

HL6327MG/28MG

Low Operating Current Visible Laser Diode

HITACHI

ADE-208-782B (Z)
3rd Edition
Dec. 2000

Description

The HL6327MG/28MG are 0.63 μm band AlGaInP laser diodes with a multi-quantum well (MQW) structure. They are suitable as light sources for laser levelers, laser scanners and optical equipment for measurement.

Application

- Laser leveler
- Laser scanner
- Measurement

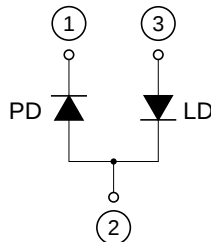
Features

- Visible light output : 635 nm Typ (nearly equal to He-Ne gas laser)
- Optical output power : 5 mW CW
- Low operating current : 40 mA Typ
- Low operating voltage : 2.4 V Max
- Operating temperature : +50°C
- TM mode oscillation

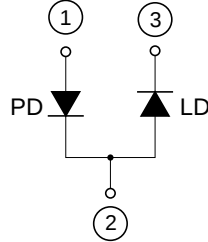
Package Type
• HL6327MG/28MG: MG



Internal Circuit
• HL6327MG



Internal Circuit
• HL6328MG



Absolute Maximum Ratings (T_C = 25°C)

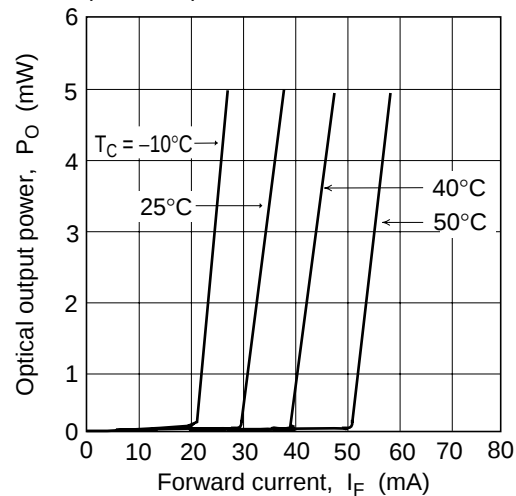
Item	Symbol	Value	Unit
Optical output power	P _O	5	mW
LD reverse voltage	V _{R(LD)}	2	V
PD reverse voltage	V _{R(PD)}	30	V
Operating temperature	T _{opr}	−10 to +50	°C
Storage temperature	T _{stg}	−40 to +85	°C

Optical and Electrical Characteristics (T_C = 25°C)

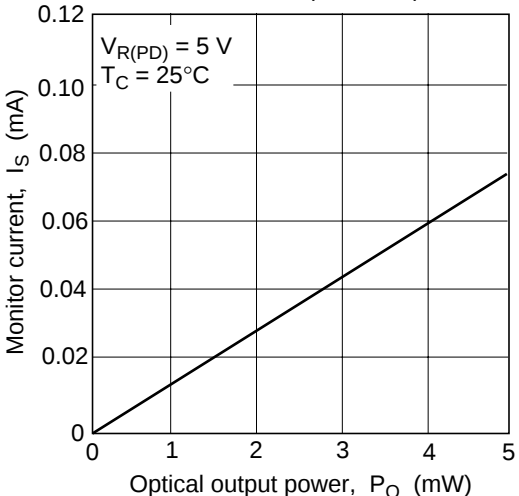
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Optical output power	P _O	5	—	—	mW	Kink free
Threshold current	I _{th}	—	30	50	mA	
Operating current	I _{op}	—	40	60	mA	P _O = 5 mW
Operating voltage	V _{OP}	—	2.2	2.4	V	P _O = 5 mW
Slope efficiency	η _s	0.3	0.5	0.8	mW/mA	3 (mW) / (I _(4mW) − I _(1mW))
Beam divergence parallel to the junction	θ//	6	8	11	deg.	P _O = 5 mW
Beam divergence perpendicular to the junction	θ⊥	25	31	37	deg.	P _O = 5 mW
Lasing wavelength	λ _p	630	635	640	nm	P _O = 5 mW
Monitor current	I _s	0.02	0.07	0.12	mA	P _O = 5 mW, V _{R(PD)} = 5 V

Typical Characteristic Curves

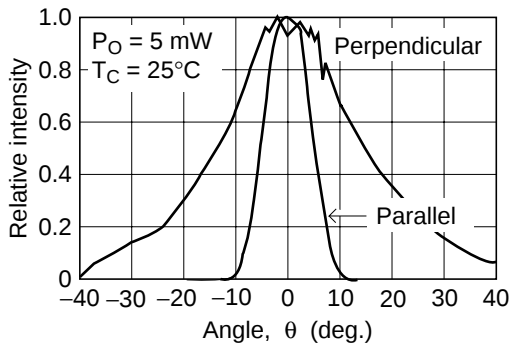
Optical Output Power vs. Forward Current



