HL6315/16G

AlGaInP Laser Diodes

HITACHI

Description

The HL6315/16G are 0.63 μm band AlGalnP laser diodes with a multi-quantum well (MQW) structure.

They are suitable as light sources for laser pointers and optical equipment.

Application

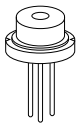
- Laser pointer

Features

- Visible light output: 635 nm Typ.
  (nearly equal to He-Ne Gas Laser)
- Optical output power: 3 mW CW
- Low Operating current: 30mA typ.
- Low Operating voltage: 2.7 V Max.

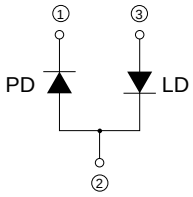
Package Type

- HL6315/16G: G2



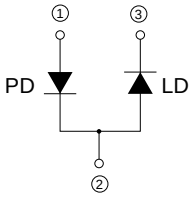
Internal Circuit

- HL6315G



InternalCircuit

- HL6316G



Absolute Maximum Ratings (T_c = 25°C)

Item	Symbol	Rated Value	Unit
Optical output power	P_O	3	mW
Pulse optical output power	$P_{O\ (pulse)}$	5*1	mW
LD reverse voltage	$V_{R\ (LD)}$	2	V
PD reverse voltage	$V_{R\ (PD)}$	30	V
Operating temperature	T_{opr}	–10 to +50	°C
Storage temperature	T_{stg}	–40 to +85	°C

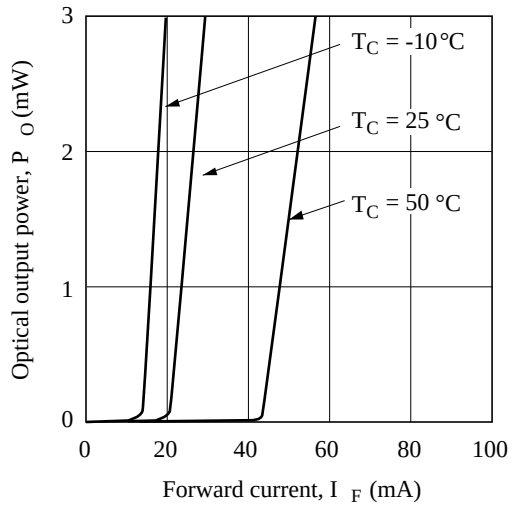
Note: 1. Pulse condition: Pulse width ≤1µs, duty ≤50%

Optical and Electrical Characteristics (T_c = 25°C)

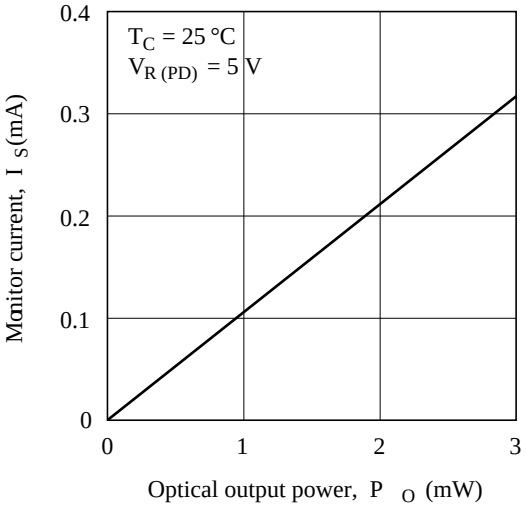
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_O	3	—	—	mW	Kink free
Threshold current	I_{th}	—	25	—	mA	
Operating current	I_{op}	—	30	—	mA	P_O = 3 mW
Operating voltage	V_{op}	—	—	2.7	V	P_O = 3 mW
Lasing wavelength	λ_p	630	635	640	nm	P_O = 3 mW
Beam divergence (parallel)	$\theta_{//}$	6	8	10	deg.	P_O = 3 mW
Beam divergence (perpendicular)	$\theta_{\perp}$	23	30	39	deg.	P_O = 3 mW
Monitor current	I_S	—	0.3	—	mA	P_O = 3 mW, V_R = 5 V

