

1 310 nm OPTICAL CATV RETURN PATH APPLICATIONS InGaAsP MQW LASER DIODE MODULE WITH ISOLATOR

DESCRIPTION

The NDL7405P Series is a 1 310 nm uncooled isolated coaxial FP (Fabry Perot) laser diode, which has a newly developed Multiple Quantum Well (MQW) structure. It is especially designed for optical CATV return path applications.

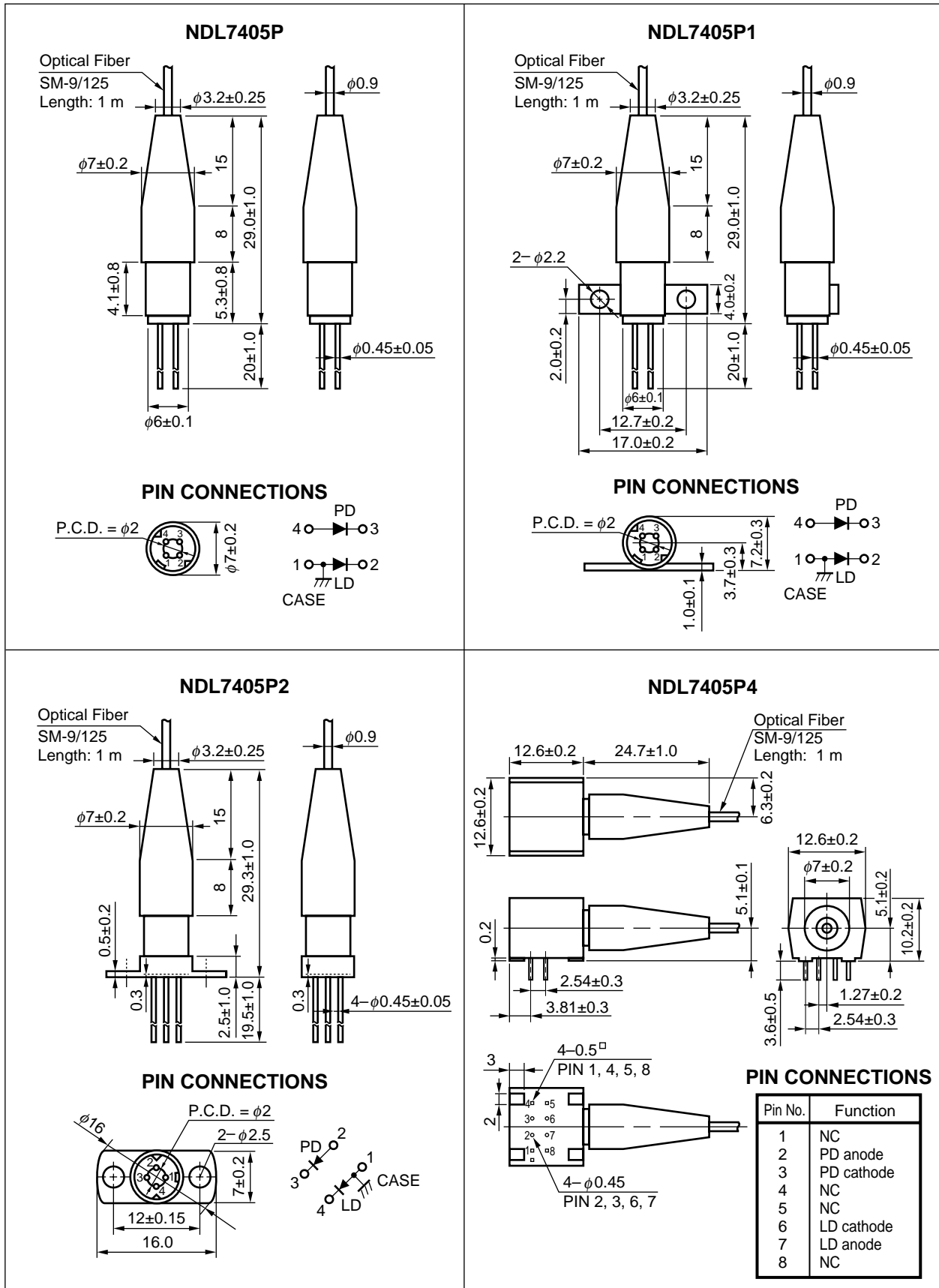
★ FEATURES

- Low distortion IMD2 = -40 dBc MAX.*¹
- High CNR IMD3 = -50 dBc MAX.*¹
- Output power CNR = 43 dB MIN.*¹
- Long wavelength P_i = 1.0 mW
- Internal InGaAs monitor PD and isolator λ_c = 1 310 nm
- Single mode fiber pigtail with FC-SPC connector, SC-SPC connector or SC-APC connector
- Wide operating temperature range T_c = -40 to +85 °C

