HL6513FM

Visible High Power Laser Diode for Recordable DVD

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ODE-208-1466B (Z)

Rev.2
Jan. 2003

Description

The HL6513FM is a 0.65 μm band AlGaInP laser diode (LD) with a multi-quantum well (MQW) structure. Its beam divergence (parallel to the junction) has a small variation to the optical output power. The characteristic makes it possible to suppress the variation of spot size between higher and lower output powers. Therefore, it is suitable as a light source for large capacity rewritable optical disc memories, such as DVD-RAM, and various other types of optical equipment. Hermetic sealing of the small package (ϕ 5.6mm) assures high reliability.

Application

- Optical disc memories
- Optical equipment

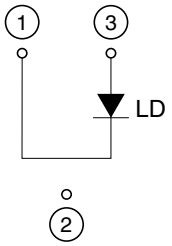
Features

- High output power and Wide operating temperature
  : 70 mW (pulse), PW = 100ns, duty = 50%, (Topr = 70°C)
- Small package : ϕ 5.6 mm
- Visible light output : λp = 658 nm Typ
- The beam divergence (parallel to the junction) has a small variation to the output power.
- Single longitudinal mode

Package Type
HL6513FM: FM



Internal Circuit



Absolute Maximum Ratings

(T_C = 25°C)

Item	Symbol	Value	Unit
Optical output power	P_O	50	mW
Pulse optical output power	$P_{O(pulse)}$	70 *1	mW
Laser diode reverse voltage	$V_{R(LD)}$	2	V
Operating temperature	Topr	−10 to +70 *2	°C
Storage temperature	Tstg	−40 to +85	°C

Notes: 1. Pulse condition : Pulse width = 100 ns, duty = 50%
2. The value of −10 to +70°C is effective under pulse operation. The value under CW operation is −10 to +60°C.

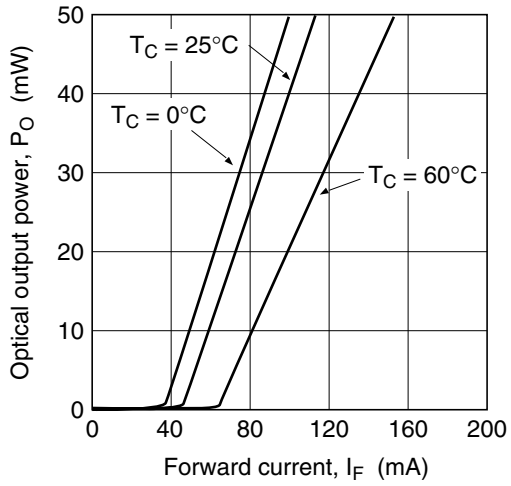
Optical and Electrical Characteristics

(T_C = 25°C)

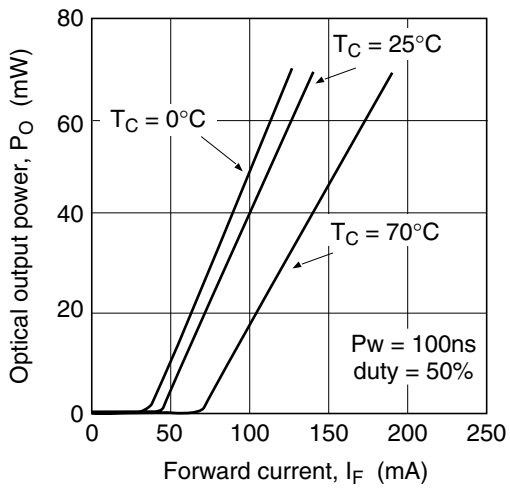
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	Ith	30	45	60	mA	—
Operating current	Iop	—	115	135	mA	P_O = 50 mW
Operating voltage	V_{OP}	2.1	2.6	3.0	V	P_O = 50 mW
Beam divergence parallel to the junction	θ//	7	8.5	11	deg.	P_O = 50 mW
Beam divergence parpendicular to the junction	θ⊥	18	21	26	deg.	P_O = 50 mW
Astigmatism	A_S	—	5	—	μm	P_O = 5 mW, NA = 0.55
Lasing wavelength	λp	650	658	662	nm	P_O = 50 mW

Typical Characteristic Curves

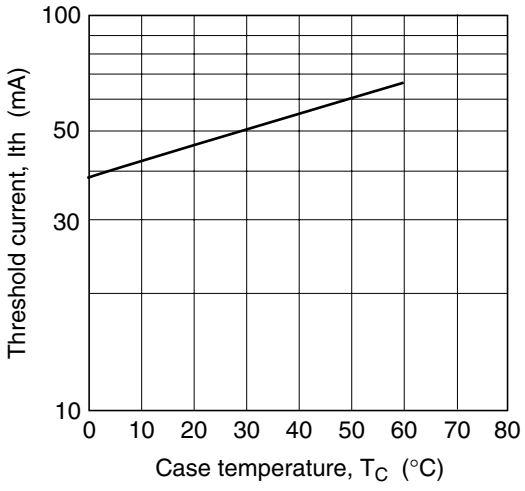
Optical Output Power vs. Forward Current



