HL6319G/20G

AlGaInP Laser Diodes

HITACHI

ADE-208-479D (Z)
5th Edition
Dec. 2000

Description

The HL6319G/20G are 0.63 μm band AlGaInP laser diodes with a multi-quantum well (MQW) structure. They are suitable as light sources for laser levelers and optical equipment for measurement.

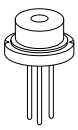
Application

- Laser levelers
- Measurement

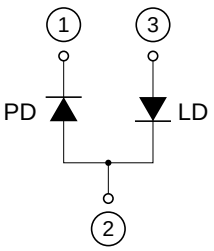
Features

- Visible light output: 635 nm Typ (nearly equal to He-Ne gas laser)
- Optical output power: 10 mW CW
- Low operating current: 95 mA Max
- Low operating voltage: 2.7 V Max
- TM mode oscillation

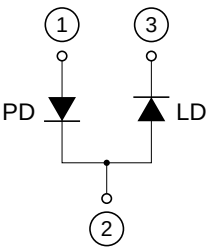
Package Type
• HL6319G/20G: G2



Internal Circuit
• HL6319G



Internal Circuit
• HL6320G



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Absolute Maximum Ratings (T_C = 25°C)

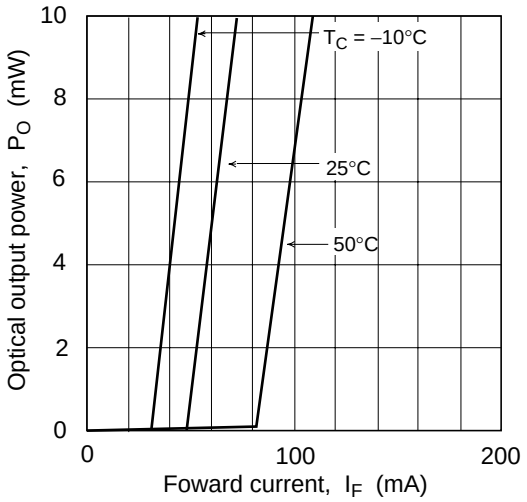
Item	Symbol	Rated Value	Unit
Optical output power	P_O	10	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	Topr	–10 to +50	°C
Storage temperature	Tstg	–40 to +85	°C

Optical and Electrical Characteristics (T_C = 25°C)

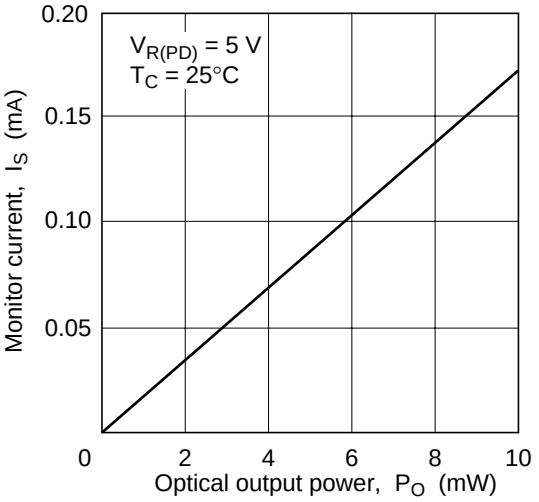
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_O	10	—	—	mW	Kink free
Threshold current	Ith	20	50	75	mA	
Operating current	I_{OP}	—	70	95	mA	P_O = 10 mW
Operating voltage	V_{OP}	—	—	2.7	V	P_O = 10 mW
Slope efficiency	ηs	0.3	0.5	0.7	mW/mA	6 (mW) / ($I_{(8mW)}$ – $I_{(2mW)}$)
Beam divergence parallel to the junction	θ//	5	8	11	deg.	P_O = 10 mW
Beam divergence parpendicular to the junction	θ⊥	25	31	37	deg.	P_O = 10 mW
Astigmatism	A_S	—	5	—	µm	P_O = 10 mW, NA = 0.55
Lasing wavelength	λp	625	635	640	nm	P_O = 10 mW
Monitor current	I_S	0.05	0.17	0.30	mA	P_O = 10 mW, $V_{R(PD)}$ = 5 V

