

NDL7401P Series

1 310 nm InGaAsP STRAINED MQW DC-PBH LASER DIODE COAXIAL MODULE WITH SINGLE MODE FIBER

DESCRIPTION

NDL7401P Series is 1 310 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.

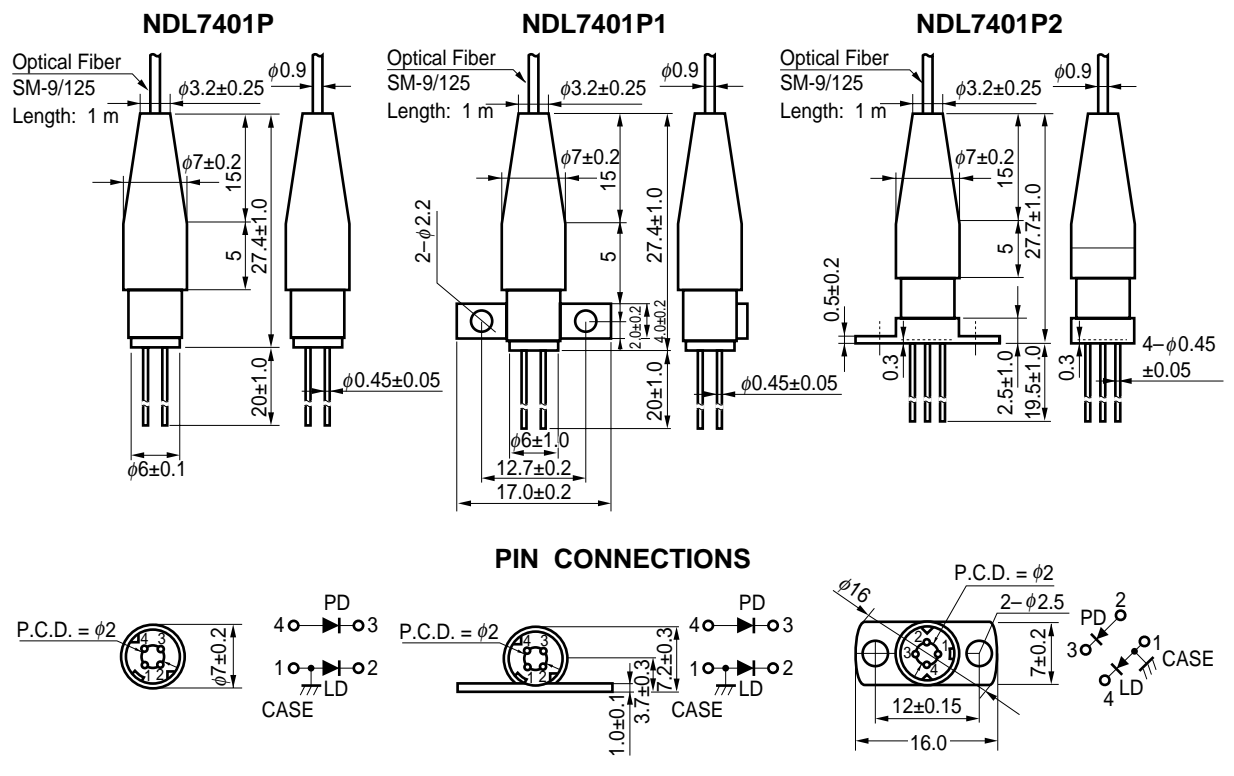
The series is also available in FC-PC and SC-PC connector.

FEATURES

- Center wavelength $\lambda_c = 1\,310\text{ nm}$
- High output power from fiber $P_t = 2.0\text{ mW MIN.}$
- Low threshold current $I_{th} = 10\text{ mA TYP. @ } T_c = 25\text{ }^\circ\text{C}$
- High cut-off frequency $f_c = 2.0\text{ GHz}$
- InGaAs monitor PIN-PD
- Wide operating temperature range $T_c = -40\text{ to } +85\text{ }^\circ\text{C}$
- Based on Bellcore TA-NWT-000983

PACKAGE DIMENSIONS

in millimeters



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

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	

ABSOLUTE MAXIMUM RATINGS ($T_c = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

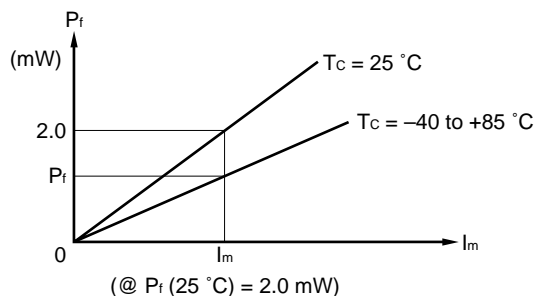
Parameter	Symbol	Ratings	Unit
Forward Current of LD	I_F	$I_{th} + 50$	mA
Reverse Voltage of LD	V_R	2.0	V
Forward Current of PD	I_F	10	mA
Reverse Voltage of PD	V_R	20	V
Operating Case Temperature	T_c	-40 to +85	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40 to +85	$^{\circ}\text{C}$
Lead Soldering Temperature (10 s)	T_{sld}	260	$^{\circ}\text{C}$