Typical Characteristic Curves

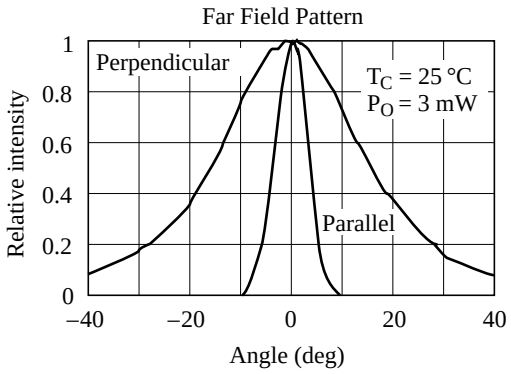
Optical Output Power vs.
Forward Current

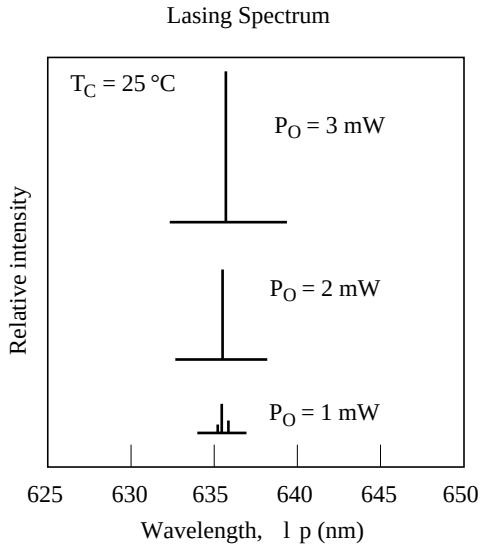


Optical Output Power vs.
Monitor Current



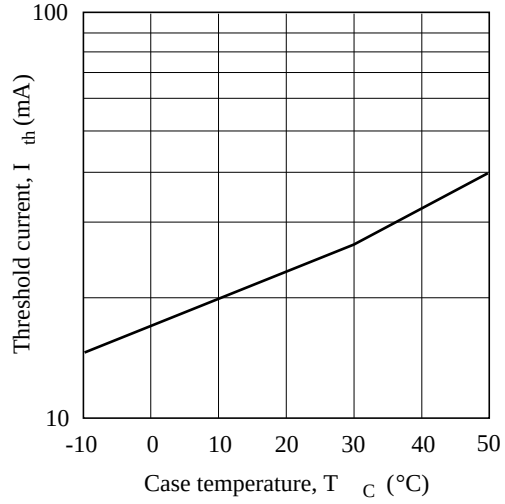
Typical Characteristic Curves (cont)



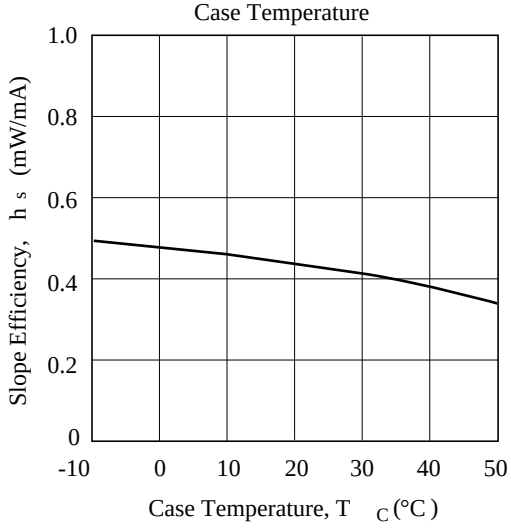


Typical Characteristic Curves (cont)

