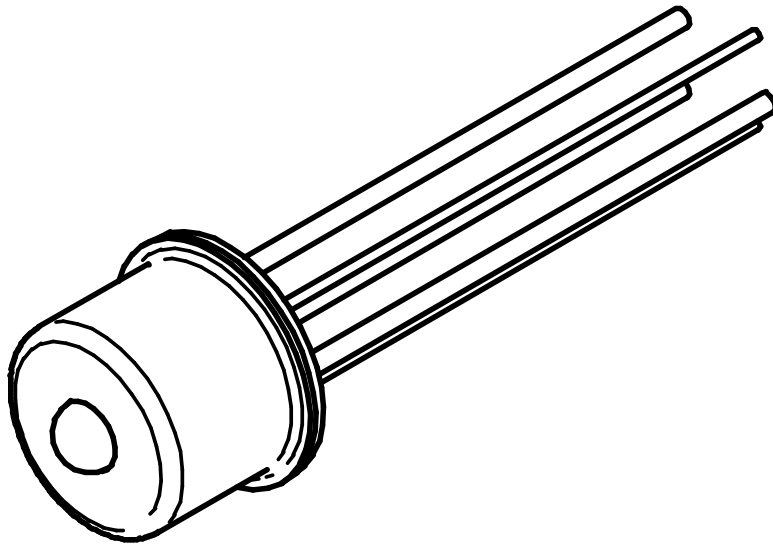


Wooriro Photo Diode

**WOORIRO 4.25G APD TIA TO
SPECIFICATION**



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General Description

The 4.25G APD TIA TO is reliable avalanche photodiodes with TIA. It is packaged hermetically sealed cans with AR coated ball lens caps. It has sensitive area of 50 μm diameter and it will be easily coupled with a single mode fiber.

Features

- InGaAs APD chip for 3GHz
- High gain 3.6kΩ transimpedance pre-amplifier for 4Gbps
- Operation at 1100nm and 1650nm
- Differential data outputs
- High sensitivity: typ. -30dBm@4.25Gbps

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}	-0.4 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 or 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	V _{APD} =0.95VB(@1550nm)		7		A/W
Optical Wavelength Range	λ	-	1100		1650	nm
Sensitivity	P _S	2.5Gbps NRZ, PRBS=2 ²³ -1, BER=1×10 ⁻¹⁰ , λ=1550nm ER=13.5dB		-32	-30	dBm
Sensitivity	P _S	4.25Gbps NRZ, PRBS=2 ²³ -1, BER=1×10 ⁻¹⁰ , λ=1550nm ER=13.5dB		-30	-28	dBm
Maximum Overload	P _{MAX}	4.25Gbps NRZ, PRBS=2 ²³ -1, BER=1×10 ⁻¹² , λ=1550nm ER=13.5dB	- 6			dBm

Table 2. Optical Characteristics

Electrical Characteristics (Tc=25°C)

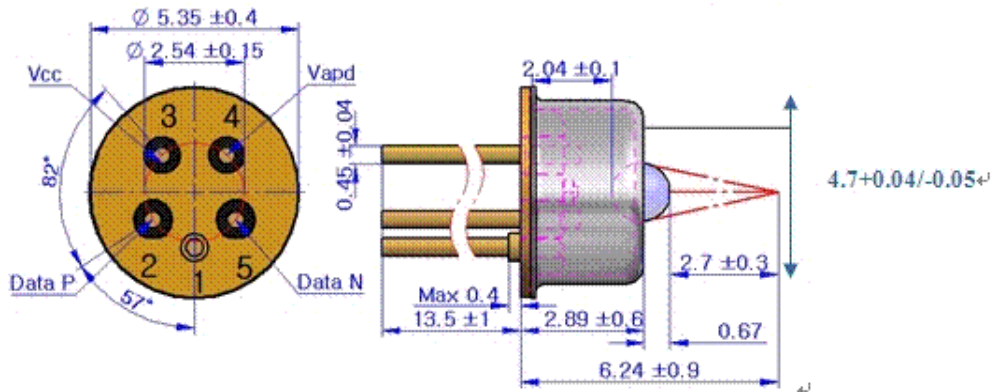
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
TIA Supply Voltage	V _{CC}	-	3.0	3.3	3.6	V
TIA Supply Current	I _{CC}	-		43	50	mA
Transimpedance	Z _T	Differential(50Ω on each output), f=100MHz	2250	3600	4500	Ω
Breakdown Voltage	V _{BR}	Dark current, I _d =10μA	30	45	55	V
3dB Bandwidth	F _{CH}	M=9, Pin=-20dBm	2.25	3.4		GHz
Low Frequency Cut-off	F _{CL}	-		17	25	KHz
Maximum Output Voltage	V _{OUT}	Differential	150	280		mV _{P-P}
Output Impedance	Z _O	Single-ended		50		Ω
Temperature Coefficient of V _{BR}	γ	ΔVB/ΔT		0.1		V/°C

Table 3. Electro Characteristics

Mechanical Dimension & Pin Layout

Mechanical Dimension

(unit : mm)



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	VCC	I	TIA Supply voltage
4	VAPD	I	APD bias voltage
5	Data N	O	Negative data output

Table 4. PIN Configuration

Other Requirements

Precautions for use

- 1) 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.
- 2) During the optical alignment before laser welding or epoxy bonding, the APD chip would respond to input optical signal under the condition of high applied voltage lager than 60% of VB. Thus, 80% of VB is recommended for optical alignment.

ORDERING INFORMATION

