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

LASER DIODE

NX8511UD

1 550 nm FOR LONG HAUL 2.5 Gb/s InGaAsP MQW-DFB LASER DIODE TOSA

DESCRIPTION

The 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.

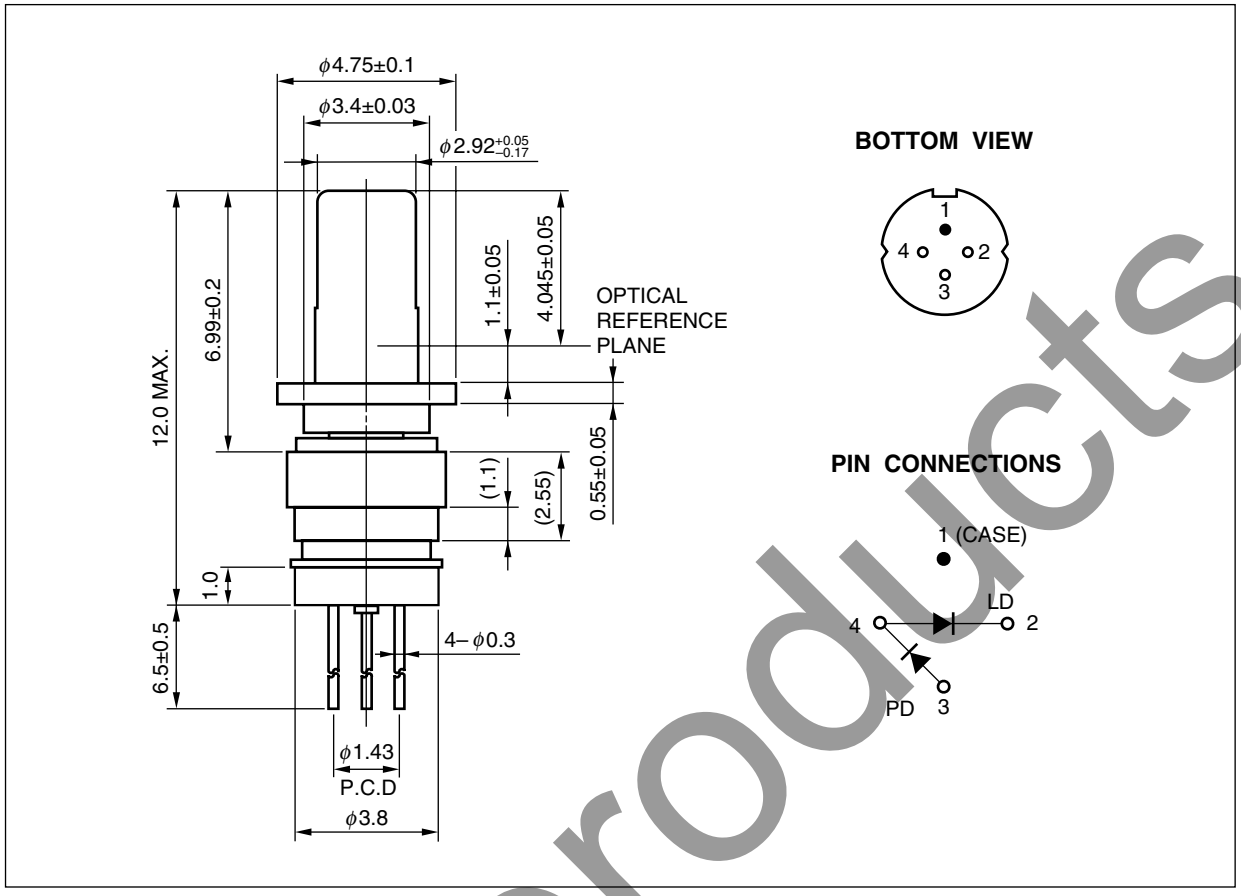
This device is ideal for Synchronous Digital Hierarchy (SDH) system, long haul STM-16 (L-16.2), ITU-T recommendations, and SONET OC-48 (LR-2).

