

HL6312/13G

AlGaInP Laser Diodes

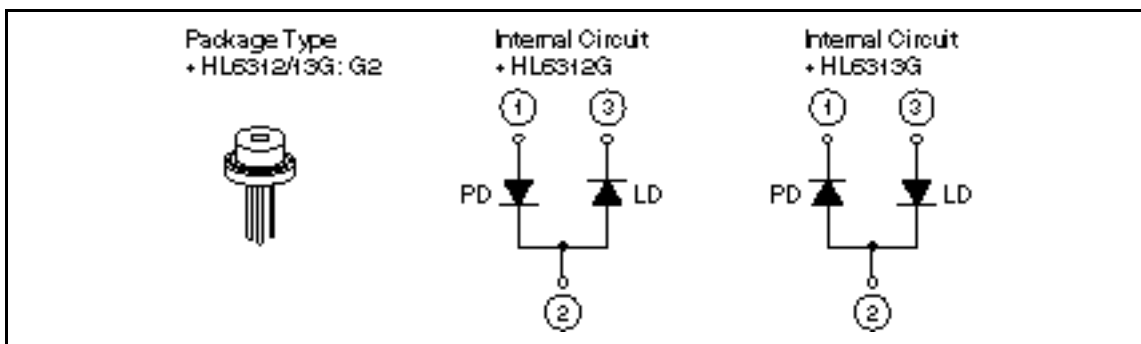
HITACHI

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: $\lambda = 635 \text{ nm}$ 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



HL6312/13G

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

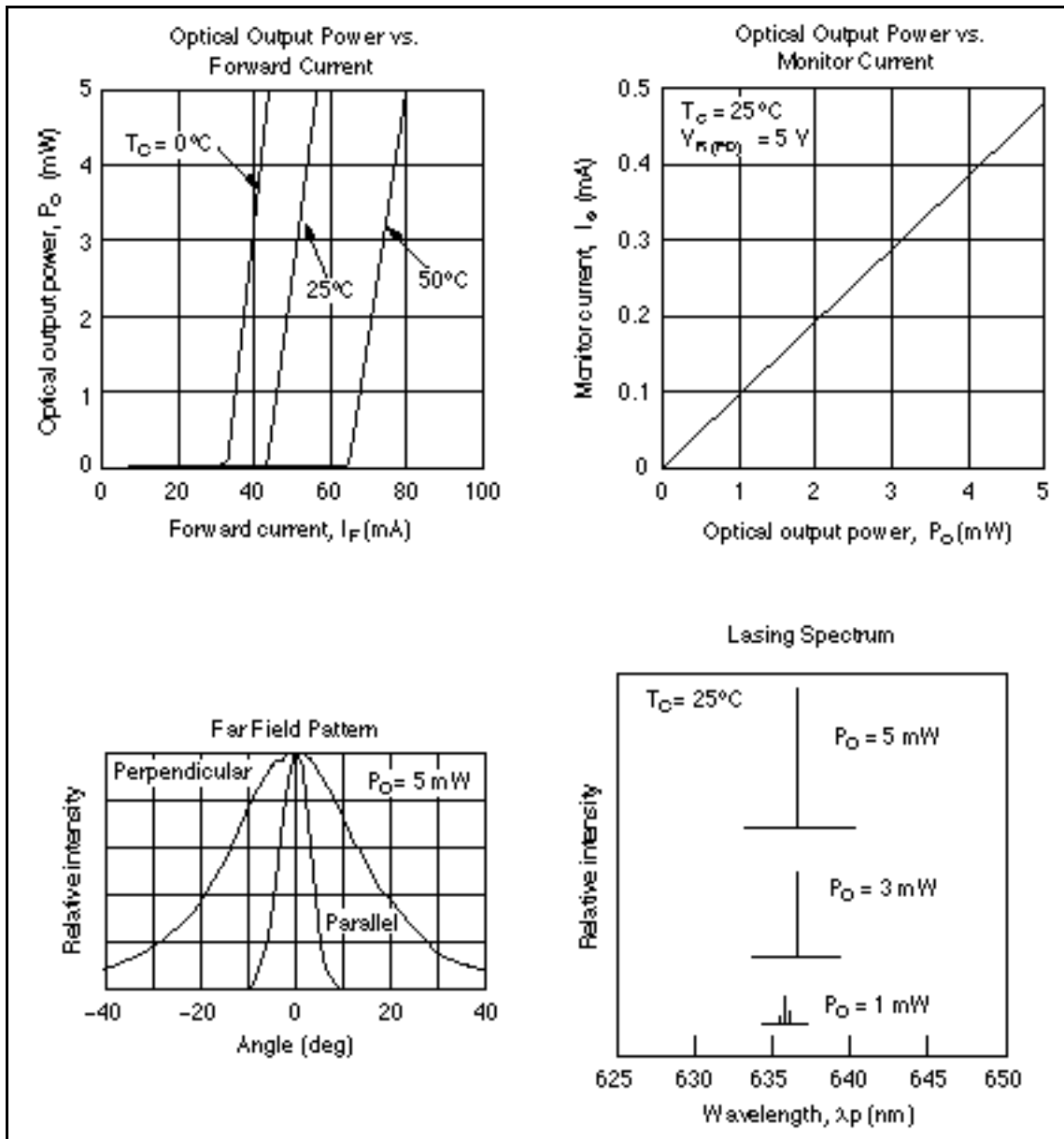
Item	Symbol	Rated Value	Unit
Optical output power	P_O	5	mW
Pulse optical output power	$P_{O(\text{pulse})}$	6* ¹	mW
LD reverse voltage	$V_{R(\text{LD})}$	2	V
PD reverse voltage	$V_{R(\text{PD})}$	30	V
Operating temperature	T_{opr}	-10 to +50	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$

