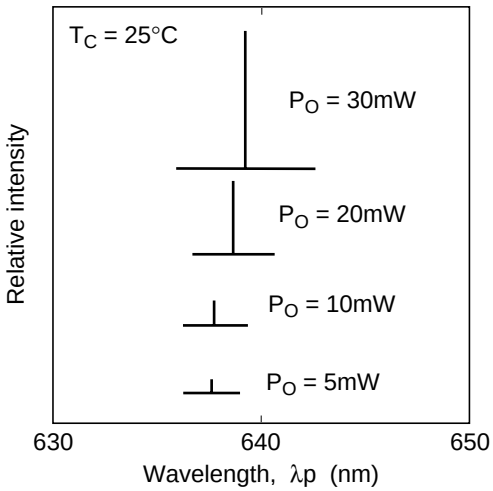
Monitor Current vs. Case Temperature



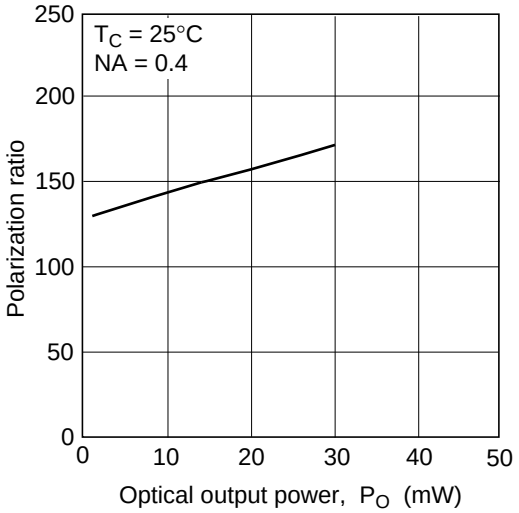
Lasing Wavelength vs. Case Temperature



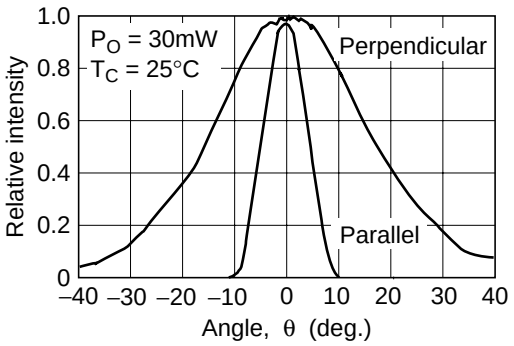
Lasing Spectrum



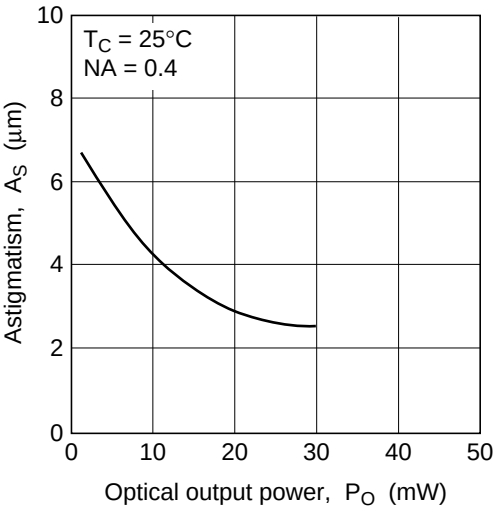
Polarization Ratio vs. Optical Output Power



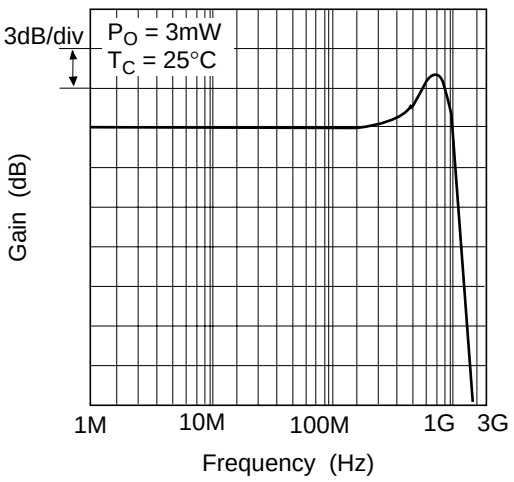
Far Field Pattern



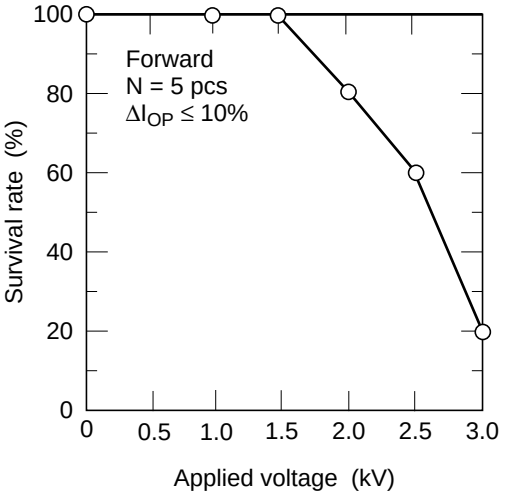
Astigmatism vs. Optical Output Power



Frequency Response

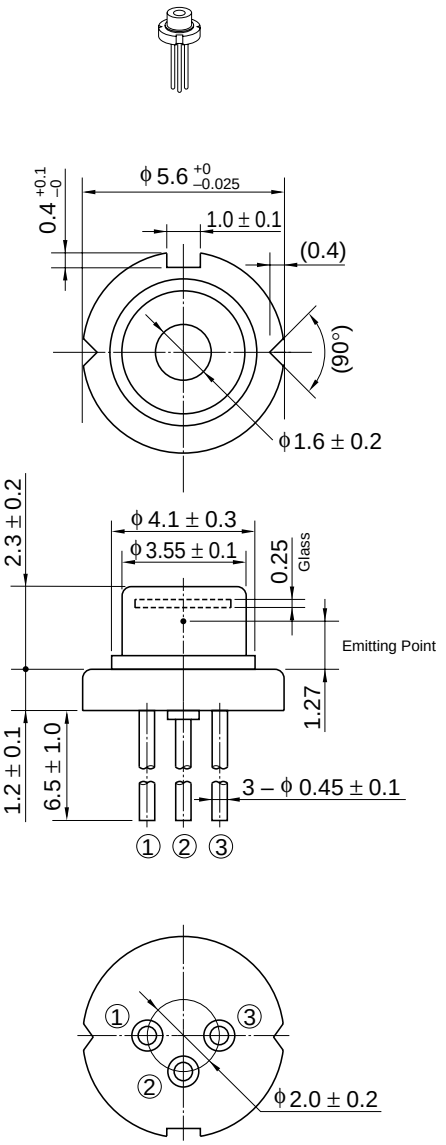


Electrostatic Destruction (MIL standard)



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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