Typical Characteristic Curves

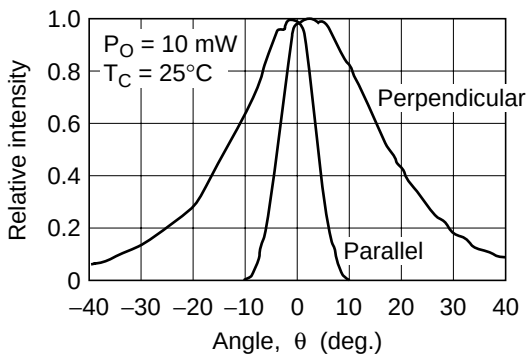
Optical Output Power vs. Foward Current



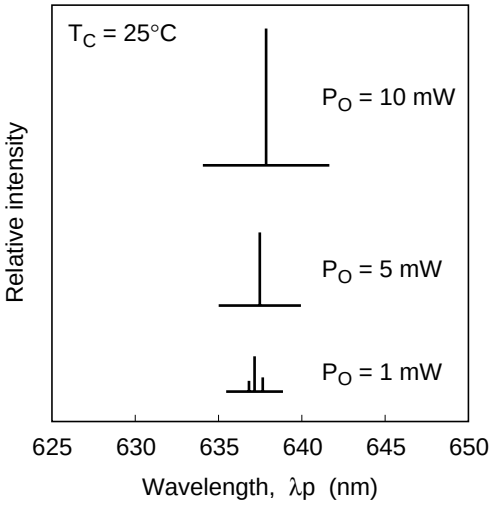
Monitor Current vs. Optical Output Power



Far Field Pattern

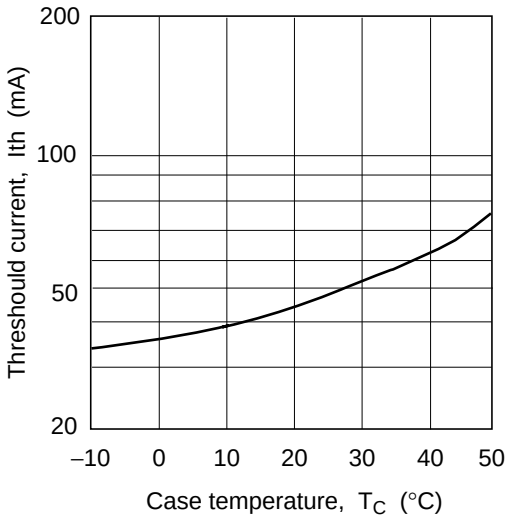


Lasing Spectrum

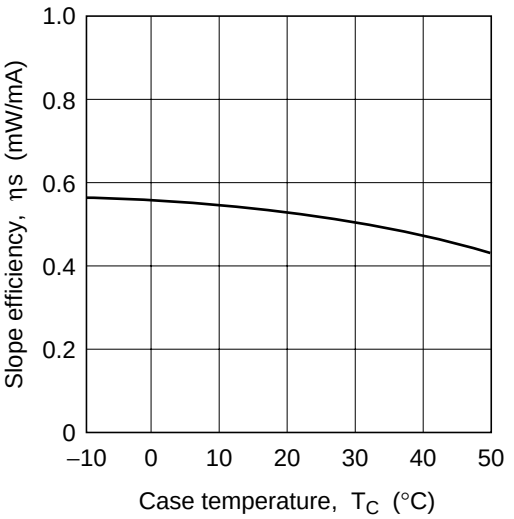


Typical Characteristic Curves (cont)

