DATA SHEET

NEC

LASER DIODE

NX7561JB-BC

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

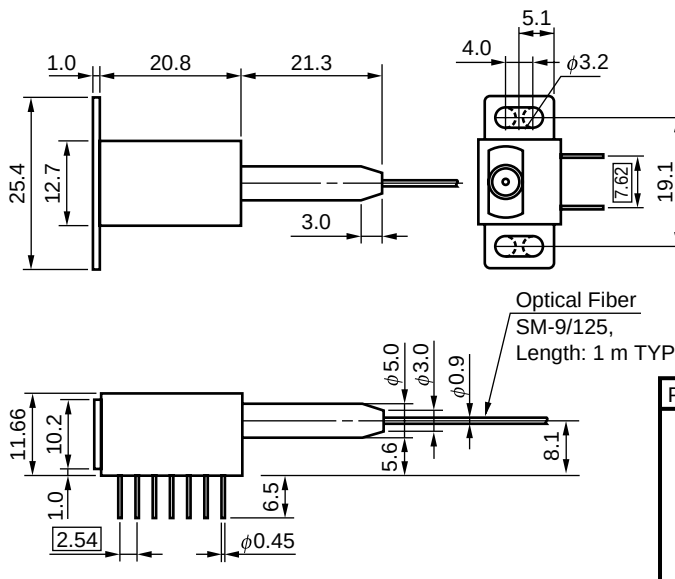
DESCRIPTION

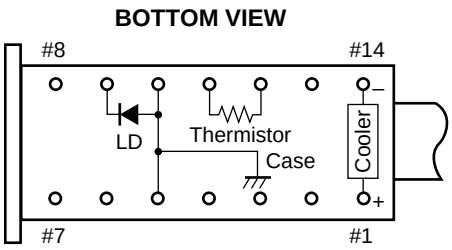
The NX7561JB-BC is a 1 550 nm Multiple Quantum Well (MQW) structure pulsed laser diode DIP module with single mode fiber and internal thermoelectric cooler. It is designed for light sources of optical measurement equipment (OTDR).

FEATURES

- High output power P_f = 135 mW MIN. @ I_{FP} = 1 000 mA, PW = 10 μs, Duty = 1%
- Long wavelength λ_C = 1 550 nm
- Internal thermoelectric cooler, thermistor
- Hermetically sealed 14-pin Dual-In-Line Package
- Single mode fiber pigtail

★ PACKAGE DIMENSIONS (UNIT: mm)





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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The mark ★ shows major revised points.

★ ORDERING INFORMATION

Part Number	Available Connector
NX7561JB-BC	With FC-UPC Connector

ABSOLUTE MAXIMUM RATINGS

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	T_{sld}	260 (10 sec)	°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		40	70	mA
Optical Output Power from Fiber	P_f	I_{FP} = 1 000 mA, ***1**	135			mW
		I_{FP} = 600 mA, ***1**	70			
		I_{FP} = 400 mA, ***1**	20			
Center Wavelength	λ_C	RMS, I_{FP} = 400, 600, 1 000 mA, ***1**	1 530	1 550	1 570	nm
★ Spectral Width	σ	RMS, I_{FP} = 400, 600, 1 000 mA, ***1**		6.0	10.0	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%

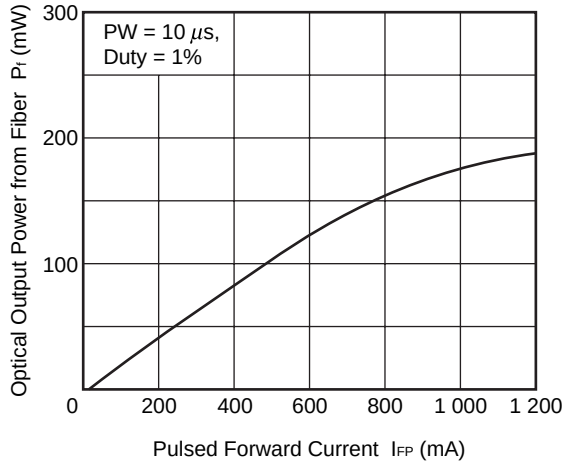
ELECTRO-OPTICAL CHARACTERISTICS
(Applicable to Thermistor and TEC: T_{LD} = 25°C, T_C = –20 to +65°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Thermistor Resistance	R	T_{LD} = 25°C	9.5	10.0	10.5	kΩ
★ B Constant	B		3 350	3 450	3 550	K
Cooler Current	I_C	ΔT = 40°C		0.6	0.8	A
Cooler Voltage	V_C	ΔT = 40°C		1.1	1.5	V
Cooling Capacity	ΔT^{*1}	I_C = 0.8 A	40			°C

