

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

The NX8346TS 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.

APPLICATIONS

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

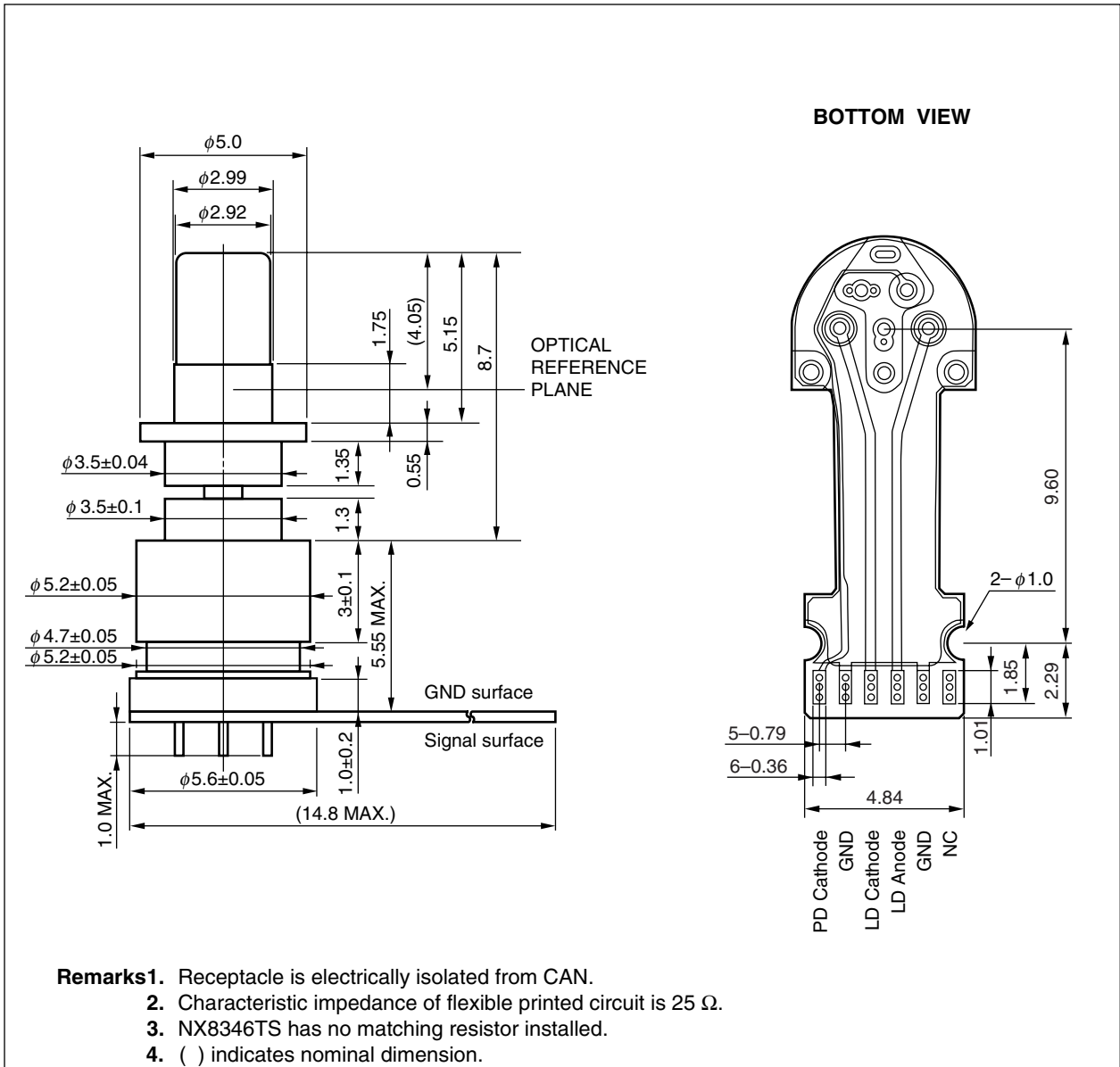
FEATURES

- Internal optical isolator
- Optical output power $P_i = -3 \text{ dBm}$
- Low threshold current $I_{th} = 8 \text{ mA TYP. @ } T_c = 25^\circ\text{C}$
- Wide operating temperature range $T_c = -5 \text{ to } +95^\circ\text{C}$
- InGaAs monitor PIN-PD



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PACKAGE DIMENSIONS (UNIT : mm)



ORDERING INFORMATION

Part Number	Receptacle Type	Note
NX8346TS	LC, Electrically isolated	Differential input with short length flexible PCB, without matching resistor

ABSOLUTE MAXIMUM RATINGS

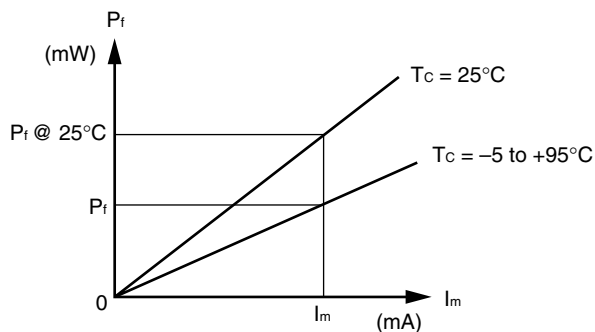
Parameter	Symbol	Ratings	Unit
Storage Temperature	T _{stg}	-40 to +95	°C
Operating Case Temperature	T _C	-5 to +95	°C
Forward Current of LD	I _{FLD}	120	mA
Reverse Voltage of LD	V _{RLD}	2	V
Forward Current of PD	I _{FPD}	10	mA
Reverse Voltage of PD	V _{RPD}	20	V
Soldering Temperature (Flexible Printed Circuit)	T _{slid}	260 (10 sec.)	°C
Optical Output Power	P _f	5	mW

ELECTRO-OPTICAL CHARACTERISTICS (Tc = -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	1 260		1 355	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		26	
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	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	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				-128	dB/Hz
Tracking Error ^{*2}	γ		-1.0		1.0	dB

*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	PX10160E

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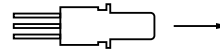
SAFETY INFORMATION ON THIS PRODUCT

DANGER

INVISIBLE LASER RADIATION
AVOID DIRECT EXPOSURE TO BEAM

OUTPUT POWER _____mW MAX
WAVELENGTH _____nm
CLASS IIIb LASER PRODUCT

SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
Laser Radiation is emitted from
this aperture

<p>Warning Laser Beam</p>	<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.
<p>Caution GaAs Products</p>	<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.
<p>Caution Optical Fiber</p>	<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.