

# NX7437 Series

## Data Sheet

R08DS0036EJ010

0 Rev.1.00

Mar 03, 2011

### LASER DIODE

1 490 nm InGaAsP MQW-FP LASER DIODE COAXIAL MODULE FOR OTDR APPLICATION

### DESCRIPTION

The NX7437 Series is a 1 490 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

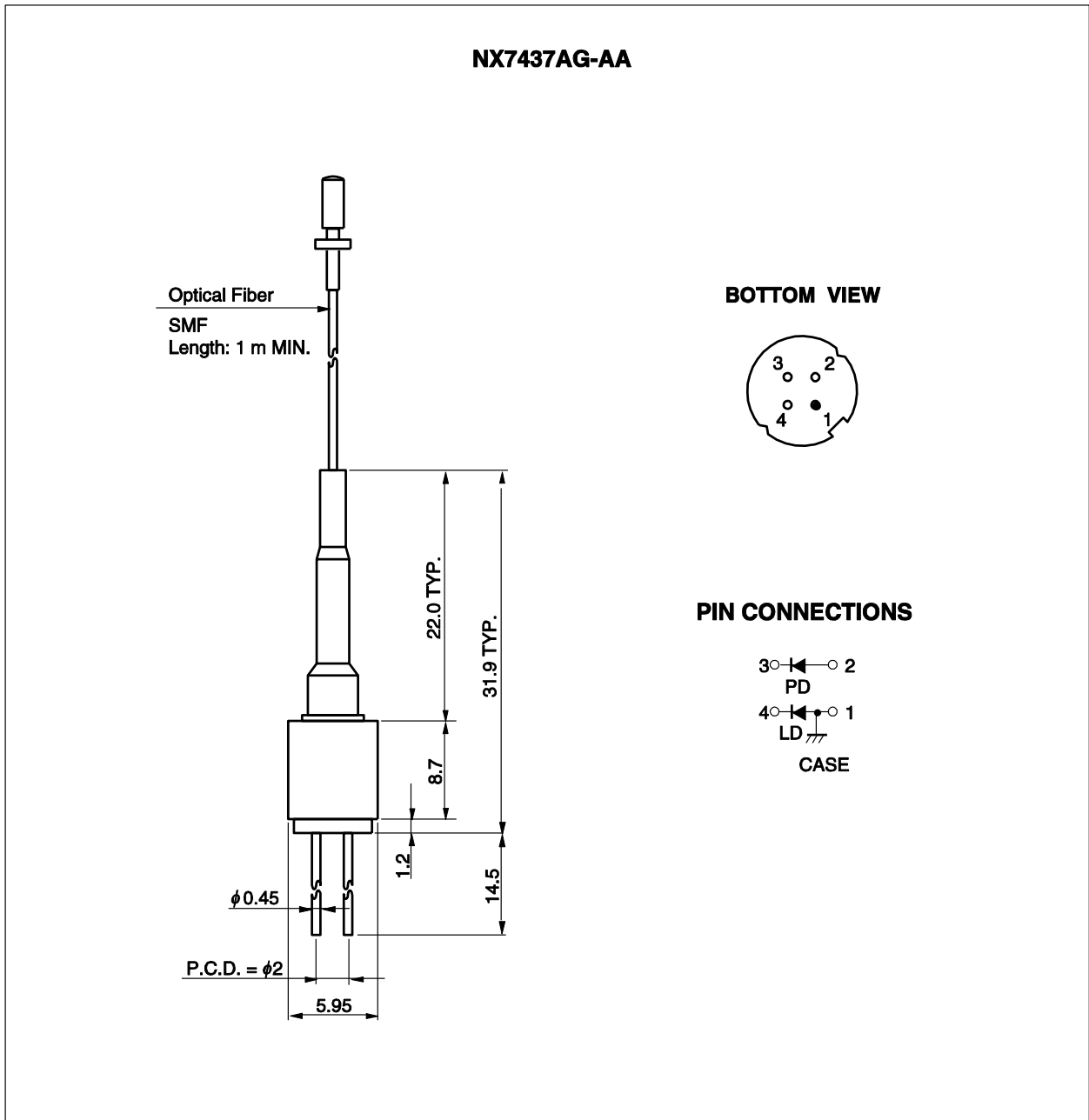
- High output power  $P_f = 90 \text{ mW} @ I_{FP} = 400 \text{ mA}^{*1}$
- Long wavelength  $\lambda_c = 1 490 \text{ nm}$
- NX7437AG-AA has a built-in monitor PD.