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

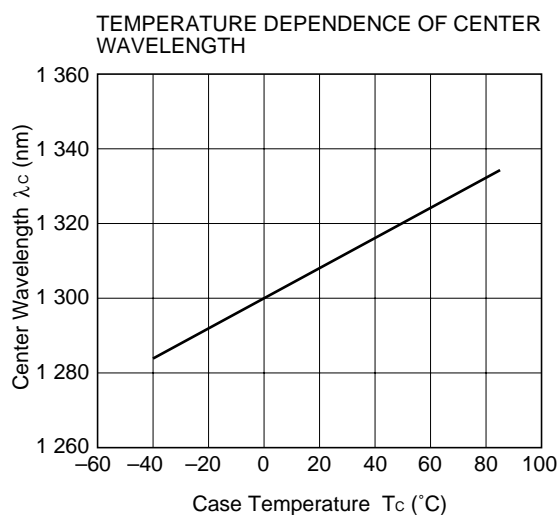
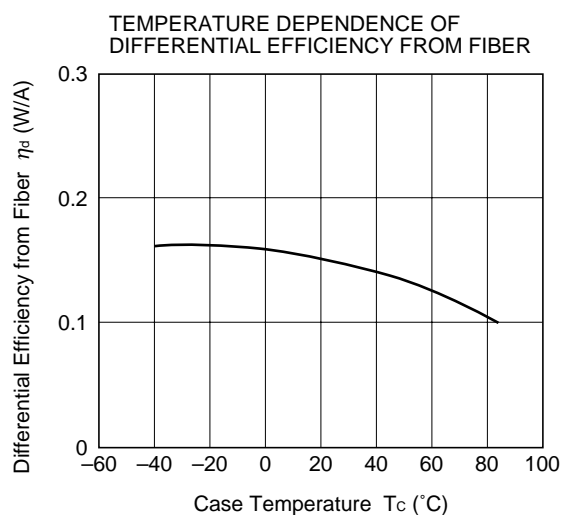
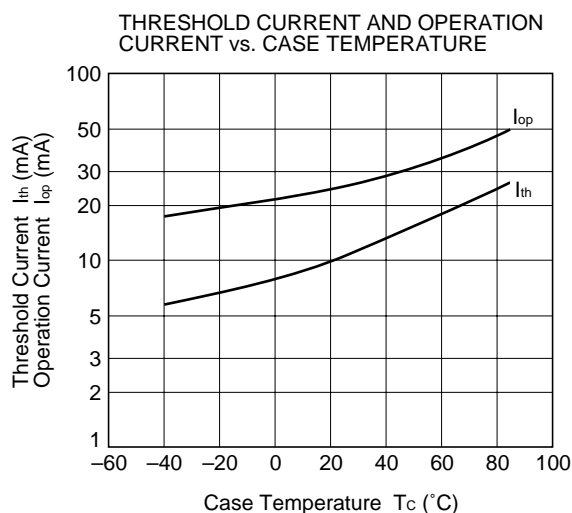
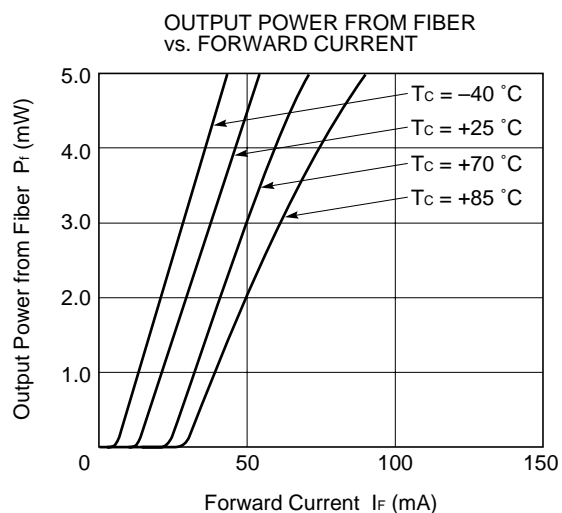


Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V _{op}	P _f = 2.0 mW		1.1	1.3	V
Threshold Current	I _{th}			10	25	mA
		T _c = 85 °C		25	50	
Modulation Current	I _{mod}	P _f = 2.0 mW		15	20	mA
Differential Efficiency from Fiber	η _d		0.100	0.150		W/A
		T _c = 85 °C	0.075	0.100		
Center Emission Wavelength	λ _c	P _f = 2.0 mW, RMS (−20 dB)	1 290	1 310	1 330	nm
		T _c = −40 to +85 °C	1 260		1 360	
Temperature Dependence of Center Emission Wavelength	Δλ/ΔT	T _c = −40 to +85 °C		0.4	0.5	nm/°C
Spectral Width	σ	P _f = 2.0 mW, RMS (−20 dB)		1.3	2.5	nm
		T _c = 85 °C		1.5	4.0	
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 _f = 2.0 mW	100	700		μA
Monitor Dark Current	I _d	V _R = 5 V		0.1	10	nA
Tracking Error	γ ^{*1}	I _m = const., T _c = −40 to +85 °C			1.0	dB

