

HL6333MG/34MG

Low Operating Current Visible Laser Diode

HITACHI

ADE-208-820C (Z)
4th Edition
Dec. 2000

Description

The HL6333MG/34MG are 0.63 μm band AlGaInP 10mW laser diodes with a multi-quantum well (MQW) structure. They are suitable as light sources for laser levelers, laser scanners and optical equipment for measurement.

Application

- Laser leveler
- Laser scanner
- Measurement

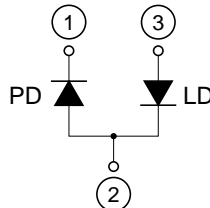
Features

- Visible light output : 635 nm Typ
- Optical output power : 10 mW CW
- Low operating current : 55 mA Typ
- Low operating voltage : 2.4 V Max
- Operating temperature : +50°C
- TM mode oscillation

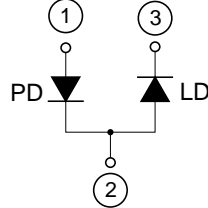
Package Type
• HL6333MG/34MG: MG



Internal Circuit
• HL6333MG



Internal Circuit
• HL6334MG



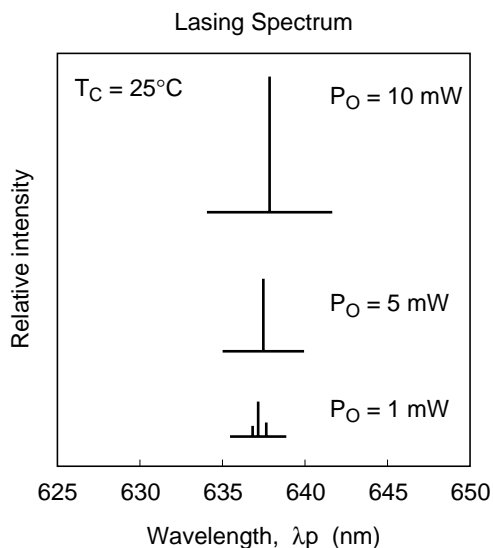
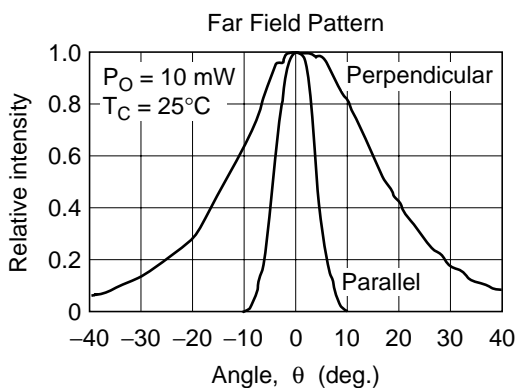
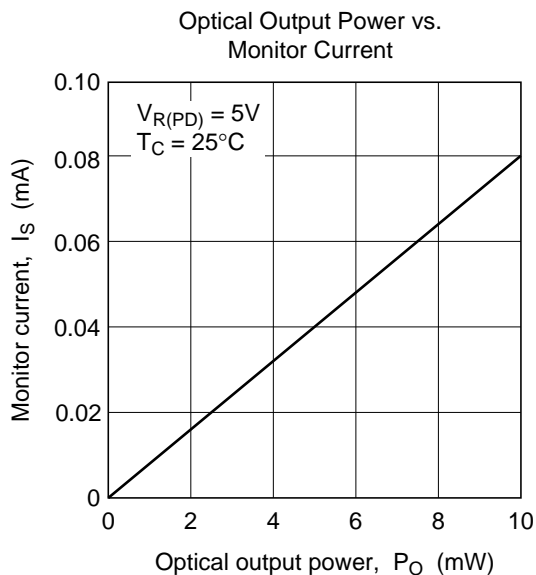
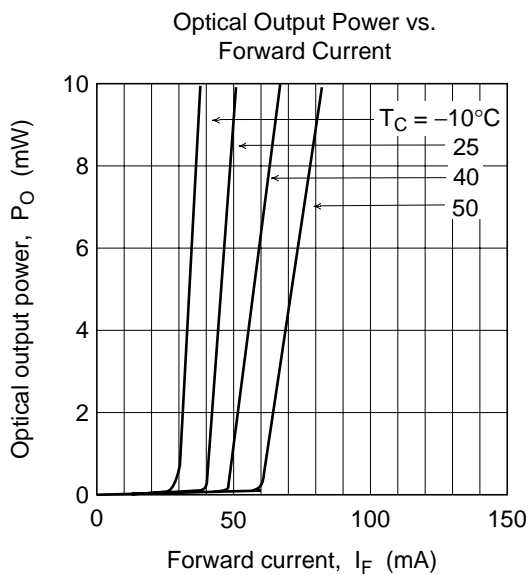
Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$)

