



RECEIVER

NR3315TA Series

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

DESCRIPTION

The NR3315TA Series consists of InGaAs PIN coaxial module with internal pre-amplifiers designed for 10 Gb/s optical transceivers such as a 300-pin transponder. These modules are ideal as receivers for SONET OC-192 systems.

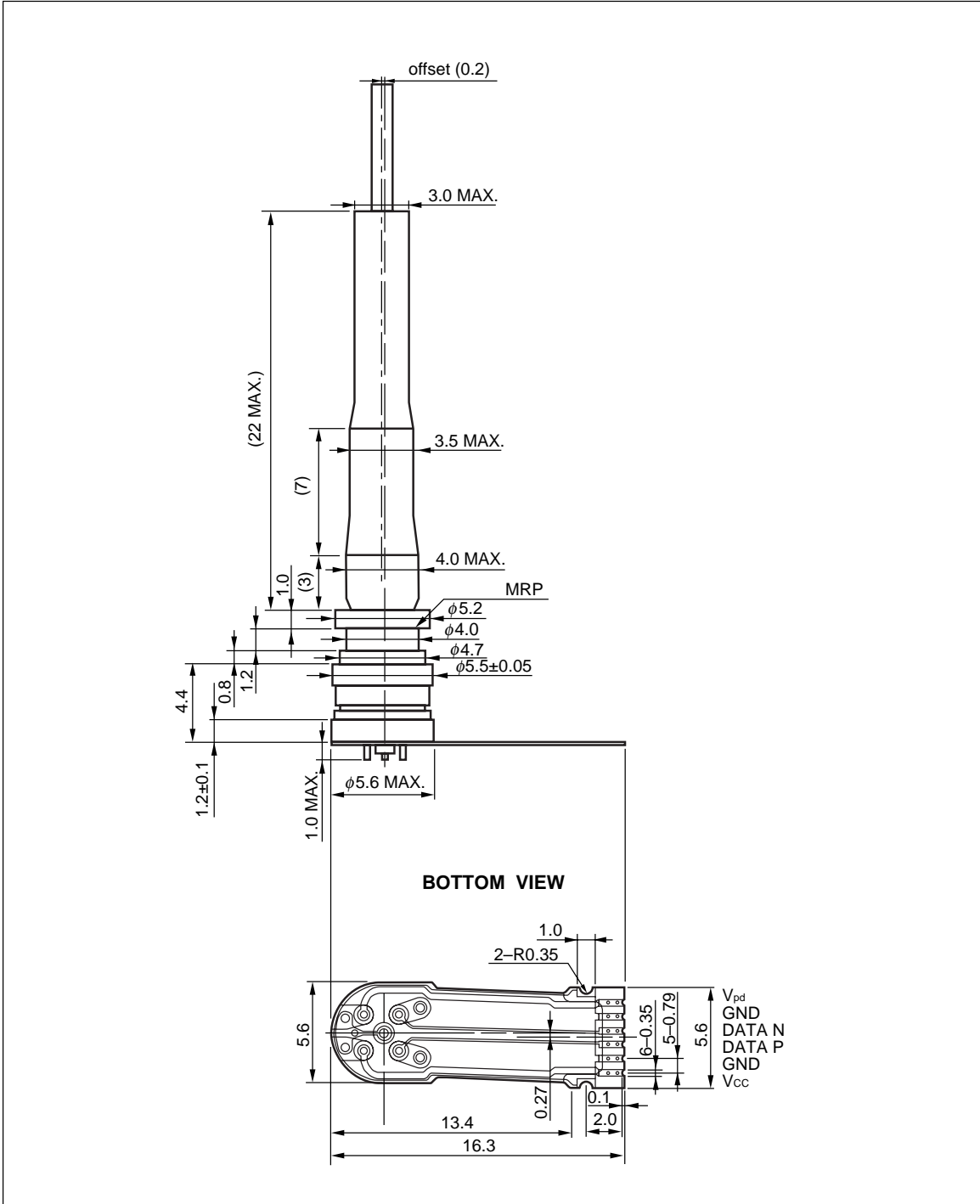
FEATURES

- XMD-MSA compliant
- 10 Gb/s high sensitivity InGaAs PIN-PD
- +3.3 V InP transimpedance pre-amplifier
- Minimum receiver sensitivity $\bar{P}_r = -20$ dBm
- Operating case temperature $T_c = -5$ to $+85^\circ\text{C}$
- Transimpedance $Z_t = 6\,000\ \Omega$ (Single-ended)
- Cut-off frequency $f_c = 8$ GHz
- With flexible printed circuit



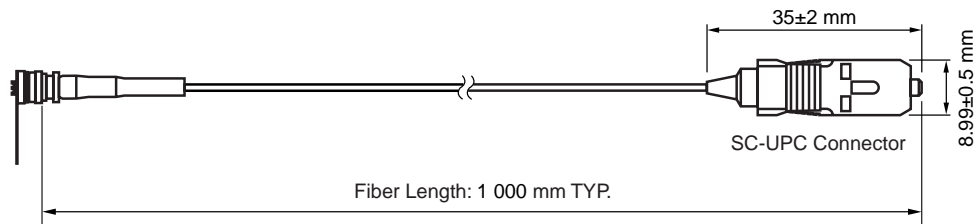
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PACKAGE DIMENSIONS (UNIT: mm, unless otherwise specified ± 0.1 mm)

