# HL6312/13G

AlGaInP Laser Diodes

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Description

The HL6312/13G 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: p = 635 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
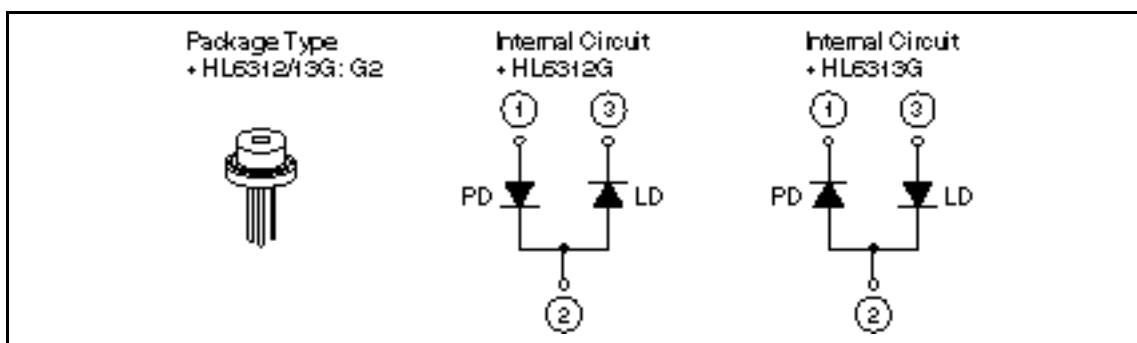
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Absolute Maximum Ratings ($T_C = 25°C$)

Item	Symbol	Rated Value	Unit
Optical output power	P_O	5	mW
Pulse optical output power	$P_{O \, (pulse)}$	6[*1]	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

Note: 1. Pulse condition : Pulse width   1 µs , duty   50%

Optical and Electrical Characteristics ($T_C = 25°C$)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_O	5	—	—	mW	Kink free
Threshold current	Ith	20	45	70	mA	
Operating current	Iop	—	55	85	mA	$P_O = 5$ mW
Operating voltage	Vop	—	—	2.7	V	$P_O = 5$ mW
Lasing wavelength	p	625	635	640	nm	$P_O = 5$ mW
Beam divergence (parallel)	//	5	8	11	deg.	$P_O = 5$ mW
Beam divergence (perpendicular)		25	31	37	deg.	$P_O = 5$ mW
Monitor current	Is	0.2	0.4	0.8	mA	$P_O = 5$ mW, $V_R = 5$ V
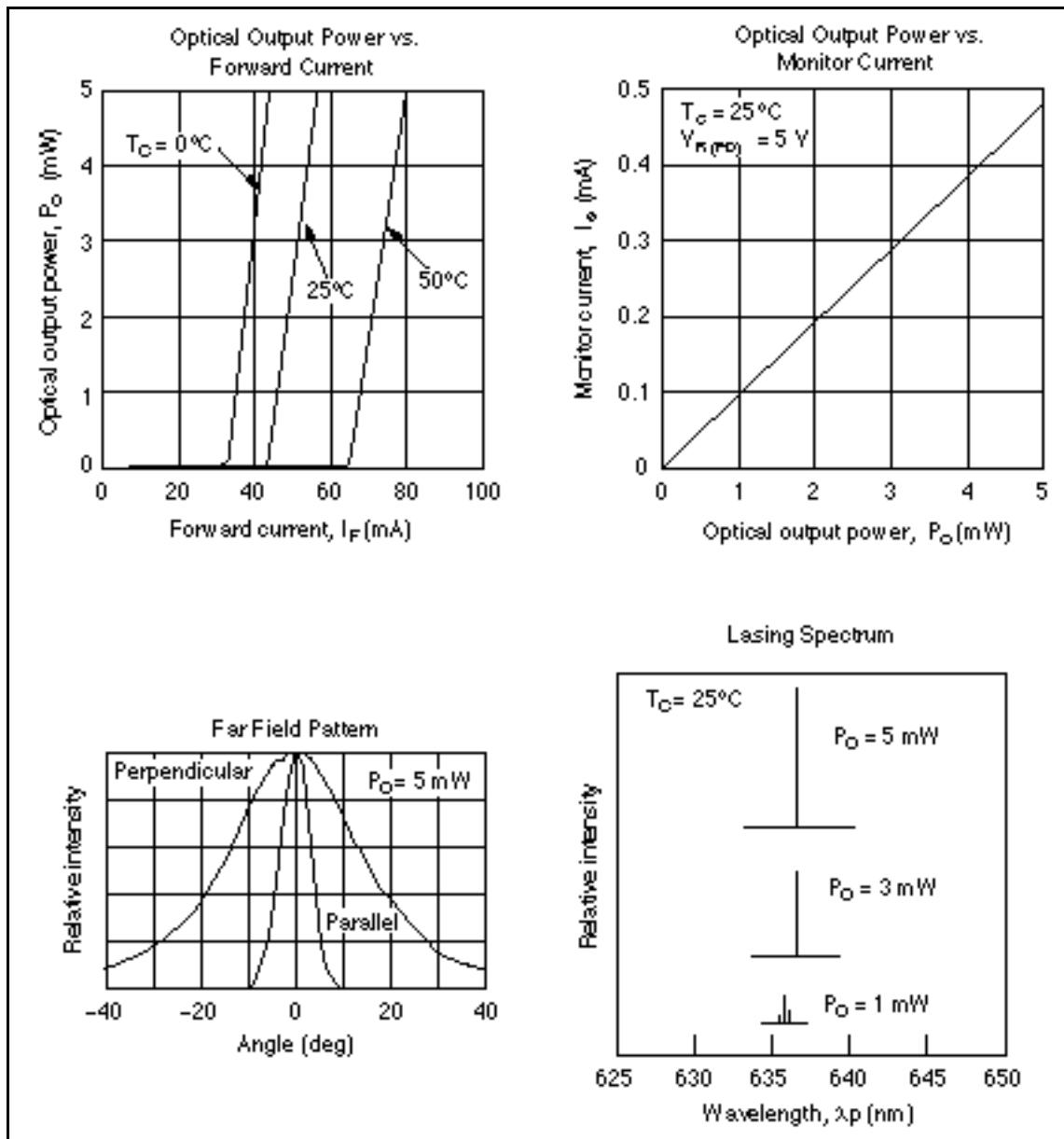
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Typical Characteristic Curves

