HL6738MG

Visible High Power Laser Diode

HITACHI

ADE-208-601B (Z)
3rd Edition
May 1, 1998

Description

The HL6738MG is a 0.68 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 and various other types of optical equipment.

Hermetic sealing of the small package (ϕ 5.6 mm) assures high reliability.

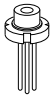
Application

- Optical disc memories
- Optical equipment

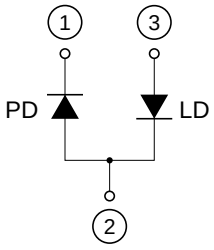
Features

- High output power : 35 mW (CW)
- Visible light output : λp = 680 to 695 nm
- Small package : ϕ 5.6 mm
- Low astigmatism : 6 μm Typ (P_O = 5 mW)

Package Type
• HL6738MG: MG



Internal Circuit



Absolute Maximum Ratings (T_C = 25°C)

Item	Symbol	Value	Unit
Optical output power	P_O	35	mW
Pulse optical output power	P_O (pulse)	50 *	mW
Laser diode reverse voltage	$V_{R\ (LD)}$	2	V
Photo diode reverse voltage	$V_{R\ (PD)}$	30	V
Operating temperature	Topr	–10 to +70	°C
Storage temperature	Tstg	–40 to +85	°C

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

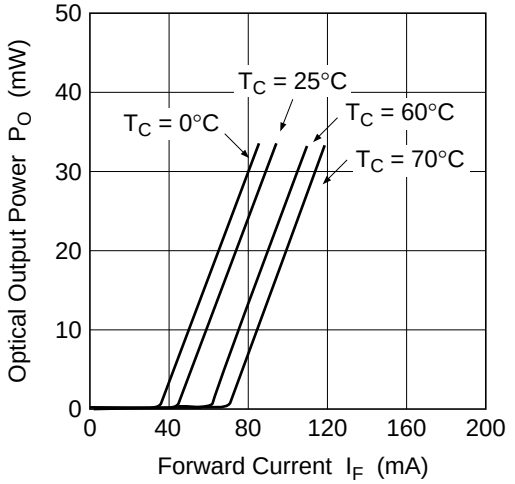
Optical and Electrical Characteristics (T_C = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_O	35	—	—	mW	Kink free *
Pluse optical output power	$P_{O(pulse)}$	50	—	—	mW	Kink free *
Threshold current	Ith	30	45	70	mA	—
Operating voltage	V_{OP}	2.1	2.5	2.8	V	P_O = 30 mW
Slope efficiency	ηs	0.5	0.7	0.9	mW/mA	18(mW) / ($I_{(24mW)} – I_{(6mW)}$)
Lasing wavelength	λp	680	690	695	nm	P_O = 30 mW
Beam divergence parallel to the junction	θ//	7	8.5	10.5	deg.	P_O = 30 mW
Beam divergence perpendicular to the junction	θ⊥	17	19	23	deg.	P_O = 30 mW
Monitor current	I_S	0.02	0.1	0.45	mA	P_O = 30 mW, $V_{R\ (PD)}$ = 5 V
Asitgmatism	A_S	—	6	—	μm	P_O = 5 mW, NA = 0.55

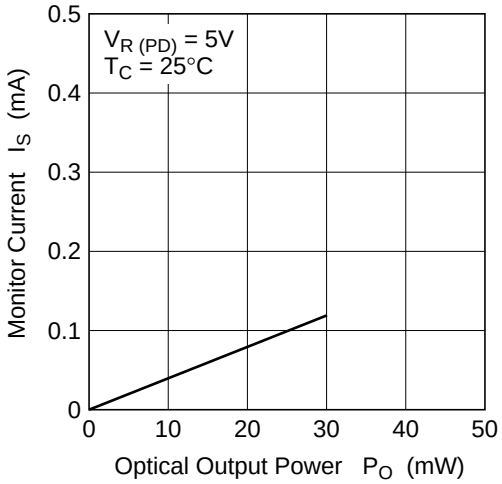
Note: Kink free is confirmed at the temperature of 25°C.

