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# HL6501MG

Visible High Power Laser Diode for DVD-RAM

## HITACHI

ADE-208-515F (Z)

Preliminary

7th Edition

February 1998

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### Description

The HL6501MG is a 0.65  $\mu\text{m}$  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-RAM, and various other types of optical equipment.

Hermetic sealing of the small package ( $\phi 5.6$  mm) assures high reliability.

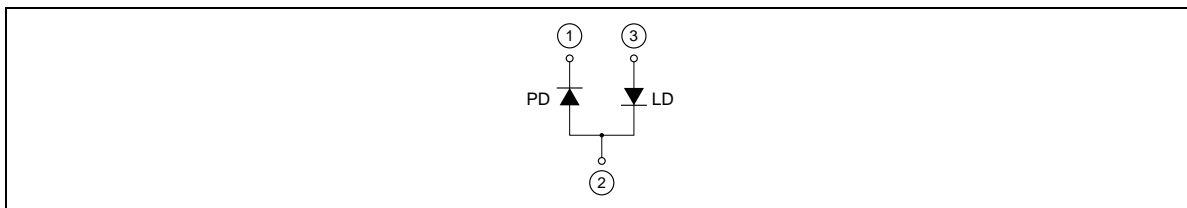
### Application

- Optical disc memories
- Optical equipment

### Features

- High output power : 35 mW (CW)
- Visible light output :  $\lambda_p = 658$  nm Typ
- Small package :  $\phi 5.6$  mm
- Low astigmatism : 6  $\mu\text{m}$  Typ ( $P_o = 5$  mW)

### Internal Circuit



**HL6501MG****Absolute Maximum Ratings** ( $T_c = 25^\circ\text{C}$ )

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	$T_{opr}$	-10 to +60	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-40 to +85	$^\circ\text{C}$

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

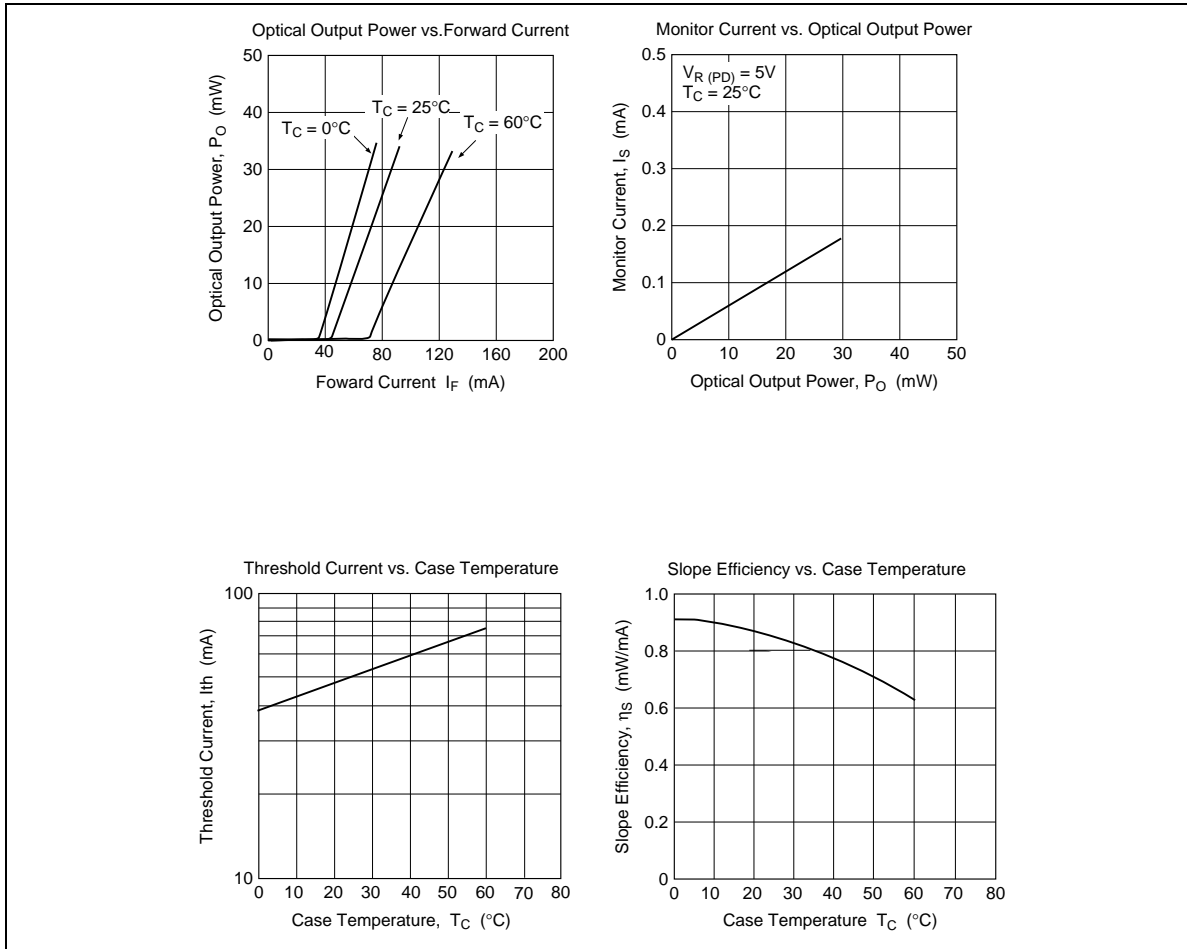
**Optical and Electrical Characteristics** ( $T_c = 25^\circ\text{C}$ )

