

HL6312G/13G

AlGaInP Laser Diodes

HITACHI

ADE-208-190G (Z)
8th Edition
Dec. 2000

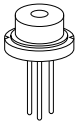
Description

The HL6312G/13G are 0.63 μm band AlGaInP laser diodes with a multi-quantum well (MQW) structure. Wavelength is equal to He-Ne Gas laser. They are suitable as light sources in bar code readers, laser levelers and various other types of optical equipment. Hermetic sealing of the package achieves high reliability.

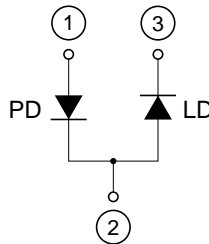
Features

- Visible light output: $\lambda_p = 635 \text{ nm}$ Typ (nearly equal to He-Ne Gas Laser)
- Optical output power: 5 mW CW
- Low Operating voltage: 2.7 V Max
- Single longitudinal mode
- Built-in photodiode for monitoring laser output
- TM mode oscillation

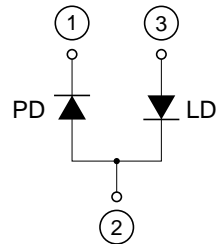
Package Type
• HL6312G/13G: G2



Internal Circuit
• HL6312G



Internal Circuit
• HL6313G



Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$)

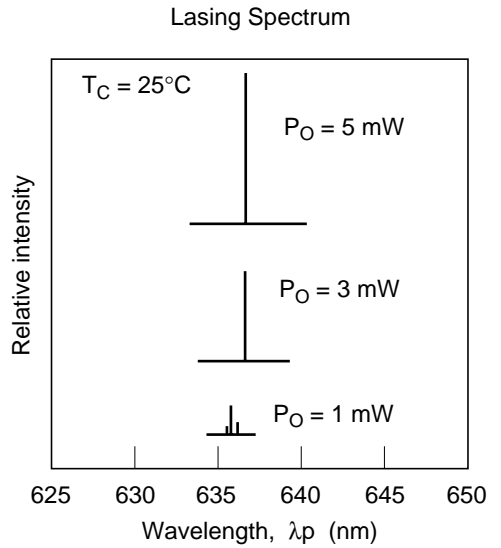
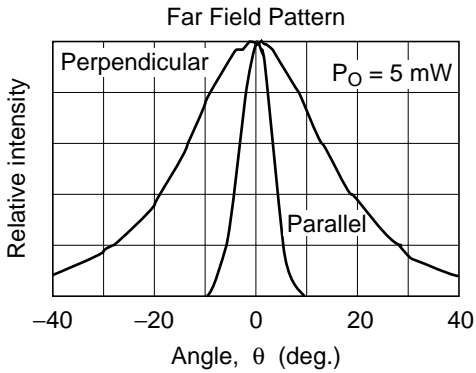
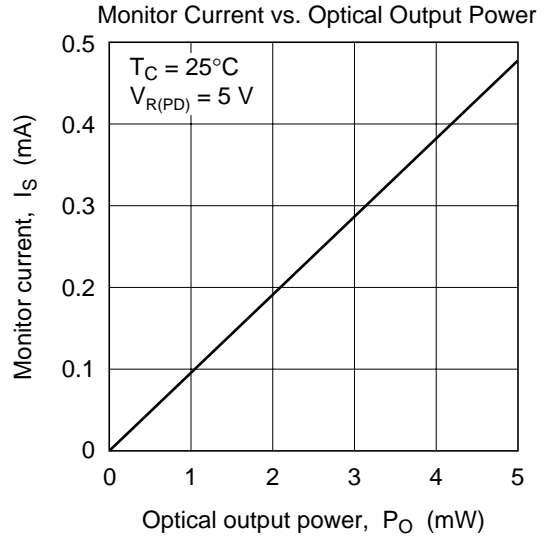
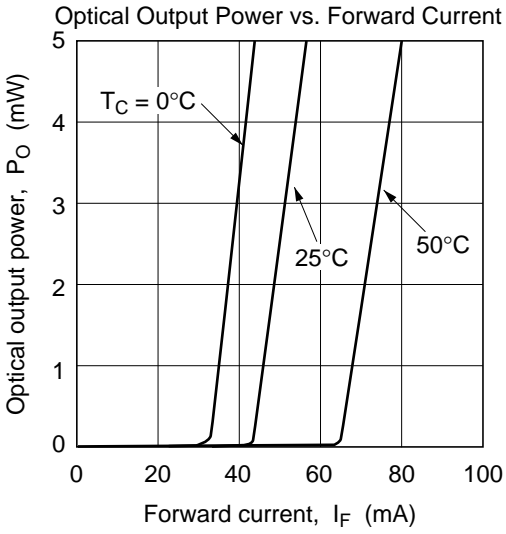
Item	Symbol	Rated Value	Unit
Optical output power	P_O	5	mW
Pulse optical output power	$P_{O(\text{pulse})}$	6 *	mW
LD reverse voltage	$V_{R(\text{LD})}$	2	V
PD reverse voltage	$V_{R(\text{PD})}$	30	V
Operating temperature	T_{opr}	-10 to +50	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$

