



# LASER DIODE

# NX7663JB-BC

## InGaAsP MQW DC-PBH PULSED LASER DIODE MODULE

### 1 625 nm OTDR APPLICATION

#### DESCRIPTION

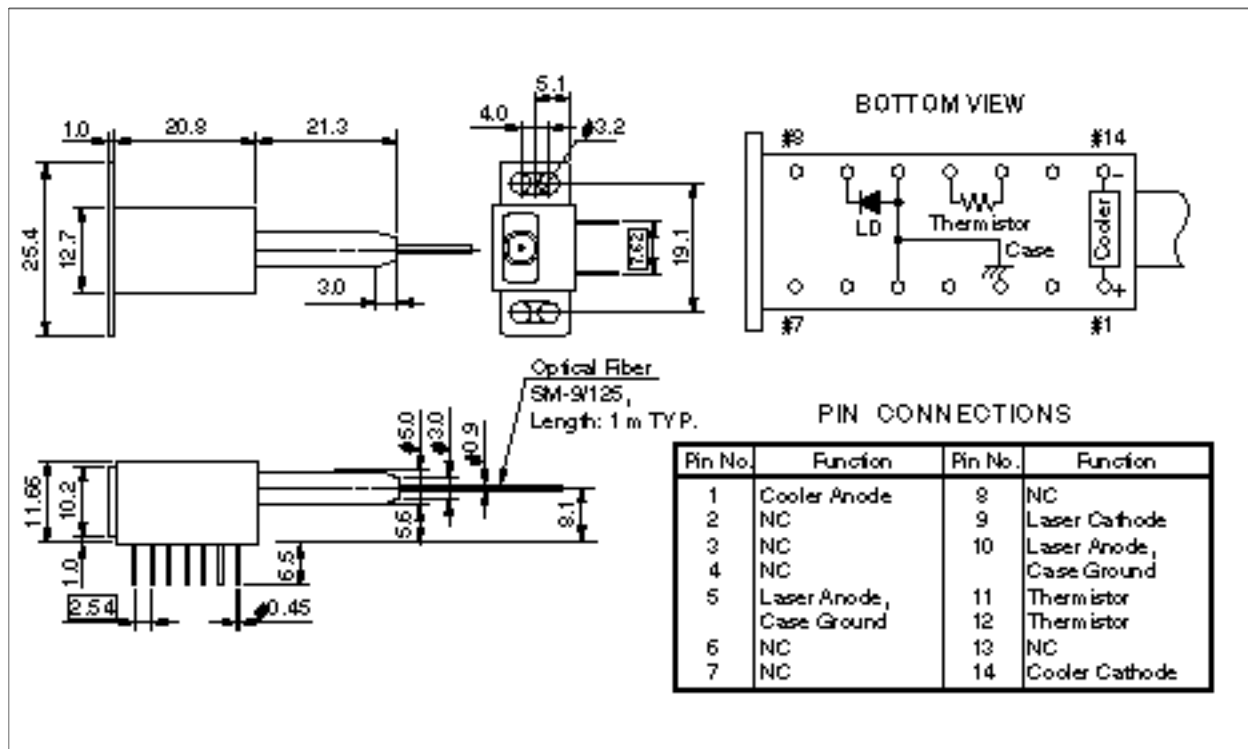
The NX7663JB-BC is a 1 625 nm Multiple Quantum Well (MQW) structure pulsed laser diode DIP module with single mode fiber and internal thermoelectric cooler. It is designed for light sources of optical measurement equipment (OTDR).

#### FEATURES

- High output power  $P_i = 120 \text{ mW MIN. @ } I_{FP} = 1\ 000 \text{ mA, PW} = 10 \text{ }\mu\text{s, Duty} = 1\%$
- Long wavelength  $\lambda_c = 1\ 625 \text{ nm}$
- Internal thermoelectric cooler, thermistor
- Hermetically sealed 14-pin Dual-In-Line Package
- Single mode fiber pigtail

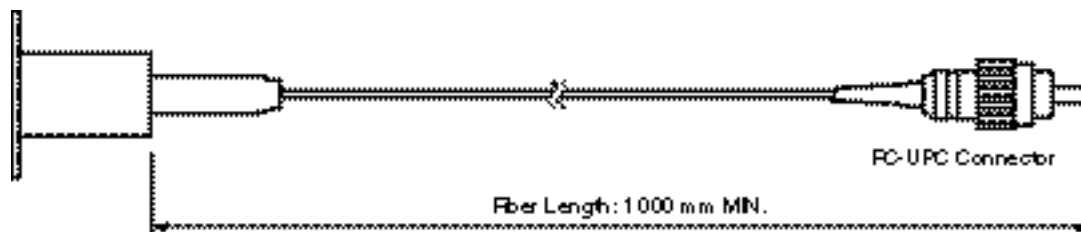
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PACKAGE DIMENSIONS (UNIT: mm)



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	1 100 to 1 270	nm
Minimum Fiber Bending Radius	30	mm
Fiber Length	1 000 MIN.	mm
Flammability	UL1581 VW-1	