Optical Output Power vs. Forward Current

Optical Output Power vs. Monitor Current

Far Field Pattern

Lasing Spectrum

Typical Characteristic Curves (cont)

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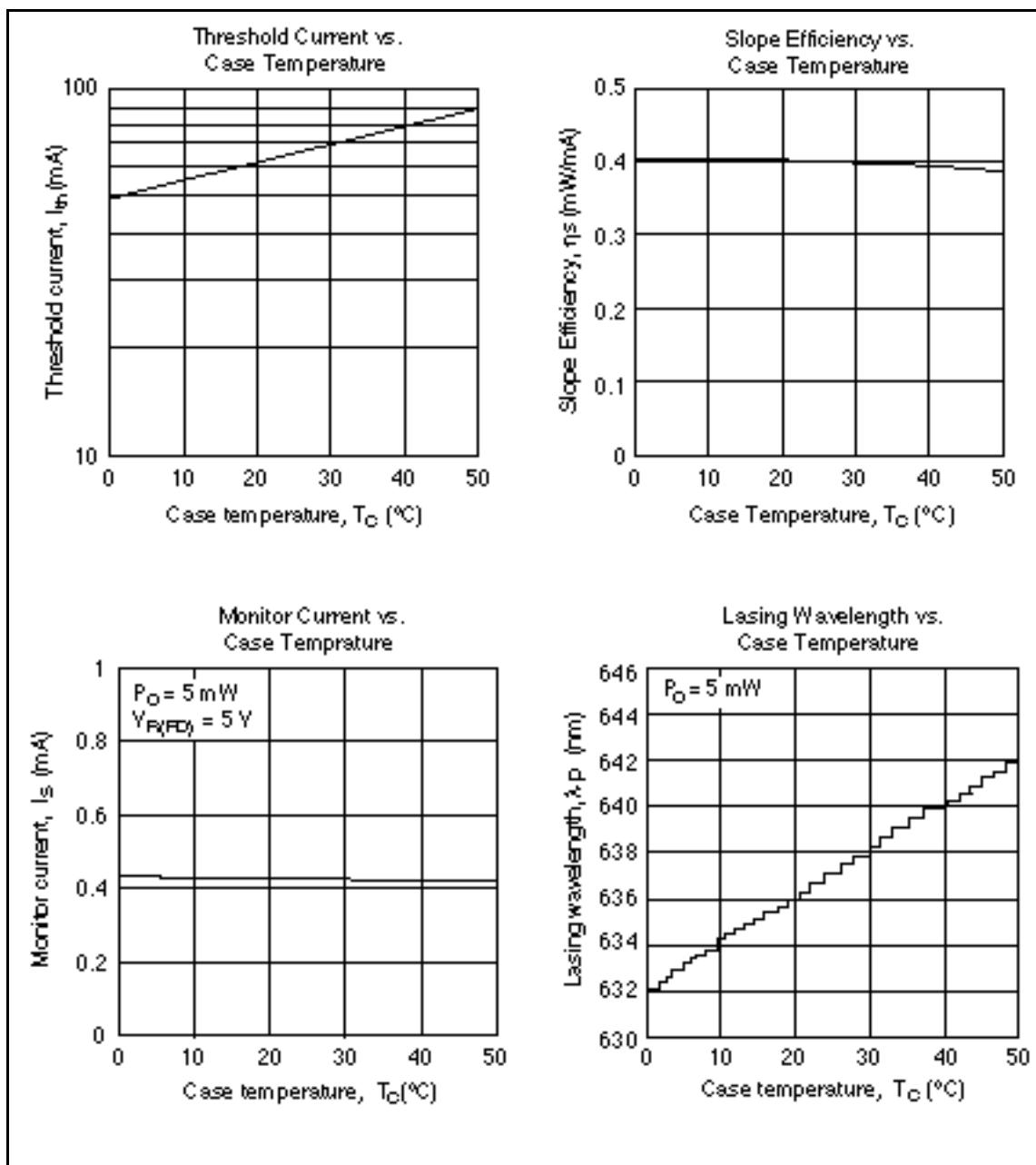
Typical Characteristic Curves (cont)