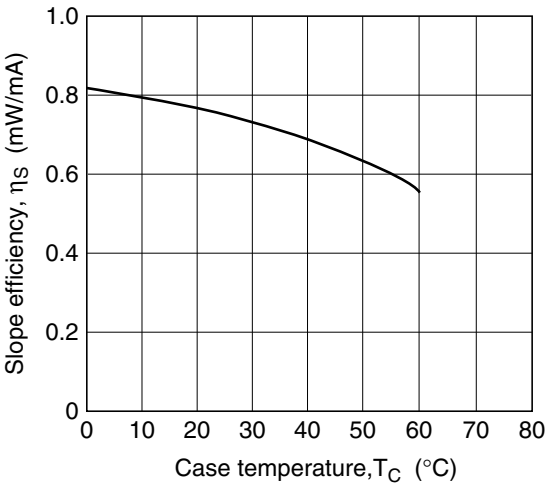
Pulse Optical Output Power vs. Forward Current



Threshold Current vs. Case Temperature



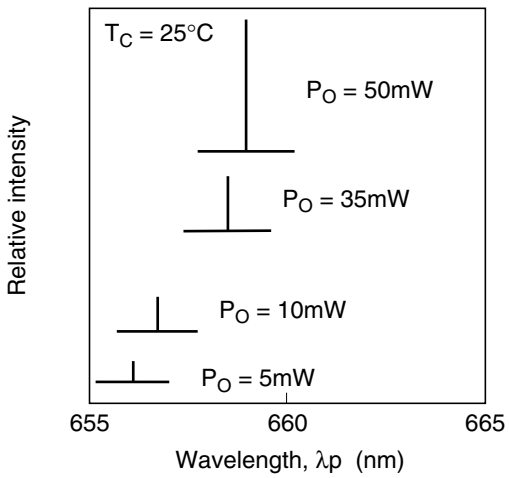
Slope Efficiency vs. Case Temperature



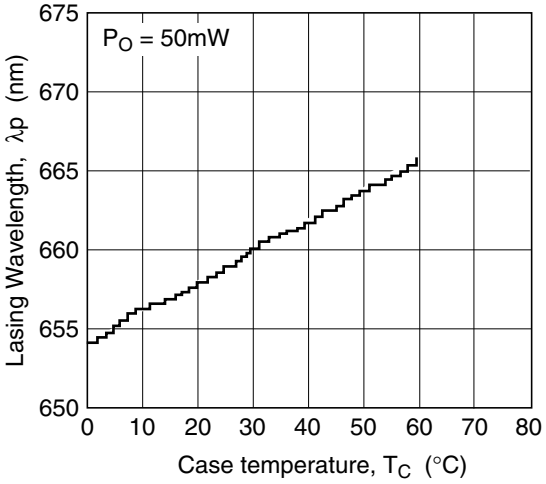
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Typical Characteristic Curves (cont)

