



LASER DIODE

NX8313UD

1 310 nm FOR LONG HAUL 2.5 Gb/s InGaAsP MQW-DFB LASER DIODE TOSA

DESCRIPTION

The NX8313UD is a 1 310 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.

APPLICATION

- STM-16 (L-16.1), SONET OC-48 (LR-1)

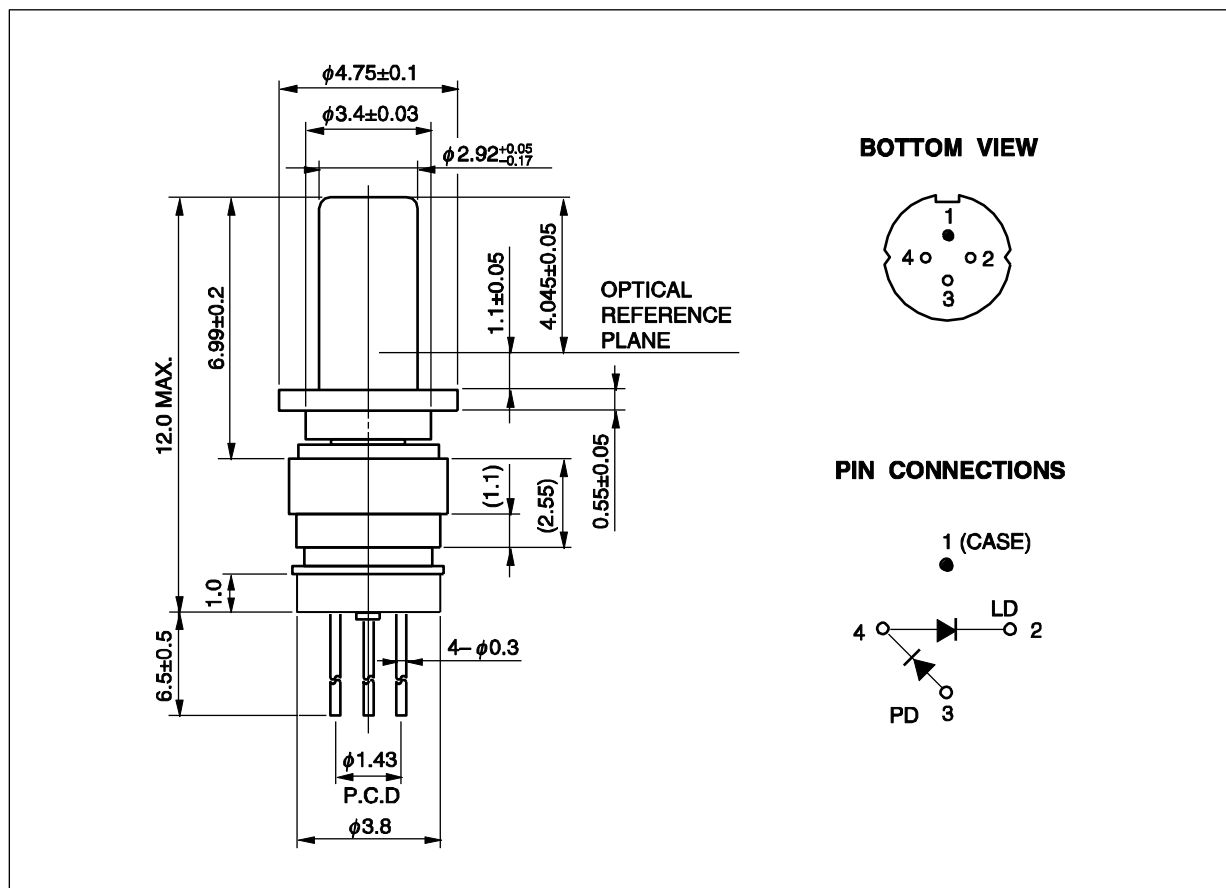
FEATURES

- Internal optical isolator
- Optical output power $P_r = 2.0 \text{ mW}$
- Low threshold current $I_{th} = 10 \text{ mA TYP. @ } T_c = 25^\circ\text{C}$
- Wide operating temperature range $T_c = -40 \text{ to } +85^\circ\text{C}$
- InGaAs monitor PIN-PD
- Small package $\phi 3.8 \text{ mm TOSA (Total length 12.0 mm MAX.)}$

