To our customers,

## Old Company Name in Catalogs and Other Documents

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

April 1st, 2010
Renesas Electronics Corporation

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

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RENESAS

PRELIMINARY DATA SHEET

Phase-out/Discontinued

LASER DIODE

# NX6506 Series

## 1 550 nm InGaAsP MQW-DFB LASER DIODE FOR 622 Mb/s, 1.25 Gb/s

### DESCRIPTION

The NX6506 Series is a 1 550 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD.

### APPLICATIONS

- STM-1, STM-4, ITU-T recommendations
- FTTH PON (Fiber To The Home Passive Optical Network)
- 1.25 Gb/s: Gigabit Ethernet

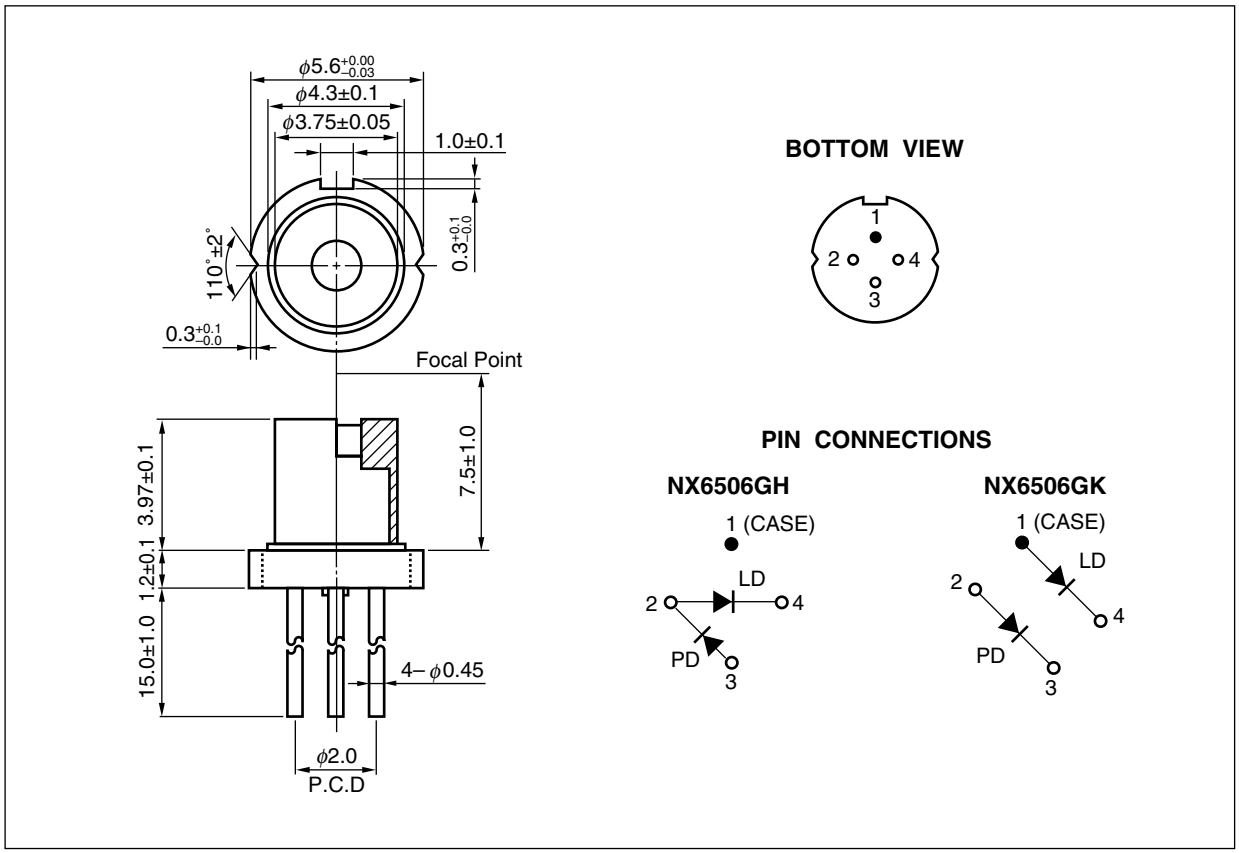
### FEATURES

- Optical output power — $P_o$ = 5.0 mW
- Low threshold current — $I_{th}$ = 10 mA
- Differential efficiency — $\eta_d$ = 0.25 W/A
- Side mode suppression ratio — SMSR = 40 dB
- Wide operating temperature range — $T_C$ = –20 to +85°C
- InGaAs monitor PIN-PD
- CAN package — $\phi$5.6 mm
- Focal point — 7.5 mm

