To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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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RENESAS

LASER DIODE
NDL7581P

InGaAsP STRAINED DC PBH PULSED LASER DIODE MODULE
1650 nm OTDR APPLICATION

DESCRIPTION

NDL7581P is a 1650 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).

FEATURES

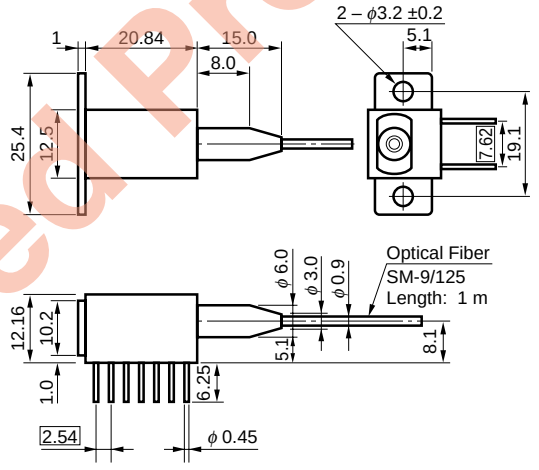
- Output power
  P_f = 100 mW @I_{FP} = 1000 mA,
  PW = 10 μs, Duty = 1 %
- Long wavelength λ_C = 1650 nm
- Wide operating temperature range
  Tc = –20 to +65 °C
- Internal thermoelectric cooler
- Hermetically sealed 14 pin DIP Package
- Singlemode fiber pigtail

ORDERING INFORMATION

Part Number	Description
NDL7581P	Without connector
NDL7581PC	With FC-PC connector
NDL7581PD	With SC-PC connector

PACKAGE DIMENSIONS

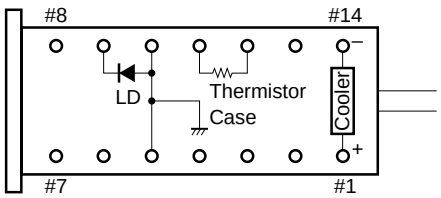
in millimeters



PIN CONNECTIONS

PIN No.	FUNCTION	PIN No.	FUNCTION
1	COOLER ANODE	8	NC
2	NC	9	LASER CATHODE
3	NC	10	LASER ANODE,
4	NC		CASE GROUND
5	LASER ANODE,	11	THERMISTOR
	CASE GROUND	12	THERMISTOR
6	NC	13	NC
7	NC	14	COOLER CATHODE

BOTTOM VIEW



Document No. P10995EJ2V0DS00 (2nd edition)
Date Published June 1996 P
Printed in Japan

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 +65	°C
Storage Temperature	T_{stg}	–40 to +70	°C
Lead Soldering Temperature (10 s)	T_{sld}	260	°C

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

ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = 25 °C, Tc = –20 °C to +65 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V_F	I_{FP} = 1000 mA, PW = 10 μS, Duty = 1 %			4.0	V
Threshold Current	I_{th}			30	70	mA
Optical Output Power from Fiber	P_f	I_{FP} = 1000 mA, PW = 10 μS, Duty = 1 %	100			mW
RMS Center Wavelength	λ_C	I_{FP} = 1000 mA, PW = 10 μS, Duty = 1 %	1640	1650	1660	nm
RMS Spectral Width	σ	I_{FP} = 1000 mA, PW = 10 μS, Duty = 1 %		7.0	15.0	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, Tc = –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

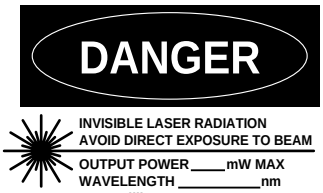
***3** $\Delta T = |T_C - T_{LD}|$

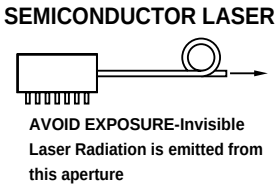
REFERENCE

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

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.





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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