

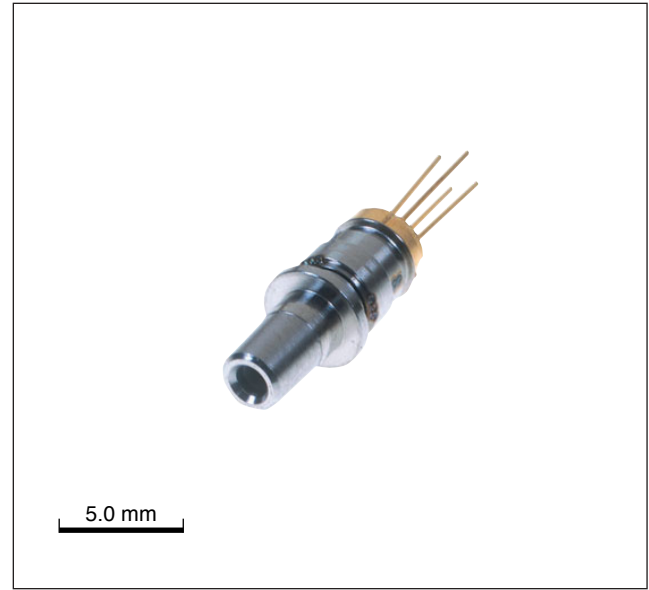


**NEC's 1550 nm InGaAsP
MQW-DFB TOSA FOR LONG HAUL
2.5 Gb/s APPLICATIONS**

NX8511UD

FEATURES

- **PEAK EMISSION WAVELENGTH:**
 $\lambda_p = 1\ 550\ \text{nm}$
- **OPTICAL OUTPUT POWER:**
 $P_f = 2.0\ \text{mW}$
- **WIDE OPERATING TEMPERATURE RANGE:**
 $T_c = -20\ \text{to}\ +85^\circ\text{C}$
- **SIDE MODE SUPPRESSION RATIO:**
 $\text{SMSR} = 40\ \text{dB}$
- **INGAAS MONITOR PIN-PD**
- **INTERNAL OPTICAL ISOLATOR**
- **BASED ON TELCORDIA RELIABILITY**

