
HL6504FM

Visible High Power Laser Diode for DVD-RAM

HITACHI

ADE-208-825A (Z)

2nd Edition
Dec. 2000

Description

The HL6504FM is a 0.66 μm 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.

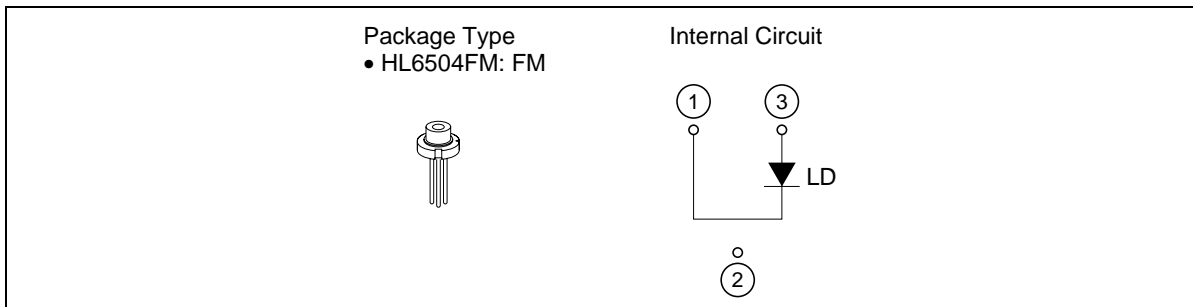
Hermetic sealing of the small package (ϕ 5.6 mm) assures high reliability.

Application

- Optical disc memories
- Optical equipment

Features

- High output power : 50 mW (CW)
- Visible light output : $\lambda_p = 664$ nm Typ
- Small package : ϕ 5.6 mm
- Low astigmatism : 5 μm Typ ($P_o = 5$ mW)



HL6504FM

Absolute Maximum Ratings

($T_c = 25^\circ\text{C}$)

Item	Symbol	Value	Unit
Optical output power	P_o	50	mW
Pulse optical output power	$P_{o(\text{pulse})}$	70 *	mW
Laser diode reverse voltage	$V_{R(LD)}$	2	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%

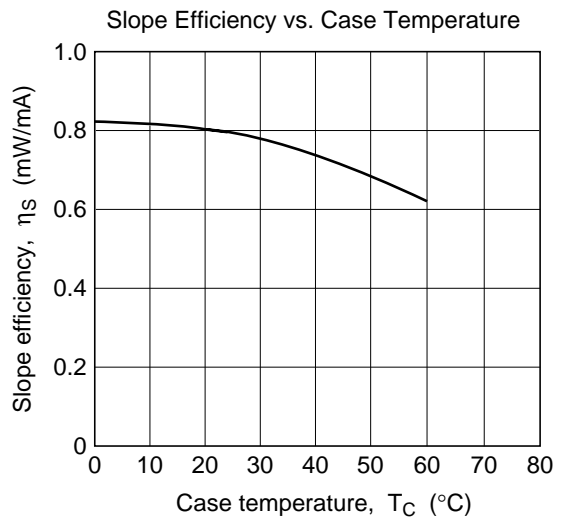
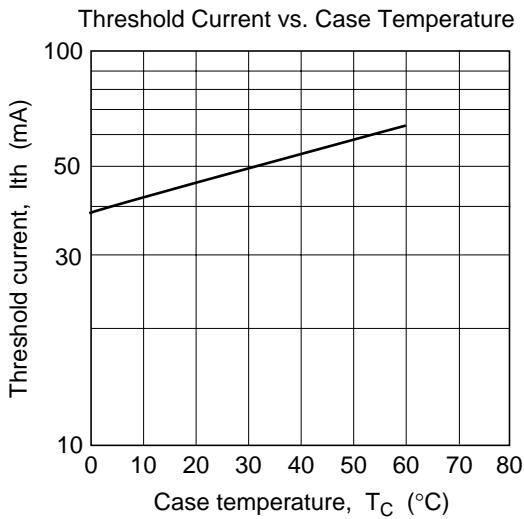
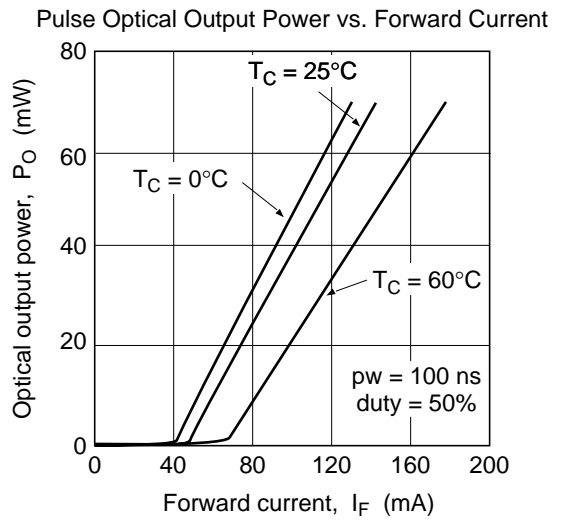
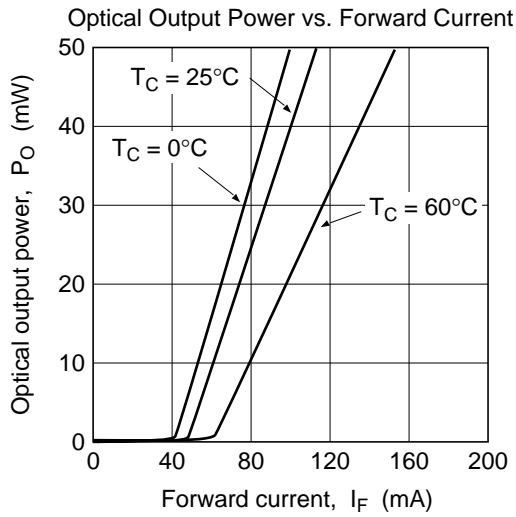
Optical and Electrical Characteristics

