

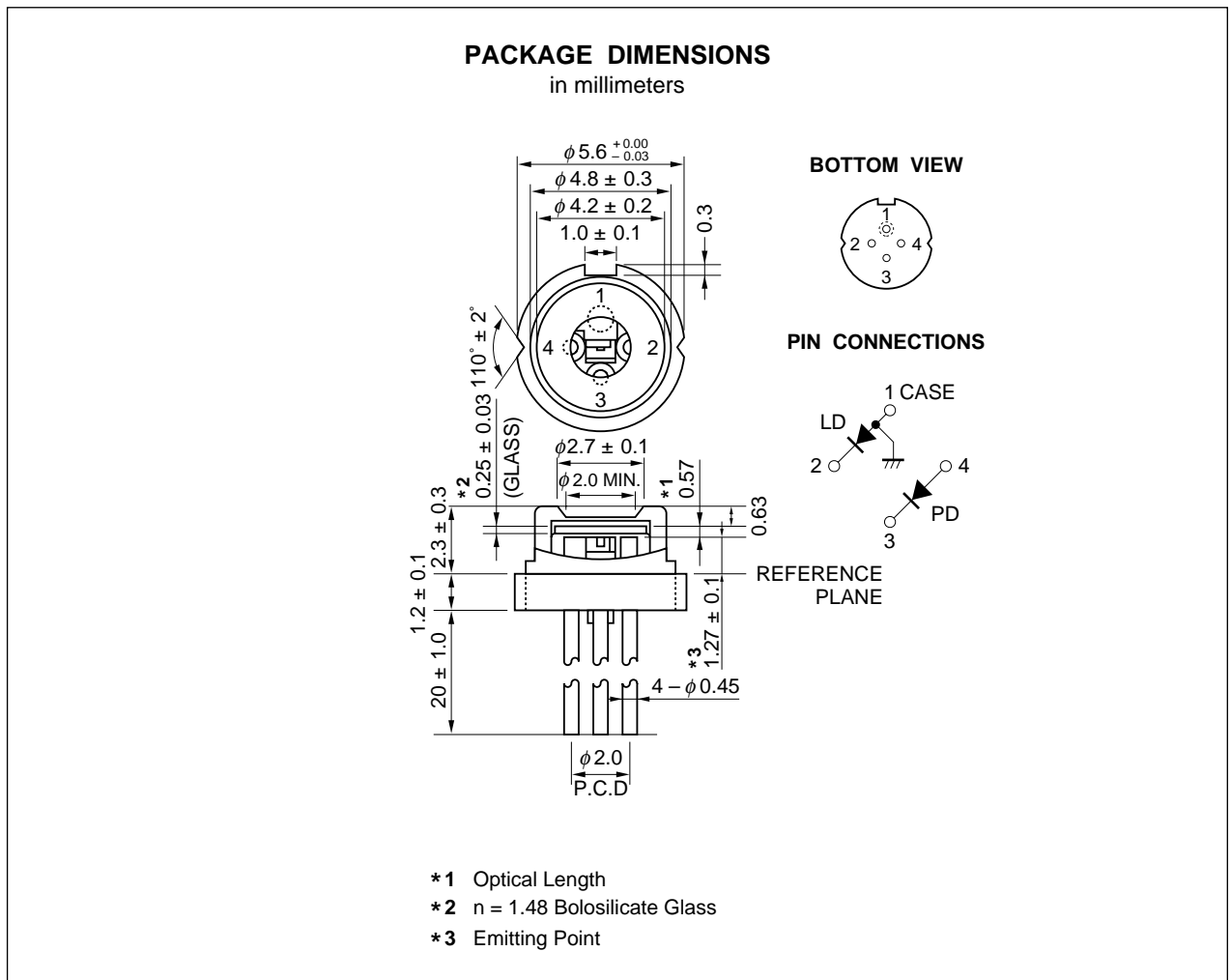
1 310 nm FIBER OPTIC COMMUNICATIONS InGaAsP STRAINED MQW DC-PBH LASER DIODE

DESCRIPTION

NDL7001 is a 1 310 nm laser diode for fiber optic communications and has a strained Multiple Quantum Well (st-MQW) structure and a built-in InGaAs monitor photo diode.

