HL6733FM

Visible High Power Laser Diode

HITACHI

ADE-208-516B (Z)
3rd Edition
May 1, 1998

Description

The HL6733FM is a 0.68 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 and various other types of optical equipment.

It does not have a photodiode, and the GND pin is not connected with the LD chip. The outline is the same as MG-type (5.6 mmϕ).

Application

- Optical disc memories.
- Optical equipment.

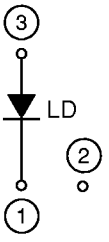
Features

- High output power : 35 mW (CW)
- Visible light output : λp = 675 to 695 nm
- Small package :ϕ 5.6 mm
- Low astigmatism : 6 μm Typ (P_O = 5 mW)

Internal Circuit

Package Type
• HL6733FM: FM

Internal Circuit



Absolute Maximum Ratings ($T_C = 25°C$)

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
Operating temperature	Topr	–10 to +70	°C
Storage temperature	Tstg	–40 to +85	°C

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

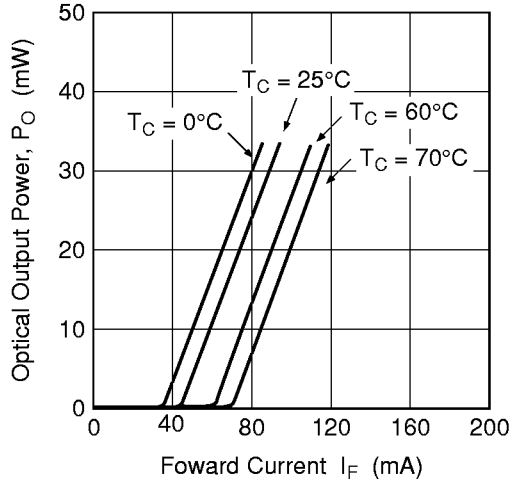
Optical and Electrical Characteristics ($T_C = 25°C$)

Items	Symbols	Min	Typ	Max	Units	Test Conditions
Optical output power	P_O	35	—	—	mW	Kink free *
Pulse optical output power	$P_{O(pulse)}$	50	—	—	mW	Kink free *
Threshold current	Ith	30	45	70	mA	—
Operating voltage	V_{OP}	2.1	2.5	2.8	V	P_O = 30 mW
Slope efficiency	ηs	0.5	0.7	0.9	mW/mA	18 (mW) / ($I_{(24mW)} - I_{(6mW)}$)
Lasing wavelength	λp	675	690	695	nm	P_O = 30 mW
Beam divergence parallel to the junction	θ//	7	8.5	11	deg.	P_O = 30 mW
Beam divergence perpendicular to the junction	θ⊥	17	19	23	deg.	P_O = 30 mW
Astigmatism	A_S	—	6	—	μm	P_O = 5 mW, NA = 0.55

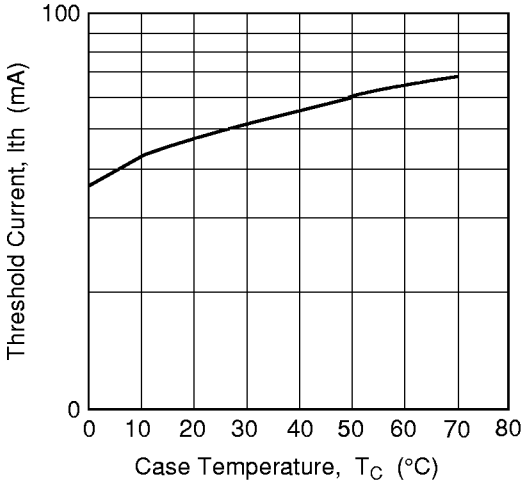
Note: Kink free is confirmed at the temperature of 25°C.