($T_c = 25^\circ\text{C}$)

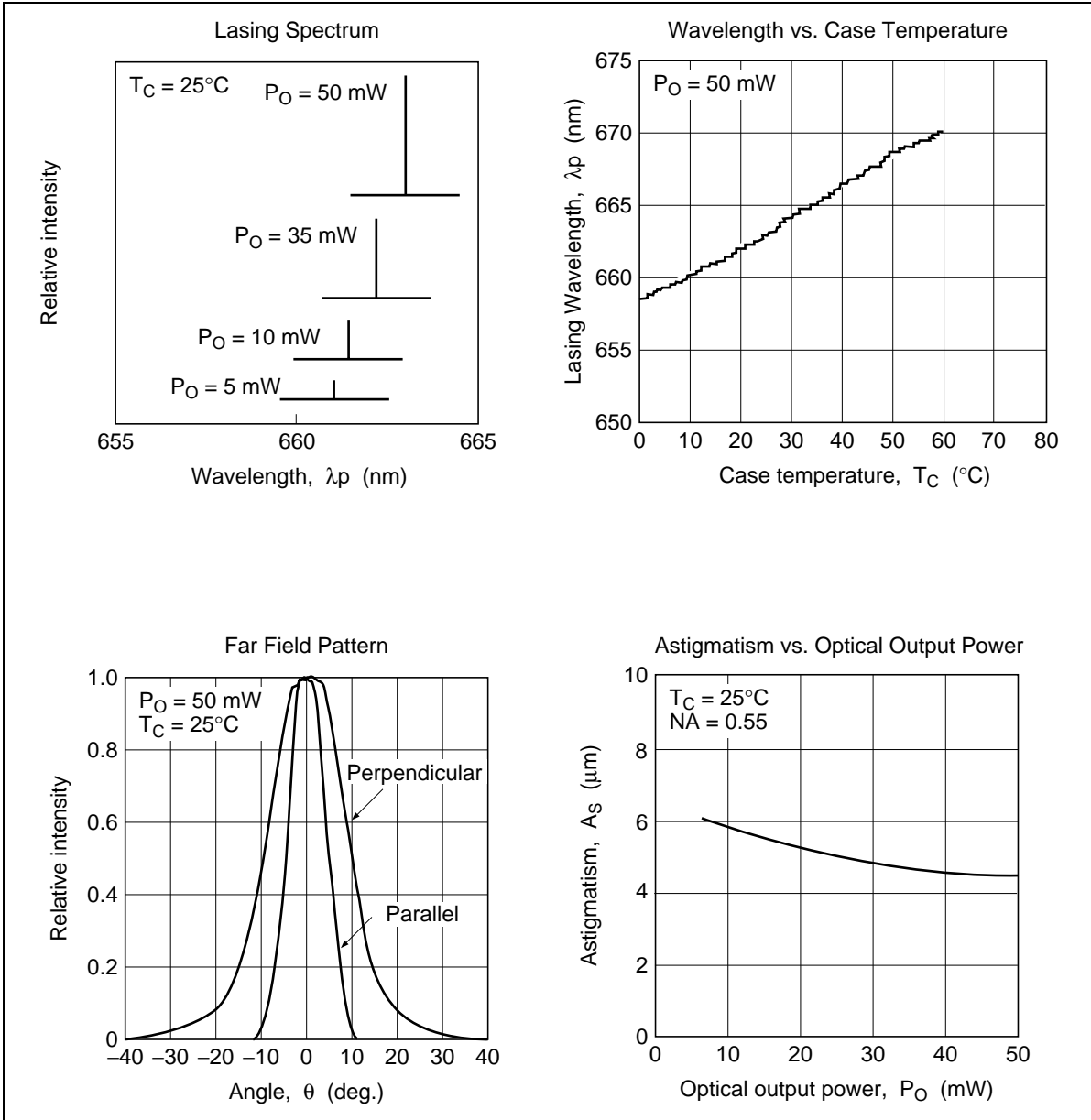
Items	Symbol	Min	Typ	Max	Unit	Test Conditions
Optical output power	P_o	50	—	—	mW	Kink free *
Pulse optical output power	$P_{o(\text{pulse})}$	70	—	—	mW	Kink free *
Threshold current	I_{th}	30	45	60	mA	—
Operating current	I_{op}	—	115	135	mA	$P_o = 50 \text{ mW}$
Operating voltage	V_{op}	2.1	2.6	3.0	V	$P_o = 50 \text{ mW}$
Beam divergence parallel to the junction	$\theta_{//}$	7	8.5	11	deg.	$P_o = 50 \text{ mW}$
Beam divergence perpendicular to the junction	θ_{\perp}	18	21	26	deg.	$P_o = 50 \text{ mW}$
Asigmatism	A_s	—	5	—	μm	$P_o = 5 \text{ mW}$, $NA = 0.55$
Lasing wavelength	λ_p	655	664	667	nm	$P_o = 50 \text{ mW}$

