

# NX7535 Series

LASER DIODE

R08DS0024EJ0200

Rev.2.00

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

Sep 19, 2010

## 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

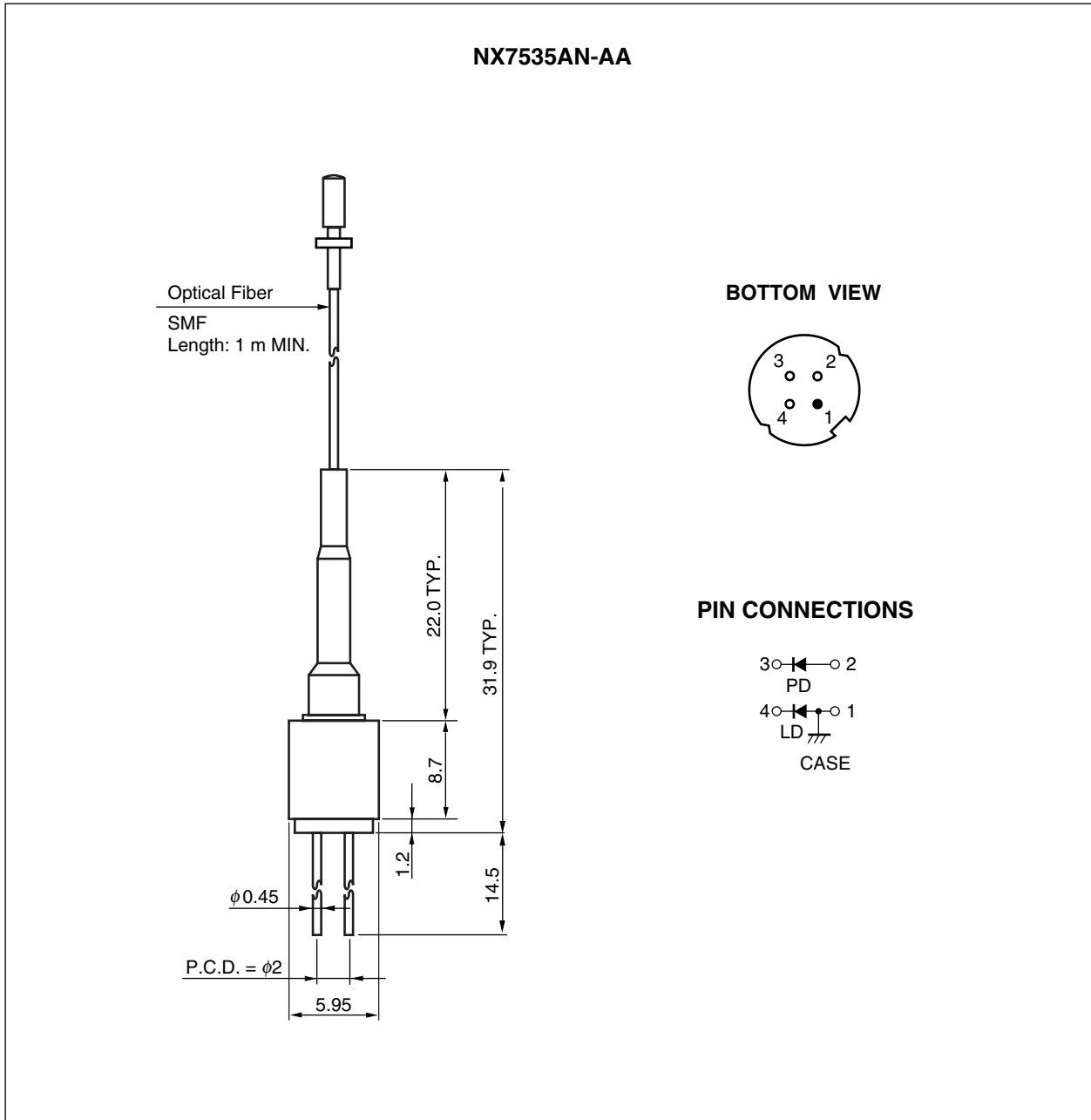
\*1 Pulse Conditions: Pulse width (PW) = 10  $\mu\text{s}$ , Duty = 1%