Items	Symbols	Min	Typ	Max	Units	Test Conditions
Optical output power	$P_o$	35	—	—	mW	Kink free *
Pulse optical output power	$P_{o(\text{pulse})}$	50	—	—	mW	Kink free *
Threshold current	$I_{th}$	30	45	70	mA	—
Operating voltage	$V_{op}$	2.1	2.6	3.0	V	$P_o = 30$ mW
Slope efficiency	$\eta_s$	0.5	0.75	1.0	mW/mA	$18(\text{mW}) / (I_{(24\text{mW})} - I_{(6\text{mW})})$
Lasing wavelength	$\lambda_p$	645	658	665	nm	$P_o = 30$ mW
Beam divergence parallel to the junction	$\theta_{//}$	7	8.5	10.5	deg.	$P_o = 30$ mW
Beam divergence perpendicular to the junction	$\theta_{\perp}$	18	22	26	deg.	$P_o = 30$ mW
Monitor current	$I_s$	0.05	0.3	1.5	mA	$P_o = 30$ mW, $V_{R(PD)} = 5$ V
Asigmatism	$A_s$	—	6	—	$\mu\text{m}$	$P_o = 5$ mW, NA = 0.55

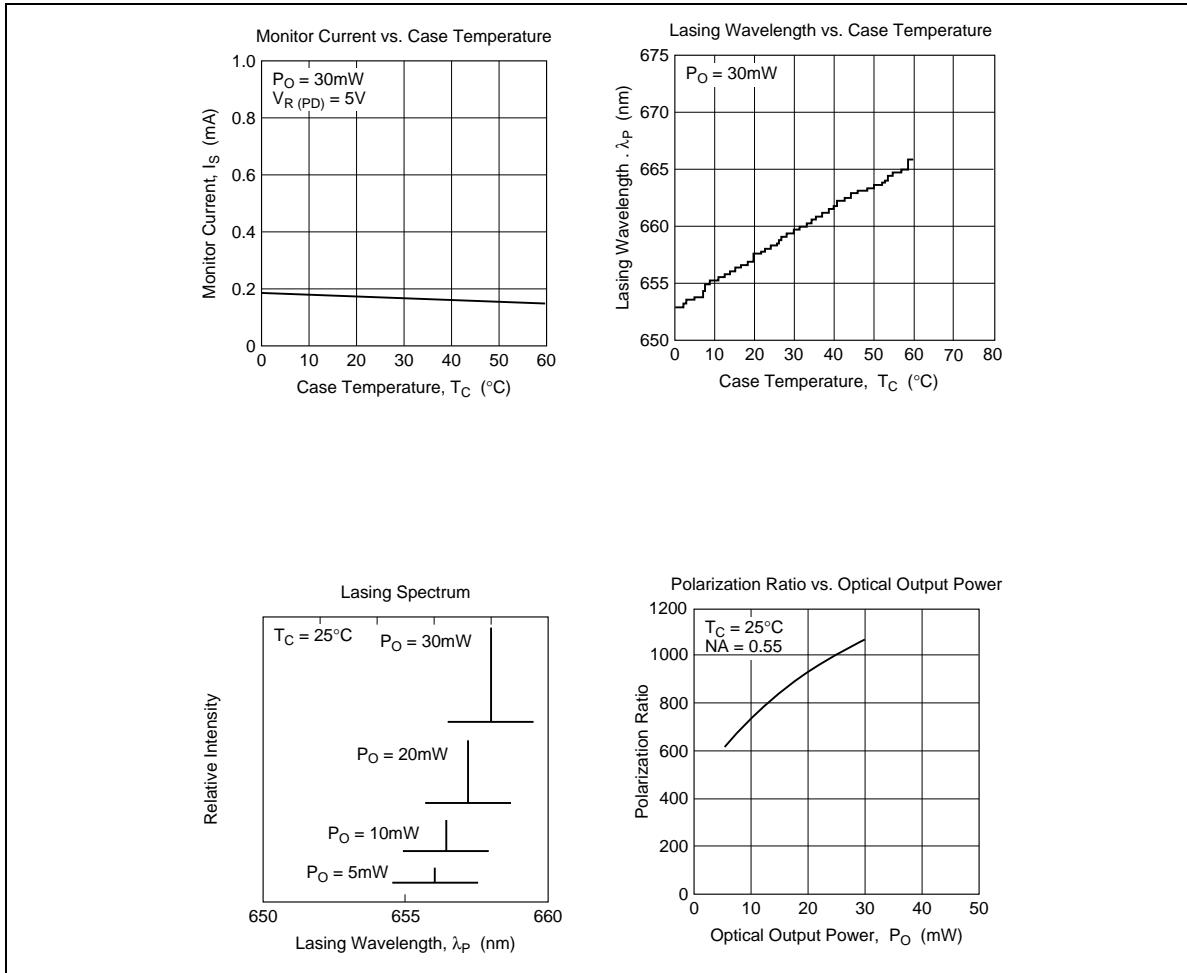
Note: Kink free is confirmed at the temperature of  $25^\circ\text{C}$ .

