

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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**1 625 nm InGaAsP MQW-FP LASER DIODE  
COAXIAL MODULE FOR OTDR APPLICATION****DESCRIPTION**

The NX7639BB-AA is a 1 625 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode coaxial module with single mode fiber. This module is specified to operate under pulsed condition and designed for light source of Optical Time Domain Reflectometer (OTDR).

**FEATURES**

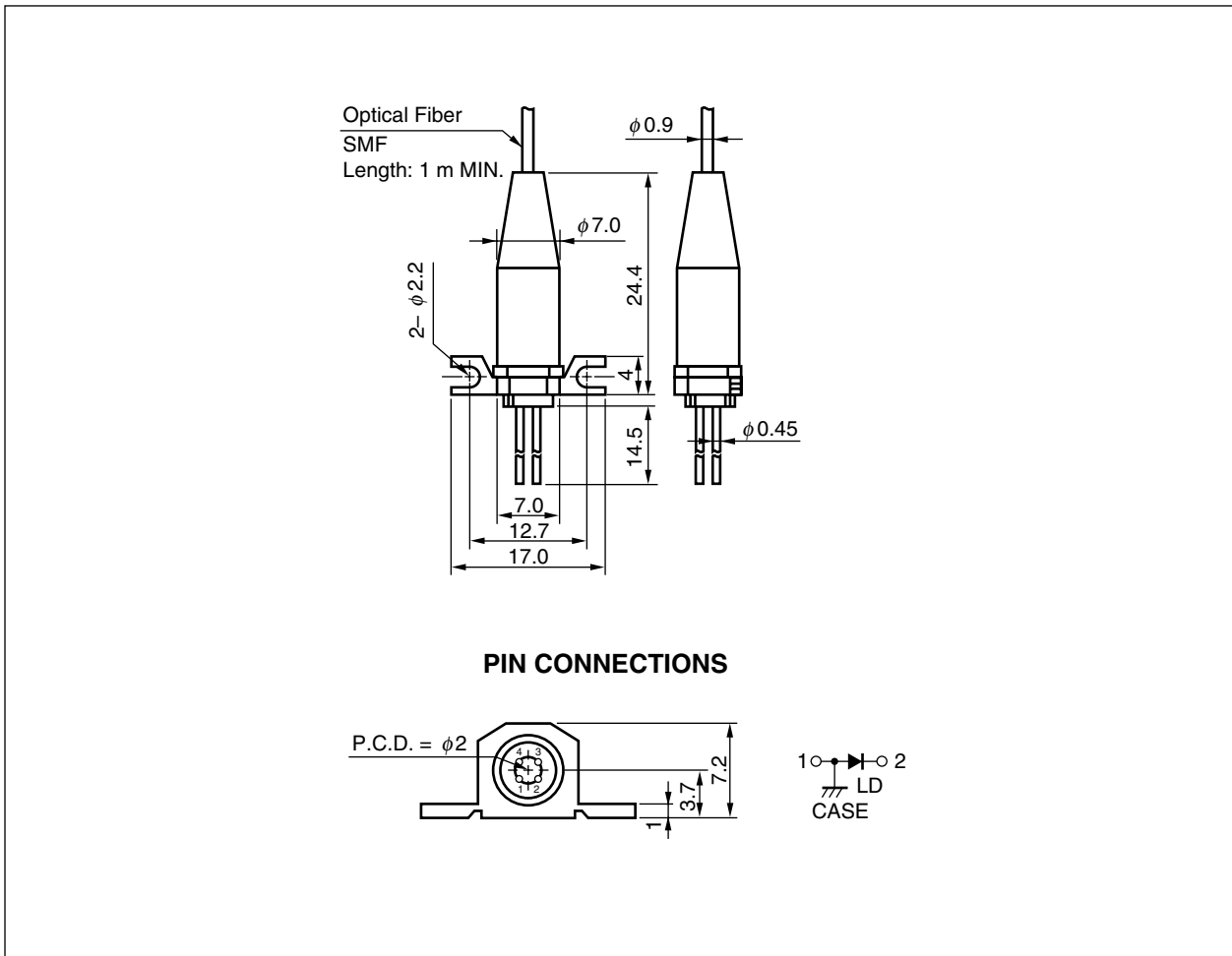
- High output power  $P_f = 70 \text{ mW} @ I_{FP} = 1\,000 \text{ mA}^{*1}$
- Long wavelength  $\lambda_c = 1\,625 \text{ nm}$