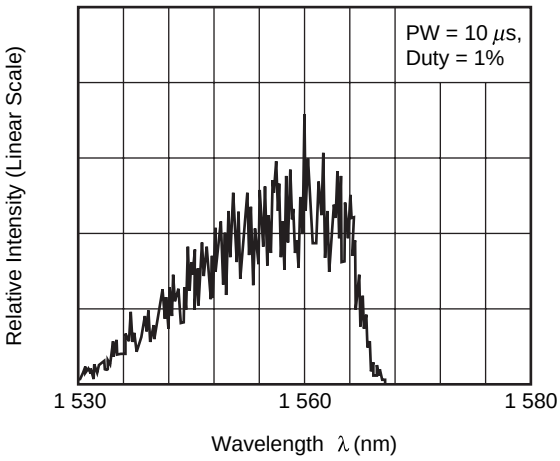
***1** $\Delta T = \left| T_C - T_{LD} \right|$

★ TYPICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)

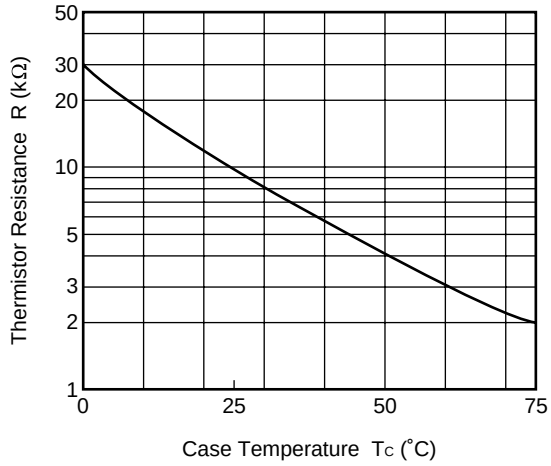
OPTICAL OUTPUT POWER FROM FIBER vs. PULSED FORWARD CURRENT



SPECTRUM



THERMISTOR RESISTANCE vs. CASE TEMPERATURE



Remark The graphs indicate nominal characteristics.

★ OTDR LD FAMILY

Part Number	Electro-Optical Characteristics (T_C = 25°C)			Conditions			Application	Package
	λ_C (nm)	P_f (mW)		I_{FP} (mA)	PW (μs)	Duty (%)		
	TYP.	MIN.	TYP.					
NX7327BF-AA	1 310	110	180	1 000	10	1	OTDR	4-pin coax. with SMF
NX7328BF-AA	1 310	70	110	400	10	1	OTDR	4-pin coax. with SMF
NX7329BB-AA	1 310	25	50	400	10	1	OTDR	4-pin coax. with SMF
NX7361JB-BC	1 310	150	–	1 000	10	1	OTDR	14-pin DIP with SMF
NX7526BF-AA	1 550	95	145	1 000	10	1	OTDR	4-pin coax. with SMF
NX7527BF-AA	1 550	120	145	1 000	10	1	OTDR	4-pin coax. with SMF
NX7528BF-AA	1 550	60	80	400	10	1	OTDR	4-pin coax. with SMF
NX7529BB-AA	1 550	20	40	400	10	1	OTDR	4-pin coax. with SMF
NX7561JB-BC	1 550	135	–	1 000	10	1	OTDR	14-pin DIP with SMF
NX7661JB-BC	1 625	120	–	1 000	10	1	OTDR	14-pin DIP with SMF

REFERENCE

Document Name	Document No.
Optical semiconducrtor devices for fiberoptic communications Selection Guide	P12480E
Opto-Electronics Devices Pamphlet	P13623E
Opto-Electronics Devices (CD-ROM)	P12944X
NEC semiconductor device reliability/quality control system[*1]	C11159E
Quality grades on NEC semiconductor devices[*1]	C11531E
SEMICONDUCTOR SELECTION GUIDE –Products and Packages–[*1]	X13769E

***1** Published by NEC Corporation

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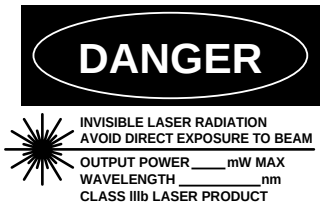

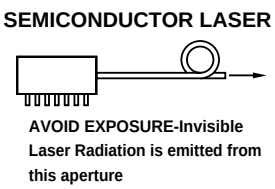

Warning Laser Beam	A laser beam is emitted from this diode during operation. The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight. • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam.
Caution GaAs Products	The product contains gallium arsenide, GaAs. GaAs vapor and powder are hazardous to human health if inhaled or ingested. • Do not destroy or burn the product. • Do not cut or cleave off any part of the product. • Do not crush or chemically dissolve the product. • Do not put the product in the mouth. Follow related laws and ordinances for disposal. The product should be excluded from general industrial waste or household garbage.
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.

▶**Business issue**

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▶**Technical issue**

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