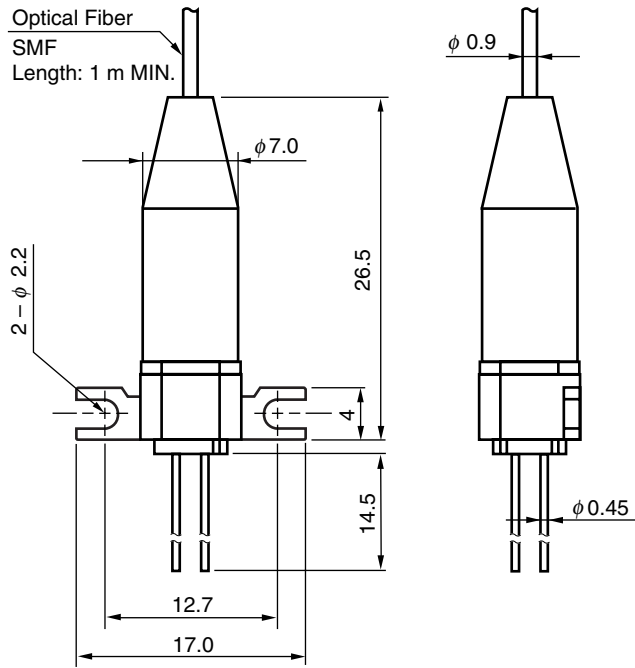
The mark <R> shows major revised points.

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

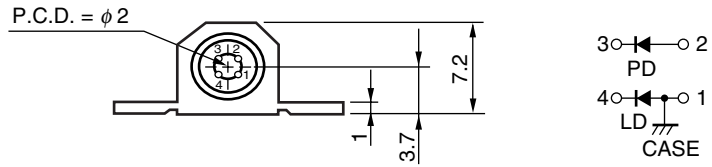
PACKAGE DIMENSIONS (UNIT: mm)



NX7535BN-AA

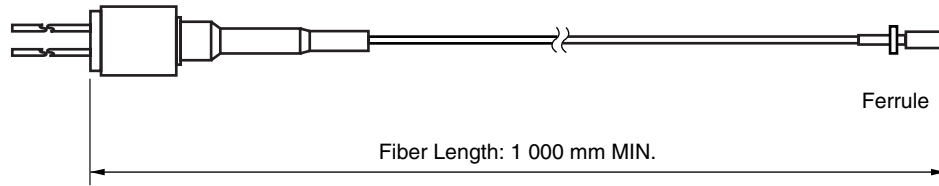


PIN CONNECTIONS



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



**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 <sup>*1</sup>	I <sub>FP</sub>	300	mA
Reverse Voltage	V <sub>R</sub>	2.0	V
Reverse Voltage (monitor PD)	V <sub>RM</sub>	10	V
Forward Current (monitor PD)	I <sub>FPM</sub>	2.0	mA
Operating Case Temperature	T <sub>C</sub>	0 to +60	°C
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C
Lead Soldering Temperature	T <sub>slid</sub>	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

<R>

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

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>C</sub> = 25°C)**

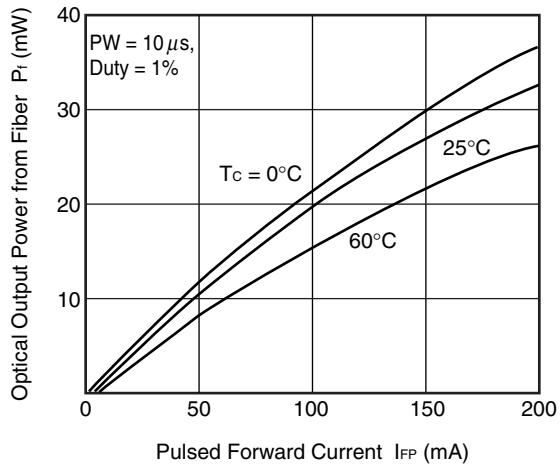
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V <sub>FP</sub>	I <sub>FP</sub> = 200 mA, PW = 10 μs, Duty = 1%			3.5	V
Threshold Current	I <sub>th</sub>			5	25	mA
Optical Output Power from Fiber	P <sub>i</sub>	I <sub>FP</sub> = 200 mA, PW = 10 μs, Duty = 1%	15	30		mW
Center Wavelength	λ <sub>C</sub>	RMS (-20 dB), I <sub>FP</sub> = 200 mA, PW = 10 μs, Duty = 1%	1 530	1 550	1 570	nm
Spectral Width	σ	RMS (-20 dB), I <sub>FP</sub> = 200 mA, PW = 10 μs, Duty = 1%			10.0	nm
Rise Time	t <sub>r</sub>	10-90%			2.0	ns
Fall Time	t <sub>f</sub>	90-10%			2.0	ns
Forward Current (CW)	I <sub>fcw</sub>	P <sub>fcw</sub> = 2 mW		15		mA
Monitor Current	I <sub>m</sub>	P <sub>fcw</sub> = 2 mW, V <sub>RM</sub> = 2 V	0.05		2	mA