Curve Characteristics

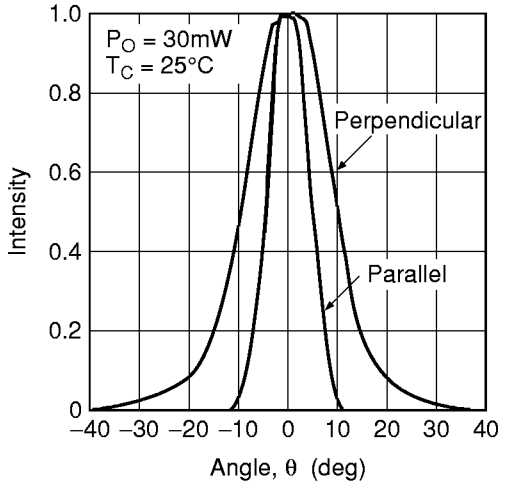
Optical Output Powervs.Forward Current



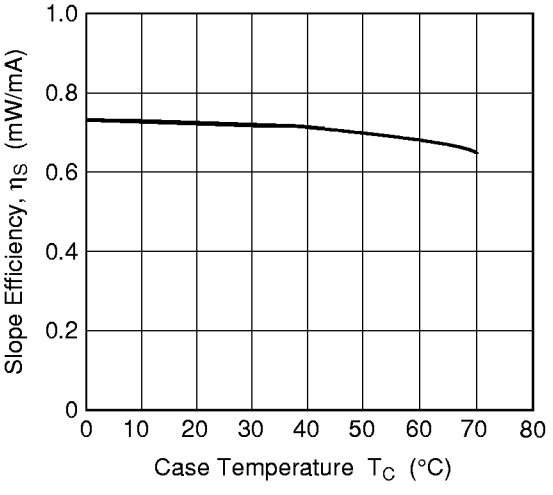
Threshold Current vs. Case Temperature



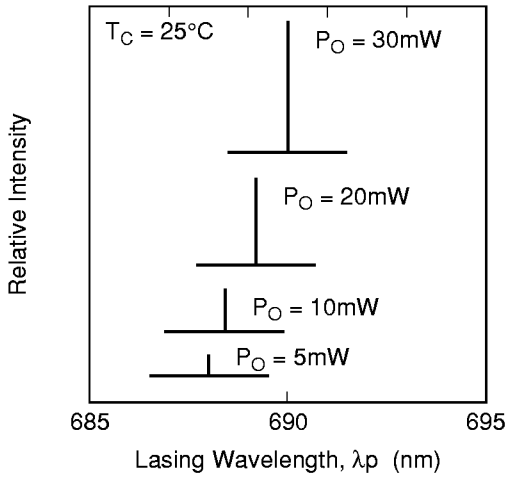
Far Feild Pattern



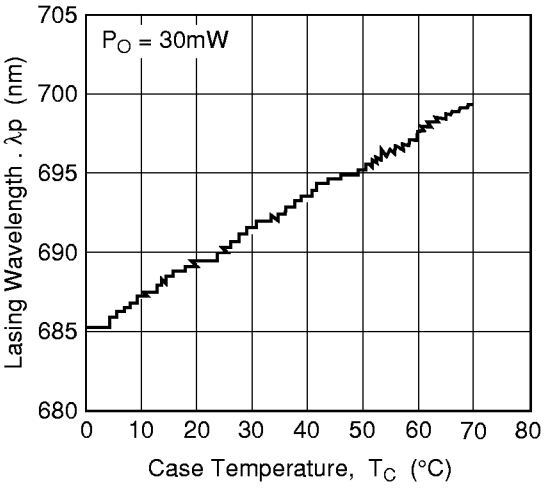
Slope Efficiency vs. Case Temperature



