

NX7535 Series

Data Sheet

R08DS0024EJ0200

Rev.2.00

Sep 19, 2010

LASER DIODE

1 550 nm InGaAsP MQW-FP LASER DIODE COAXIAL MODULE WITH MONITOR PD FOR OTDR APPLICATION

DESCRIPTION

The NX7535 Series is a 1 550 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode coaxial module with single mode fiber. This module is specified to operate under pulsed condition and designed for light source of Optical Time Domain Reflectometer (OTDR).

FEATURES

- High output power $P_f = 30 \text{ mW} @ I_{FP} = 200 \text{ mA}^{*1}$
- Long wavelength $\lambda_C = 1 550 \text{ nm}$
- Built-in monitor PD

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

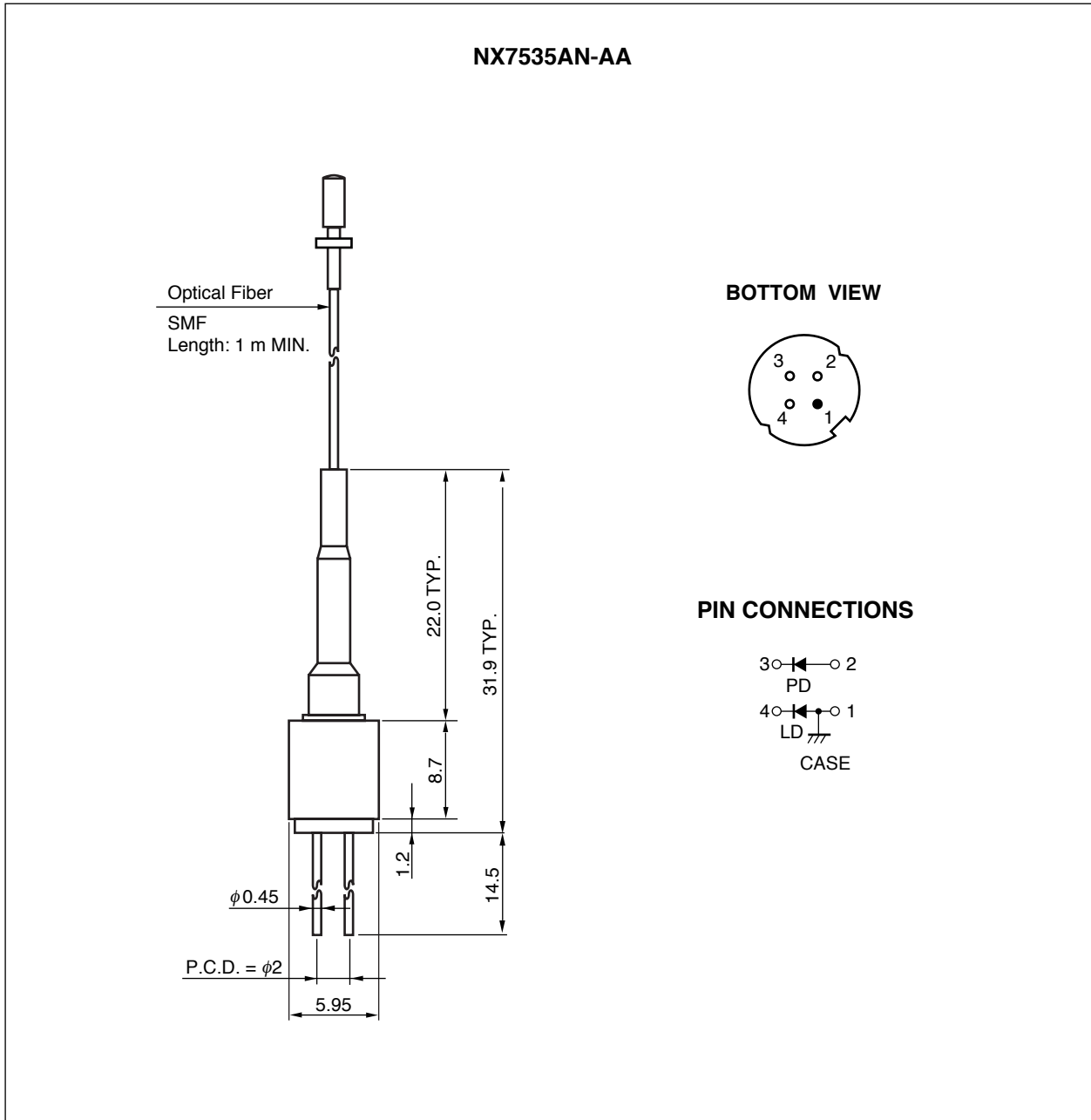


The mark <R> shows major revised points.

