

NDL7514P Series

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

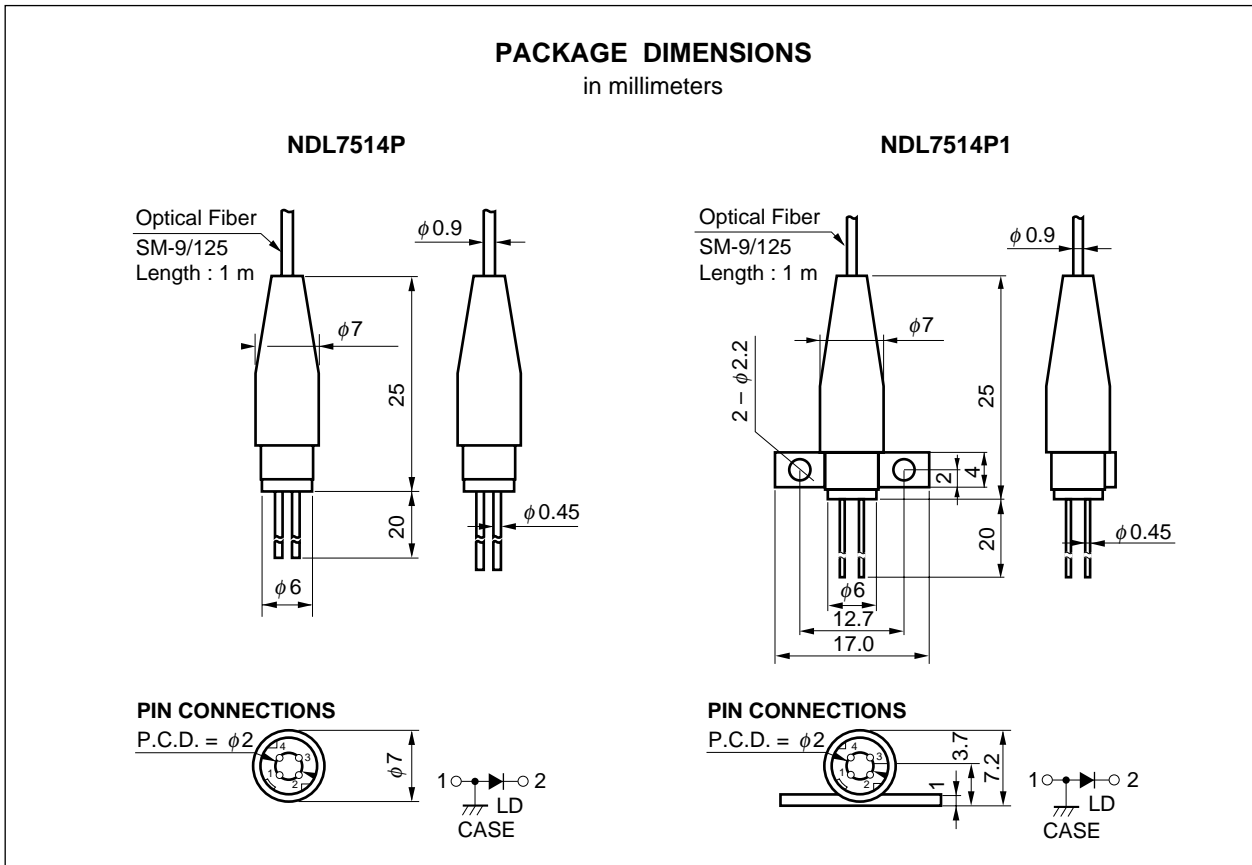
DESCRIPTION

NDL7514P 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

- Output power $P_f = 50 \text{ mW} @ I_{FP} = 400 \text{ mA}^{*1}$
- 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 |
|-------------|----------------------|-------------------|
| NDL7514P | Without Connector | no flange |
| NDL7514PC | With FC-PC Connector | |
| NDL7514PD | With SC-PC Connector | |
| NDL7514P1 | Without Connector | flat mount flange |
| NDL7514P1C | With FC-PC Connector | |
| NDL7514P1D | With SC-PC Connector | |

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 |
| Operating Case Temperature | T _c | -20 to +60 | °C |
| Storage Temperature | T _{stg} | -40 to +85 | °C |
| Lead Soldering Temperature (10 sec) | T _{slid} | 260 | °C |

