

FEATURES

- **OPTICAL OUTPUT POWER:**
Po = 5.0 mW
- **LOW THRESHOLD CURRENT:**
I_{TH} = 13 mA
- **HIGH SPEED:**
tr, tf = 0.5 ns MAX
- **SMSR:**
40 dB
- **WIDE OPERATING TEMPERATURE RANGE:**
T_C = -40 to +85°C
- **InGaAs MONITOR PIN-PD**
- **CAN PACKAGE:**
ø5.6 mm
- **BASED ON TELCORDIA RELIABILITY**

DESCRIPTION

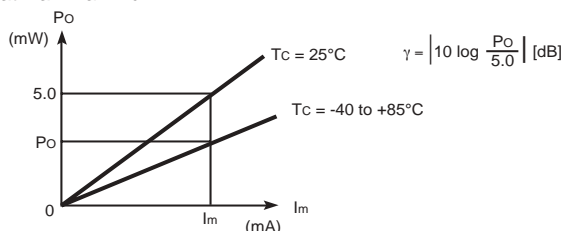
NEC's NX6301 Series is a 1310 nm Multiple Quantum Well (MQW) structured Distributed Feed-Back (DFB) laser diode with InGaAs monitor PIN-PD. This device is ideal for Synchronous Digital Hierarchy (SDH) and SONET systems, STM-1/OC-3, STM-4/OC-12 and ITU-T recommendations.

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

PART NUMBER			NX6301 Series		
SYMBOLS	PARAMETERS AND CONDITIONS	UNITS	MIN	TYP	MAX
V _{OP}	Operating Voltage, Po = 5.0 mW, T _C = -40 to +85°C	V	-	1.2	1.5
I _{TH}	Threshold Current		-	13	25
		T _C = 85°C	-	40	50
P _{TH}	Threshold Output Power, T _C = -40 to +85°C, I _F = I _{TH}	μW	-	-	200
η _d	Differential Efficiency	W/A	0.15	0.25	-
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	-2.3	-
λ _p	Peak Emission Wavelength, Po = 5.0 mW, T _C = -40 to +85°C, RMS (-20 dB)	nm	1280	-	1335
SMSR	Side mode Suppression Ratio Po = 5.0 mW, T _C = -40 to +85°C	dB	30	40	-
θ _⊥	Vertical Beam Angle ¹ , Po = 5.0 mW, FAHM ²	deg	-	30	40
θ _∥	Lateral Beam Angle ¹ , Po = 5.0 mW, FAHM ²	deg	-	25	35
t _r	Rise Time, 10 to 90%	ns	-	0.05	0.5
t _f	Fall Time, 90 to 10%	ns	-	0.3	0.5
I _m	Monitor Current, Po = 5.0 mW, V _R = 5 V	μA	200	600	1000
I _D	Monitor Dark Current, V _R = 5 V		-	0.1	50
		V _R = 5 V, T _C = -40 to +85°C	-	-	500
C _t	Monitor PD Terminal Capacitance, V _R = 5 V, f = 1 MHz	pF	-	1.0	20
γ	Tracking Error ³ I _m = const, (@ Po = 5.0 mW, T _C = 25°C) T _C = -40 to +85°C	dB	-1.0	-	1.0

Notes:

1. Applicable only to NX6301S Series.
2. FAHM: Full Angle at Half Maximum.
3. Tracking Error: γ



NX6301 SERIES

ABSOLUTE MAXIMUM RATINGS¹

(T_C = 25°C, unless otherwise specified)

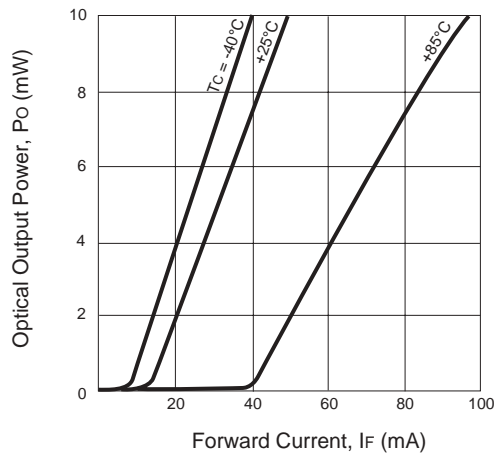
SYMBOLS	PARAMETERS	UNITS	RATINGS
P _f	Optical Output Power	mW	10
I _F	Forward Current of LD	mA	150
V _R	Reverse Voltage of LD	V	2.0
I _F	Forward Current of PD	mA	10
V _R	Reverse Voltage of PD	V	20
T _C	Operating Case Temperature	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SLD}	Lead Soldering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