Note: Pulse condition : Pulse width $\leq 1 \mu\text{s}$, duty $\leq 50\%$

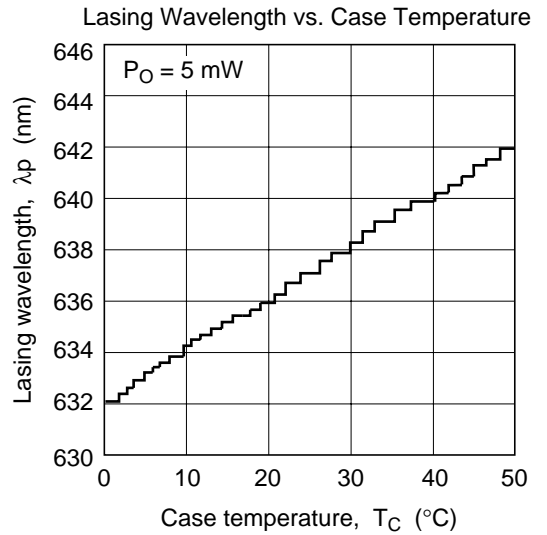
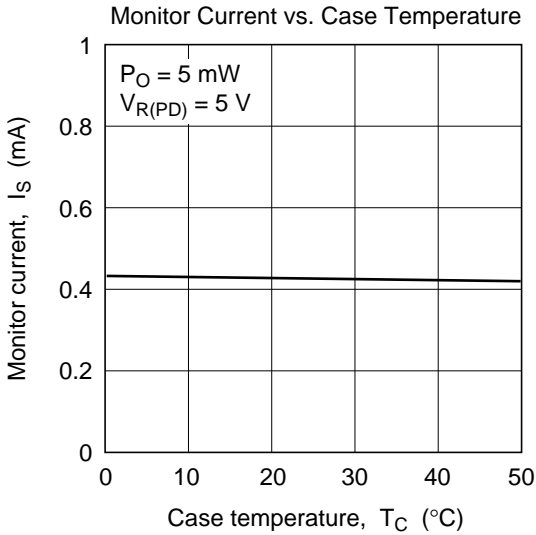
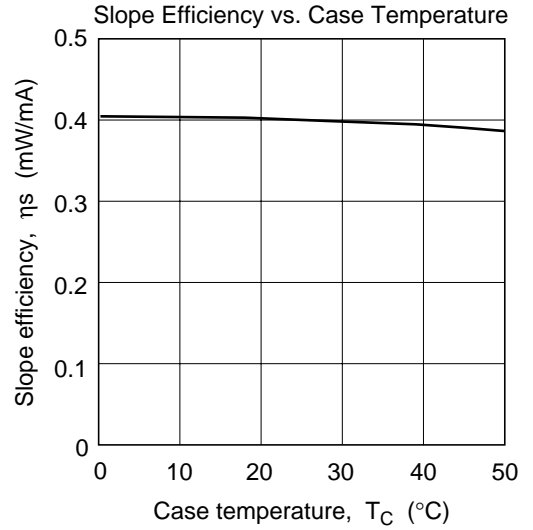
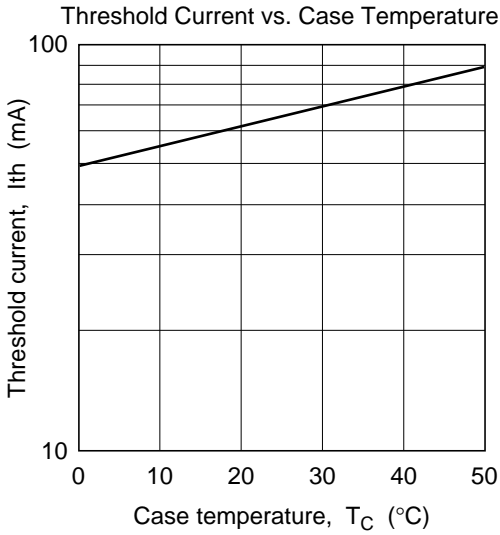
Optical and Electrical Characteristics ($T_C = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_O	5	—	—	mW	Kink free
Threshold current	I_{th}	20	45	70	mA	
Operating current	I_{OP}	—	55	85	mA	$P_O = 5 \text{ mW}$
Operating voltage	V_{OP}	—	—	2.7	V	$P_O = 5 \text{ mW}$
Beam divergence parallel to the junction	$\theta_{//}$	5	8	11	deg.	$P_O = 5 \text{ mW}$
Beam divergence perpendicular to the junction	θ_{\perp}	25	31	37	deg.	$P_O = 5 \text{ mW}$
Astigmatism	A_s	—	8	—	μm	$P_O = 5 \text{ mW}$, $\text{NA} = 0.55$
Lasing wavelength	λ_p	625	635	640	nm	$P_O = 5 \text{ mW}$
Monitor current	I_s	0.2	0.4	0.8	mA	$P_O = 5 \text{ mW}$, $V_{R(\text{PD})} = 5 \text{ V}$

