HL6312/13G

AlGaInP Laser Diodes

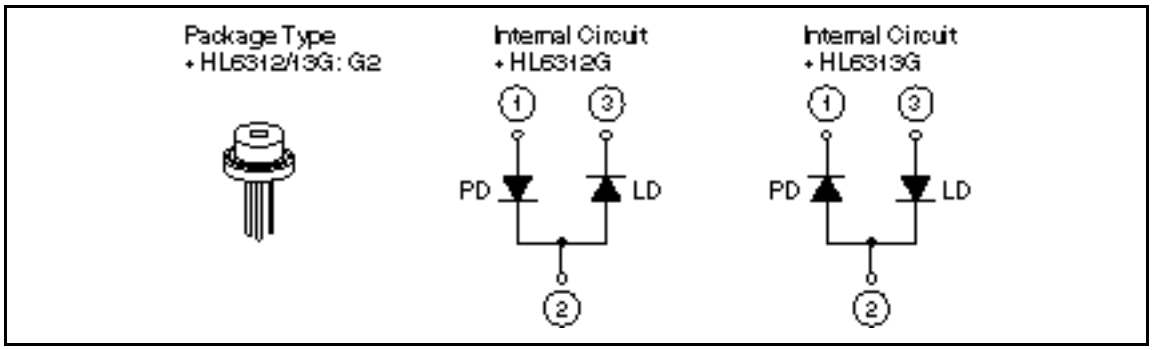
HITACHI

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: λp = 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



Absolute Maximum Ratings (T_C = 25°C)

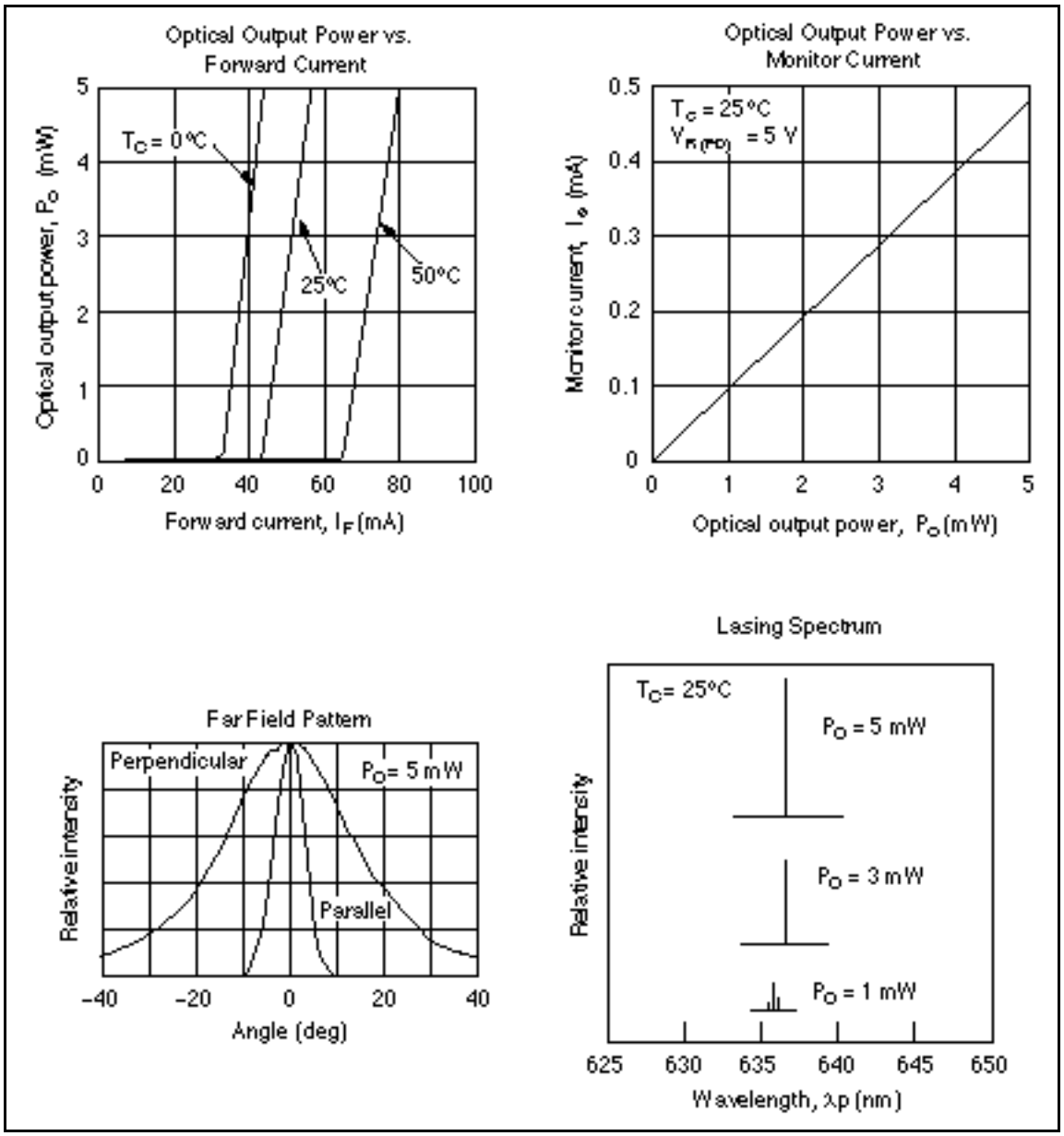
Item	Symbol	Rated Value	Unit
Optical output power	P_O	5	mW
Pulse optical output power	$P_{O\ (pulse)}$	6*[1]	mW
LD reverse voltage	$V_{R\ (LD)}$	2	V
PD reverse voltage	$V_{R\ (PD)}$	30	V
Operating temperature	Topr	–10 to +50	°C
Storage temperature	Tstg	–40 to +85	°C

