

NDL7503P Series

InGaAsP STRAINED MQW DC-PBH PULSED LASER DIODE MODULE 1310nm OTDR APPLICATION

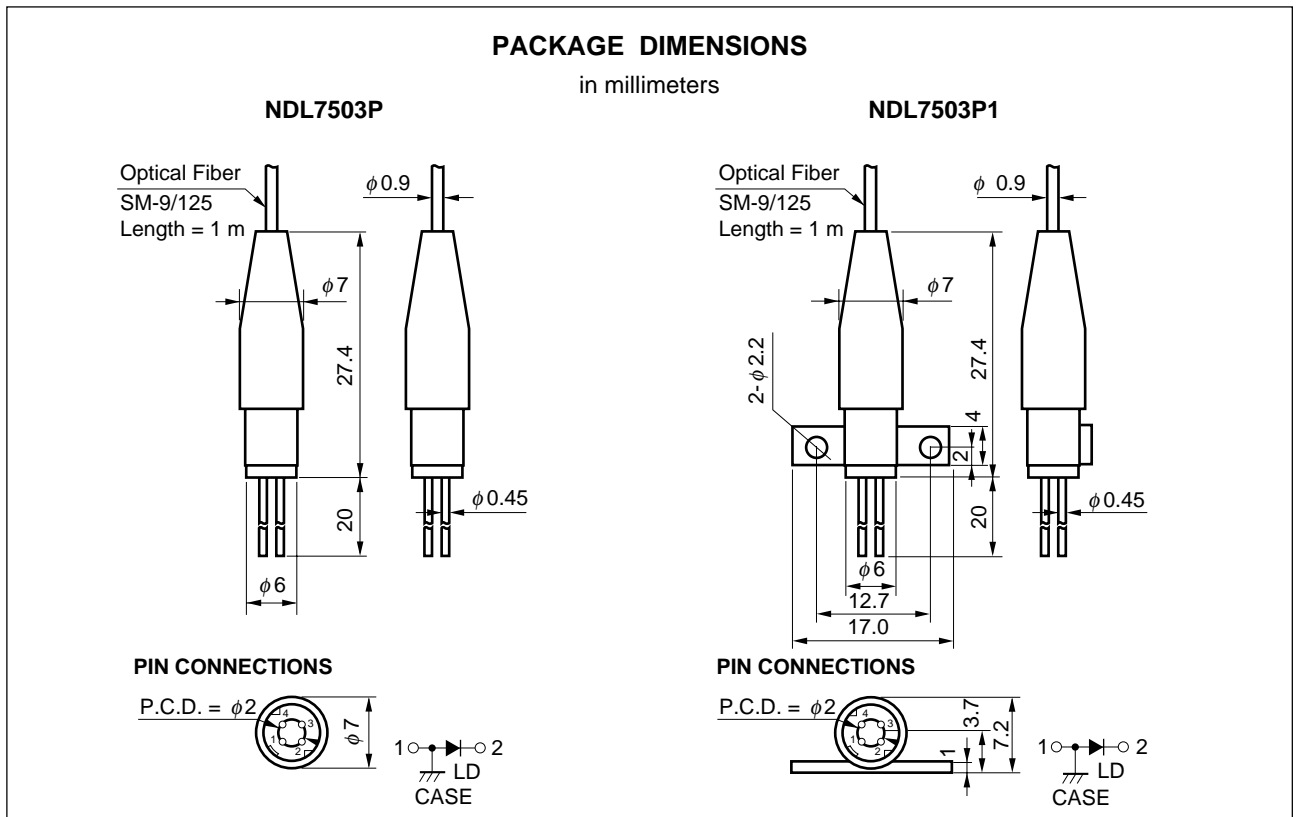
DESCRIPTION

NDL7503P Series is a 1310nm newly developed Strained Multiple Quantum Well (st-MQW) structure pulsed laser diode coaxial module with singlemode fiber. It is designed for light source of optical measurement equipment (OTDR).

FEATURES

- High output power $P_f = 180 \text{ mW} @ I_{FP} = 1000 \text{ mA}^{*1}$
- Long wavelength $\lambda_c = 1310 \text{ nm}$
- Coaxial module without thermoelectric cooler.
- Singlemode fiber pigtail

*1 Pulse Conditions: Pulse width (PW) = 10 μs , Duty = 1 %



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

ORDERING INFORMATION

Part Number	Available Connector	Flange Type
NDL7503P	Without Connector	no flange
NDL7503PC	With FC-PC Connector	
NDL7503PD	With SC-PC Connector	
NDL7503P1	Without Connector	flat mount flange
NDL7503P1C	With FC-PC Connector	
NDL7503P1D	With SC-PC Connector	

ABSOLUTE MAXIMUM RATINGS (T_c = 25 °C)

Parameter	Symbol	Ratings	Unit
Pulsed Forward Current*1	I _{FP}	1.2	A
Reverse Voltage	V _R	2.0	V
Operating Case Temperature	T _c	-20 to +60	°C
Storage Temperature	T _{stg}	-40 to +85	°C
Lead Soldering Temperature (10sec)	T _{slid}	260	°C

