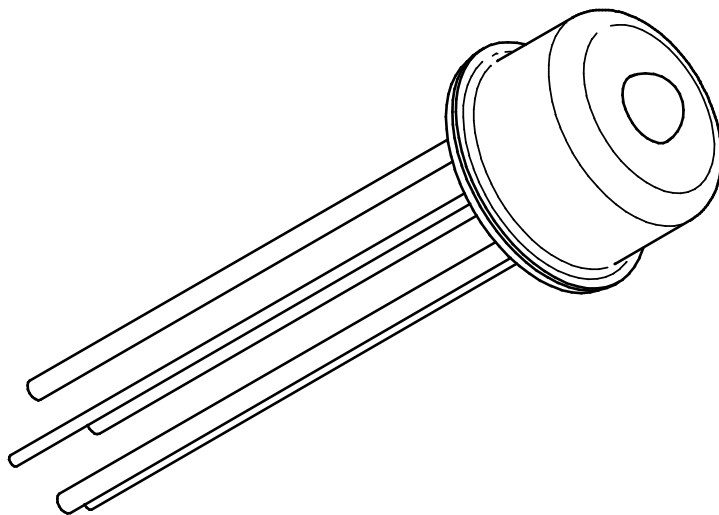


*Wooriro Photo Diode*

***WOORIRO 10Gbps APD TIA TO  
SPECIFICATIONS***



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## General Description

The 10Gbps APD TIA TO is a low cost receiver module with a miniaturized size for using in the XFP/300pin MSA optical transceiver. It guarantees high sensitivity and its low deviation over an operating temperature range.

## Features

- InGaAs APD chip for 10Gbps
- High gain  $4k\Omega$  transimpedance pre-amplifier for 10Gbps
- Operation at 1270nm and 1620nm
- Differential data output
- High sensitivity: typ. -27dBm

## Applications

- Digital fiber optic receiver in short, medium and long haul optical telecommunications transmission systems and in high speed optical data networks
- SONET
- Ethernet
- Fiber Channel

## Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
TIA supply voltage	$V_{CC}$	-0.5 to +4	V
APD supply voltage	$V_{APD}$	0 to $V_{BR}$	V
APD reverse current	$I_{APD}$	3	mA
Operating case temperature range	$T_C$	-40 to +85	°C
Storage temperature range	$T_{STG}$	-40 to +85	°C

Table 1. Absolute Maximum Ratings

### Electro-Optical Characteristics

Inspection sheet shall be appended to products when they are delivered. Test report shall be submitted in papers and in electronic media. It shall contain the major in following items.

#### Optical Characteristics(Tc=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Responsivity	R	$\lambda = 1550\text{nm}$ , M=1	0.65	0.75		A/W
Optical wavelength range	$\lambda$	-	1270		1620	nm
Sensitivity	$P_S$	9.95Gbps NRZ, PRBS= $2^{31}-1$ , BER= $1 \times 10^{-12}$ , $M_{opt}$ ER=11.3dB, $\lambda = 1550\text{nm}$		-27	-26	dBm
Maximum overload	$P_{MAX}$	9.95Gbps NRZ, PRBS= $2^{31}-1$ , BER= $1 \times 10^{-12}$ , $M_{opt}$ ER=11.3dB, $\lambda = 1550\text{nm}$	-5			dBm

