



LASER DIODE  
**NX7539BB-AA**

**1 550 nm InGaAsP MQW-FP LASER DIODE  
COAXIAL MODULE FOR OTDR APPLICATION**

**DESCRIPTION**

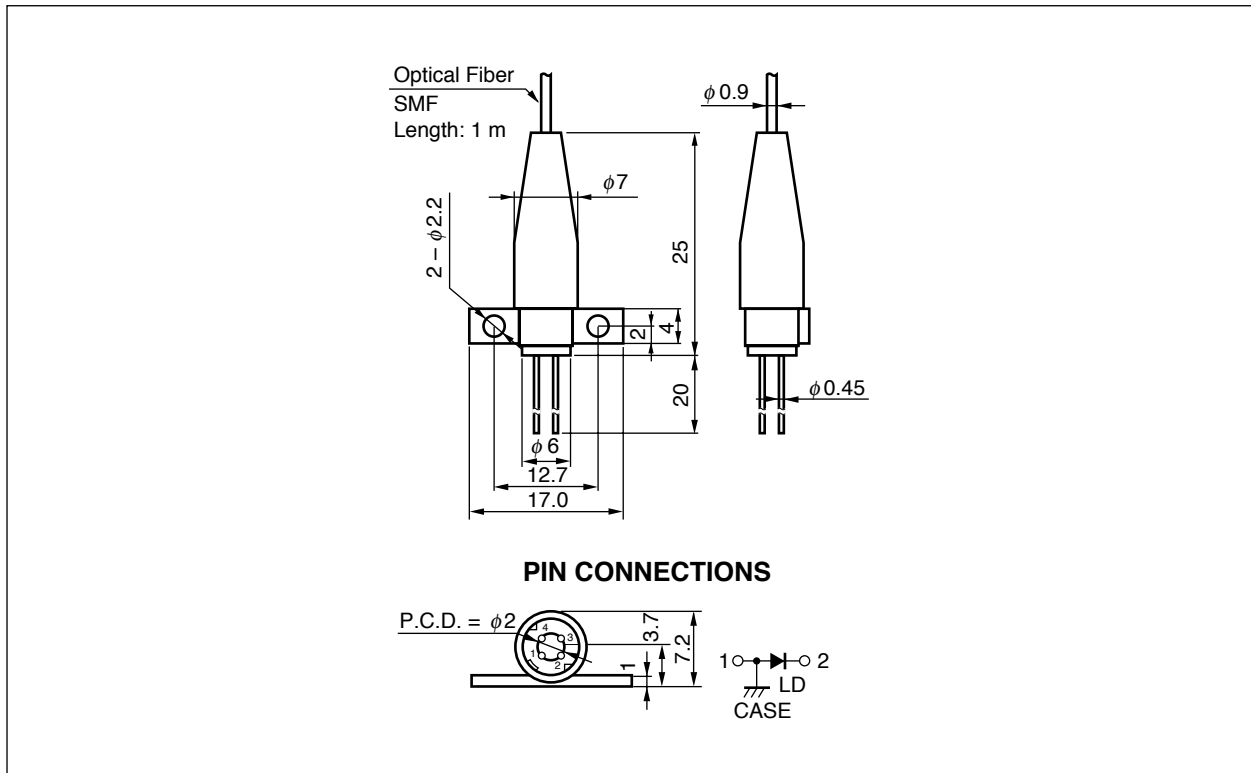
The NX7539BB-AA is a 1 550 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode coaxial module with single mode fiber. This module is specified to operate under pulsed condition and designed for light source of Optical Time Domain Reflectometer (OTDR).

**FEATURES**

- High output power  $P_r = 40 \text{ mW} @ I_{FP} = 400 \text{ mA}^{*1}$
- Long wavelength  $\lambda_c = 1 550 \text{ nm}$

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

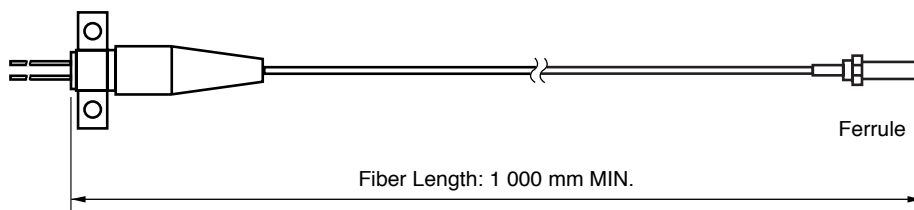
**PACKAGE DIMENSIONS (UNIT: mm)**



The information in this document is subject to change without notice. Before using this document, please confirm that this is the latest version.

**OPTICAL FIBER CHARACTERISTICS**

Parameter	Specification	Unit
Mode Field Diameter	9.3±0.5	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



**ORDERING INFORMATION**

Part Number	Flange Type
NX7539BB-AA-AZ*	flat mount flange

**\*Note** Please refer to the last page of this data sheet “Compliance with EU Directives” for Pb-Free RoHS Compliance Information.

**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
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>	260 (10 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

<sup>\*1</sup> 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> = 400 mA, PW = 10 μs, Duty = 1%		2.5	4.0	V
Threshold Current	I <sub>th</sub>			40	50	mA
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%	20	40		mW
Center Wavelength	λ <sub>C</sub>	RMS (-20 dB), I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%	1 530	1 550	1 570	nm
Spectral Width	σ	RMS (-20 dB), I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%		6.0	10.0	nm
Rise Time	t <sub>r</sub>	10-90%			1.0	ns
Fall Time	t <sub>f</sub>	90-10%			1.0	ns

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

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Threshold Current	I <sub>th</sub>				75	mA
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%	10			mW
Center Wavelength	λ <sub>C</sub>	RMS (-20 dB), I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%	1 520		1 585	nm
Temperature Dependency of Center Wavelength	Δλ/ΔT			0.35		nm/°C
Spectral Width	σ	RMS (-20 dB), I <sub>FP</sub> = 400 mA, PW = 10 μs, Duty = 1%			10	nm

REFERENCE

Document Name	Document No.
Optical semiconductor devices for fiberoptic communications Selection Guide	P12480E
Opto-Electronics Devices Pamphlet	P13623E
Opto-Electronics Devices (CD-ROM)	P12944X
NEC semiconductor device reliability/quality control system <sup>*1</sup>	C11159E
Quality grades on NEC semiconductor devices <sup>*1</sup>	C11531E
SEMICONDUCTOR SELECTION GUIDE –Products and Packages– <sup>*1</sup>	X13769E

\*1 Published by NEC Corporation

Subject: Compliance with EU Directives

CEL certifies, to its knowledge, that semiconductor and laser products detailed below are compliant with the requirements of European Union (EU) Directive 2002/95/EC Restriction on Use of Hazardous Substances in electrical and electronic equipment (RoHS) and the requirements of EU Directive 2003/11/EC Restriction on Penta and Octa BDE.

CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (\*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL’s understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
		-A	-AZ
Lead (Pb)	< 1000 PPM	Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

If you should have any additional questions regarding our devices and compliance to environmental standards, please do not hesitate to contact your local representative.

**Important Information and Disclaimer:** Information provided by CEL on its website or in other communications concerning the substance content of its products represents knowledge and belief as of the date that it is provided. CEL bases its knowledge and belief on information provided by third parties and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. CEL has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. CEL and CEL suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

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