

1310 nm OPTICAL FIBER COMMUNICATIONS InGaAsP STRAINED MQW-DFB LASER DIODE COAXIAL MODULE FOR 2.5 Gb/s

NDL7620P SERIES

FEATURES

- **PEAK EMISSION WAVELENGTH:**
 $\lambda_P = 1310 \text{ nm}$
- **HIGH SPEED RESPONSE:**
 $t_r = 40 \text{ ps}$
 $t_f = 100 \text{ ps}$
- **INTERNAL OPTICAL ISOLATOR**
- **InGaAs MONITOR PIN-PD**
- **WIDE OPERATING TEMPERATURE RANGE:**
 $T_c = 0 \text{ to } +70^\circ\text{C}$
- **$\lambda/4$ - PHASE-SHIFTED DFB**

DESCRIPTION

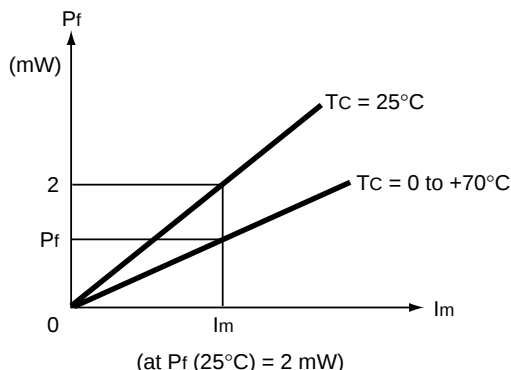
The NDL7620P Series is a 1310 nm $\lambda/4$ -phase-shifted DFB (Distributed Feed-Back) laser diode coaxial module with internal optical isolator. Newly developed strained Multiple Quantum Well (st-MQW) structure is adopted to achieve stable dynamic single longitudinal mode operation over a wide temperature range of 0 to $+70^\circ\text{C}$. It is designed for STM-16 applications.

ELECTRO-OPTICAL CHARACTERISTICS ($T_c = 0 \text{ to } +70^\circ\text{C}$, unless otherwise specified)

PART NUMBER PACKAGE OUTLINE			NDL7620P Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
V_F	Forward Voltage, $P_f = 2 \text{ mW}$, $T_c = 25^\circ\text{C}$	V	0.9		1.4
P_f	Optical Output Power from Fiber, $I_f = I_{TH} + 40 \text{ mA}$	mW	2.0		
I_{TH}	Threshold Current	mA			45
η_d	Differential Efficiency from Fiber, $P_f = 2 \text{ mW}$	W/A	0.05		
$\Delta\eta_d$	Temperature Dependence of Differential Efficiency from Fiber, $\Delta\eta_d = 10 \log \frac{\eta_d(T_c = 70^\circ\text{C})}{\eta_d(T_c = 25^\circ\text{C})}$	dB	-3.5	-2.5	
λ_p	Peak Emission Wavelength, $P_f = 1 \text{ mW}$, $I_b = I_{TH}$, 2.5 G/s-NRZ, PN 1/2	nm	1290	1310	1330
SMSR	Side Mode Suppression Ratio, $P_f = 1 \text{ mW}$, $I_b = I_{TH}$, 2.5 G/s-NRZ, PN 1/2	dB	30	40	
t_r	Rise Time, 10-90%, $I_b = 0.9 \times I_{th}$	ps	40	125	
t_f	Fall Time, 90-10%, $I_b = 0.9 \times I_{th}$	ps	100	200	
I_m	Monitor Current, $V_R = 5 \text{ V}$, $P_f = 2 \text{ mW}$	μA	50		2000
I_D	Monitor Dark Current, $V_R = 5 \text{ V}$, $T_c = 25^\circ\text{C}$	nA		0.5	5.0
C_t	Monitor PD Terminal Capacitance, $V_R = 5 \text{ V}$	pF		1.0	1.5
γ^l	Tracking Error, $I_m = \text{const.}$	dB			1.0