*1 2 ch, Fiber loss = 7 dB, OMI = 20 %

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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

★ PACKAGE DIMENSIONS (in millimeters)



★ **ORDERING INFORMATION**

Part Number	Available Connector	Flange Type
NDL7405PC	With FC-SPC Connector	No Flange
NDL7405PD	With SC-SPC Connector	
NDL7405PX	With SC-APC Connector	
NDL7405P1C	With FC-SPC Connector	Flat Mount Flange
NDL7405P1D	With SC-SPC Connector	
NDL7405P1X	With SC-APC Connector	
NDL7405P2C	With FC-SPC Connector	Vertical Flange
NDL7405P2D	With SC-SPC Connector	
NDL7405P2X	With SC-APC Connector	
NDL7405P4C	With FC-SPC Connector	Lead Bend
NDL7405P4D	With SC-SPC Connector	
NDL7405P4X	With SC-APC Connector	

ABSOLUTE MAXIMUM RATINGS (T_c = 25 °C, unless otherwise specified)

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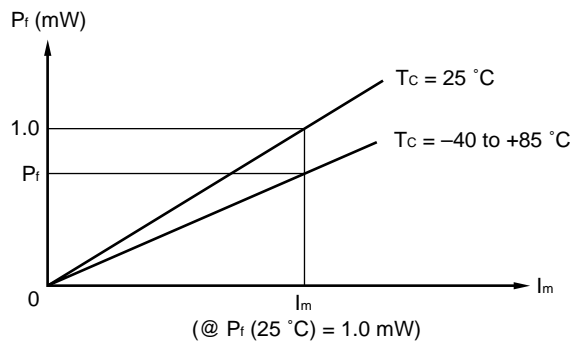
Parameter	Symbol	Ratings	Unit
Forward Current of LD	I _F	I _{th} + 50	mA
Reverse Voltage of LD	V _R	2.0	V
Forward Current of PD	I _F	10	mA
Reverse Voltage of PD	V _R	15	V
Operating Case Temperature	T _c	-40 to +85	°C
Storage Temperature	T _{stg}	-40 to +85	°C
Lead Soldering Temperature (10 s)	T _{slid}	260	°C

★ **ELECTRO-OPTICAL CHARACTERISTICS**
 (T_c = 25 °C, Optical Reflection ≤ -40 dB, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V _F	I _F = 30 mA		1.1	1.5	V
Threshold Current	I _{th}	CW		10	25	mA
		CW, T _c = 85 °C		25	50	
Operating Current	I _{op}	CW		25	40	mA
		CW, T _c = 85 °C		50	80	
Differential Efficiency from Fiber	η _d	P _f = 1.0 mW	0.050	0.100		W/A
		P _f = 1.0 mW, T _c = 85 °C	0.036	0.07		
Center Wavelength	λ _c	P _f = 1.0 mW, RMS (-20 dB), T _c = -40 to +85 °C	1 260	1 310	1 360	nm
Spectral Width	σ	P _f = 1.0 mW, RMS (-20 dB), T _c = -40 to +85 °C			4.0	nm
2nd Order Inter-modulation Distortion	IMD2	*1			-40	dBc
3rd Order Inter-modulation Distortion	IMD3	*1			-50	dBc
Carrier to Noise Ratio	CNR	*1	43			dB
Monitor Current	I _m	V _R = 5 V, P _f = 1.0 mW	100	700	1 000	μA
Dark Current	I _D	V _R = 5 V		0.1	10	nA
Tracking Error	γ ²	I _m = const., P _f = 1.0 mW, T _c = -40 to +85 °C	-1.0		1.0	dB

*1 Conditions: P_f = 1.0 mW, T_c = -40 to +85 °C, 2 channel unmodulated carriers 13 MHz and 19 MHz,
 Optical Reflection = -40 dB, Fiber Loss = 7 dB,
 OMI = 20 %/ch @ T_c = -40 to +85 °C

*2 $\gamma = \left| 10 \log \frac{P_f}{1.0 \text{ mW}} \right|$



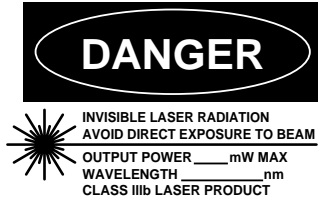
REFERENCE

	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 Products & Packages(CD-ROM)	X13769X

[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.

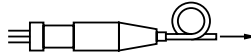


DANGER

INVISIBLE LASER RADIATION
AVOID DIRECT EXPOSURE TO BEAM

OUTPUT POWER _____mW MAX
WAVELENGTH _____nm
CLASS IIIb LASER PRODUCT

SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
Laser Radiation is emitted from
this aperture

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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