



NEC's 1550 nm InGaAsP MQW FP PULSED LASER DIODE IN DIP PACKAGE FOR OTDR APPLICATION (135 mW MIN)

NX7561JB-BC

FEATURES

- **HIGH OUTPUT POWER:**
 $P_f = 135 \text{ mW MIN}$ at $I_{FP} = 1000 \text{ mA}$,
Pulse width (PW) = 10ms, Duty = 1%
- **LONG WAVELENGTH:**
 $\lambda_c = 1550 \text{ nm}$
- **INTERNAL THERMOELECTRIC COOLER**
- **HERMETICALLY SEALED 14 PIN DUAL-IN-LINE PACKAGE**
- **SINGLE MODE FIBER PIGTAIL**

DESCRIPTION

NEC's NX7561JB-BC is a 1550 nm 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).

ELECTRO-OPTICAL CHARACTERISTICS ($T_{LD} = 25^\circ\text{C}$, $T_c = -20$ to $+65^\circ\text{C}$, unless otherwise specified)

PART NUMBER			NX7561JB-BC		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
V_{FP}	Forward Voltage, CW, $I_F = 30 \text{ mA}$	V		2.5	4.0
I_{TH}	Threshold Current, CW	mA		40	70
P_f	Optical Output Power from Fiber	$I_{FP} = 1000 \text{ mA}^1$	mW	135	
		$I_{FP} = 600 \text{ mA}^1$	mW	70	
		$I_{FP} = 400 \text{ mA}^1$	mW	20	
λ_c	Center Wavelength, RMS, $I_{FP} = 400, 600, 1000 \text{ mA}^1$	nm	1530	1550	1570
σ	Spectral Width, RMS, $I_{FP} = 400, 600, 1000 \text{ mA}^1$	nm		6.0	10.0
t_r	Rise Time, 10-90%	ns		1.0	2.0
t_f	Fall Time, 90-10%	ns		1.4	2.0

Note:

1. PW = 10 μs , Duty = 1%

ELECTRO-OPTICAL CHARACTERISTICS

APPLICABLE TO THERMISTOR AND TEC: ($T_{LD} = 25^\circ\text{C}$, $T_c = -20$ to $+65^\circ\text{C}$, unless otherwise specified)

PART NUMBER			NX7561JB-BC		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
R^1	Thermistor Resistance, $T_{LD} = 25^\circ\text{C}$	k Ω	9.5	10.0	10.5
B	B Constant	K	3350	3450	3550
I_c	Cooler Current, $\Delta T = 40 \text{ K}$	A		0.6	0.8
V_c	Cooler Voltage, $\Delta T = 40 \text{ K}$	V		1.1	1.5
ΔT^1	Cooling Capacity, $I_c = 0.8 \text{ A}$	K	40		

Note:

1. $\Delta T = |T_c - T_{LD}|$.

ABSOLUTE MAXIMUM RATINGS¹

(T_C = 25°C, unless otherwise specified)

SYMBOLS	PARAMETERS	UNITS	RATINGS
I _{FP}	Pulsed Forward Current ²	A	1.2
V _R	Reverse Voltage	V	2.0
I _C	Cooler Current	A	1.0
V _C	Cooler Voltage	V	2.0
I _t	Thermistor Current	mA	0.5
V _t	Thermistor Voltage	V	12.0
T _C	Operating Case Temperature	°C	-20 to +65
T _{STG}	Storage Temperature	°C	-40 to +70
T _{SLD}	Lead Soldering Temperature (10 sec)	°C	260

Notes:

1. Operation in excess of any one of these parameters may result in permanent damage.
2. Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1 %.

