CEL

RECEIVER

# NR3314TU

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

### DESCRIPTION

The NR3314TU 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 LR.

### FEATURES

- ROSA with plastic receptacle
- 10 Gb/s high sensitivity InGaAs PIN-PD
- +3.3 V transimpedance pre-amplifier
- Minimum receiver sensitivity $P_{r\,(OMA)} = -17$ dBm OMA
- Operating case temperature $T_C = -20$ to +95°C
- With flexible printed circuit



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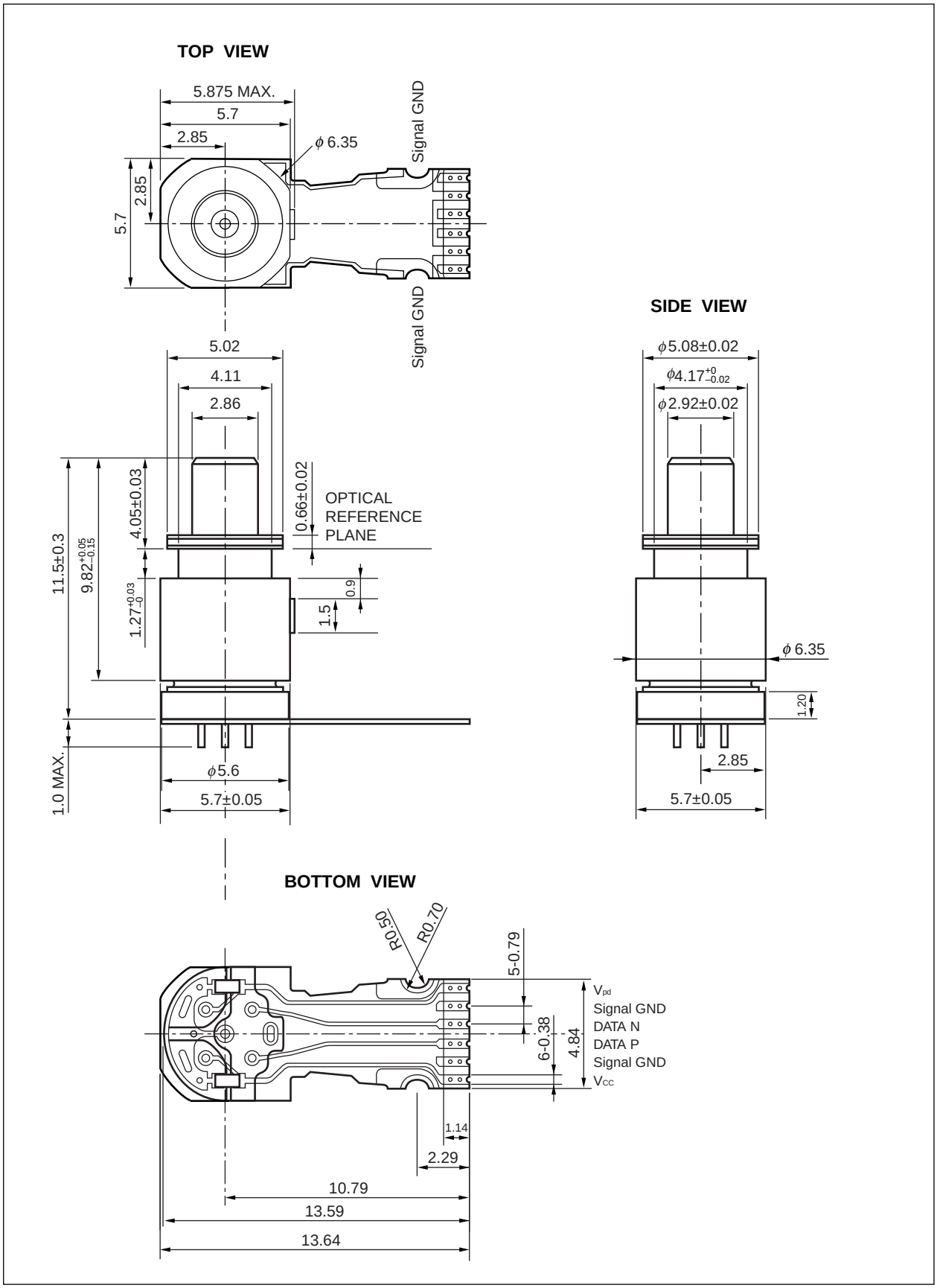
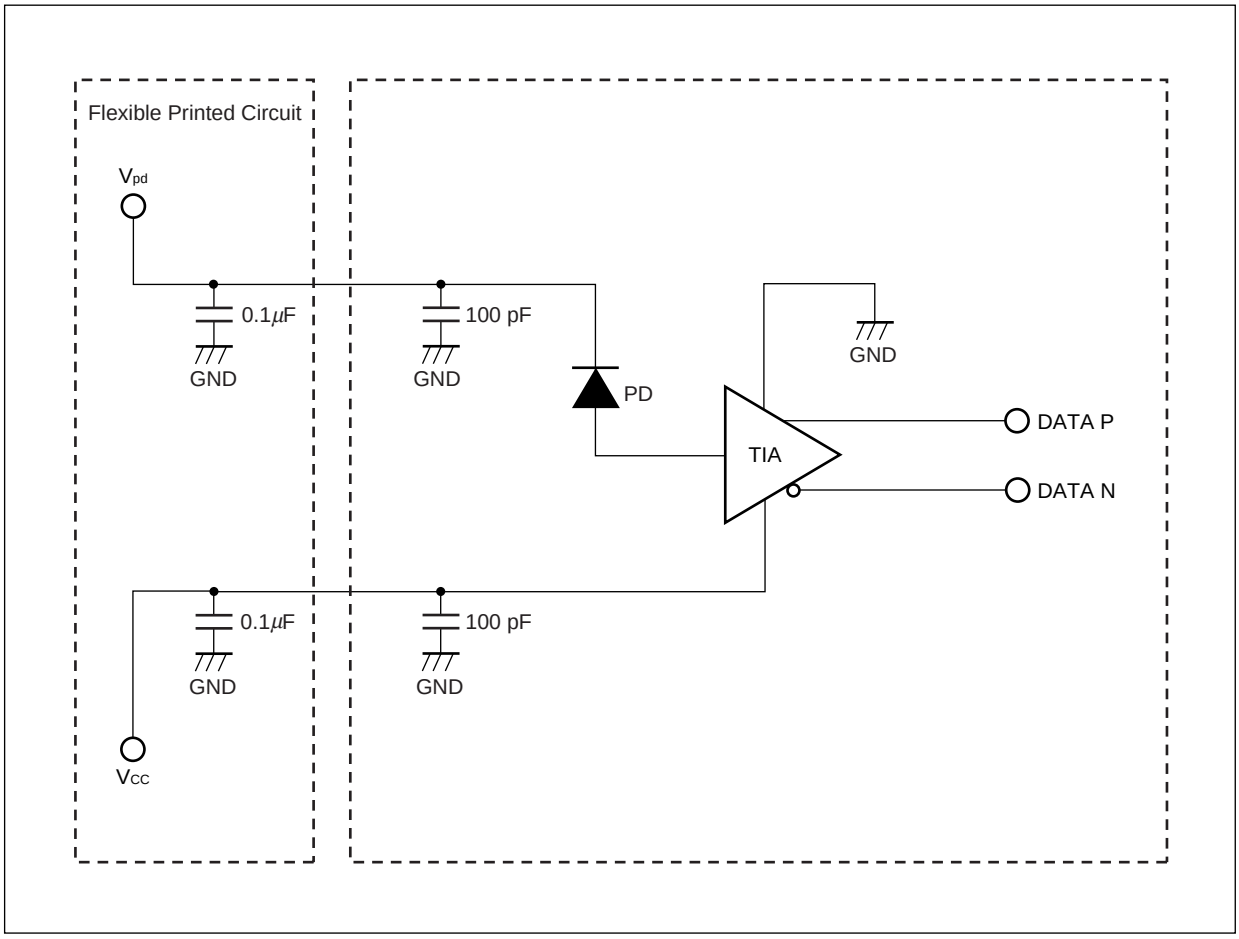
**PACKAGE DIMENSIONS (UNIT: mm)**



