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.

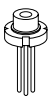
Application

- Laser leveler
- Laser scanner
- Measurement

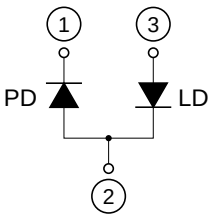
Features

- 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

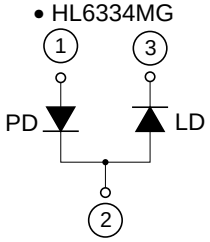
Package Type
• HL6333MG/34MG: MG



Internal Circuit
• HL6333MG



Internal Circuit
• HL6334MG



Hitachi semiconductor

Absolute Maximum Ratings (T_C = 25°C)

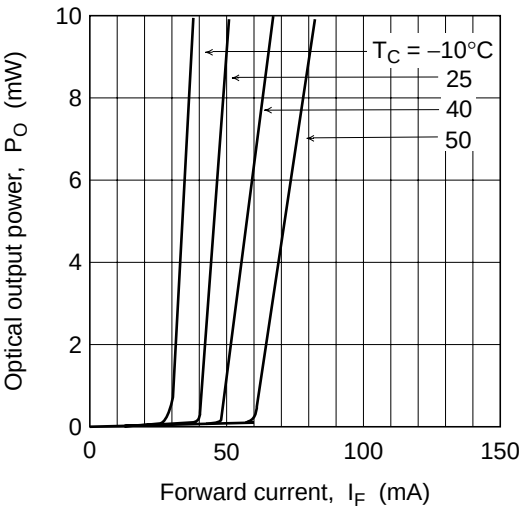
Item	Symbol	Value	Unit
Optical output power	P_O	10	mW
LD reverse voltage	$V_{R(LD)}$	2	V
PD reverse voltage	$V_{R(PD)}$	30	V
Operating temperature	Topr	–10 to +50	°C
Storage temperature	Tstg	–40 to +85	°C

Optical and Electrical Characteristics (T_C = 25°C)

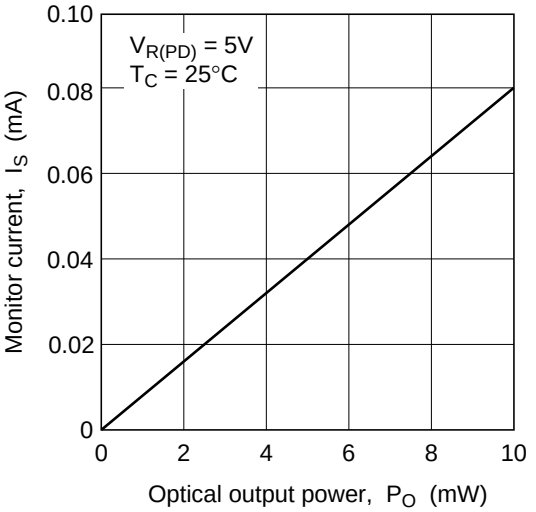
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Optical output power	P_O	10	—	—	mW	Kink free
Threshold current	Ith	—	40	60	mA	
Operating current	I_{Op}	—	55	75	mA	P_O = 10 mW
Operating voltage	V_{OP}	—	2.2	2.4	V	P_O = 10 mW
Slope efficiency	ηs	0.40	0.65	0.90	mW/mA	6 (mW) / ($I_{(8mW)}$ – $I_{(2mW)}$)
Beam divergence parallel to the junction	θ//	6	8	11	deg.	P_O = 10 mW
Beam divergence parpendicular to the junction	θ⊥	25	31	36	deg.	P_O = 10 mW
Lasing wavelength	λp	630	635	640	nm	P_O = 10 mW
Monitor current	I_S	0.04	0.08	0.16	mA	P_O = 10 mW, $V_{R(PD)}$ = 5 V

Typical Characteristic Curves

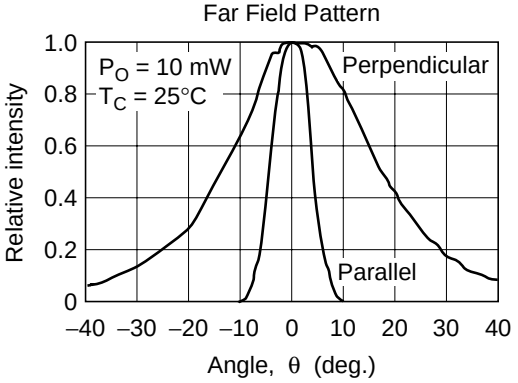
Optical Output Power vs. Forward Current