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

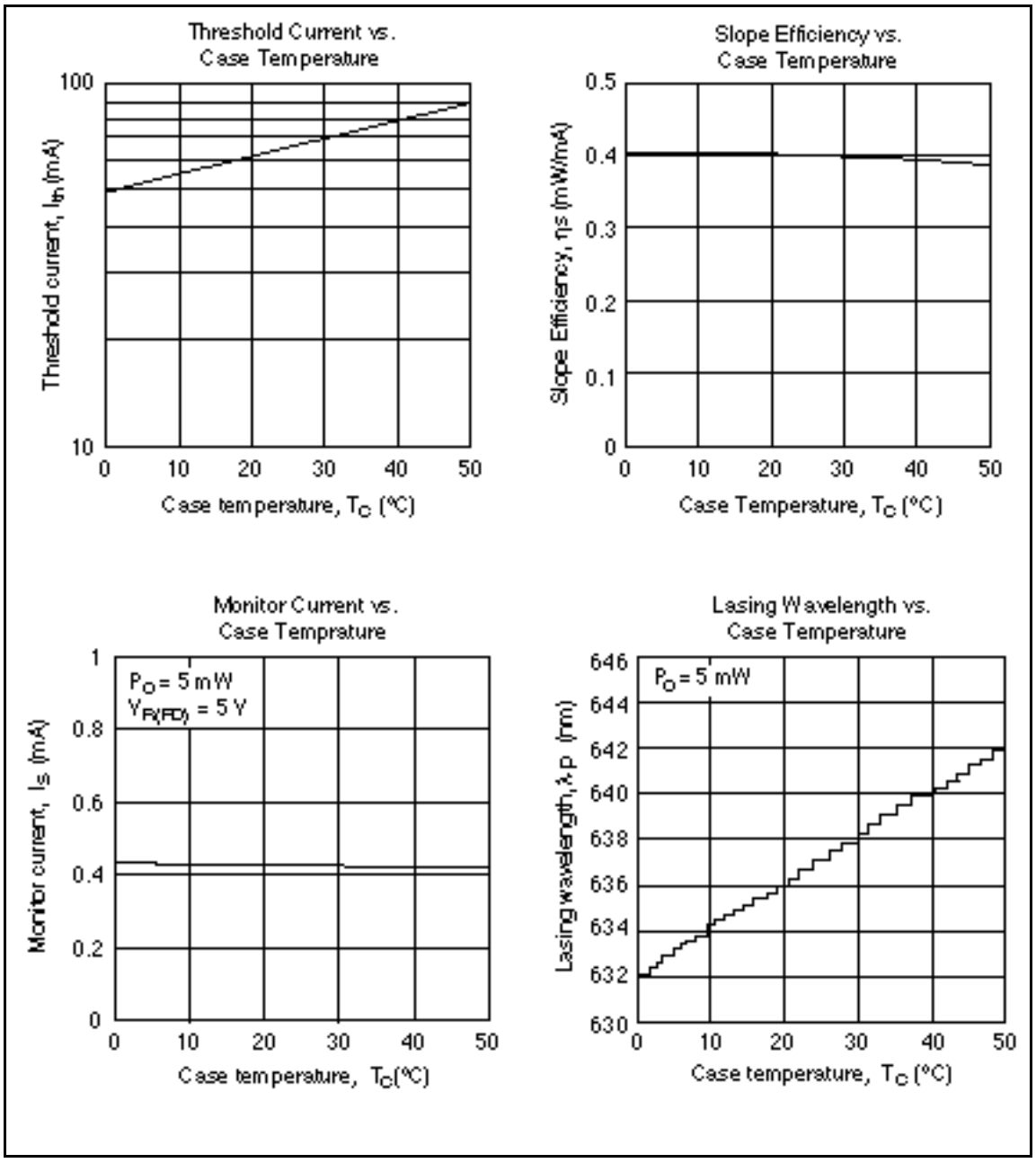
Optical and Electrical Characteristics (T_C = 25°C)