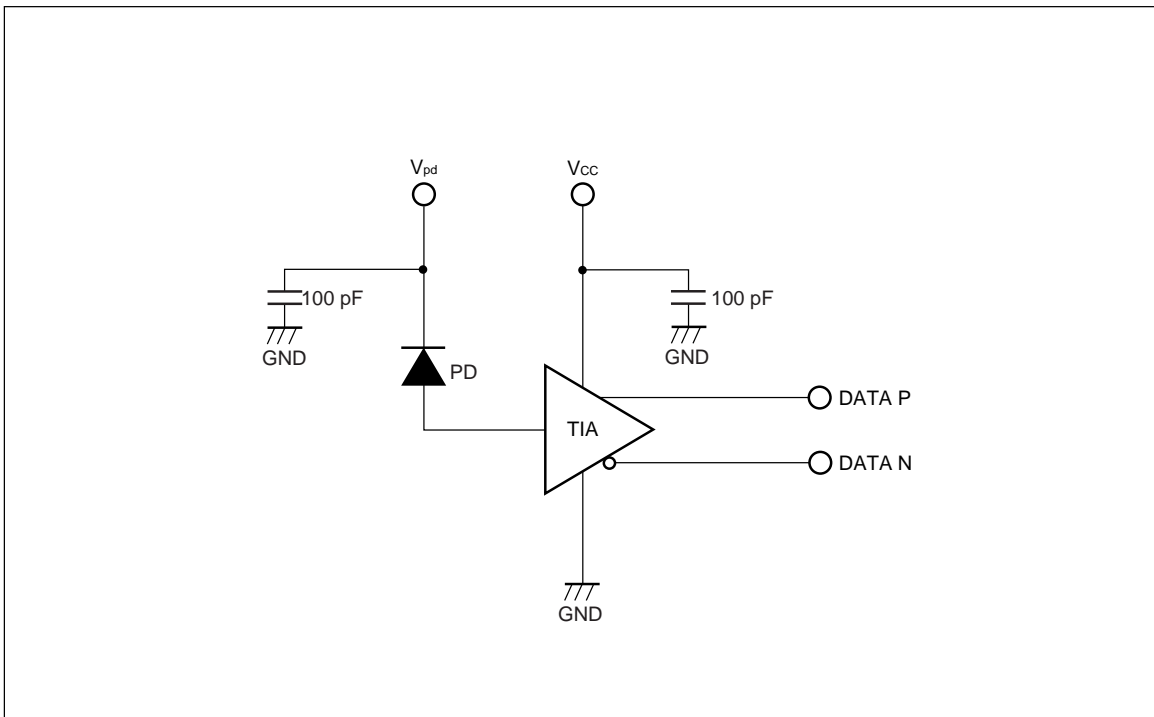


OPTICAL FIBER CHARACTERISTICS

Parameter	Specification	Unit
Mode Field Diameter	9.5±1	μm
Core Diameter	-	μm
Cladding Diameter	125±2	μm
Maximum Cladding Noncircularity	2	%
Maximum Core/Cladding Concentricity	1.6	%
Outer Diameter	0.9±0.1	mm
Cut-off Wavelength	1 100 to 1 270	nm
Minimum Fiber Bending Radius	30	mm
Fiber Length	1 000 TYP.	mm
Flammability	UL1581 VW-1	



BLOCK DIAGRAM



ORDERING INFORMATION

Part Number	Connector Type	Note
NR3315TA-CC	SC-UPC	Differential output with flexible PCB
NR3315TA-EC	LC-UPC	

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}	260 (10 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		0.7	0.9		A/W
Transimpedance	Z_t	$R_L = 50\ \Omega$, $P_{in} = -20\ \text{dBm}$, Single-ended	3 000	6 000		Ω
Maximum Output Voltage Swing	V_{clip}	Single-ended	100		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		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		+0.5	+2		dBm
IC Supply Current	I_{CC}				50	mA
Optical Return Loss	ORL				-27	dB

REFERENCE

Document Name	Document No.
Opto-Electronics Devices Pamphlet	PX10160E

- **The information in this document is current as of September, 2009. The information is subject to change without notice. For actual design-in, refer to the latest publications of NEC Electronics data sheets, etc., for the most up-to-date specifications of NEC Electronics products. Not all products and/or types are available in every country. Please check with an NEC Electronics sales representative for availability and additional information.**

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<p>Caution</p>	<p>GaAs Products</p>	<p>This product uses gallium arsenide (GaAs). GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.</p> <ul style="list-style-type: none"> • Follow related laws and ordinances when disposing of the product. If there are no applicable laws and/or ordinances, dispose of the product as recommended below. <ol style="list-style-type: none"> 1. Commission a disposal company able to (with a license to) collect, transport and dispose of materials that contain arsenic and other such industrial waste materials. 2. Exclude the product from general industrial waste and household garbage, and ensure that the product is controlled (as industrial waste subject to special control) up until final disposal. • Do not burn, destroy, cut, crush, or chemically dissolve the product. • Do not lick the product or in any way allow it to enter the mouth.
<p>Caution</p>	<p>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.