PRELIMINARY DATA SHEET

NEC

LASER DIODE
NX7361JB

InGaAsP STRAINED MQW DC-PBH PULSED LASER DIODE MODULE
1 310 nm OTDR APPLICATION

DESCRIPTION

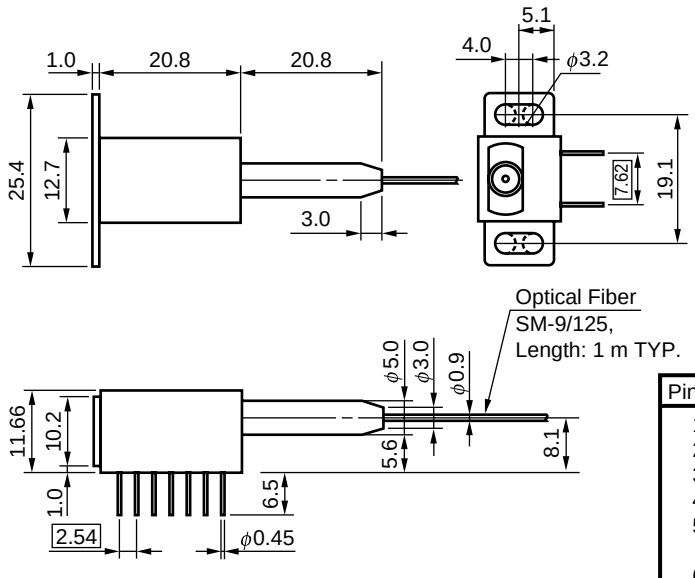
The NX7361JB is a 1 310 nm newly developed Strained Multiple Quantum Well (St-MQW) structure pulsed laser diode DIP module with single mode fiber and internal thermoelectric cooler. It is designed for light sources of optical measurement equipment (OTDR).

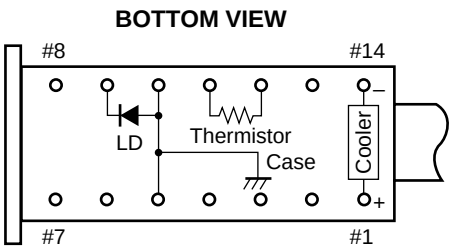
FEATURES

- High output power P_f = 150 mW MIN. @ I_{FP} = 1 000 mA, PW = 10 μs, Duty = 1 %
- Long wavelength λ_C = 1 310 nm
- Internal thermoelectric cooler, thermistor
- Hermetically sealed 14-pin Dual-In-Line Package
- Single mode fiber pigtail

PACKAGE DIMENSIONS

in millimeters





PIN CONNECTIONS

Pin No.	Function	Pin No.	Function
1	Cooler Anode	8	NC
2	NC	9	Laser Cathode
3	NC	10	Laser Anode,
4	NC		Case Ground
5	Laser Anode,	11	Thermistor
	Case Ground	12	Thermistor
6	NC	13	NC
7	NC	14	Cooler Cathode

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ORDERING INFORMATION

Part Number	Available Connector
NX7361JB	Without Connector
NX7361JB-BA	With FC-PC Connector

ABSOLUTE MAXIMUM RATINGS (T_C = 25 °C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Pulsed Forward Current*1	I_{FP}	1.2	A
Reverse Voltage	V_R	2.0	V
Cooler Current	I_C	1.0	A
Cooler Voltage	V_C	2.0	V
Thermistor Current	I_t	0.5	mA
Thermistor Voltage	V_t	12.0	V
Operating Case Temperature	T_C	−20 to +65	°C
Storage Temperature	T_{stg}	−40 to +70	°C
Lead Soldering Temperature (10 s)	T_{sld}	260	°C

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

ELECTRO-OPTICAL CHARACTERISTICS (T_{LD} = 25 °C, T_C = –20 to +65 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Forward Voltage	V_{FP}	CW, I_F = 30 mA		2.5	4.0	V
Threshold Current	I_{th}	CW		35	65	mA
Optical Output Power from Fiber	P_f	I_{FP} = 1 000 mA, ***1**	150			mW
		I_{FP} = 600 mA, ***1**	90			
		I_{FP} = 400 mA, ***1**	40			
Center Wavelength	λ_C	RMS, I_{FP} = 400, 600, 1 000 mA, ***1**	1 290	1 310	1 330	nm
Spectral Width	σ	RMS, I_{FP} = 400, 600, 1 000 mA, ***1**		3.0	7.0	nm
Rise Time	t_r	10-90 %		1.0	2.0	ns
Fall Time	t_f	90-10 %		1.4	2.0	ns

***1** PW = 10 μs, Duty = 1 %

ELECTRO-OPTICAL CHARACTERISTICS (Applicable to Thermistor and TEC: T_{LD} = 25 °C, T_C = –20 to +65 °C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R	T_{LD} = 25 °C	9.5	10.0	10.5	kΩ
B Constant	B		3 300	3 400	3 500	K
Cooler Current	I_C	ΔT = 40 K		0.6	0.8	A
Cooler Voltage	V_C	ΔT = 40 K		1.1	1.5	V
Cooling Capacity	ΔT^{*1}	I_C = 0.8 A	40			K

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

LASER DIODE FAMILY FOR OTDR APPLICATION

Part number	Absolute maximum ratings			Electro-optical characteristics (T_C = 25 °C)						Package
	I_F *1 (mA)	T_C (°C)	T_{stg} (°C)	I_{th} (mA)	I_{FP} *1 (mA)	P_o/P_f *1 (mW)	λ_C *1 (nm)	σ *2 (nm)	t_r/t_f (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 *3	1 310	7	2/2	DIP
NX7561JB	1200	–20 to +65	–40 to +70	40	1 000	135 *3	1 550	8	2/2	DIP
NX7661JB	1200	–20 to +65	–40 to +70	30	1 000	120 *3	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)

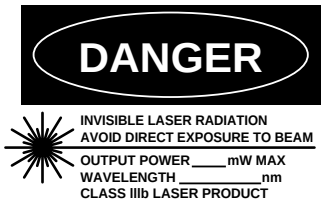
***3** MIN.

[MEMO]

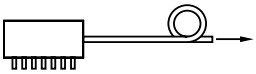
[MEMO]

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.



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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