Curve Characteristics

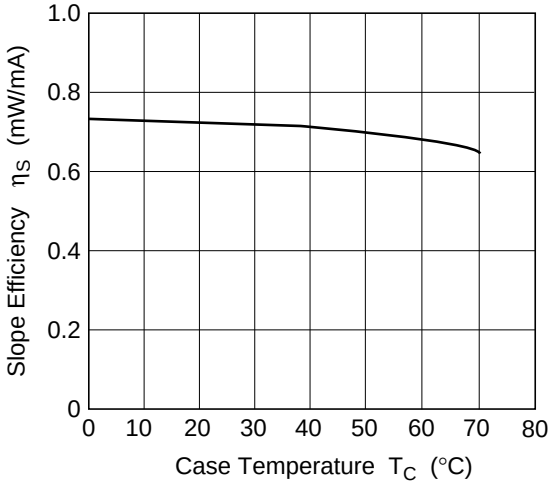
Optical Output Power vs. Forward Current



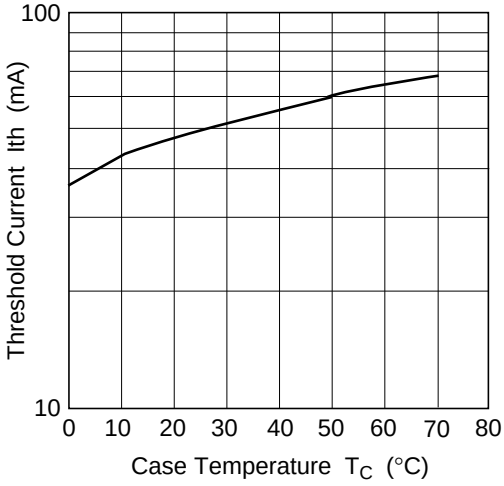
Monitor Current vs. Optical Output Power



