

NX8350TS

Data Sheet

LASER DIODE

R08DS0025EJ0100

Rev.1.00

1 271 to 1 331 nm AlGaInAs MQW-DFB LASER DIODE FOR 40 G BASE-LR4 APPLICATION

Sep 19, 2010

DESCRIPTION

The NX8350TS is a 1 271 to 1 331 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode TOSAs (transmitter optical subassembly) with InGaAs monitor PIN-PD in an LC receptacle type package designed for CFP transceiver.

FEATURES

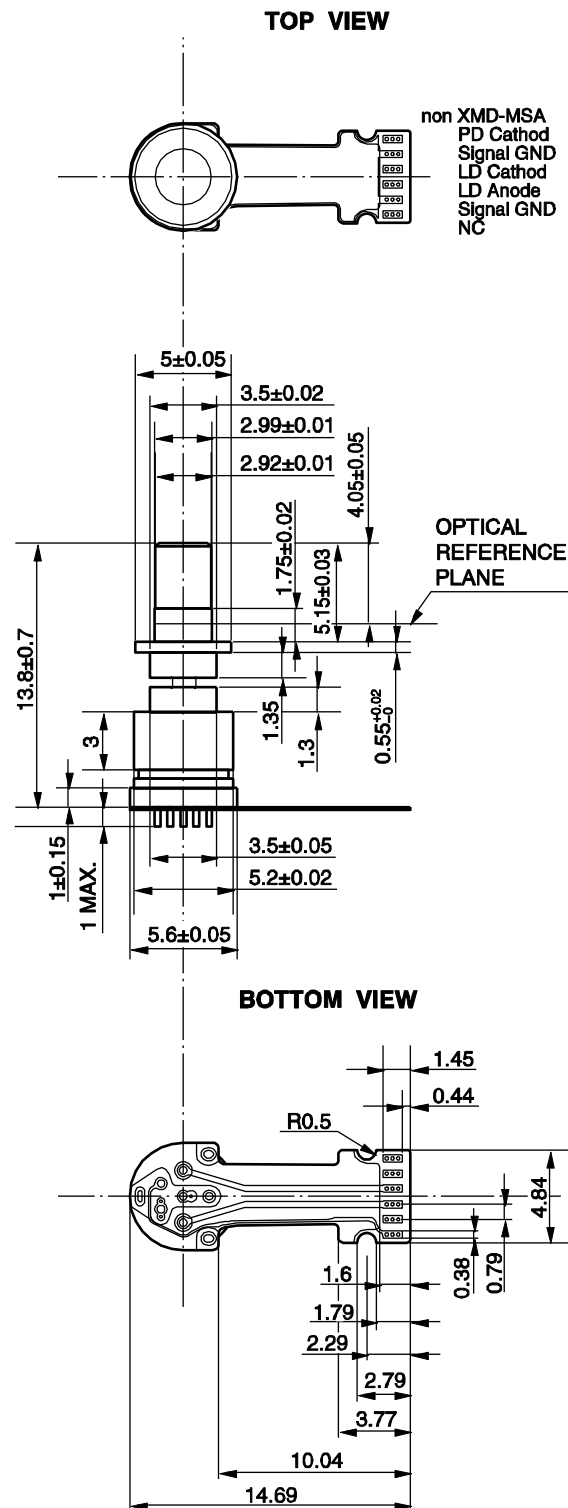
- Internal optical isolator
- Peak emission wavelength 1 271/1 291/1 311/1 331 nm
- Optical output power $P_f = 2 \text{ dBm}$
- Low threshold current $I_{th} = 8 \text{ mA TYP. @ } T_C = 25^\circ\text{C}$
- Wide operating temperature range $T_C = -5 \text{ to } +85^\circ\text{C}$
- InGaAs monitor PIN-PD
- IEEE802.3ba compliant

APPLICATIONS

- 40 G BASE-LR4



PACKAGE DIMENSIONS (UNIT: mm)



Remarks 1. Receptacle is electrically isolated from CAN.

- 2. Characteristic impedance of flexible printed circuit is 25Ω .
- 3. NX8350TS has no matching resistor installed.

ORDERING INFORMATION

Part Number	Receptacle Type	Note
NX8350TSxx	LC, Electrically isolated	Differential input with short length flexible PCB, without matching resistor. xx is wavelength code. "27" means 1 271 nm. "29" means 1 291 nm. "31" means 1 311 nm. "33" means 1 331 nm.

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Storage Temperature	T_{stg}	-40 to +95	°C
Operating Case Temperature	T_{C}	-5 to +85	°C
Forward Current of LD	I_{FLD}	150	mA
Reverse Voltage of LD	V_{RLD}	2	V
Forward Current of PD	I_{FPD}	10	mA
Reverse Voltage of PD	V_{RPD}	15	V
Soldering Temperature (Flexible Printed Circuit)	T_{sld}	260 (10 sec.)	°C
Optical Output Power	P_{f}	10	mW

ELECTRO-OPTICAL CHARACTERISTICS **($T_C = -5$ to $+85^\circ\text{C}$, BOL, unless otherwise specified)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Mean Optical Output Power	P_f			2		dBm
Peak Emission Wavelength	λ_p	CW, $P_f = 2$ dBm	1 264.5		1 277.5	nm
			1 284.5		1 297.5	
			1 304.5		1 317.5	
			1 324.5		1 337.5	
Side Mode Suppression Ratio	SMSR	CW, $P_f = 2$ dBm	30			dB
Operating Current	I_{op}	$P_f = 2$ dBm			70	mA
Threshold Current	I_{th}	CW, $T_C = 25^\circ\text{C}$		8	15	mA
		CW	2		30	
Differential Efficiency	η_d	CW, $P_f = 2$ dBm, $T_C = 25^\circ\text{C}$	0.055	0.069	0.085	W/A
		CW, $P_f = 2$ dBm	0.03		0.1	
Operation Voltage	V_{op}	CW, $P_f = 2$ dBm			2.0	V
Monitor Current	I_m	CW, $P_f = 2$ dBm	50		500	μA
Monitor Dark Current	I_D	$V_R = 3.3$ V, $T_C = 25^\circ\text{C}$			10	nA
		$V_R = 3.3$ V, $T_C = 85^\circ\text{C}$			100	
Monitor PD Terminal Capacitance	C_t	$V_R = 3.3$ V, $f = 1$ MHz			20	pF
Rise Time	t_r	20-80% *1		35	50	ps
Fall Time	t_f	20-80% *1		42	50	ps
Relative Intensity Noise	RIN	BR = -20 dB, IEEE802.3ba			-128	dB/Hz
Tracking Error	γ		-1.0		1.0	dB

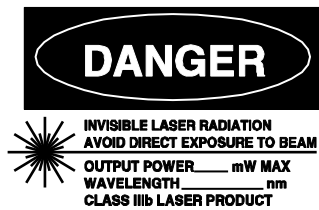
Note: *1. 10.3125 Gb/s, PRBS $2^{31}-1$, NRZ, Duty Cycle = 50%, Renesas Electronics Setup.

REFERENCE

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

Note: *1. Published by the former NEC Electronics Corporation.

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.</p> <p>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).</p> <p>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.

Revision History	NX8350TS Data Sheet
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Rev.	Date	Description	
		Page	Summary
1.00	Sep 19, 2010	–	First edition issued