

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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

DESCRIPTION

NDL7502P is a 1310 nm newly developed Strained Multiple Quantum Well (st-MQW) structure pulsed laser diode DIP module with singlemode fiber and internal thermoelectric cooler. It is designed for light sources of optical measurement equipment (OTDR).

This module is also available with FC - PC.

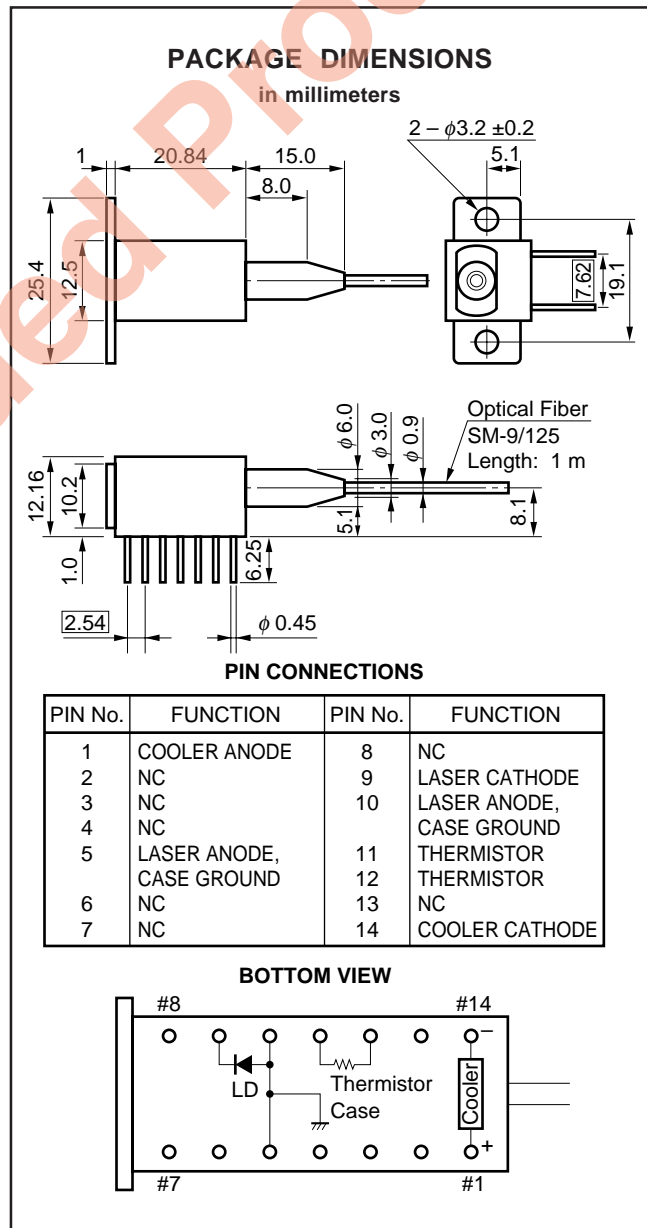
FEATURES

- High output power $P_i = 190 \text{ mW} @ I_{FP} = 1000 \text{ mA}^{*1}$
- Long wavelength $\lambda_c = 1310 \text{ nm}$
- Internal thermoelectric cooler
- Hermetically sealed 14 pin Dual-in-Line Package
- Singlemode fiber pigtail

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

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
NDL7502P	Without connector
NDL7502PC	With FC - 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
Cooler Current	I _c	1.3	A
Cooler Voltage	V _c	3.5	V
Operating Case Temperature	T _c	-20 to +65	°C
Storage Temperature	T _{stg}	-40 to +70	°C
Lead Soldering Temperature (10 sec)	T _{slid}	260	°C

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

ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = 25 °C, T_c = -20 °C to +65 °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 %	125	190		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 %		5.0	10.0	nm
Rise Time	t _r	10 - 90 %			2.0	ns
Fall Time	t _f	90 - 10 %			2.0	ns

