DATA SHEET

NEC

LASER DIODE

NDL7620P Series

1 310 nm OPTICAL FIBER COMMUNICATIONS InGaAsP STRAINED MQW-DFB LASER DIODE COAXIAL MODULE FOR 2.5 Gb/s

DESCRIPTION

The NDL7620P Series is a 1 310 nm λ/4-phase-shifted DFB (Distributed Feed-Back) laser diode coaxial module with internal optical isolator. Newly developed strained Multiple Quantum Well (st-MQW) structure is adopted to achieve stable dynamic single longitudinal mode operation over wide temperature range of 0 to +70 °C. It is designed for STM-16 applications.

FEATURES

- High-speed response t_r = 40 ps, t_f = 100 ps
- Peak emission wavelength λ_p = 1 310 nm
- Wide operating temperature range T_C = 0 to +70 °C
- Internal optical isolator
- λ/4-phase-shifted DFB
- InGaAs monitor PIN-PD

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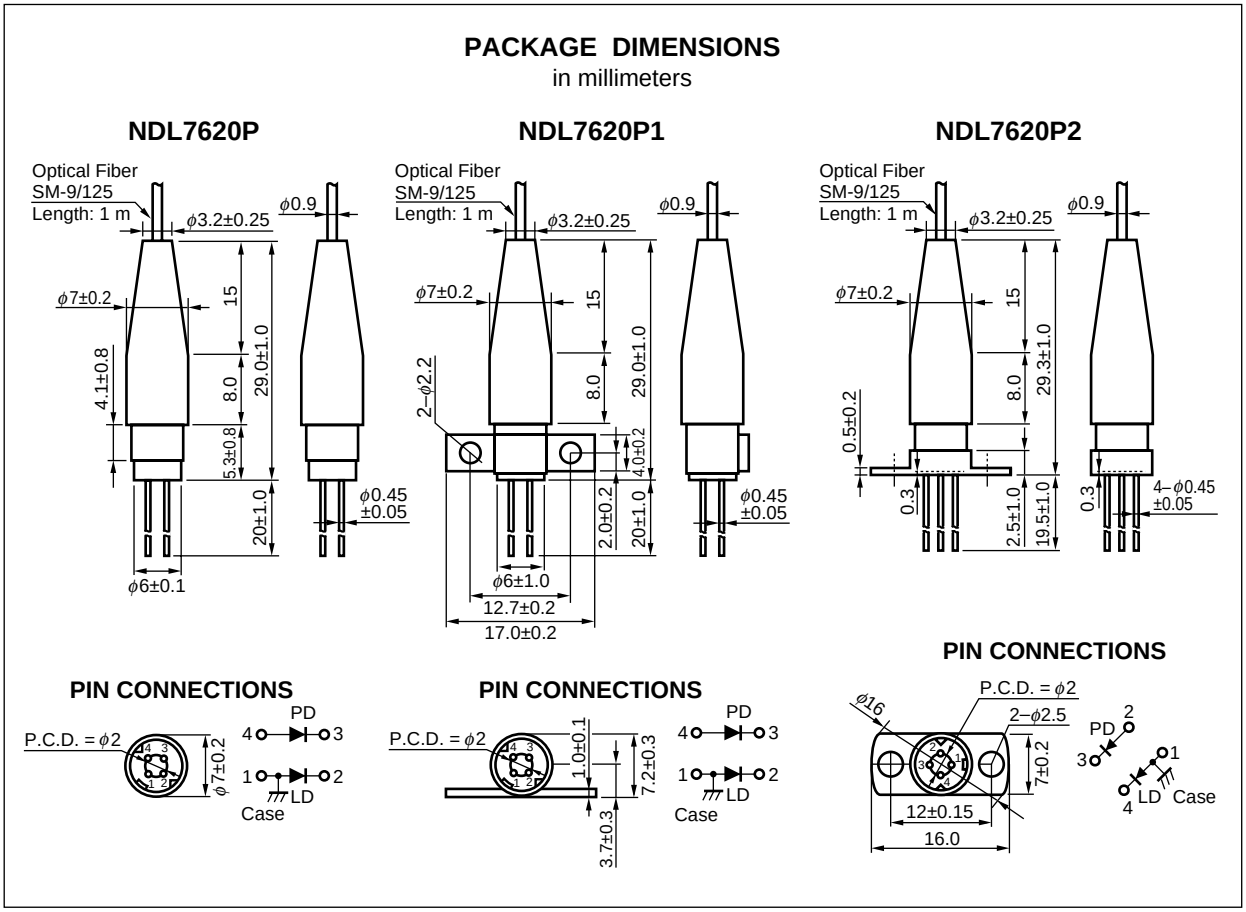
PACKAGE DIMENSIONS

in millimeters



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

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Printed in Japan

The mark ★ shows major revised points.

