PRELIMINARY DATA SHEET

CEL

RECEIVER
NR3312 Series

InGaAs PIN-PD RECEIVER WITH INTERNAL PRE-AMPLIFIER FOR 10 Gb/s APPLICATIONS

DESCRIPTION

The NR3312 Series products consist of InGaAs PIN ROSAs (Receiver Optical Sub-Assembly) with internal pre-amplifiers designed for 10 Gb/s optical transceivers such as the XENPAK/X2/XFP. These modules are ideal as receivers for IEEE 10G BASE and SONET OC-192 systems.

FEATURES

- XMD-MSA compliant ROSA
- 10 Gb/s high sensitivity InGaAs PIN-PD
- +3.3 V SiGe transimpedance pre-amplifier
- Minimum receiver sensitivity $\overline{P_r}$ = –20 dBm
- Operating case temperature T_C = –5 to +85°C
- Transimpedance Z_t = 2 000 Ω (Single-ended)
- Cut-off frequency fc = 11 GHz
- With flexible printed circuit

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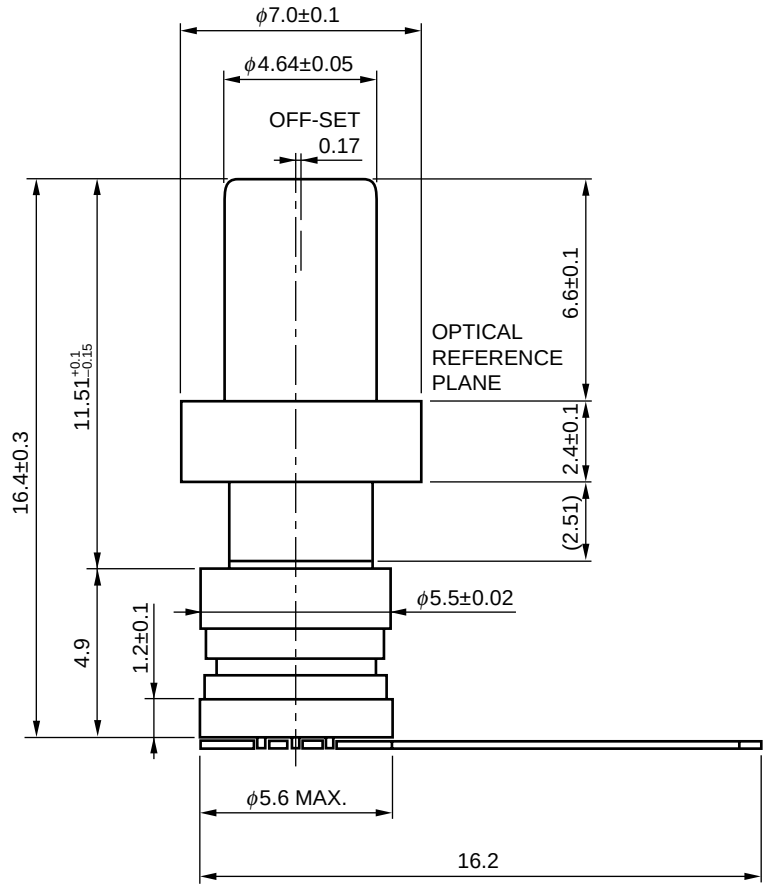
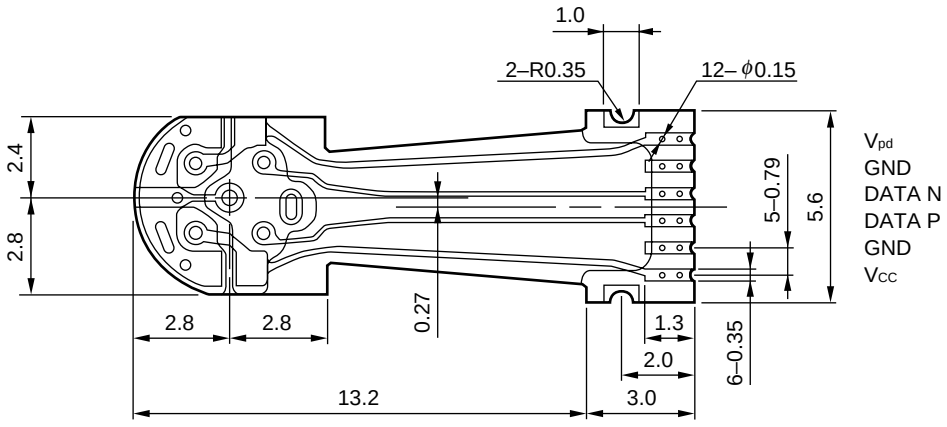
PACKAGE DIMENSIONS (UNIT: mm)