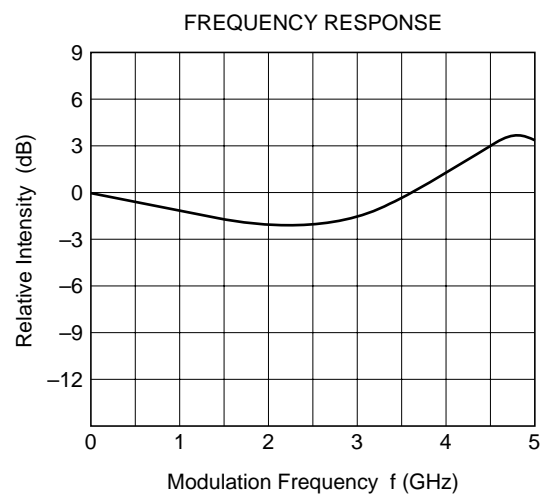
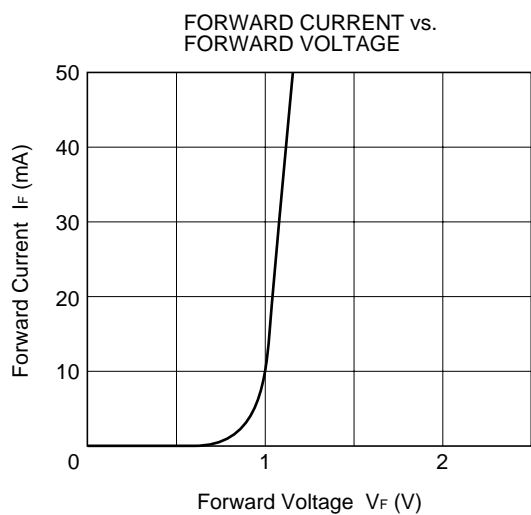
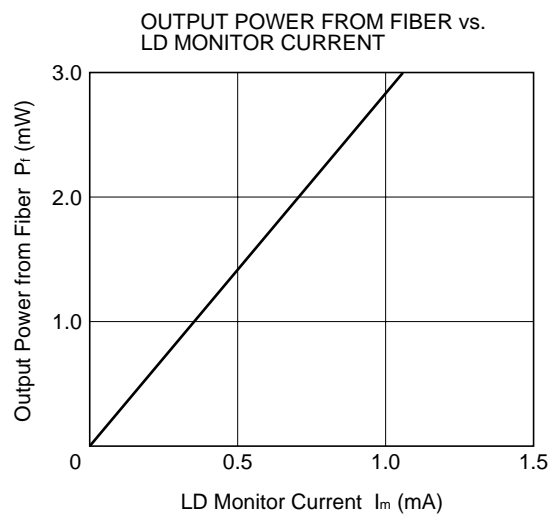
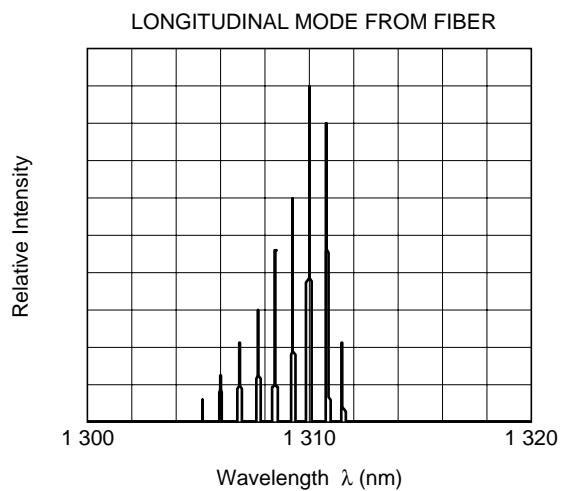
$$*1 \quad \gamma = \left| 10 \log \frac{P_f}{2.0 \text{ mW}} \right|$$



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



TYPICAL CHARACTERISTICS ($T_c = 25\text{ }^{\circ}\text{C}$)



1.3 μm FABRY-PEROT DC-PBH LASER DIODE FAMILY

Package	Part Number	Remarks
$\phi 5.6$ mm Small Can	NDL7001	With monitor photo diode
$\phi 5.6$ 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

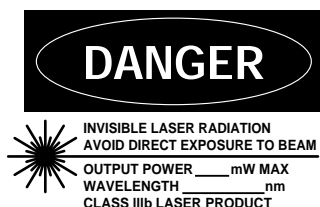
REFERENCE

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

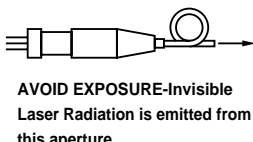
[MEMO]

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.



SEMICONDUCTOR LASER



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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Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

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.

The quality grade of NEC devices in "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact NEC Sales Representative in advance.

Anti-radioactive design is not implemented in this product.