Note:

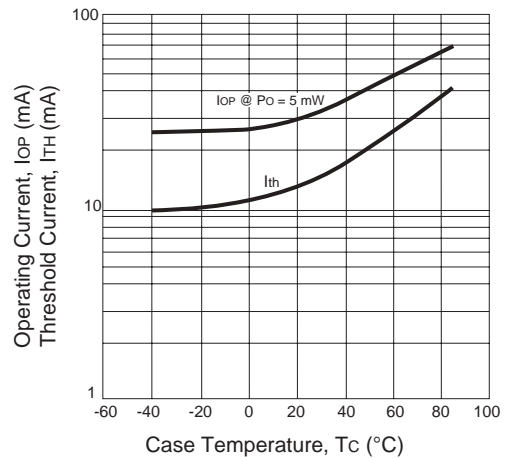
1. Operation in excess of any one of these parameters may result in permanent damage.

TYPICAL PERFORMANCE CURVES (T_C = -40 to +85°C)

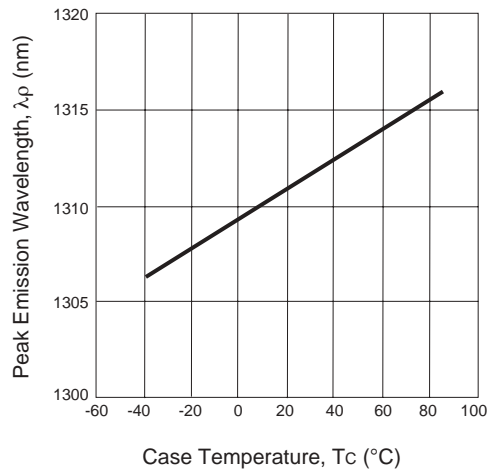
OPTICAL OUTPUT POWER vs. FORWARD CURRENT



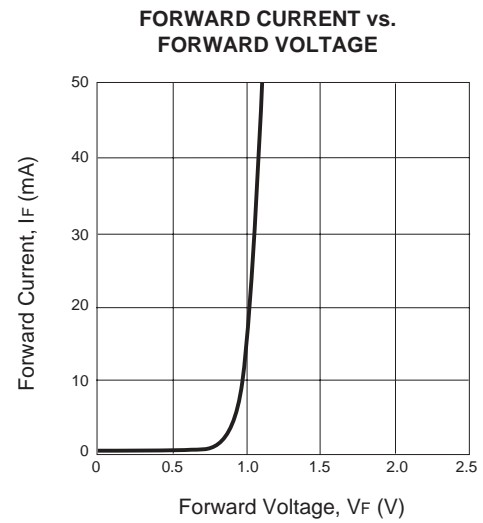
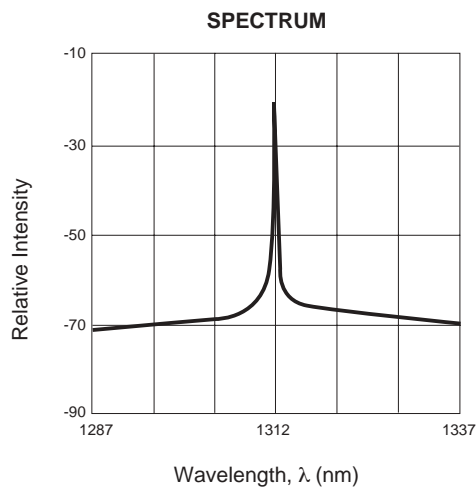
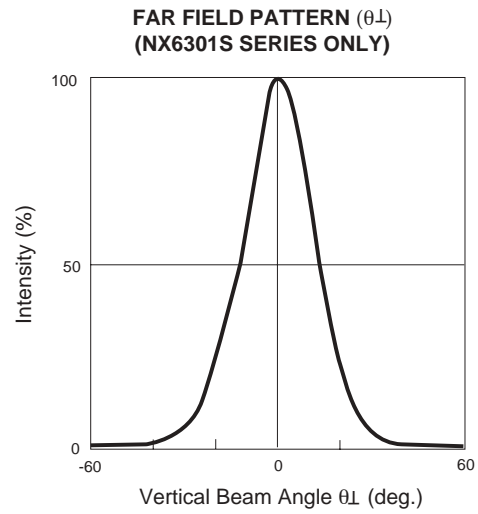
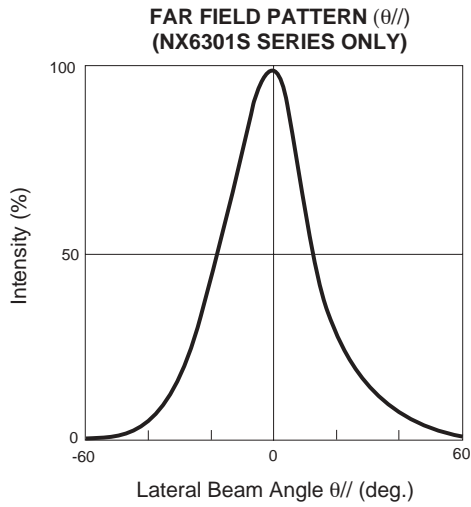
OPERATING CURRENT AND THRESHOLD CURRENT vs. CASE TEMPERATURE



