

NX8369TS

LASER DIODE

R08DS0044EJ0100

Rev.1.00

1 310 nm AlGaInAs MQW-DFB LASER DIODE FOR 10 Gb/s APPLICATION

Jun 06, 2011

DESCRIPTION

The NX8369TS is a 1 310 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode TOSA (transmitter optical subassembly) with InGaAs monitor PIN-PD in a receptacle type package designed for SFP+/XFP transceiver.

FEATURES

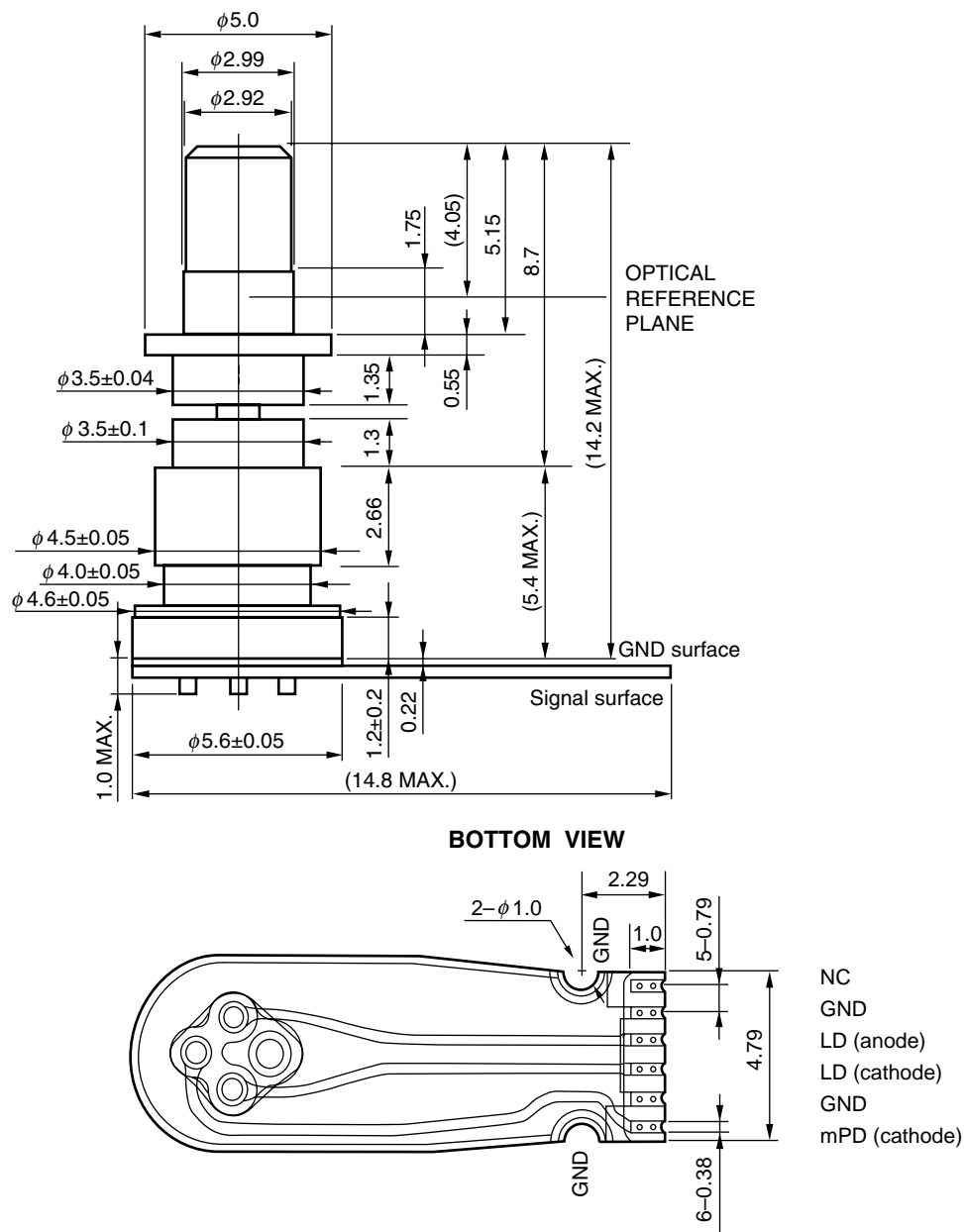
- Internal optical isolator
- Optical output power $P_r = -3 \text{ dBm}$
- Low threshold current $I_{th} = 8 \text{ mA TYP. @ } T_C = 25^\circ\text{C}$
- Wide operating temperature range $T_C = -40 \text{ to } +90^\circ\text{C}$
- InGaAs monitor PIN-PD

