HL6331G/32G

Low Operating Current Visible Laser Diode

HITACHI

ADE-208-819B (Z)
3rd Edition
Dec. 2000

Description

The HL6331G/32G are 0.63 μm band AlGaInP 10mW 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.

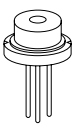
Application

- Laser leveler
- Laser scanner
- Measurement

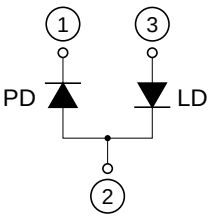
Features

- Visible light output : 635 nm Typ
- Optical output power : 10 mW CW
- Low operating current : 55 mA Typ
- Low operating voltage : 2.4 V Max
- Operating temperature : +60°C
- TM mode oscillation

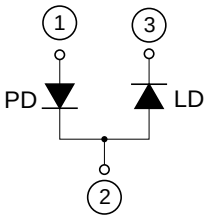
Package Type
• HL6331G/32G: G2



Internal Circuit
• HL6331G



Internal Circuit
• HL6332G



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Absolute Maximum Ratings (T_C = 25°C)

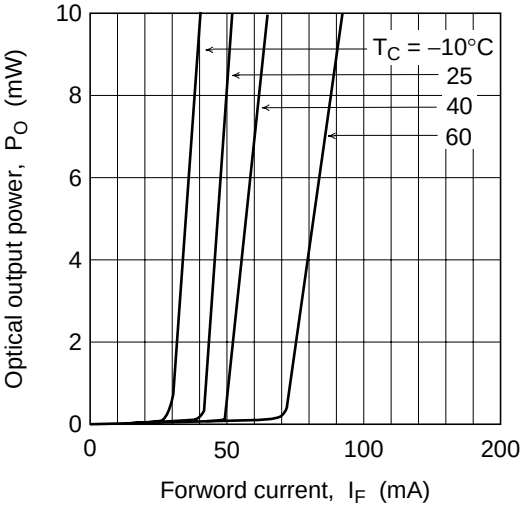
Item	Symbol	Value	Unit
Optical output power	P_O	10	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	Topr	–10 to +60	°C
Storage temperature	Tstg	–40 to +85	°C

Optical and Electrical Characteristics (T_C = 25°C)

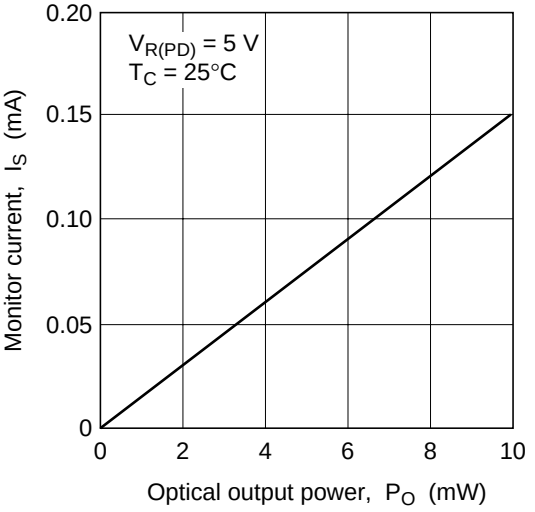
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Optical output power	P_O	10	—	—	mW	Kink free
Threshold current	Ith	—	40	60	mA	
Operating current	I_{Op}	—	55	75	mA	P_O = 10 mW
Operating voltage	V_{OP}	—	2.2	2.4	V	P_O = 10 mW
Slope efficiency	ηs	0.40	0.65	0.90	mW/mA	6 (mW) / ($I_{(8mW)}$ – $I_{(2mW)}$)
Beam divergence parallel to the junction	θ//	6	8	11	deg.	P_O = 10 mW
Beam divergence parpendicular to the junction	θ⊥	25	31	36	deg.	P_O = 10 mW
Lasing wavelength	λp	630	635	640	nm	P_O = 10 mW
Monitor current	I_S	0.08	0.15	0.30	mA	P_O = 10 mW, $V_{R(PD)}$ = 5 V

