

# HL6712G

AlGaInP Laser Diode

# HITACHI

ADE-208-994 (Z)  
1st Edition  
Dec. 2000

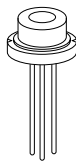
## Description

The HL6712G is 0.67  $\mu\text{m}$  band AlGaInP index-guided laser diode with a double heterostructure. It is suitable as light sources for barcode readers, levelers, laser printers, and various other types of optical equipment. Hermetic sealing of the packages assure high reliability.

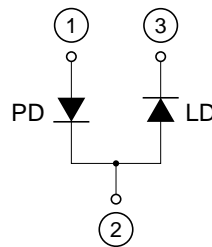
## Features

- Visible light output at wavelengths up to 680 nm
- Single longitudinal mode
- Low threshold current: 40 mA Typ
- Low astigmatism: 10  $\mu\text{m}$  Typ
- Operates at temperatures up to 50°C
- Built-in monitor photodiode

Package Type  
• HL6712G: G1



Internal Circuit



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

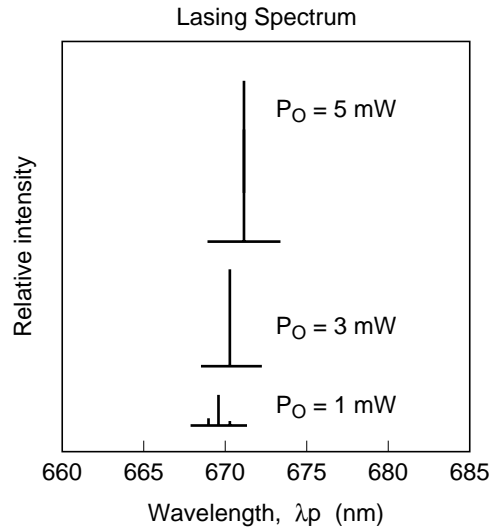
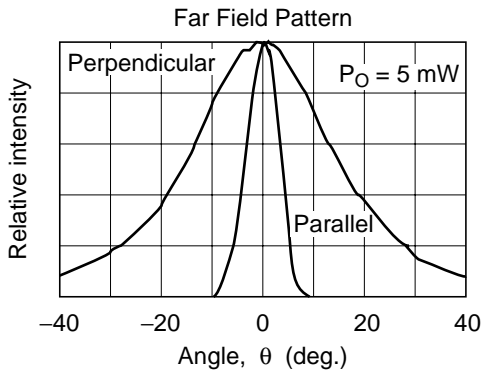
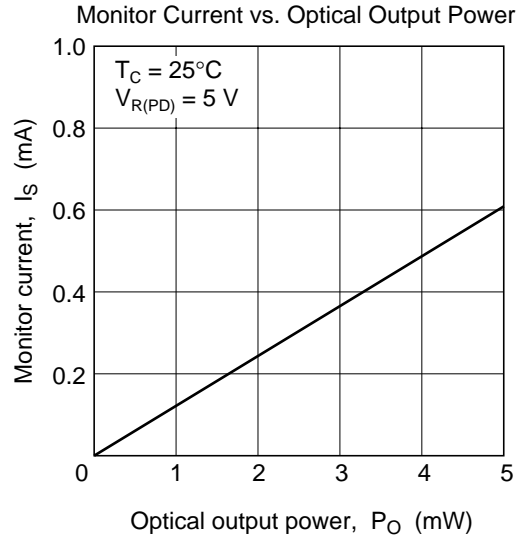
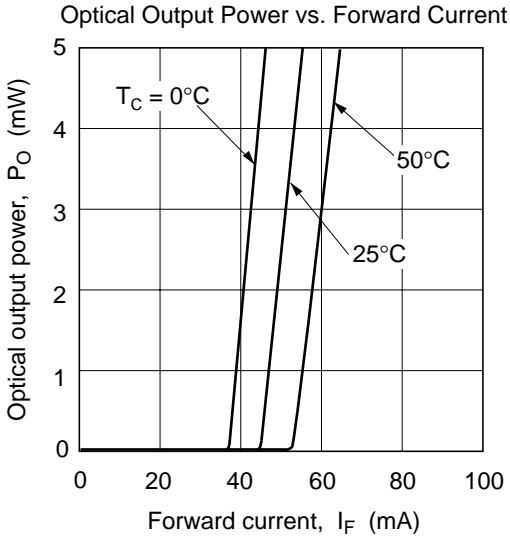
Item	Symbol	Rated Value	Unit
Optical output power	$P_O$	5	mW
Pulse optical output power	$P_{O(\text{pulse})}$	6 *	mW
LD reverse voltage	$V_{R(\text{LD})}$	2	V
PD reverse voltage	$V_{R(\text{PD})}$	30	V
Operating temperature	$T_{\text{opr}}$	-10 to +50	$^\circ\text{C}$
Storage temperature	$T_{\text{stg}}$	-40 to +85	$^\circ\text{C}$