The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

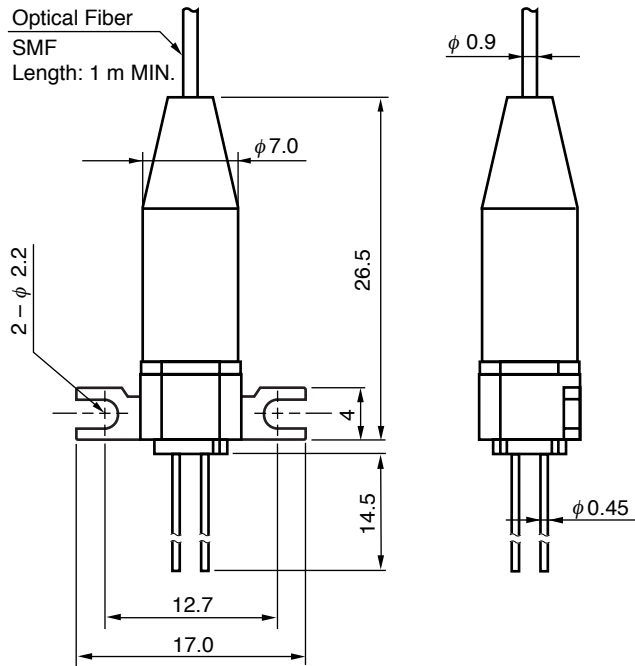
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PACKAGE DIMENSIONS (UNIT: mm)

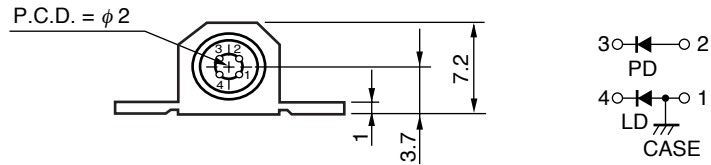


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NX7535BN-AA



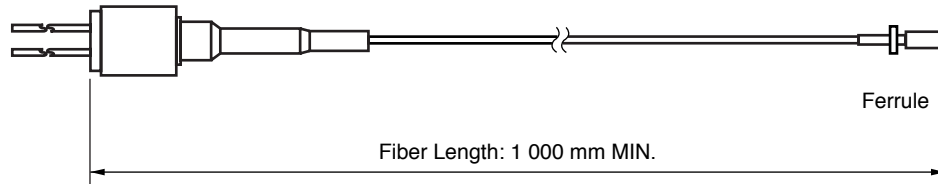
PIN CONNECTIONS



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OPTICAL FIBER CHARACTERISTICS

| Parameter | Specification | Unit |
|-------------------------------------|----------------|------|
| Mode Field Diameter | 9.5±1 | μm |
| Cladding Diameter | 125±2 | μm |
| Maximum Cladding Noncircularity | 2 | % |
| Maximum Core/Cladding Concentricity | 1.6 | % |
| Outer Diameter | 0.9±0.1 | mm |
| Cut-off Wavelength | 1 140 to 1 280 | nm |
| Minimum Fiber Bending Radius | 30 | mm |



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ORDERING INFORMATION

| Part Number | Flange Type |
|-------------|-------------------|
| NX7535AN-AA | without flange |
| NX7535BN-AA | flat mount flange |

ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Ratings | Unit |
|--------------------------------------|------------|--------------|------|
| Pulsed Forward Current ^{*1} | I_{FP} | 300 | mA |
| Reverse Voltage | V_R | 2.0 | V |
| Reverse Voltage (monitor PD) | V_{RM} | 10 | V |
| Forward Current (monitor PD) | I_{FPM} | 2.0 | mA |
| Operating Case Temperature | T_C | 0 to +60 | °C |
| Storage Temperature | T_{stg} | -40 to +85 | °C |
| Lead Soldering Temperature | T_{slid} | 350 (3 sec.) | °C |
| Relative Humidity (noncondensing) | RH | 85 | % |

<R>

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

ELECTRO-OPTICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---------------------------------|-------------|---|-------|-------|-------|------|
| Forward Voltage | V_{FP} | $I_{FP} = 200 \text{ mA}$, PW = 10 μ s, Duty = 1% | | | 3.5 | V |
| Threshold Current | I_{th} | | | 5 | 25 | mA |
| Optical Output Power from Fiber | P_i | $I_{FP} = 200 \text{ mA}$, PW = 10 μ s, Duty = 1% | 15 | 30 | | mW |
| Center Wavelength | λ_C | RMS (-20 dB), $I_{FP} = 200 \text{ mA}$, PW = 10 μ s, Duty = 1% | 1 530 | 1 550 | 1 570 | nm |
| Spectral Width | σ | RMS (-20 dB), $I_{FP} = 200 \text{ mA}$, PW = 10 μ s, Duty = 1% | | | 10.0 | nm |
| Rise Time | t_r | 10-90% | | | 2.0 | ns |
| Fall Time | t_f | 90-10% | | | 2.0 | ns |
| Forward Current (CW) | I_{fcw} | $P_{fcw} = 2 \text{ mW}$ | | 15 | | mA |
| Monitor Current | I_m | $P_{fcw} = 2 \text{ mW}$, $V_{RM} = 2 \text{ V}$ | 0.05 | | 2 | mA |

