

HL6323MG

AlGaInP Laser Diode

HITACHI

ADE-208-1410 (Z)
1st Edition
Mar. 2001

Description

The HL6323MG is a 0.63 μm band AlGaInP laser diode (LD) with a multi-quantum well (MQW) structure. It is suitable as a longer distance operating range for laser markers and a higher speed for positioning control sensors. The HL6323MG is packaged in the small can ($\phi 5.6$ mm), enabling end products to be kept small.

Application

- Laser markers
- Measurement equipment

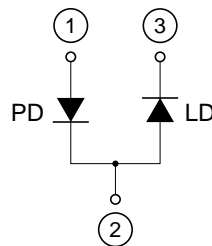
Features

- High output power : 35 mW (CW)
- Visible light output : $\lambda_p = 639$ nm Typ
- Small package : $\phi 5.6$ mm
- TM mode oscillation

Package Type
• HL6323MG: MG



Internal Circuit



Absolute Maximum Ratings ($T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$)

Item	Symbol	Value	Unit
Optical output power	P_o	35 *1	mW
Optical output power (Pulse)	P_o	50 *2	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	$^\circ\text{C}$

Notes: 1. This value is not the same as the specification for long term reliability, such as lifetime.

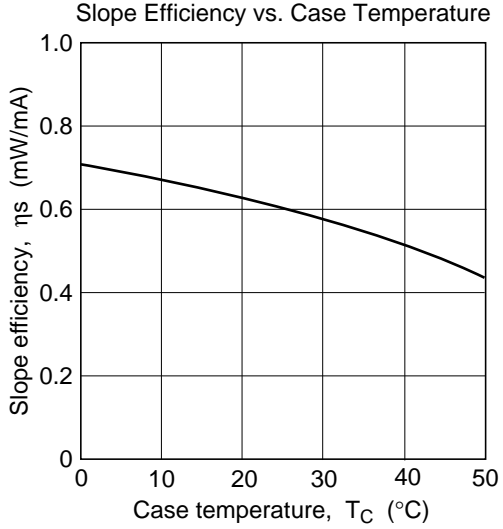
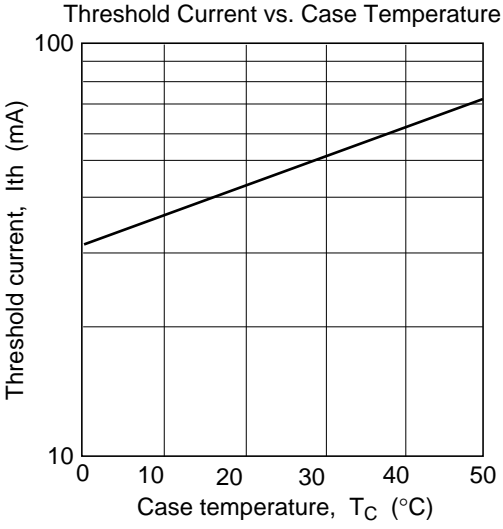
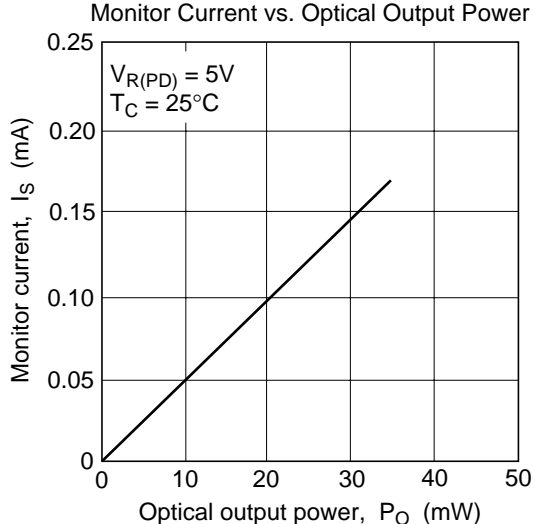
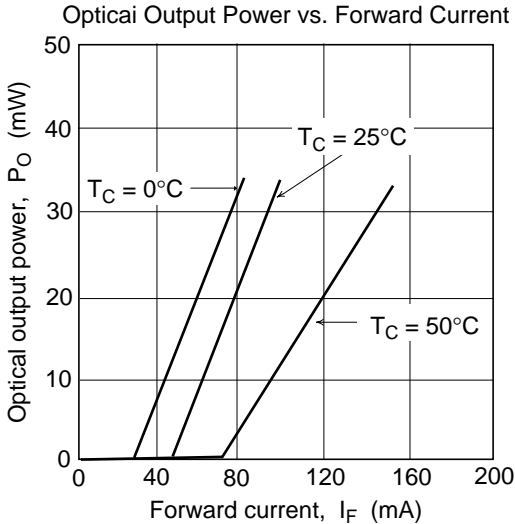
2. Pulse condition : Pulse width $p_w = 100 \text{ ns}$, duty = 20%

Optical and Electrical Characteristics ($T_C = 25^\circ\text{C} \pm 3^\circ\text{C}$)