Typical Characteristic Curves

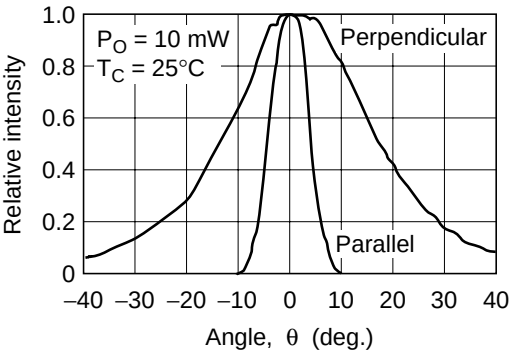
Optical Output Power vs. Forward Current



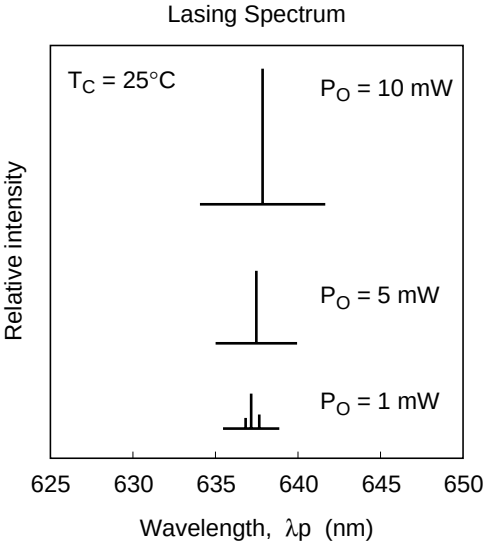
Monitor Current vs. Optical Output Power



Far Field Pattern

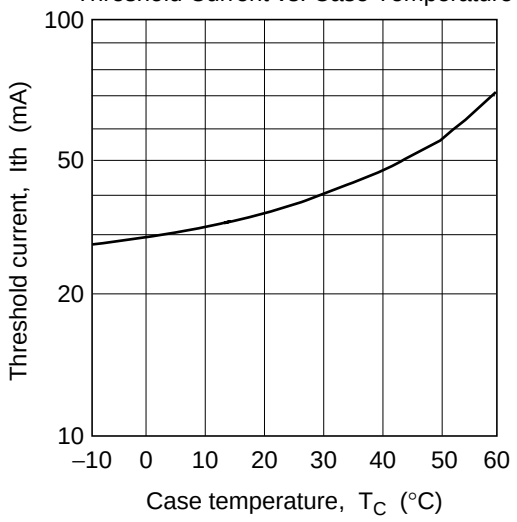


Lasing Spectrum

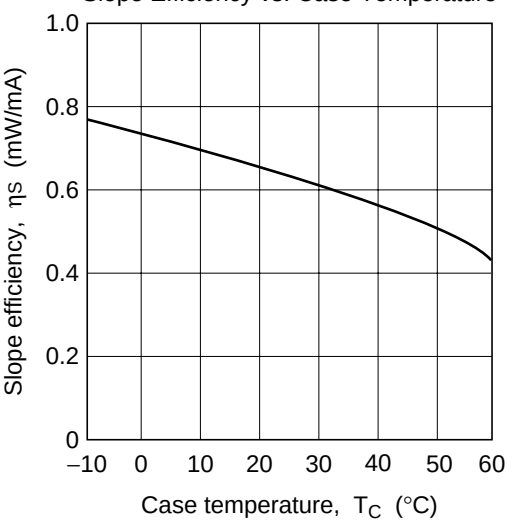


Typical Characteristic Curves (cont)

