

1550 nm OPTICAL FIBER COMMUNICATIONS InGaAsP STRAINED MQW-DFB DC-PBH LASER DIODE MODULE

NDL7701P SERIES

FEATURES

- **PEAK EMISSION WAVELENGTH:**
 $\lambda_P = 1550 \text{ nm}$
- **LOW THRESHOLD CURRENT:**
 $I_{TH} = 15 \text{ mA @ } T_C = 25^\circ\text{C}$
- **InGaAs MONITOR PIN-PD**
- **WIDE OPERATING TEMPERATURE RANGE:**
 $T_C = -20 \text{ to } +85^\circ\text{C}$
- **BASED ON BELLCORE TA-NWT-000983**

DESCRIPTION

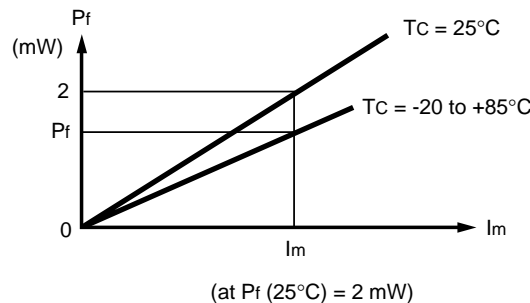
The NDL7701P Series is a 1550 nm $\lambda/4$ -phase-shifted DFB (Distributed Feed-Back) laser diode with single mode fiber. The newly developed strained Multiple Quantum Well (st-MQW) structure is adopted to achieve stable dynamic single longitudinal mode operation over a wide temperature range of -20 to +85°C. It is designed for all STM-1 and STM-4 applications.

ELECTRO-OPTICAL CHARACTERISTICS ($T_C = -20 \text{ to } +85^\circ\text{C}$, unless otherwise specified)

PART NUMBER PACKAGE OUTLINE			NDL7701P 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			1.3
I_{TH}	Threshold Current, $T_C = 25^\circ\text{C}$	mA		15	25
η_d	Differential Efficiency from Fiber, $P_f = 2 \text{ mW}$, $T_C = 25^\circ\text{C}$	W/A		0.1	
$\Delta\eta_d$	Temperature Dependence of Differential Efficiency from Fiber, $\Delta\eta_d = 10 \log \frac{\eta_d (T_C = 85^\circ\text{C})}{\eta_d (T_C = 25^\circ\text{C})}$	dB	-3.0	-2.5	
λ_p	Peak Emission Wavelength, $P_f = 1 \text{ mW}$, PN 1/2, $I_b = I_{TH}$, 622 Mb/s-NRZ	nm	1530	1550	1570
SMSR	Side Mode Suppression Ratio, $P_f = 1 \text{ mW}$, PN 1/2, $I_b = I_{TH}$, 622 Mb/s-NRZ	dB	30		
t_r	Rise Time, 10-90%, $T_C = 25^\circ\text{C}$	ns			0.5
t_f	Fall Time, 90-10%, $T_C = 25^\circ\text{C}$	ns			0.5
I_m	Monitor Current, $V_R = 5 \text{ V}$, $P_f = 2 \text{ mW}$	μA	100		
I_D	Monitor Dark Current, $V_R = 5 \text{ V}$, $T_C = 25^\circ\text{C}$	nA		0.1	5
γ^1	Tracking Error, $I_m = \text{const.}$	dB			1.0

Note:

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



NDL7701P SERIES

ABSOLUTE MAXIMUM RATINGS¹

(T_c = -20 to +85°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	-20 to +85
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SLD}	Lead Soldering Temperature (10 s)	°C	260

Note:

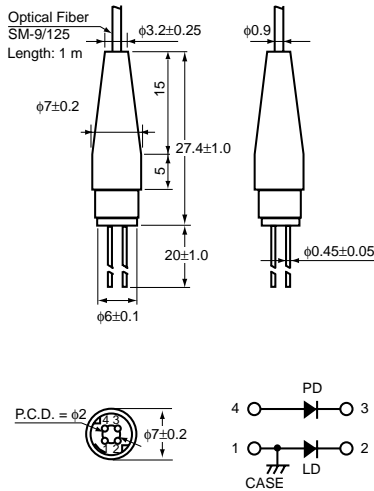
1. Operation in excess of any one of these parameters may result in permanent damage.

OUTLINE DIMENSIONS (Units in mm)

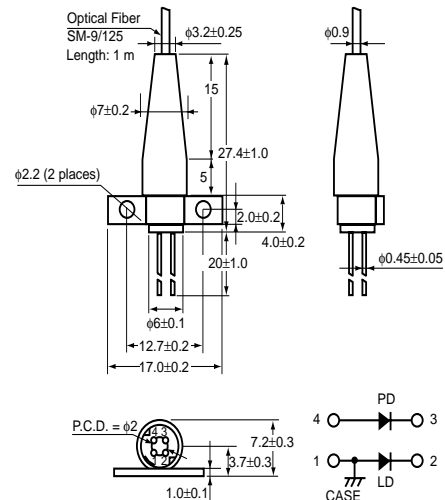
ORDERING INFORMATION

PART NUMBER	AVAILABLE CONNECTOR	DESCRIPTION
NDL7701P	Without Connector	No Flange
NDL7701PC	With FC-PC Connector	
NDL7701PD	With SC-PC Connector	
NDL7701P1	Without Connector	Flat Mount Flange
NDL7701P1C	With FC-PC Connector	
NDL7701P1D	With SC-PC Connector	
NDL7701P2	Without Connector	Vertical Flange
NDL7701P2C	With FC-PC Connector	
NDL7701P2D	With SC-PC Connector	

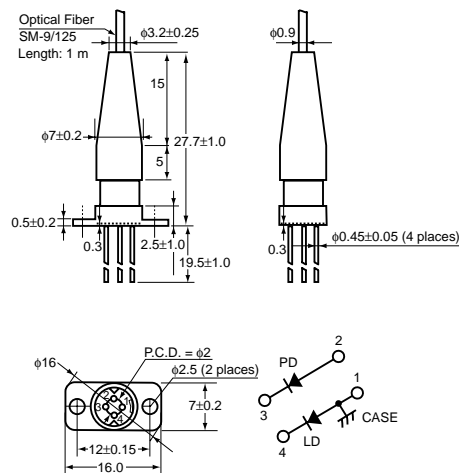
NDL7701P



NDL7701P1



NDL7701P2



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