Table 2. Optical Characteristics

#### Electrical Characteristics(Tc=25°C)

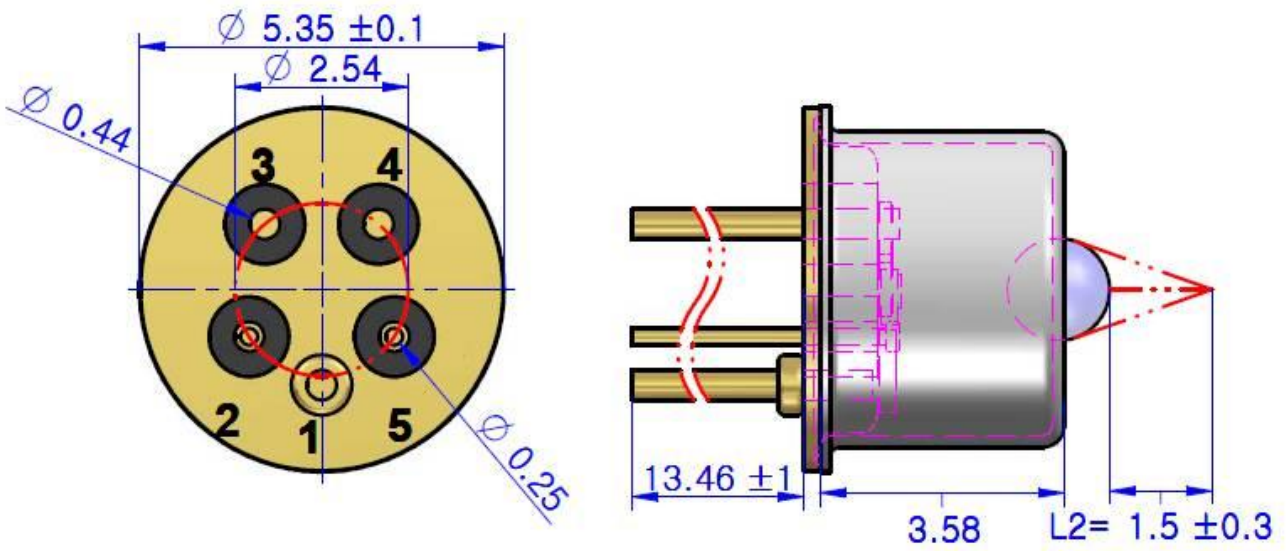
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
TIA supply voltage	$V_{CC}$	-	2.97		3.63	V
TIA supply current	$I_{CC}$	-	44	58	72	mA
Breakdown voltage	$V_{BR}$	Dark current, $I_d = 10\mu\text{A}$	25	30	40	V
Transimpedance	$Z_T$	Differential(50Ω on each output), $f = 100\text{MHz}$	2.4	4.0	6.0	KΩ
O/E bandwidth	$F_{CH}$	-3dB, M=9, Pin=-20dBm	7	8		GHz
Low cut-off frequency	$F_{CL}$	-		42	80	KHz
Maximum output voltage	$V_{OUT}$	Single-ended	-	-	500	mV <sub>p-p</sub>
Output impedance	$Z_O$	Single-ended		50		Ω
Temperature coefficient of $V_{BR}$	$\delta$	-	-	70	90	mV/°C

