

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 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) system, short haul and long haul STM-16, ITU-T recommendations.

FEATURES

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



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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 _{slid}	350 (3 sec.)	°C
Relative Humidity (noncondensing)	RH	85	%

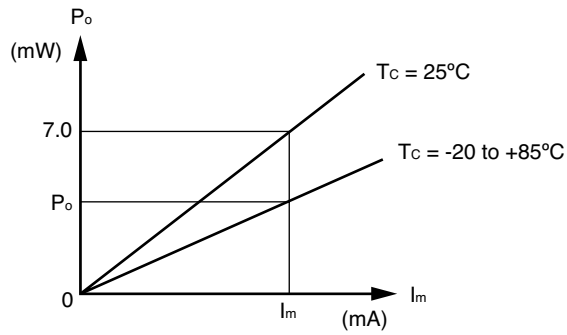
ELECTRO-OPTICAL CHARACTERISTICS (T_C = 25°C, unless otherwise specified)

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	Δη _d	$\Delta\eta_d = 10 \log \frac{\eta_d (@ 85^\circ\text{C})}{\eta_d (@ 25^\circ\text{C})}$	-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	θ _L	P _o = 7.0 mW, FAHM* ²		35	40	deg.
Lateral Beam Angle* ¹	θ _H	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.

CEL California Eastern Laboratories, Your source for NEC RF, Microwave, Optoelectronic, and Fiber Optic Semiconductor Devices.

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