CEL

NEC's 1310 nm InGaAsP MQW DFB LASER DIODE IN CAN PACKAGE FOR 155 Mb/s AND 622 Mb/s APPLICATIONS

NX6306 Series

FEATURES

- **OPTICAL OUTPUT POWER:**
  P_O = 5.0 mW
- **LOW THRESHOLD CURRENT:**
  I_{TH} = 10 mA @ T_C = 25°C
- **HIGH SPEED:**
  t_r = 0.5 ns MAX
  t_f = 0.5 ns MAX
- **SMSR:**
  45 dB @ TYP
- **WIDE OPERATING TEMPERATURE RANGE:**
  T_C = -40 to +85°C
- **InGaAs MONITOR PIN-PD**
- **CAN PACKAGE:**
  ø5.6 mm
- **BASED ON TELCORDIA RELIABILITY**

DESCRIPTION

NEC's NX6306 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 Synchronous Digital Hierarchy (SDH) systems and ITU-T recommendations.

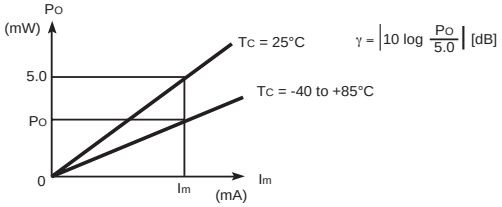
APPLICATIONS

- 156 Mb/s: OC-3 (SR, IR-1, LR-1)
- 622 Mb/s: OC-12 (SR, IR-1, LR-1)

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

PART NUMBER			NX6306 Series		
SYMBOLS	**PARAMETERS AND CONDITIONS**	**UNITS**	**MIN**	**TYP**	**MAX**
V_{OP}	Operating Voltage, P_O = 5.0 mW, T_C = -40 to +85°C	V	–	1.1	1.6
I_{TH}	Threshold Current	mA	–	10	20
	T_C = 85°C	mA	–	30	40
P_{TH}	Threshold Output Power, T_C = -40 to +85°C, I_F = I_{TH}	μW	–	100	200
ηd	Differential Efficiency (Flat glass type: NX6306S Series) (Aspherical lens type: NX6306G Series)	W/A	0.2 0.2	0.35 0.3	– –
$\Delta\eta d$	Temperature Dependence of Differential Efficiency $\Delta\eta d = 10 \log \frac{\eta d\ (@\ 85°C)}{\eta d\ (@\ 25°C)}$	dB	-3.0	-2.5	–
λp	Peak Emission Wavelength, P_O = 5.0 mW, RMS (-20 dB), T_C = -40 to +85°C	nm	1280	–	1335
SMSR	Side mode Suppression Ratio P_O = 5.0 mW, RMS (-20 dB), T_C = -40 to +85°C	dB	30	45	–
$\theta\perp$	Vertical Beam Angle[1], P_O = 5.0 mW, FAHM[2]	deg	–	35	40
$\theta\parallel$	Lateral Beam Angle[1], P_O = 5.0 mW, FAHM[2]	deg	–	30	35
t_r	Rise Time, 10 to 90%	ns	–	–	0.5
t_f	Fall Time, 90 to 10%	ns	–	–	0.5
I_m	Monitor Current, P_O = 5.0 mW, V_R = 5 V	μA	200	600	1000
I_D	Monitor Dark Current, V_R = 5 V	nA	–	0.1	10
	V_R = 5 V, T_C = -40 to +85°C	nA	–	–	500
C_t	Monitor PD Terminal Capacitance, V_R = 5 V, f = 1 MHz	pF	–	6	20
γ	Tracking Error[3] Im = const, (@ P_O = 5.0 mW, T_C = 25°C) T_C = -40 to +85°C	dB	-1.0	–	1.0

Notes:
1. Applicable only to NX6306S Series.
2. FAHM: Full Angle at Half Maximum.
3. Tracking Error: γ



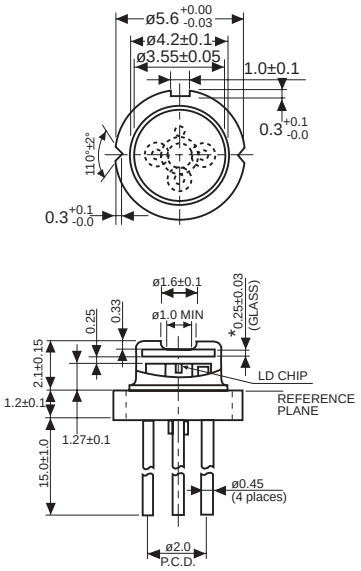
ABSOLUTE MAXIMUM RATINGS[1]

SYMBOLS	PARAMETERS	UNITS	RATINGS
P_O	Optical Output Power	mW	10
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	-40 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)

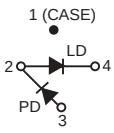
NX6306S SERIES



BOTTOM VIEW

PIN CONNECTIONS

NX6306SH



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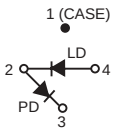

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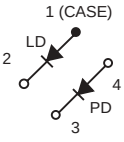

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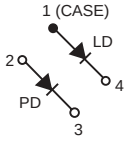
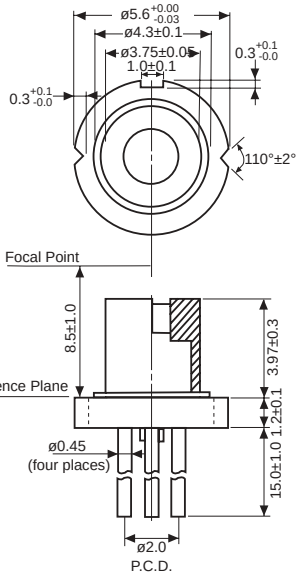


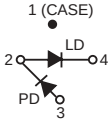
NX6306G SERIES



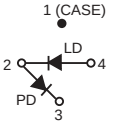
BOTTOM VIEW

PIN CONNECTIONS

NX6306GH



NX6306GI



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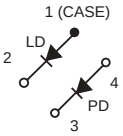

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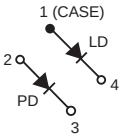
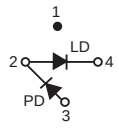
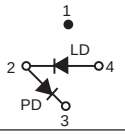
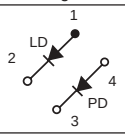
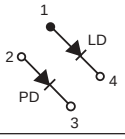


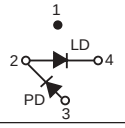
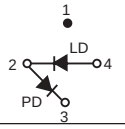
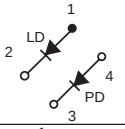
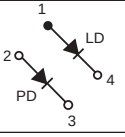
*n = 1.48 Bolosilicate Glass

ORDERING INFORMATION

NX6306S Series

PART NUMBER	PACKAGE	PIN CONNECTIONS
NX6306SH	4-pin CAN with flat glass cap	
NX6306SI		
NX6306SJ		
NX6306SK		

NX6306G Series

PART NUMBER	PACKAGE	PIN CONNECTIONS
NX6306GH	4-pin CAN with aspherical lens cap	
NX6306GI		
NX6306GJ		
NX6306GK		

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.