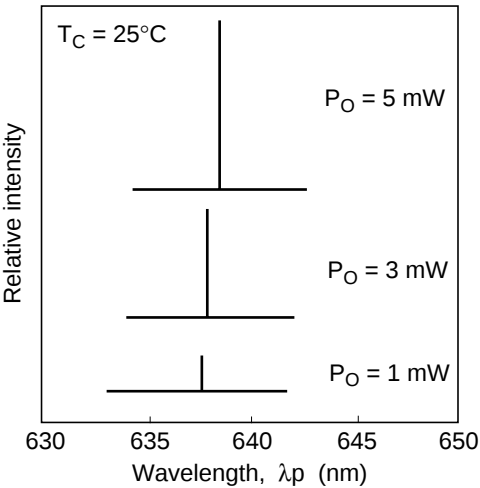
Monitor Current vs. Optical Output Power



Far Field Pattern

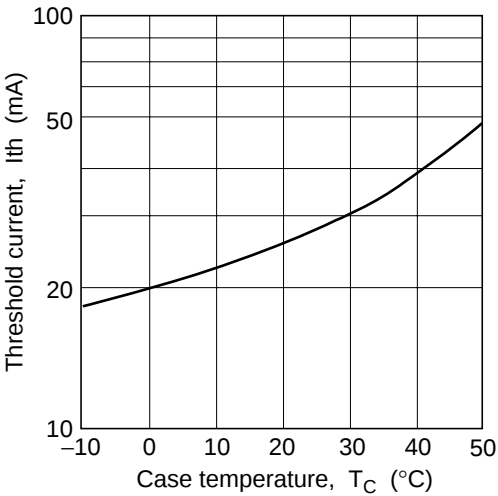


Lasing Spectrum

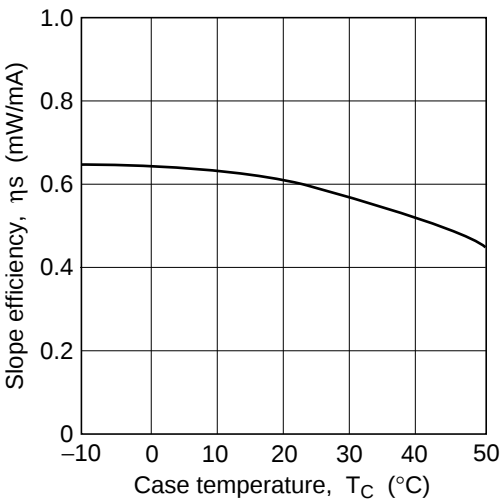


Typical Characteristic Curves (cont)