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

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

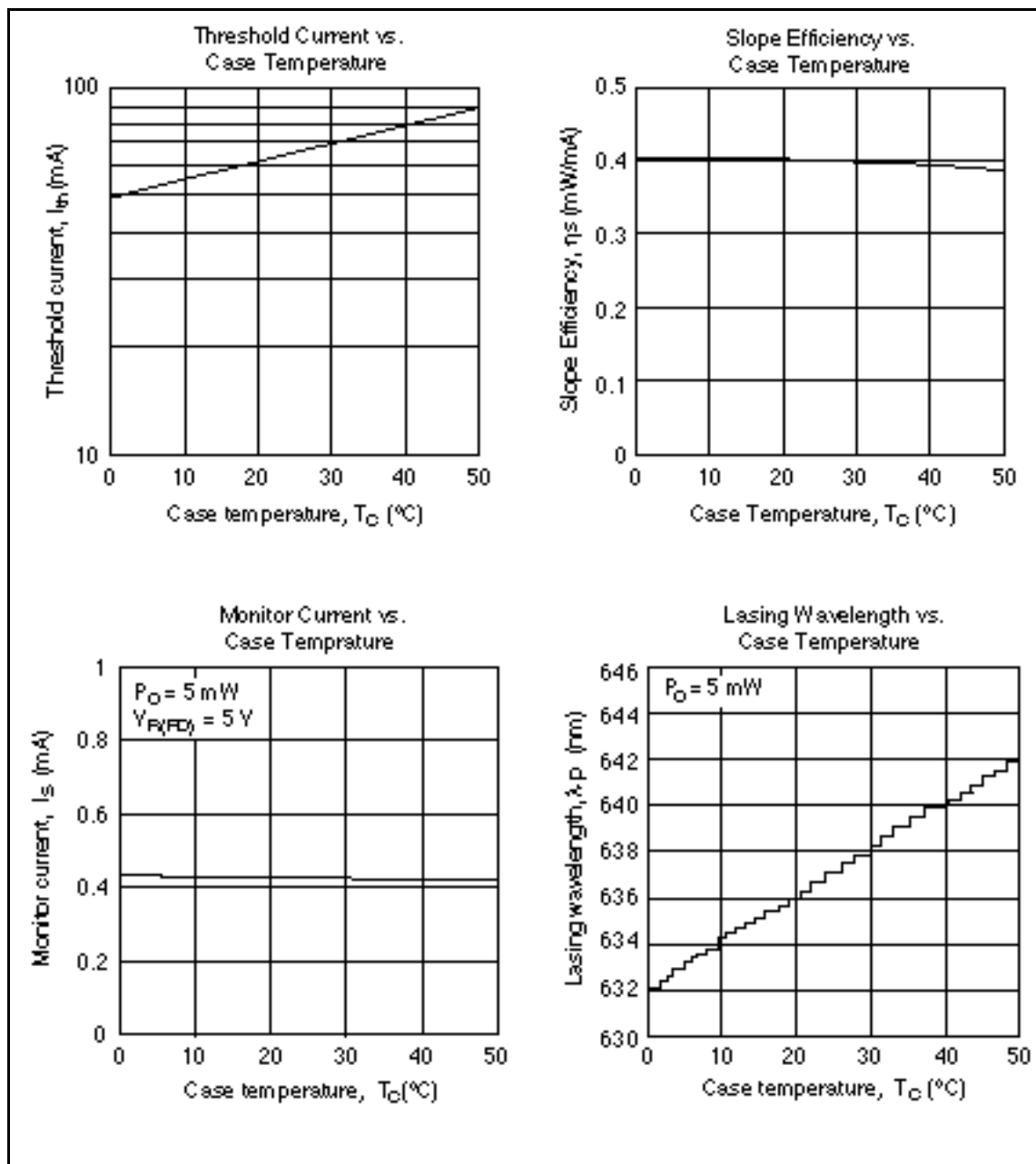
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_O	5	—	—	mW	Kink free
Threshold current	I_{th}	20	45	70	mA	
Operating current	I_{op}	—	55	85	mA	$P_O = 5 \text{ mW}$
Operating voltage	V_{op}	—	—	2.7	V	$P_O = 5 \text{ mW}$
Lasing wavelength	ρ	625	635	640	nm	$P_O = 5 \text{ mW}$
Beam divergence (parallel)	//	5	8	11	deg.	$P_O = 5 \text{ mW}$
Beam divergence (perpendicular)		25	31	37	deg.	$P_O = 5 \text{ mW}$
Monitor current	I_s	0.2	0.4	0.8	mA	$P_O = 5 \text{ mW}, V_R = 5 \text{ V}$