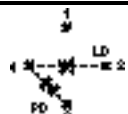


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PACKAGE DIMENSIONS (UNIT : mm)



ORDERING INFORMATION

Part Number	Package	Pin Connections
NX8313UD-AZ	ϕ 3.8 mm TOSA	

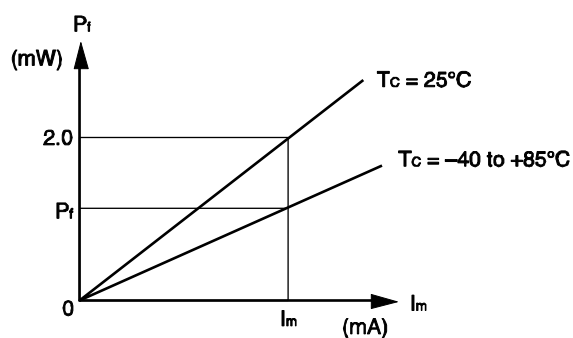
ABSOLUTE MAXIMUM RATINGS

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	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C

ELECTRO-OPTICAL CHARACTERISTICS (T_c = –40 to +85°C, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V _{op}	CW, P _f = 2.0 mW		1.2	1.6	V
Threshold Current	I _{th}	CW	2		50	mA
		CW, T _c = 25°C	4	10	20	
Optical Output Power from Fiber	P _f	CW		2.0		mW
Modulation Current	I _{mod}	CW, P _f = 2.0 mW	7		50	mA
		CW, P _f = 2.0 mW, T _c = 25°C	9	20	30	
Differential Efficiency	η _d	CW, P _f = 2.0 mW	0.04		0.29	W/A
		CW, P _f = 2.0 mW, T _c = 25°C	0.07	0.10	0.20	
Peak Emission Wavelength	λ _p	CW, P _f = 2.0 mW, RMS (–20 dB)	1 280		1 335	nm
Side Mode Suppression Ratio	SMSR	CW, P _f = 2.0 mW	30			dB
Rise Time	t _r	I _b = I _{th} , 10-90%			200	ps
Fall Time	t _f	I _b = I _{th} , 90-10%			200	ps
Monitor Current	I _m	CW, V _R = 1.5 V, P _f = 1.0 mW	100		2 000	μA
Monitor Dark Current	I _D	V _R = 1.5 V			500	nA
		V _R = 1.5 V, T _c = 25°C			50	
Tracking Error ^{*1}	γ	CW, I _m = const. (@ P _f = 2.0 mW)	–1.0		1.0	dB
Repeatability	–	With master pigtail	–1.0		1.0	dB
Optical Isolation	I _s	CW, P _f = 2.0 mW	20			dB

*1 Tracking Error: γ



$$\gamma = \left| 10 \log \frac{P_f}{2.0} \right| \text{ [dB]}$$

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet ^{*1}	PX10160E

^{*1} Published by the former NEC Compound Semiconductor Devices, Ltd.

SAFETY INFORMATION ON THIS PRODUCT



SEMICONDUCTOR LASER



AVOID EXPOSURE - Invisible
Laser Radiation is emitted from
this aperture

Warning	Laser Beam	<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"> • Do not look directly into the laser beam. • Avoid exposure to the laser beam, any reflected or collimated beam.
Caution	GaAs Products	<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"> • 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"> 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.
Caution	Optical Fiber	<p>A glass-fiber is attached on the product. Handle with care.</p> <ul style="list-style-type: none"> • When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.