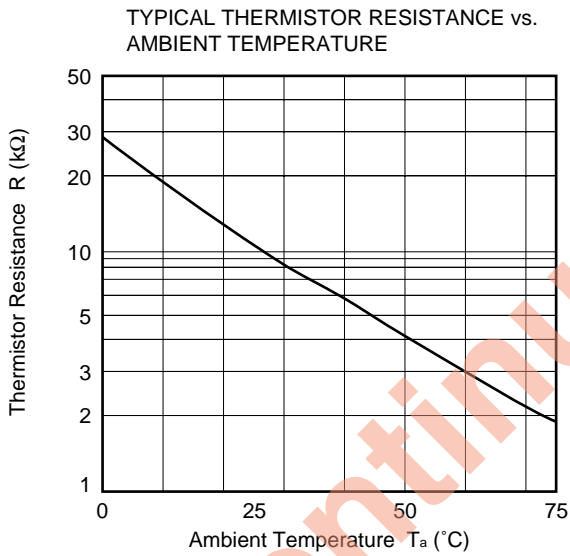
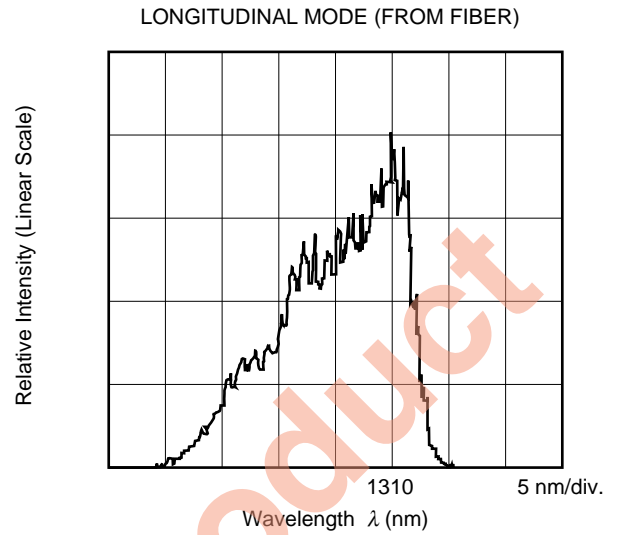
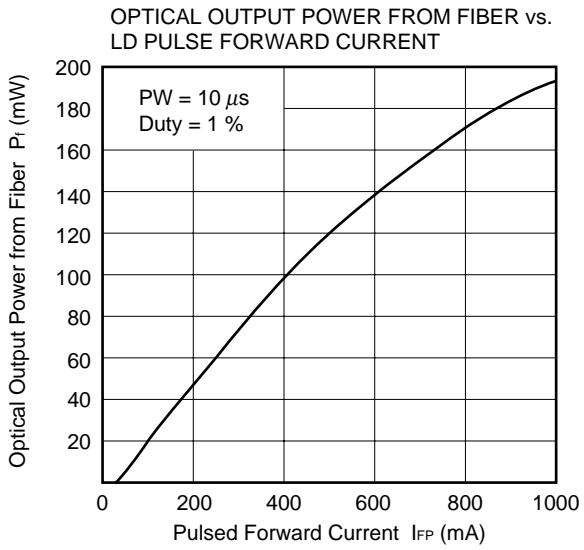
THERMISTOR AND TEC CHARACTERISTICS (T_{LD} = 25 °C, T_c = -20 °C to +65 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R*2	T _{LD} = 25 °C	9.5	10	10.5	kΩ
Cooler Current	I _c	ΔT = 40 K		0.6	1.0	A
Cooler Voltage	V _c	ΔT = 40 K		1.1	1.5	V
Cooling Capacity	ΔT*3	I _c = 1.0 A	40			K

*2 B Constant: 3400 ± 100 K

*3 ΔT = | T_c - T_{LD} |

TYPICAL CHARACTERISTICS (T_c = 25 °C)



