DATA SHEET

NEC

LASER DIODE

NX7538BF-AA

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

DESCRIPTION

The NX7538BF-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_f = 80 mW @ I_{FP} = 400 mA*1
- Long wavelength λ_C = 1 550 nm

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

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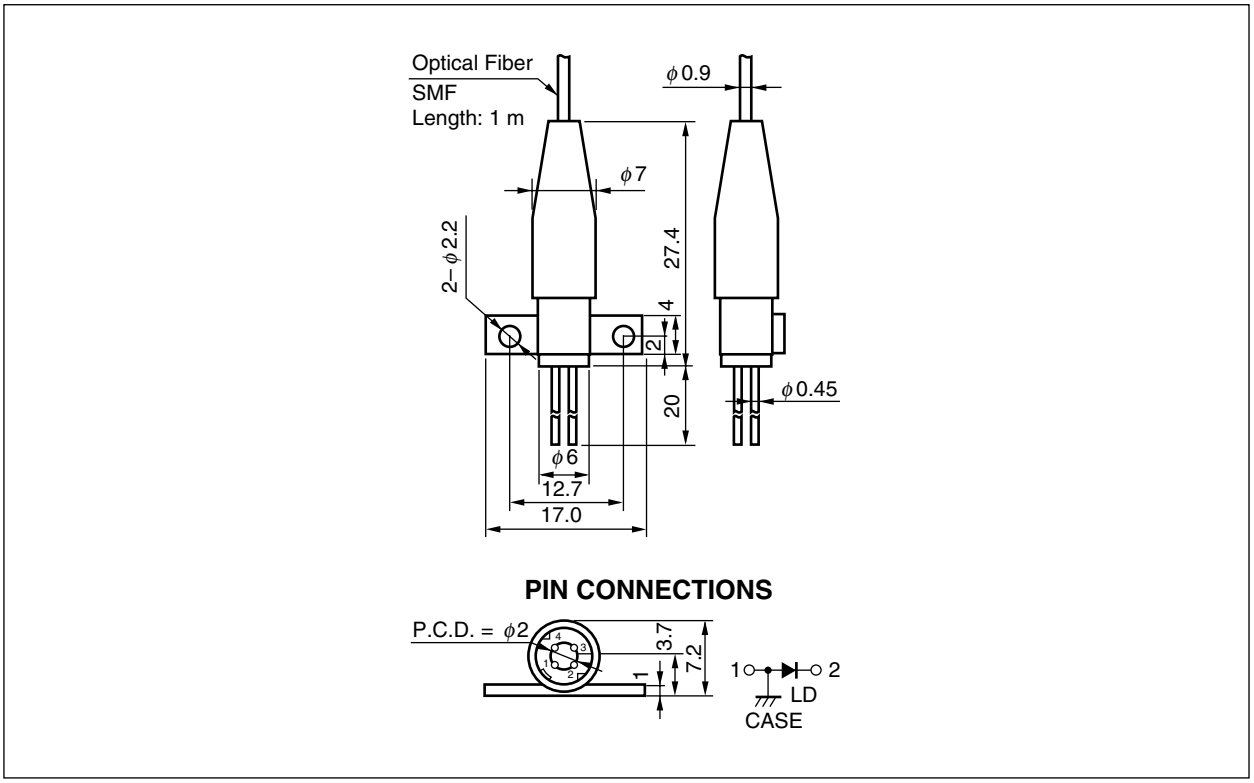
The mark <R> shows major revised points.

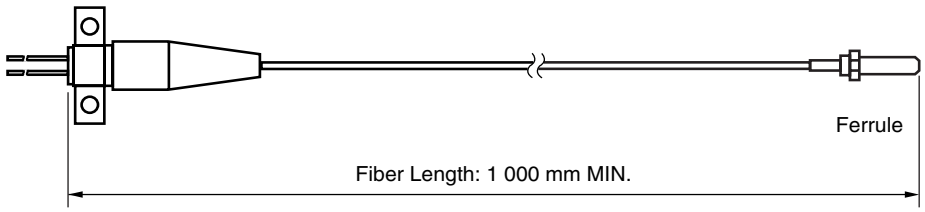
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