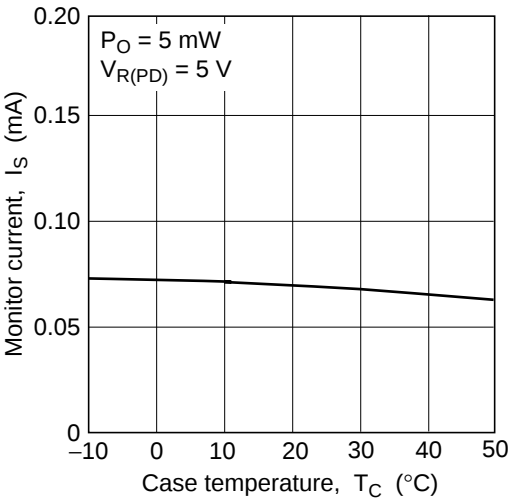
Threshold Current vs. Case Temperature



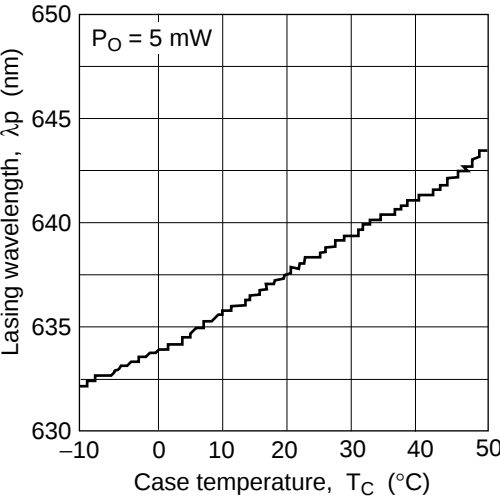
Slope Efficiency vs. Case Temperature



Monitor Current vs. Case Temperature

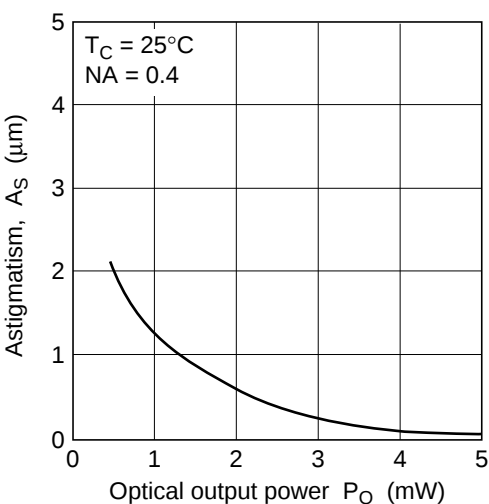


Lasing Wavelength vs. Case Temperature

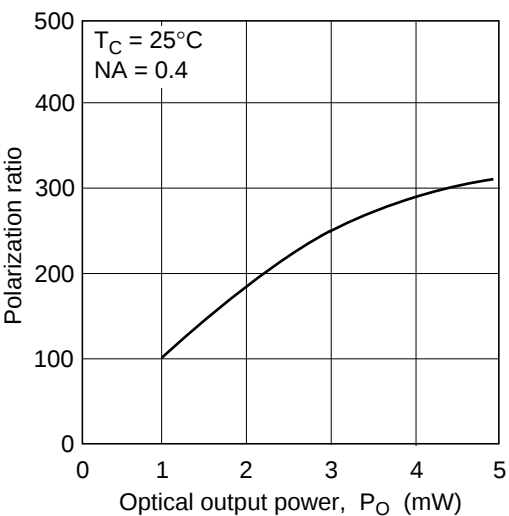


Typical Characteristic Curves (cont)

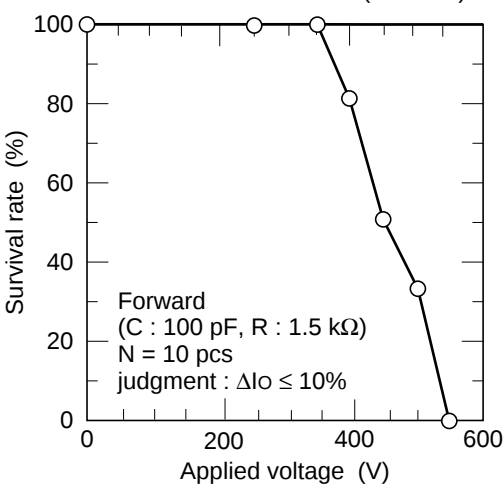
Astigmatism vs. Optical Output Power



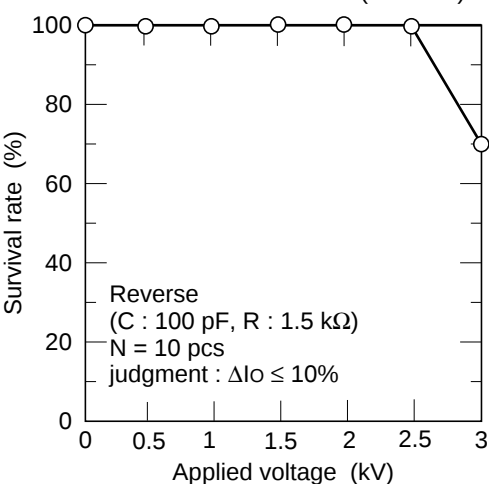
Polarization Ratio vs. Optical Output Power



Electrostatic Destruction (Forward)

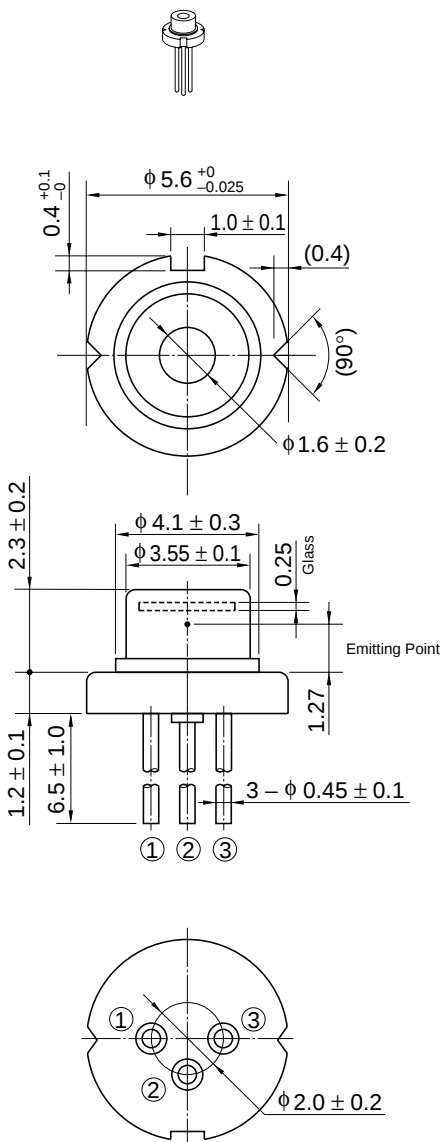


Electrostatic Destruction (Reverse)



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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