**HL6501MG**

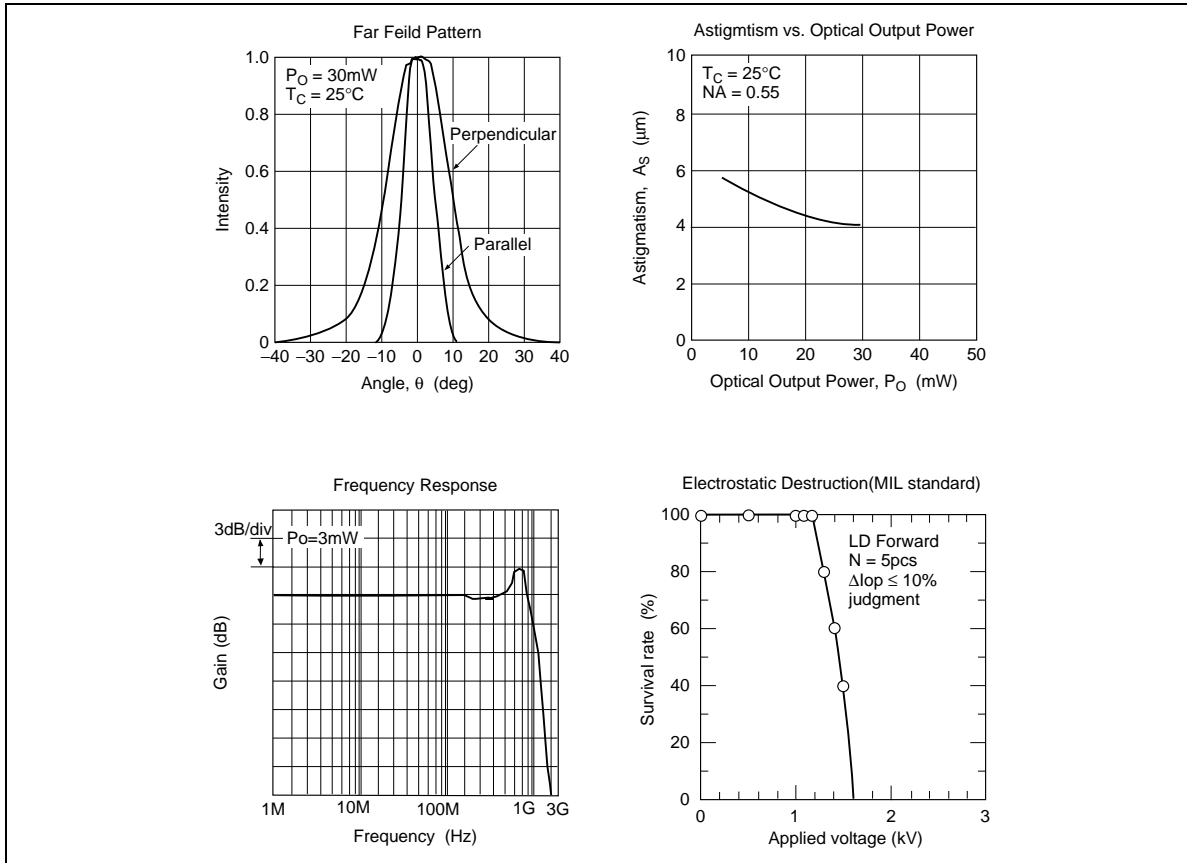
**Curve Characteristics**



