



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.

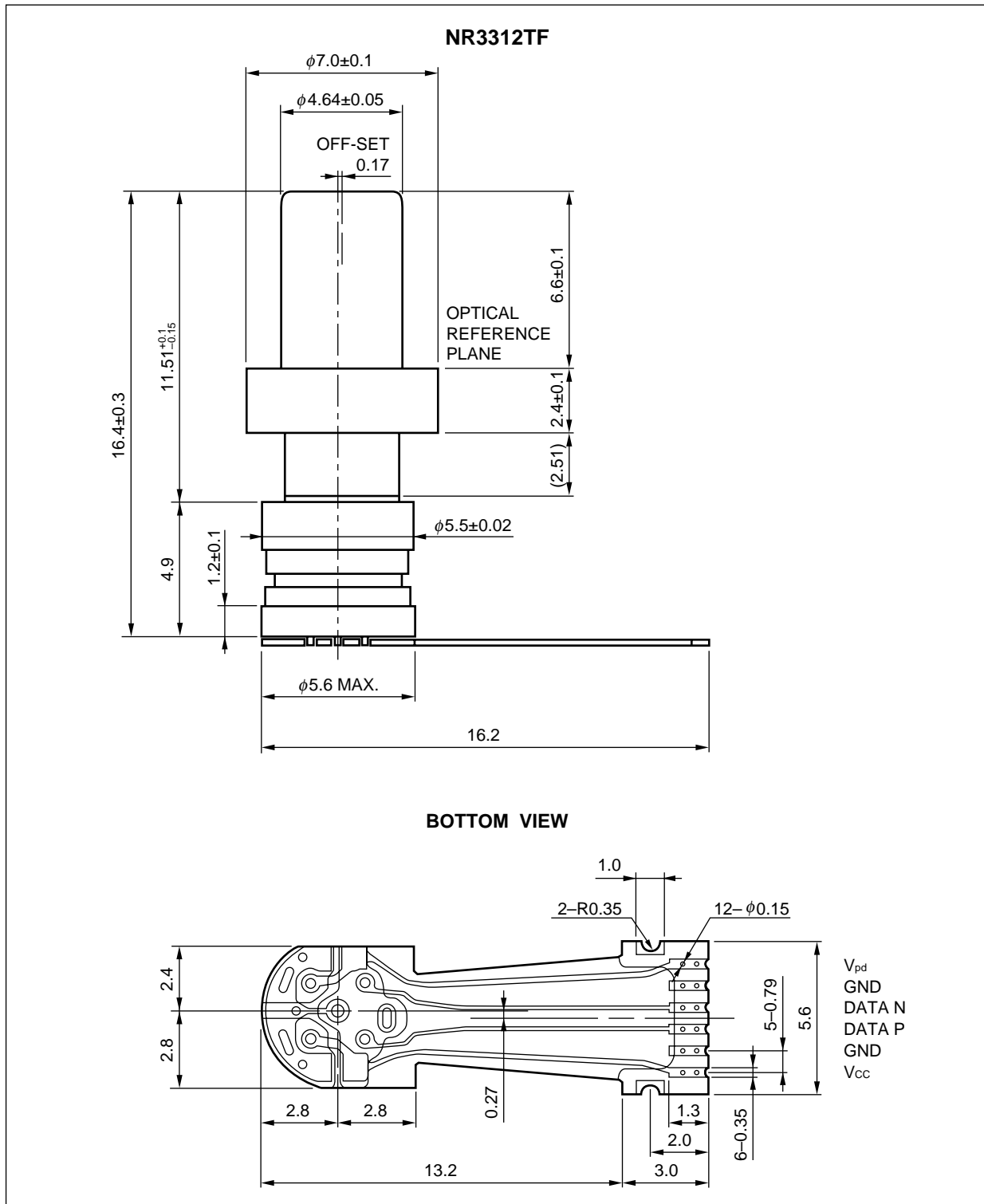
FEATURES

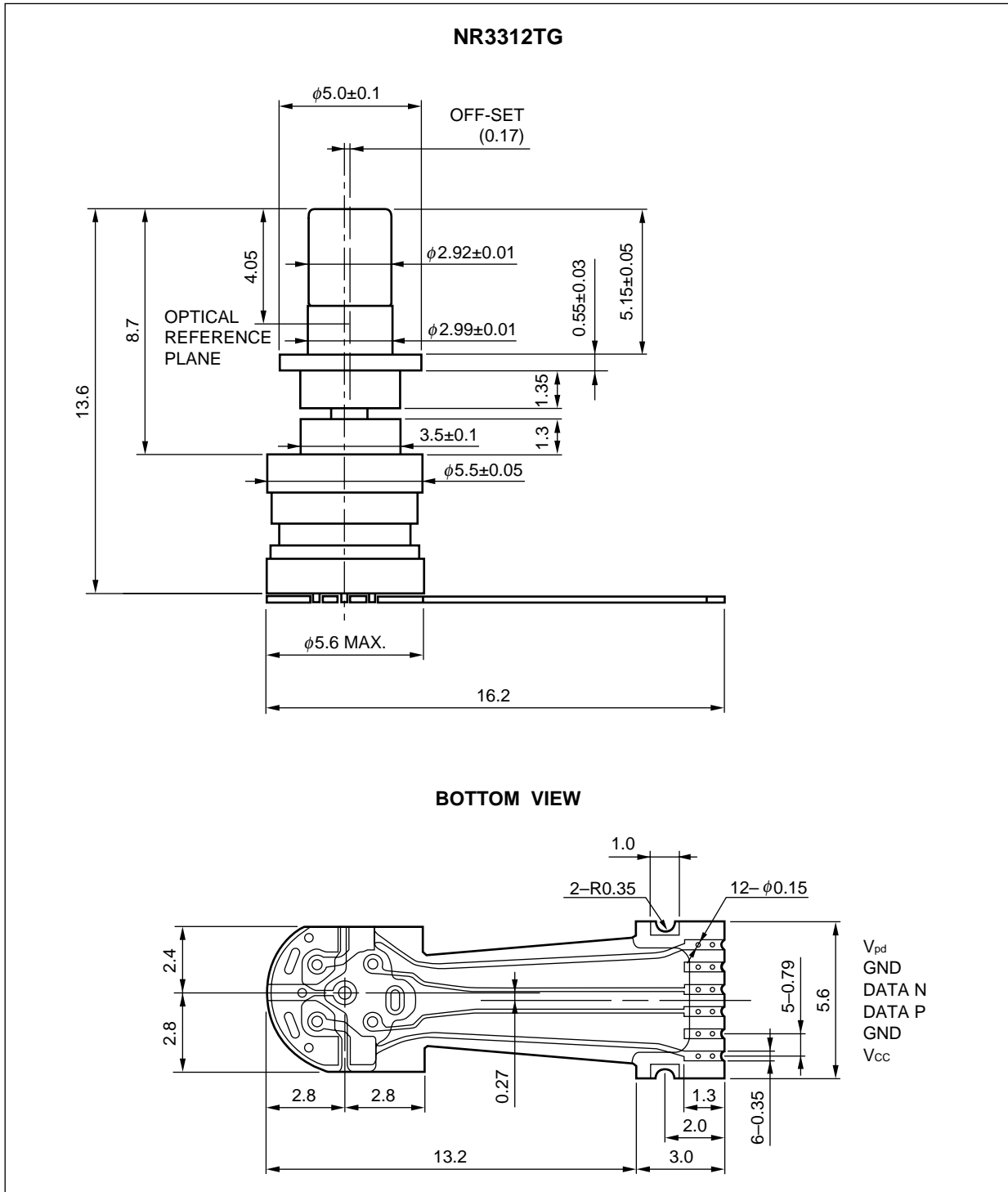
- XMD-MSA compliant ROSA
- 10 Gb/s high sensitivity InGaAs PIN-PD
- +3.3 V SiGe transimpedance pre-amplifier
- Minimum receiver sensitivity $\bar{P}_r = -20$ dBm
- Operating case temperature $T_c = -5$ to $+85^\circ\text{C}$
- Transimpedance $Z_t = 2\,000\ \Omega$ (Single-ended)
- Cut-off frequency $f_c = 11$ GHz
- With flexible printed circuit