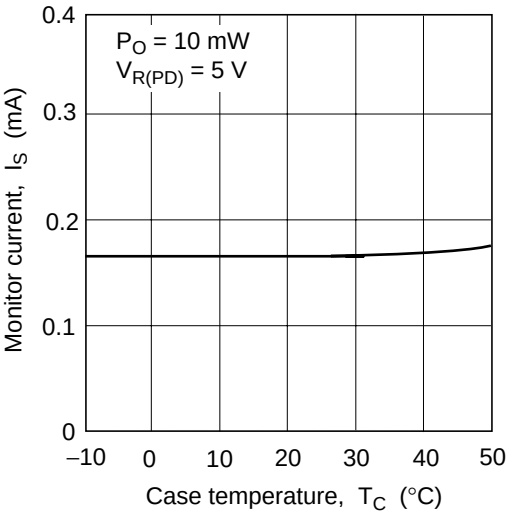
Threshold Current vs. Case Temperature



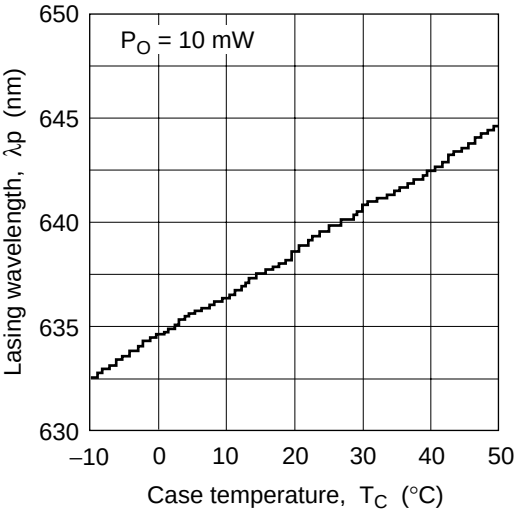
Slope Efficiency vs. Case Temperature



Monitor Current vs. Case Temperature

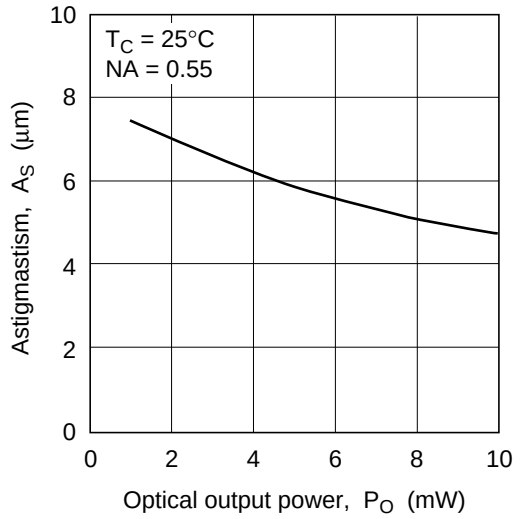


Lasing Wavelength vs. Case Temperature

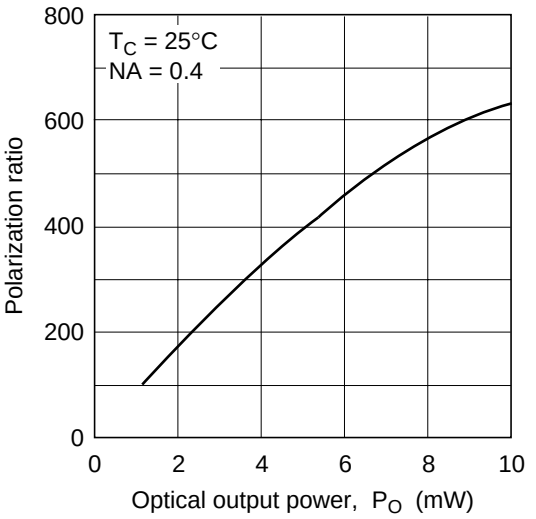


Typical Characteristic Curves (cont)