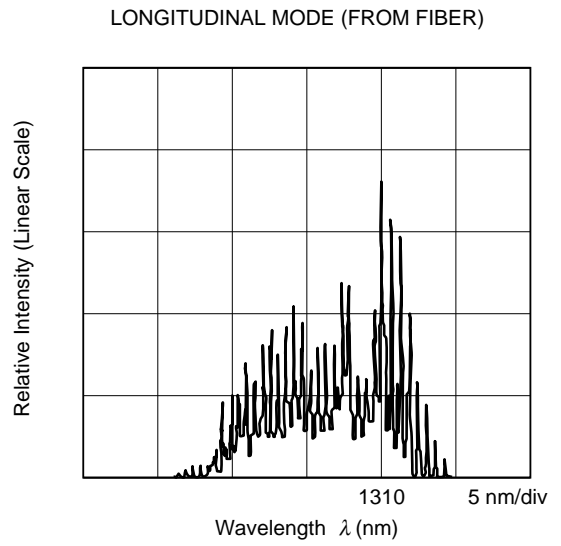
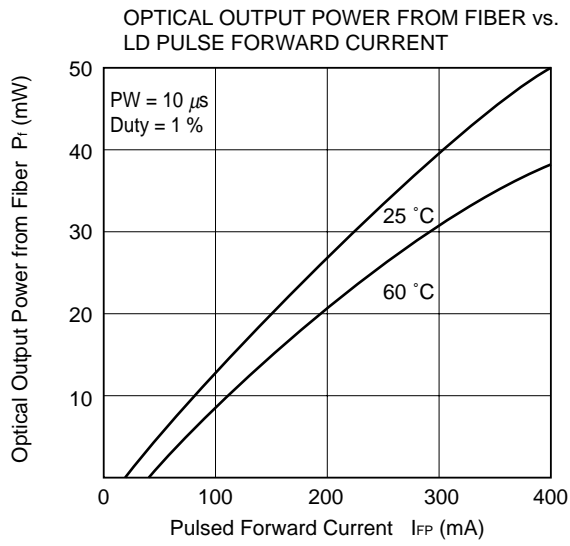
*1 Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1 %

ELECTRO-OPTICAL CHARACTERISTICS (T_c = 25 °C)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---------------------------------|-----------------|---|------|------|------|------|
| Forward Voltage | V _{FP} | I _{FP} = 400 mA, PW = 10 μs, Duty = 1 % | | 2.5 | 4.0 | V |
| Threshold Current | I _{th} | | | 20 | 30 | mA |
| Optical Output Power from Fiber | P _f | I _{FP} = 400 mA, PW = 10 μs, Duty = 1 % | 25 | 50 | | mW |
| RMS Center Wavelength | λ _c | I _{FP} = 400 mA, PW = 10 μs, Duty = 1 % | 1290 | 1310 | 1330 | nm |
| RMS Spectral Width | σ | I _{FP} = 400 mA, PW = 10 μs, Duty = 1 % | | 4.5 | 10 | nm |
| Rise Time | t _r | 10 - 90 % | | | 1.0 | ns |
| Fall Time | t _f | 90 - 10 % | | | 1.0 | ns |

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

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|-----------------|---|------|------|--------|-------|
| Threshold Current | I _{th} | | | | 50 | mA |
| Optical Output Power from Fiber | P _f | I _{FP} = 400 mA, PW = 10 μs, Duty = 1 % | 15 | | | mW |
| RMS Center Wavelength | λ _c | I _{FP} = 400 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} = 400 mA, PW = 10 μs, Duty = 1 % | | | 10 | nm |



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

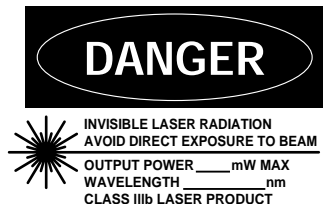
| Document Name | Document No. |
|---|--------------|
| NEC semiconductor device reliability/quality control system | LEI-1201 |
| Quality grades on NEC semiconductor devices | C11531E |
| Semiconductor device mounting technology manual | C10535E |
| Guide to quality assurance for semiconductor devices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

The export of this product from Japan is prohibited without governmental license. To export or re-export this product from a country other than Japan may also be prohibited without a license from that country. Please call an NEC sales representative.

No part of this document may be copied or reproduced in any form or by any means without the prior written consent of NEC Corporation. NEC Corporation assumes no responsibility for any errors which may appear in this document.

NEC Corporation does not assume any liability for infringement of patents, copyrights or other intellectual property rights of third parties by or arising from use of a device described herein or any other liability arising from use of such device. No license, either express, implied or otherwise, is granted under any patents, copyrights or other intellectual property rights of NEC Corporation or others.

While NEC Corporation has been making continuous effort to enhance the reliability of its semiconductor devices, the possibility of defects cannot be eliminated entirely. To minimize risks of damage or injury to persons or property arising from a defect in an NEC semiconductor device, customers must incorporate sufficient safety measures in its design, such as redundancy, fire-containment, and anti-failure features.

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 is "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 an NEC sales representative in advance.

Anti-radioactive design is not implemented in this product.