PRELIMINARY DATASHEET

CEL

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

NX6307 SERIES

DESCRIPTION

NEC's NX6307 Series is a 1 310 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) system, short haul and long haul STM-16, ITU-T recommendations.

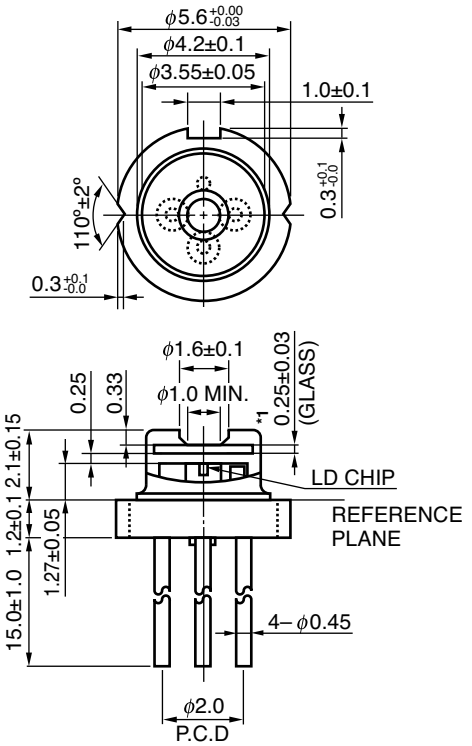
FEATURES

- **OPTICAL OUTPUT POWER:**
  P_o = 7.0 mW
- **LOW THRESHOLD CURRENT:**
  I_{th} = 10 mA @ T_C = 25°C
- **HIGH SPEED:**
  t_r, t_f = 0.2 ns MAX.
- **SIDE MODE SUPPRESSION RATIO:**
  SMSR = 45 dB @ TYP.
- **InGaAs MONITOR PIN-PD**
- **CAN PACKAGE:**
  ϕ 5.6 mm
- **BASED ON TELCORDIA RELIABILITY**

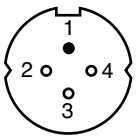
The information in this document is subject to change without notice. Before using this document, please confirm that this is the latest version.

PACKAGE DIMENSIONS (UNIT: mm)

NX6307S Series

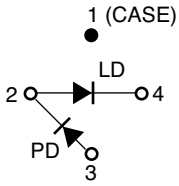


BOTTOM VIEW

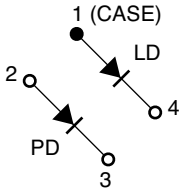


PIN CONNECTIONS

NX6307SH

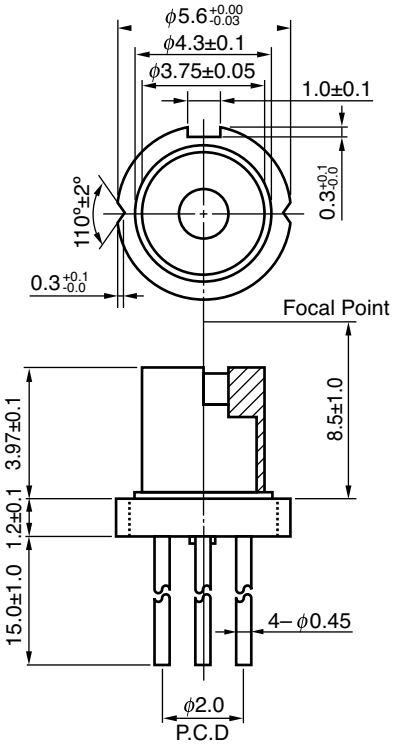


NX6307SK



*1 n = 1.48 Bolosilicate Glass

NX6307G Series



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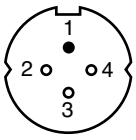
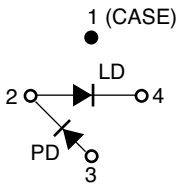
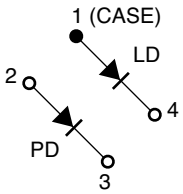


