

FEATURES

- **CENTER WAVELENGTH:**
 $\lambda_c = 1310 \text{ nm}$
- **HIGH OUTPUT POWER FROM FIBER:**
 $P_F = 2.0 \text{ mW MIN}$
- **LOW THRESHOLD CURRENT:**
 $I_{TH} = 10 \text{ mA TYP at } T_c = 25^\circ\text{C}$
- **HIGH CUT-OFF FREQUENCY:**
 $f_c = 2.0 \text{ GHz}$
- **InGaAs MONITOR PIN-PD**
- **WIDE OPERATING TEMPERATURE RANGE:**
 $T_c = -40 \text{ to } +85^\circ\text{C}$
- **BASED ON BELLCORE TA-NWT-000983**

DESCRIPTION

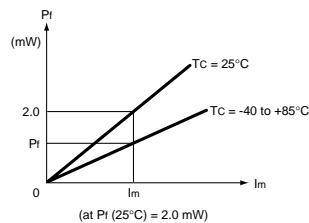
The NDL7401P Series is a 1310 nm laser diode coaxial module with single mode fiber. It has a strained Multiple Quantum Well (st-MQW) structure and a built-in InGaAs monitor photo diode. It is recommended for junction and access network systems. The series is also available in FC-PC and SC-PC connectors.

ELECTRO-OPTICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$, unless otherwise specified)

PART NUMBER PACKAGE OUTLINE			NDL7401P Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
V_{OP}	Operating Voltage, $P_f = 2.0 \text{ mW}$	V		1.1	1.3
I_{TH}	Threshold Current, $T_c = 85^\circ\text{C}$	mA		10 25	25 50
I_{MOD}	Modulation Current, $P_f = 2.0 \text{ mW}$	mA		15	20
η_D	Differential Efficiency from Fiber, $T_c = 85^\circ\text{C}$	W/A	0.100 0.075	0.150 0.100	
λ_c	Center Emission Wavelength, $P_f = 2.0 \text{ mW, RMS (-20 dB)}$ $T_c = -40 \text{ to } +85^\circ\text{C}$	nm	1290 1260	1310	1330 1360
$\Delta\lambda/\Delta T$	Temperature Dependence of Center Emission Wavelength, $T_c = -40 \text{ to } +85^\circ\text{C}$	nm/ $^\circ\text{C}$		0.4	0.5
σ	Spectral Width, $P_f = 2.0 \text{ mW, RMS (-20 dB)}$ $T_c = 85^\circ\text{C}$	nm		1.3 1.5	2.5 4.0
t_r	Rise Time, 10 to 90%	ns		0.2	0.5
t_f	Fall Time, 90 to 10%	ns		0.3	0.5
I_m	Monitor Current, $V_R = 5 \text{ V, } P_f = 2.0 \text{ mW}$	μA	100	700	
I_D	Monitor Dark Current, $V_R = 5 \text{ V}$	nA		0.1	10
γ^1	Tracking Error, $I_m = \text{const.}, T_c = -40 \text{ to } +85^\circ\text{C}$	dB			1.0

Note:

$$1. \quad \gamma = \left| 10 \log \frac{P_f}{2.0 \text{ mW}} \right|$$



NDL7401P SERIES

ABSOLUTE MAXIMUM RATINGS¹

(T_c = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
I _F	Forward Current of LD	mA	I _{TH} + 50
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	-40 to +85
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SLD}	Lead Soldering Temperature (10 s)	°C	260

Note:

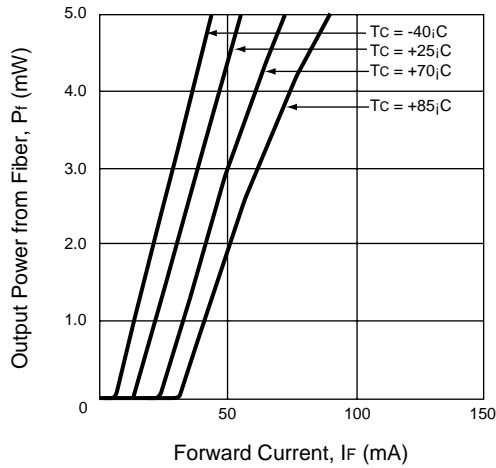
1. Operation in excess of any one of these parameters may result in permanent damage.

