

# PRELIMINARY DATA SHEET

# NEC

# LASER DIODE NX7561JB

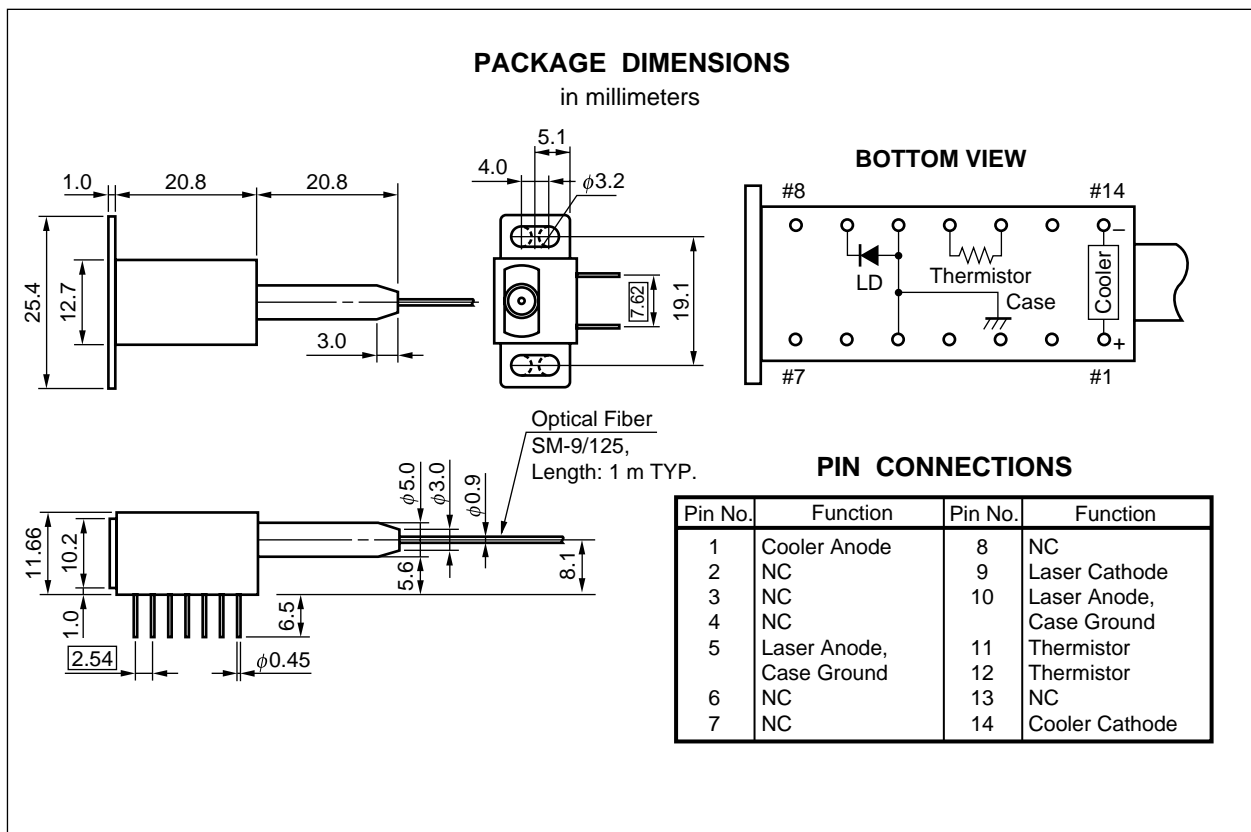
## InGaAsP STRAINED MQW DC-PBH PULSED LASER DIODE MODULE 1 550 nm OTDR APPLICATION

### DESCRIPTION

The NX7561JB is a 1 550 nm newly developed Strained Multiple Quantum Well (St-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  $P_i = 135 \text{ mW MIN. @ } I_{FP} = 1\,000 \text{ mA, PW} = 10 \mu\text{s, Duty} = 1\%$
- Long wavelength  $\lambda_c = 1\,550 \text{ nm}$
- Internal thermoelectric cooler, thermistor
- Hermetically sealed 14-pin Dual-In-Line Package
- Single mode fiber pigtail



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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

**ORDERING INFORMATION**

Part Number	Available Connector
NX7561JB	Without Connector
NX7561JB-BA	With FC-PC Connector

**ABSOLUTE MAXIMUM RATINGS (T<sub>c</sub> = 25 °C, unless otherwise specified)**

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 (10 s)	T <sub>slid</sub>	260	°C

\*1 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)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V <sub>FP</sub>	CW, I <sub>F</sub> = 30 mA		2.5	4.0	V
Threshold Current	I <sub>th</sub>	CW		40	70	mA
Optical Output Power from Fiber	P <sub>f</sub>	I <sub>FP</sub> = 1 000 mA, *1	135			mW
		I <sub>FP</sub> = 600 mA, *1	70			
		I <sub>FP</sub> = 400 mA, *1	20			
Center Wavelength	λ <sub>c</sub>	RMS, I <sub>FP</sub> = 400, 600, 1 000 mA, *1	1 530	1 550	1 570	nm
Spectral Width	σ	RMS, I <sub>FP</sub> = 400, 600, 1 000 mA, *1		4.0	8.0	nm
Rise Time	t <sub>r</sub>	10-90 %		1.0	2.0	ns
Fall Time	t <sub>f</sub>	90-10 %		1.4	2.0	ns

