NX6342EP

Data Sheet

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

R08DS0050EJ0100
Rev.1.00
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DESCRIPTION

The NX6342EP is a 1 310 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD.

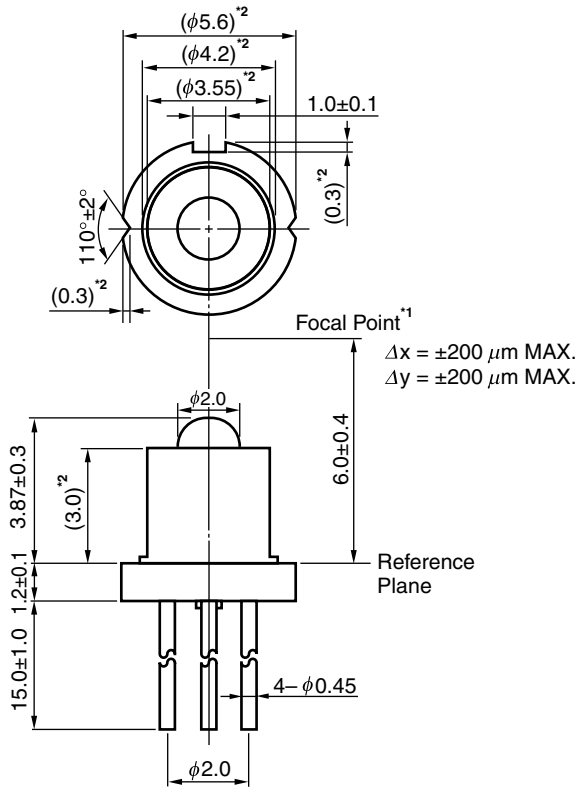
APPLICATIONS

- 10 Gb/s BASE-LR/LW (IEEE802.3ae)

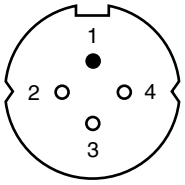
FEATURES

- Optical output power P_O = 8.5 mW
- Low threshold current I_{th} = 8 mA
- Differential efficiency η_d = 0.23 W/A
- Wide operating temperature range T_C = –5 to +85°C
- InGaAs monitor PIN-PD
- CAN package ϕ5.6 mm
- Focal point 6.0 mm

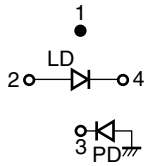
PACKAGE DIMENSIONS (UNIT: mm)



BOTTOM VIEW

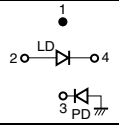


PIN CONNECTION



***1** Focal Point: A point to get maximum optical output power from fiber.
***2** ( ) indicates nominal dimension.

ORDERING INFORMATION

Part Number	Package	Pin Connections
NX6342EP-AZ	4-pin CAN with ball lens cap	

Remarks 1. The color of ball lens cap might be observed differently.

2. The hermetic test will be performed as AQL 1.0%.

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C, unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_O	15	mW
Forward Current of LD	I_F	120	mA
Reverse Voltage of LD	V_R	2.0	V
Forward Current of PD	I_F	10.0	mA
Reverse Voltage of PD	V_R	15	V
Operating Case Temperature	T_C	–5 to +85	°C
Storage Temperature	T_{stg}	–40 to +95	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

RECOMMENDED LD DRIVE CURRENT AT MODULE LEVEL

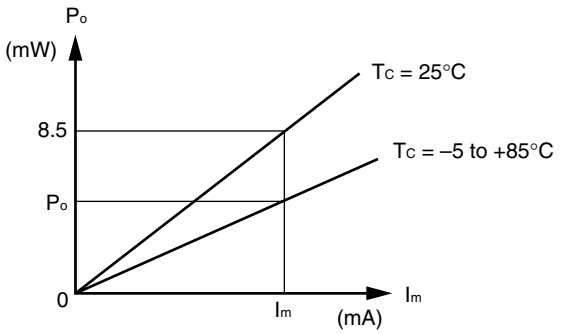
Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Bias Current	I_{bias}	T_C = 25°C	–	30	–	mA

ELECTRO-OPTICAL CHARACTERISTICS (T_C = –5 to +85°C, CW, BOL, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Signalling Rate			–	10.3125	–	Gb/s
Optical Output Power	P_O		–	8.5	–	mW
Operating Voltage	V_{op}	P_O = 8.5 mW	–	–	2.0	V
Threshold Current	I_{th}	T_C = 25°C	–	8	15	mA
			–	–	30	
Differential Efficiency	η_d	P_O = 8.5 mW, T_C = 25°C	0.23	–	–	W/A
		P_O = 8.5 mW	0.13	–	–	
Peak Emission Wavelength	λ_p	P_O = 8.5 mW	1 290	–	1 330	nm
Side Mode Suppression Ratio	SMSR	P_O = 8.5 mW	35	–	–	dB
Rise Time	t_r	20-80% *1	–	–	50	ps
Fall Time	t_f	80-20% *1	–	–	50	ps
Monitor Current	I_m	V_R = 1.5 V, P_O = 8.5 mW	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	–	–	100	
Monitor PD Terminal Capacitance	C_t	V_R = 3.3 V, f = 1 MHz	–	–	20	pF
Tracking Error *2	γ	I_m = const. (@P_O = 8.5 mW, T_C = 25°C)	–0.9	–	0.9	dB

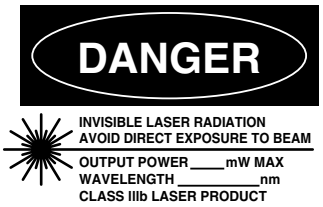
Note: 1. 10.3125 Gb/s, PRBS 2^{31} – 1, NRZ, Duty Cycle = 50%

2. Tracking Error: γ

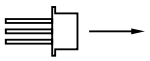


$$\gamma = \left| 10 \log \frac{P_o}{8.5} \right| \text{[dB]}$$

SAFETY INFORMATION ON THIS PRODUCT



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible Laser Radiation is emitted from this aperture

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.

Revision History	NX6342EP Data Sheet

Rev.	Date	Description	
		Page	Summary
1.00	Jan 19, 2012	–	First edition issued