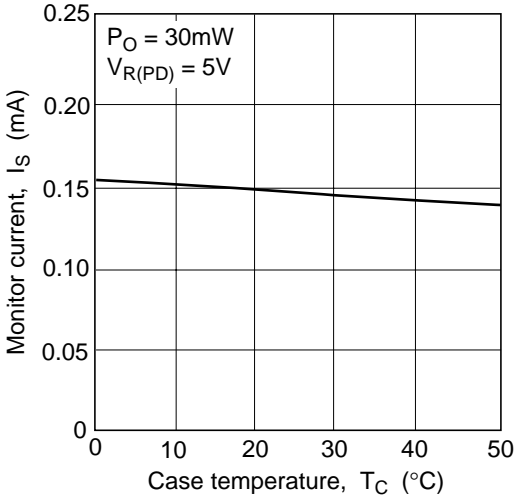
Item	Symbol	Min	Typ	Max	Unit	Test Condition
Optical output power	P_o	35	—	—	mW	Kink free *
Optical output power (Pulse)	P_o	50	—	—	mW	Kink free *
Threshold current	I_{th}	30	45	65	mA	
Slope efficiency	η_s	0.4	0.6	0.9	mW/mA	$18(\text{mW}) / (I_{(24\text{mW})} - I_{(6\text{mW})})$
Operating current	I_{OP}	—	95	130	mA	$P_o = 30 \text{ mW}$
Operating voltage	V_{OP}	—	2.3	2.8	V	$P_o = 30 \text{ mW}$
Beam divergence parallel to the junction	$\theta_{//}$	7	8.5	11	deg.	$P_o = 30 \text{ mW}$
Beam divergence perpendicular to the junction	θ_{\perp}	26	30	34	deg.	$P_o = 30 \text{ mW}$
Lasing wavelength	λ_p	635	639	642	nm	$P_o = 30 \text{ mW}$
Monitor current	I_s	0.05	0.15	0.25	mA	$P_o = 30 \text{ mW}$, $V_{R(PD)} = 5 \text{ V}$