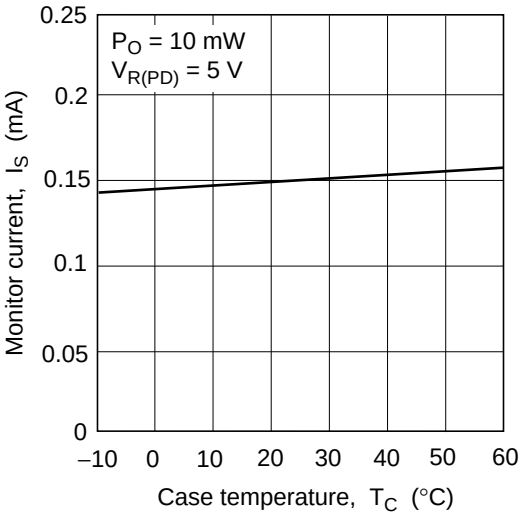
Threshold Current vs. Case Temperature



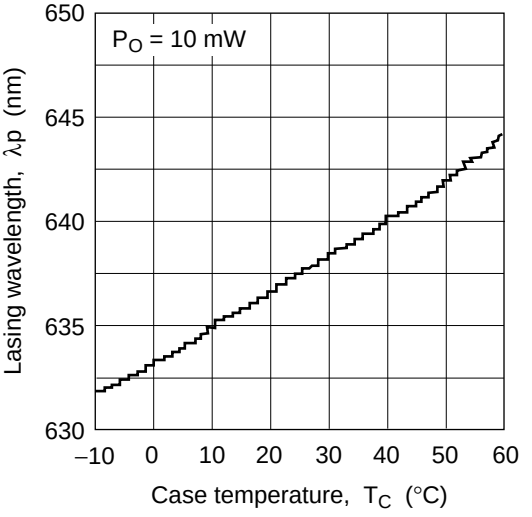
Slope Efficiency vs. Case Temperature



Monitor Current vs. Case Temperature

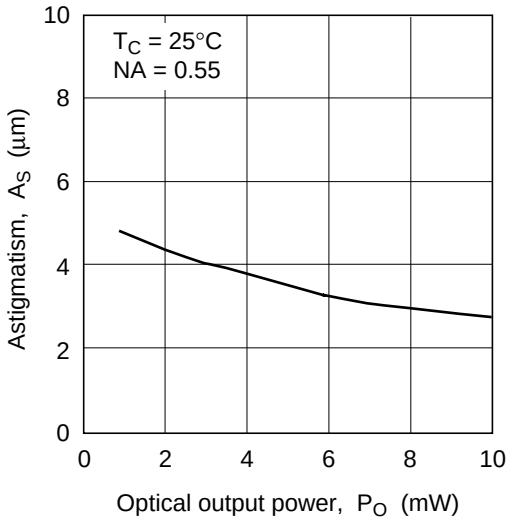


Lasing Wavelength vs. Case Temperature

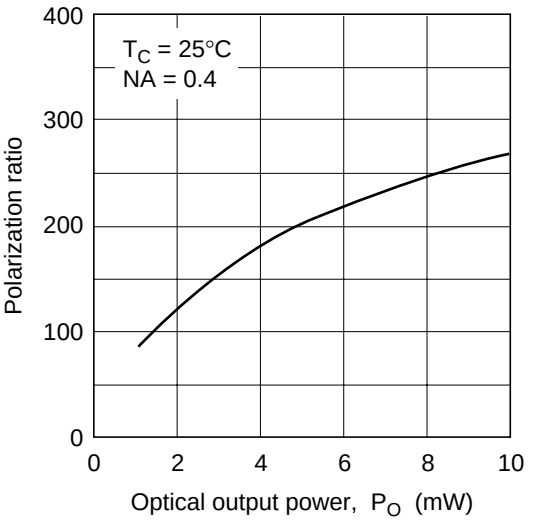


Typical Characteristic Curves (cont)