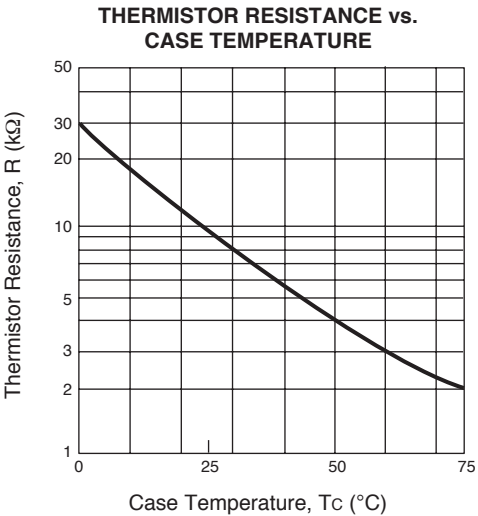
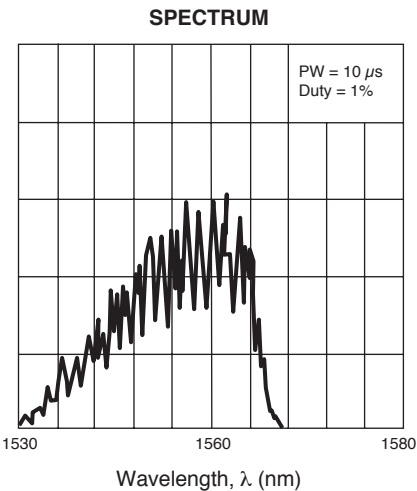
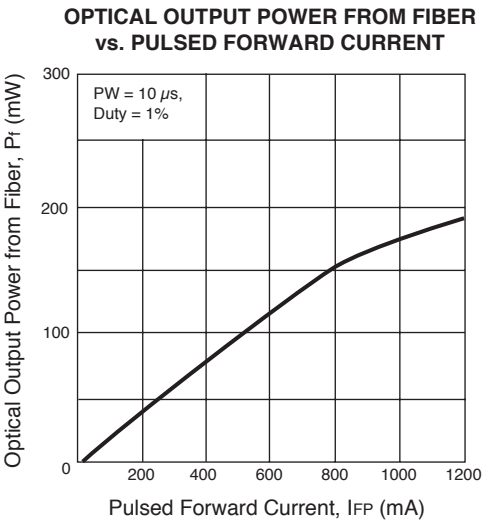
ORDERING INFORMATION

PART NUMBER	DESCRIPTION
NX7561JB-BC-AZ*	With FC-PC Connector

*Note:

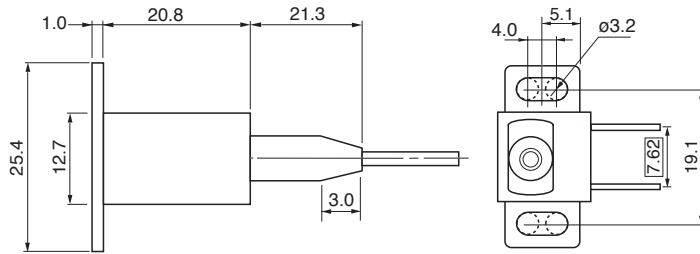
Please refer to the last page of this data sheet. "Compliance with EU Directives" for Pb-Free RoHS Compliance Information.

TYPICAL PERFORMANCE CURVES (T_A = 25°C)

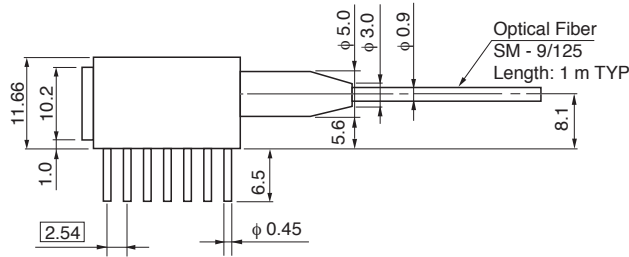
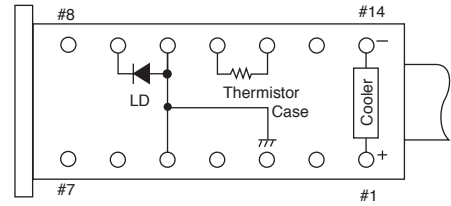


Remark: The graphs indicate nominal characteristics.

OUTLINE DIMENSIONS (Units in mm)



BOTTOM VIEW



PIN CONNECTIONS

PIN No.	FUNCTION	PIN No.	FUNCTION
1	COOLER ANODE	8	NC
2	NC	9	LASER CATHODE
3	NC	10	LASER ANODE, CASE GROUND
4	NC	11	THERMISTOR
5	LASER ANODE, CASE GROUND	12	THERMISTOR
6	NC	13	NC
7	NC	14	COOLER CATHODE

Life Support Applications

These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.

CEL California Eastern Laboratories, Your source for NEC RF, Microwave, Optoelectronic, and Fiber Optic Semiconductor Devices.
4590 Patrick Henry Drive • Santa Clara, CA 95054-1817 • (408) 988-3500 • FAX (408) 988-0279 • www.cel.com

DATA SUBJECT TO CHANGE WITHOUT NOTICE

03/03/2003

Subject: Compliance with EU Directives

CEL certifies, to its knowledge, that semiconductor and laser products detailed below are compliant with the requirements of European Union (EU) Directive 2002/95/EC Restriction on Use of Hazardous Substances in electrical and electronic equipment (RoHS) and the requirements of EU Directive 2003/11/EC Restriction on Penta and Octa BDE.

CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL's understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
		-A	-AZ
Lead (Pb)	< 1000 PPM	Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

If you should have any additional questions regarding our devices and compliance to environmental standards, please do not hesitate to contact your local representative.

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In no event shall CEL's liability arising out of such information exceed the total purchase price of the CEL part(s) at issue sold by CEL to customer on an annual basis.

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