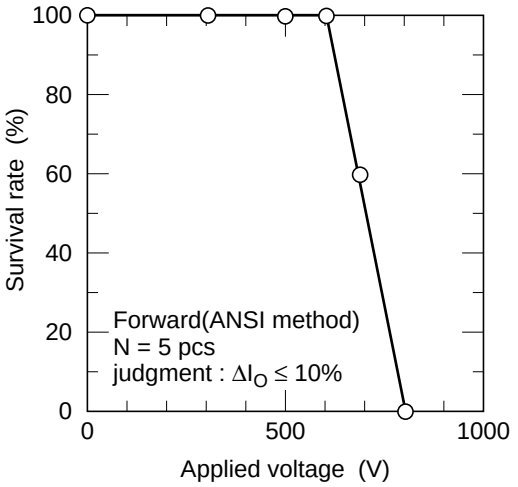
Astigmastism vs. Optical Output Power



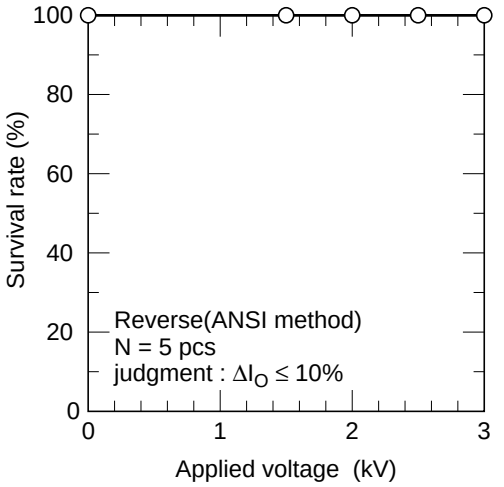
Polarization Ratio vs. Optical Output Power



Electrostatic Destruction (Forward)

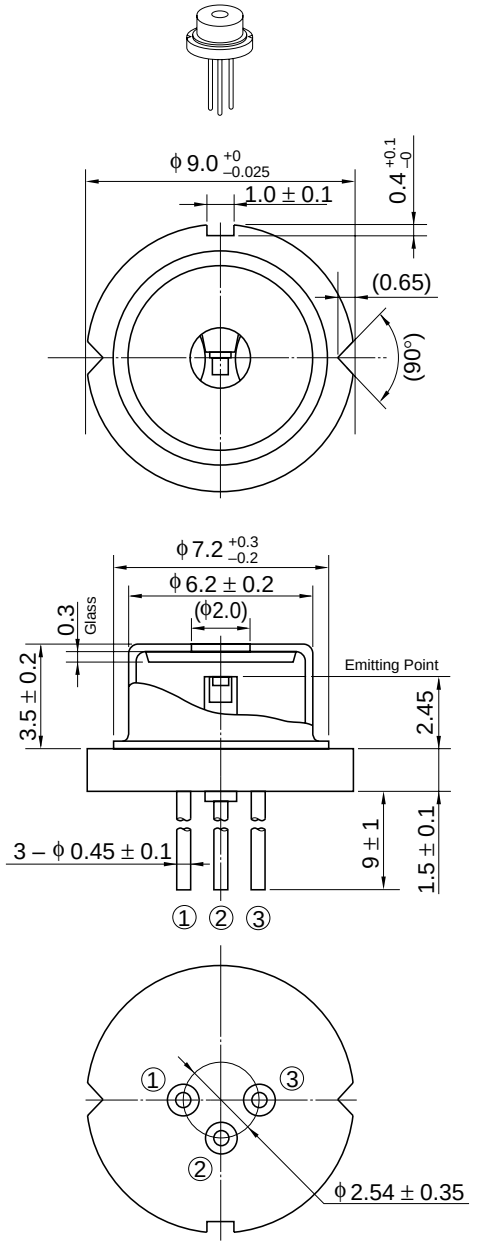


Electrostatic Destruction (Reverse)



Package Dimensions

Unit: mm



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

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