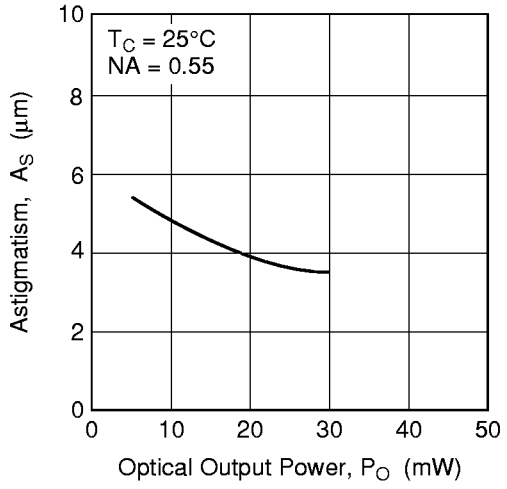
Lasing Spectrum



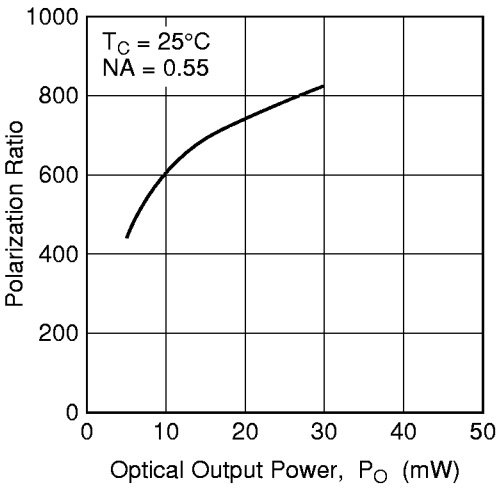
Lasing Wavelength vs. Case Temperature

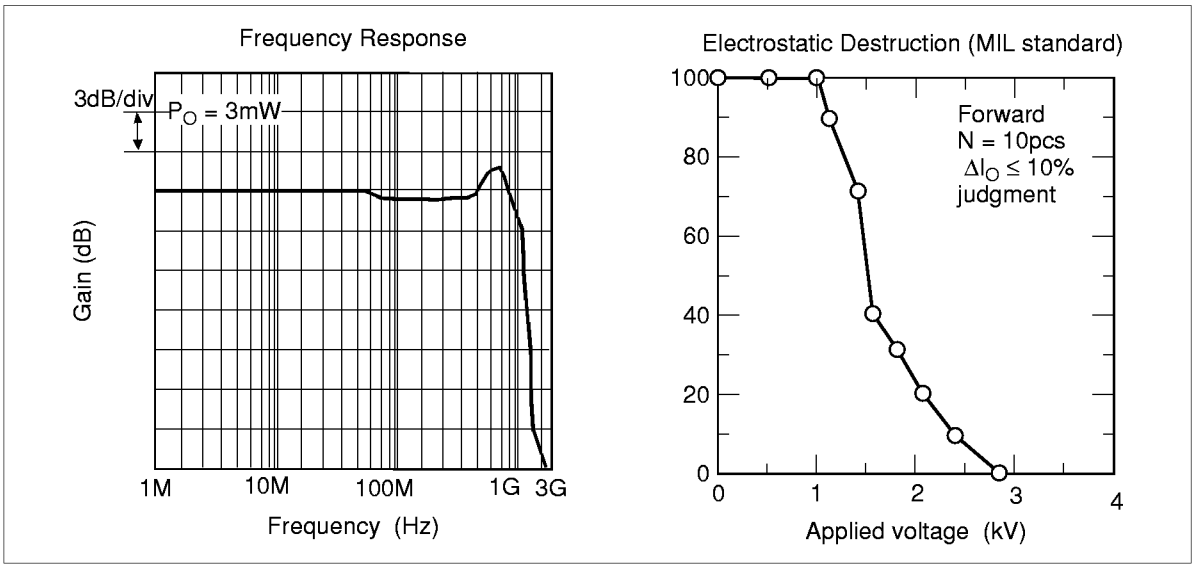


Astigmtism vs. Optical Output Power

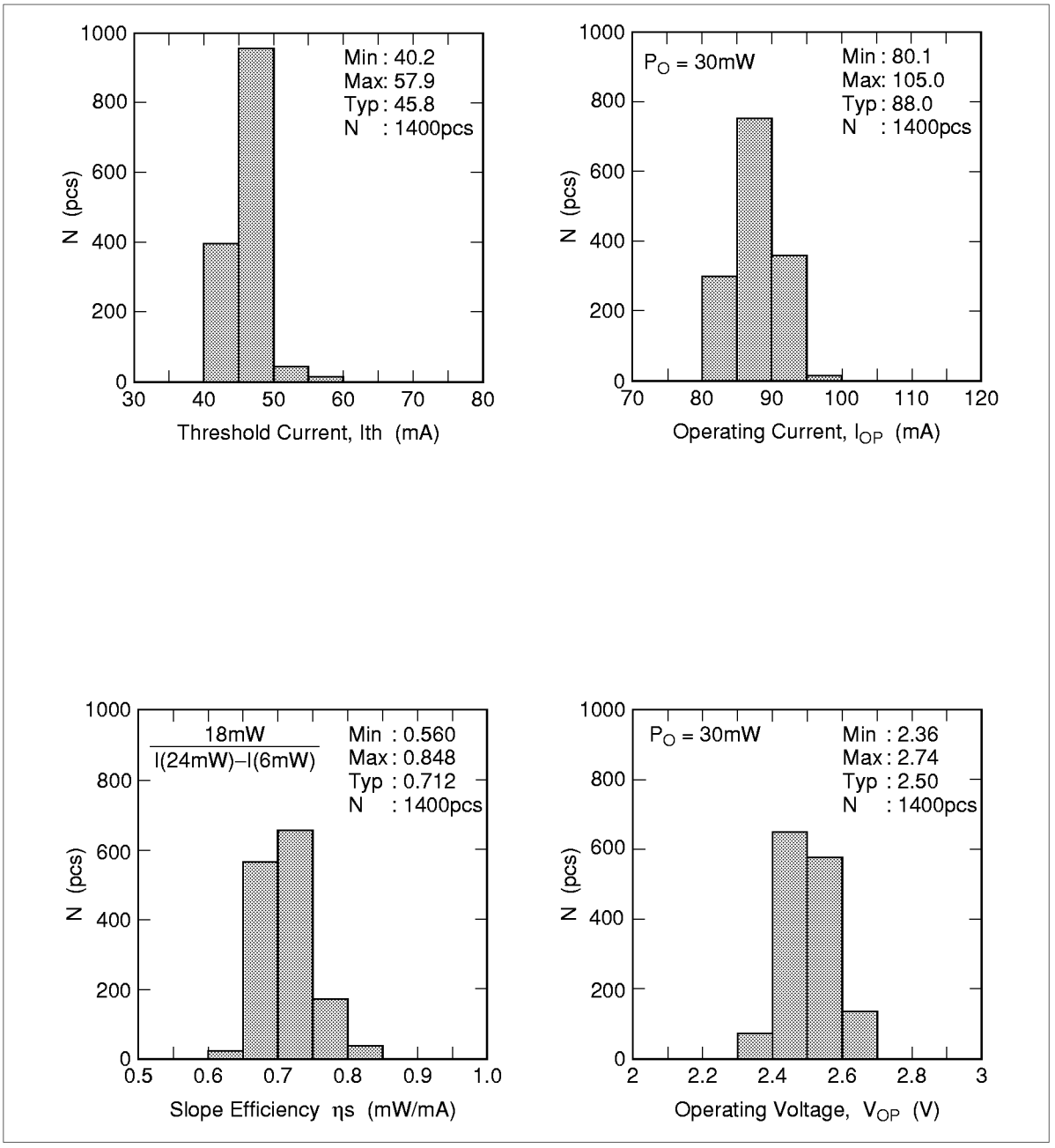


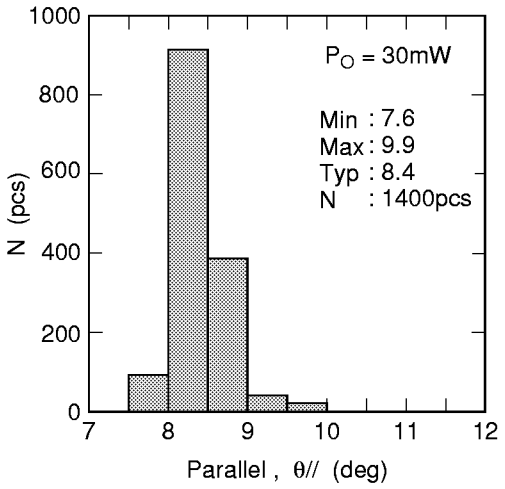