Item	Symbol	Value	Unit
Optical output power	P_o	10	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	T_{opr}	-10 to +50	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +85	$^\circ\text{C}$

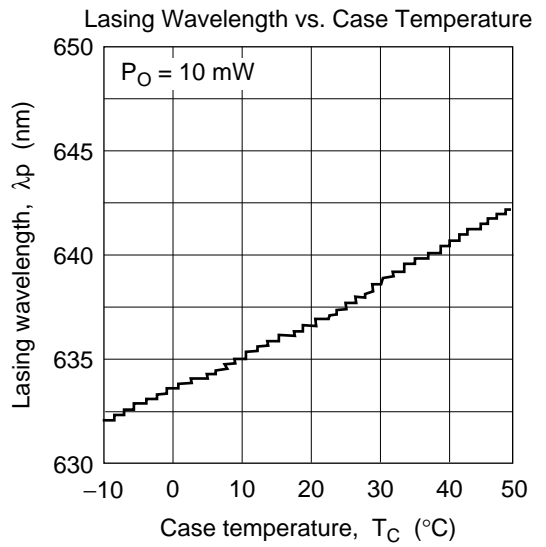
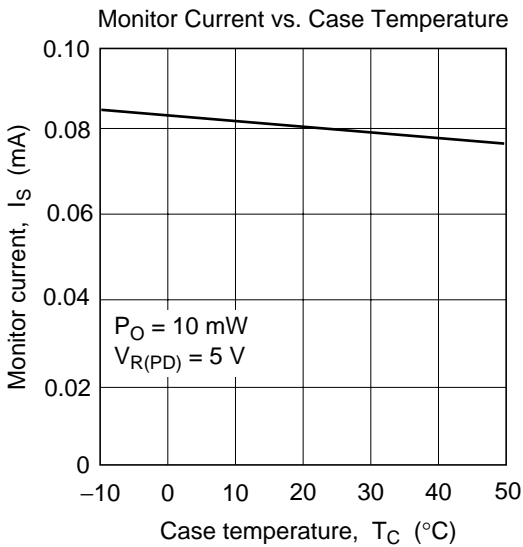
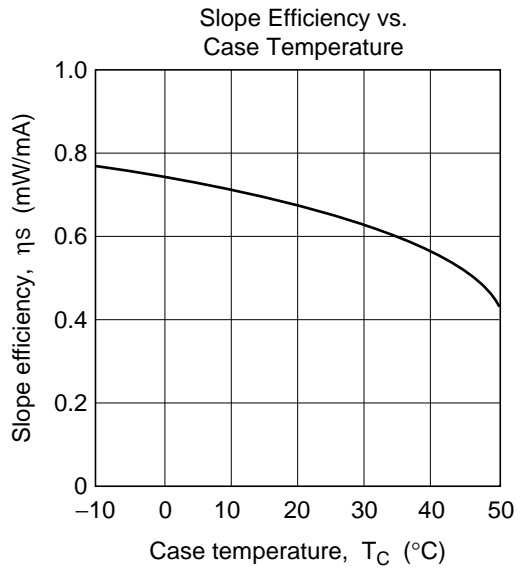
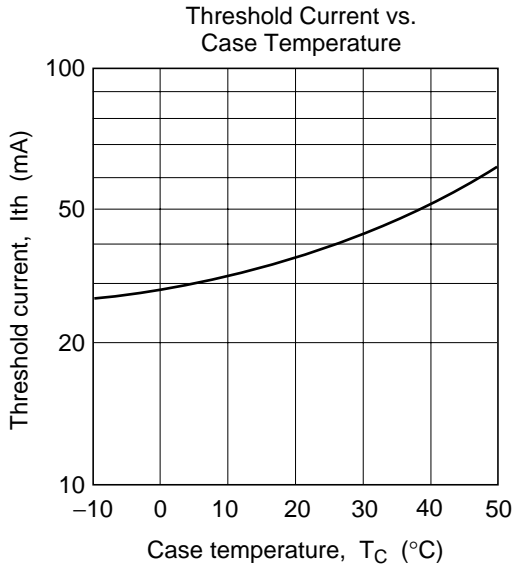
Optical and Electrical Characteristics ($T_C = 25^\circ\text{C}$)