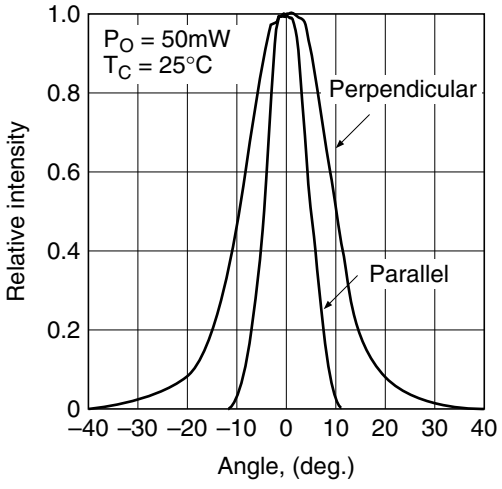
Lasing Specturn



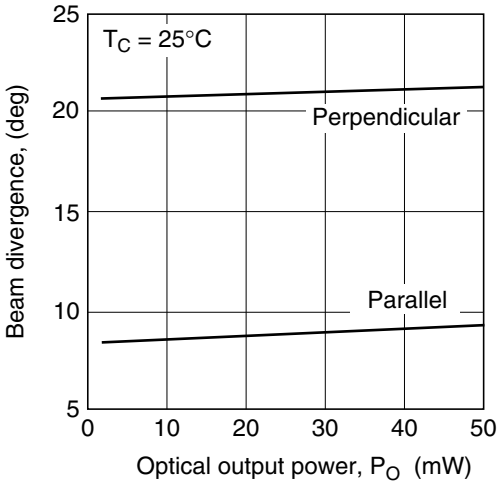
Wavelength vs. Case Temperature



Far Field Pattern

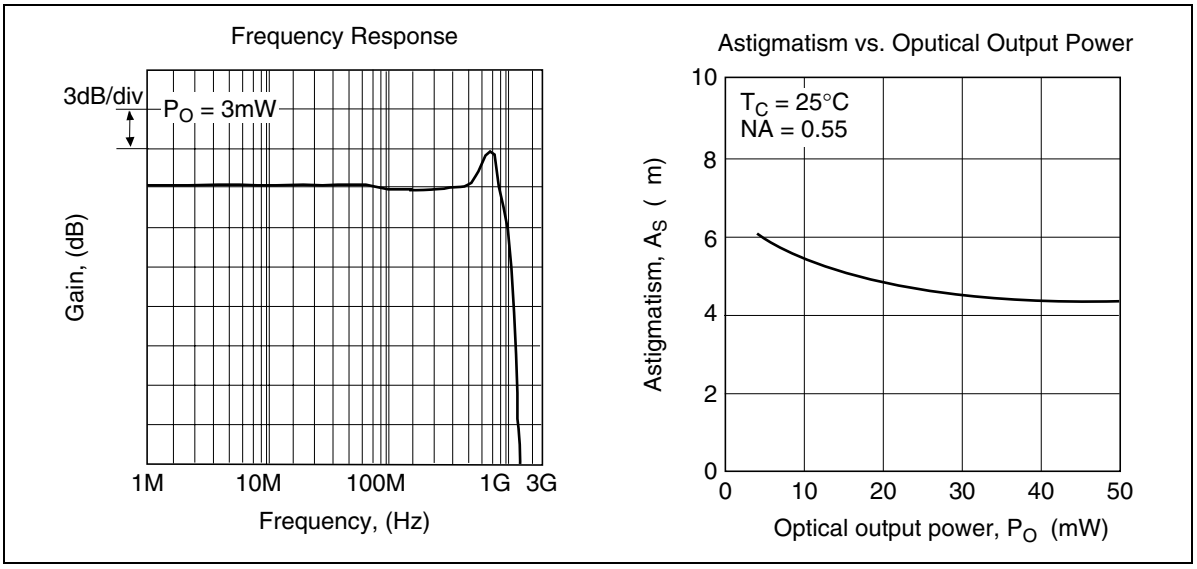


Beam Divergence vs. Optical Output Power



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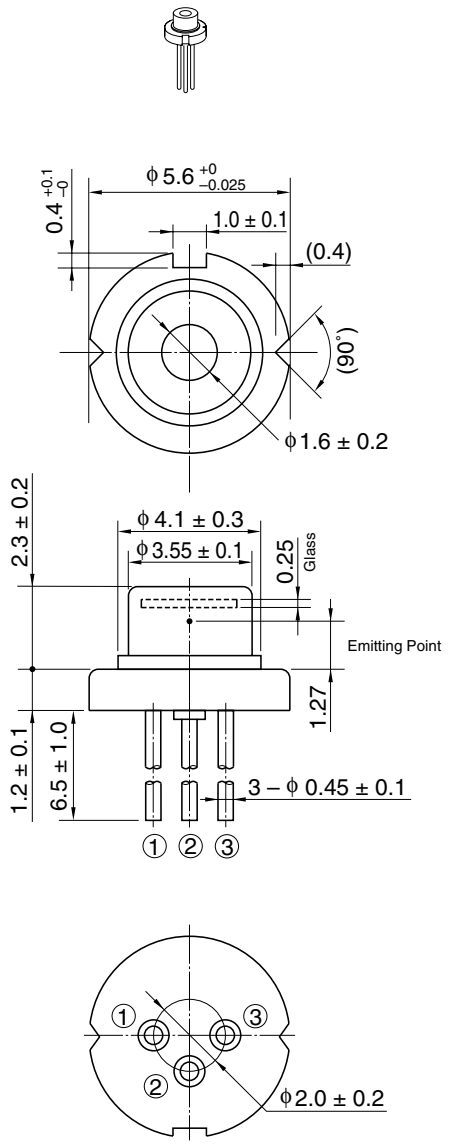
Typical Characteristic Curves (cont)



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Package Dimensions

As of July, 2002
Unit: mm



OPJ Code	LD/FM
JEDEC	—
JEITA	—
Mass (reference value)	0.3 g

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