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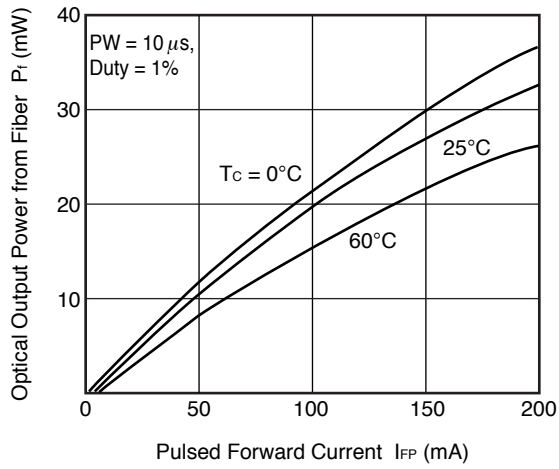
ELECTRO-OPTICAL CHARACTERISTICS (T_c = 0 to +60°C)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---------------------------------|----------------|--|-------|------|-------|------|
| Optical Output Power from Fiber | P _f | I _{FP} = 200 mA, PW = 10 μs, Duty = 1% | 7.5 | | | mW |
| Center Wavelength | λ _c | RMS (-20 dB), I _{FP} = 200 mA, PW = 10 μs, Duty = 1% | 1 514 | | 1 595 | nm |
| Spectral Width | σ | RMS (-20 dB), I _{FP} = 200 mA, PW = 10 μs, Duty = 1% | | | 10 | nm |

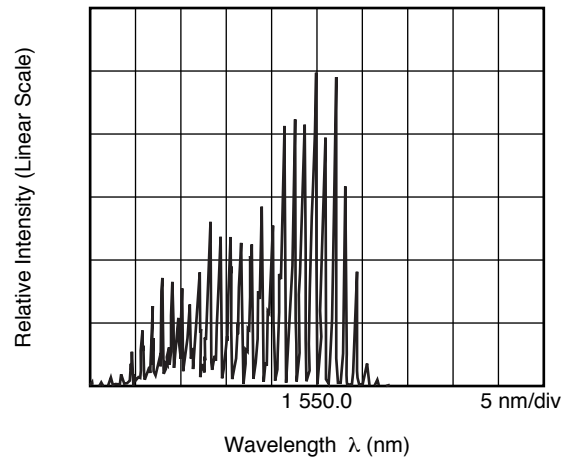
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TYPICAL CHARACTERISTICS (T_c = 25°C, unless otherwise specified)

OPTICAL OUTPUT POWER FROM FIBER vs. PULSED FORWARD CURRENT



SPECTRUM



Remark The graphs indicate nominal characteristics.

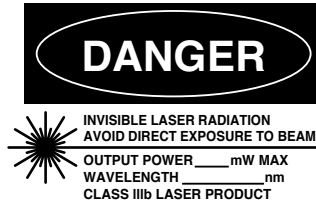
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REFERENCE

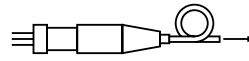
| Document Name | Document No. |
|---|--------------|
| Opto-Electronics Devices Pamphlet ^{*1} | PX10160E |

*1 Published by the former NEC Electronics Corporation.

SAFETY INFORMATION ON THIS PRODUCT



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
 Laser Radiation is emitted from
 this aperture

| | |
|-------------------------------------|---|
| <p>Warning Laser Beam</p> | <p>A laser beam is emitted from this diode during operation. The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight.</p> <ul style="list-style-type: none"> • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam. |
| <p>Caution GaAs Products</p> | <p>This product uses gallium arsenide (GaAs). GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.</p> <ul style="list-style-type: none"> • Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below. <ol style="list-style-type: none"> 1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials. 2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal. • Do not burn, destroy, cut, crush, or chemically dissolve the product. • Do not lick the product or in any way allow it to enter the mouth. |
| <p>Caution Optical Fiber</p> | <p>A glass-fiber is attached on the product. Handle with care.</p> <ul style="list-style-type: none"> • When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments. |

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|-------------------------|---------------------------------|
| Revision History | NX7535 Series Data Sheet |
|-------------------------|---------------------------------|

| Rev. | Date | Description | |
|------|--------------|-------------|---|
| | | Page | Summary |
| - | Jul 2009 | - | Previous No. : PL10758EJ01V0DS |
| 2.00 | Sep 19, 2010 | p.5 | ABSOLUTE MAXIMUM RATINGS : Reverse Current -> Forward Current |

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