Polarization Ratio vs. Optical Output Power

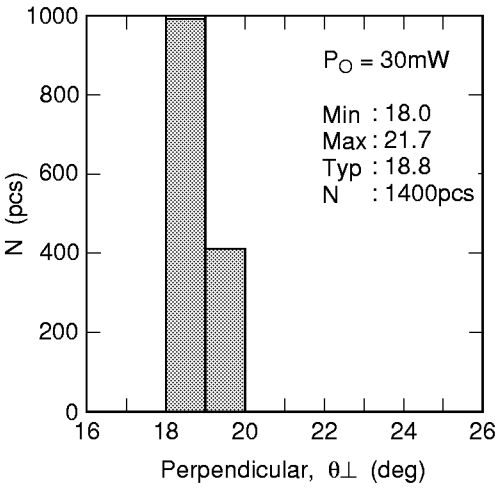


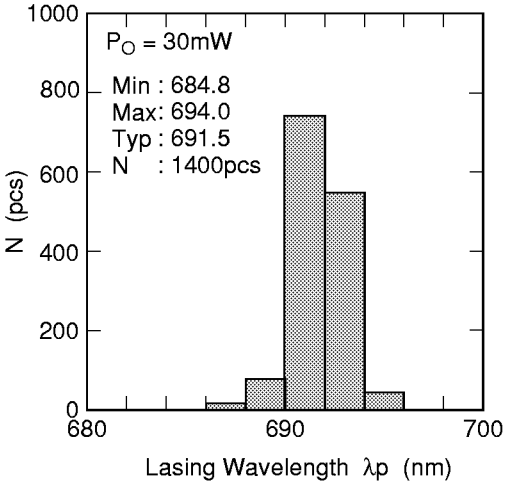

Frequency Response
3dB/div
P_O = 3mW
Gain (dB)
1M
10M
100M
1G
3G
Frequency (Hz)
Electrostatic Destruction (MIL standard)
100
80
60
40
20
0
Forward
N = 10pcs
$\Delta I_O \leq 10\%$
judgment
0
1
2
3
4
Applied voltage (kV)