\*1 Pulse Conditions: Pulse width (PW) = 10  $\mu\text{s}$ , Duty = 1%



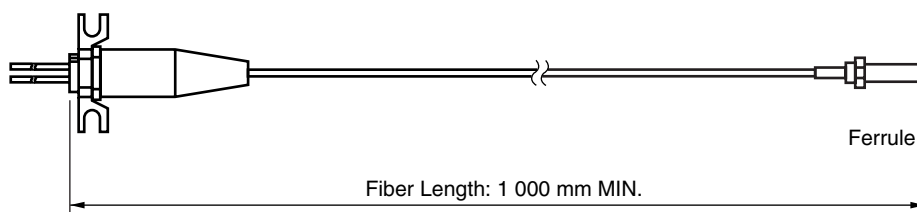
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PACKAGE DIMENSIONS (UNIT: mm)



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                  | 1 140 to 1 280 | nm   |
| Minimum Fiber Bending Radius        | 30             | mm   |
| Fiber Length                        | 1 000 MIN.     | mm   |



**ORDERING INFORMATION**

|             |                   |
|-------------|-------------------|
| Part Number | Flange Type       |
| NX7639BB-AA | flat mount flange |

**ABSOLUTE MAXIMUM RATINGS**

| Parameter                            | Symbol            | Ratings      | Unit |
|--------------------------------------|-------------------|--------------|------|
| Pulsed Forward Current <sup>*1</sup> | I <sub>FP</sub>   | 1 200        | mA   |
| Reverse Voltage                      | V <sub>R</sub>    | 2.0          | V    |
| Operating Case Temperature           | T <sub>C</sub>    | -20 to +60   | °C   |
| Storage Temperature                  | T <sub>stg</sub>  | -40 to +85   | °C   |
| Lead Soldering Temperature           | T <sub>slid</sub> | 350 (3 sec.) | °C   |
| Relative Humidity (noncondensing)    | RH                | 85           | %    |

\*1 Pulse Condition: Pulse Width (PW) = 10 μs, Duty = 1%

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>C</sub> = 25°C)**

| Parameter                       | Symbol          | Conditions   | MIN.  | TYP. | MAX.  | Unit |
|---------------------------------|-----------------|--|-------|------|-------|------|
| Forward Voltage                 | V <sub>FP</sub> | I <sub>FP</sub> = 1 000 mA,<br>PW = 10 μs, Duty = 1%   |       |      | 4.0   | V    |
| Threshold Current               | I <sub>th</sub> |  |       | 45   | 70    | mA   |
| Optical Output Power from Fiber | P <sub>f</sub>  | I <sub>FP</sub> = 1 000 mA,<br>PW = 10 μs, Duty = 1%   | 40    | 70   |       | mW   |
|                                 |                 | I <sub>FP</sub> = 1 000 mA,<br>PW = 10 μs, Duty = 1%,<br>T <sub>C</sub> = 0 to +60°C               | 20    |      |       |      |
| Center Wavelength               | λ <sub>C</sub>  | RMS (-20 dB), I <sub>FP</sub> = 1 000 mA,<br>PW = 10 μs, Duty = 1%                                 | 1 615 |      | 1 635 | nm   |
| Spectral Width                  | σ               | RMS (-20 dB), I <sub>FP</sub> = 1 000 mA,<br>PW = 10 μs, Duty = 1%,<br>T <sub>C</sub> = 0 to +60°C |       |      | 15    | nm   |
| Rise Time                       | t <sub>r</sub>  | 10-90%   |       |      | 2.0   | ns   |
| Fall Time                       | t <sub>f</sub>  | 90-10%   |       |      | 2.0   | ns   |

**REFERENCE**

| Document Name                     | Document No. |
|-----------------------------------|--------------|
| Opto-Electronics Devices Pamphlet | PX10160E     |

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"Specific": Aircraft, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems and medical equipment for life support, etc.

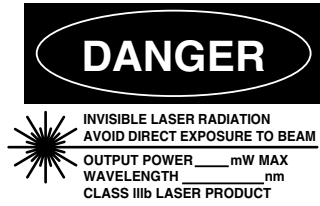
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(Note)

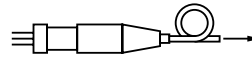
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M8E0904E

**SAFETY INFORMATION ON THIS PRODUCT**



**SEMICONDUCTOR LASER**



**AVOID EXPOSURE-Invisible Laser Radiation is emitted from this aperture**

|                                     |   |
|-------------------------------------|---|
| <p><b>Warning</b> Laser Beam</p>    | <p>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.</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>  |
| <p><b>Caution</b> GaAs Products</p> | <p>This product uses gallium arsenide (GaAs). 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> |
| <p><b>Caution</b> Optical Fiber</p> | <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>  |