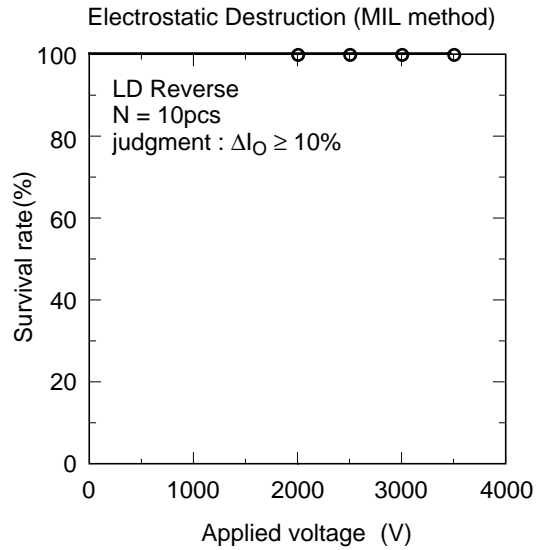
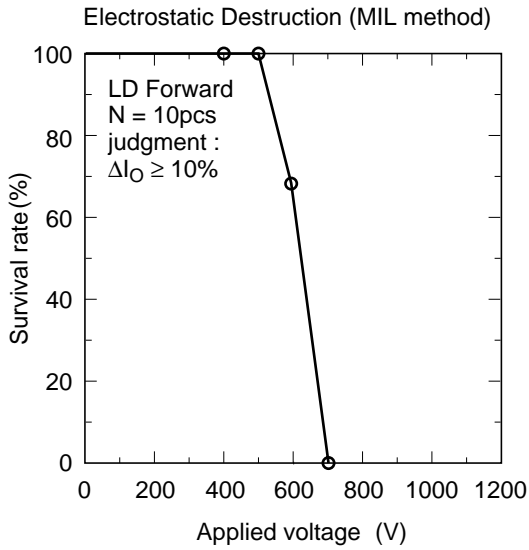
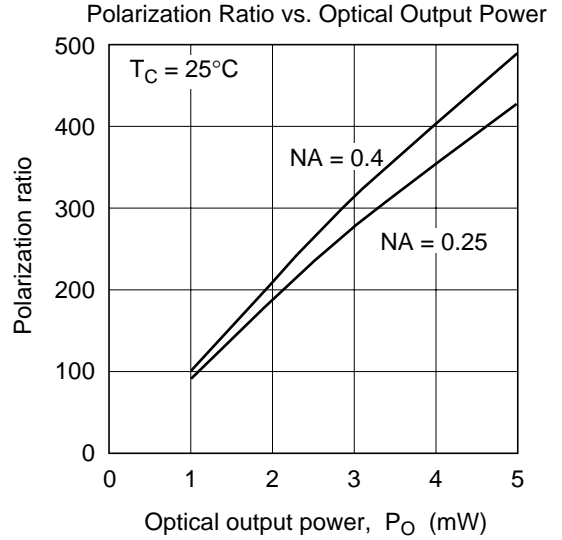
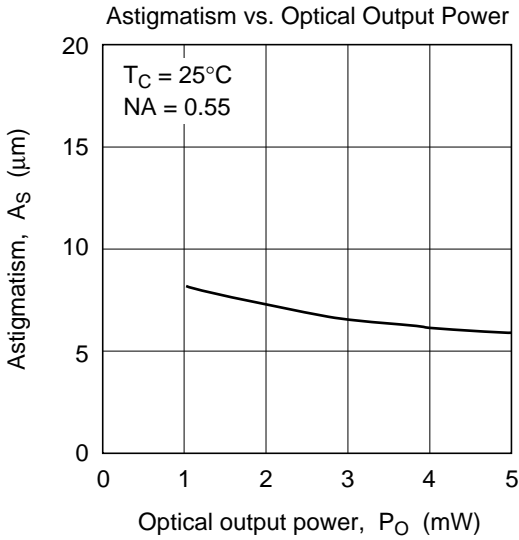
Typical Characteristic Curves