APPLICATIONS

- 10 G BASE-LW/LR
- 10 G Fibre Channel



PACKAGE DIMENSIONS (UNIT: mm)



ORDERING INFORMATION

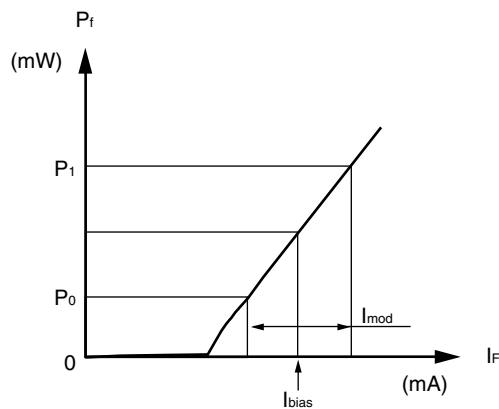
Part Number	Receptacle Type	Note
NX8369TS	LC, Electrically isolated, type 1	Differential input with short length flexible PCB, without matching resistor

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Storage Temperature	T_{stg}	-40 to +95	°C
Operating Case Temperature	T_C	-40 to +90	°C
Forward Current of LD	I_{FLD}	120	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}	350 (10 sec.)	°C
Optical Output Power	P_f	5	mW

RECOMMENDED OPERATING CONDITION

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Bias Current	I_{bias}	$T_C = 25^\circ\text{C}$, refer to below		$I_{th} + 22$		mA



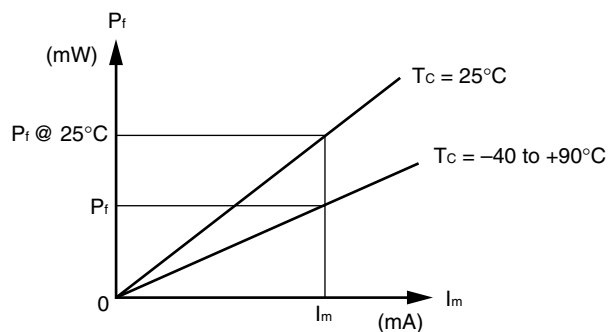
$$Ex = 10 \log \frac{P_1}{P_0} \text{ [dB]}$$

ELECTRO-OPTICAL CHARACTERISTICS (T_c = –40 to +90°C, BOL, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Mean Optical Output Power	P _f			–3		dBm
Peak Emission Wavelength	λ _p	CW, P _f = –3 dBm	1 290		1 330	nm
Spectral Width	Δλ	CW, P _f = –3 dBm, 20 dB down			1	nm
Side Mode Suppression Ratio	SMSR	CW, P _f = –3 dBm	35			dB
Threshold Current	I _{th}	CW, T _c = 25°C		8	15	mA
		CW	2		30	
Differential Efficiency	η _d	CW, P _f = –3 dBm, T _c = 25°C	0.016	0.023	0.032	W/A
		CW, P _f = –3 dBm	0.006		0.048	
Temperature Dependence of Differential Efficiency	Δη _d	$\Delta\eta_d = 10 \log \frac{\eta_d}{\eta_d (@ 25^\circ\text{C})}$	–3.5		1.5	dB
Operation Voltage	V _{op}	CW, P _f = –3 dBm	0.5		2.2	V
Monitor Current	I _m	CW, P _f = –3 dBm	100		1 000	μA
Monitor Dark Current	I _D	V _R = 3.3 V, T _c = 25°C			10	nA
		V _R = 3.3 V			500	
Rise Time	t _r	20-80% *1			50	ps
Fall Time	t _f	20-80% *1			50	ps
Monitor PD Terminal Capacitance	C _t	V _R = 3.3 V, f = 1 MHz		6	20	pF
Relative Intensity Noise	RIN	*1			–128	dB/Hz
Tracking Error ^{*2}	γ		–1.25		1.25	dB

Notes: *1. 9.95/10.3/10.5 Gb/s, PRBS 2³¹–1, NRZ, Duty Cycle = 50%

*2. Tracking Error: γ



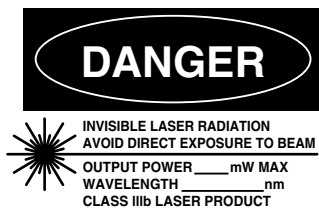
$$\gamma = \left| 10 \log \frac{P_f}{P_f @ 25^\circ\text{C}} \right| [\text{dB}]$$

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	NX8369TS Data Sheet
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Rev.	Date	Description	
		Page	Summary
1.00	Jun 06, 2011	—	First edition issued

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