ORDERING INFORMATION

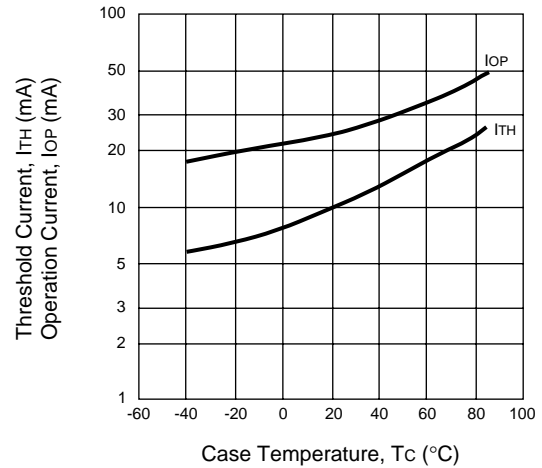
PART NUMBER	AVAILABLE CONNECTOR	DESCRIPTION
NDL7401P	Without Connector	No Flange
NDL7401PC	With FC-PC Connector	
NDL7401PD	With SC-PC Connector	
NDL7401P1	Without Connector	Flat Mount Flange
NDL7401P1C	With FC-PC Connector	
NDL7401P1D	With SC-PC Connector	
NDL7401P2	Without Connector	Vertical Flange
NDL7401P2C	With FC-PC Connector	
NDL7401P2D	With SC-PC Connector	

TYPICAL PERFORMANCE CURVES (T_c = -40 to +85°C)

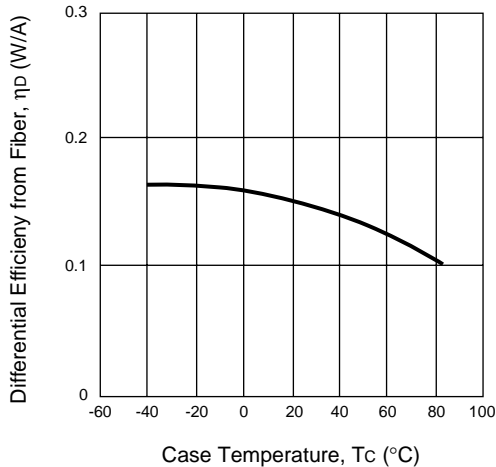
OUTPUT POWER FROM FIBER vs. FORWARD CURRENT



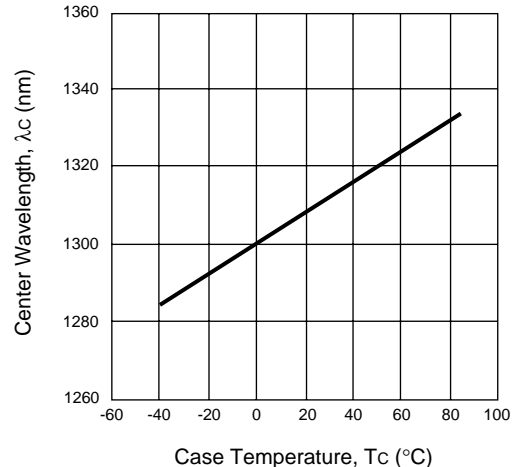
THRESHOLD CURRENT AND OPERATION CURRENT vs. CASE TEMPERATURE



TEMPERATURE DEPENDENCE OF DIFFERENTIAL EFFICIENCY FROM FIBER

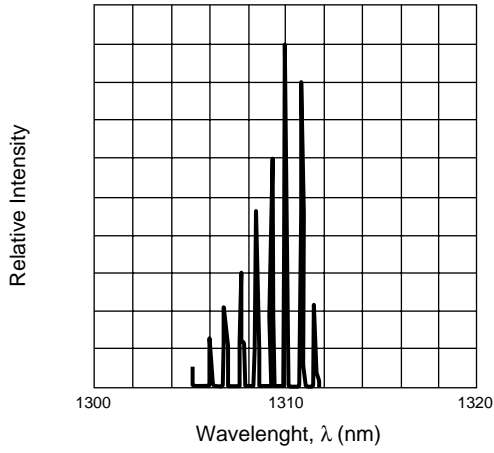


TEMPERATURE DEPENDENCE OF CENTER WAVELENGTH

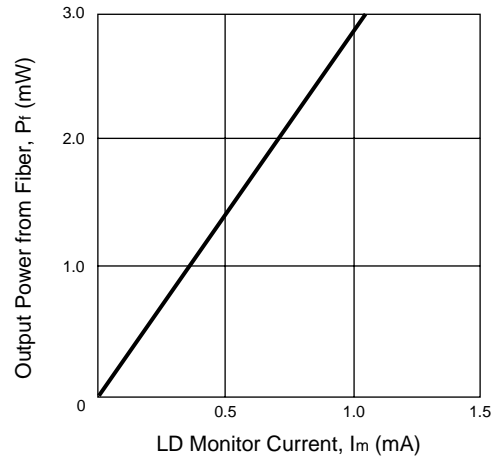


TYPICAL PERFORMANCE CURVES ($T_C = 25^\circ\text{C}$)

