

# NX7363JB-BC

LASER DIODE

R08DS0009EJ0200

Rev.2.00

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

Sep 19, 2010

## DESCRIPTION

The NX7363JB-BC is a 1 310 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).

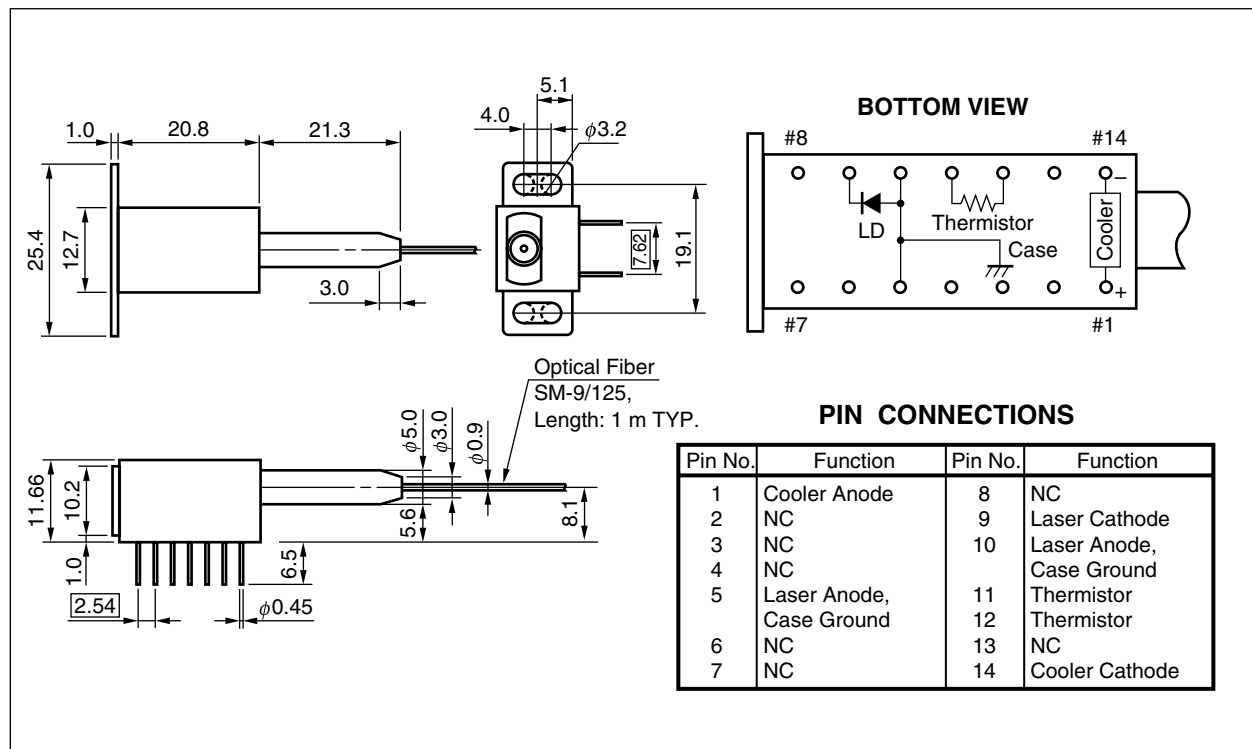
## FEATURES

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

The mark <R> shows major revised points.

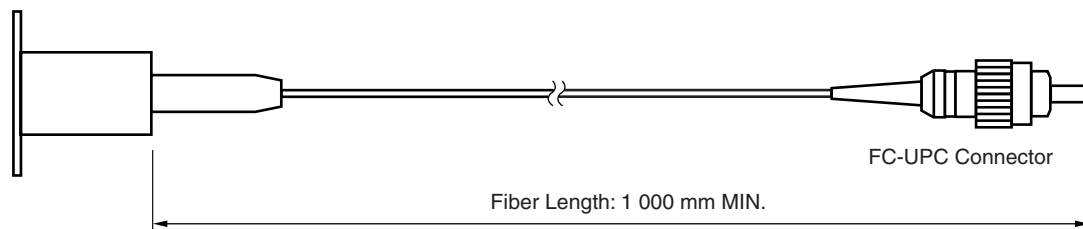
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