Item	Symbol	Min	Typ	Max	Unit	Test Condition
Optical output power	P_o	10	—	—	mW	Kink free
Threshold current	I_{th}	—	40	60	mA	
Operating current	I_{op}	—	55	75	mA	$P_o = 10 \text{ mW}$
Operating voltage	V_{OP}	—	2.2	2.4	V	$P_o = 10 \text{ mW}$
Slope efficiency	η_s	0.40	0.65	0.90	mW/mA	$6 \text{ (mW)} / (I_{(8\text{mW})} - I_{(2\text{mW})})$
Beam divergence parallel to the junction	$\theta_{//}$	6	8	11	deg.	$P_o = 10 \text{ mW}$
Beam divergence perpendicular to the junction	θ_{\perp}	25	31	36	deg.	$P_o = 10 \text{ mW}$
Lasing wavelength	λ_p	630	635	640	nm	$P_o = 10 \text{ mW}$
Monitor current	I_s	0.04	0.08	0.16	mA	$P_o = 10 \text{ mW}, V_{R(PD)} = 5 \text{ V}$

Typical Characteristic Curves

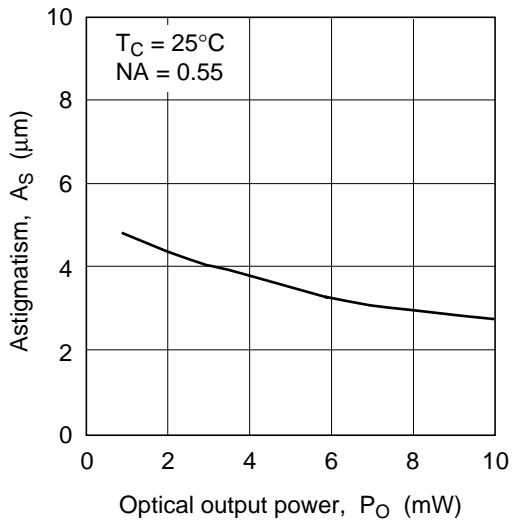


Typical Characteristic Curves (cont)

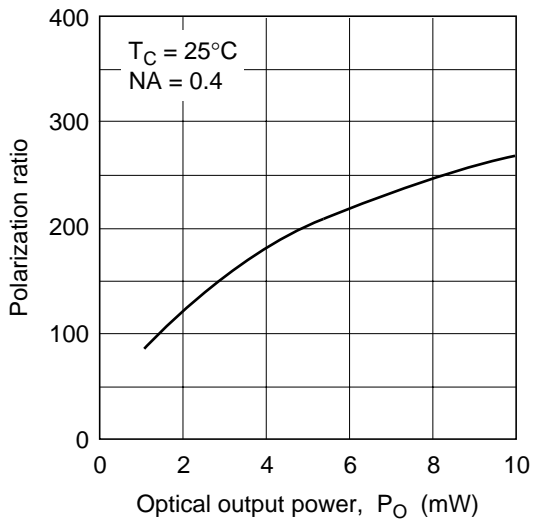


Typical Characteristic Curves (cont)