Typical Characteristic Curves (cont)

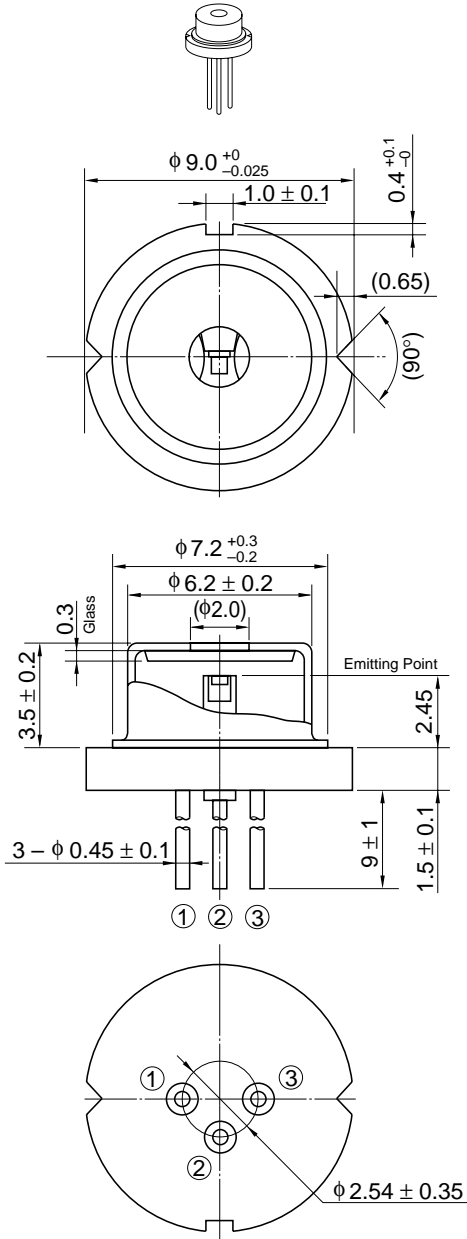


Typical Characteristic Curves (cont)



Package Dimensions

Unit: mm



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

Cautions

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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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