HL6501MG

Visible High Power Laser Diode

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ODE-208-515I (Z)

Rev.9
Jan. 2003

Description

The HL6501MG is a 0.65 μm band AlGaInP laser diode (LD) with a multi-quantum well (MQW) structure. It is suitable as a light source for large capacity optical disc memories, such as DVD-R, and various other types of optical equipment.

Hermetic sealing of the small package (ϕ5.6 mm) assures high reliability.

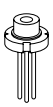
Application

- Optical disc memories
- Optical equipment

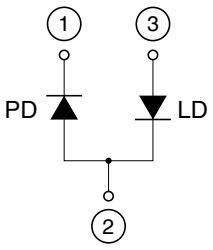
Features

- High output power: 35 mW (CW)
- Visible light output: λp = 658 nm Typ
- Small package: ϕ 5.6 mm
- Low astigmatism: 6 μm Typ (P_o = 5 mW)
- Single longitudinal mode

Package Type
HL6501MG: MG



Internal Circuit



Absolute Maximum Ratings

(T_C = 25°C)

Item	Symbol	Rated Value	Unit
Optical output power	P_O	35	mW
Pulse optical output power	$P_{O(pulse)}$	50 *	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	Topr	–10 to +60	°C
Storage temperature	Tstg	–40 to +85	°C

Note: Pulse condition : Pulse width = 100 ns , duty = 50%

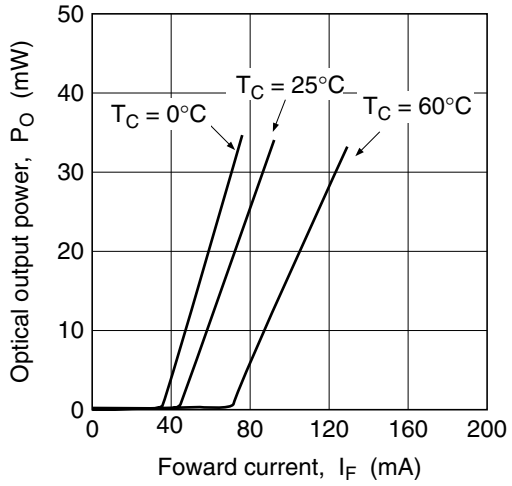
Optical and Electrical Characteristics

(T_C = 25°C)

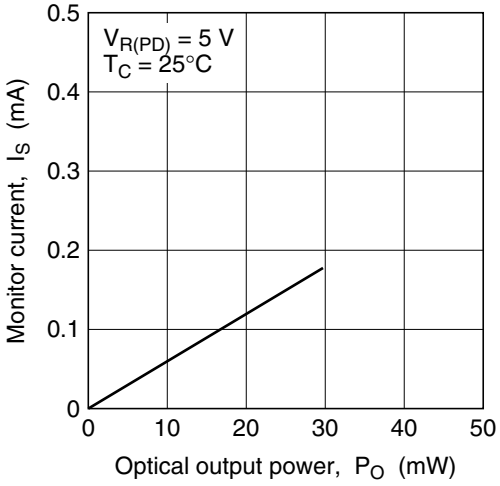
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Threshold current	Ith	30	45	70	mA	—
Operating voltage	V_{OP}	2.1	2.6	3.0	V	P_O = 30 mW
Slope efficiency	ηs	0.5	0.75	1.0	mW/mA	18 (mW) / ($I_{(24mW)} - I_{(6mW)}$)
Beam divergence parallel to the junction	$\theta //$	7	8.5	10.5	deg.	P_O = 30 mW
Beam divergence parpendicular to the junction	$\theta \perp$	18	22	26	deg.	P_O = 30 mW
Astigmatism	A_S	—	6	—	μm	P_O = 5 mW, NA = 0.55
Lasing wavelength	λp	645	658	665	nm	P_O = 30 mW
Monitor current	I_S	0.05	0.3	1.5	mA	P_O = 30 mW, $V_{R(PD)}$ = 5 V

Typical Characteristic Curves

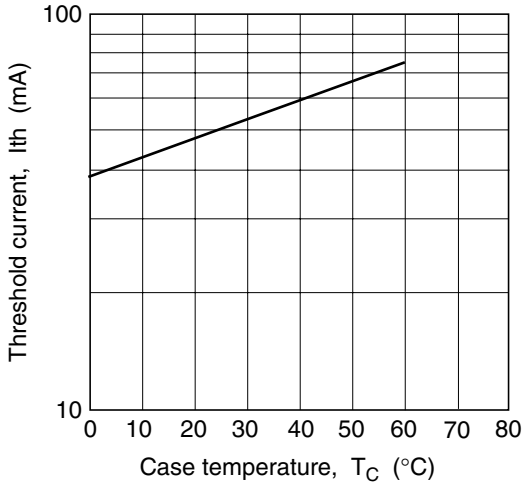
Optical Output Power vs. Forward Current