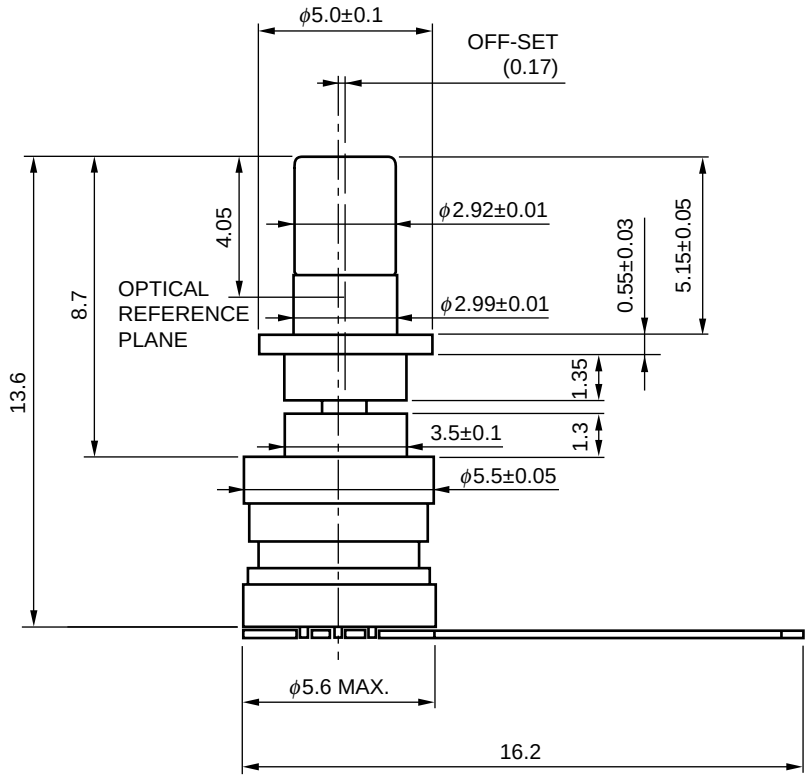
NR3312TF



BOTTOM VIEW



NR3312TG



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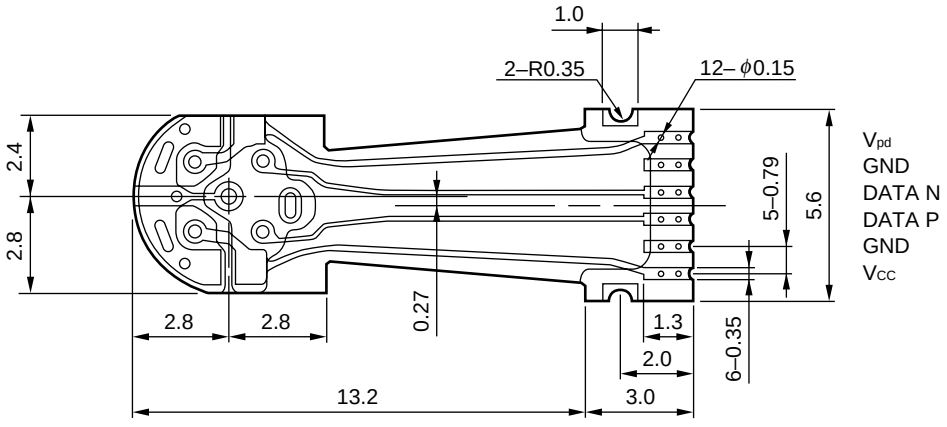
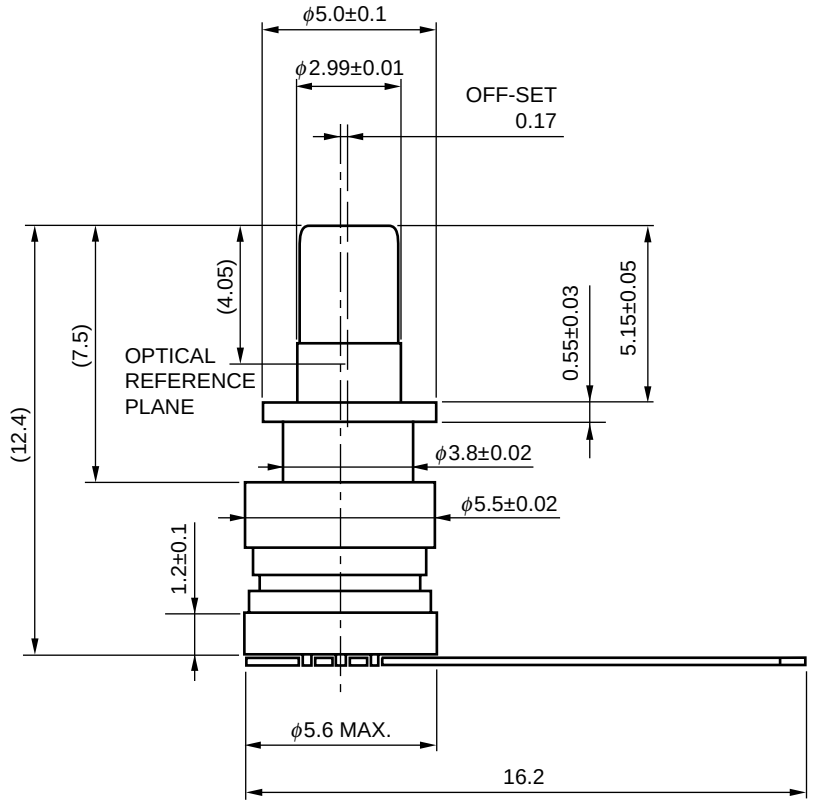