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

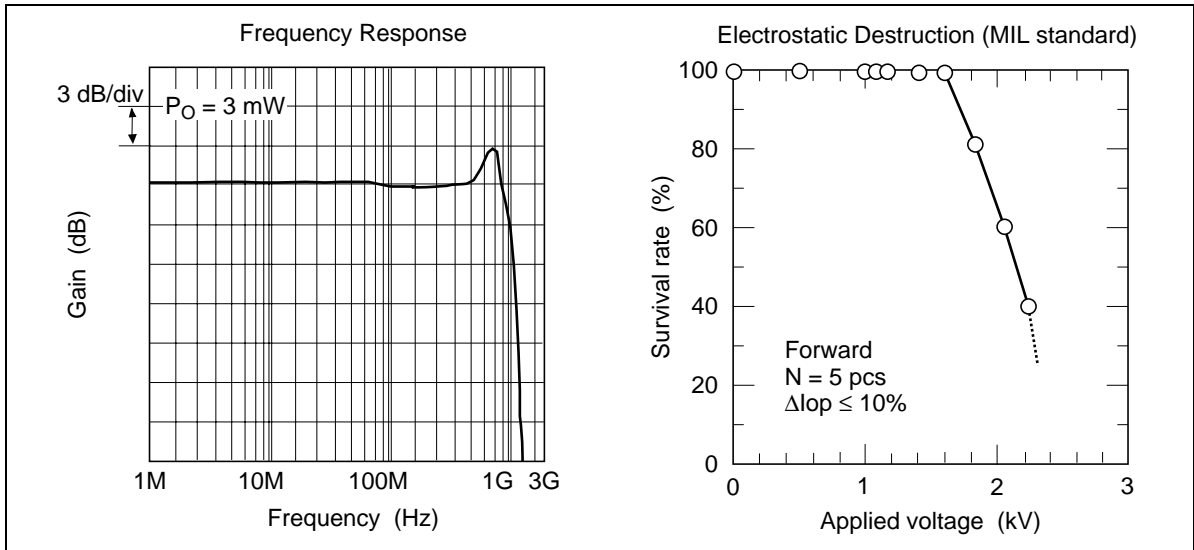
Typical Characteristic Curves



Typical Characteristic Curves (cont)



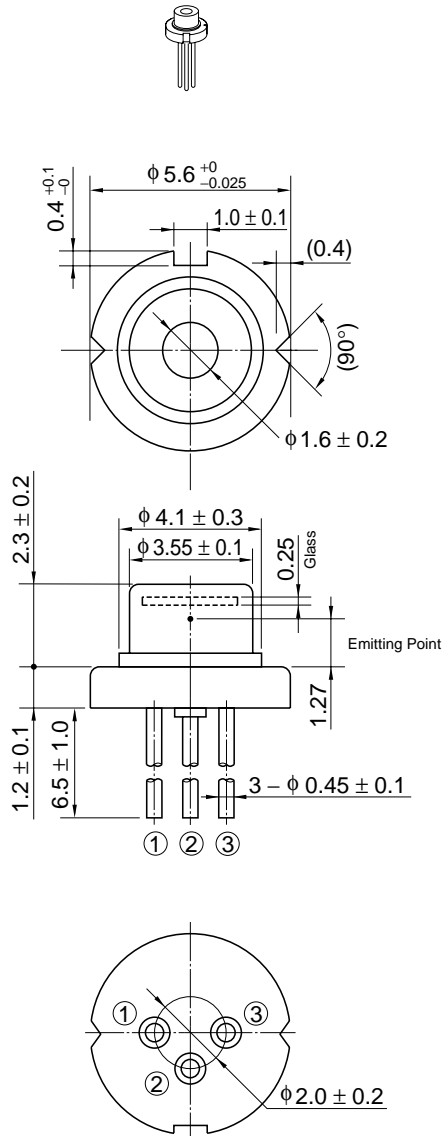
Typical Characteristic Curves (cont)



HL6504FM

Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	LD/FM
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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