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

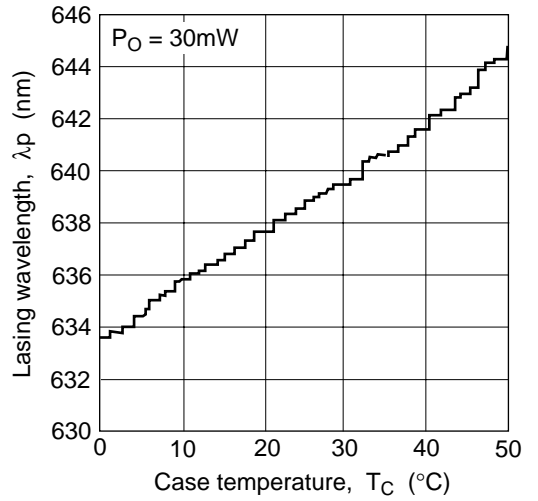
Typical Characteristic Curves



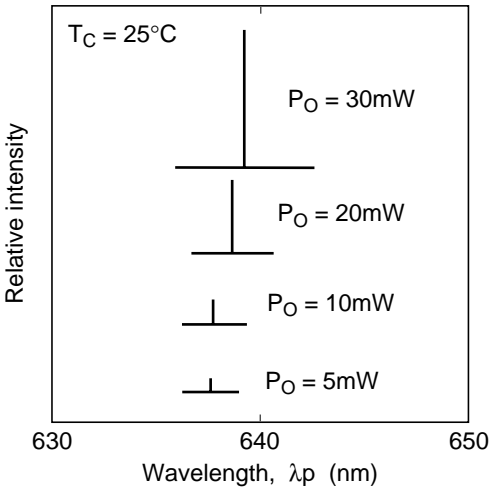
Monitor Current vs. Case Temperature



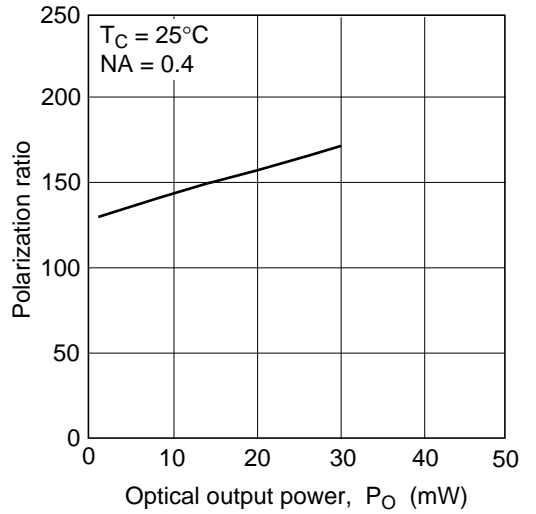
Lasing Wavelength vs. Case Temperature

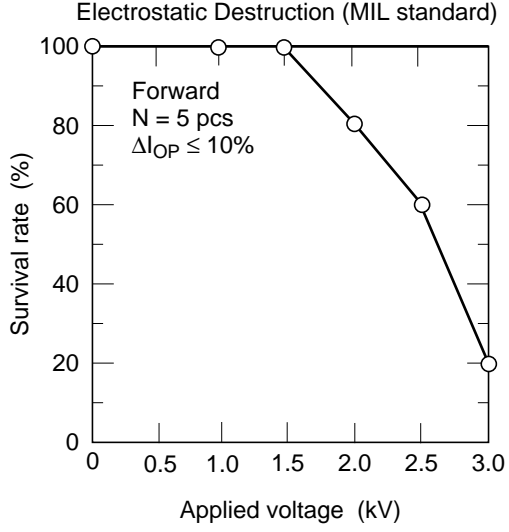
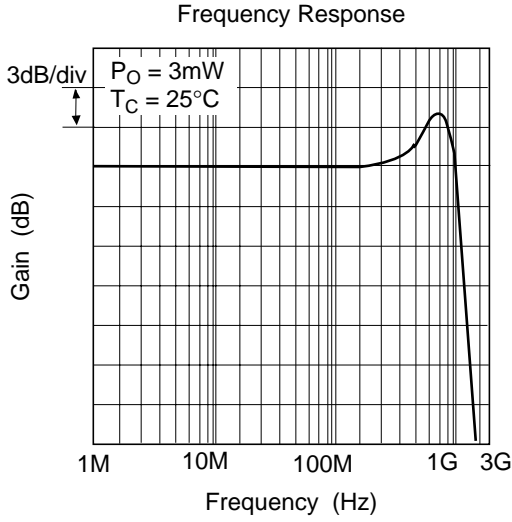
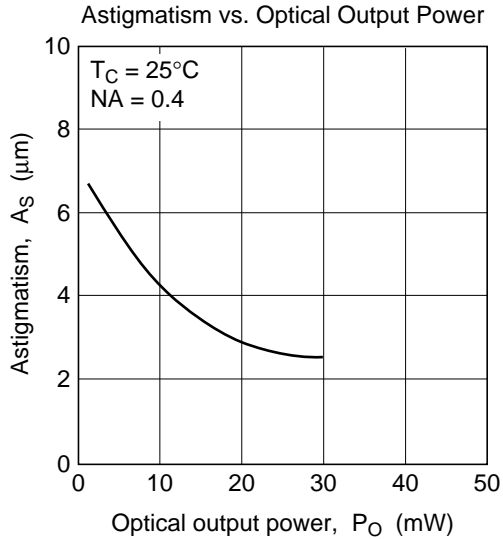
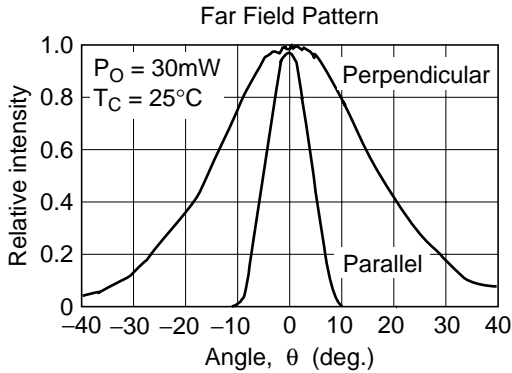


Lasing Spectrum



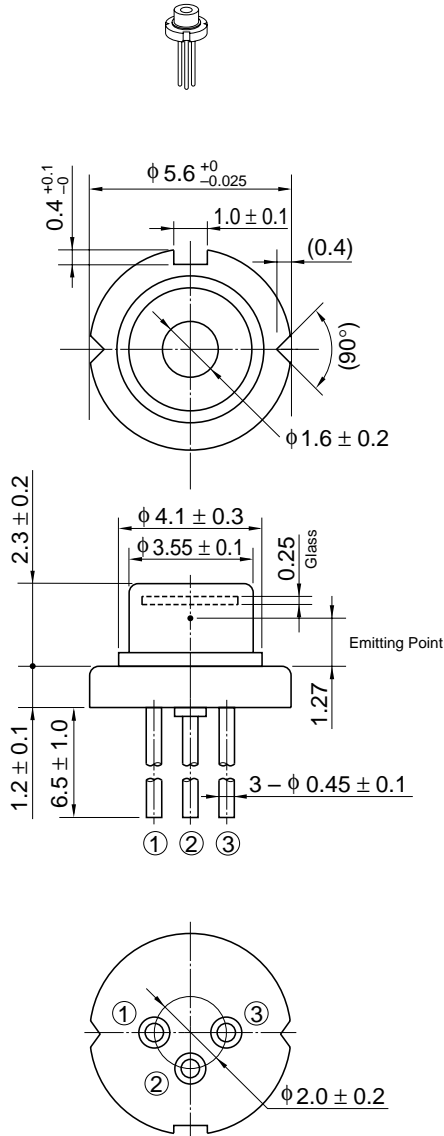
Polarization Ratio vs. Optical Output Power





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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