**ORDERING INFORMATION**

Part Number	Available Connector
NX7663JB-BC-AZ*	With FC-UPC Connector

**\*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>	1.2	A
Reverse Voltage	V <sub>R</sub>	2.0	V
Cooler Current	I <sub>C</sub>	1.0	A
Cooler Voltage	V <sub>C</sub>	2.0	V
Thermistor Current	I <sub>t</sub>	0.5	mA
Thermistor Voltage	V <sub>t</sub>	12.0	V
Operating Case Temperature	T <sub>C</sub>	-20 to +65	°C
Storage Temperature	T <sub>stg</sub>	-40 to +70	°C
Lead Soldering Temperature	T <sub>slid</sub>	260 (10 sec.)	°C

<sup>\*1</sup> Pulse conditions: Pulse width (PW) = 10 μs, Duty = 1%

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>LD</sub> = 25°C, T<sub>C</sub> = -20 to +65°C, unless otherwise specified)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V <sub>FP</sub>	CW, I <sub>F</sub> = 30 mA			4.0	V
Threshold Current	I <sub>th</sub>	CW		30	70	mA
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 1 000 mA, PW = 10 μs, Duty = 1%	120			mW
Center Wavelength	λ <sub>c</sub>	RMS, I <sub>FP</sub> = 1 000 mA, PW = 10 μs, Duty = 1%	1 615	1 625	1 635	nm
Spectral Width	σ	RMS, I <sub>FP</sub> = 1 000 mA, PW = 10 μs, Duty = 1%		7.0	15	nm
Rise Time	t <sub>r</sub>	10-90%			2.0	ns
Fall Time	t <sub>f</sub>	90-10%			2.0	ns

**ELECTRO-OPTICAL CHARACTERISTICS**

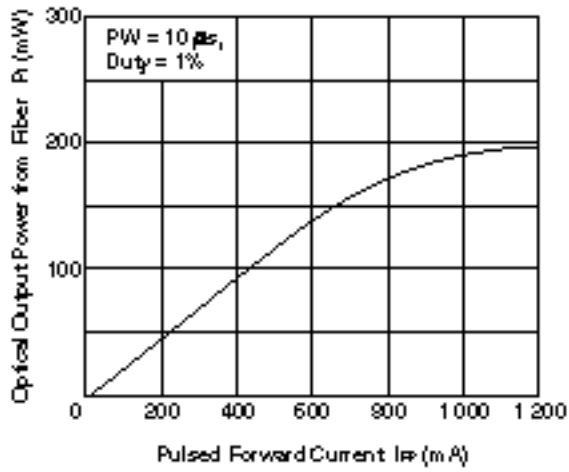
**(Applicable to Thermistor and TEC: T<sub>LD</sub> = 25°C, T<sub>C</sub> = -20 to +65°C, unless otherwise specified)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R	T <sub>LD</sub> = 25°C	9.5	10.0	10.5	kΩ
B Constant	B		3 350	3 450	3 550	K
Cooler Current	I <sub>c</sub>	ΔT = 40°C		0.6	0.8	A
Cooler Voltage	V <sub>c</sub>	ΔT = 40°C		1.1	1.5	V
Cooling Capacity	ΔT <sup>*1</sup>	I <sub>c</sub> = 0.8 A	40			°C

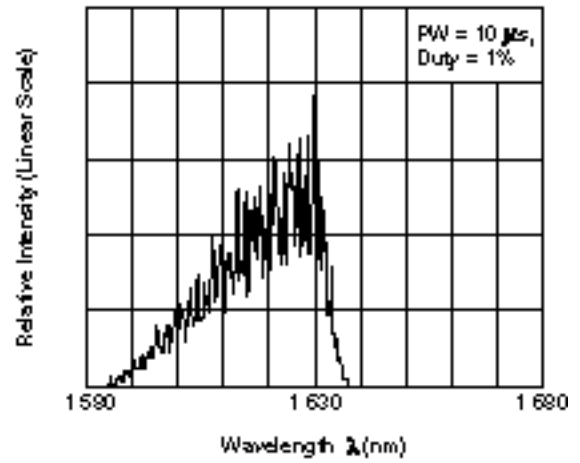
\*1 ΔT = |T<sub>C</sub> - T<sub>LD</sub>|

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

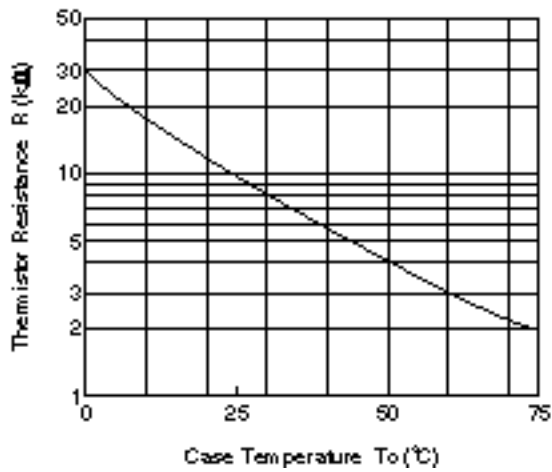
OPTICAL OUTPUT POWER FROM FIBER vs. PULSED FORWARD CURRENT



SPECTRUM



THERMISTOR RESISTANCE vs. CASE TEMPERATURE



**Remark** The graphs indicate nominal characteristics.

**REFERENCE**

Document Name	Document No.
Opto-Electronics Devices Pamphlet	PX10160E

**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>