FEATURES

- Optical output power $P_o = 5.0 \text{ mW}$
- Low threshold current $I_{th} = 10 \text{ mA}$
- High speed $t_r, t_f = 0.5 \text{ ns MAX.}$
- Wide operating temperature range $T_c = -40 \text{ to } +85 \text{ }^\circ\text{C}$
- Small package $\phi 5.6 \text{ mm}$



The information in this document is subject to change without notice.

ABSOLUTE MAXIMUM RATINGS (T_c = 25 °C, unless otherwise specified)

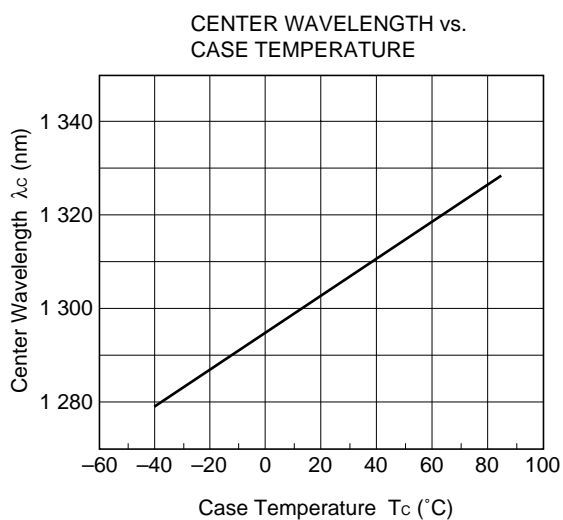
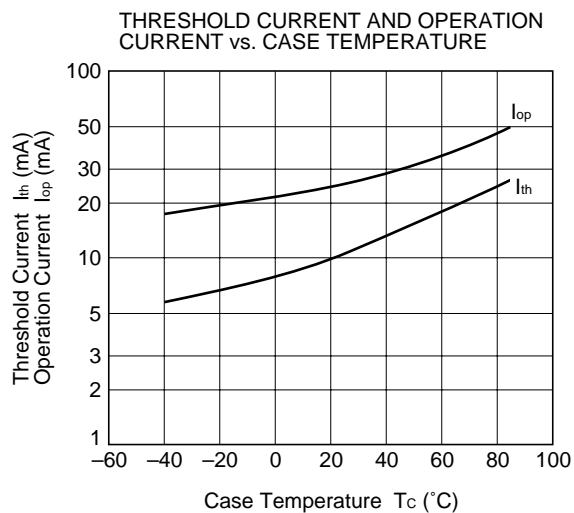
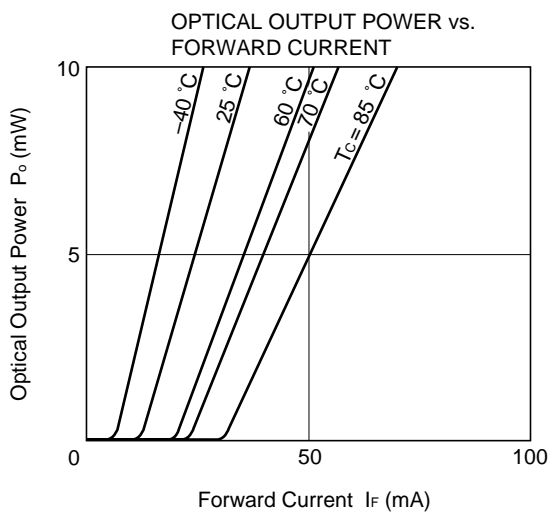
Parameter	Symbol	Ratings	Unit
Optical Output Power	P _o	10	mW
Reverse Voltage of LD	V _R	2.0	V
Forward Current of PD	I _F	10	mA
Reverse Voltage of PD	V _R	20	V
Operating Case Temperature	T _c	-40 to +85	°C
Storage Temperature	T _{stg}	-55 to +125	°C
Lead Soldering Temperature (10 s)	T _{slid}	260	°C