ORDERING INFORMATION

Part Number	Available Connector	Flange Type
NDL7620P	Without Connector	No Flange
NDL7620PC	With FC-PC Connector	
NDL7620PD	With SC-PC Connector	
NDL7620P1	Without Connector	Flat Mount Flange
NDL7620P1C	With FC-PC Connector	
NDL7620P1D	With SC-PC Connector	
NDL7620P2	Without Connector	Vertical Flange
NDL7620P2C	With FC-PC Connector	
NDL7620P2D	With SC-PC Connector	

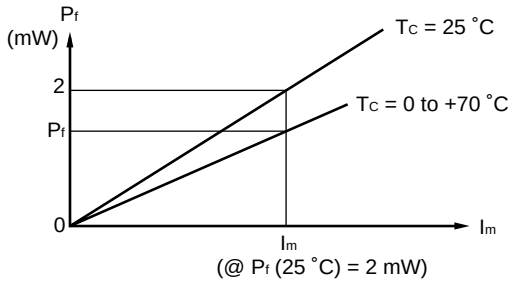
ABSOLUTE MAXIMUM RATINGS (T_C = 0 to +70 °C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Forward Current of LD	I_F	150	mA
Optical Output Power from Fiber	P_f	5.0	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	0 to +70	°C
Storage Temperature	T_{stg}	–40 to +85	°C
Lead Soldering Temperature (10 s)	T_{sld}	260	°C

ELECTRO-OPTICAL CHARACTERISTICS (T_C = 0 to +70 °C, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V_F	P_f = 2 mW, T_C = 25 °C	0.9		1.4	V
Optical Output Power from Fiber	P_f	$I_F = I_{th}$ + 40 mA	2.0			mW
Threshold Current	I_{th}				45	mA
Differential Efficiency from Fiber	η_d	P_f = 2 mW	0.05			W/A
Temperature Dependence of Differential Efficiency from Fiber	$\Delta\eta_d$	$\Delta\eta_d = 10 \log \frac{\eta_d (T_C = 70\ °C)}{\eta_d (T_C = 25\ °C)}$	–3.5	–2.5		dB
Peak Emission Wavelength	λ_p	P_f = 1 mW, $I_b = I_{th}$,	1 290	1 310	1 330	nm
Side Mode Suppression Ratio	SMSR	2.5 G/s-NRZ, PN 1/2	30	40		dB
Rise Time	t_r	10-90%, $I_b = 0.9 \times I_{th}$		40	125	ps
Fall Time	t_f	90-10%, $I_b = 0.9 \times I_{th}$		100	200	ps
Monitor Current	I_m	V_R = 5 V, P_f = 2 mW	50		2 000	μA
Monitor Dark Current	I_D	V_R = 5 V, T_C = 25 °C		0.5	5.0	nA
Monitor PD Terminal Capacitance	C_t	V_R = 5 V		1.0	1.5	pF
Tracking Error	γ^{*1}	I_m = const.			1.0	dB

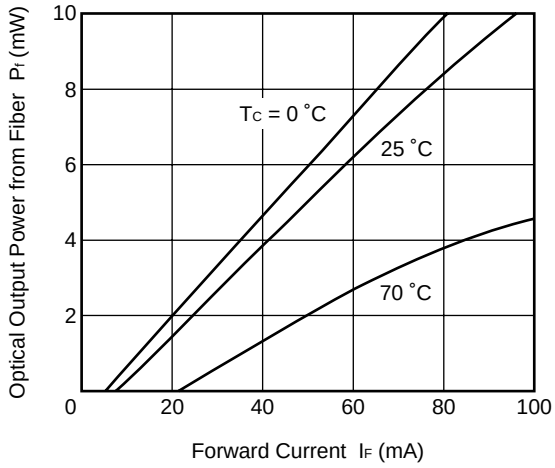
***1** $\gamma = \left| 10 \log \frac{P_f}{2\ mW} \right|$



