

# PRELIMINARY DATA SHEET



## NEC's InGaAsP MQW-DFB LASER DIODE IN CAN PACKAGE FOR 2.5 Gb/s, CWDM APPLICATIONS

### NX6508 Series

### FEATURES

- **OPTICAL OUTPUT POWER**  
 $P_o = 5.0 \text{ mW}$
- **PEAK EMISSION WAVELENGTH**  
 $\lambda_p = 1\,470 \text{ to } 1\,610 \text{ nm}$   
(Based on ITU-T recommendations)
- **LOW THRESHOLD CURRENT**  
 $I_{th} = 10 \text{ mA}$
- **HIGH SPEED**  
 $t_r = 100 \text{ ps MAX}$
- **SIDE MODE SUPPRESSION RATIO**  
SMSR = 40 dB
- **OPERATING CASE TEMPERATURE RANGE**  
 $T_c = -20 \text{ to } +85^\circ\text{C}$
- **InGaAs MONITOR PIN-PD**
- **CAN PACKAGE**  
 $\varnothing 5.6 \text{ mm}$
- **BASED ON TELCORDIA RELIABILITY**



### DESCRIPTION

NEC's NX6508 Series are 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.

### ELECTRO-OPTICAL CHARACTERISTICS ( $T_c = -20 \text{ to } +85^\circ\text{C}$ , unless otherwise specified)

		PART NUMBER	NX6508 SERIES			
SYMBOLS	PARAMETER AND CONDITIONS		UNIT	MIN.	TYP.	MAX.
$P_o$	Optical Output Power from Fiber, CW		mW		5.0	
$V_{op}$	Operating Voltage, $P_o = 5.0 \text{ mW}$		V		1.1	1.6
$I_{th}$	Threshold Current, $T_c = 25^\circ\text{C}$		mA		10	20
$\eta_d$	Differential Efficiency	$P_o = 5.0 \text{ mW}, T_c = 25^\circ\text{C}$	W/A	0.18	0.25	
		$P_o = 5.0 \text{ mW}$		0.10		
$\Delta\eta_d$	Temperature Dependence of Differential Efficiency $\Delta\eta_d = 10 \log \frac{\eta_d (@ T_c^\circ\text{C})}{\eta_d (@ 25^\circ\text{C})}$		dB	-3.0	-1.6	
$\lambda_p$	Peak Emission Wavelength, $P_o = 5.0 \text{ mW}$		nm	$\lambda_p - 2$	$\lambda_p + 1$	$\lambda_p + 2$
$\Delta\lambda/\Delta T$	Temperature Dependence of Peak Emission Wavelength, CW		nm/ $^\circ\text{C}$	0.08	0.1	0.12
SMSR	Side Mode Suppression Ratio, $P_o = 5.0 \text{ mW}$		dB	30	40	
$t_r$	Rise Time, 20-80%, $P_o = 5.0 \text{ mW}$		ps			100

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**ELECTRO-OPTICAL CHARACTERISTICS** (T<sub>C</sub> = -20 to +85°C, unless otherwise specified)

SYMBOLS	PART NUMBER		NX6508 SERIES			
	PARAMETER AND CONDITIONS		UNIT	MIN.	TYP.	MAX.
t <sub>f</sub>	Fall Time, 80-20%, P <sub>o</sub> = 5.0 mW		ps			150
I <sub>m</sub>	Monitor Current, V <sub>R</sub> = 1.5 V, P <sub>o</sub> = 5.0 mW		μA	200	1 000	2 000
I <sub>d</sub>	Monitor Dark Current	V <sub>R</sub> = 1.5 V, T <sub>C</sub> = 25°C	nA		0.1	10
		V <sub>R</sub> = 1.5 V			10	100

\*1 Available Available for CWDM Wavelengths based on ITU-T recommendations

λ<sub>p</sub> = 1 470, 1 490, 1 510, 1 530, 1 550, 1 570, 1 590, 1 610 nm

Please refer to **Table A**.

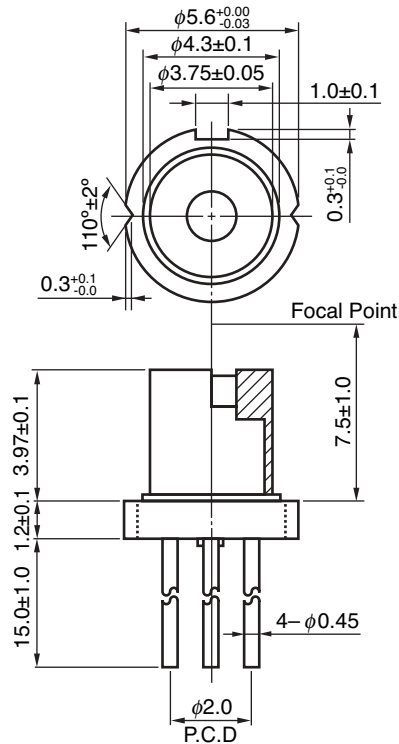
**Table A: CWDM wavelength code (@ T<sub>C</sub> = 25°C)**

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

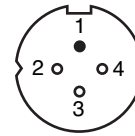
**ABSOLUTE MAXIMUM RATINGS**

SYMBOL	PARAMETER	UNIT	RATINGS
P <sub>o</sub>	Optical Output Power from Fiber	mW	10
I <sub>F</sub>	Forward Current of LD	mA	150
V <sub>R</sub>	Reverse Voltage of LD	V	2.0
I <sub>F</sub>	Forward Current of PD	mA	2.0
V <sub>R</sub>	Reverse Voltage of PD	V	15
T <sub>C</sub>	Operating Case Temperature	°C	-20 to +85
T <sub>stg</sub>	Storage Temperature	°C	-40 to +85
T <sub>slid</sub>	Lead Soldering Temperature	°C	350 (3 sec.)
RH	Relative Humidity	%	85

**PACKAGE DIMENSIONS** (Units in mm)

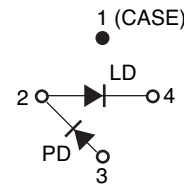


**BOTTOM VIEW**

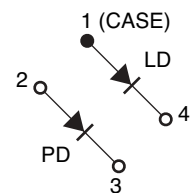


**PIN CONNECTIONS**

**NX6508GHxx\*1**

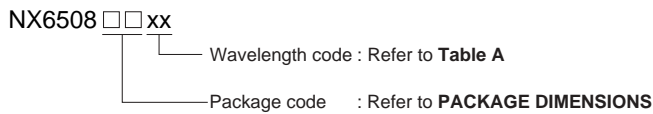


**NX6508GKxx\*1**



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

**ORDERING INFORMATION**



**Life Support Applications**

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