★ **ELECTRO-OPTICAL CHARACTERISTICS (T_c = 25 °C, unless otherwise specified)**

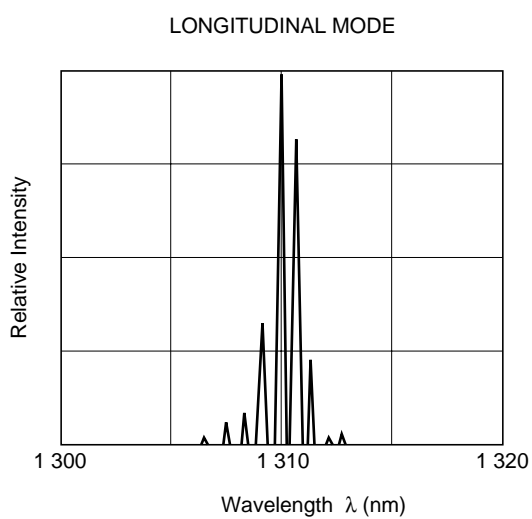
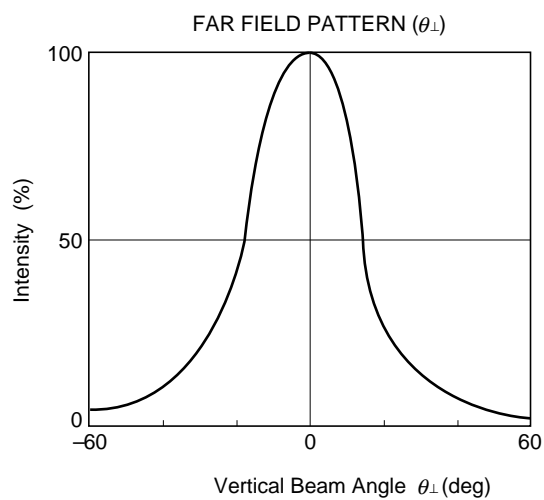
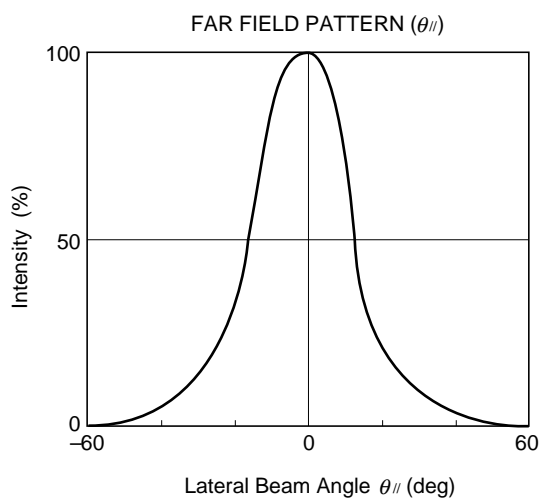
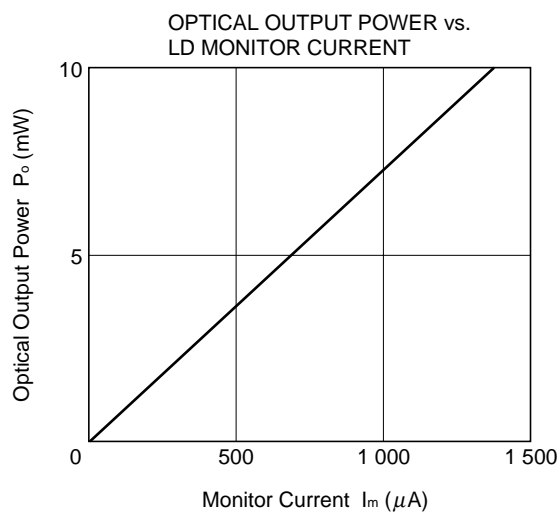
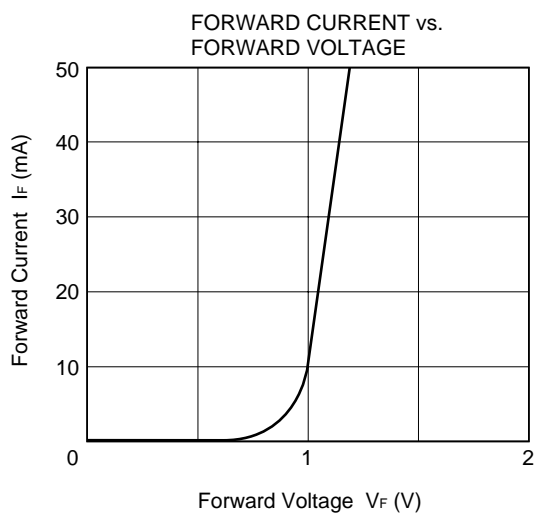
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V _{op}	P _o = 5.0 mW		1.1	1.3	V
Threshold Current	I _{th}			10	20	mA
		T _c = 85 °C		25	50	
Modulation Current	I _{mod}	P _o = 5.0 mW		11	17	mA
Differential Efficiency	η _d		0.30	0.45		W/A
Variation of Differential Efficiency	Δη _d	Δη _d = 10 log $\frac{\eta_d(85\text{ °C})}{\eta_d(25\text{ °C})}$	-3.0	-1.5		dB
Center Emission Wavelength	λ _c	P _o = 5.0 mW, RMS (-20 dB)	1 280	1 310	1 340	nm
Temperature Dependence of Center Emission Wavelength	Δλ/ΔT	T _c = -40 to +85 °C		0.4	0.5	nm/°C
Spectral Width	σ	P _o = 5.0 mW, RMS (-20 dB)		1.0	4.0	nm
Vertical Beam Angle	θ _v	P _o = 5.0 mW, FAHM *1		30	45	deg
Lateral Beam Angle	θ _l	P _o = 5.0 mW, FAHM *1		25	40	deg
Rise Time	t _r	10 to 90 %		0.2	0.5	ns
Fall Time	t _f	90 to 10 %		0.3	0.5	ns
Monitor Current	I _m	V _R = 5 V, P _o = 5.0 mW	200	600		μA
Monitor Dark Current	I _D	V _R = 5 V		0.1	10	nA