Note: Pulse condition : Pulse width  $\leq 1 \mu\text{s}$  , duty  $\leq 50\%$

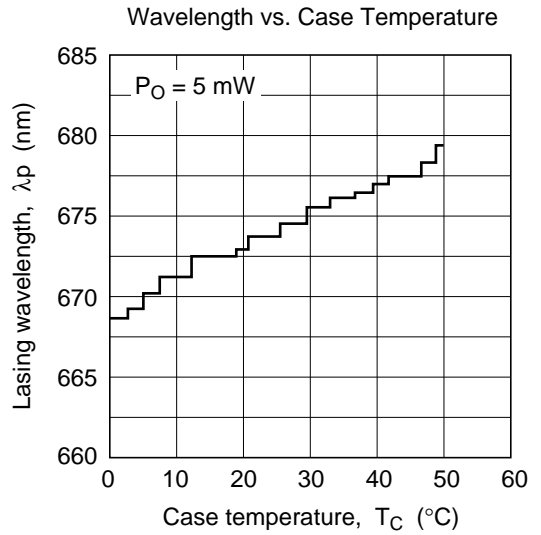
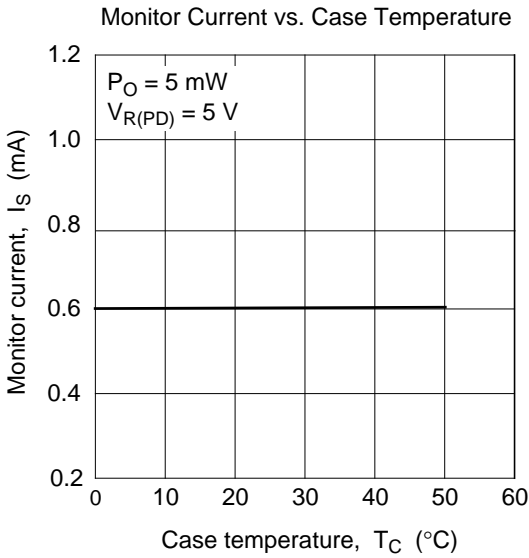
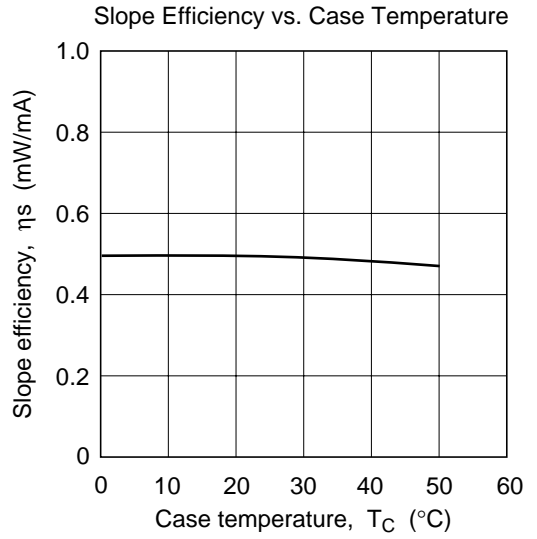
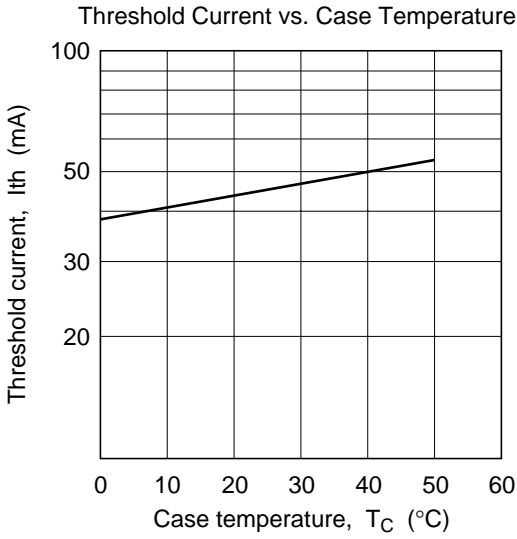
**Optical and Electrical Characteristics** ( $T_C = 25^\circ\text{C}$ )

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	$P_O$	5	—	—	mW	Kink free
Threshold current	$I_{\text{th}}$	—	40	65	mA	
Slope efficiency	$\eta_s$	0.30	0.55	0.70	mW/mA	$3 \text{ (mW)} / (I_{(4\text{mW})} - I_{(1\text{mW})})$
Beam divergence parallel to the junction	$\theta_{//}$	5	8	11	deg.	$P_O = 5 \text{ mW}$ , FWHM
Beam divergence perpendicular to the junction	$\theta_{\perp}$	22	27	37	deg.	$P_O = 5 \text{ mW}$ , FWHM
Astigmatism	$A_s$	—	10	—	$\mu\text{m}$	$P_O = 5 \text{ mW}$ , $\text{NA} = 0.4$
Lasing wavelength	$\lambda_p$	660	670	680	nm	$P_O = 5 \text{ mW}$
Monitor current	$I_s$	0.25	0.6	1.25	mA	$P_O = 5 \text{ mW}$ , $V_{R(\text{PD})} = 5 \text{ V}$