NR3312TP



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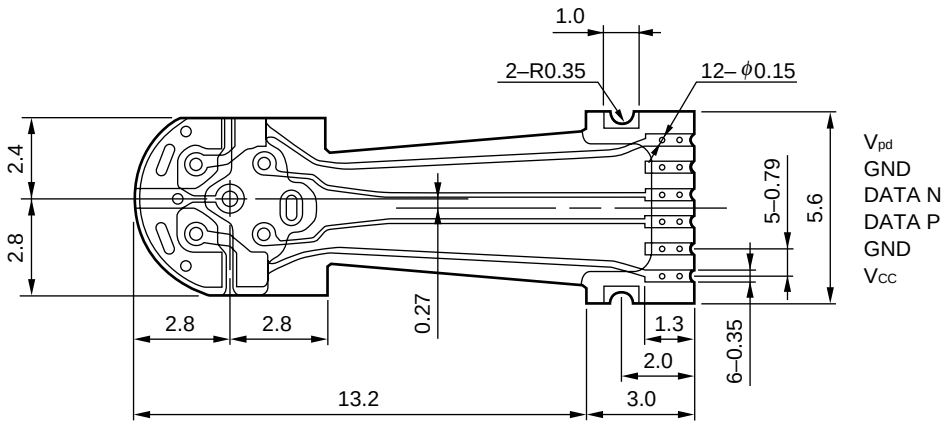
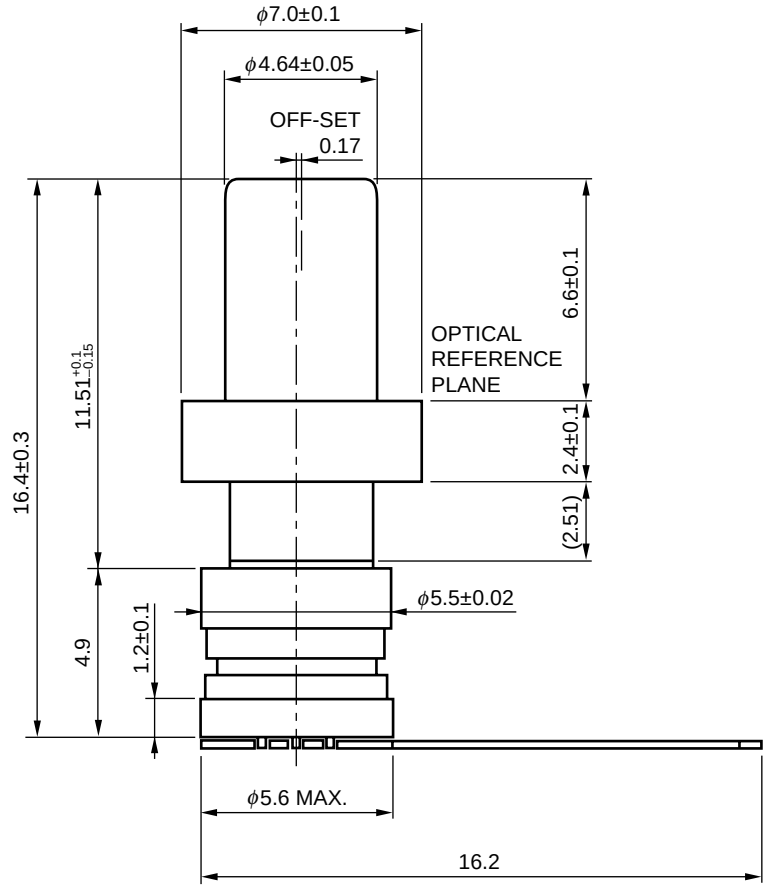