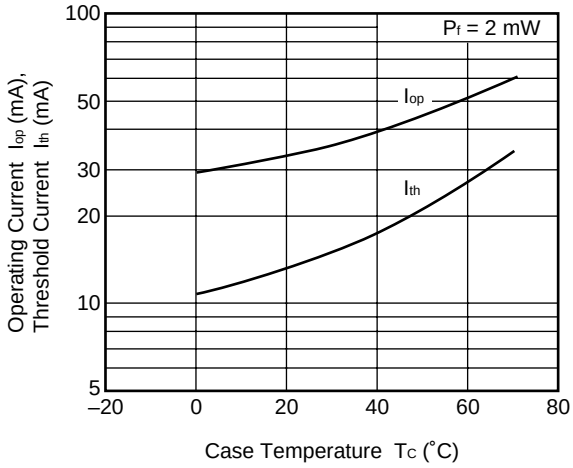
(@ P_f (25 ˚C) = 2 mW)

TYPICAL CHARACTERISTICS (T_C = 25 °C, unless otherwise specified)

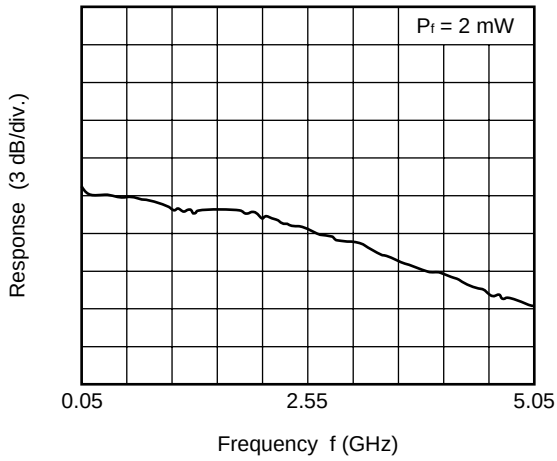
OPTICAL OUTPUT POWER FROM FIBER vs. FORWARD CURRENT



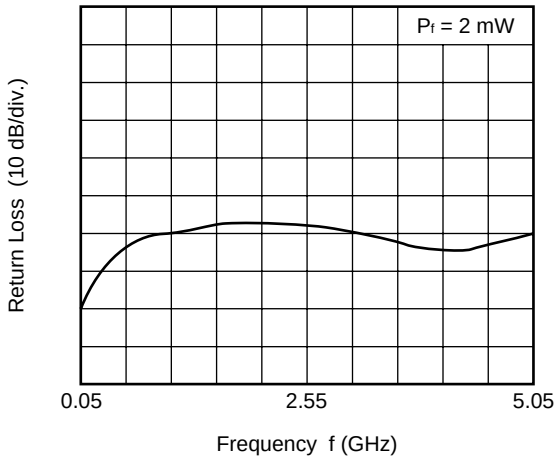
OPERATING CURRENT AND THRESHOLD CURRENT vs. CASE TEMPERATURE



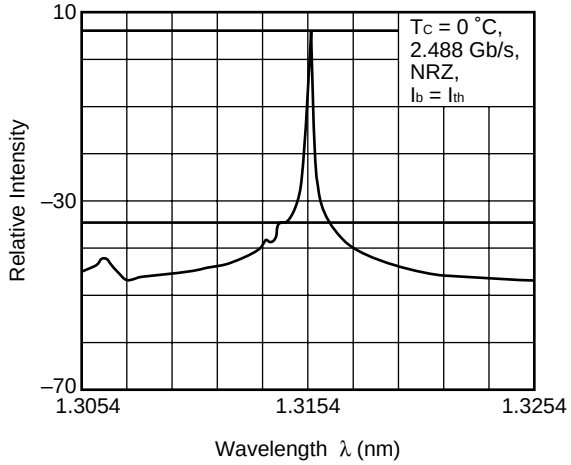
FREQUENCY RESPONSE (S21)