TEMPERATURE DEPENDENCE OF PEAK EMISSION WAVELENGTH



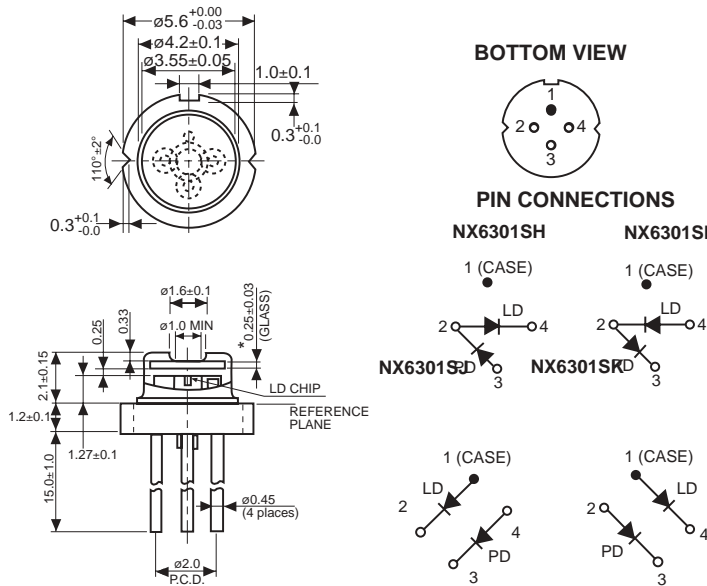
TYPICAL PERFORMANCE CURVES ($T_c = -40$ to $+85^\circ\text{C}$)



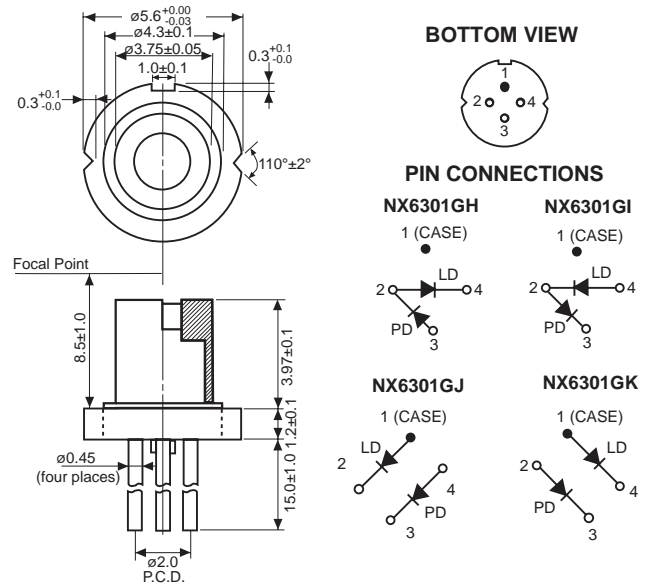
Note: The graphs indicate nominal characteristics.

OUTLINE DIMENSIONS (Units in mm)

NX6301S SERIES



NX6301G SERIES



*n = 1.48 Bolosilicate Glass

ORDERING INFORMATION

PART NUMBER	PACKAGE
NX6301SH	4-pin CAN with flat glass cap
NX6301SI	
NX6301SJ	
NX6301SK	
NX6301GH	4-pin with aspherical lens cap
NX6301GI	
NX6301GJ	
NX6301GK	

Life Support Applications

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