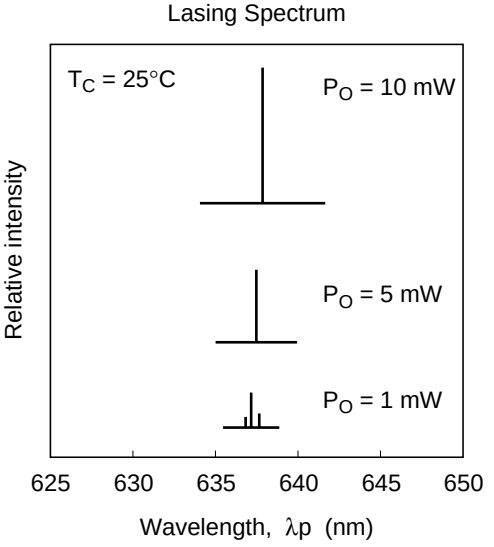
Optical Output Power vs. Monitor Current



Far Field Pattern

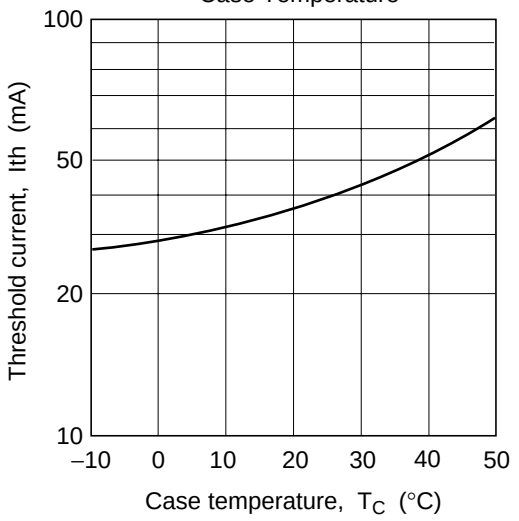


Lasing Spectrum

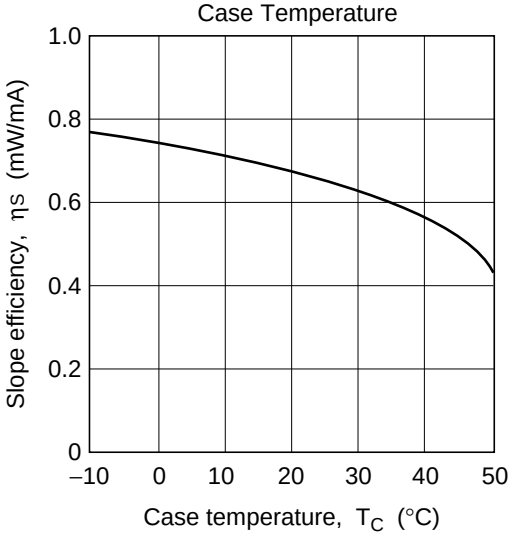


Typical Characteristic Curves (cont)

