

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
1480 nm OTDR APPLICATION

DESCRIPTION

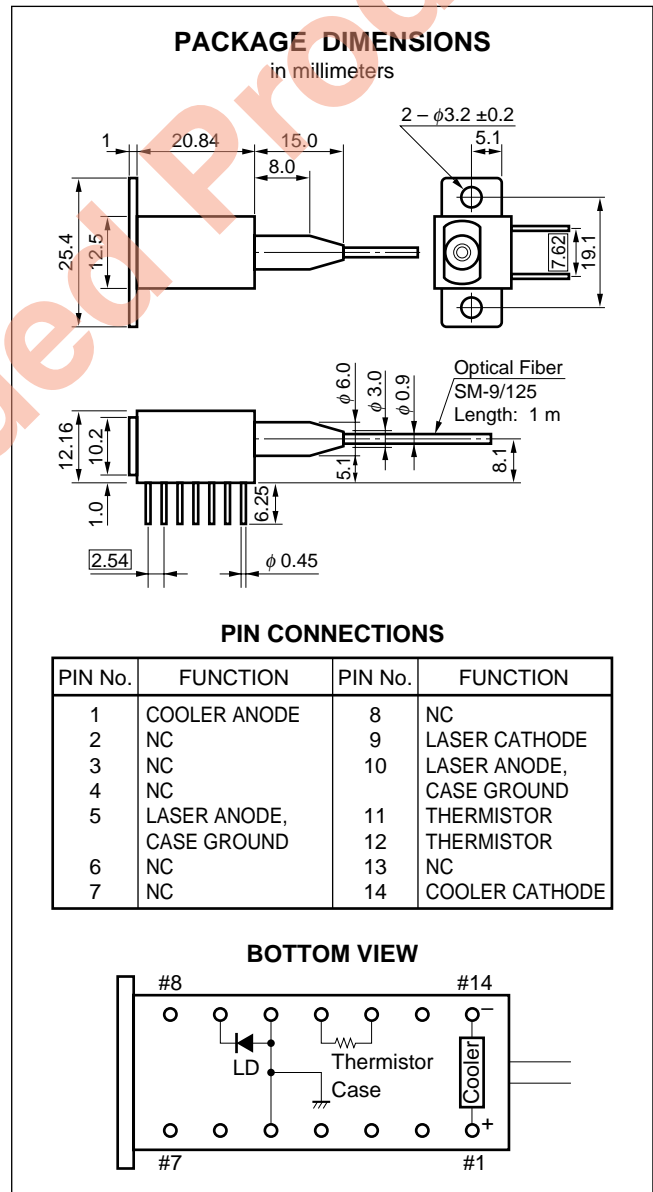
NDL7542P is a 1480 nm a newly developed Strained Multiple Quantum Well (St-MQW) structure pulsed laser diode DIP module with singlemode fiber and internal thermoelectric cooler. It is designed for light sources of optical measurement equipment (OTDR).

FEATURES

- Output power
 $P_f = 50 \text{ mW min.}$
 $@ I_{FP} = 500 \text{ mA, PW} = 10 \mu\text{s, Duty} = 1 \%$
- Long wavelength
 $\lambda_c = 1480 \text{ nm}$
- Wide operating temperature range
 $T_c = -20 \text{ to } +65 \text{ }^\circ\text{C}$
- Internal thermoelectric cooler
- Hermetically sealed 14 pin DIP Package
- Singlemode fiber pigtail

ORDERING INFORMATION

Part Number	Description
NDL7542P	Without connector
NDL7542PC	With FC-PC connector
NDL7542PD	With SC-PC connector



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

ABSOLUTE MAXIMUM RATINGS (T_c = 25 °C)

Parameter	Symbol	Ratings	Unit
Pulsed Forward Current*1	I _{FP}	600	mA
Reverse Voltage	V _R	2.0	V
Cooler Current	I _c	1.3	A
Cooler Voltage	V _c	3.5	V
Thermistor Current	I _t	0.5	mA
Thermistor Voltage	V _t	12.0	V
Operating Case Temperature	T _c	-20 to +65	°C
Storage Temperature	T _{stg}	-40 to +70	°C
Lead Soldering Temperature (10 s)	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 _F	I _{FP} = 500 mA, PW = 10 μs, Duty = 1 %			4.0	V
Threshold Current	I _{th}	CW		30	50	mA
Optical Output Power from Fiber	P _f	I _{FP} = 500 mA, PW = 10 μs, Duty = 1 %	50	80		mW
RMS Center Wavelength	λ _c	I _{FP} = 500 mA, PW = 10 μs, Duty = 1 %	1465	1480	1490	nm
RMS Spectral Width	σ	I _{FP} = 500 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

ELECTRO-OPTICAL CHARACTERISTICS

(Applicable to Thermistor and TE Cooler: 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}|

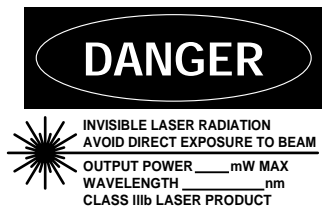
REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system	LEI-1201
Quality grade on NEC semiconductor devices	IEI-1209
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

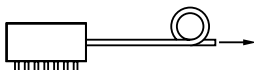
Discontinued Product

CAUTION

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

"Standard", "Special", and "Specific". The Specific quality grade applies only to devices developed based on a customer designated "quality assurance program" for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

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.

The quality grade of NEC devices in "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact NEC Sales Representative in advance.

Anti-radioactive design is not implemented in this product.