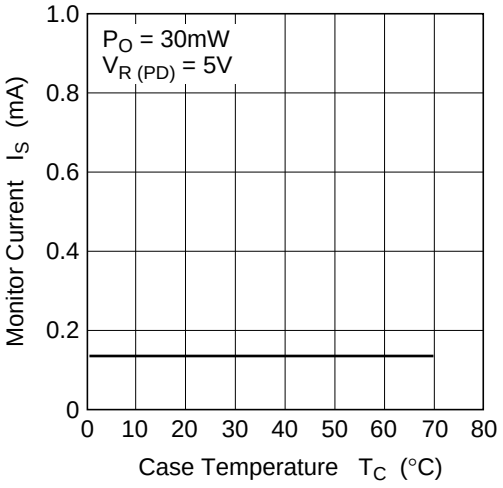
Slope Efficiency vs. Case Temperature



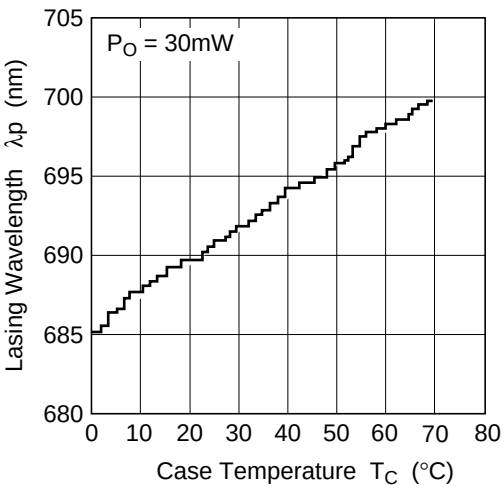
Threshold Current vs. Case Temperature



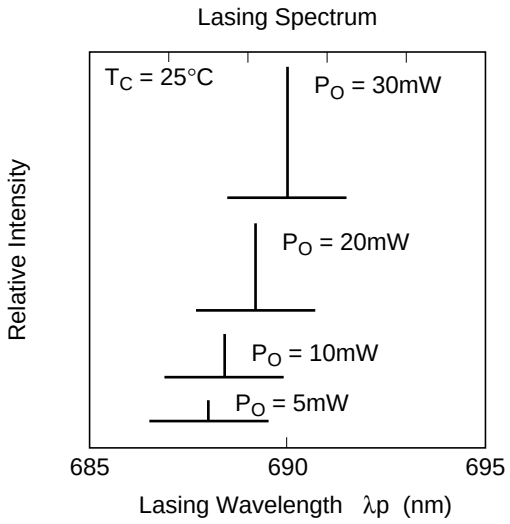
Monitor Current vs. Case Temperature



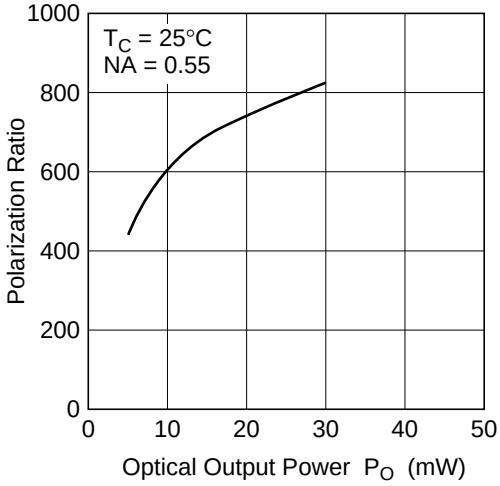
Lasing Wavelength vs. Case Temperature



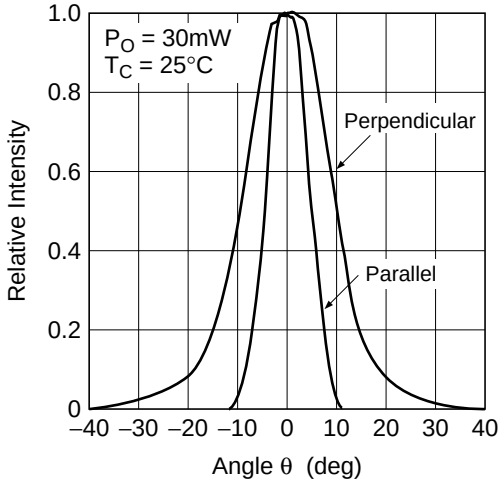
Lasing Spectrum



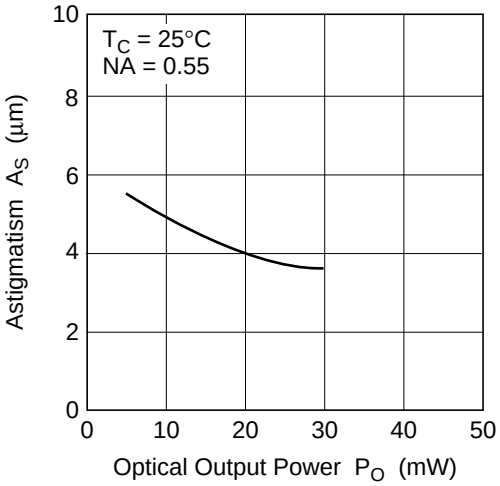
Polarization Ratio vs. Optical Output Power



