

NX6350EP Series

Data Sheet

LASER DIODE

1 270/1 290/1 310/1 330 nm AlGaInAs MQW-DFB LASER DIODE
 FOR 40GBASE-LR4 APPLICATION

R08DS0066EJ0100
 Rev.1.00
 Aug 14, 2012

DESCRIPTION

The NX6350EP series is a 1 270/1 290/1 310/1 330 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD.

APPLICATIONS

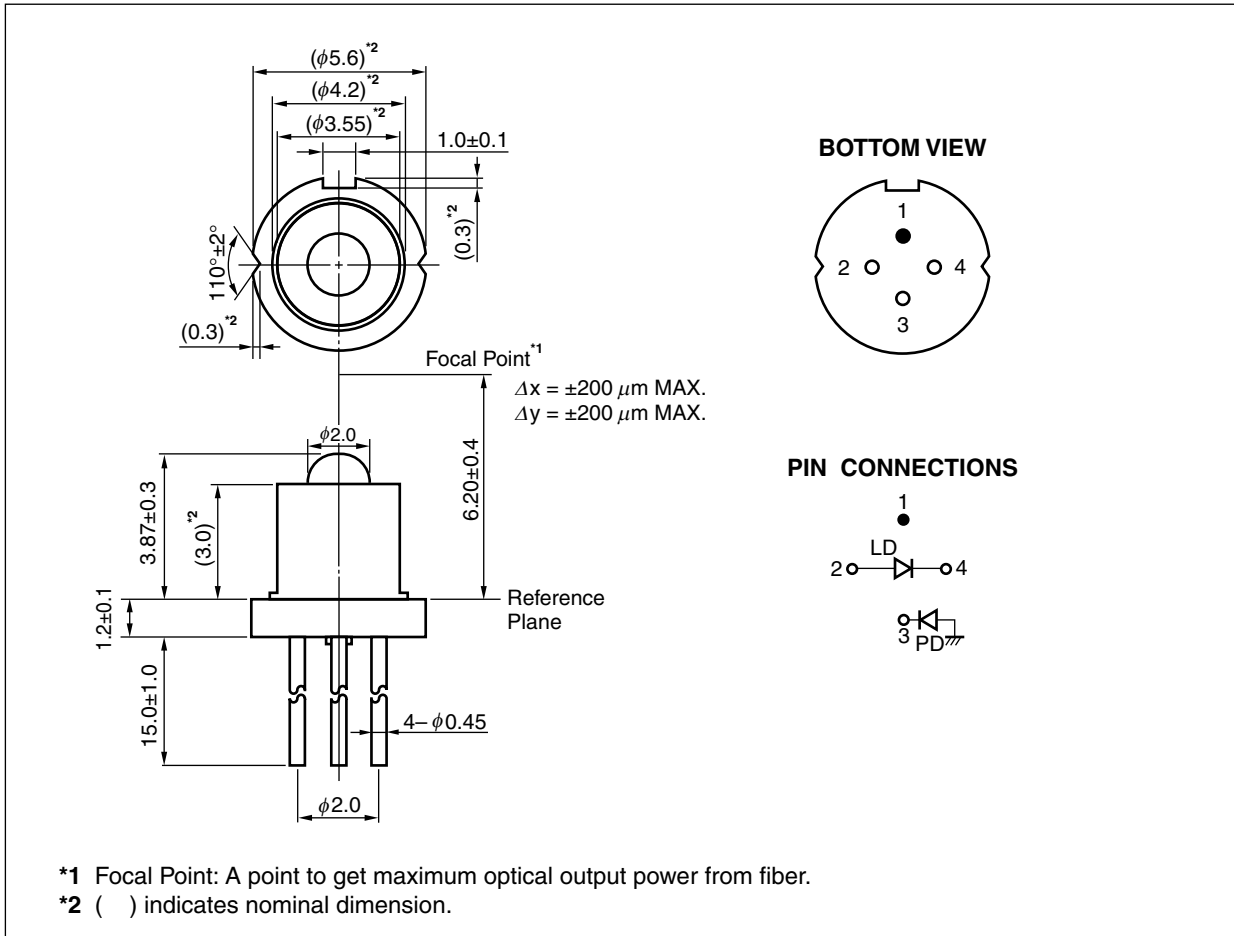
- 40GBASE-LR4
- Bi-Directional 10G SFP+ (CPRI,10G-Ethernet)

FEATURES


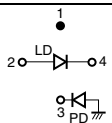
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|------------------------------------|--|
| • Optical output power | $P_O = 8.5 \text{ mW}$ |
| • Low threshold current | $I_{th} = 8 \text{ mA}$ |
| • Differential efficiency | $\eta_d = 0.35 \text{ W/A}$ |
| • Wide operating temperature range | $T_C = -5 \text{ to } +85^\circ\text{C}$ |
| • InGaAs monitor PIN-PD | |
| • CAN package | $\phi 5.6 \text{ mm}$ |
| • Focal point | 6.2 mm |



PACKAGE DIMENSIONS (UNIT: mm)



NX6350EP Series
ORDERING INFORMATION

Part Number	Package	Pin Connections
NX6350EPxx*1 	4-pin CAN with ball lens cap	

Note: *1. The last two digits ("xx") of Part Number indicates Wavelength Code.
The relationships between the code and wavelength are as follows.

WAVELENGTH CODE	WAVELENGTH (nm)
27	1 270
29	1 290
31	1 310
33	1 330

- Remarks**
1. The color of 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

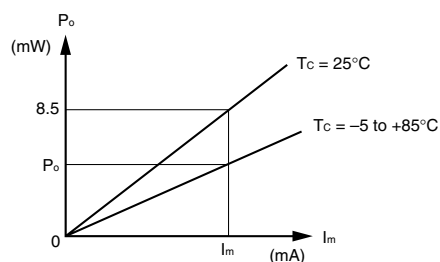
ELECTRO-OPTICAL CHARACTERISTICS

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

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit	
Signaling Rate			–	10.3125	–	Gb/s	
Optical Output Power	P _O		–	8.5	–	mW	
Operating Voltage	V _{op}	P _O = 8.5 mW	–	–	1.8	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	0.28	0.35	–	W/A	
		P _O = 8.5 mW	0.16	–	–		
Peak Emission Wavelength	λ _p	P _O = 8.5 mW	NX6350EP27	1 264.5	–	1 277.5	nm
			NX6350EP29	1 284.5	–	1 297.5	
			NX6350EP31	1 304.5	–	1 317.5	
			NX6350EP33	1 324.5	–	1 337.5	
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	

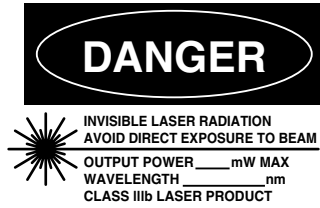
Notes: 1. 10.3125 Gb/s, PRBS 2³¹ – 1, NRZ, Duty Cycle = 50%

2. Tracking Error: γ

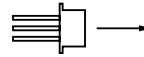


$$\gamma = \left| 10 \log \frac{P_o}{8.5} \right| \text{ [dB]}$$

SAFETY INFORMATION ON THIS PRODUCT



SEMICONDUCTOR LASER



AVOID EXPOSURE-Invisible
 Laser Radiation is emitted from
 this aperture

<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.

Revision History	NX6350EP Series Data Sheet
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Rev.	Date	Description	
		Page	Summary
1.00	Aug 14, 2012	-	First edition issued