PRELIMINARY DATA SHEET

NEC

LASER DIODE

NX6508 Series

1 470 TO 1 610 nm FOR 2.5 Gb/s, CWDM InGaAsP MQW-DFB LASER DIODE

DESCRIPTION

The NX6508 Series is a 1 470 to 1 610 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD. These devices are ideal for 2.5 Gb/s CWDM application.

FEATURES

- Optical output power P_o = 5.0 mW
- Peak emission wavelength λ_p = 1 470 to 1 610 nm (Based on CWDM)
- Low threshold current I_{th} = 10 mA
- High speed t_r = 100 ps MAX.
  t_f = 150 ps MAX.
- Side mode suppression ratio SMSR = 40 dB
- ★ Operating case temperature range T_C = –20 to +85°C
- InGaAs monitor PIN-PD
- CAN package ϕ5.6 mm
- Based on Telcordia reliability

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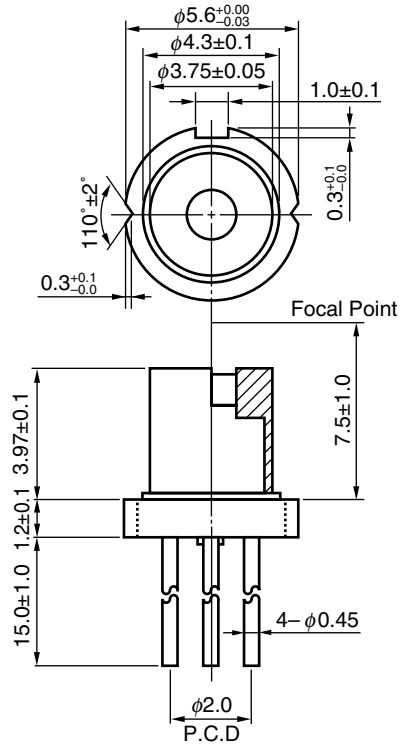
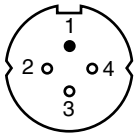
The mark ★ shows major revised points.

PACKAGE DIMENSIONS (UNIT: mm)

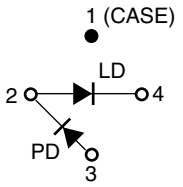


BOTTOM VIEW

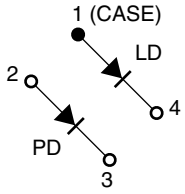


PIN CONNECTIONS

NX6508GHxx*1



NX6508GKxx*1



***1** Please refer to **ORDERING INFORMATION**.

ORDERING INFORMATION

NX6508 □□ xx

- xx: Wavelength code : Refer to **Table A**
- □□: Package code : Refer to **PACKAGE DIMENSIONS**

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	2.0	mA
Reverse Voltage of PD	V_R	15	V
★ Operating Case Temperature	T_C	−20 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 = –20 to +85°C, unless otherwise specified)

	Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
	Optical Output Power	P_o	CW		5.0		mW
	Operating Voltage	V_{op}	P_o = 5.0 mW		1.1	1.6	V
	Threshold Current	I_{th}	T_C = 25°C		10	20	mA
★						50	
	Differential Efficiency	η_d	P_o = 5.0 mW, T_C = 25°C	0.18	0.25		W/A
			P_o = 5.0 mW	0.10			
	Temperature Dependence of Differential Efficiency	$\Delta\eta_d$	$\Delta\eta_d = 10 \log \frac{\eta_d\ (@\ T_C°C)}{\eta_d\ (@\ 25°C)}$	–3.0	–1.6		dB
★	Peak Emission Wavelength	λ_p	P_o = 5.0 mW, T_C = 35°C	λ_p–2	λ_p *1	λ_p+2	nm
	Temperature Dependence of Peak Emission Wavelength	$\Delta\lambda/\Delta T$	CW	0.08	0.1	0.12	nm/°C
	Side Mode Suppression Ratio	SMSR	P_o = 5.0 mW	30	40		dB
	Rise Time	t_r	20-80%, P_o = 5.0 mW			100	ps
	Fall Time	t_f	80-20%, P_o = 5.0 mW			150	ps
	Monitor Current	I_m	V_R = 1.5 V, P_o = 5.0 mW	200	1 000	2 000	μA
★	Monitor Dark Current	I_D	V_R = 1.5 V, T_C = 25°C		0.1	10	nA
★			V_R = 1.5 V		10	100	

***1** Available for CWDM Wavelengths based on ITU-T recommendations
λ_p = 1 470, 1 490, 1 510, 1 530, 1 550, 1 570, 1 590, 1 610 nm
Please refer to **Table A**.

