DATA SHEET

NEC

LASER DIODE
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

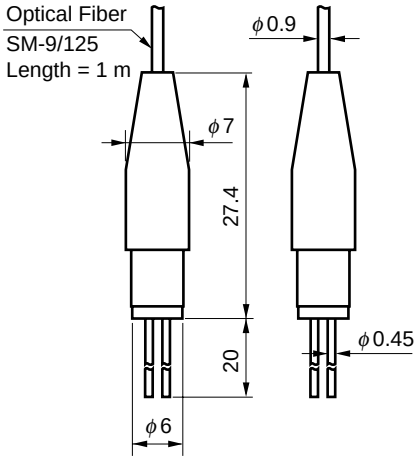
- High output power Pf = 180 mW @I_{FP} = 1000 mA[*1]
- Long wavelength λ_C = 1310 nm
- Coaxial module without thermoelectric cooler.
- Singlemode fiber pigtail

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

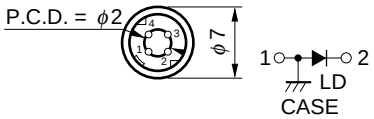
PACKAGE DIMENSIONS

in millimeters

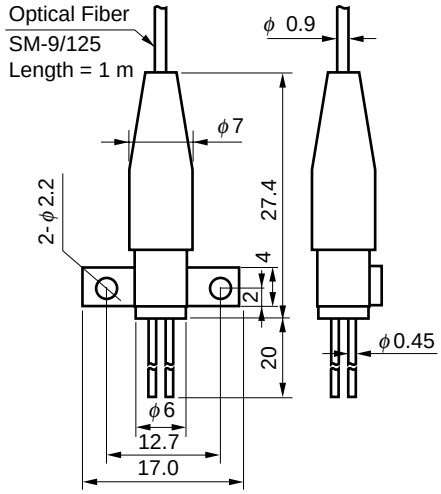
NDL7503P



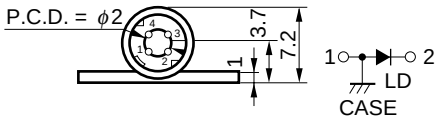
PIN CONNECTIONS



NDL7503P1



PIN CONNECTIONS



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

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ORDERING INFORMATION

Part Number	Available Connector	FIange 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_{sld}	260	°C

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

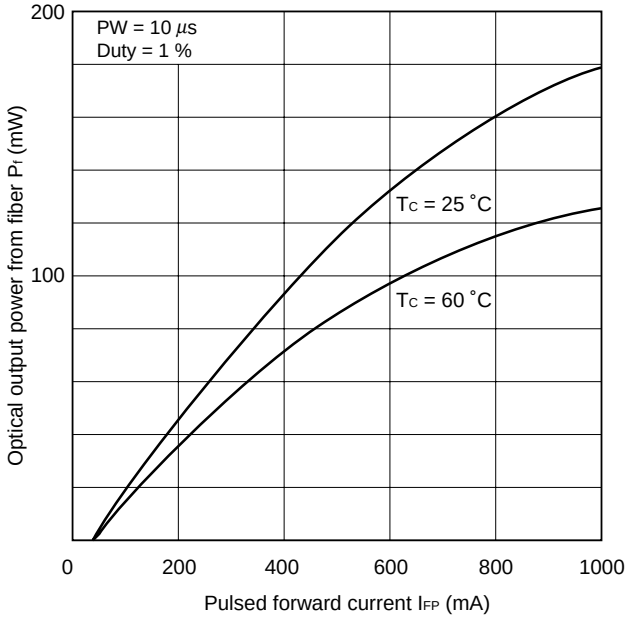
ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25 °C)

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

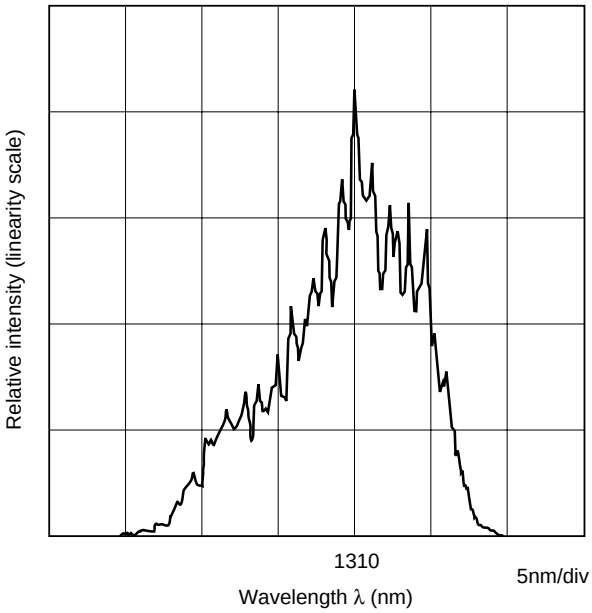
ELECTRO-OPTICAL CHARACTERISTICS (T_C = 0 to +60°C)

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	$\Delta\lambda/\Delta T$			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

Features / Package	1.31 μm		1.55 μm		I_{FP}*1 (mA)	Remarks
	Part Number	P (mW) MIN./TYP.	Part Number	P (mW) MIN./TYP.		
φ5.6 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 % (φ5.6 can)

REFERENCE

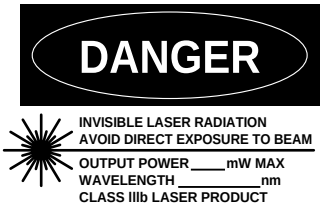
Document Name	Document No.
NEC semiconductor device reliability/quality control system	LEI-1201
Quality grades on NEC semiconductor devices	C11531E
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

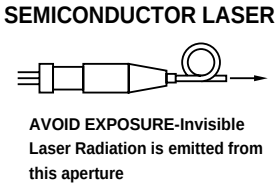
[MEMO]

[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.





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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

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Anti-radioactive design is not implemented in this product.

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