PIN CONNECTIONS

NX6307GH

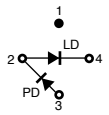
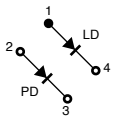


NX6307GK

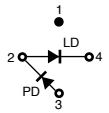
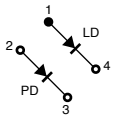


ORDERING INFORMATION

NX6307S Series

PART NUMBER	PACKAGE	PIN CONNECTIONS
NX63067H	4-pin CAN with flat glass cap	
NX63067K		

NX6307G Series

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

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Optical Output Power	P_o	20	mW
Forward Current of LD	I_F	150	mA
Reverse Voltage of LD	V_R	2.0	V
Forward Current of PD	I_F	10	mA
Reverse Voltage of PD	V_R	20	V
Operating Case Temperature	T_C	−20 to +85	°C
Storage Temperature	T_{stg}	−40 to +85	°C
Assembly Temperature	T_{asb}	150 (15 Hr)	°C
Lead Soldering Temperature	T_{sld}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

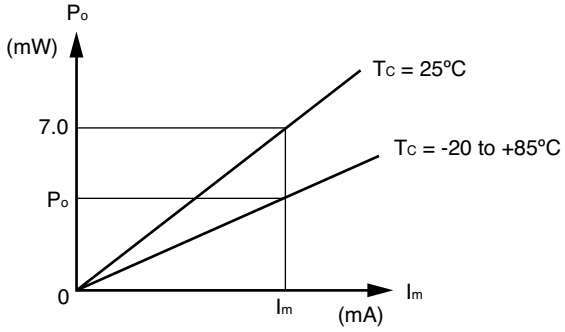
ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25ºC, unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	MIN.	TYP.	MAX.	UNIT
Operating Voltage	V_{op}	P_o = 7.0 mW, T_C = −20 to +85°C		1.1	1.6	V
Threshold Current	I_{th}			10	20	mA
		T_C = 85°C		30	40	
Threshold Output Power	P_{th}	T_C = −20 to +85°C, $I_F = I_{th}$		100	200	μW
Optical Output Power	P_o	$I_F = I_{th}$ + 20 mA	4	7		mW
Differential Efficiency	η_d		0.2	0.35		W/A
Temperature Dependence of Differential Efficiency	$\Delta\eta_d$	$\Delta\eta_d = 10 \log \frac{\eta_d\ (@\ 85ºC)}{\eta_d\ (@\ 25ºC)}$	−3.0	−2.5		dB
Modulation Current	I_{mod}	T_C = 85°C			50	mA
Peak Emission Wavelength	λ_p	P_o = 7.0 mW, RMS (−20 dB), T_C = −20 to +85°C	1 280		1 335	nm
Side Mode Suppression Ratio	SMSR	P_o = 7.0 mW, RMS (−20 dB), T_C = −20 to +85°C	30	45		dB
Vertical Beam Angle*1	$\theta_\perp$	P_o = 7.0 mW, FAHM*2		35	40	deg.
Lateral Beam Angle*1	$\theta_{//}$	P_o = 7.0 mW, FAHM*2		30	35	deg.
Rise Time	t_r	10-90%			0.2	ns
Fall Time	t_f	90-10%			0.2	ns
Monitor Current	I_m	V_R = 5 V, $I_F = I_{th}$ + 20 mA	280	840	1 400	μA
Monitor Dark Current	I_D	V_R = 5 V		0.1	10	nA
		V_R = 5 V, T_C = −20 to +85°C			500	
Monitor PD Terminal Capacitance	C_t	V_R = 5 V, f = 1 MHz		6.0	20	pF
Tracking Error*3	γ	I_m = const. (@ P_o = 7.0 mW, T_C = 25°C) T_C = −20 to +85°C	−1.0		1.0	dB

***1** Applicable to only NX6307S Series

***2** FAHM: Full Angle at Half Maximum

3 Tracking Error: γ



$$\gamma = \left| 10 \log \frac{P_o}{7.0} \right| \text{[dB]}$$

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.