Threshold Current vs.
Case Temperature

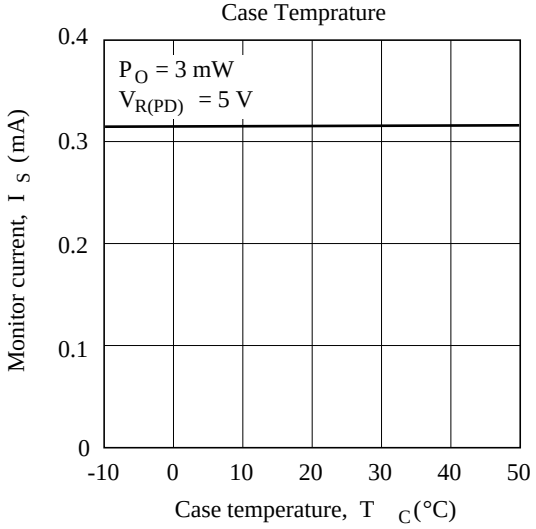


Slope Efficiency vs.
Case Temperature

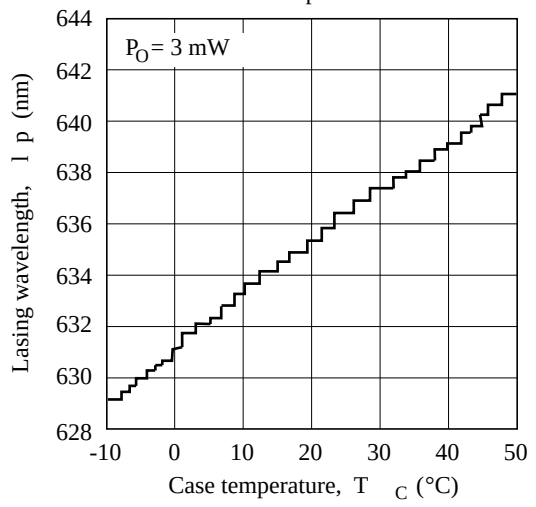


Typical Characteristic Curves (cont)

Monitor Current vs.
Case Temprature

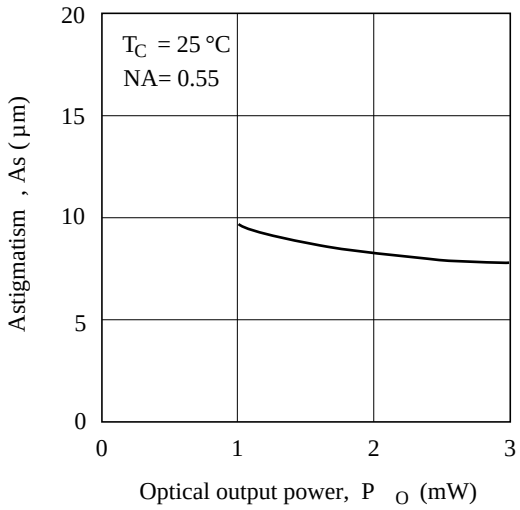


Lasing Wavelength vs.
Case Temperature

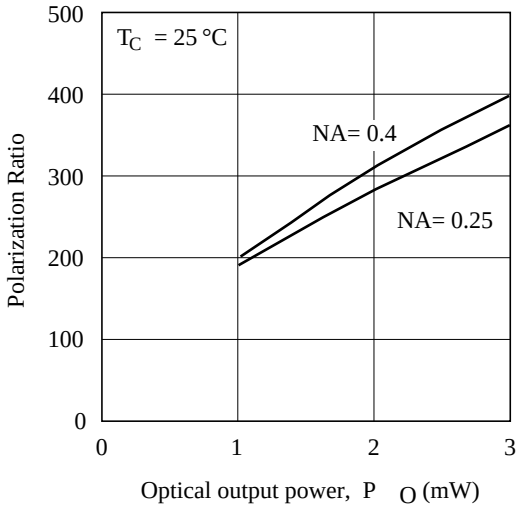


Typical Characteristic Curves (cont)

Astigmatism vs.
Optical Output Power



Polarization Ratio vs.
Optical Output Power



Polarization direction

The polarization 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.