

NDL7701P Series

1 550 nm OPTICAL FIBER COMMUNICATIONS InGaAsP STRAINED MQW DFB DC-PBH LASER DIODE MODULE

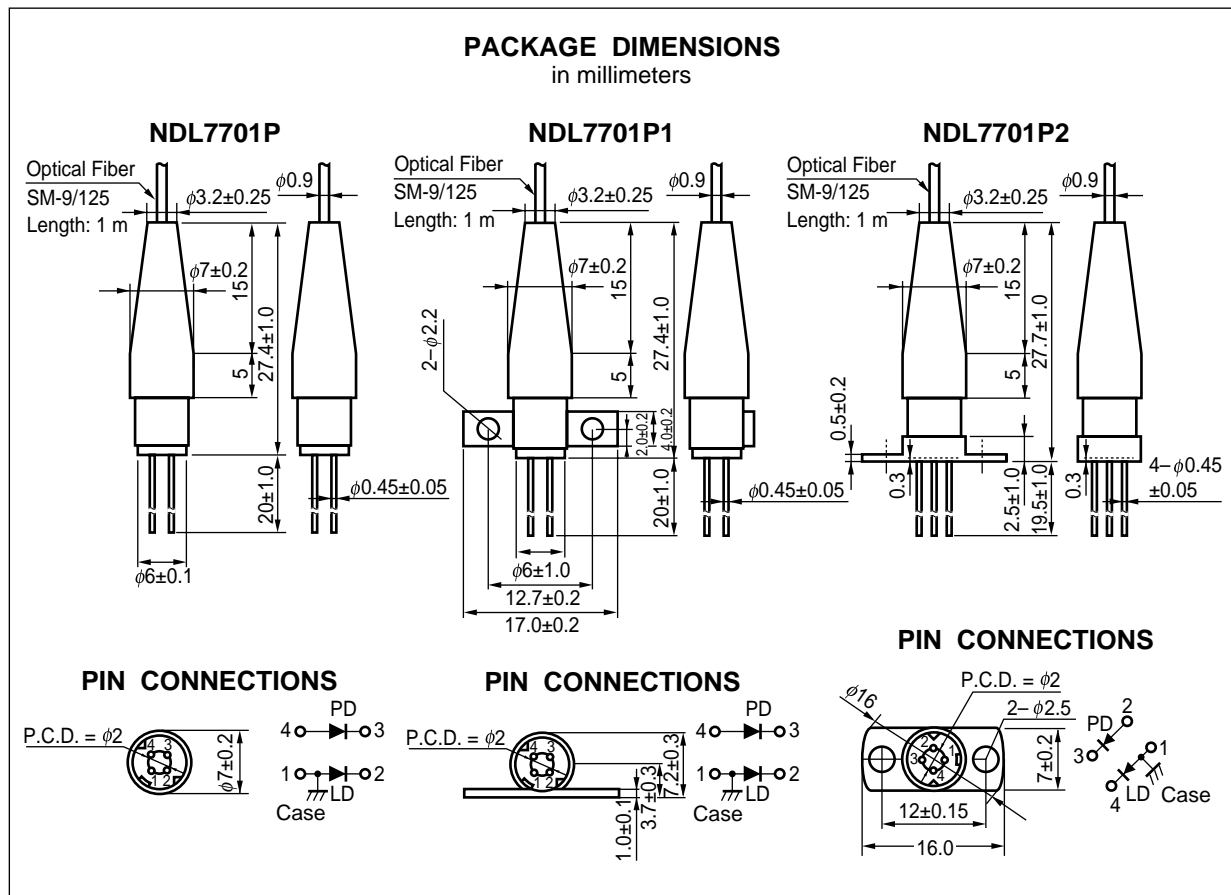
DESCRIPTION

The NDL7701P Series is a 1 550 nm phase-shifted DFB (Distributed Feed-Back) laser diode with single mode fiber. The strained Multiple Quantum Well (st-MQW) structure is adopted to achieve stable dynamic single longitudinal mode operation over wide temperature range of -20 to $+85$ °C.

It is designed for all STM-1 and STM-4 applications.