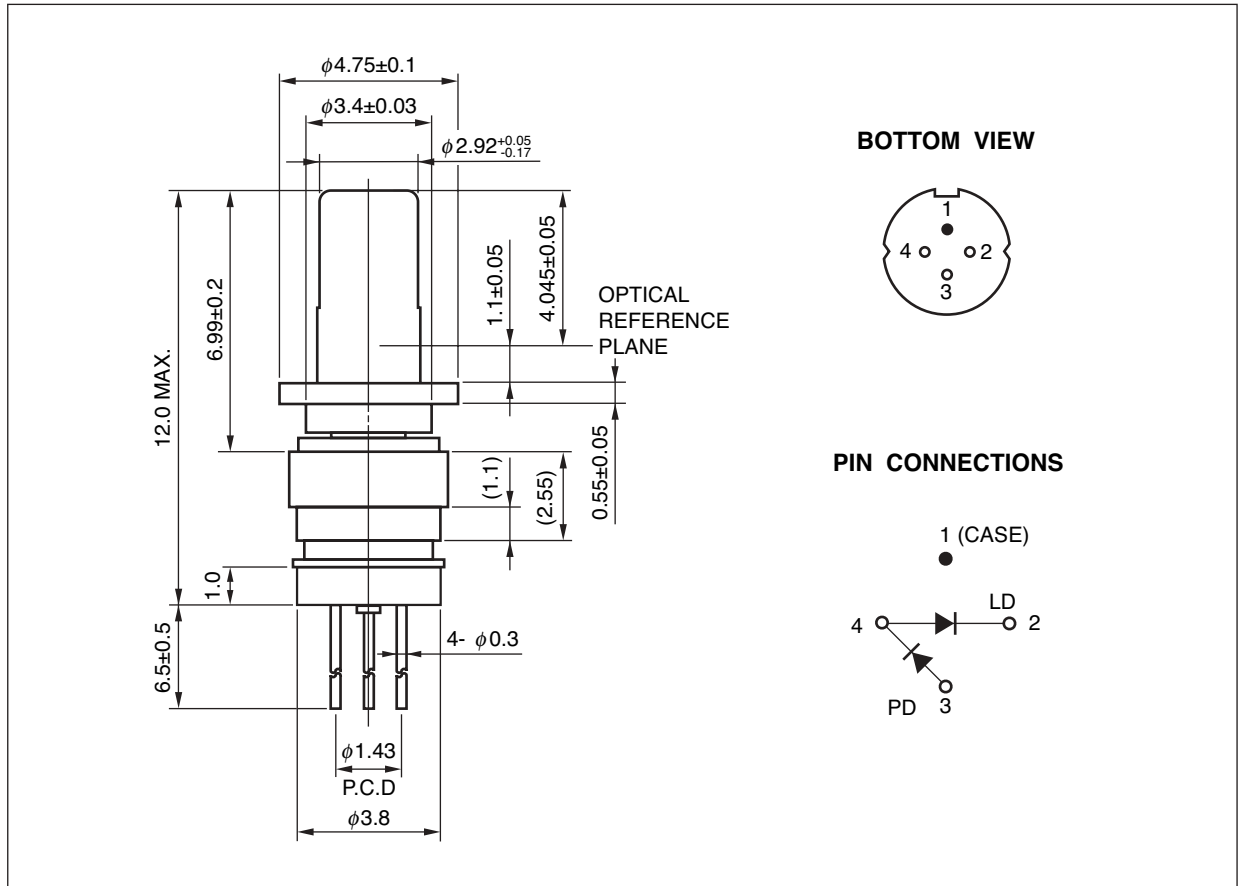


DESCRIPTION

NEC's NX8511UD is a 1 550 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode TOSA (transmitter optical sub-assembly) with InGaAs monitor PIN-PD in a receptacle type package designed for SFF/SFP transceiver with LC duplex receptacle.

This device is ideal for Synchronous Digital Hierarchy (SDH) system, long haul STM-16 (L-16.2), ITU-T recommendations, and SONET OC-48 (LR-2).

PACKAGE DIMENSIONS (UNIT : mm)



ORDERING INFORMATION

| PART NUMBER | PACKAGE | PIN CONNECTIONS |
|-------------|--------------------|-----------------|
| NX8511UD | ϕ 3.8 mm TOSA | |

ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------------------|------------|--------------|------|
| Optical Output Power from Fiber | P_f | 5.0 | 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_{slid} | 350 (3 sec.) | °C |
| Relative Humidity (noncondensing) | RH | 85 | % |

ELECTRO-OPTICAL CHARACTERISTICS ($T_c = -20$ to $+85^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---------------------------------|-------------|---|-------|-------|-------|---------------|
| Optical Output Power from Fiber | P_f | CW | | 2.0 | | mW |
| Operating Voltage | V_{op} | $P_f = 2.0$ mW | | 1.1 | 1.6 | V |
| Threshold Current | I_{th} | $T_c = 25^\circ\text{C}$ | | 10 | 20 | mA |
| | | | | | 50 | |
| Threshold Output Power | P_{th} | $I_F = I_{th}$ | | | 100 | μW |
| Differential Efficiency | η_d | $P_f = 2.0$ mW, $T_c = 25^\circ\text{C}$ | 0.07 | 0.1 | | W/A |
| | | $P_f = 2.0$ mW | 0.04 | | | |
| Peak Emission Wavelength | λ_p | CW, $P_f = 2.0$ mW | 1 530 | 1 550 | 1 570 | nm |
| Side Mode Suppression Ratio | SMSR | $P_f = 2.0$ mW | 30 | 40 | | dB |
| Rise Time | t_r | 20-80%, $P_{pk} = 2.0$ mW, $I_F = I_{th}$ | | | 100 | ps |
| Fall Time | t_f | 80-20%, $P_{pk} = 2.0$ mW, $I_F = I_{th}$ | | | 150 | ps |
| Monitor Current | I_m | $V_R = 1.5$ V, $P_f = 1.0$ mW | 100 | 500 | 1 000 | μA |
| Monitor Dark Current | I_d | $V_R = 1.5$ V, $T_c = 25^\circ\text{C}$ | | 0.1 | 50 | nA |
| | | $V_R = 1.5$ V | | 10 | 500 | |
| Tracking Error | γ | $I_m = \text{const.}$ | -1.0 | | 1.0 | dB |
| Connector Repeatability | - | With master pigtail | -1.0 | | 1.0 | dB |

Life Support Applications

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