## PACKAGE DIMENSIONS (UNIT: mm)



## OPTICAL FIBER CHARACTERISTICS

| Parameter                           | Specification  | Unit |
|-------------------------------------|----------------|------|
| Mode Field Diameter                 | 9.5±1          | μm   |
| Cladding Diameter                   | 125±2          | μm   |
| Maximum Cladding Noncircularity     | 2              | %    |
| Maximum Core/Cladding Concentricity | 1.6            | %    |
| Outer Diameter                      | 0.9±0.1        | mm   |
| Cut-off Wavelength                  | 1 100 to 1 270 | nm   |
| Minimum Fiber Bending Radius        | 30             | mm   |
| Fiber Length                        | 1 000 MIN.     | mm   |
| Flammability                        | UL1581 VW-1    |      |



## ORDERING INFORMATION

| Part Number | Available Connector   |
|-------------|-----------------------|
| NX7363JB-BC | With FC-UPC Connector |

## ABSOLUTE MAXIMUM RATINGS

| Parameter                            | Symbol     | Ratings       | Unit |
|--------------------------------------|------------|---------------|------|
| Pulsed Forward Current <sup>*1</sup> | $I_{FP}$   | 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 +85    | °C   |
| Lead Soldering Temperature           | $T_{slid}$ | 260 (10 sec.) | °C   |

\*1 Pulse conditions: Pulse width (PW) = 10  $\mu$ s, Duty = 1%

ELECTRO-OPTICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ )

| 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 | $P_i$       | $I_{FP} = 1\,000$ mA, *1                | 150   |       |       | mW   |
|                                 |             | $I_{FP} = 600$ mA, *1                   | 90    |       |       |      |
|                                 |             | $I_{FP} = 400$ mA, *1                   | 40    |       |       |      |
| Center Wavelength               | $\lambda_C$ | RMS, $I_{FP} = 400, 600, 1\,000$ mA, *1 | 1 290 | 1 310 | 1 330 | nm   |
| Spectral Width                  | $\sigma$    | 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  $\mu$ s, Duty = 1%

## ELECTRO-OPTICAL CHARACTERISTICS

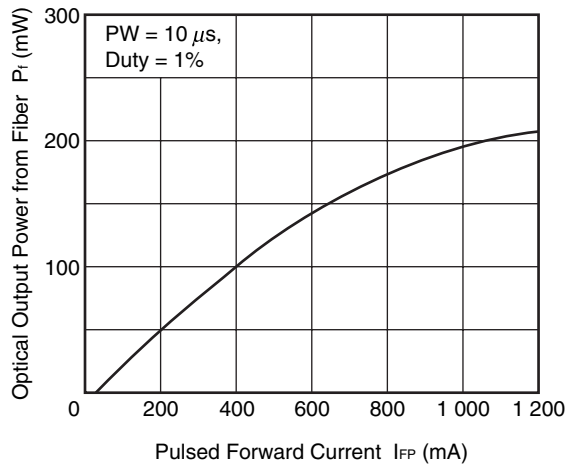
(Applicable to Thermistor and TEC:  $T_{LD} = 25^\circ\text{C}$ ,  $T_C = -20$  to  $+65^\circ\text{C}$ , unless otherwise specified)

| Parameter             | Symbol          | Conditions                    | MIN.  | TYP.  | MAX.  | Unit       |
|-----------------------|-----------------|-------------------------------|-------|-------|-------|------------|
| Thermistor Resistance | R               | $T_{LD} = 25^\circ\text{C}$   | 9.5   | 10.0  | 10.5  | k $\Omega$ |
| B Constant            | B               |                               | 3 350 | 3 450 | 3 550 | K          |
| Cooler Current        | $I_C$           | $\Delta T = 40^\circ\text{C}$ |       | 0.6   | 0.8   | A          |
| Cooler Voltage        | $V_C$           | $\Delta T = 40^\circ\text{C}$ |       | 1.1   | 1.5   | V          |
| Cooling Capacity      | $\Delta T^{*1}$ | $I_C = 0.8$ A                 | 40    |       |       | °C         |