NR3312TX



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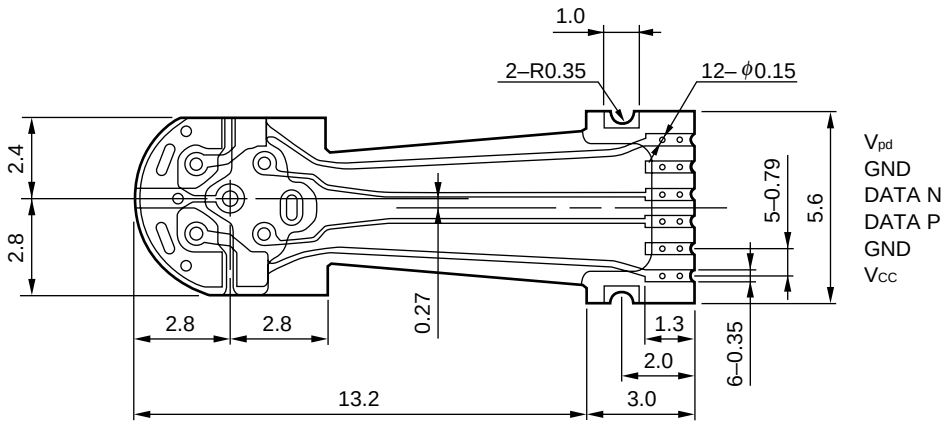
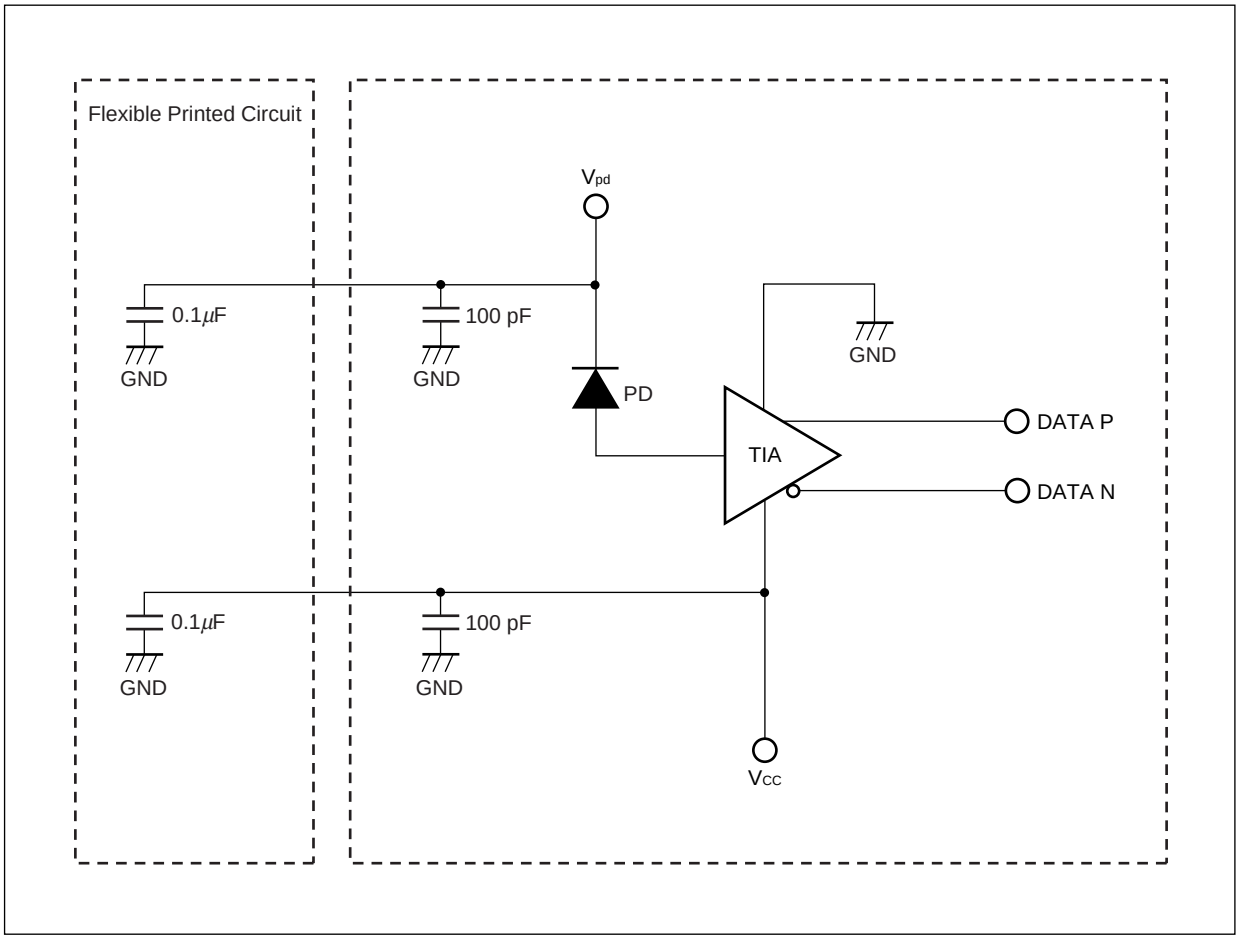


BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Receptacle Type	Note
NR3312TF-AZ	SC, Zirconia	Differential output with flexible PCB
NR3312TG-AZ	LC, Electrically Isolated	Differential output with flexible PCB
NR3312TP-AZ	LC, Zirconia	Differential output with flexible PCB
NR3312TX-AZ	SC, Metal	Differential output with flexible PCB

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Ratings	Unit
PIN-PD Reverse Voltage	V_R	10	V
PIN-PD Reverse Current	I_R	10	mA
IC Supply Voltage	V_{CC}	–0.7 to +5.0	V
Operating Case Temperature	T_C	–5 to +85	°C
Storage Temperature	T_{stg}	–40 to +85	°C
Maximum AOP Input (ER < 5.4 dB (1.1 A/W))	P_{in}	+5	dBm
Lead Soldering Temperature (Flexible Printed Circuit)	T_{sld}	350 (3 sec.)	°C

RECOMMENDED OPERATING CONDITION

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
PIN-PD Reverse Voltage	V_R	3.1	3.3	3.5	V
IC Supply Voltage	V_{CC}	+3.1	+3.3	+3.5	V
Operating Case Temperature	T_C	–5	+25	+85	°C

ELECTRO-OPTICAL CHARACTERISTICS (λ = 1 310 nm/1 550 nm, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Sensitivity	S		0.75	0.9		A/W
Transimpedance	Z_t	R_L = 50 Ω, P_{in} = –17 dBm, Single-ended	800	2 000	3 000	Ω
Maximum Output Voltage Swing	V_{clip}	Single-ended	100	125	200	mV_{pp}
Cut-off Frequency	f_C	R_L = 50 Ω, P_{in} = –17 dBm, –3 dB from 1 GHz	7	11		GHz
Minimum Receiver Sensitivity	$\overline{P_r}$	9.95 Gb/s, BER = 10^{-12}, PRBS = 2^{31}–1, ER = 13 dB, NRZ, λ = 1 550 nm		–20	–17	dBm
Overload	P_O		+0.5	+3		dBm
IC Supply Current	I_{CC}		40	55	75	mA

Optical Return Loss	ORL				–27	dB

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet *1	PX10160E

***1** Published by the former NEC Compound Semiconductor Devices, Ltd.

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M8E 02. 11-1

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Caution Optical Fiber	A glass-fiber is attached on the product. Handle with care. • When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments.

▶**For further information, please contact**

NEC Compound Semiconductor Devices Hong Kong Limited
E-mail: contact@ncsd-hk.necel.com
Hong Kong Head Office TEL: +852-3107-7303 FAX: +852-3107-7309
Taipei Branch Office TEL: +886-2-8712-0478 FAX: +886-2-2545-3859
Korea Branch Office TEL: +82-2-558-2120 FAX: +82-2-558-5209

NEC Electronics (Europe) GmbH http://www.eu.necel.com/
TEL: +49-211-6503-0 FAX: +49-211-6503-1327

California Eastern Laboratories, Inc. http://www.cel.com/
TEL: +1-408-988-3500 FAX: +1-408-988-0279

Compound Semiconductor Devices Division
NEC Electronics Corporation
URL: http://www.ncsd.necel.com/

0604

CEL California Eastern Laboratories

4590 Patrick Henry Drive
Santa Clara, CA 95054-1817
Telephone: (408) 919-2500
Facsimile: (408) 988-0279

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	
Lead (Pb)	< 1000 PPM	-A	-AZ
		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.