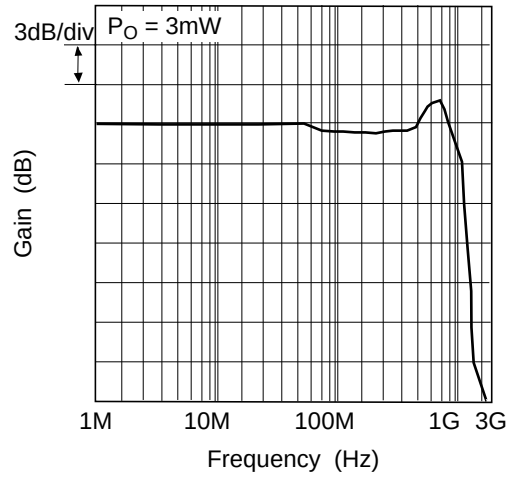
Far Field Pattern



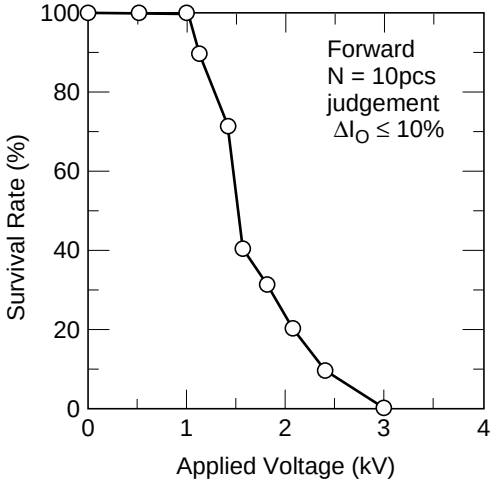
Astigmatism vs. Optical Output Power



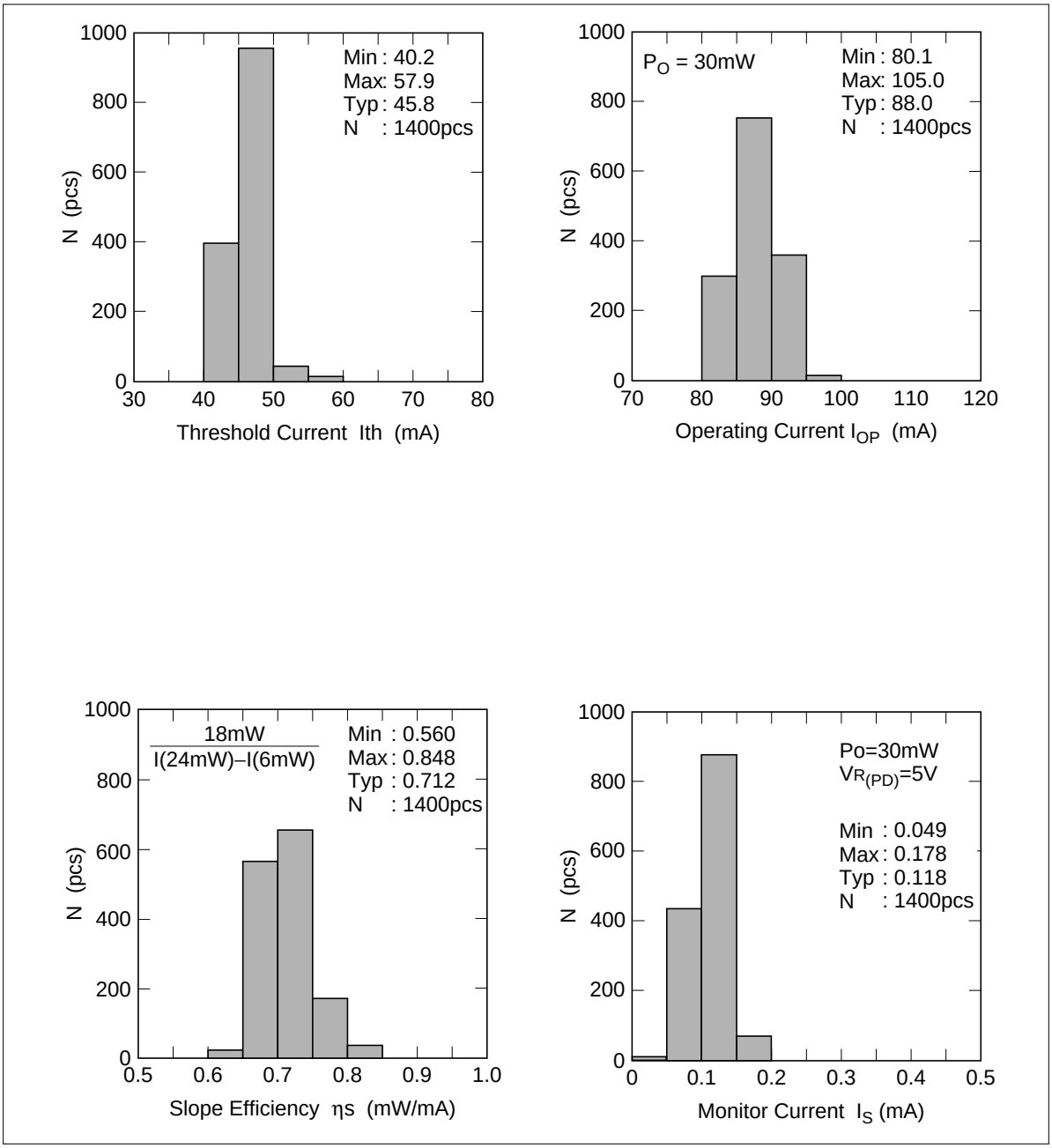
