



**NEC's 1310 nm InGaAsP MQW FP  
PULSED LASER DIODE  
IN COAXIAL PACKAGE  
FOR OTDR APPLICATION (70 mW MIN)**

**NX7328BF-AA**

**FEATURES**

- **HIGH OUTPUT POWER:**  
 $P_f = 110$  mW at  $I_{FP} = 400$  mA,  
 Pulse Conditions: Pulse width (PW) = 10  $\mu$ s, Duty = 1%.
- **LONG WAVELENGTH:**  
 $\lambda_c = 1310$  nm

**DESCRIPTION**

NEC's NX7328BF-AA is a 1310 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).

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

PART NUMBER			NX7328BF-AA		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
$V_{FP}$	Forward Voltage, $I_{FP} = 400$ mA, PW = 10 $\mu$ s, Duty = 1%	V		2.5	4.0
$I_{TH}$	Threshold Current	mA		20	30
$P_f$	Optical Output Power from Fiber, $I_{FP} = 400$ mA, PW = 10 $\mu$ s, Duty = 1%	mW	70	110	
$\lambda_c$	Center Wavelength, $I_{FP} = 400$ mA, PW = 10 $\mu$ s, Duty = 1%, RMS (-20 dB)	nm	1290	1310	1330
$\sigma$	Spectral Width, $I_{FP} = 400$ mA, PW = 10 $\mu$ s, Duty = 1%, RMS (-20 dB)	nm		4.5	10.0
$t_r$	Rise Time, 10-90%	ns			1.0
$t_f$	Fall Time, 90-10%	ns			1.0

**ELECTRO-OPTICAL CHARACTERISTICS** ( $T_C = 0$  to  $+60^\circ\text{C}$ )

PART NUMBER			NX7328BF-AA		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
$I_{TH}$	Threshold Current	mA			50
$P_f$	Optical Output Power from Fiber, $I_{FP} = 400$ mA, PW = 10 $\mu$ s, Duty = 1%	mW	50		
$\lambda_c$	Center Wavelength, $I_{FP} = 400$ mA, PW = 10 $\mu$ s, Duty = 1%, RMS (-20 dB)	nm	1280		1342.5
$\Delta\lambda/\Delta T$	Temperature Dependency of Center Wavelength	nm/ $^\circ\text{C}$		0.35	
$\sigma$	Spectral Width, $I_{FP} = 400$ mA, PW = 10 $\mu$ s, Duty = 1%, RMS (-20 dB)	dB			10

**ABSOLUTE MAXIMUM RATINGS<sup>1</sup>**

(T<sub>C</sub> = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
I <sub>FP</sub>	Pulsed Forward Current <sup>2</sup>	mA	600
V <sub>R</sub>	Reverse Voltage	V	2.0
T <sub>C</sub>	Operating Case Temperature	°C	-20 to +60
T <sub>STG</sub>	Storage Temperature	°C	-40 to +85
T <sub>SLD</sub>	Lead Soldering Temperature (10 sec)	°C	260
RH	Relative Humidity (noncondensing)	%	85

Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.
2. Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1 %.

**ORDERING INFORMATION**

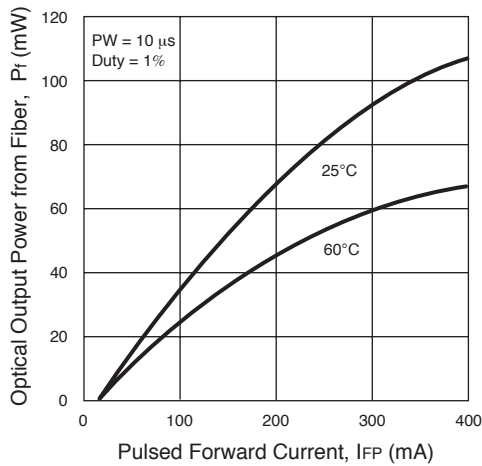
PART NUMBER	FLANGE TYPE
NX7328BF-AA-AZ*	flat mount flange

**\*Note:**

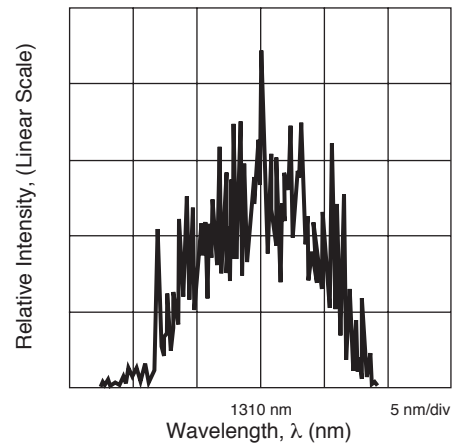
Please refer to the last page of this data sheet. "Compliance with EU Directives" for Pb-Free RoHS Compliance Information.

**TYPICAL PERFORMANCE CURVES** (T<sub>C</sub> = 25°C, unless otherwise specified)

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

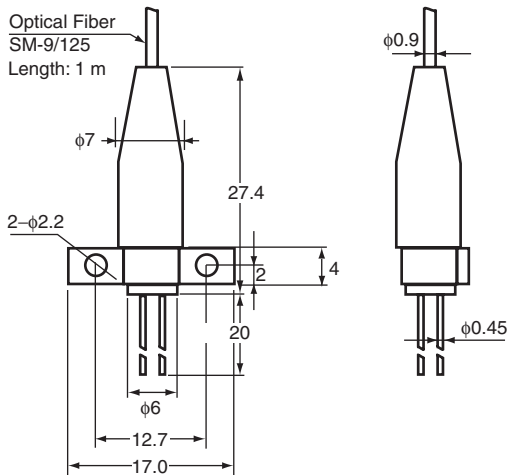


**SPECTRUM**

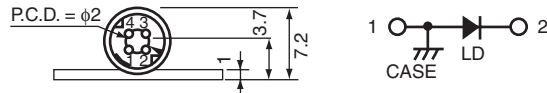


Remark: The graphs indicate nominal characteristics.

**OUTLINE DIMENSIONS** (Units in mm)

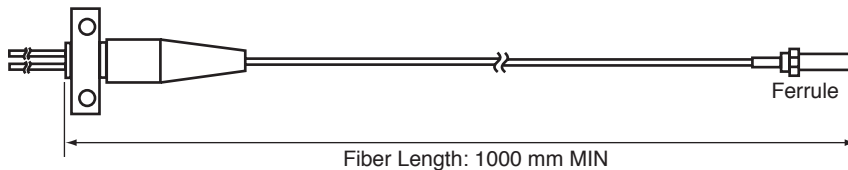


**PIN CONNECTIONS**



**OPTICAL FIBER CHARACTERISTICS**

PARAMETER	UNIT	SPECIFICATION
Mode Field Diameter	μm	9.3±0.5
Cladding Diameter	μm	125±2
Maximum Cladding Noncircularity	%	2
Maximum Core/Cladding Concentricity	%	1.6
Outer Diameter	mm	0.9±0.1
Cut-off Wavelength	nm	1140 to 1280
Minimum Fiber Bending Radius	mm	30
Fiber Length	mm	1000 MIN



**Life Support Applications**

These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.

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DATA SUBJECT TO CHANGE WITHOUT NOTICE

03/03/2003

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.

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