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	λp	625	635	640	nm	P_O = 5 mW
Beam divergence (parallel)	θ//	5	8	11	deg.	P_O = 5 mW
Beam divergence (perpendicular)	θ	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

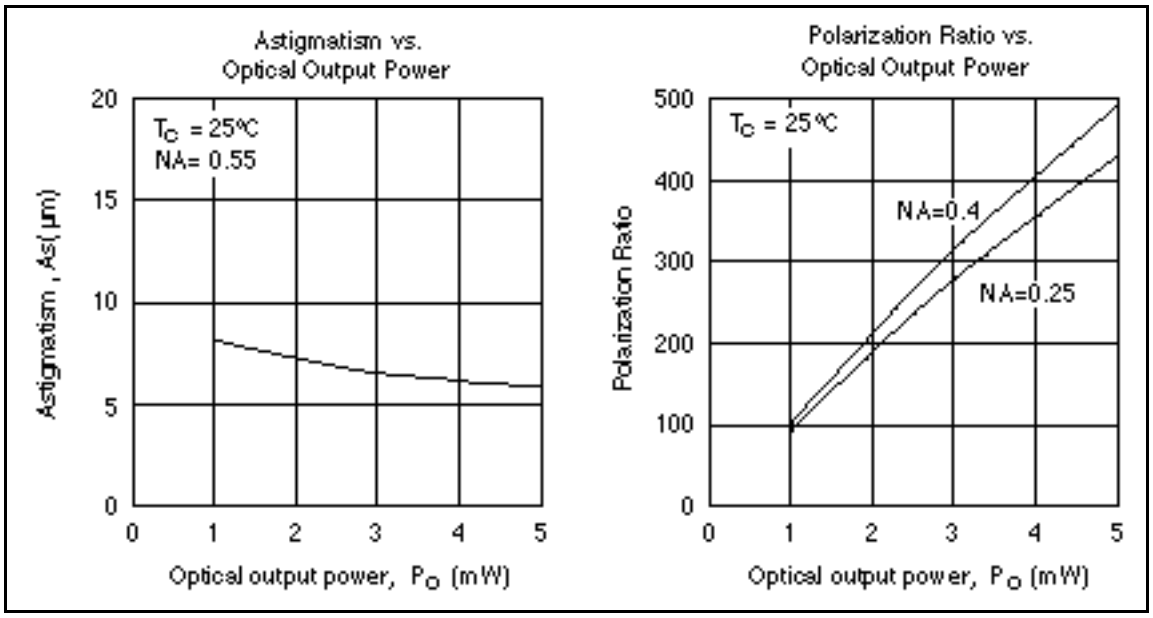
Typical Characteristic Curves



Typical Characteristic Curves (cont)



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.