PRELIMINARY DATASHEET

NEC

1310 nm FOR 2.5 Gb/s InGaAsP MQW-DFB LASER DIODE IN CAN PACKAGE (10 mW)

NX6300 Series

FEATURES

- **OPTICAL OUTPUT POWER:**
  P_O = 10 mW
- **LOW THRESHOLD CURRENT:**
  I_{TH} = 12 mA @ T_C = 25°C
- **HIGH SPEED:**
  t_r = 0.125 ns MAX
  t_f = 0.2 ns MAX
- **SMSR:**
  45 dB
- **WIDE OPERATING TEMPERATURE RANGE:**
  T_C = 0 to +75°C
- **InGaAs MONITOR PIN-PD**
- **CAN PACKAGE:**
  ø5.6 mm
- **BASED ON TELCORDIA RELIABILITY**

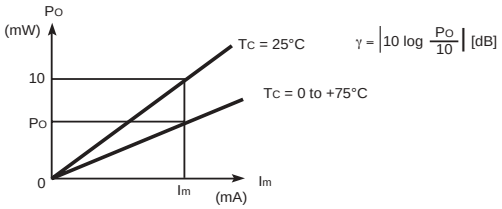
DESCRIPTION

The NX6300 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) and SONET systems, long haul and short haul STM-16, OC-48 and ITU-T recommendations.

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

PART NUMBER			NX6300 Series		
SYMBOLS	**PARAMETERS AND CONDITIONS**	**UNITS**	**MIN**	**TYP**	**MAX**
V_{OP}	Operating Voltage, P_O = 10 mW, T_C = 0 to +75°C	V	–	1.3	1.6
I_{TH}	Threshold Current	mA	–	12	25
	T_C = 75°C	mA	–	30	45
P_{TH}	Threshold Output Power, T_C = 0 to +75°C, I_F = I_{TH}	μW	–	–	200
ηd	Differential Efficiency	W/A	0.2	0.3	–
$\Delta\eta d$	Temperature Dependence of Differential Efficiency $\Delta\eta d = 10 \log \frac{\eta d\ (@\ 75°C)}{\eta d\ (@\ 25°C)}$	dB	-3.0	-1.7	–
λp	Peak Emission Wavelength, P_O = 10 mW, T_C = 0 to +75°C	nm	1280	–	1335
SMSR	Side mode Suppression Ratio P_O = 10 mW, T_C = 0 to +75°C	dB	30	45	
$\theta\perp$	Vertical Beam Angle[1], P_O = 10 mW, FAHM[2]	deg	–	–	40
$\theta\parallel$	Lateral Beam Angle[1], P_O = 10 mW, FAHM[2]	deg	–	–	35
t_r	Rise Time, 10 to 90%	ns	–	0.04	0.125
t_f	Fall Time, 90 to 10%	ns	–	0.1	0.2
I_m	Monitor Current, P_O = 10 mW, V_R = 5 V	μA	200	800	
I_D	Monitor Dark Current, V_R = 5 V, T_C = 25°C	nA	–	0.1	50
	V_R = 5 V, T_C = 0 to +75°C	nA	–	–	500
C_t	Monitor PD Terminal Capacitance, V_R = 5 V, f = 1 MHz	pF	–	1.0	20
γ	Tracking Error[3] Im = const, (@ P_O = 10 mW, T_C = 25°C) T_C = 0 to +75°C	dB	-1.0	–	1.0

Notes:
1. Applicable only to NX6300S Series.
2. FAHM: Full Angle at Half Maximum.
3. Tracking Error: γ



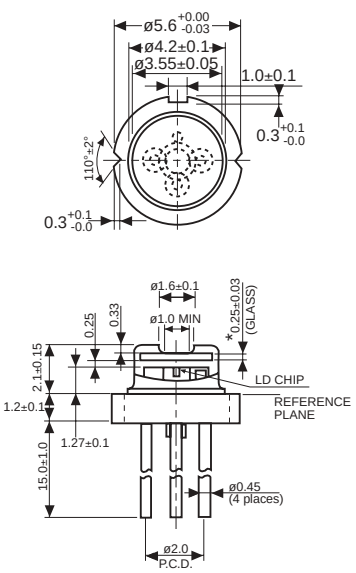
ABSOLUTE MAXIMUM RATINGS[1]

SYMBOLS	PARAMETERS	UNITS	RATINGS
P_O	Optical Output Power	mW	15
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	0 to +75
T_{STG}	Storage Temperature	°C	-40 to +85
T_{SLD}	Lead Soldering Temperature (10 s)	°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.

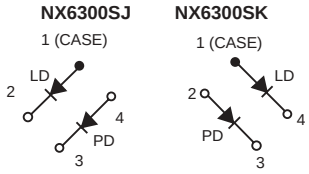
OUTLINE DIMENSIONS (Units in mm)

NX6300S SERIES

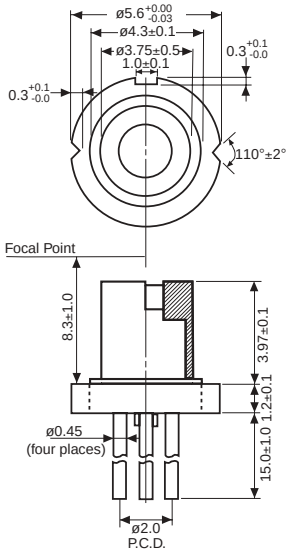


BOTTOM VIEW

PIN CONNECTIONS

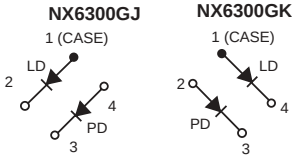


NX6300G SERIES



BOTTOM VIEW

PIN CONNECTIONS



*n = 1.48 Bolosilicate Glass

ORDERING INFORMATION

PART NUMBER	PACKAGE
NX6300SJ	4-pin CAN with flat glass cap
NX6300SK	
NX6300GJ	4-pin CAN with aspherical lens cap
NX6300GK	

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.