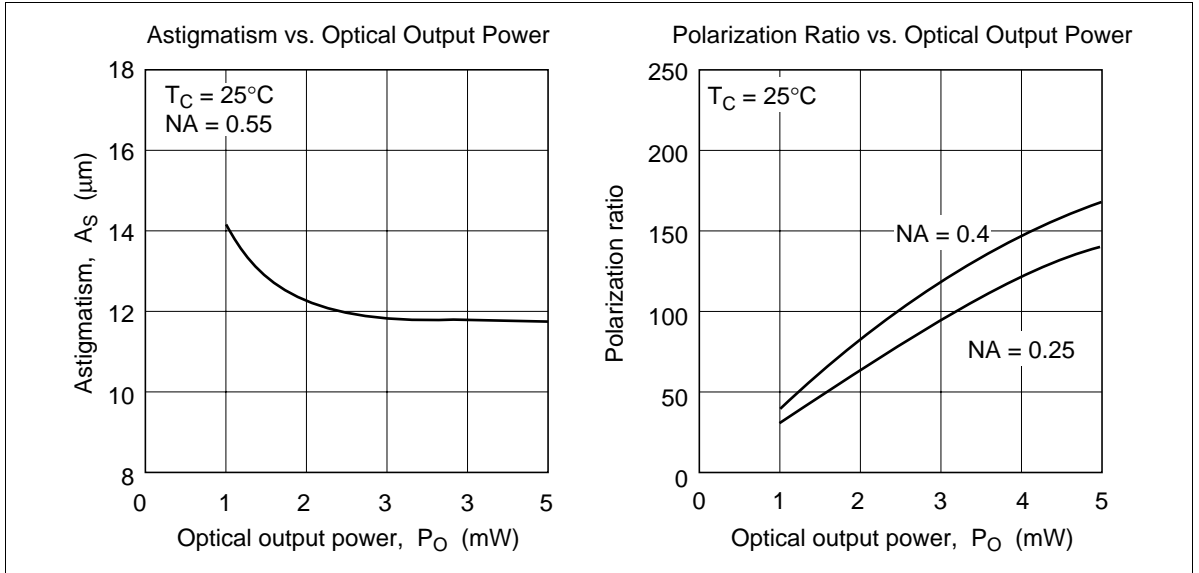
Typical Characteristic Curves



## Typical Characteristic Curves (cont)

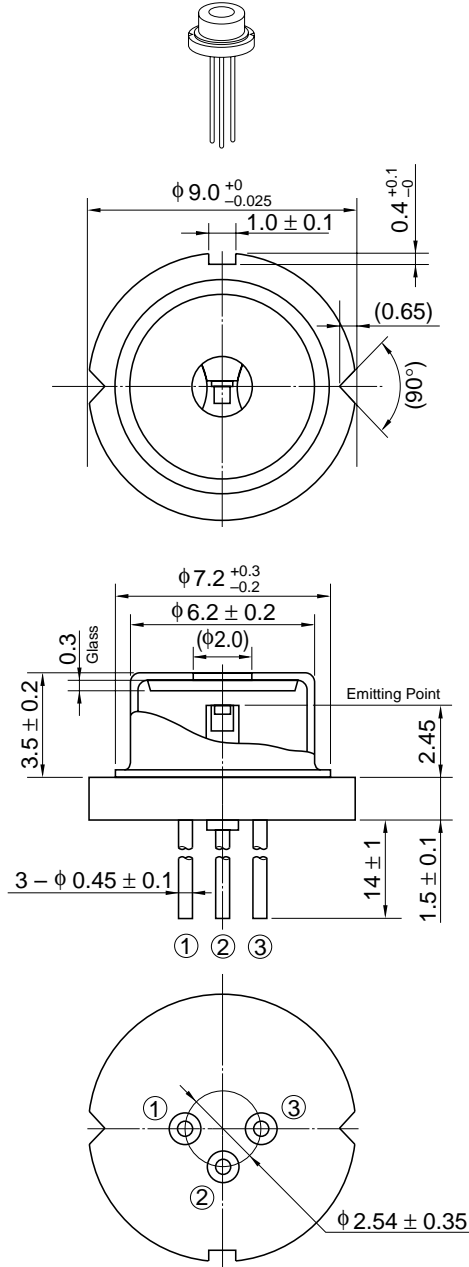


Typical Characteristic Curves (cont)



## Package Dimensions

Unit: mm



Hitachi Code	LD/G1
JEDEC	—
EIAJ	—
Mass (reference value)	1.1 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.

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