

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

The NR3313TQ products consist of InGaAs PIN ROSAs (Receiver Optical Sub-Assembly) with internal pre-amplifiers designed for 10 Gb/s optical transceivers such as the XFP/SFP+. These modules are ideal as receivers for IEEE 10G BASE and SONET OC-192 systems.

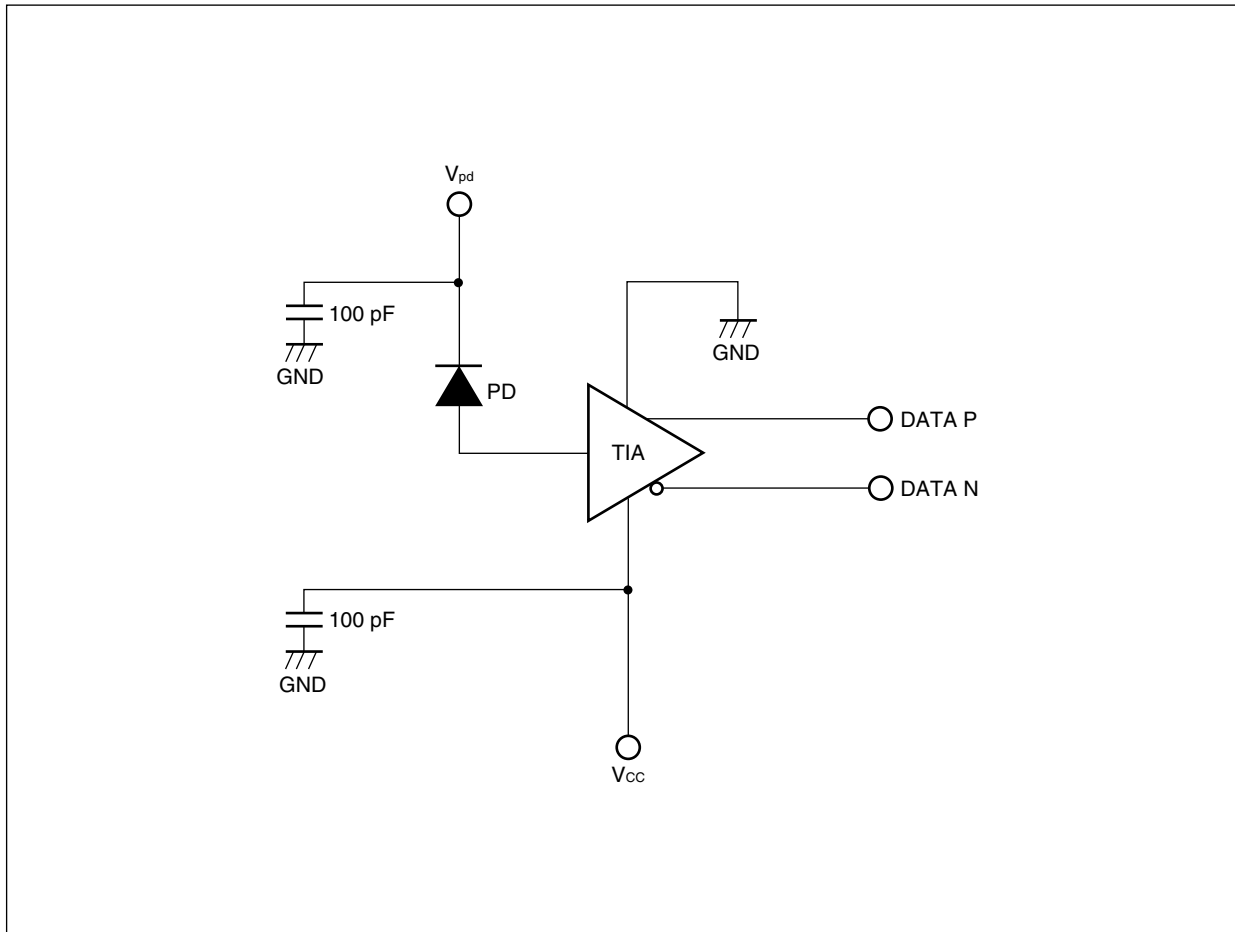
FEATURES

- XMD-MSA compliant ROSA
- 10 Gb/s high sensitivity InGaAs PIN-PD
- +3.3 V transimpedance pre-amplifier
- Minimum receiver sensitivity $\bar{P}_r = -20$ dBm
- Operating case temperature $T_c = -20$ to $+95^\circ\text{C}$
- Transimpedance $Z_t = 6\,000\ \Omega$ (Single-ended)
- Cut-off frequency $f_c = 8.5$ GHz
- With flexible printed circuit



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BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Receptacle Type	Note
NR3313TQ	LC, Isolated	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}	-0.3 to +4	V
Operating Case Temperature	T_C	-20 to +95	°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}	260 (10 sec.)	°C

RECOMMENDED OPERATING CONDITION

Parameter	Symbol	MIN.	TYP.	MAX.	Unit
PIN-PD Reverse Voltage	V_R	2.8	3.3	3.5	V
IC Supply Voltage	V_{CC}	+2.97	+3.3	+3.5	V
Operating Case Temperature	T_C	-20	+25	+95	°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		1.2	A/W
Transimpedance	Z_t	$R_L = 50\ \Omega$, $P_{in} = -20\ \text{dBm}$, Single-ended	3 000	6 000	10 000	Ω
Maximum Output Voltage Swing	V_{clip}	Single-ended			350	mV _{pp}
Cut-off Frequency	f_c	$R_L = 50\ \Omega$, $P_{in} = -17\ \text{dBm}$, -3 dB from 1 GHz	6.5	8.5		GHz
Minimum Receiver Sensitivity	\bar{P}_r	9.95 Gb/s, BER = 10^{-12} , PRBS = $2^{31}-1$, ER > 10 dB, NRZ, $\lambda = 1\ 550\ \text{nm}$		-20	-17	dBm
Overload	P_O		+1	+3		dBm
IC Supply Current	I_{CC}	$V_{CC} = 3.5\ \text{V}$			50	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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<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.