Frequency Response

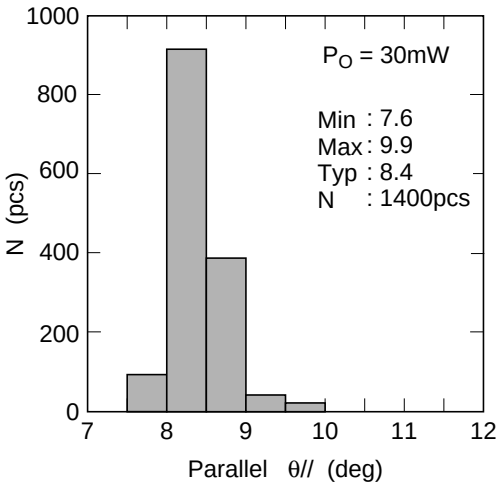


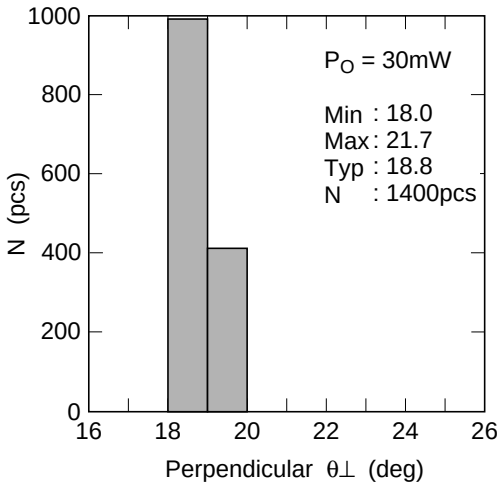
Electrostatic Destruction (MILstandard)