Discontinued Product

LASER DIODE FAMILY FOR OTDR APPLICATION

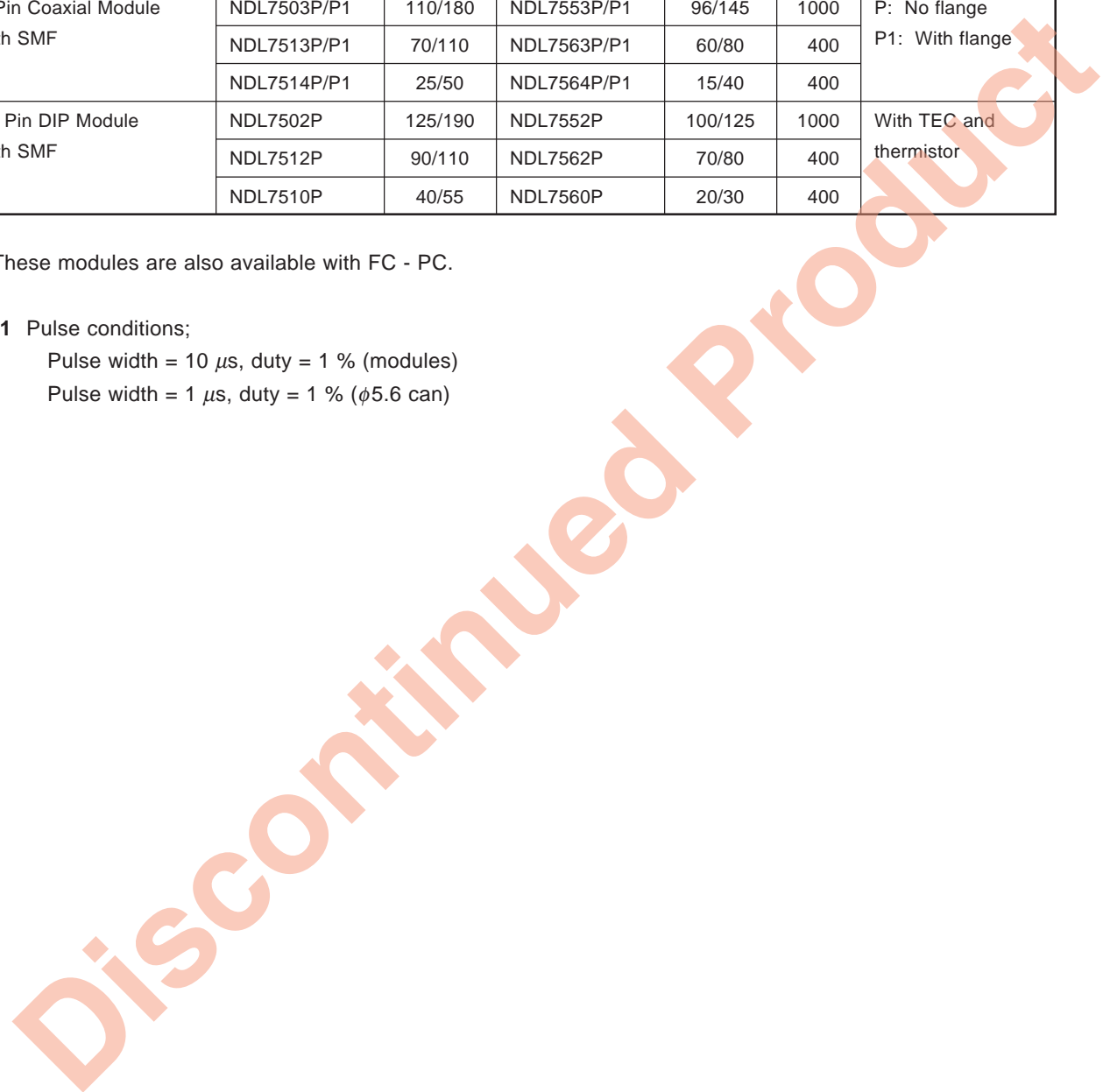
Features Package	1.31 μm		1.55 μm		IFP*1 (mA)	Remarks
	Part Number	P (mW) MIN./TYP.	Part Number	P (mW) MIN./TYP.		
ϕ 5.6 Can	NDL7103	290/320	NDL7153	220/240	1000	
	NDL7113	160/175	NDL7163	100/120	400	
4 Pin Coaxial Module with SMF	NDL7503P/P1	110/180	NDL7553P/P1	96/145	1000	P: No flange P1: With flange
	NDL7513P/P1	70/110	NDL7563P/P1	60/80	400	
	NDL7514P/P1	25/50	NDL7564P/P1	15/40	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	

These modules are also available with FC - PC.

*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	IEI-1205
Quality grade on NEC semiconductor devices	IEI-1209
Semiconductor device mounting technology manual	IEI-1207
Semiconductor device package manual	MEI-1213
Guide to quality assurance for semiconductor devices	IEI-1202
Semiconductor selection guide	X10679E

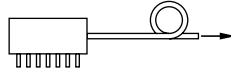
Discontinued Product

CAUTION

Within this module there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstance 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 DHHS 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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