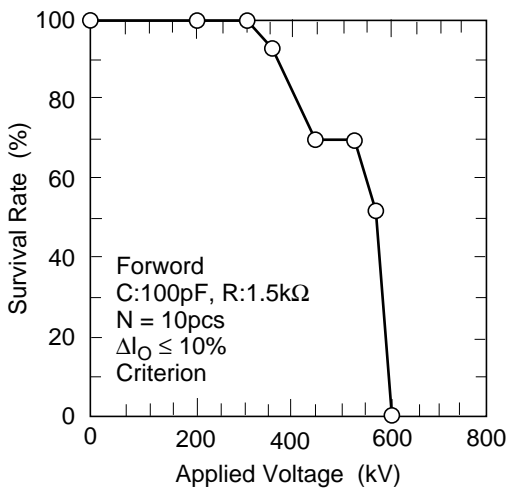
Astigmatism vs. Optical Output Power



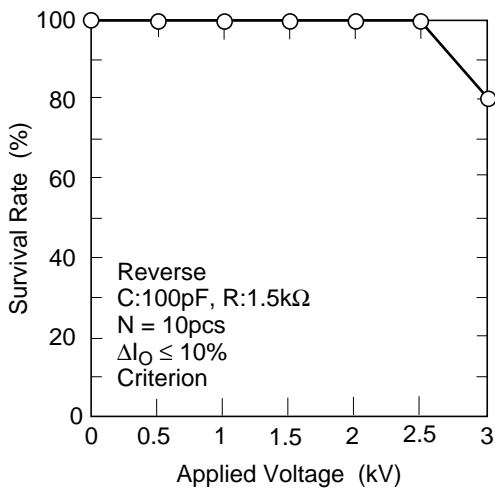
Polarization Ratio vs. Optical Output Power



Electrostatic Destruction (MIL standard) (1)

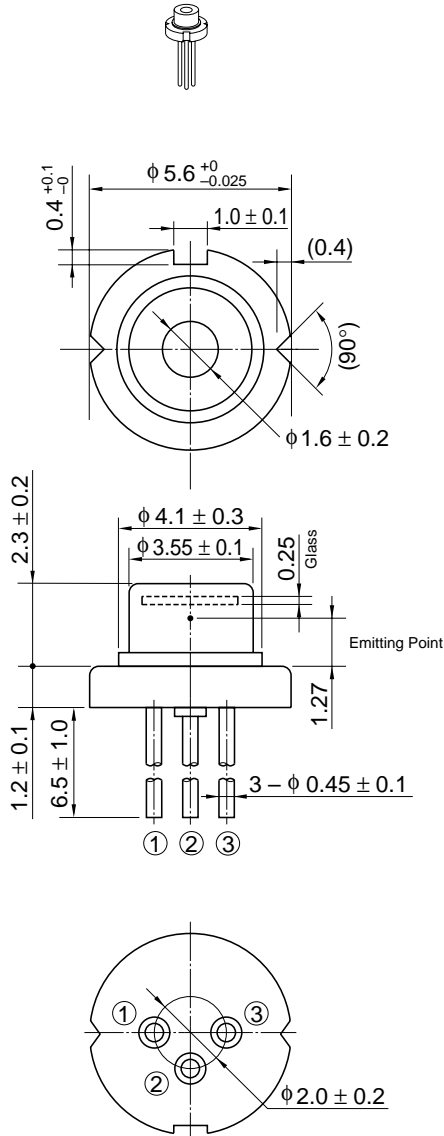


Electrostatic Destruction (MIL standard) (2)



Package Dimensions

Unit: mm



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

Cautions

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1. The laser light is harmful to human body especially to eye no matter what directly or indirectly. The laser beam shall be observed or adjusted through infrared camera or equivalent.

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