

PRELIMINARY DATA SHEET



NEC's 1310 nm InGaAsP MQW DFB LASER DIODE IN CAN PACKAGE FOR 2.5 Gb/s APPLICATION

NX6307 Series

FEATURES

- **OPTICAL OUTPUT POWER:**
Po = 7.0 mW
- **LOW THRESHOLD CURRENT:**
I_{TH} = 10 mA @ T_c = 25°C
- **HIGH SPEED:**
t_r = 0.2 ns MAX
t_f = 0.2 ns MAX
- **SMSR:**
45 dB @ TYP
- **WIDE OPERATING TEMPERATURE RANGE:**
T_c = -20 to +85°C
- **InGaAs MONITOR PIN-PD**
- **CAN PACKAGE:**
ø5.6 mm
- **BASED ON TELCORDIA RELIABILITY**

DESCRIPTION

NEC's NX6307 Series is a 1310 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD. This device is ideal for Sonet Synchronous Digital Hierarchy (SDH) systems, short haul and long haul OC-48/STM-16, and ITU-T recommendations.

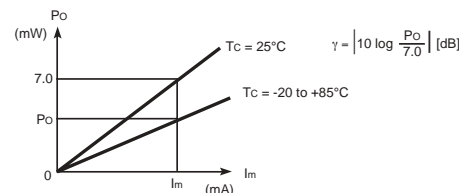
ELECTRO-OPTICAL CHARACTERISTICS (T_c = 25°C, unless otherwise specified)

PART NUMBER			NX6307 Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
V _{OP}	Operating Voltage, Po = 7.0 mW, T _c = -20 to +85°C	V	–	1.1	1.6
I _{TH}	Threshold Current	T _c = 25°C	–	10	20
		T _c = 85°C	–	30	40
P _{TH}	Threshold Output Power, T _c = -20 to +85°C, I _F = I _{TH}	μW	–	100	200
P _O	Optical Output Power, I _F = I _{TH} + 20 mA	mW	4	7	–
η _d	Differential Efficiency	W/A	0.2	0.35	–
Δη _d	Temperature Dependence of Differential Efficiency Δη _d = 10 log $\frac{\eta_d (@ 85^\circ\text{C})}{\eta_d (@ 25^\circ\text{C})}$	dB	-3.0	-2.5	–
I _{MOD}	Modulation Current, T _c = 85°C	mA	–	–	50
λ _p	Peak Emission Wavelength, Po = 7.0 mW, RMS (-20 dB), T _c = -20 to +85°C	nm	1280	–	1335
SMSR	Side mode Suppression Ratio Po = 7.0 mW, RMS (-20 dB), T _c = -20 to +85°C	dB	30	45	–
θ _⊥	Vertical Beam Angle ¹ , Po = 7.0 mW, FAHM ²	deg	–	35	40
θ _∥	Lateral Beam Angle ¹ , Po = 7.0 mW, FAHM ²	deg	–	30	35
t _r	Rise Time, 10 to 90%	ns	–	–	0.2
t _f	Fall Time, 90 to 10%	ns	–	–	0.2
I _m	Monitor Current, V _R = 5 V, I _F = I _{TH} + 20 mA	μA	280	840	1400
I _D	Monitor Dark Current,	V _R = 5 V	–	0.1	10
		V _R = 5 V, T _c = -20 to +85°C	–	–	500
C _t	Monitor PD Terminal Capacitance, V _R = 5 V, f = 1 MHz	pF	–	6.0	20
γ	Tracking Error ³ I _m = const, (@ Po = 7.0 mW, T _c = 25°C) T _c = -20 to +85°C	dB	-1.0	–	1.0

Notes:

1. Applicable only to NX6307S Series.
2. FAHM: Full Angle at Half Maximum.

3. Tracking Error: γ



NX6307 SERIES

ABSOLUTE MAXIMUM RATINGS¹

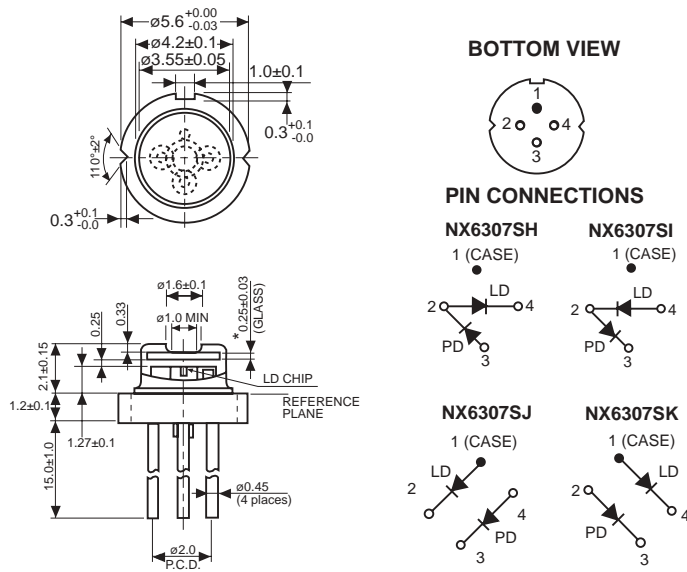
SYMBOLS	PARAMETERS	UNITS	RATINGS
P _o	Optical Output Power	mW	20
I _F	Forward Current of LD	mA	150
V _R	Reverse Voltage of LD	V	2.0
I _F	Forward Current of PD	mA	10
V _R	Reverse Voltage of PD	V	20
T _c	Operating Case Temperature	°C	-20 to +85
T _{STG}	Storage Temperature	°C	-40 to +85
T _{ASB}	Assembly Temperature	°C	150 (15 Hr)
T _{SLD}	Lead Soldering Temperature	°C	350 (3 sec.)
RH	Relative Humidity (noncondensing)	%	85

Note:

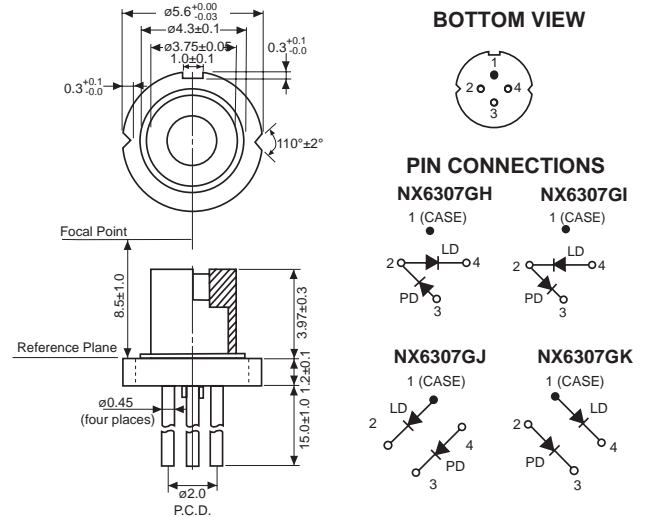
1. Operation in excess of any one of these parameters may result in permanent damage.

OUTLINE DIMENSIONS (Units in mm)

NX6307S SERIES



NX6307G SERIES



*n = 1.48 Bolosilicate Glass

ORDERING INFORMATION

NX6307S Series

PART NUMBER	PACKAGE	PIN CONNECTIONS
NX6307SH	4-pin CAN with flat glass cap	
NX6307SI		
NX6307SJ		
NX6307SK		

NX6307G Series

PART NUMBER	PACKAGE	PIN CONNECTIONS
NX6307GH	4-pin CAN with aspherical lens cap	
NX6307GI		
NX6307GJ		
NX6307GK		

Life Support Applications

These NEC products are not intended for use in life support devices, appliances, or systems where the malfunction of these products can reasonably be expected to result in personal injury. The customers of CEL using or selling these products for use in such applications do so at their own risk and agree to fully indemnify CEL for all damages resulting from such improper use or sale.

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