NX5522 Series

LASER DIODE

1 550 nm FOR FTTH InGaAsP MQW-FP LASER DIODE

R08DS0029EJ0100
Rev.1.00
Oct 06, 2010

DESCRIPTION

The NX5522 Series is a 1 550 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode with InGaAs monitor PIN-PD. These devices are designed and ideal for Fiber To The Home (FTTH).

APPLICATION

- 155 Mbps FTTH P2P (Fiber To The Home Point to Point) system

FEATURES

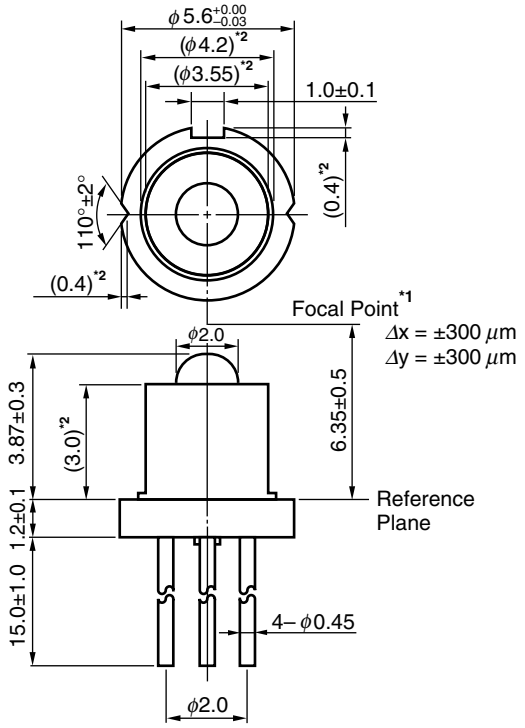
- Optical output power P_o = 5.0 mW
- Low threshold current I_{th} = 8 mA
- Differential efficiency η_d = 0.3 W/A
- Wide operating temperature range T_C = –40 to +85°C
- InGaAs monitor PIN-PD
- CAN package ϕ 5.6 mm

The mark <R> shows major revised points.

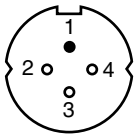
The revised points can be easily searched by copying an "<R>" in the PDF file and specifying it in the "Find what:" field.

Phase-out/Discontinued

PACKAGE DIMENSIONS (UNIT: mm)

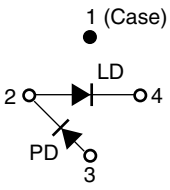


BOTTOM VIEW

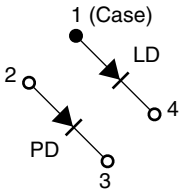


PIN CONNECTIONS

NX5522EH



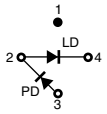
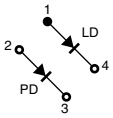
NX5522EK



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

Phase-out/Discontinued

ORDERING INFORMATION

Part Number	Package	Pin Connections
NX5522EH	4-pin CAN with ball lens cap	
NX5522EK		

Remarks 1. The color of ball lens cap might be observed differently from our can package products.

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

ABSOLUTE MAXIMUM RATINGS

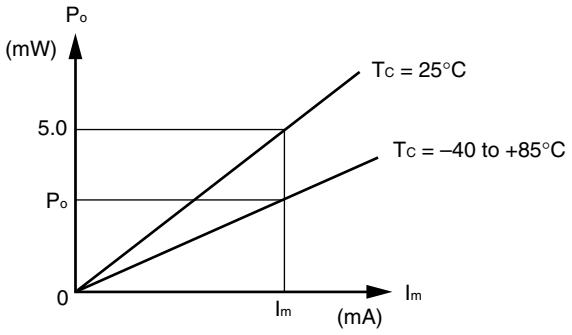
Parameter	Symbol	Ratings	Unit
Optical Output Power	P_o	10	mW
Forward Current of LD	I_F	150	mA
Reverse Voltage of LD	V_R	2.0	V
Forward Current of PD	I_F	10	mA
Reverse Voltage of PD	V_R	15	V
Operating Case Temperature	T_C	–40 to +85	°C
Storage Temperature	T_{stg}	–40 to +85	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

Phase-out/Discontinued

ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Operating Voltage	V_{op}	P_o = 5.0 mW, T_C = –40 to +85°C		1.1	1.5	V
Threshold Current	I_{th}			8	20	mA
		T_C = 85°C		20	40	
Differential Efficiency	η_d		0.2	0.3		W/A
Center Wavelength	λ_C	P_o = 5.0 mW, RMS (–20 dB), T_C = –40 to +85°C	1 480		1 580	nm
Spectral Width	σ	P_o = 5.0 mW, RMS (–20 dB), T_C = –40 to +85°C		1.5	3.0	nm
Rise Time	t_r	10-90%			0.7	ns
Fall Time	t_f	90-10%			0.7	ns
Lateral Beam Angle	$\theta_{//}$	P_o = 5.0 mW		11		deg.
Vertical Beam Angle	$\theta_{\perp}$	P_o = 5.0 mW		11		deg.
Monitor Current	I_m	V_R = 5 V, P_o = 5.0 mW	100		1 000	μA
Monitor Dark Current	I_D	V_R = 5 V		0.1	10	nA
		V_R = 5 V, T_C = –40 to +85°C			500	
Monitor PD Terminal Capacitance	C_t	V_R = 5 V, f = 1 MHz		6	20	pF
Tracking Error*1	γ	I_m = const. (@ P_o = 5.0 mW, T_C = 25°C), T_C = –40 to +85°C	–1.0		1.0	dB

***1** Tracking Error: γ



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

Phase-out/Discontinued

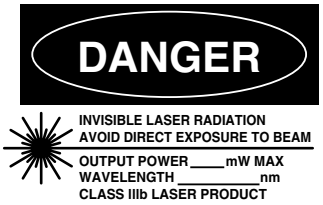
<R> REFERENCE

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

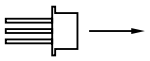
***1** Published by the former NEC Electronics Corporation.

Phase-out/Discontinued

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.

Phase-out/Discontinued

Revision History — NX5522 Series Data Sheet

Rev.	Date	Description	
		Page	Summary
–	Apr 2009	–	Previous No. : PL10755EJ01V0DS
1.00	Oct 06, 2010	Throughout	Preliminary Data Sheet -> Data Sheet
		p.5	Modification of **REFERENCE**

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