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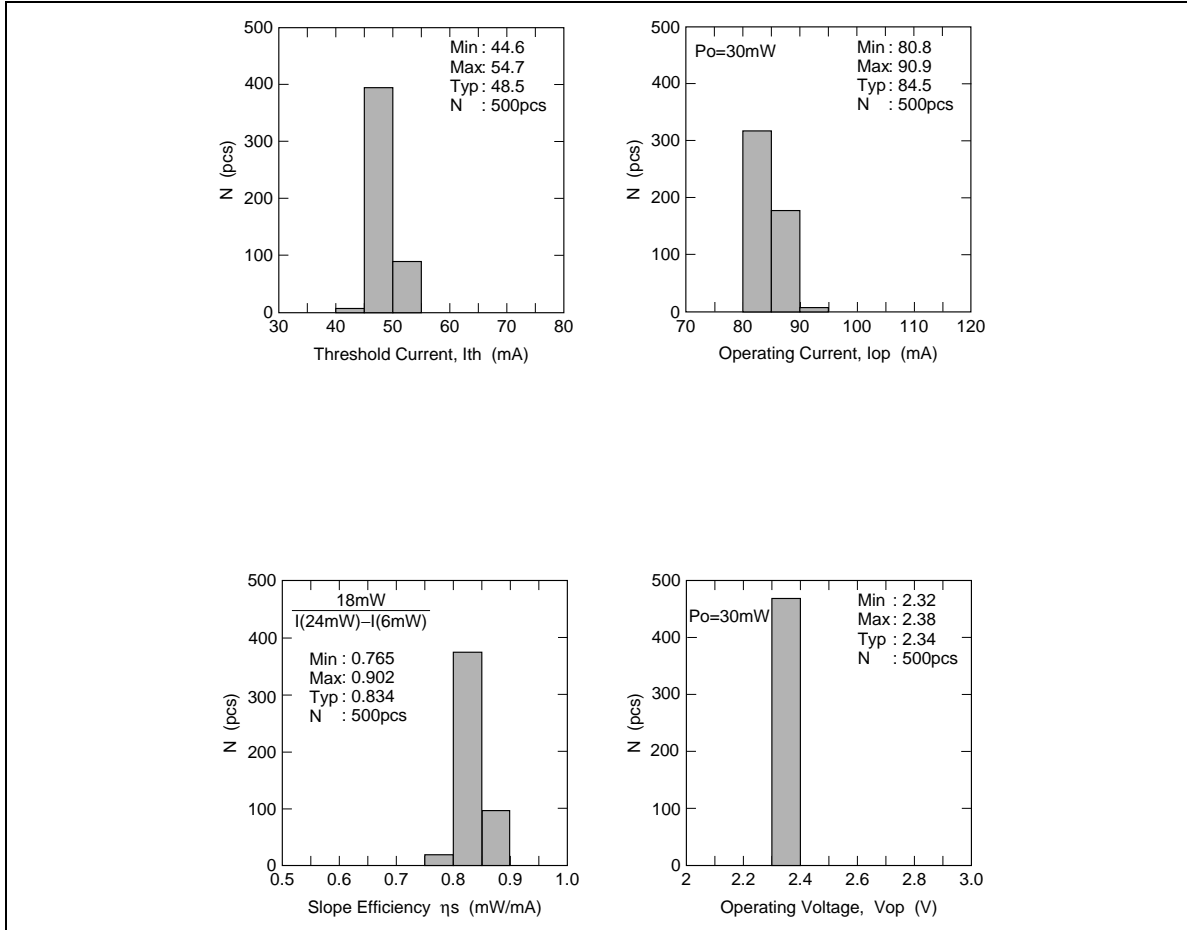