Table 3. Electrical Characteristics

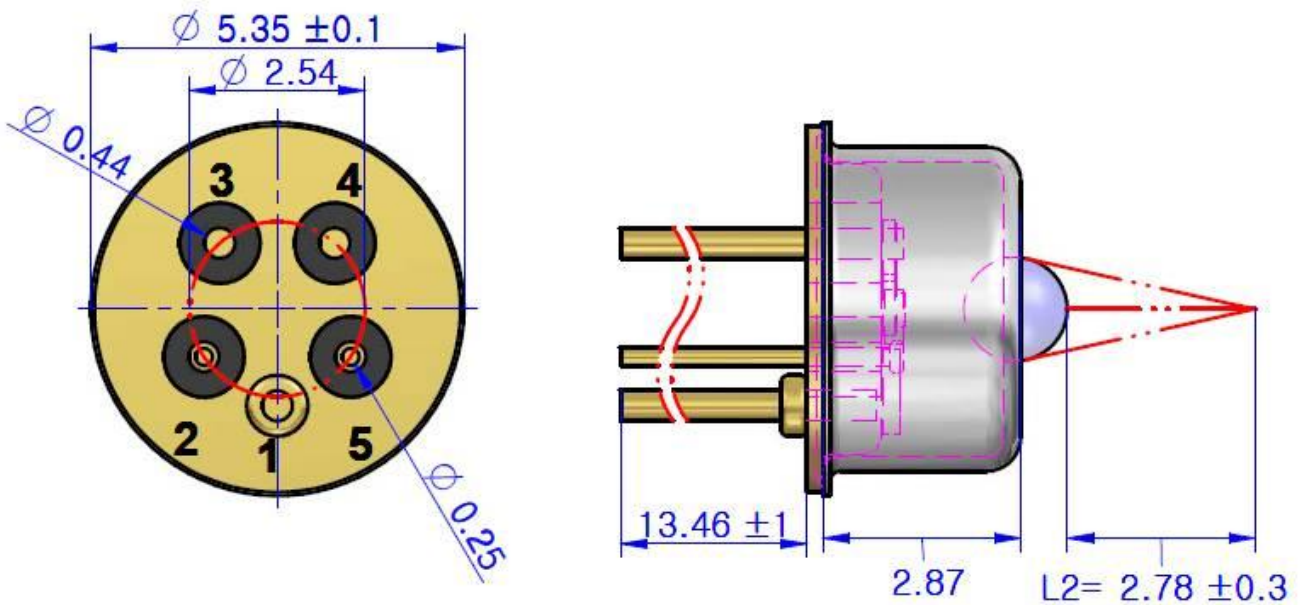
### Mechanical Dimension & Pin Layout

#### Mechanical Dimension

(unit : mm)



#### Long Cap



#### Short Cap

Figure 1. Mechanical Dimension

### Pin Configuration

No.	Symbol	I/O	Description
1	GND	I/O	Signal ground
2	Data P	O	Positive data output
3	V <sub>CC</sub>	I	TIA Supply voltage
4	V <sub>APD</sub>	I	APD bias voltage
5	Data N	O	Negative data output

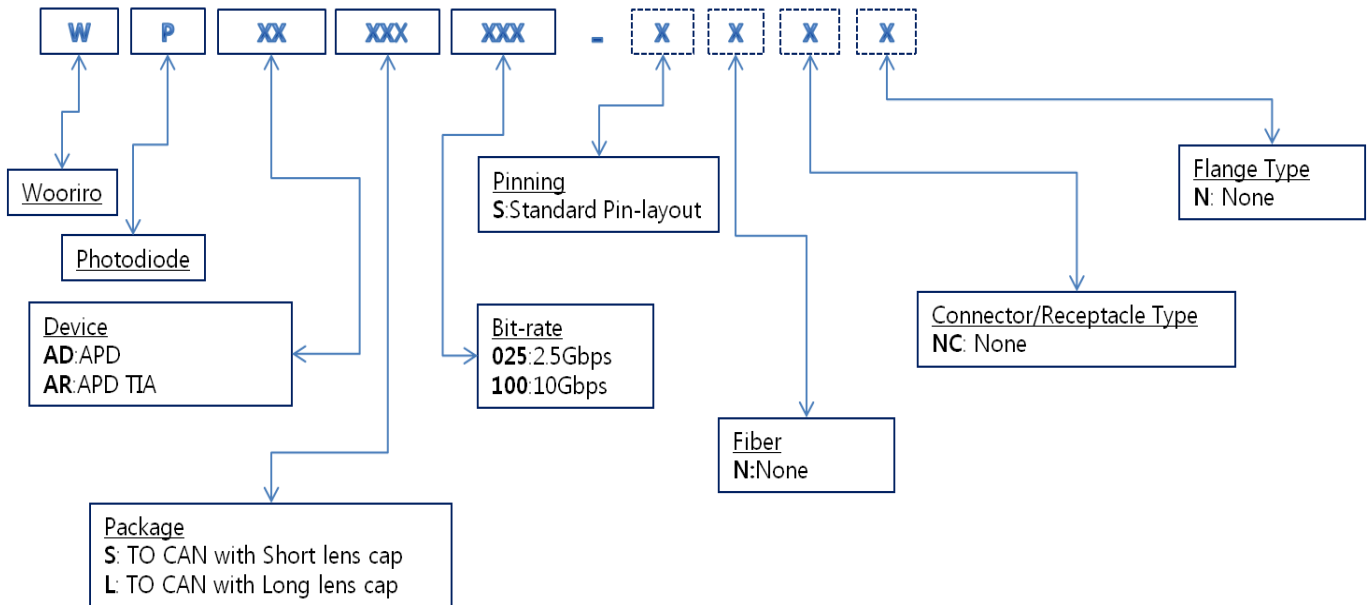
Table 4. PIN Configuration

### Other Requirements

#### Precautions for use

This device is susceptible to damage as a result of ESD(electrostatic discharge). Use of ground straps, anti static mats, and other standard ESD protective equipment is recommended when handling or testing an InGaAs PIN/APD or any other junction photodiode. Soldering temperature of the leads should not exceed 350°C for more than 10 seconds.

### Ordering Information



Ex) WPARS100-SNNCN: 10G APD TIA TO CAN (Short Lens Cap) standard Pin-layout