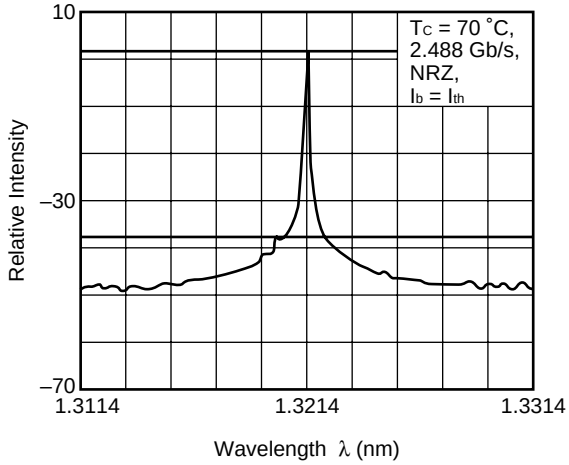
RETURN LOSS CHARACTERISTICS (S11)



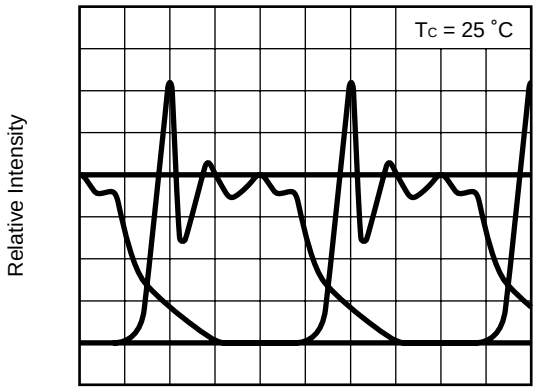
LONGITUDINAL MODE



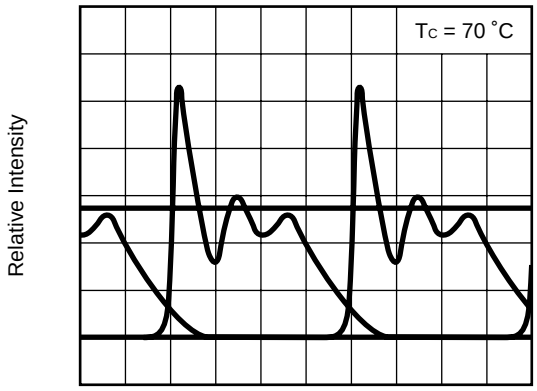
LONGITUDINAL MODE



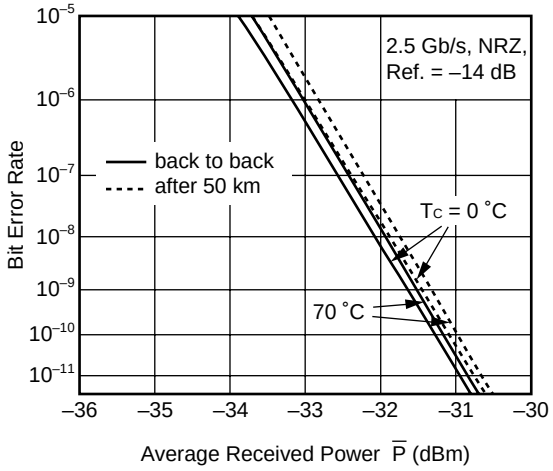
EYE DIAGRAM



EYE DIAGRAM



ERROR RATE CHARACTERISTICS



Remark The measurement of TYPICAL CHARACTERISTICS are only for reference, not guaranteed.

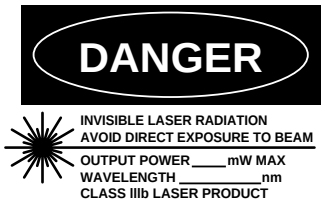
REFERENCE

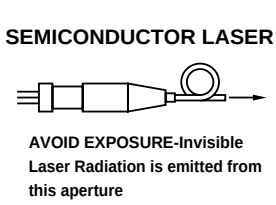
Document Name	Document No.
NEC semiconductor device reliability/quality control system	C11159E
Quality grades on NEC semiconductor devices	C11531E
Semiconductor device mounting technology manual	C10535E
Semiconductor selection guide	X10679E

[MEMO]

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.





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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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