PACKAGE DIMENSIONS (UNIT: mm)



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
NX7538BF-AA	flat mount flange

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Pulsed Forward Current*1	I_{FP}	600	mA
Reverse Voltage	V_R	2.0	V
Operating Case Temperature	T_C	–20 to +60	°C
Storage Temperature	T_{stg}	–40 to +85	°C
<R> Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

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

ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25°C)

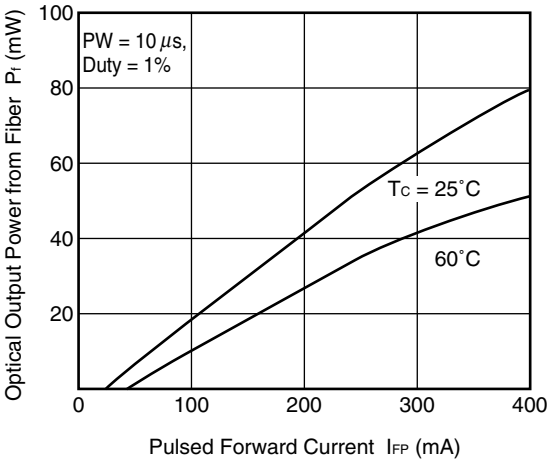
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V_{FP}	I_{FP} = 400 mA, PW = 10 μs, Duty = 1%		2.5	4.0	V
Threshold Current	I_{th}			45	50	mA
Optical Output Power from Fiber	P_f	I_{FP} = 400 mA, PW = 10 μs, Duty = 1%	60	80		mW
Center Wavelength	λ_C	RMS (–20 dB), I_{FP} = 400 mA, PW = 10 μs, Duty = 1%	1 530	1 550	1 570	nm
Spectral Width	σ	RMS (–20 dB), I_{FP} = 400 mA, PW = 10 μs, Duty = 1%		6.0	10.0	nm
<R> Rise Time	t_r	10-90%			2.0	ns
<R> Fall Time	t_f	90-10%			2.0	ns

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

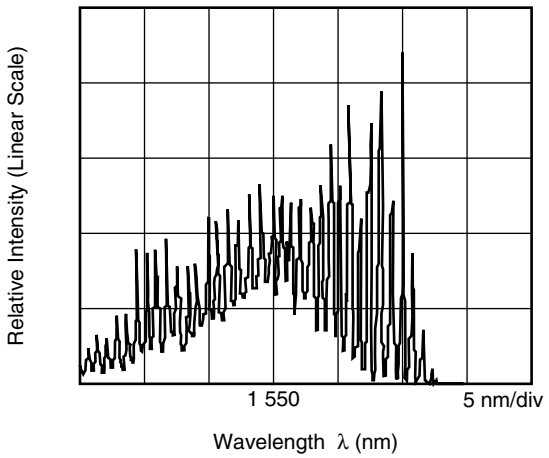
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Threshold Current	I_{th}				75	mA
Optical Output Power from Fiber	P_f	I_{FP} = 400 mA, PW = 10 μs, Duty = 1%	40			mW
Center Wavelength	λ_C	RMS (–20 dB), I_{FP} = 400 mA, PW = 10 μs, Duty = 1%	1 520		1 585	nm
Temperature Dependency of Center Wavelength	$\Delta\lambda/\Delta T$			0.35		nm/°C
Spectral Width	σ	RMS (–20 dB), I_{FP} = 400 mA, PW = 10 μs, Duty = 1%			10	nm

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.

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet[*1]	PX10160E

***1** Published by the former NEC Compound Semiconductor Devices, Ltd.

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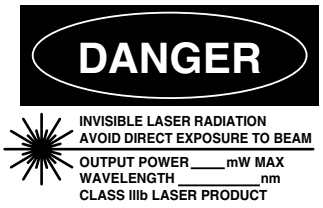

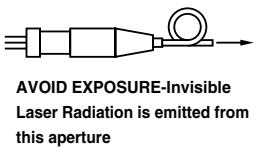

Warning Laser Beam	A laser beam is emitted from this diode during operation. The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight. • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam.
Caution GaAs Products	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. • 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. 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.
Caution Optical Fiber	A glass-fiber is attached on the product. Handle with care. • When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.

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