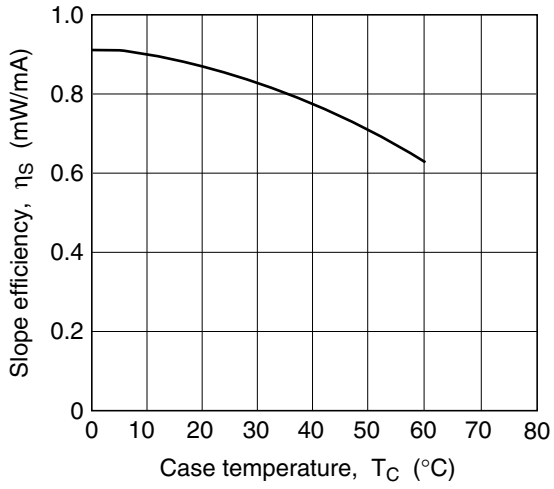
Monitor Current vs. Optical Output Power



Threshold Current vs. Case Temperature



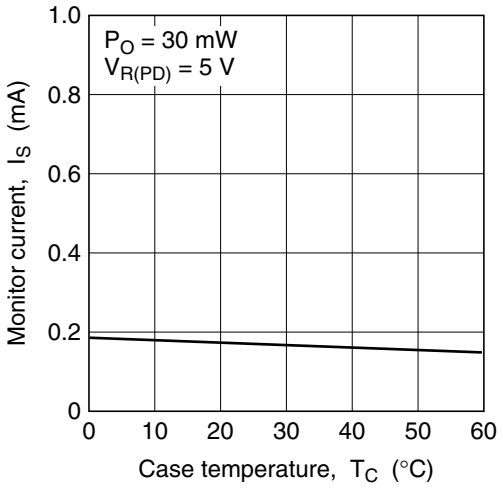
Slope Efficiency vs. Case Temperature



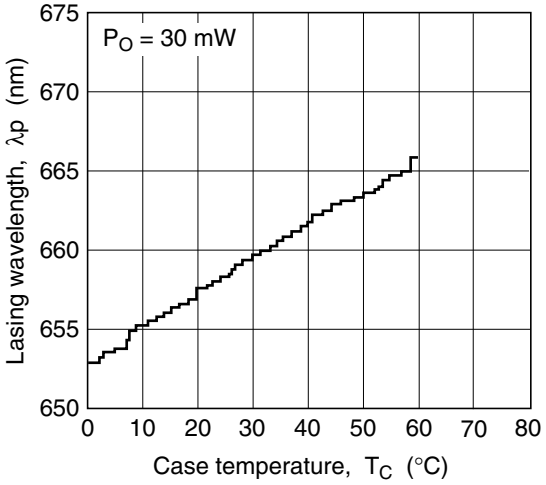
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Typical Characteristic Curves (cont)