Characteristics Distribution



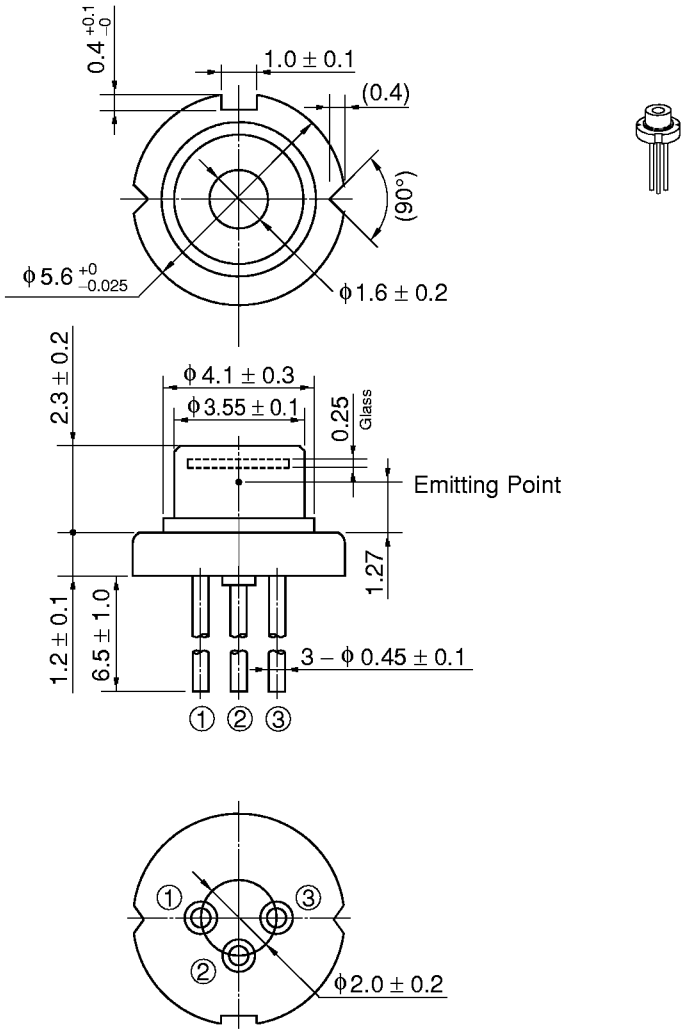

1000
800
600
400
200
0
N (pcs)
P_O = 30mW
Min : 7.6
Max : 9.9
Typ : 8.4
N : 1400pcs
7
8
9
10
11
12
Parallel , θ// (deg)


1000
800
600
400
200
0
N (pcs)
P_O = 30mW
Min : 18.0
Max : 21.7
Typ : 18.8
N : 1400pcs
16
18
20
22
24
26
Perpendicular, θ⊥ (deg)


1000
800
600
400
200
0
N (pcs)
P_O = 30mW
Min : 684.8
Max: 694.0
Typ : 691.5
N : 1400pcs
680
690
700
Lasing Wavelength λp (nm)

Package Dimensions

Unit: mm



Hitachi Code	LD/FM
JEDEC	—
EIAJ	—
Weight (reference value)	—

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HITACHI

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

For further information write to:

Hitachi Semiconductor (America) Inc.
2000 Sierra Point Parkway
Brisbane, CA. 94005-1897
U S A
Tel: 800-285-1601
Fax:303-297-0447

Hitachi Europe GmbH
Continental Europe
Dornacher Straße 3
D-85622 Feldkirchen
München
Tel: 089-9 91 80-0
Fax: 089-9 29 30-00

Hitachi Europe Ltd.
Electronic Components Div.
Northern Europe Headquarters
Whitebrook Park
Lower Cookham Road
Maidenhead
Berkshire SL6 8YA
United Kingdom
Tel: 01628-585000
Fax: 01628-585160

Hitachi Asia Pte. Ltd.
16 Collyer Quay #20-00
Hitachi Tower
Singapore 049318
Tel: 535-2100
Fax: 535-1533

Hitachi Asia (Hong Kong) Ltd.
Unit 706, North Tower,
World Finance Centre,
Harbour City, Canton Road
Tsim Sha Tsui, Kowloon
Hong Kong
Tel: 27359218
Fax: 27306071