NX6410GH

LASER DIODE

1 490 nm InGaAsP MQW-DFB LASER DIODE FOR 2.5 Gb/s FTTH PON APPLICATION

R08DS0040EJ0500
Rev.5.00
Jun 07, 2011

DESCRIPTION

The NX6410GH is a 1 490 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD.

APPLICATION

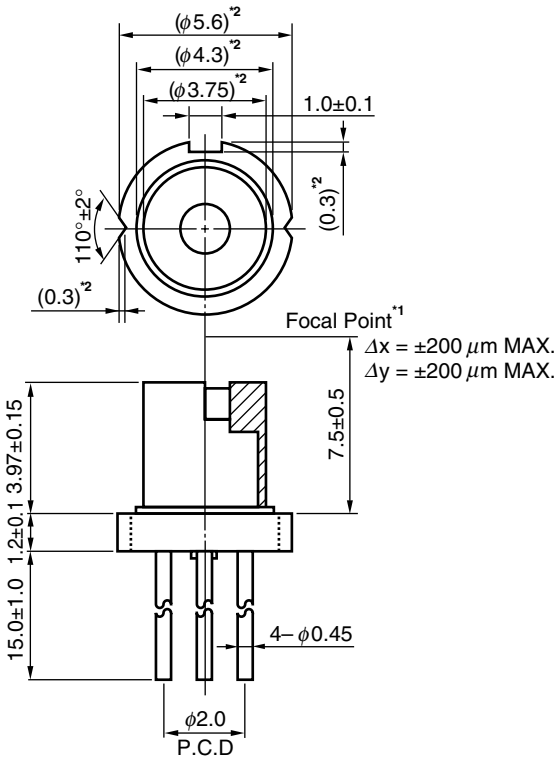
- 2.5 Gb/s FTTH PON (Fiber To The Home Passive Optical Network)

FEATURES

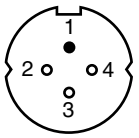
- Optical output power — P_o = 14.0 mW
- Low threshold current — I_{th} = 10 mA
- Differential efficiency — η_d = 0.3 W/A
- Wide operating temperature range — T_C = –40 to +85°C
- InGaAs monitor PIN-PD
- CAN package — ϕ5.6 mm
- Focal point — 7.5 mm

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.

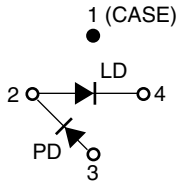
<R> **PACKAGE DIMENSIONS (UNIT: mm)**



BOTTOM VIEW

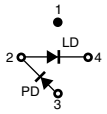


PIN CONNECTIONS



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

ORDERING INFORMATION

Part Number	Package	Pin Connections
NX6410GH	4-pin CAN with aspherical lens cap	

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

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

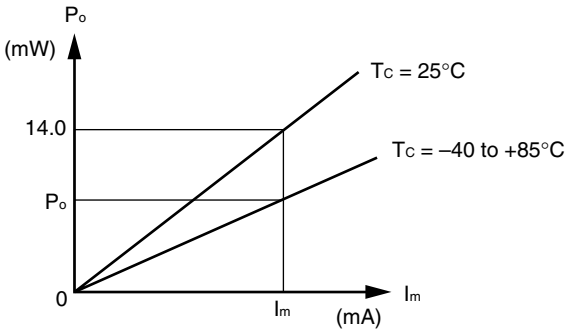
ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	20	mW
Forward Current of LD	I_F	200	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	–40 to +85	°C
Storage Temperature	T_{stg}	–40 to +85	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

ELECTRO-OPTICAL CHARACTERISTICS (T_C = –40 to +85°C, unless otherwise specified)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
	Optical Output Power	P_o	CW		14.0		mW
	Operating Current	I_{op}	P_o = 14.0 mW			140	mA
	Operating Voltage	V_{op}	P_o = 14.0 mW		1.1	1.6	V
	Threshold Current	I_{th}	T_C = 25°C	5	10	15	mA
				3		40	
	Differential Efficiency	η_d	P_o = 14.0 mW	0.10		0.6	W/A
<R>	Peak Emission Wavelength	λ_p	CW, P_o = 14.0 mW	1 480		1 500	nm
	Side Mode Suppression Ratio	SMSR	P_o = 14.0 mW	30			dB
	Rise Time	t_r	$I_b = I_{th}$, 10-90%		0.1	0.2	ns
	Fall Time	t_f	$I_b = I_{th}$, 90-10%		0.1	0.2	ns
<R>	Monitor Current	I_m	V_R = 1.5 V, P_o = 14.0 mW, T_C = 25°C	200	500	1 500	μA
	Monitor Dark Current	I_D	V_R = 5 V			100	nA
<R>	Tracking Error*1	γ	I_m = const. (@ P_o = 14.0 mW, T_C = 25°C)	–1.0		1.0	dB

***1** Tracking Error: γ



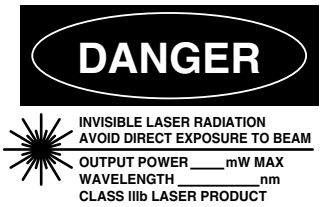
$$\gamma = \left| 10 \log \frac{P_o}{14.0} \right| [dB]$$

REFERENCE

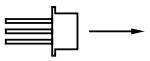
Document Name	Document No.
Opto-Electronics Devices Pamphlet*1	PX10160E

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

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	NX6410GH Data Sheet

Rev.	Date	Description	
		Page	Summary
–	Mar 2010	–	Previous No. : PL10643EJ04V0DS
5.00	Jun 07, 2011	p.2	Modification of **PACKAGE DIMENSIONS**
		p.4	**ELECTRO-OPTICAL CHARACTERISTICS** Peak Emission Wavelength: (MIN.) 1 481 -> 1 480, (MAX.) 1 499 -> 1 500 Monitor Current: (MIN.) 250 -> 200 Tracking Error: (MIN.) –0.8 -> –1.0, (MAX.) 0.8 -> 1.0

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