★ **Table A: CWDM wavelength code (@ Tc = 35°C)**

Wavelength Code	MIN. (nm)	TYP. (nm)	MAX. (nm)
47	1 468	1 470	1 472
49	1 488	1 490	1 492
51	1 508	1 510	1 512
53	1 528	1 530	1 532
55	1 548	1 550	1 552
57	1 568	1 570	1 572
59	1 588	1 590	1 592
61	1 608	1 610	1 612

LD CAN PACKAGES FAMILY FOR OPTICAL FIBER COMMUNICATIONS

Part Number	Absolute Maximum Ratings		Electro-Optical Characteristics (T_C = 25°C)				Application	Package
	T_C (°C)	T_{stg} (°C)	I_{th} (mA)	P_o (mW)	λ (nm)			
			TYP.	TYP.	MIN.	MAX.		
NX5304 Series	−40 to +85	−40 to +85	10	5	1 263	1 360	156 Mb/s: STM-1 (I-1, S-1.1, L-1.1)	CAN
							622 Mb/s: STM-4 (I-4, S-4.1)	
							1.25 Gb/s: GbE	
NX5306 Series	−40 to +85	−40 to +85	10	5	1 263	1 360	156 Mb/s: STM-1 (I-1, S-1.1, L-1.1)	CAN
							622 Mb/s: STM-4 (I-4, S-4.1)	
							1.25 Gb/s: GbE	
NX5307 Series	−40 to +85	−40 to +85	10	10	1 266	1 360	2.5 Gb/s: STM-16	CAN
NX5501 Series	−20 to +85	−40 to +85	8	5	1 480	1 580	For FTTH	CAN
NX5504 Series	−20 to +85	−40 to +85	8	5	1 480	1 580	For FTTH	CAN
NX6306 Series	−40 to +85	−40 to +85	10	5	1 280	1 335	156 Mb/s: STM-1 (I-1, S-1.1, L-1.1)	CAN
							622 Mb/s: STM-4 (I-4, S-4.1, L-4.1)	
							1.25 Gb/s: GbE	
NX6307 Series	−20 to +85	−40 to +85	10	7	1 280	1 335	2.5 Gb/s: STM-16 (S-16.1, L-16.1)	CAN
NX6504 Series	−10 to +85	−40 to +85	12	5	1 530	1 570	156 Mb/s: STM-1	CAN
							622 Mb/s: STM-4	
★ NX6508 Series	−20 to +85	−40 to +85	10	5	λ_p−2 *1	λ_p+2 *1	For CWDM	CAN
NX6509 Series	−20 to +85	−40 to +85	10	5	1 530	1 570	2.5 Gb/s: STM-16 (L-16.2)	CAN

★ ***1** T_C = 35°C, λ_p = 1 470, 1 490, 1 510, 1 530, 1 550, 1 570, 1 590, 1 610 nm

REFERENCE

Document Name	Document No.
OPTICAL SEMICONDUCTOR DEVICES FOR FIBEROPTIC COMMUNICATIONS SELECTION GUIDE	PL10161E
Opto-Electronics Devices Pamphlet	PX10160E

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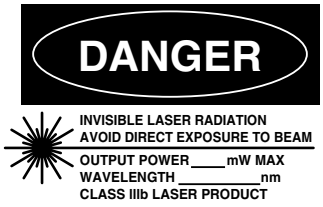
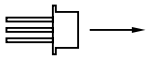
M8E 00.4-0110

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.

▶**For further information, please contact**

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