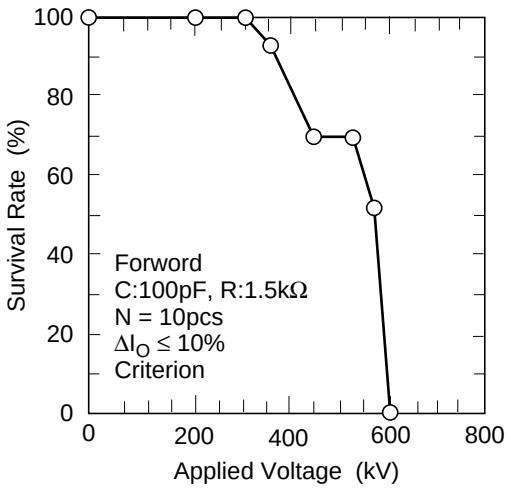
Astigmatism vs. Optical Output Power



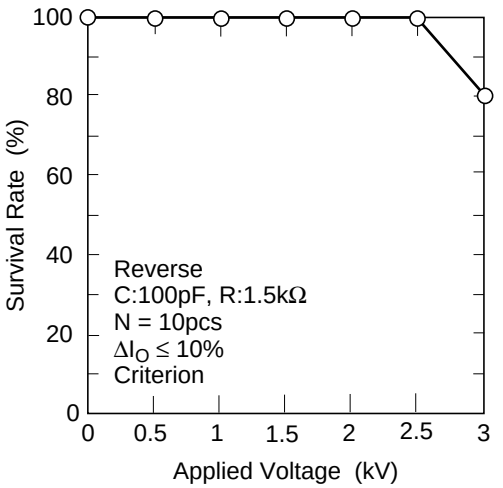
Polarization Ratio vs. Optical Output Power



Electrostatic Destruction (MIL standard) (1)

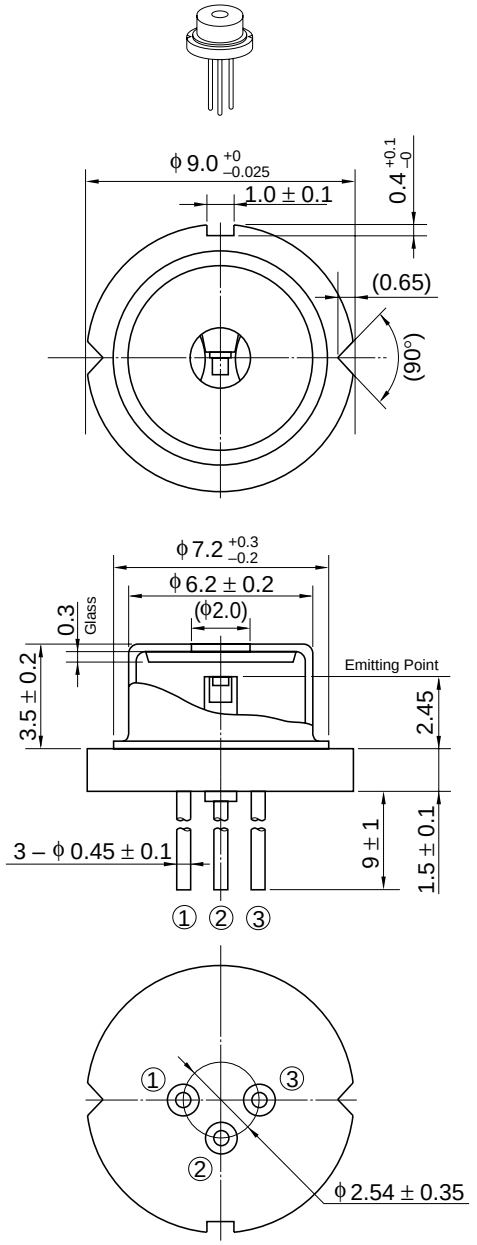


Electrostatic Destruction (MIL standard) (2)



Package Dimensions

Unit: mm



Hitachi Code	LD/G2
JEDEC	—
EIAJ	—
Mass (reference value)	1.1 g

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