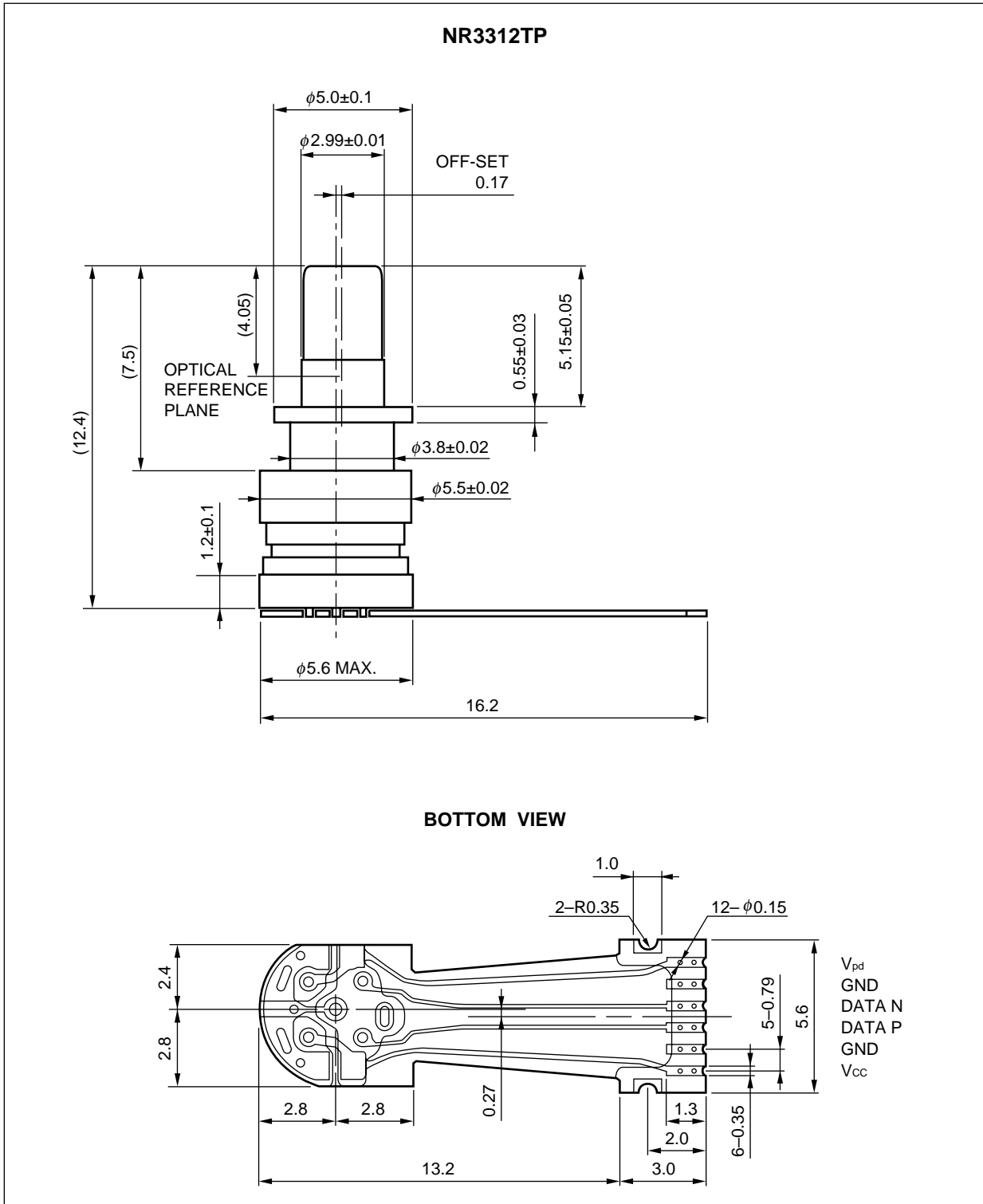


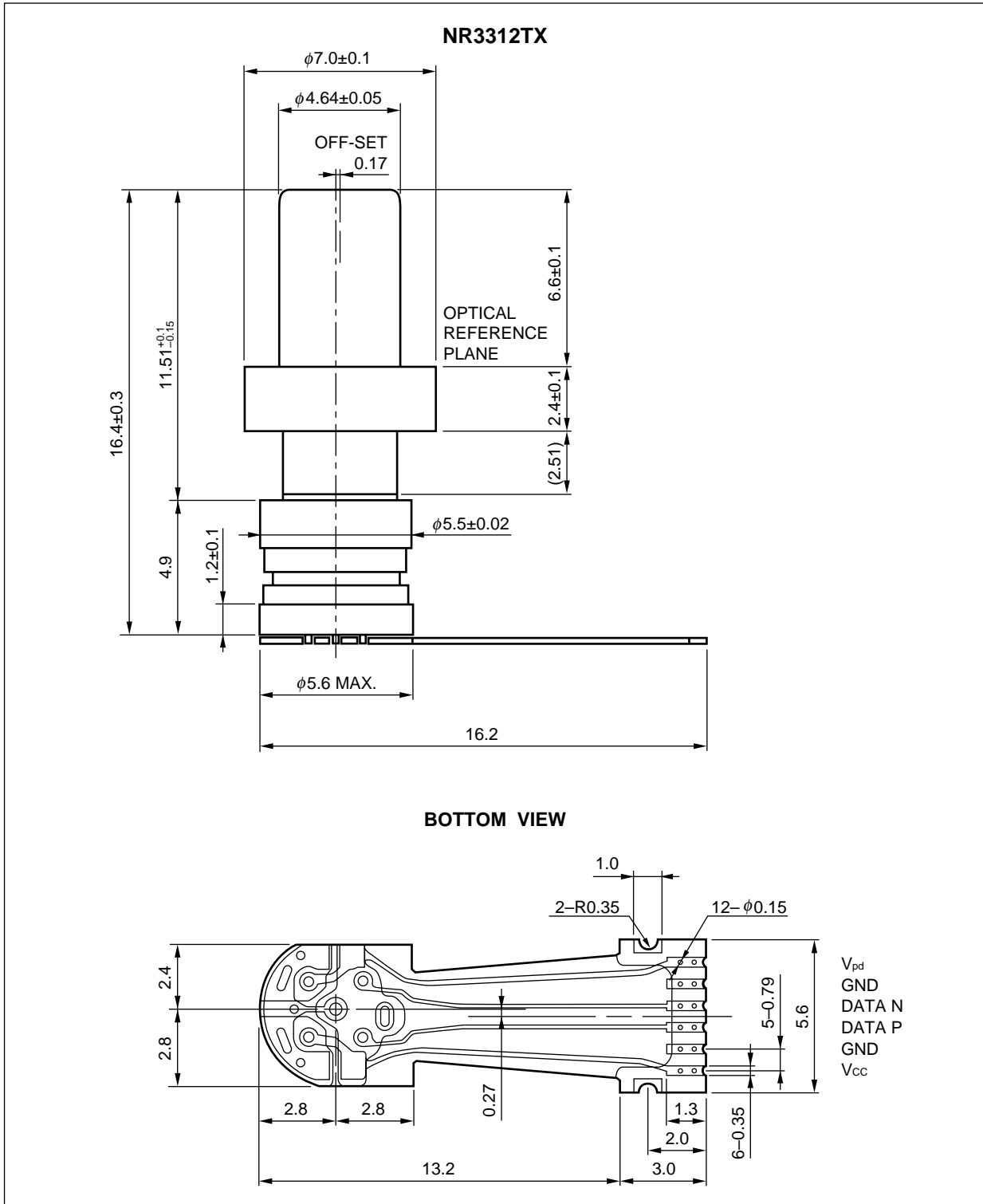
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PACKAGE DIMENSIONS (UNIT: mm)