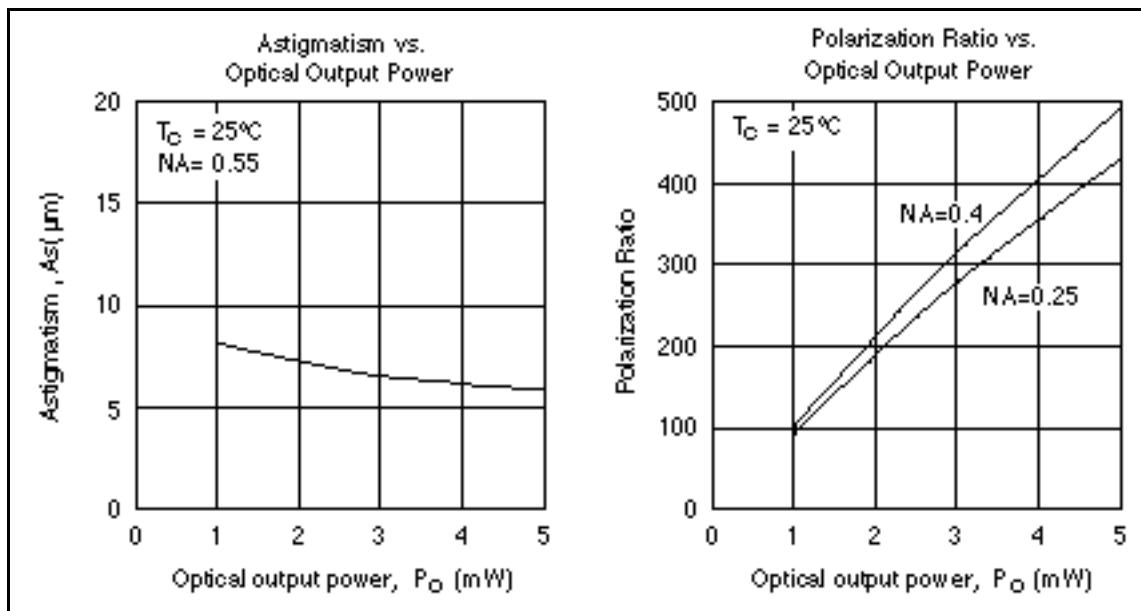
Polarization direction

The polarization direction is TM mode. The polarization direction of 0.63 μm LD's is different from that of 0.83/0.78/0.67 μm LD's. The polarization direction of 0.63 μm LD's is illustrated in the figure below.

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