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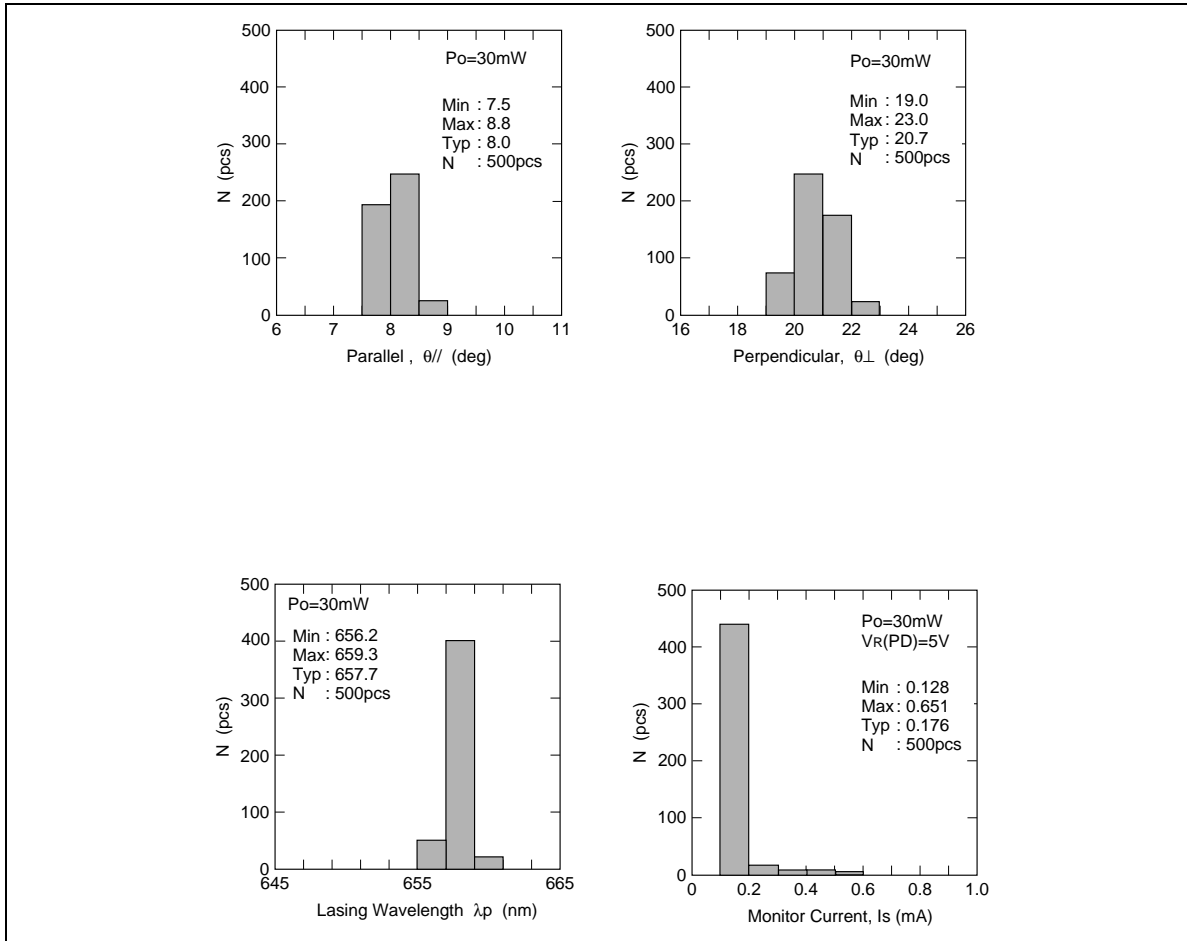