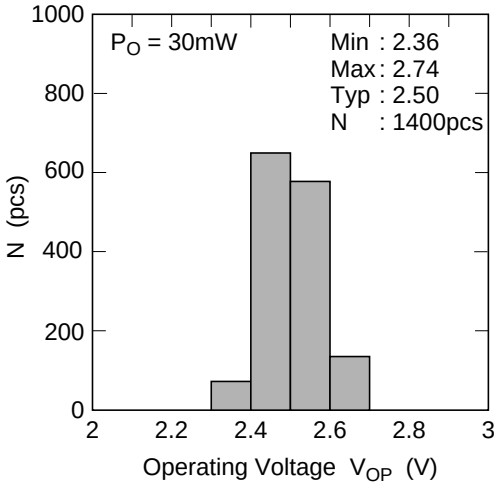


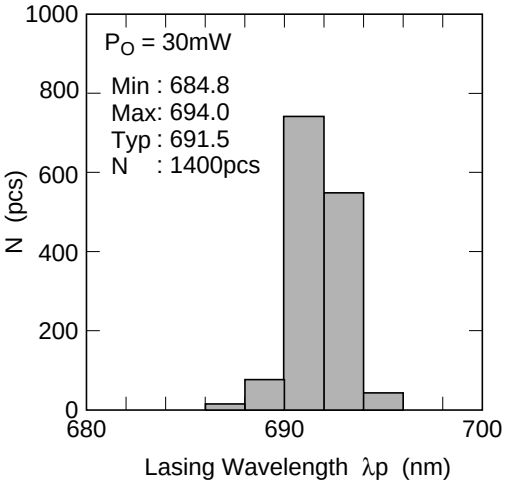
Characteristics Distribution




1000
800
600
400
200
0
N (pcs)
P_O = 30mW
Min : 7.6
Max : 9.9
Typ : 8.4
N : 1400pcs
7
8
9
10
11
12
Parallel θ// (deg)

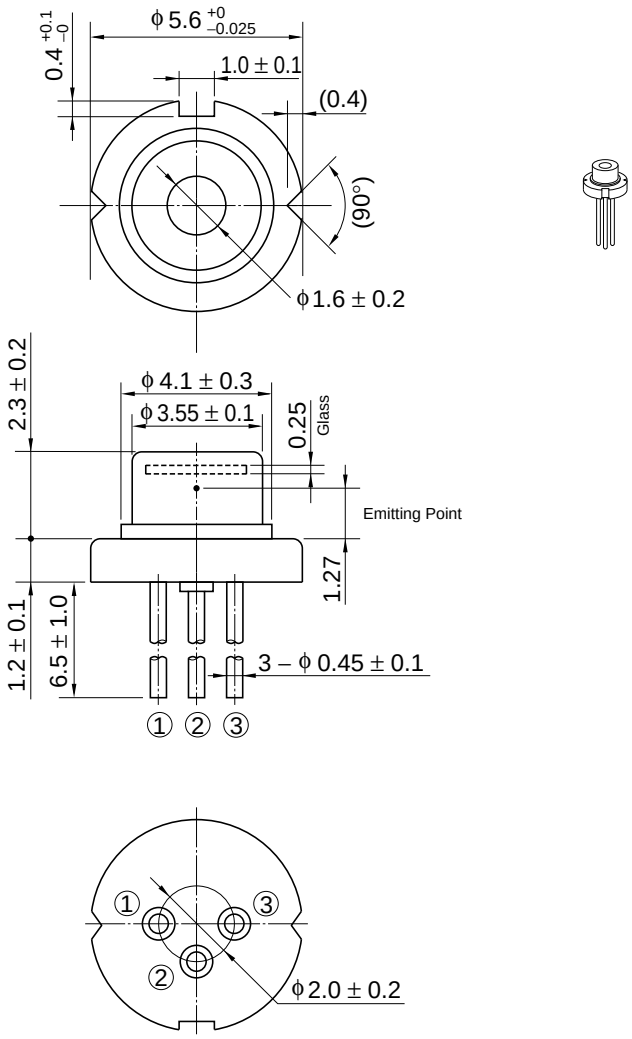

1000
800
600
400
200
0
N (pcs)
P_O = 30mW
Min : 18.0
Max : 21.7
Typ : 18.8
N : 1400pcs
16
18
20
22
24
26
Perpendicular θ⊥ (deg)


1000
800
600
400
200
0
N (pcs)
P_O = 30mW
Min : 2.36
Max : 2.74
Typ : 2.50
N : 1400pcs
2
2.2
2.4
2.6
2.8
3
Operating Voltage V_{OP} (V)


1000
800
600
400
200
0
N (pcs)
P_O = 30mW
Min : 684.8
Max : 694.0
Typ : 691.5
N : 1400pcs
680
690
700
Lasing Wavelength λp (nm)

Package Dimensions

Unit: mm



Hitachi Code	LD/MG
JEDEC	—
EIAJ	—
Weight (reference value)	0.3 g

Cautions

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