

NDL7553P Series

InGaAsP STRAINED MQW DC-PBH PULSED LASER DIODE MODULE 1550nm OTDR APPLICATION

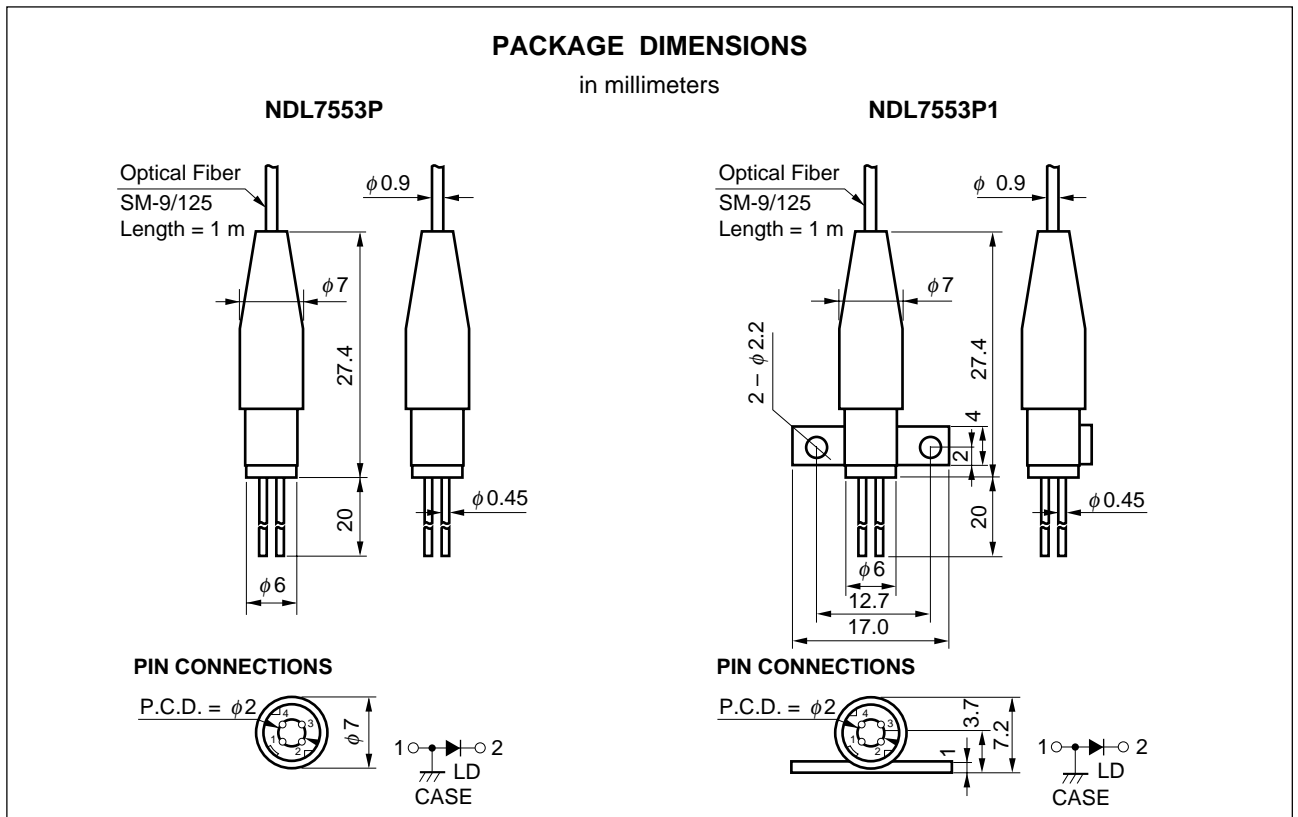
DESCRIPTION

NDL7553P Series is a 1550nm 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 $P_f = 145 \text{ mW} @ I_{FP} = 1000 \text{ mA}^{*1}$
- Long wavelength $\lambda_c = 1550 \text{ nm}$
- 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 |
|-------------|----------------------|-------------------|
| NDL7553P | Without Connector | no flange |
| NDL7553PC | With FC-PC Connector | |
| NDL7553PD | With SC-PC Connector | |
| NDL7553P1 | Without Connector | flat mount flange |
| NDL7553P1C | With FC-PC Connector | |
| NDL7553P1D | 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 (10 sec) | T _{slid} | 260 | °C |