FEATURES

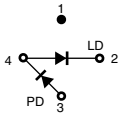
- Peak emission wavelength λ_p = 1 550 nm
- Optical output power P_f = 2.0 mW
- Wide operating temperature range T_C = –20 to +85°C
- Side mode suppression ratio SMSR = 40 dB
- InGaAs monitor PIN-PD
- Internal optical isolator
- Based on Telcordia reliability

Document No. PL10446EJ01V0DS (1st edition)
Date Published January 2004 CP(K)
Printed in Japan

PACKAGE DIMENSIONS (UNIT: mm)



ORDERING INFORMATION

Part Number	Package	Pin Connections
NX8511UD	φ3.8 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_{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 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°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°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°C		0.1	50	nA
		V_R = 1.5 V		10	500	
Tracking Error	γ	I_m = const.	–1.0		1.0	dB
Connector Repeatability	–	With master pigtail	–1.0		1.0	dB

LD ϕ3.8 mm FP-TOSA PACKAGES FAMILY FOR OPTICAL FIBER COMMUNICATIONS

Part Number	Absolute Maximum Ratings		Electro-Optical Characteristics				Application	Package
			@T_C = 25°C	@T_C				
	T_C (°C)	T_{stg} (°C)	I_{th} (mA)	P_f (mW)	λ_C (nm)			
			TYP.	TYP.	MIN.	MAX.		
NX7312UA	−40 to +85	−40 to +85	8	0.2	1 274	1 356	156 Mb/s: STM-1 (S-1.1)	ϕ3.8 mm TOSA
							622 Mb/s: STM-4 (S-4.1)	
NX7313UA	−40 to +85	−40 to +85	8	0.6	1 270	1 355	1.25 Gb/s: GbE	ϕ3.8 mm TOSA
NX7314UA	−40 to +85	−40 to +85	8	1.0	1 263	1 360	156 Mb/s: STM-1 (L-1.1)	ϕ3.8 mm TOSA
NX7315UA	−40 to +85	−40 to +85	8	0.6	1 266	1 360	2.5 Gb/s: STM-16 (I-16)	ϕ3.8 mm TOSA

LD ϕ3.8 mm DFB-TOSA PACKAGES FAMILY FOR OPTICAL FIBER COMMUNICATIONS

Part Number	Absolute Maximum Ratings		Electro-Optical Characteristics				Application	Package
			@T_C = 25°C	@T_C				
	T_C (°C)	T_{stg} (°C)	I_{th} (mA)	P_f (mW)	λ_p (nm)			
			TYP.	TYP.	MIN.	MAX.		
NX8310UA	−40 to +85	−40 to +85	10	2.0	1 280	1 335	622 Mb/s: STM-4 (L-4.1)	ϕ3.8 mm TOSA
NX8311UD	−20 to +85	−40 to +85	10	2.0	1 280	1 335	2.5 Gb/s: STM-16 (L-16.1)	ϕ3.8 mm TOSA
NX8312UA	−20 to +85	−40 to +85	10	1.0	1 280	1 335	2.5 Gb/s: STM-16 (S-16.1)	ϕ3.8 mm TOSA
NX8312UD	−20 to +85	−40 to +85	10	1.0	1 280	1 335	2.5 Gb/s: STM-16 (S-16.1)	ϕ3.8 mm TOSA
NX8510UD Series	0 to +70	−40 to +85	10	2.0	λ_p−3 *1	λ_p+3 *1	2.5 Gb/s: CWDM	ϕ3.8 mm TOSA
NX8511UD	−20 to +85	−40 to +85	10	2.0	1 530	1 570	2.5 Gb/s: STM-16 (L-16.2)	ϕ3.8 mm TOSA

***1** Available for CWDM Wavelengths based on ITU-T recommendations
λ_p = 1 470, 1 490, 1 510, 1 530, 1 550, 1 570, 1 590, 1 610 nm

REFERENCE

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

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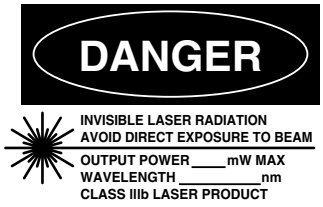
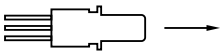
M8E 00.4-0110

SAFETY INFORMATION ON THIS PRODUCT



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible Laser Radiation is emitted from this aperture

Warning Laser Beam	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. • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam.
Caution GaAs Products	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. • 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. 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. 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. • Do not burn, destroy, cut, crush, or chemically dissolve the product. • Do not lick the product or in any way allow it to enter the mouth.

▶**For further information, please contact**

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