

PRELIMINARY DATA SHEET



NEC's 1310 nm InGaAsP MQW FP TOSA NX7315UA **FOR 2.5 Gb/s INTRA-OFFICE APPLICATION**

FEATURES

- **OPTICAL OUTPUT POWER:**
P_f = 0.6 mW
- **LOW THRESHOLD CURRENT**
I_{th} = 8 mA TYP @ T_c = 25°C
- **WIDE OPERATING TEMPERATURE RANGE:**
-40 to +85°C
- **InGaAs MONITOR PIN-PD**
- **SMALL PACKAGE**
ø3.8 mm (Total length 12.0 mm MAX)
- **BASED ON Telcordia Reliability GR-468-CORE**

DESCRIPTION

NEC's NX7315UA is a 1310 nm Multiple Quantum Well (MQW) structured Fabry-Perot (FP) laser diode transmitter optical subassembly (TOSA) with InGaAs monitor PIN-PD in a receptacle type package designed for LC type SFF/SFP transceiver modules. These devices are ideal for Synchronous Digital Hierarchy (SDH) systems, STM-16 Intraoffice I-16 ITU-T recommendations, and SONET OC-48(SR).

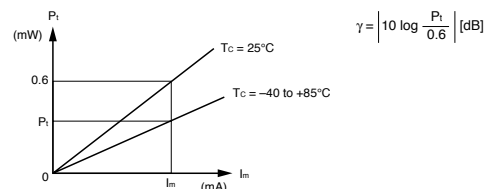
ELECTRO-OPTICAL CHARACTERISTICS (T_c = -40 to +85°C, unless otherwise specified)

PART NUMBER			NX7315UA			
SYMBOLS	PARAMETERS AND CONDITIONS		UNITS	MIN	TYP	MAX
V _{OP}	Operating Voltage, CW, P _f = 0.6 mW		V	–	1.2	1.5
I _{TH}	Threshold Current	CW, T _c = 25°C	mA	4	8	20
		CW				
η _d	Differential Efficiency	CW, T _c = 25°C	W/A	0.15	0.020	0.030
		CW	W/A	0.010	–	0.042
P _f	Optical Output Power, CW		mW	–	0.6	–
I _{MOD}	Modulation Current ¹	CW, P _f = 0.6 mW, T _c = 25°C	mA	20	25	40
		CW, P _f = 0.6 mW	mA	14	–	60
λ _c	Center Wavelength, CW, P _f = 0.6 mW, RMS (-20 dB)		nm	1266	–	1360
σ	Spectral Width, CW, P _f = 0.6 mW, RMS (-20 dB)		nm	–	–	4.0
t _r	Rise Time, I _B = I _{TH} , 10 to 90%		ns	–	–	0.2
t _f	Fall Time, I _B = I _{TH} , 90 to 10%		ns	–	–	0.2
I _m	Monitor Current, CW, P _f = 0.3 mW, V _R = 1.5 V		μA	200	–	1200
I _D	Monitor Dark Current	V _R = 1.5 V, T _c = 25 °C	nA	–	–	50
		V _R = 1.5 V	nA	–	–	500
γ	Tracking Error ² , CW, I _m = const. (P _f = 0.6mW)		dB	-1.5	–	1.5
	Connector Repeatability, master pigtail		dB	-1.0	–	1.0

Note:

1. Modulation current: I_{mod} ≥ 25mA_{app} at T_c = 25°C is recommended in order to satisfy 20 % eye mask margin for STM-16(1-16)/OC-48(SR)

2. Tracking Error : γ



ABSOLUTE MAXIMUM RATINGS¹

(T_c = 25°C, unless otherwise specified)

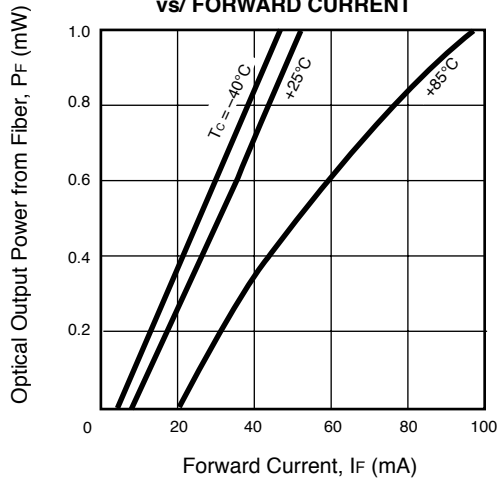
SYMBOLS	PARAMETERS	UNITS	RATINGS
P _f	Optical Output Power	mW	10
I _F	Forward Current of LD	mA	150
V _R	Reverse Voltage of LD	V	2.0
I _F	Forward Current of PD	mA	10
V _R	Reverse Voltage of PD	V	20
T _c	Operating Case Temperature	°C	-40 to +85
T _{STG}	Storage Temperature	°C	-40 to +85
T _{SLD}	Lead Soldering Temperature (10 s)	°C	350 (3.5 sec)
RH	Relative Humidity (noncondensing)	%	85

Note:

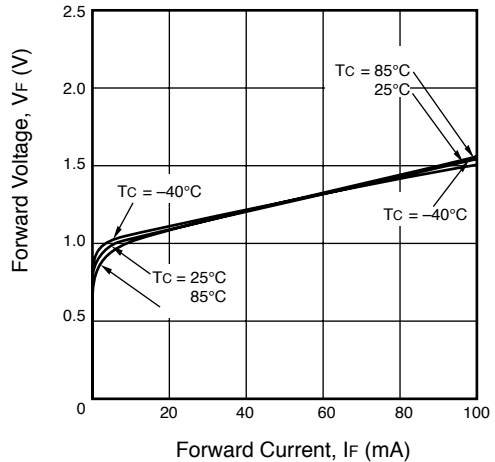
1. Operation in excess of any one of these parameters may result in permanent damage.

TYPICAL PERFORMANCE CURVES (T_c = 25°C unless otherwise specified)

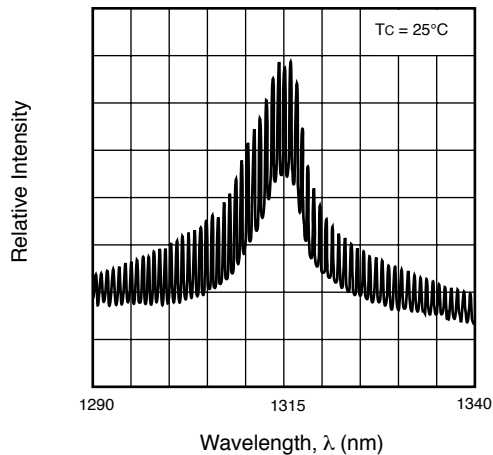
OPTICAL OUTPUT POWER FROM FIBER vs/ FORWARD CURRENT



FORWARD VOLTAGE vs. FORWARD CURRENT



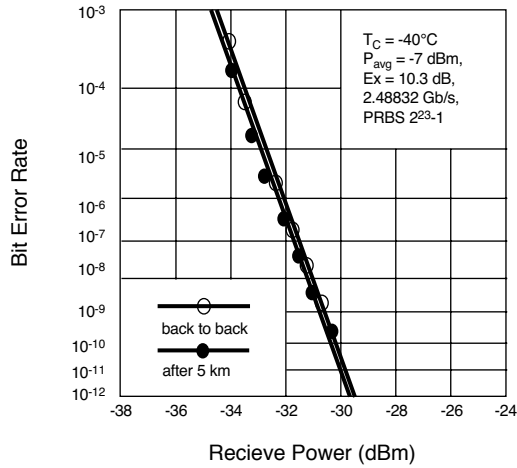
SPECTRUM



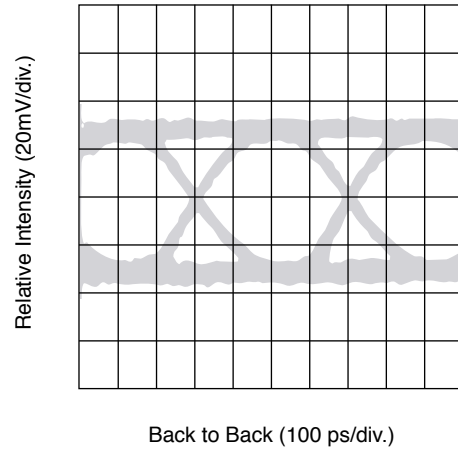
Remark: The graphs indicate nominal characteristics.

TYPICAL PERFORMANCE CURVES ($T_c = 25^\circ\text{C}$ unless otherwise specified)