*1 FAHM: Full Angle at Half Maximum

TYPICAL CHARACTERISTICS ($T_c = -40$ to $+85$ °C)



TYPICAL CHARACTERISTICS (T_c = 25 °C)



1.3 μm FABRY-PEROT DC-PBH LASER DIODE FAMILY

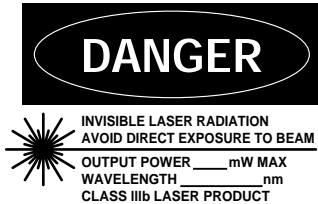
Package	Part Number	Remarks
ϕ 5.6 mm Small Can	NDL7001	With monitor photo diode
ϕ 5.6 mm Small Can with Lens	NDL7001L	With monitor photo diode
4-pin Coaxial Module with SMF	NDL7401P Series NDL7408P Series	Without TEC With monitor photo diode

REFERENCE

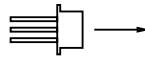
Document Name	Document No.
NEC semiconductor device reliability/quality control system	LEI-1201
Quality grades on NEC semiconductor devices	IEI-1209
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

CAUTION

Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstances break the hermetic seal.



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
Laser Radiation is emitted from
this aperture

NEC Corporation
NEC Building, 7-1, Shiba 5-chome,
Minato-ku, Tokyo 108-01, Japan

Type number: _____
Manufactured: _____
Serial Number: _____
This product conforms to FDA
regulations as applicable
to standards 21 CFR Chapter 1.
Subchapter J.

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Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.