Typical Characteristic Curves

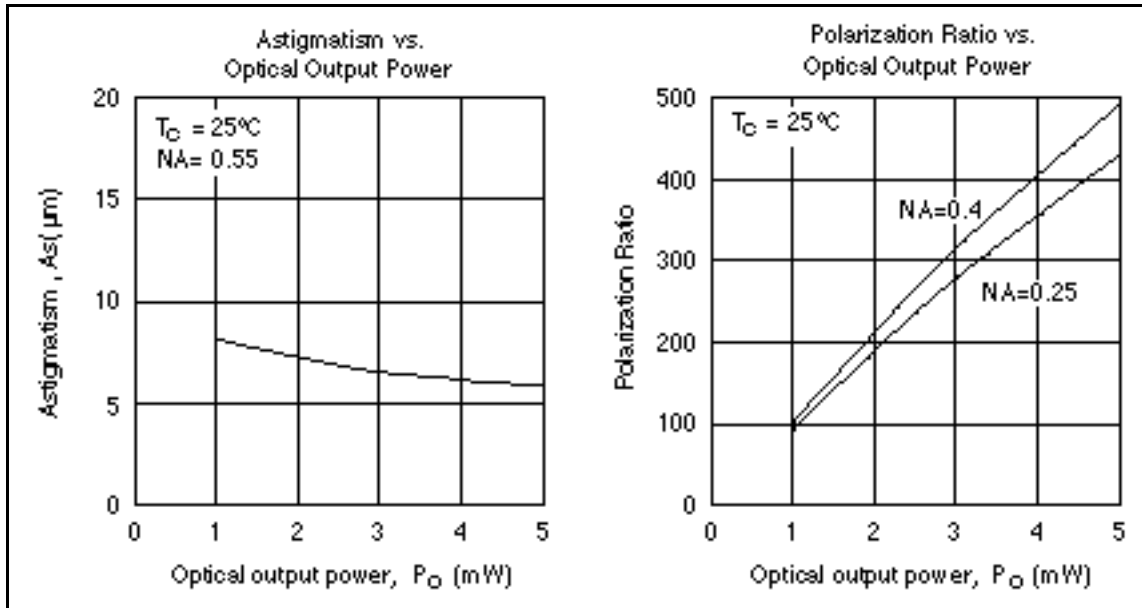


HL6312/13G

Typical Characteristic Curves (cont)



Typical Characteristic Curves (cont)



HL6312/13G

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.