\*1 PW = 10 μs, Duty = 1 %

**ELECTRO-OPTICAL CHARACTERISTICS**

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

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		3 300	3 400	3 500	K
Cooler Current	I <sub>c</sub>	ΔT = 40 K		0.6	0.8	A
Cooler Voltage	V <sub>c</sub>	ΔT = 40 K		1.1	1.5	V
Cooling Capacity	ΔT <sup>-1</sup>	I <sub>c</sub> = 0.8 A	40			K

\*1  $\Delta T = |T_C - T_{LD}|$

LASER DIODE FAMILY FOR OTDR APPLICATION

Part number	Absolute maximum ratings			Electro-optical characteristics (T <sub>c</sub> = 25 °C)						Package
	I <sub>F</sub> <sup>*1</sup> (mA)	T <sub>c</sub> (°C)	T <sub>stg</sub> (°C)	I <sub>th</sub> (mA)	I <sub>FP</sub> <sup>*1</sup> (mA)	P <sub>o</sub> /P <sub>t</sub> <sup>*1</sup> (mW)	λ <sub>c</sub> <sup>*1</sup> (nm)	σ <sup>*2</sup> (nm)	t <sub>r</sub> /t <sub>f</sub> (ns)	
				TYP.	TYP.	TYP.	TYP.	MAX.	MAX.	
NDL7103	1200	-40 to +70	-55 to +125	35	1 000	320	1 310	7	2/2	CAN
NDL7113	600	-40 to +70	-55 to +125	20	400	175	1 310	10	1/1	CAN
NDL7153	1200	-40 to +70	-55 to +125	45	1 000	240	1 550	8	2/2	CAN
NDL7163	600	-40 to +70	-55 to +125	30	400	120	1 550	10	1/1	CAN
NDL7503P series	1200	-20 to +60	-40 to +85	35	1 000	180	1 310	10	2/2	Coaxial
NDL7513P series	600	-20 to +60	-40 to +85	20	400	110	1 310	10	1/1	Coaxial
NDL7514P series	600	-20 to +60	-40 to +85	20	400	50	1 310	10	1/1	Coaxial
NDL7515P series	600	-20 to +60	-40 to +85	20	400	30	1 310	10	1/1	Coaxial
NDL7553P series	1200	-20 to +60	-40 to +85	45	1 000	145	1 550	10	2/2	Coaxial
NDL7563P series	600	-20 to +60	-40 to +85	40	400	80	1 550	10	1/1	Coaxial
NDL7564P series	600	-20 to +60	-40 to +85	40	400	40	1 550	10	1/1	Coaxial
NDL7565P series	600	-20 to +60	-40 to +85	20	400	11	1 550	10	1/1	Coaxial
NX7361JB	1200	-20 to +65	-40 to +70	35	1 000	150 <sup>*3</sup>	1 310	7	2/2	DIP
NX7561JB	1200	-20 to +65	-40 to +70	40	1 000	135 <sup>*3</sup>	1 550	8	2/2	DIP
NX7661JB	1200	-20 to +65	-40 to +70	30	1 000	120 <sup>*3</sup>	1 625	7	2/2	DIP

\*1 Pulse conditions: Pulse width = 10 μs, Duty = 1 % (Coaxial, DIP)  
Pulse width = 1 μs, Duty = 1 % (CAN)

\*2 RMS (-20 dB)

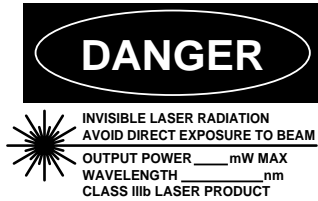
\*3 MIN.

[MEMO]

[MEMO]

CAUTION

Within this device there exists GaAs (Gallium Arsenide) material which is a harmful substance if ingested. Please do not under any circumstances break the hermetic seal.

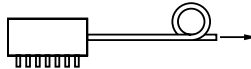


**DANGER**

INVISIBLE LASER RADIATION  
AVOID DIRECT EXPOSURE TO BEAM

OUTPUT POWER \_\_\_\_\_mW MAX  
WAVELENGTH \_\_\_\_\_nm  
CLASS IIIb LASER PRODUCT

SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible  
Laser Radiation is emitted from  
this aperture

NEC Corporation  
NEC Building, 7-1, Shiba 5-chome,  
Minato-ku, Tokyo 108-01, Japan

Type number: \_\_\_\_\_  
Manufactured: \_\_\_\_\_  
Serial Number: \_\_\_\_\_

This product conforms to FDA  
regulations as applicable  
to standards 21 CFR Chapter 1.  
Subchapter J.

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