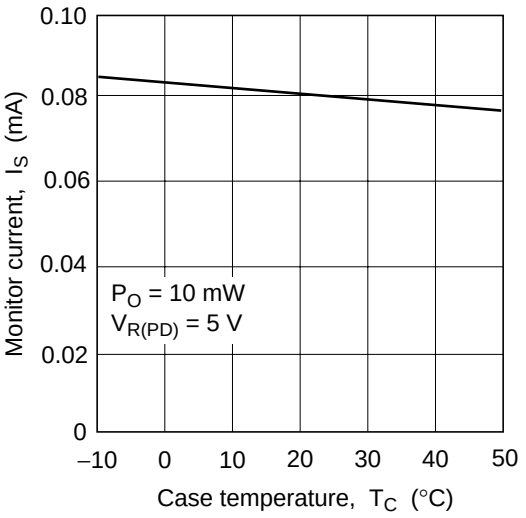
Threshold Current vs. Case Temperature



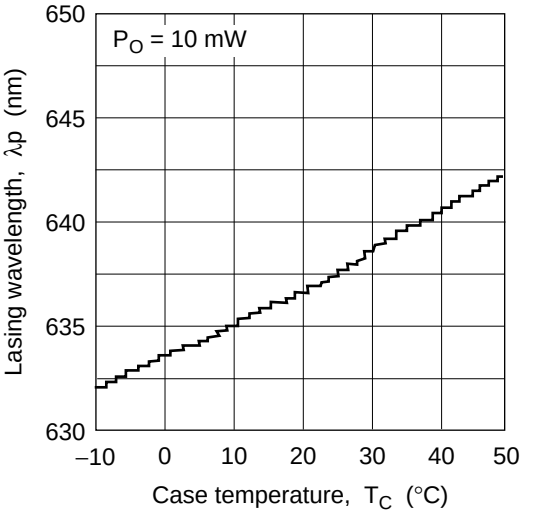
Slope Efficiency vs. Case Temperature



Monitor Current vs. Case Temperature

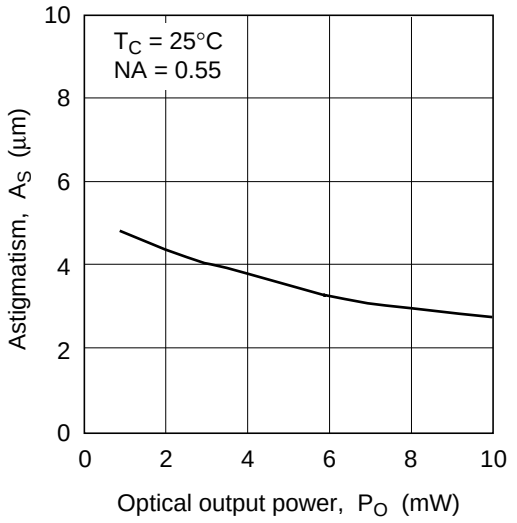


Lasing Wavelength vs. Case Temperature

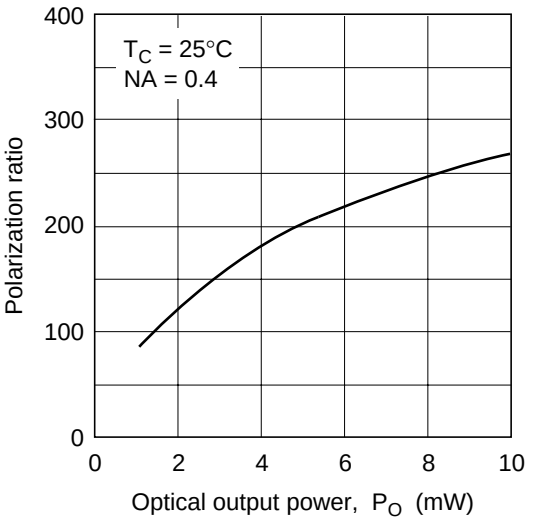


Typical Characteristic Curves (cont)