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>c</sub> = 0 to +60°C)**

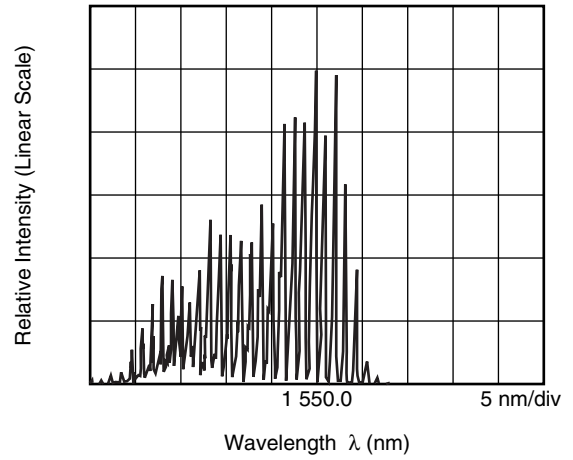
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 200 mA, PW = 10 μs, Duty = 1%	7.5			mW
Center Wavelength	λ <sub>c</sub>	RMS (-20 dB), I <sub>FP</sub> = 200 mA, PW = 10 μs, Duty = 1%	1 514		1 595	nm
Spectral Width	σ	RMS (-20 dB), I <sub>FP</sub> = 200 mA, PW = 10 μs, Duty = 1%			10	nm

**TYPICAL CHARACTERISTICS ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)**

OPTICAL OUTPUT POWER FROM FIBER vs. PULSED FORWARD CURRENT



SPECTRUM



**Remark** The graphs indicate nominal characteristics.

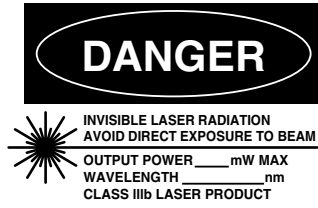
**REFERENCE**

Document Name	Document No.
Opto-Electronics Devices Pamphlet <sup>*1</sup>	PX10160E

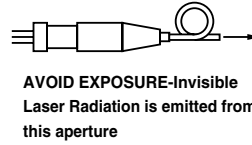
\*1 Published by the former NEC Electronics Corporation.



**SAFETY INFORMATION ON THIS PRODUCT**



**SEMICONDUCTOR LASER**



<p><b>Warning</b> 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"> <li>• Do not look directly into the laser beam.</li> <li>• Avoid exposure to the laser beam, any reflected or collimated beam.</li> </ul>
<p><b>Caution</b> 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"> <li>• 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"> <li>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.</li> <li>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.</li> </ol> </li> <li>• Do not burn, destroy, cut, crush, or chemically dissolve the product.</li> <li>• Do not lick the product or in any way allow it to enter the mouth.</li> </ul>
<p><b>Caution</b> Optical Fiber</p>	<p>A glass-fiber is attached on the product. Handle with care.</p> <ul style="list-style-type: none"> <li>• When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.</li> </ul>

<b>Revision History</b>	<b>NX7535 Series Data Sheet</b>
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Rev.	Date	Description	
		Page	Summary
-	Jul 2009	-	Previous No. : PL10758EJ01V0DS
2.00	Sep 19, 2010	p.5	<b>ABSOLUTE MAXIMUM RATINGS :</b> Reverse Current -> Forward Current

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