NX8349TS

LASER DIODE

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

R08DS0002EJ0200
Rev.2.00
Dec 13, 2013

DESCRIPTION

<R> The NX8349TS is 1 310 nm Multiple Quantum Wells (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_f = –3 dBm
- Low threshold current I_{th} = 8 mA TYP. @ T_C = 25°C
- Wide operating temperature range T_C = –5 to +95°C
- InGaAs monitor PIN-PD

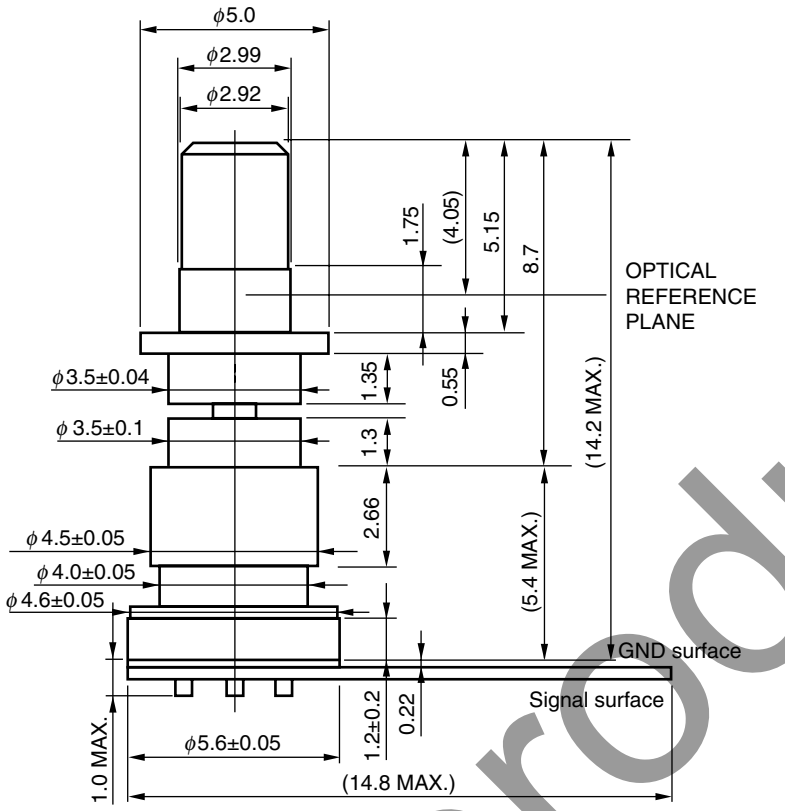
APPLICATIONS

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

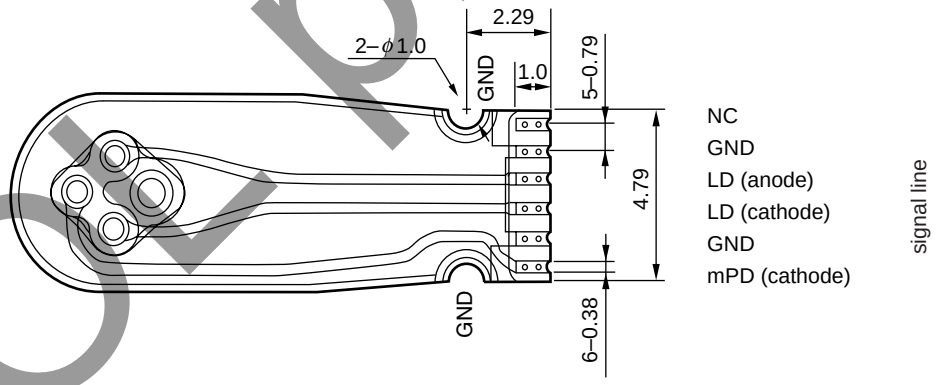
The mark <R> shows major revised points.
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

PACKAGE DIMENSIONS (UNIT: mm)

NX8349TS



BOTTOM VIEW



Remarks1. Receptacle is electrically isolated from CAN.
2. Characteristic impedance of flexible printed circuit is 25 Ω.
3. NX8349TS has no matching resistor installed.
4. ( ) indicates nominal dimension.

ORDERING INFORMATION

Part Number	Receptacle Type	Note
NX8349TS	LC, Electrically isolated, type 1	Differential input with short length flexible PCB, without matching resistor

ABSOLUTE MAXIMUM RATINGS

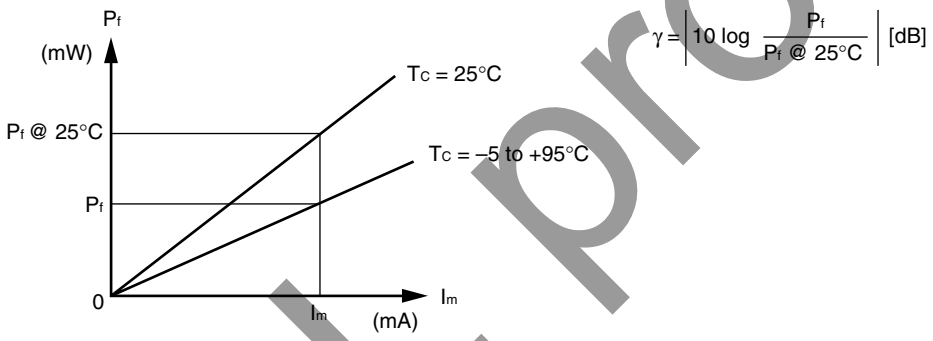
Parameter	Symbol	Ratings	Unit
Storage Temperature	T_{stg}	–40 to +95	°C
Operating Case Temperature	T_C	–5 to +95	°C
Forward Current of LD	I_{FLD}	120	mA
Reverse Voltage of LD	V_{RLD}	2	V
Forward Current of PD	I_{FPD}	10	mA
Reverse Voltage of PD	V_{RPD}	15	V
Soldering Temperature (Flexible Printed Circuit)	T_{sld}	350 (10 sec.)	°C
Optical Output Power	P_f	5	mW

ELECTRO-OPTICAL CHARACTERISTICS (T_C = –5 to +95°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	$\Delta\lambda$	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	0.020	0.033	0.040	W/A
		CW, P_f = –3 dBm	0.012		0.060	
Temperature Dependence of Differential Efficiency	$\Delta\eta_d$	$\Delta\eta_d = 10 \log \frac{\eta_d}{\eta_d\ (@\ 25°C)}$	–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	70		700	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		–1.0		1.0	dB

Notes: *1. 9.95/10.3/10.5 Gb/s, PRBS 2^{31}–1, NRZ, Duty Cycle = 50%

*2. Tracking Error: γ



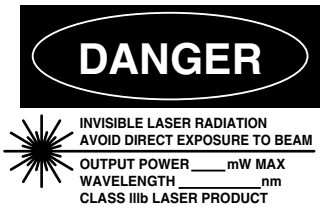
$$\gamma = \left| 10 \log \frac{P_f}{P_f\ @\ 25°C} \right| \text{ [dB]}$$

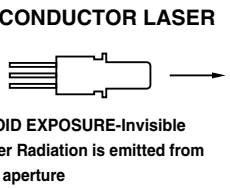
REFERENCE

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

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

SAFETY INFORMATION ON THIS PRODUCT





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.
Caution Optical Fiber	A glass-fiber is attached on the product. Handle with care. • When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.

Revision History	NX8349TS Data Sheet

Rev.	Date	Description	
		Page	Summary
1.00	Jul 26, 2010	–	First edition issued
2.00	Dec 13, 2013	Throughout	Deletion of NX8349YK and NX8349XK

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