Note:

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



ABSOLUTE MAXIMUM RATINGS¹

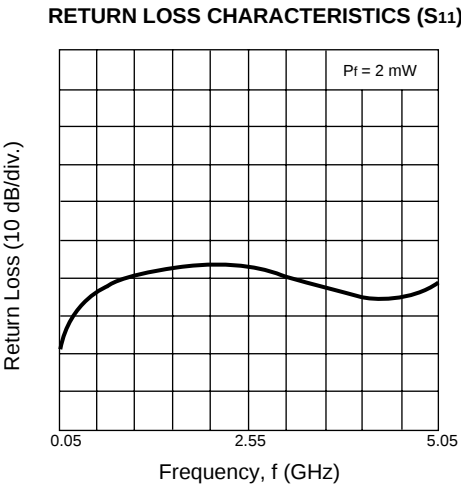
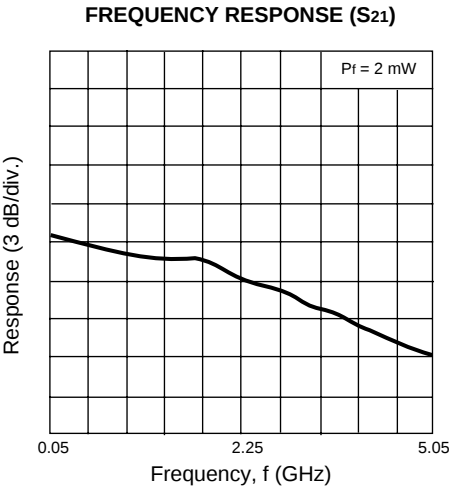
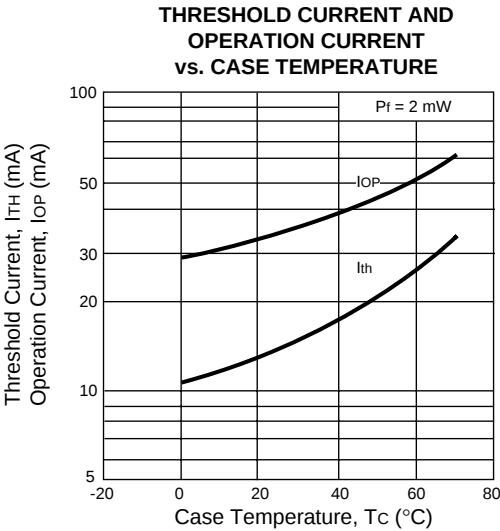
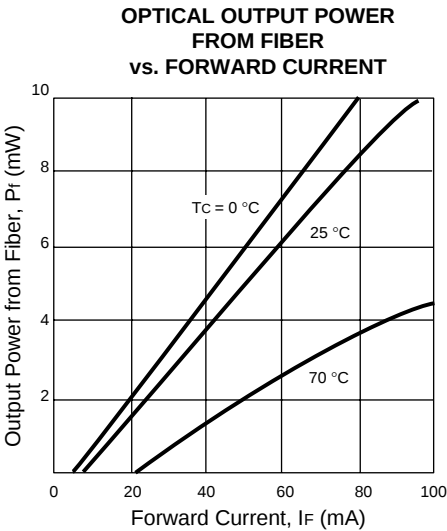
(T_c = 0 to +70 °C, unless otherwise specified)