*1 Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1 %

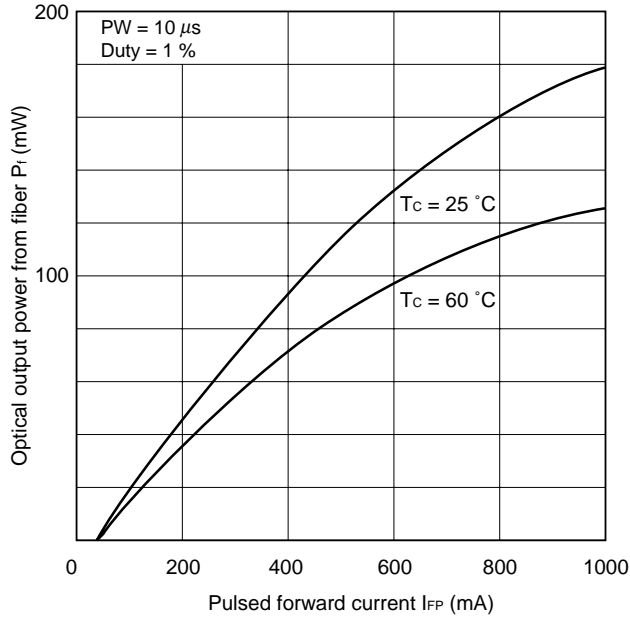
ELECTRO-OPTICAL CHARACTERISTICS (T_c = 25 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V _{FP}	I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 %		2.5	4.0	V
Threshold Current	I _{th}			35	65	mA
Optical Output Power from Fiber	P _f	I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 %	110	180		mW
RMS Center Wavelength	λ _c	I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 %	1290	1310	1330	nm
RMS Spectral Width	σ	I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 %		4.5	10.0	nm
Rise Time	t _r	10 - 90 %			2.0	ns
Fall Time	t _f	90 - 10 %			2.0	ns

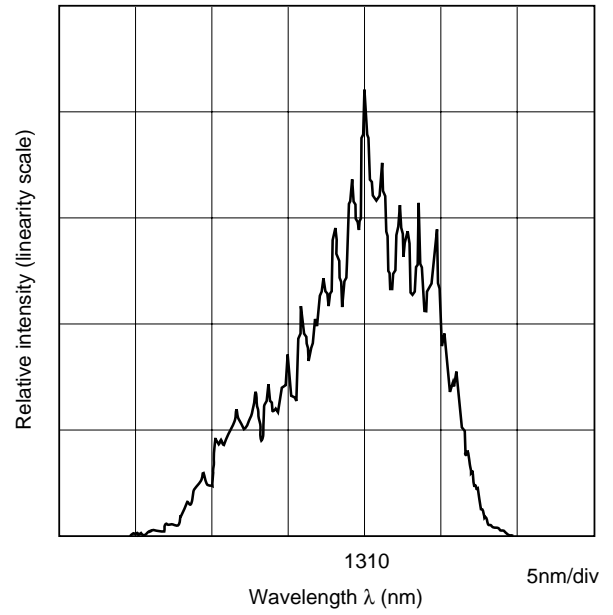
ELECTRO-OPTICAL CHARACTERISTICS (T_c = 0 to +60°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Threshold Current	I _{tr}				80	mA
Optical Output Power from Fiber	P _f	I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 %	75			mW
RMS Center Wavelength	λ _c	I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 %	1280		1342.5	nm
Temperature Dependency of Center Wavelength	Δλ/ΔT			0.35		nm/°C
RMS Spectral Width	σ	I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 %			10	nm

OPTICAL OUTPUT POWER FROM FIBER vs.
LD PULSE FORWARD CURRENT



LONGITUDINAL MODE (FROM FIBER)



LASER DIODE FAMILY FOR OTDR APPLICATION

Package	Features	1.31 μm		1.55 μm		I_{FP}^{*1} (mA)	Remarks
		Part Number	P (mW) MIN./TYP.	Part Number	P (mW) MIN./TYP.		
ϕ 5.6 CAN		NDL7103	290/320	NDL7153	220/240	1000	
		NDL7113	160/175	NDL7163	100/120	400	
4 pin Coaxial Module with SMF		NDL7503P/P1	110/180	NDL7553P/P1	95/145	1000	P : no flange P1 : with flange
		NDL7513P/P1	70/110	NDL7563P/P1	60/80	400	
		NDL7514P/P1	25/50	NDL7564P/P1	20/40	400	
		NDL7515P/P1	20/30	NDL7565P/P1	8/11	400	
14 pin DIP Module with SMF		NDL7502P	125/190	NDL7552P	100/125	1000	with TEC and Thermistor
		NDL7512P	90/110	NDL7562P	70/80	400	
		NDL7510P	40/55	NDL7560P	20/30	400	

*1 Pulse conditions: pulse width = 10 μs , duty = 1 % (modules)
 pulse width = 1 μs , duty = 1 % (ϕ 5.6 can)

REFERENCE

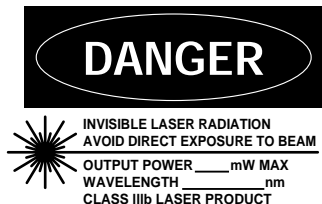
Document Name	Document No.
NEC semiconductor device reliability/quality control system	LEI-1201
Quality grades on NEC semiconductor devices	C11531E
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

[MEMO]

[MEMO]

CAUTION

Within this module 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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Anti-radioactive design is not implemented in this product.