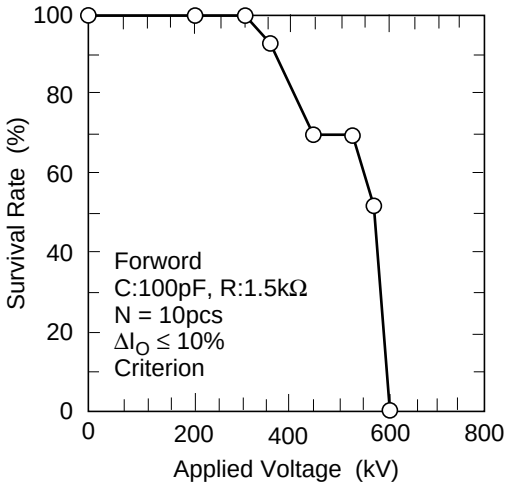
Astigmatism vs. Optical Output Power



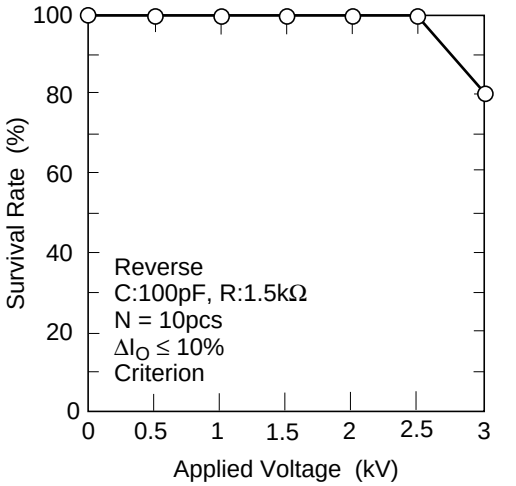
Polarization Ratio vs. Optical Output Power



Electrostatic Destruction (MIL standard) (1)

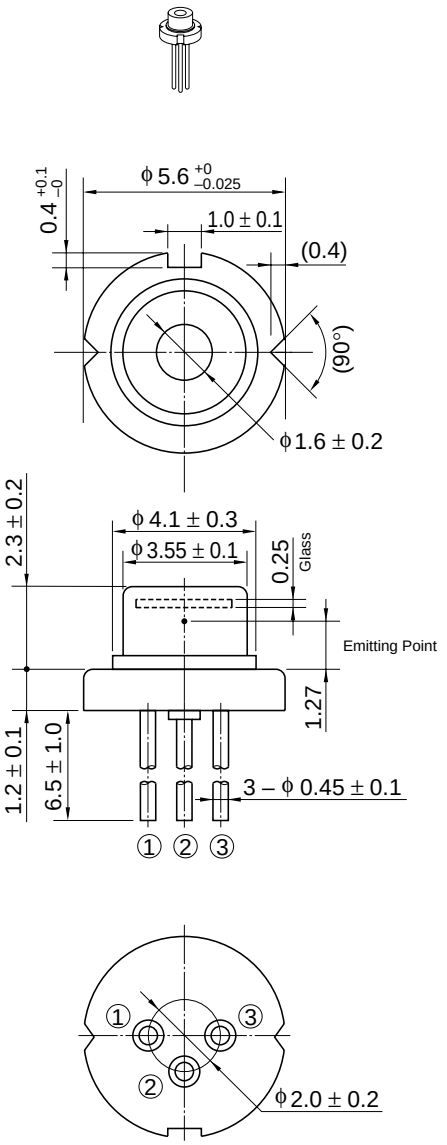


Electrostatic Destruction (MIL standard) (2)



Package Dimensions

Unit: mm



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

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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.

HITACHI

Hitachi, Ltd.
Semiconductor & Integrated Circuits.
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL NorthAmerica : http://semiconductor.hitachi.com/
Europe : http://www.hitachi-eu.com/hel/ecg
Asia : http://sicapac.hitachi-asia.com
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For further information write to:

Hitachi Semiconductor
(America) Inc.
179 East Tasman Drive,
San Jose,CA 95134
Tel: <1> (408) 433-1990
Fax: <1>(408) 433-0223

Hitachi Europe GmbH
Electronic Components Group
Dornacher Straβe 3
D-85622 Feldkirchen, Munich
Germany
Tel: <49> (89) 9 9180-0
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.
Electronic Components Group.
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA, United Kingdom
Tel: <44> (1628) 585000
Fax: <44> (1628) 585160

Hitachi Asia Ltd.
Hitachi Tower
16 Collyer Quay #20-00,
Singapore 049318
Tel : <65>-538-6533/538-8577
Fax : <65>-538-6933/538-3877
URL : http://www.hitachi.com.sg

Hitachi Asia Ltd.
(Taipei Branch Office)
4/F, No. 167, Tun Hwa North Road,
Hung-Kuo Building,
Taipei (105), Taiwan
Tel : <886>-(2)-2718-3666
Fax : <886>-(2)-2718-8180
Telex : 23222 HAS-TP
URL : http://www.hitachi.com.tw

Hitachi Asia (Hong Kong) Ltd.
Group III (Electronic Components)
7/F., North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon,
Hong Kong
Tel : <852>-(2)-735-9218
Fax : <852>-(2)-730-0281
URL : http://www.hitachi.com.hk

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