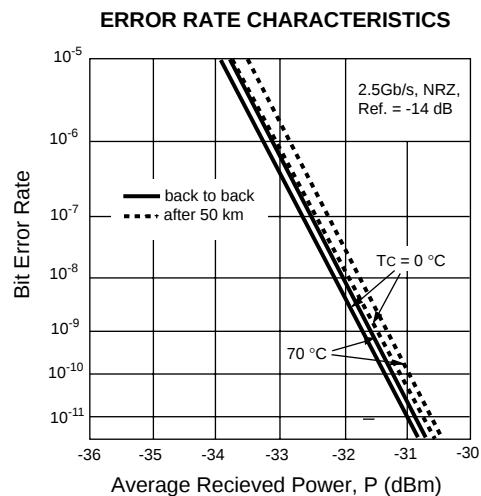
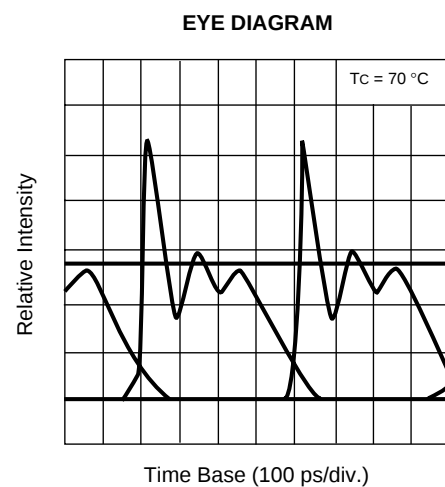
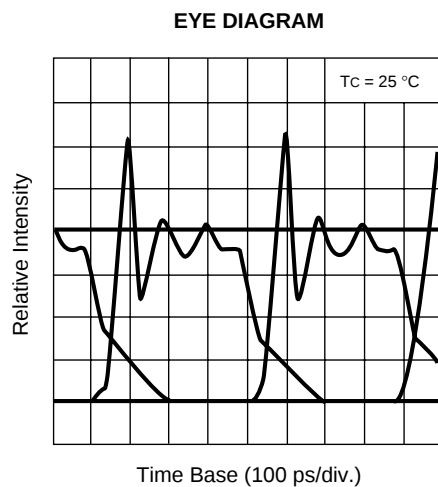
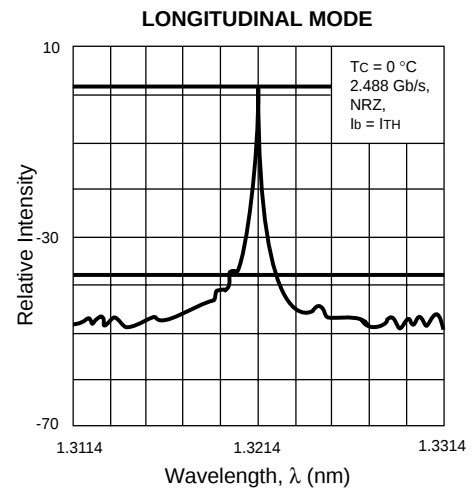
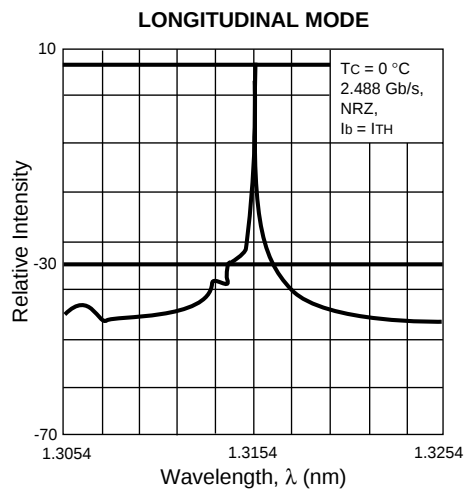
SYMBOLS	PARAMETERS	UNITS	RATINGS
I _F	Forward Current of LD	mA	150
P _f	Optical Output Power from Fiber	mW	5.0
V _R	Reverse Voltage of LD	V	2.0
I _F	Forward Current of PD	mA	10
V _R	Reverse Voltage of PD	V	20
T _c	Operating Case Temperature	°C	0 to +70
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SLD}	Lead Soldering Temperature (10 s)	°C	260

Note:

1. Operation in excess of any one of these parameters may result in permanent damage.

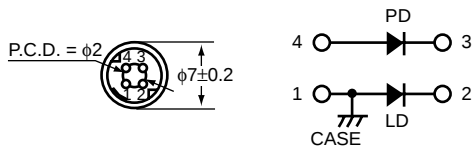
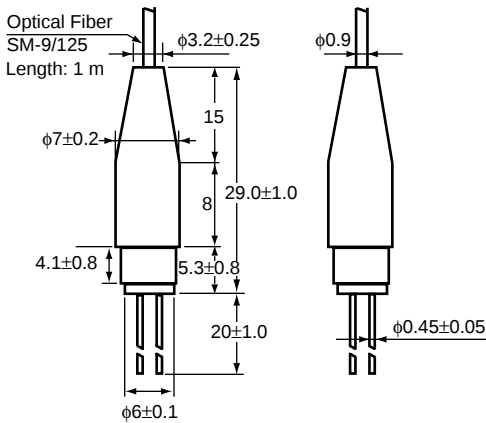
TYPICAL PERFORMANCE CURVES (T_c = 25 °C, unless otherwise specified)



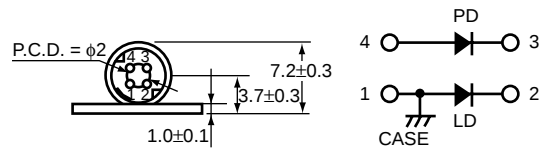
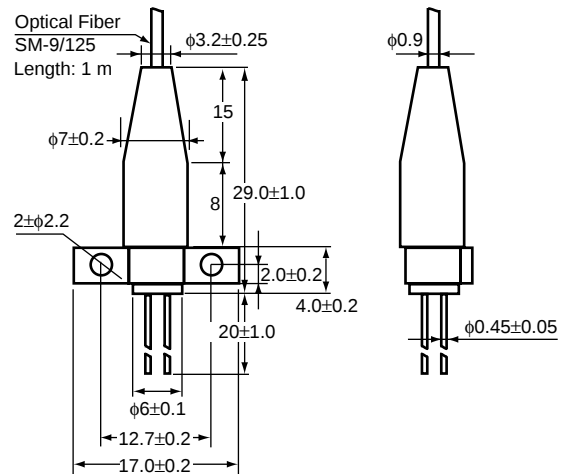
TYPICAL PERFORMANCE CURVES ($T_C = -40$ to $+85^\circ\text{C}$)

OUTLINE DIMENSIONS (Units in mm)

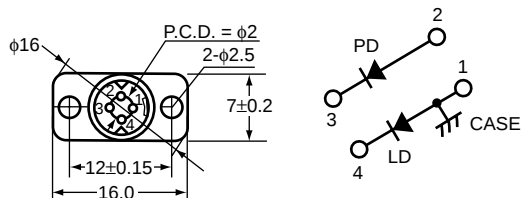
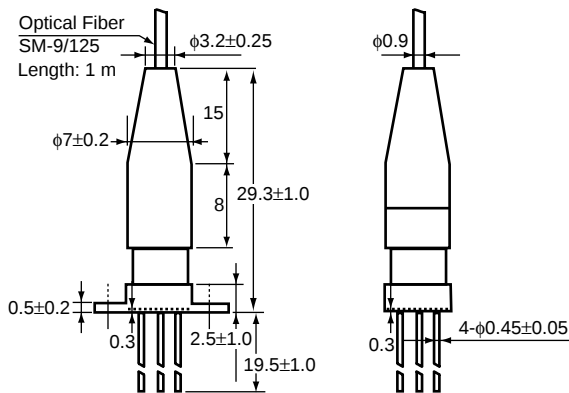
NDL7620P



NDL7620P1



NDL7620P2



ORDERING INFORMATION

PART NUMBER	AVAILABLE CONNECTOR	DESCRIPTION
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	