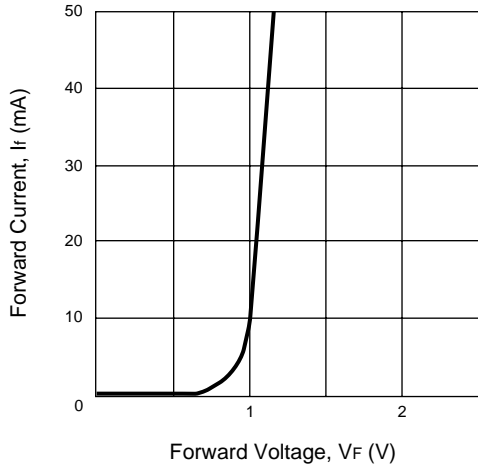
LONGITUDINAL MODE FROM FIBER



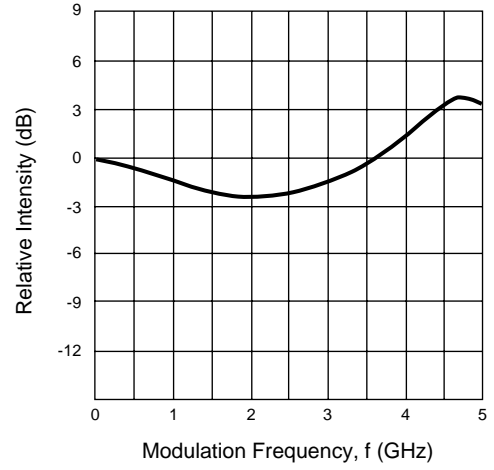
OUTPUT POWER FROM FIBER vs. LD MONITOR CURRENT



FORWARD CURRENT vs. FORWARD VOLTAGE



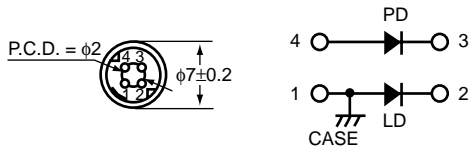
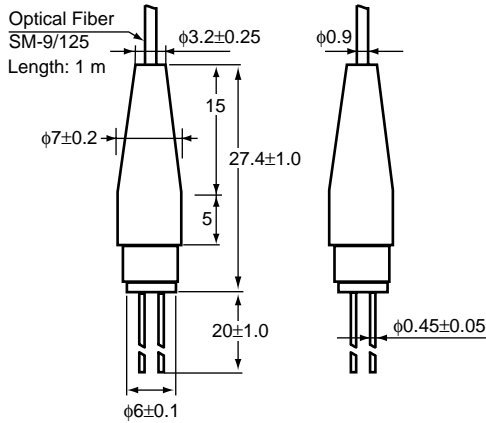
FREQUENCY RESPONSE



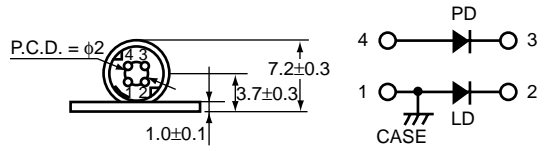
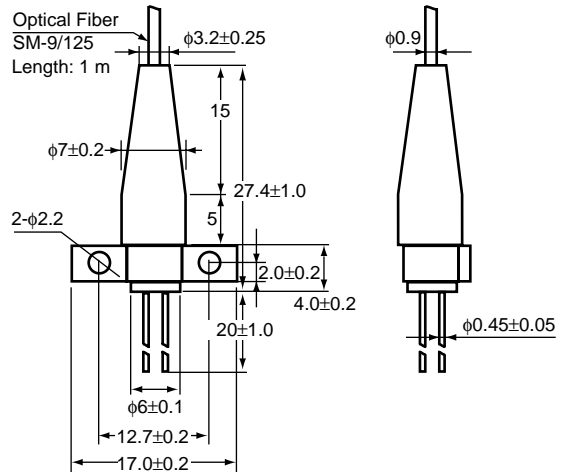
NDL7401P SERIES

OUTLINE DIMENSIONS (Units in mm)

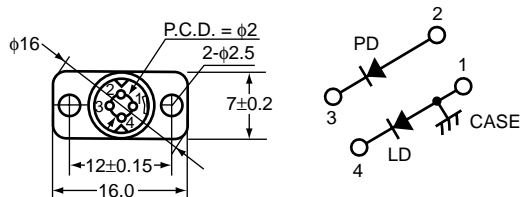
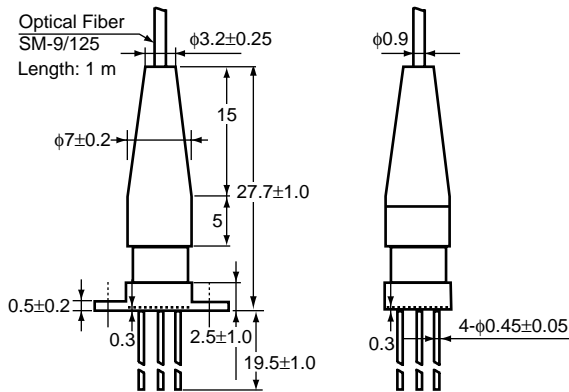
NDL7401P



NDL7401P1



NDL7401P2



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