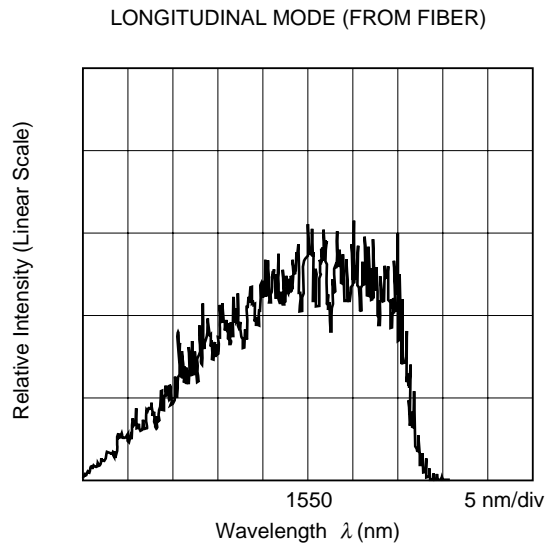
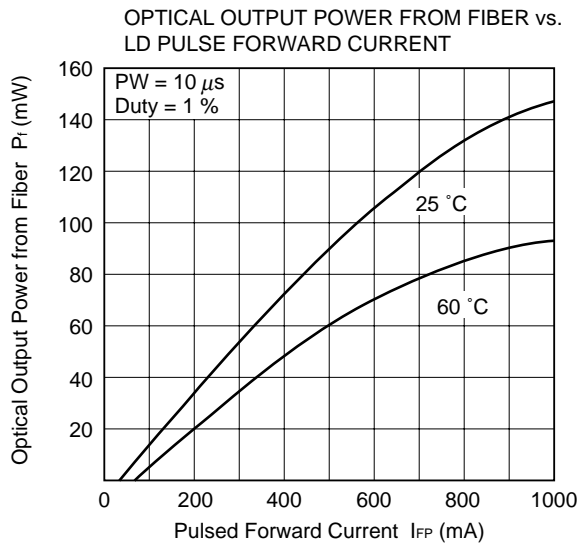
*1 Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1 %

ELECTRO-OPTICAL CHARACTERISTICS (T_c = 25 °C)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---------------------------------|-----------------|--|------|------|------|------|
| Forward Voltage | V _{FP} | I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 % | | 2.5 | 4.0 | V |
| Threshold Current | I _{th} | | | 45 | 75 | mA |
| Optical Output Power from Fiber | P _f | I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 % | 95 | 145 | | mW |
| RMS Center Wavelength | λ _c | I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 % | 1530 | 1550 | 1570 | nm |
| RMS Spectral Width | σ | I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 % | | 7.5 | 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 _{th} | | | | 100 | mA |
| Optical Output Power from Fiber | P _f | I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 % | 60 | | | mW |
| RMS Center Wavelength | λ _c | I _{FP} = 1000 mA, PW = 10 μs, Duty = 1 % | 1520 | | 1585 | nm |
| Temperature Dependency of Center Wavelength | Δλ/ΔT | | | 0.35 | | nm/°C |
| RMS Spectral Width | σ | I _{FP} = 1000 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

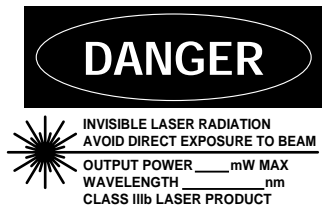
| Document Name | Document No. |
|---|--------------|
| NEC semiconductor device reliability/quality control system | LEI-1201 |
| Quality grades on NEC semiconductor devices | C11531E |
| Semiconductor device mounting technology manual | C10535E |
| Guide to quality assurance for semiconductor devices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

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Anti-radioactive design is not implemented in this product.