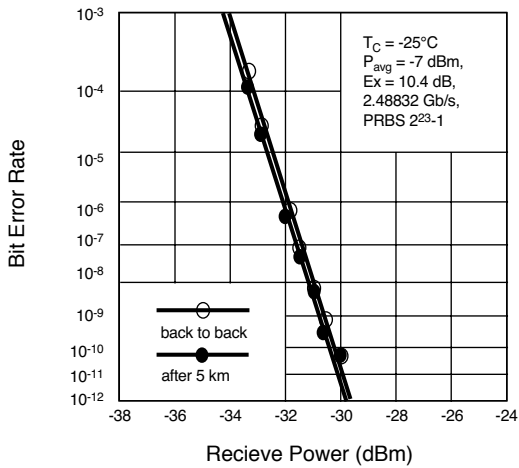
ERROR RATE CHARACTERISTICS



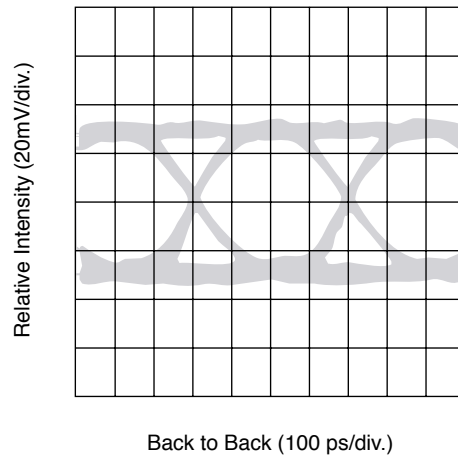
EYE DIAGRAM



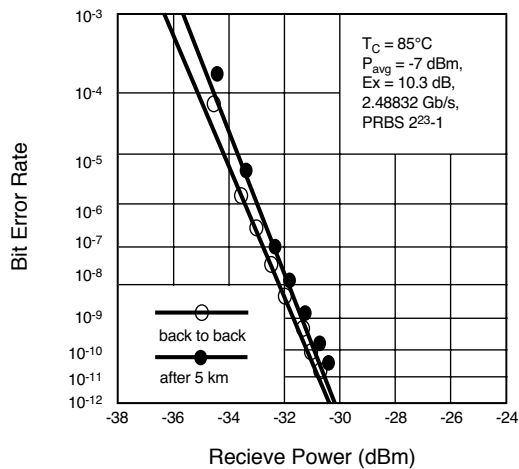
ERROR RATE CHARACTERISTICS



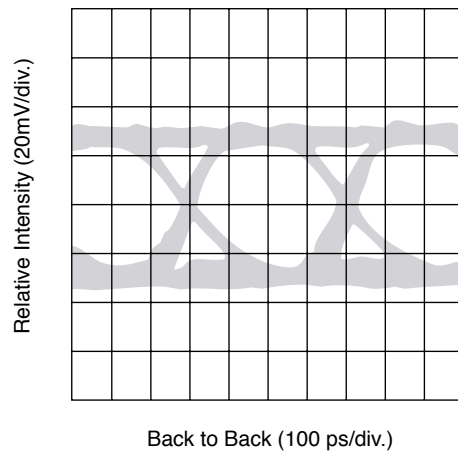
EYE DIAGRAM



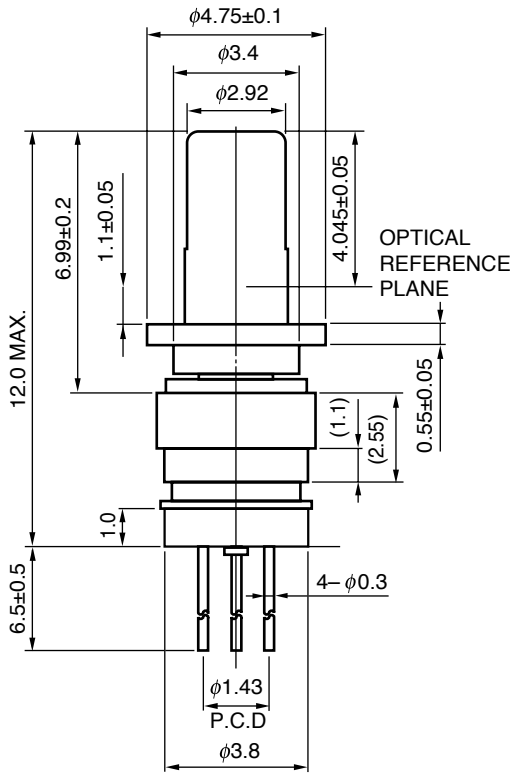
ERROR RATE CHARACTERISTICS



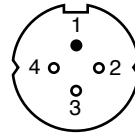
EYE DIAGRAM



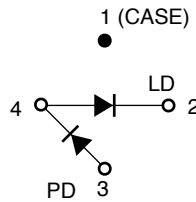
OUTLINE DIMENSIONS (Units in mm)



BOTTOM VIEW



PIN CONNECTIONS



ORDERING INFORMATION

PART NUMBER	PACKAGE	PIN CONNECTION
NX7315UA-AZ*	Ø3.8 mm TOSA	

***NOTE:**

Please refer to the last page of this data sheet, "Compliance with EU Directives" for Pb-Free RoHS Compliance Information.

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.

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DATA SUBJECT TO CHANGE WITHOUT NOTICE

06/17/2003

Subject: Compliance with EU Directives

CEL certifies, to its knowledge, that semiconductor and laser products detailed below are compliant with the requirements of European Union (EU) Directive 2002/95/EC Restriction on Use of Hazardous Substances in electrical and electronic equipment (RoHS) and the requirements of EU Directive 2003/11/EC Restriction on Penta and Octa BDE.

CEL Pb-free products have the same base part number with a suffix added. The suffix –A indicates that the device is Pb-free. The –AZ suffix is used to designate devices containing Pb which are exempted from the requirement of RoHS directive (*). In all cases the devices have Pb-free terminals. All devices with these suffixes meet the requirements of the RoHS directive.

This status is based on CEL’s understanding of the EU Directives and knowledge of the materials that go into its products as of the date of disclosure of this information.

Restricted Substance per RoHS	Concentration Limit per RoHS (values are not yet fixed)	Concentration contained in CEL devices	
		-A	-AZ
Lead (Pb)	< 1000 PPM	Not Detected	(*)
Mercury	< 1000 PPM	Not Detected	
Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

If you should have any additional questions regarding our devices and compliance to environmental standards, please do not hesitate to contact your local representative.

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In no event shall CEL’s liability arising out of such information exceed the total purchase price of the CEL part(s) at issue sold by CEL to customer on an annual basis.

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