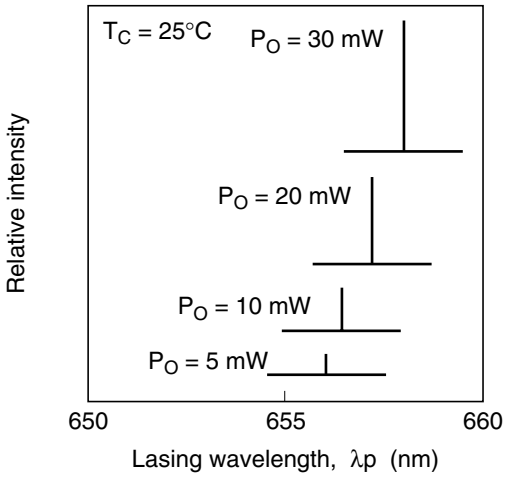
Monitor Current vs. Case Temperature



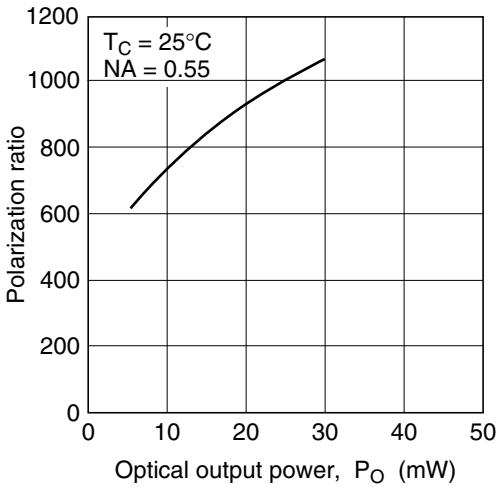
Lasing Wavelength vs. Case Temperature



Lasing Spectrum

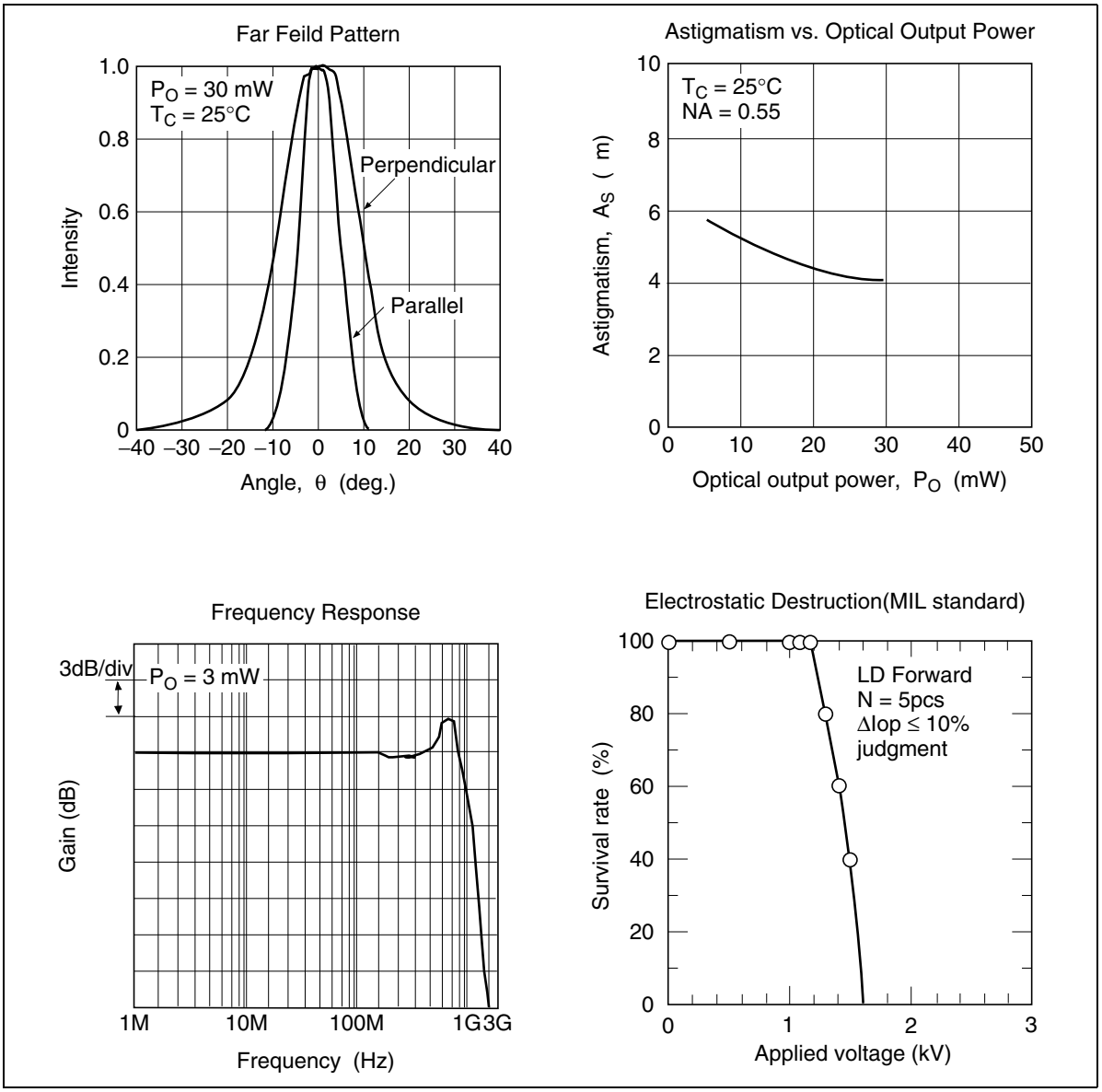


Polarization Ratio vs. Optical Output Power



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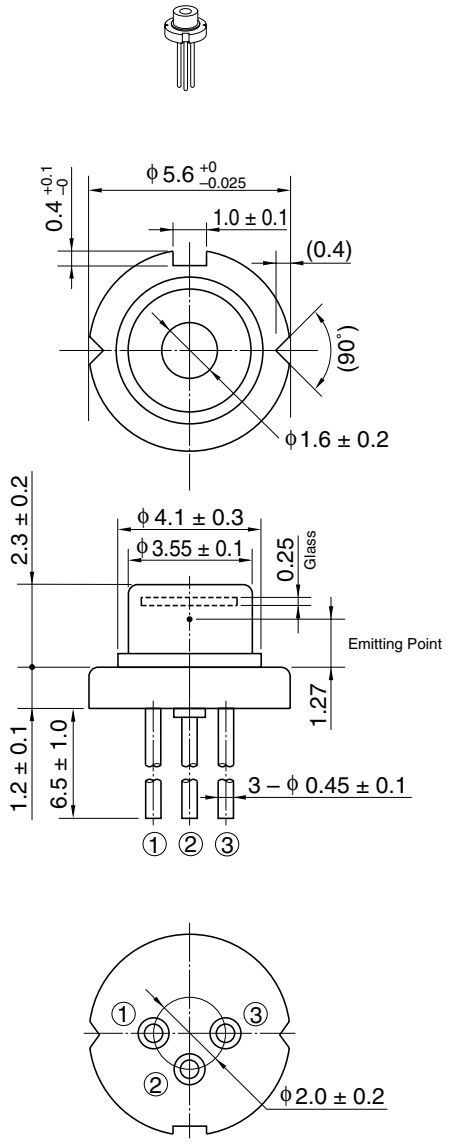
Typical Characteristic Curves (cont)



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Package Dimensions

As of July, 2002
Unit: mm



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

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