**BLOCK DIAGRAM**



## ORDERING INFORMATION

| Part Number | Receptacle Type | Note |
|---|---|---|
| NR3314TU-AZ | LC plastic | 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 +4.0 | V |
| Operating Case Temperature | $T_C$ | −20 to +95 | °C |
| Storage Temperature | $T_{stg}$ | −40 to +95 | °C |
| Maximum Input | $P_{in}$ | +5 | dBm |
| Lead Soldering Temperature (Flexible Printed Circuit) | $T_{sld}$ | 260 (10 sec.) | °C |

## RECOMMENDED OPERATING CONDITION

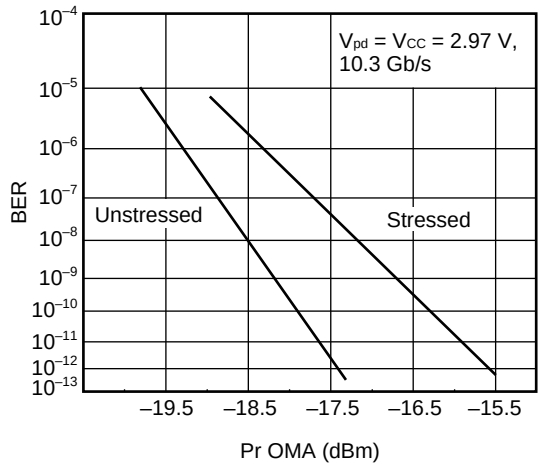
| Parameter | Symbol | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|
| PIN-PD Reverse Voltage | $V_R$ | +2.97 | +3.3 | +3.5 | V |
| IC Supply Voltage | $V_{CC}$ | +2.97 | +3.3 | +3.5 | V |
| Operating Case Temperature | $T_C$ | −20 | +25 | +95 | °C |

## ELECTRO-OPTICAL CHARACTERISTICS ($\lambda$ = 1 310 nm, unless otherwise specified)

| Parameter | Symbol | Conditions | MIN. | TYP. | MAX. | Unit |
|---|---|---|---|---|---|---|
| Sensitivity | S | | 0.75 | 0.85 | 1.1 | A/W |
| Saturated Output Voltage Swing | $V_{pp}$ | Single-ended | 100 | | 350 | $mV_{pp}$ |
| Cut-off Frequency | $f_C$ | $R_L$ = 50 Ω, $P_{in}$ = −17 dBm, −3 dB from 1 GHz | 6.5 | | | GHz |
| Minimum Receiver Sensitivity | $P_{r\ (OMA)}$ | NRZ, 10.3125 Gb/s, BER = $10^{-12}$, PRBS = $2^{31}$−1, ER = 6.5 dB, | | −17 | −14.9 | dBm OMA |
| Overload | $P_{O\ (OMA)}$ | | +2.1 | +3.1 | | dBm OMA |
| Electrical Return Loss | $S_{22}$ | 0.2 to 6 GHz, Single-ended | | | −5 | dB |
| IC Supply Current | $I_{CC}$ | | | | 50 | mA |
| Optical Return Loss | ORL | | | −14 | −12 | dB |

## TYPICAL CHARACTERISTICS ($T_C$ = 25°C, unless otherwise specified)

SENSITIVITY




**Remark** The graph indicates nominal characteristics.

## REFERENCE

| Document Name | Document No. |
|---|---|
| Opto-Electronics Devices Pamphlet | PX10160E |

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## SAFETY INFORMATION ON THIS PRODUCT

| | |
|---|---|
| **Caution** GaAs Products | This product uses gallium arsenide (GaAs).<br>GaAs vapor and powder are hazardous to human health if inhaled or ingested, so please observe the following points.<br>• 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.<br>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.<br>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.<br>• Do not burn, destroy, cut, crush, or chemically dissolve the product.<br>• Do not lick the product or in any way allow it to enter the mouth. |
| **Caution** Optical Fiber | A glass-fiber is attached on the product. Handle with care.<br>• When the fiber is broken or damaged, handle carefully to avoid injury from the damaged part or fragments. |