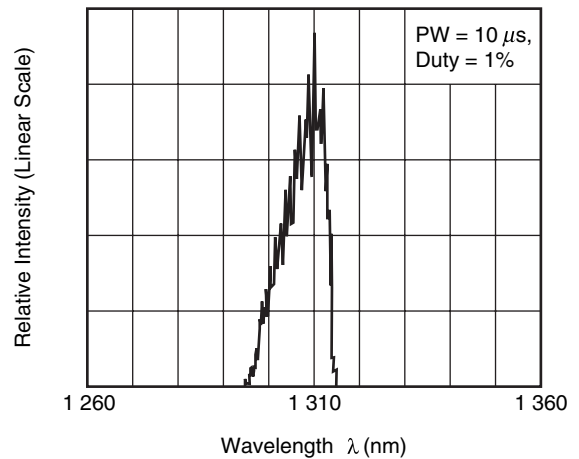
\*1  $\Delta T = |T_C - T_{LD}|$

**TYPICAL CHARACTERISTICS ( $T_c = 25^\circ\text{C}$ , unless otherwise specified)**

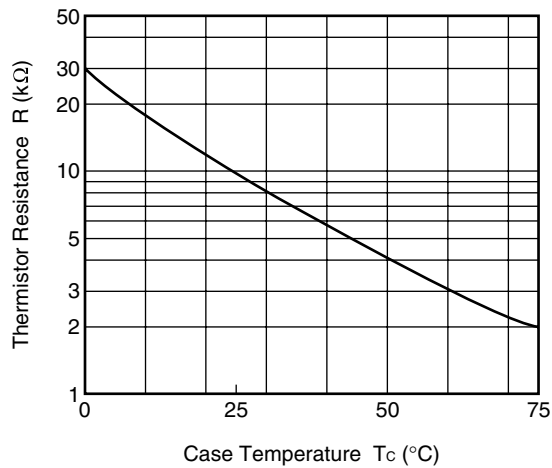
**OPTICAL OUTPUT POWER FROM FIBER vs.  
PULSED FORWARD CURRENT**



**SPECTRUM**



**THERMISTOR RESISTANCE vs.  
CASE TEMPERATURE**



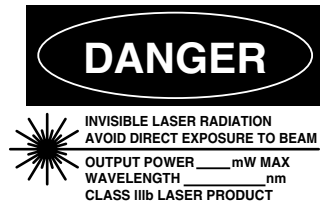
**Remark** The graphs indicate nominal characteristics.

**REFERENCE**

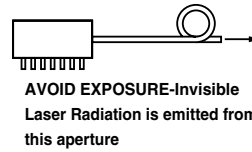
| Document Name                                   | Document No. |
|-------------------------------------------------|--------------|
| Opto-Electronics Devices Pamphlet <sup>*1</sup> | PX10160E     |

<sup>\*1</sup> Published by the former NEC Electronics Corporation.

## SAFETY INFORMATION ON THIS PRODUCT



## SEMICONDUCTOR LASER



|                |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|----------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Warning</b> | Laser Beam    | <p>A laser beam is emitted from this diode during operation.</p> <p>The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight.</p> <ul style="list-style-type: none"> <li>• Do not look directly into the laser beam.</li> <li>• Avoid exposure to the laser beam, any reflected or collimated beam.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Caution</b> | GaAs Products | <p>This product uses gallium arsenide (GaAs).</p> <p>GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.</p> <ul style="list-style-type: none"> <li>• Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below.               <ol style="list-style-type: none"> <li>1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials.</li> <li>2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal.</li> </ol> </li> <li>• Do not burn, destroy, cut, crush, or chemically dissolve the product.</li> <li>• Do not lick the product or in any way allow it to enter the mouth.</li> </ul> |
| <b>Caution</b> | Optical Fiber | <p>A glass-fiber is attached on the product. Handle with care.</p> <ul style="list-style-type: none"> <li>• When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

|                         |                               |
|-------------------------|-------------------------------|
| <b>Revision History</b> | <b>NX7363JB-BC Data Sheet</b> |
|-------------------------|-------------------------------|

| Rev. | Date         | Description |                                                                                   |
|------|--------------|-------------|-----------------------------------------------------------------------------------|
|      |              | Page        | Summary                                                                           |
| –    | May 2007     | –           | Previous No. : PL10661EJ01V0DS                                                    |
| 2.00 | Sep 19, 2010 | p.3         | <b>ABSOLUTE MAXIMUM RATINGS</b><br>Storage Temperature : –40 to +70 -> –40 to +85 |

|                                                                                       |
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