FEATURES

- Peak emission wavelength $\lambda_p = 1\,550$ nm
- ★ • Low threshold current $I_{th} = 15$ mA @ $T_c = 25$ °C
- Wide operating temperature range $T_c = -20$ to $+85$ °C
- InGaAs monitor PIN-PD
- Based on Bellcore TA-NWT-000983



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

ORDERING INFORMATION

Part Number	Available Connector	Flange Type
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	

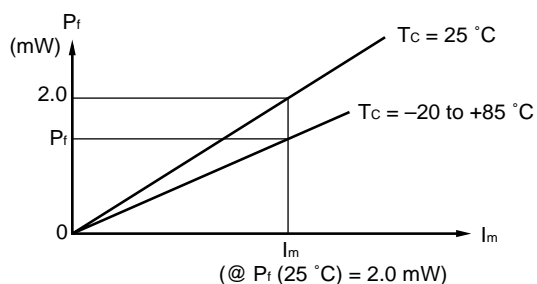
ABSOLUTE MAXIMUM RATINGS (T_c = –20 to +85 °C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Optical Output Power from Fiber	P _f	5.0	mW
Forward Current of LD	I _F	150	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	–20 to +85	°C
Storage Temperature	T _{stg}	–40 to +85	°C
Lead Soldering Temperature (10 s)	T _{sld}	260	°C

ELECTRO-OPTICAL CHARACTERISTICS (T_c = -20 to +85 °C, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V _F	P _f = 2.0 mW, T _c = 25 °C			1.3	V
Threshold Current	I _{th}	T _c = 25 °C		15	25	mA
Differential Efficiency from Fiber	η _d	P _f = 2.0 mW, T _c = 25 °C		0.1		W/A
Peak Emission Wavelength	λ _p	P _f = 1.0 mW, PN 1/2, I _b = I _{th} , 622 Mb/s-NRZ	1 530	1 550	1 570	nm
Side Mode Suppression Ratio	SMSR		30			dB
Temperature Dependence of Differential Efficiency from Fiber	Δη _d	Δη _d = 10 log $\frac{\eta_d (T_c = 85\text{ °C})}{\eta_d (T_c = 25\text{ °C})}$	-3.0	-2.5		dB
Rise Time	t _r	10-90%, T _c = 25 °C			0.5	ns
Fall Time	t _f	90-10%, T _c = 25 °C			0.5	ns
Monitor Current	I _m	V _R = 5 V, P _f = 2.0 mW	100			μA
Monitor Dark Current	I _D	V _R = 5 V, T _c = 25 °C		0.1	5	nA
Tracking Error	γ ⁻¹	I _m = const. (@ P _f = 2 mW, T _c = 25 °C)			1.0	dB

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



★ DFB-LD FAMILY FOR TELECOM

Part Number	Absolute Maximum Ratings		Typical Characteristics			SDH Application	Package
	T _c (°C)	T _{stg} (°C)	I _{th} (mA)	P _r (mW)	λ _p (nm)		
			TYP.	MIN.	TYP.		
NDL7603P Series	−40 to +85	−40 to +85	15	2	1 310	≤ STM-4 : 622 Mb/s	Coaxial
NDL7620P Series	0 to +70	−40 to +85	45 (MAX.)	2	1 310	≤ STM-16: 2.5 Gb/s	Coaxial
NDL7701P Series	−20 to +85	−40 to +85	15	2	1 550	≤ STM-4 : 622 Mb/s	Coaxial
NDL7705P Series	−40 to +85	−40 to +85	15	2	1 550	≤ STM-4 : 622 Mb/s	Coaxial
NX8562LB	−20 to +65	−40 to +85	20	20	1 550 ^{*1}	CW Light Source for external modulator	BFY
NX8563LB Series	−20 to +65	−40 to +85	20	10	ITU-T ^{*2}	CW Light Source for external modulator	BFY
NDL7910P	−20 to +70	−40 to +85	7	0.5	1 550 ^{*1}	≤ STM-16: 2.5 Gb/s EA modulator integrated DFB-LD	BFY

*1 Wavelength selectable for ITU-T standards upon request.

*2 Wavelength selectable for ITU-T standards.

REFERENCE

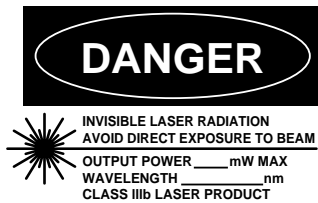
Document Name	Document No.
NEC semiconductor device reliability/quality control system	C11159E
Quality grades on NEC semiconductor devices	C11531E
Semiconductor device mounting technology manual	C10535E
Semiconductor selection guide	X10679E

[MEMO]

[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



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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NEC devices are classified into the following three quality grades:

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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.

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Anti-radioactive design is not implemented in this product.

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