



NEC's 1310 nm InGaAsP MQW FP PULSED LASER DIODE IN DIP PACKAGE FOR OTDR APPLICATION (150 mW MIN)

NX7361JB-BC

FEATURES

- **HIGH OUTPUT POWER:**
Pf = 150 mW at IFP = 1000 mA
PW = 10 ms, Duty = 1%
- **LONG WAVELENGTH:**
 $\lambda_c = 1310$ nm
- **INTERNAL THERMOELECTRIC COOLER, THERMISTOR**
- **HERMETICALLY SEALED 14 PIN DUAL-IN-LINE PACKAGE**
- **SINGLE MODE FIBER PIGTAIL**

DESCRIPTION

NEC's NX7361JB-BC is a 1310 nm developed strained Multiple Quantum Well (st-MQW) structured 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°C, T_c = -20 to +65°C, unless otherwise specified)

| PART NUMBER | | | NX7361JB-BC | | |
|-----------------|---|-------|-----------------|------|------|
| SYMBOLS | PARAMETERS AND CONDITIONS | UNITS | MIN | TYP | MAX |
| V _{FP} | Forward Voltage, I _F = 30 mA | V | | 2.5 | 4.0 |
| I _{TH} | Threshold Current | mA | | 35 | 65 |
| P _f | Optical Output Power from Fiber, I _{FP} = 1000 mA ¹ I _{FP} = 600 mA ¹ I _{FP} = 400 mA ¹ | mW | 150 90 40 | | |
| λ_c | Center Wavelength, RMS, I _{FP} = 400, 600, 1000 mA ¹ | nm | 1290 | 1310 | 1330 |
| σ | Spectral Width, RMS, I _{FP} = 400, 600, 1000 mA ¹ | nm | | 3.0 | 7.0 |
| 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 μ s, Duty = 1%.

ELECTRO-OPTICAL CHARACTERISTICS APPLICABLE TO THERMISTOR AND TEC: (T_{LD} = 25°C, T_c = -20 to +65°C, unless otherwise specified)

| PART NUMBER | | | NX7361JB-BC | | |
|----------------|---|-------|-------------|------|------|
| SYMBOLS | PARAMETERS AND CONDITIONS | UNITS | MIN | TYP | MAX |
| R | Thermistor Resistance, T _{LD} = 25°C | R | 9.5 | 10.0 | 10.5 |
| B | B Constant | K | 3350 | 3450 | 3550 |
| I _c | Cooler Current, $\Delta T = 40$ K | A | | 0.6 | 1.0 |
| V _c | Cooler Voltage, $\Delta T = 40$ K | V | | 1.1 | 1.5 |
| ΔT^1 | Cooling Capacity, I _c = 0.8 A | K | 40 | | |

Notes:

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

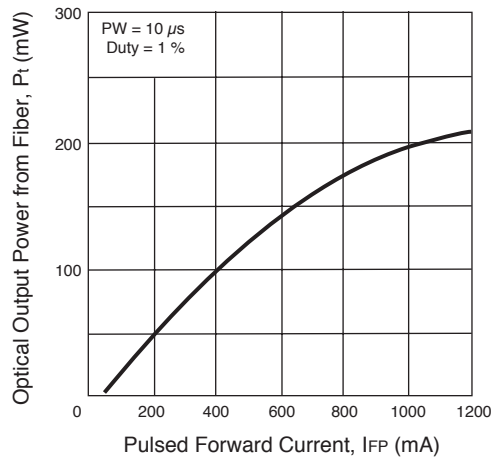
| PART NUMBER | AVAILABLE CONNECTOR |
|-----------------|-----------------------|
| NX7361JB-BC-AZ* | With FC-UPC Connector |

***Note:**

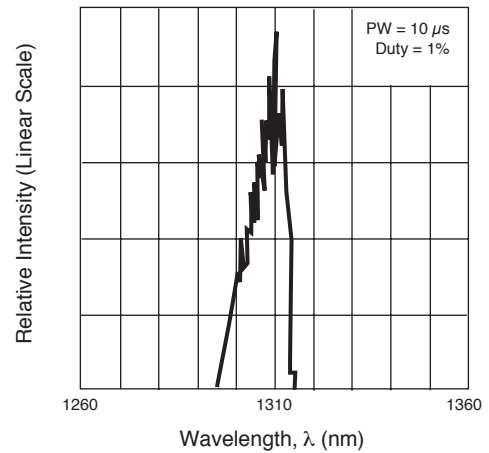
Please refer to the last page of this data sheet. "Compliance with EU Directives" for Pb-Free RoHS Compliance Information.

TYPICAL PERFORMANCE CURVES (T_A = 25°C)

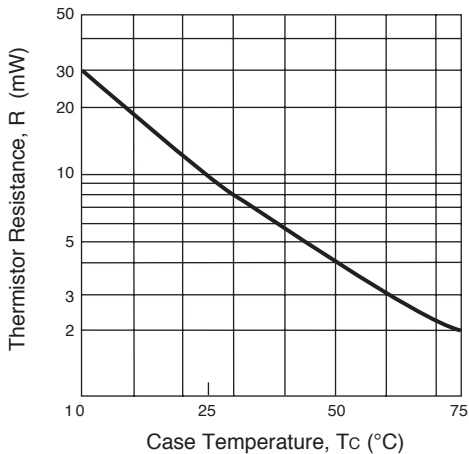
OPTICAL OUTPUT POWER FROM FIBER vs. PULSED FORWARD CURRENT



SPECTRUM

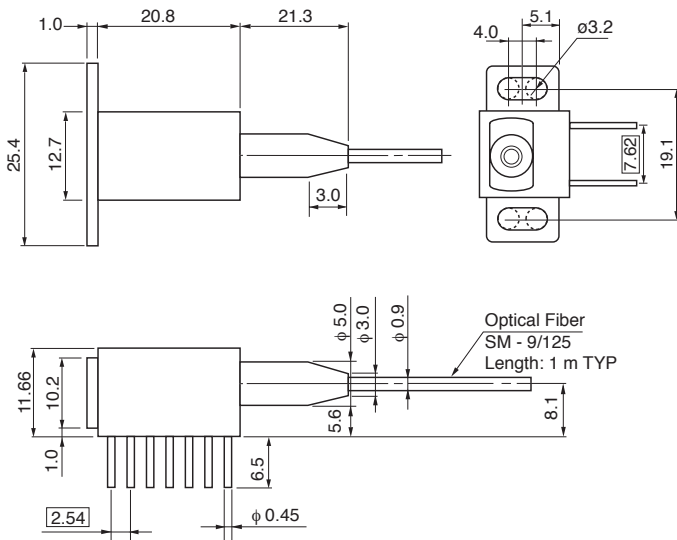


THERMISTOR RESISTANCE vs. CASE TEMPERATURE

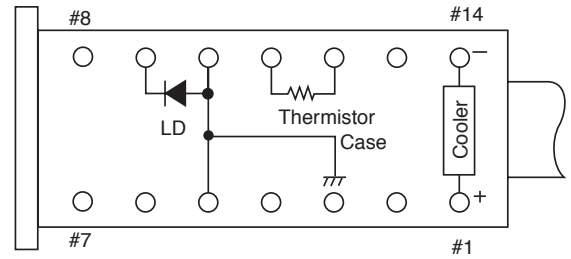


Remark: The graphs indicate nominal characteristics.

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.
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DATA SUBJECT TO CHANGE WITHOUT NOTICE

02/20/2003

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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