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### Characteristics Distribution

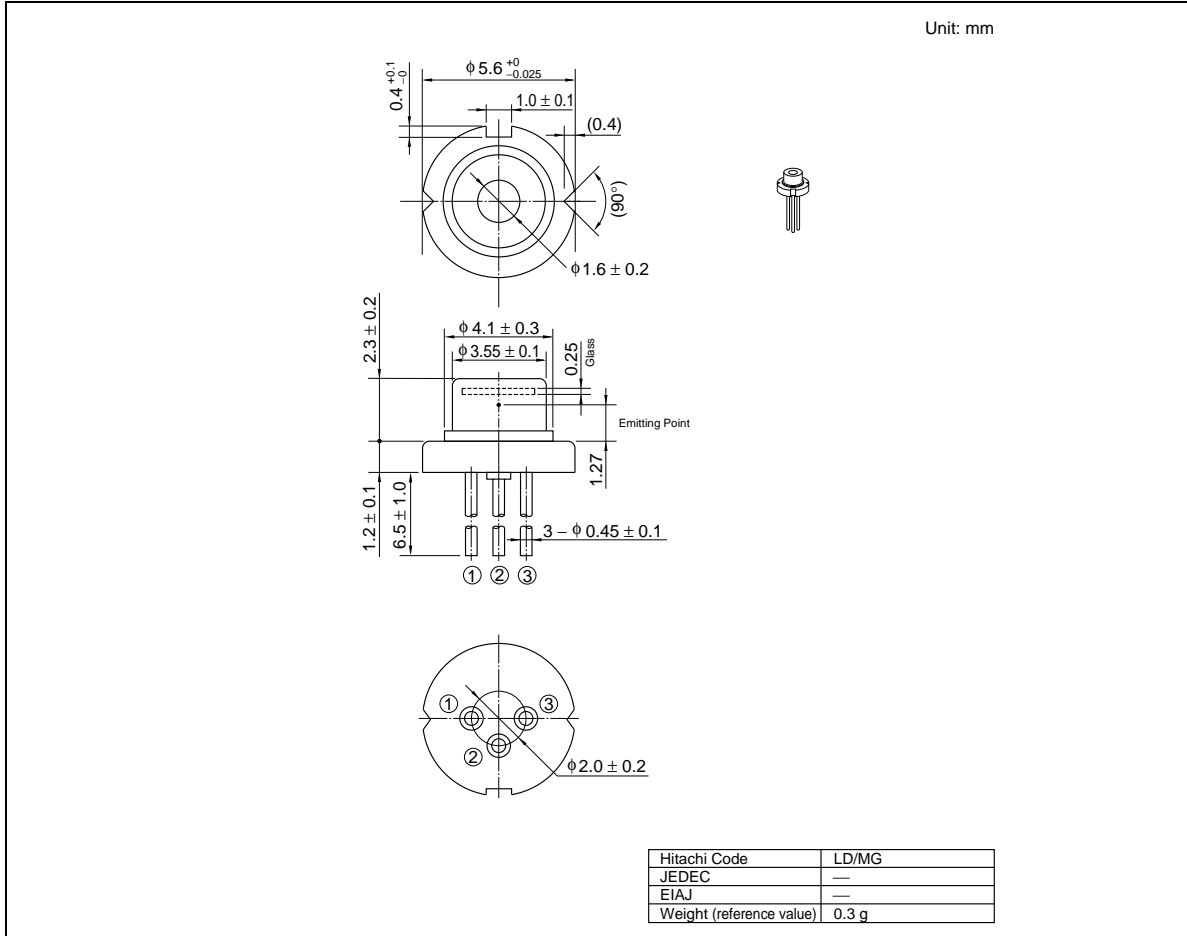


**HL6501MG**



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## Package Dimensions





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## HL6501MG

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