

# NX6514EH

LASER DIODE

1 550 nm InGaAsP MQW-DFB LASER DIODE

FOR 1.25 Gb/s FTTH P2P AND OC-48 IR-2

R08DS0053EJ0100

Rev.1.00

Jan 19, 2012

## DESCRIPTION

The NX6514EH is a 1 550 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD.

## APPLICATIONS

- 1.25 Gb/s FTTH P2P
- OC-48 IR-2

## FEATURES

- Optical output power
- Low threshold current
- Differential efficiency
- Wide operating temperature range
- InGaAs monitor PIN-PD
- CAN package
- Focal point

$P_O = 5.0 \text{ mW}$

$I_{th} = 10 \text{ mA}$

$\eta_d = 0.35 \text{ W/A}$

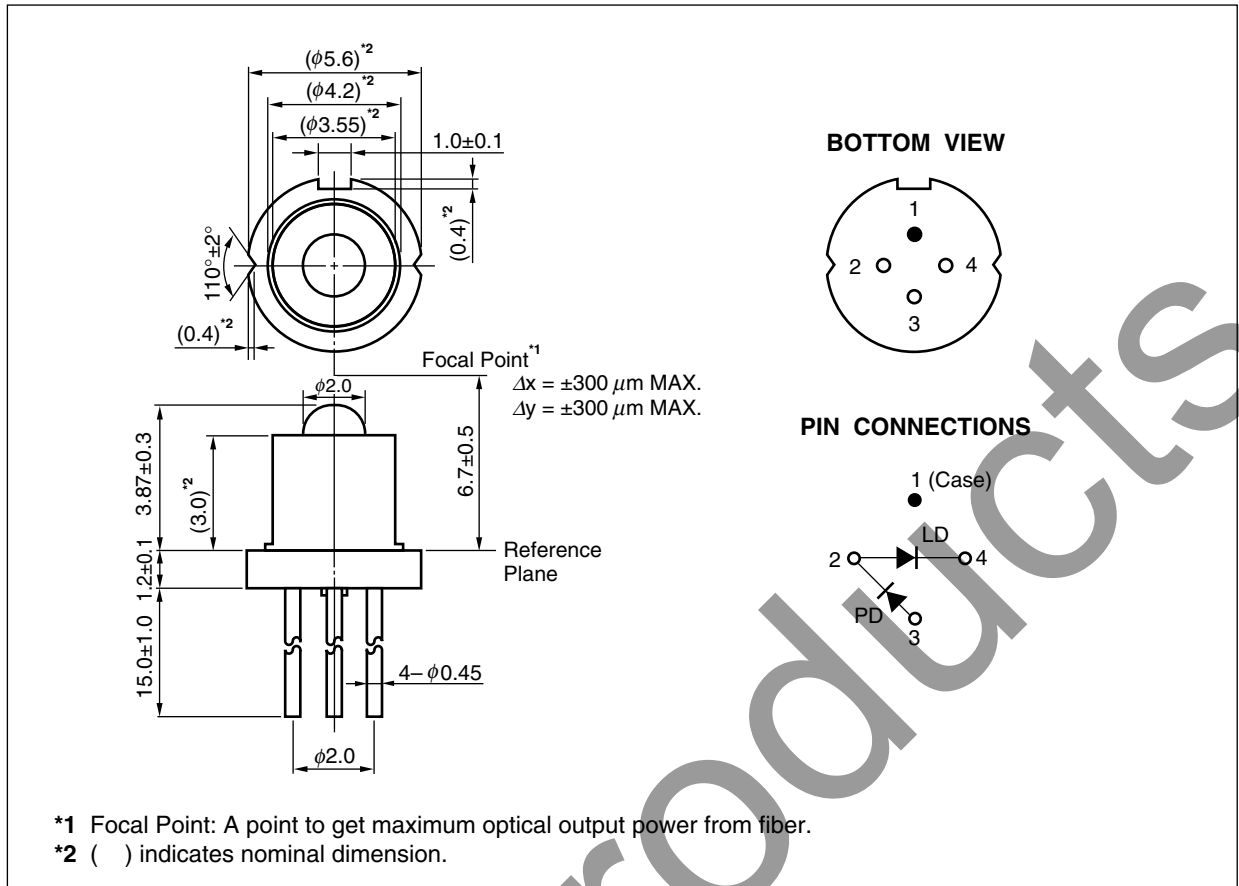
$T_C = -40 \text{ to } +85^\circ\text{C}$

$\phi 5.6 \text{ mm}$

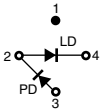
6.7 mm



PACKAGE DIMENSIONS (UNIT: mm)



**ORDERING INFORMATION**

Part Number	Package	Pin Connections
NX6514EH	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%.

