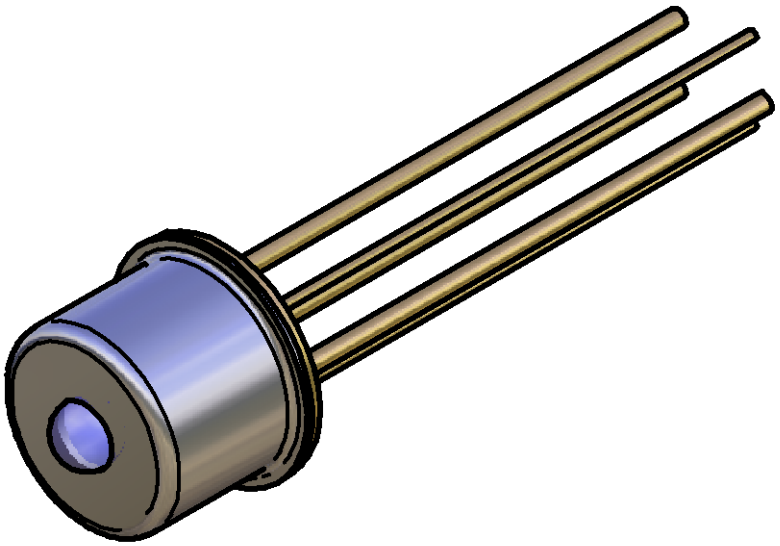
Wooriro Photo Diode

WOORIRO 3G APD TIA TO

SPECIFICATION



Contents

General Description

The reliable avalanche photodiodes with TIA are hermetically sealed with AR coated ball lens caps. WOS-E-1302-33 has sensitive area of 55um diameter and it will be easily coupled with a single mode fiber.

Features

- InGaAs APD chip for 3Gbps
- High gain 3.6kΩ transimpedance pre-amplifier for 3Gbps
- Operation at 1100nm and 1650nm
- Differential data outputs
- High sensitivity: typ. -34dBm@3.125Gbps

Applications

- Digital fiber optic receiver in short, medium and long haul optical telecommunications transmission systems or in high speed data networks
- Metro Access Rings
- Point-to-Point Networking
- 1xFiber Channel
- Gigabit Ethernet

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
TIA supply voltage	V_{CC}	-0.7 to +5.0	V
APD supply voltage	V_{APD}	0 to V_{BR}	V
APD reverse current	I_{APD}	3.0	mA
Operating case temperature range	T_C	-40 to +85	℃
Storage temperature range	T_{STG}	-40 to +85	℃

Table 1. Absolute Maximum Ratings

Electro-Optical Characteristics

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

Optical Characteristics(Tc=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Optical wavelength range	λ	-	1100		1650	nm
Sensitivity	P_S	3.125Gbps NRZ, PRBS=2^{23}-1, BER=1×10^{-10},M_{opt} ER=12.7dB, λ=1550nm		-34	-32	dBm
Maximum overload	P_{MAX}	3.125Gbps NRZ, PRBS=2^{23}-1, BER=1×10^{-10},M_{opt} ER=12.7dB, λ=1550nm	0			dBm
Responsivity	R	λ= 1550, M=1	0.8			A/W

Table 2. Optical Characteristics

Electrical Characteristics(Tc=25°C)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Power supply voltage	V_{CC}	-	3.0	3.3	3.6	V
Power supply current	I_{CC}	-	33	44	59	mA
Breakdown voltage	V_{BR}	Dark current, I_d=10uA	35	45	55	V
Transimpedance	Z_T	Differential(50Ω on each output), f=100MHz	2.3	3.6	4.7	KΩ
O/E bandwidth	f_{ch}	-3dB, M=10 , Pin=-20dBm	1.65	2.05	2.5	GHz
Low cut-off frequency	f_{cl}	-		3	5	KHz
Maximum output voltage	V_{out}	Differential			340	mV_{p-p}
Output impedance	Z_O	Single-ended		50		Ω
Temperature coefficient of V_{BR}	δ	-	80	100	120	mV/℃

Table 3. Electro Characteristics

Structure

Dimensional Parameter

(unit : mm)

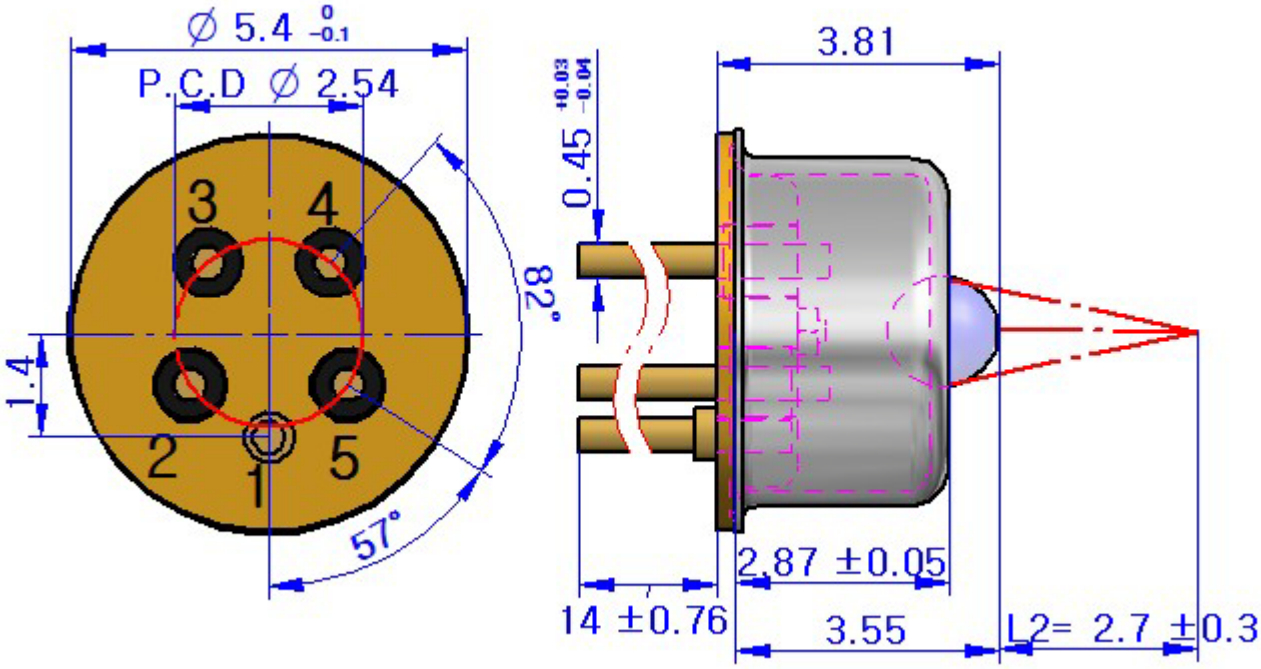


Figure 1. Mechanical Dimension

Pin Configuration

No.	Symbol	I/O	Description
1	GND	I/O	Signal ground
2	Data P	O	Positive data output
3	V_{CC}	I	Supply voltage
4	V_{APD}	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℃ 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

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