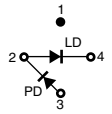
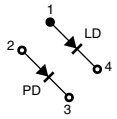


Document No. PL10496EJ01V0DS (1st edition)
Date Published June 2004 CP(K)
Printed in Japan

**PACKAGE DIMENSIONS (UNIT: mm)**



## ORDERING INFORMATION

| Part Number | Package | Pin Connections |
|---|---|---|
| NX6506GH | 4-pin CAN with aspherical lens cap |   |
| NX6506GK | |   |

**Remark** The hermetic test will be performed as AQL 1.0%.

## ABSOLUTE MAXIMUM RATINGS

| Parameter | Symbol | Ratings | Unit |
|---|---|---|---|
| Optical Output Power | $P_o$ | 10 | mW |
| Forward Current of LD | $I_F$ | 150 | mA |
| Reverse Voltage of LD | $V_R$ | 2.0 | V |
| Forward Current of PD | $I_F$ | 2.0 | mA |
| Reverse Voltage of PD | $V_R$ | 15 | V |
| Operating Case Temperature | $T_C$ | –20 to +85 | °C |
| Storage Temperature | $T_{stg}$ | –40 to +85 | °C |
| Lead Soldering Temperature | $T_{sld}$ | 350 (3 sec.) | °C |
| Relative Humidity (noncondensing) | RH | 85 | % |

## ELECTRO-OPTICAL CHARACTERISTICS ($T_C$ = –20 to +85°C, unless otherwise specified)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Optical Output Power | $P_o$ | CW | | 5.0 | | mW |
| Operating Voltage | $V_{op}$ | $P_o$ = 5.0 mW | | 1.1 | 1.6 | V |
| Threshold Current | $I_{th}$ | $T_C$ = 25°C | | 10 | 20 | mA |
| | | | | | 50 | |
| Differential Efficiency | $\eta_d$ | $P_o$ = 5.0 mW, $T_C$ = 25°C | 0.18 | 0.25 | | W/A |
| | | $P_o$ = 5.0 mW | 0.10 | | | |
| Temperature Dependence of Differential Efficiency | $\Delta\eta_d$ | $\Delta\eta_d = 10 \log \frac{\eta_d\ (@\ 85°C)}{\eta_d\ (@\ 25°C)}$ | –3.0 | –1.6 | | dB |
| Peak Emission Wavelength | $\lambda_p$ | CW, $P_o$ = 5.0 mW | 1 530 | | 1 570 | nm |
| Side Mode Suppression Ratio | SMSR | $P_o$ = 5.0 mW | 30 | 40 | | dB |
| Rise Time | $t_r$ | $I_b = I_{th}$, 20-80% | | | 100 | ps |
| Fall Time | $t_f$ | $I_b = I_{th}$, 80-20% | | | 150 | ps |
| Monitor Current | $I_m$ | $V_R$ = 1.5 V, $P_o$ = 5.0 mW | 200 | 600 | 2 000 | μA |
| Monitor Dark Current | $I_D$ | $V_R$ = 1.5 V, $T_C$ = 25°C | | 0.1 | 10 | nA |
| | | $V_R$ = 1.5 V | | 10 | 100 | |

**REFERENCE**

| Document Name | Document No. |
|---|---|
| OPTICAL SEMICONDUCTOR DEVICES FOR FIBEROPTIC COMMUNICATIONS SELECTION GUIDE | PL10161E |
| Opto-Electronics Devices Pamphlet | PX10160E |

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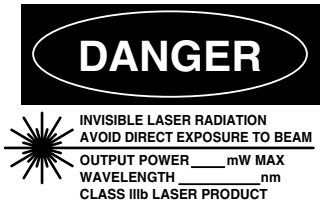
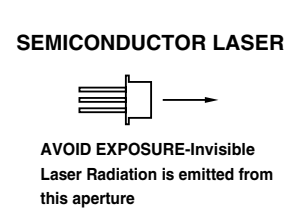
## SAFETY INFORMATION ON THIS PRODUCT




| | |
|---|---|
| **Warning** Laser Beam | A laser beam is emitted from this diode during operation.<br>The laser beam, visible or invisible, directly or indirectly, may cause injury to the eye or loss of eyesight.<br>• Do not look directly into the laser beam.<br>• Avoid exposure to the laser beam, any reflected or collimated beam. |
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▶**For further information, please contact**

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