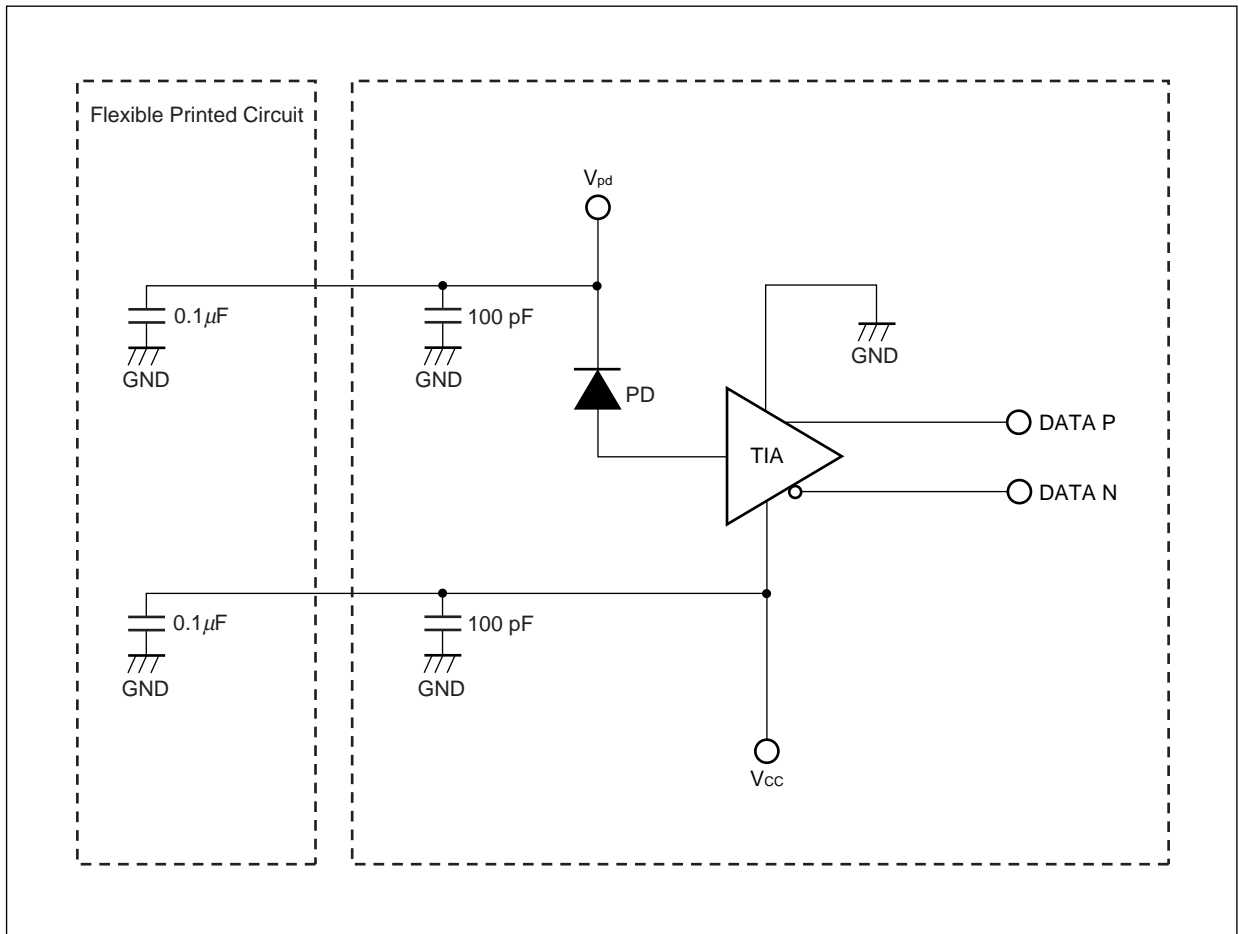








BLOCK DIAGRAM



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_{slid}	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 ($\lambda = 1\ 310\ \text{nm}/1\ 550\ \text{nm}$, unless otherwise specified)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Sensitivity	S		0.75	0.9		A/W
Transimpedance	Z_t	$R_L = 50\ \Omega$, $P_{in} = -17\ \text{dBm}$, 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	$R_L = 50\ \Omega$, $P_{in} = -17\ \text{dBm}$, -3 dB from 1 GHz	7	11		GHz
Minimum Receiver Sensitivity	\bar{P}_r	9.95 Gb/s, BER = 10^{-12} , PRBS = $2^{31}-1$, ER = 13 dB, NRZ, $\lambda = 1\ 550\ \text{nm}$		-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
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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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<p>Caution Optical Fiber</p>	<p>A glass-fiber is attached on the product. Handle with care.</p> <ul style="list-style-type: none"> • 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/>

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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	(*)
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Cadmium	< 100 PPM	Not Detected	
Hexavalent Chromium	< 1000 PPM	Not Detected	
PBB	< 1000 PPM	Not Detected	
PBDE	< 1000 PPM	Not Detected	

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