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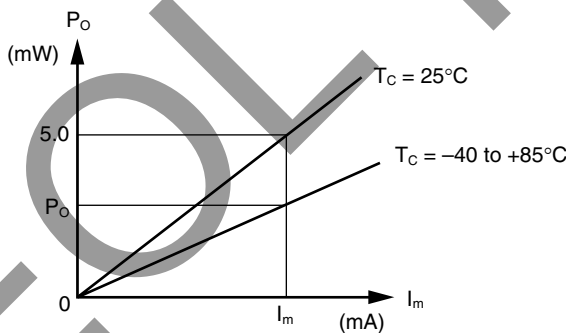
**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C, unless otherwise specified)**

Parameter	Symbol	Ratings	Unit
Optical Output Power	P <sub>O</sub>	10	mW
Forward Current of LD	I <sub>F</sub>	150	mA
Reverse Voltage of LD	V <sub>R</sub>	2.0	V
Forward Current of PD	I <sub>F</sub>	10	mA
Reverse Voltage of PD	V <sub>R</sub>	15	V
Operating Case Temperature	T <sub>C</sub>	-40 to +85	°C
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C
Lead Soldering Temperature	T <sub>slid</sub>	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

**ELECTRO-OPTICAL CHARACTERISTICS (T<sub>C</sub> = 25°C, CW, BOL, unless otherwise specified)**

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Optical Output Power	P <sub>O</sub>		-	5.0	-	mW
Operating Voltage	V <sub>op</sub>	P <sub>O</sub> = 5.0 mW, T <sub>C</sub> = -40 to 85°C	-	1.1	1.6	V
Threshold Current	I <sub>th</sub>		-	10	20	mA
		T <sub>C</sub> = -40 to 85°C	-	-	50	
Differential Efficiency	η <sub>d</sub>	P <sub>O</sub> = 5.0 mW	0.20	0.35	-	W/A
		P <sub>O</sub> = 5.0 mW, T <sub>C</sub> = -40 to 85°C	0.10	-	-	W/A
Peak Emission Wavelength	λ <sub>p</sub>	P <sub>O</sub> = 5.0 mW, T <sub>C</sub> = -40 to 85°C	1 530	-	1 570	nm
Side Mode Suppression Ratio	SMSR	P <sub>O</sub> = 5.0 mW, T <sub>C</sub> = -40 to 85°C	30	-	-	dB
Rise Time	t <sub>r</sub>	I <sub>b</sub> = I <sub>th</sub> , 20-80% P <sub>O</sub> = 5.0 mW	-	100	150	ps
Fall Time	t <sub>f</sub>	I <sub>b</sub> = I <sub>th</sub> , 80-20% P <sub>O</sub> = 5.0 mW	-	100	150	ps
Monitor Current	I <sub>m</sub>	V <sub>R</sub> = 1.5 V, P <sub>O</sub> = 5.0 mW	80	-	1 200	μA
Monitor Dark Current	I <sub>D</sub>	V <sub>R</sub> = 5 V, T <sub>C</sub> = -40 to 85°C	-	-	100	nA
Monitor PD Terminal Capacitance	C <sub>t</sub>	V <sub>R</sub> = 5 V	-	-	20	pF
Tracking Error**	γ	T <sub>C</sub> = -40 to 85°C, I <sub>m</sub> = const. (@ P <sub>O</sub> = 5.0 mW, T <sub>C</sub> = 25°C)	-1.0	-	1.0	dB

Note: 1. Tracking Error: γ



$$\gamma = \left| 10 \log \frac{P_O}{5.0} \right| \text{ [dB]}$$

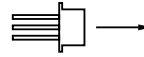
**SAFETY INFORMATION ON THIS PRODUCT**

**DANGER**

INVISIBLE LASER RADIATION  
 AVOID DIRECT EXPOSURE TO BEAM

OUTPUT POWER \_\_\_\_\_mW MAX  
 WAVELENGTH \_\_\_\_\_nm  
 CLASS IIb LASER PRODUCT

**SEMICONDUCTOR LASER**



**AVOID EXPOSURE-Invisible**  
 Laser Radiation is emitted from  
 this aperture

<b>Warning</b>	Laser Beam	<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"> <li>• Do not look directly into the laser beam.</li> <li>• Avoid exposure to the laser beam, any reflected or collimated beam.</li> </ul>
<b>Caution</b>	GaAs Products	<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"> <li>• 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"> <li>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.</li> <li>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.</li> </ol> </li> <li>• Do not burn, destroy, cut, crush, or chemically dissolve the product.</li> <li>• Do not lick the product or in any way allow it to enter the mouth.</li> </ul>

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<b>Revision History</b>	<b>NX6514EH Data Sheet</b>
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Rev.	Date	Description	
		Page	Summary
1.00	Jan 19, 2012	-	First edition issued

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