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



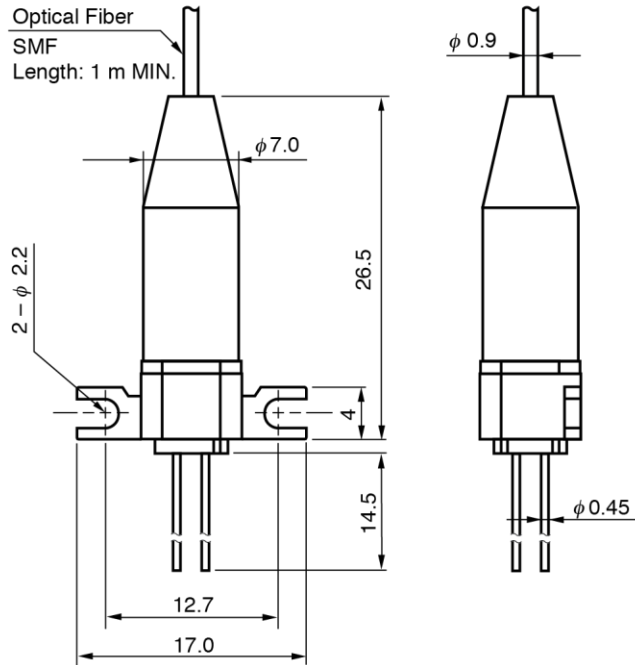
**NX7437 Series**

**PACKAGE DIMENSIONS (UNIT: mm)**

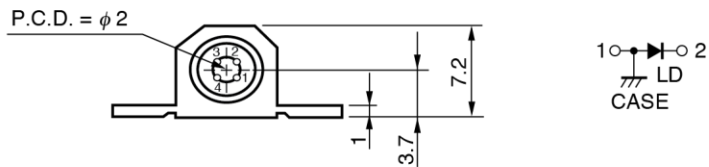


**NX7437 Series**

**NX7437BF-AA**



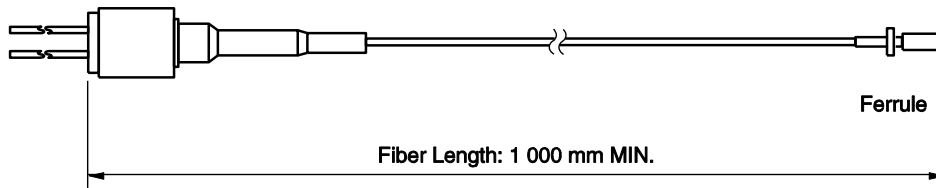
**PIN CONNECTIONS**



## NX7437 Series

### 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
Fiber Length	1 000 MIN.	mm



## NX7437 Series

### ORDERING INFORMATION

Part Number	Flange Type
NX7437AG-AA	without flange
NX7437BF-AA	flat mount flange

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Pulsed Forward Current <sup>*1</sup>	I <sub>FP</sub>	600	mA
Reverse Voltage	V <sub>R</sub>	2.0	V
Reverse Voltage (monitor PD, NX7437AG-AA only)	V <sub>RM</sub>	10	V
Forward Current (monitor PD, NX7437AG-AA only)	I <sub>FPM</sub>	2.0	mA
Operating Case Temperature	T <sub>C</sub>	-20 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	%

\*1 Pulse Condition: Pulse Width (PW) = 10  $\mu$ s, Duty = 1%

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### 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> = 400 mA, PW = 10 μs, Duty = 1%			3.0	V
Threshold Current	I <sub>th</sub>			15	50	mA
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%	60	90		mW
Center Wavelength	λ <sub>c</sub>	RMS (-20 dB), I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%	1 470		1 510	nm
Spectral Width	σ	RMS (-20 dB), I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%		5	10	nm
Rise Time	t <sub>r</sub>	10-90%			2.0	ns
Fall Time	t <sub>f</sub>	90-10%			2.0	ns
Monitor Current (NX7437AG-AA only)	I <sub>m</sub>	P <sub>fcw</sub> = 2 mW, V <sub>RM</sub> = 2 V	0.02		0.8	mA

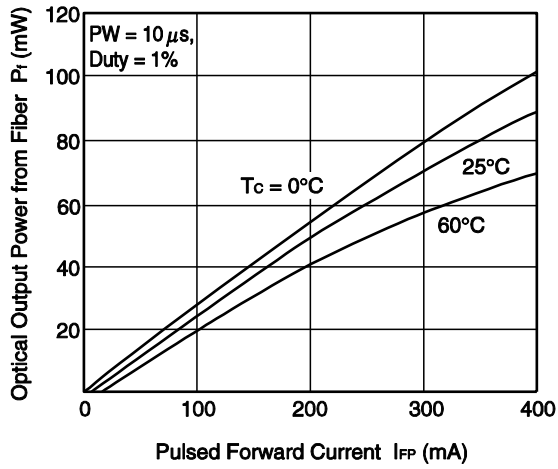
### ELECTRO-OPTICAL CHARACTERISTICS (T<sub>c</sub> = 0 to +60°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%	40			mW
Spectral Width	σ	RMS (-20 dB), I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%		5	10	nm

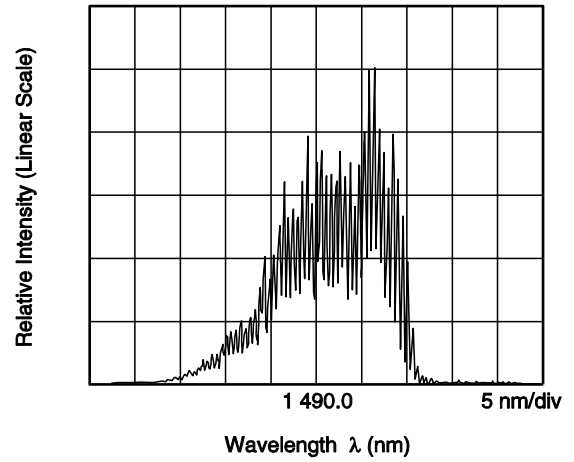
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**TYPICAL CHARACTERISTICS ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)**

**OPTICAL OUTPUT POWER FROM FIBER vs. PULSED FORWARD CURRENT**



**SPECTRUM**



**Remark** The graphs indicate nominal characteristics.

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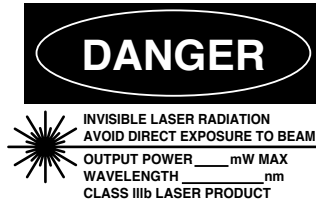
**REFERENCE**

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

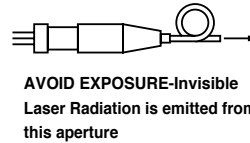
\*1 Published by the former NEC Electronics Corporation.



**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>NX7437 Series Data Sheet</b>
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<b>Rev.</b>	<b>Date</b>	<b>Description</b>	
		<b>Page</b>	<b>Summary</b>
1.00	Mar 03, 2011	-	First edition issued

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