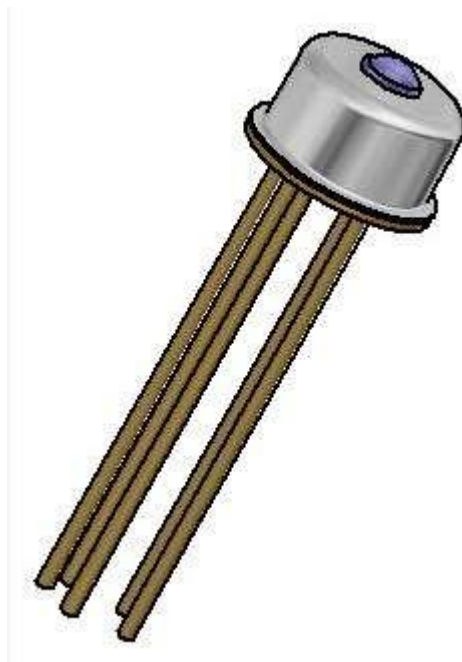


High-Sensitive 2.5Gbps PIN-PD TIA TO

SPECIFICATION



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General Description

The High-Sensitive 2.5Gbps PIN TIA TO is a TO-46 packaged InGaAs PIN PD device with a high-sensitive TIA for use in fiber optics communication networks applications up to 2.5Gbps. The PIN PD/TIA is mounted on a TO-46 header and hermetic sealed with a lens cap.

The High-Sensitive 2.5Gbps PIN TIA TO has wide input dynamic range that supports different transmission distance requirements. With a typical input overload of 3dBm, it supports short-haul fiber optic systems. Additionally, a typical input sensitivity of -30.0 dBm allows the detection of very small signals in a noisy environment making it ideal for high split ratio PON networks. With ultra-high sensitivity, the High-Sensitive 2.5Gbps PIN TIA TO can accurately detect the optical data without requiring the use of Avalanche Photodiodes.

In order to satisfy such high sensitivity and optical overload requirements, the High-Sensitive 2.5Gbps PIN TIA TO includes automatic gain control (AGC), maintaining the output at a constant amplitude level for input signals exceeding the AGC threshold.

An accurate average photodiode current across the entire dynamic range of the High-Sensitive 2.5Gbps PIN TIA TO is available at the RSSI PIN for photo-alignment and average power monitoring.

Features

- Typical -30.0dBm Sensitivity
- Data rates from 1.25Gbps to 2.5Gbps
- RSSI(I_{MON}) function
- AGC provides dynamic range of 34dB
- 2dBm Overload input optical power
- Single +3.3V supply
- TO46 CAN 5pin package

Applications

- GPON
- 2.5Gbps BOSA Modules
- ATM/SONET
- Digital fiber optic receiver in short, medium and long haul optical telecommunications transmission systems and in high speed optical data networks
- Wide-band RF gain block
- Fiber in the loop(FTTO, FTTC, FTTH...)

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
TIA supply voltage	V_{CC}	-0.4 to +4.0	V
Operating Case Temperature Range	T_C	-40 to +85	°C
Storage Temperature Range	T_{STG}	-40 to +100	°C
Maximum input voltage at MON	V_{MON}	-0.4 to $V_{CC} + 0.4V$	V
Input Optical Power	P_{IN}	2.0	mW

Table 1. Absolute Maximum Ratings

Electro-Optical Characteristics ($T_C=25^\circ C$)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Optical wavelength range	λ	-	1100		1650	nm
Sensitivity ¹⁾	P_S	2.5Gbps NRZ, PRBS= $2^{23} - 1$, BER= 1×10^{-10} , ER=11.7dB, $\lambda=1550\text{nm}$		-30.0	-29	dBm
Maximum overload	P_{MAX}	2.5Gbps NRZ, PRBS= $2^{23} - 1$, BER= 1×10^{-10} , ER=11.7dB, $\lambda=1550\text{nm}$			3	dBm
Photo current monitor	R	1550nm / 1uW~1mW	0.9			A/W
Power supply	V_{CC}	-	3.0	3.3	3.6	V
Supply current	I_{CC}	-		43	50	mA
Low cut-off frequency	f_{LC}	-	-	20	-	kHz

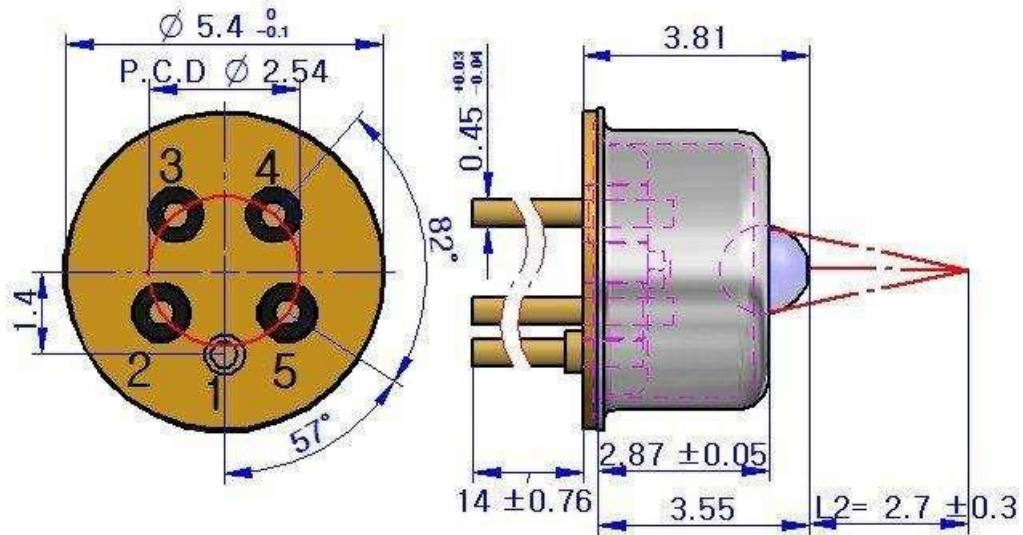
1) The Sensitivity of the A-lens Cap is 0.5dB ~ 1 dB better than short lens Cap.

Table 2. Electro-Optical Characteristics

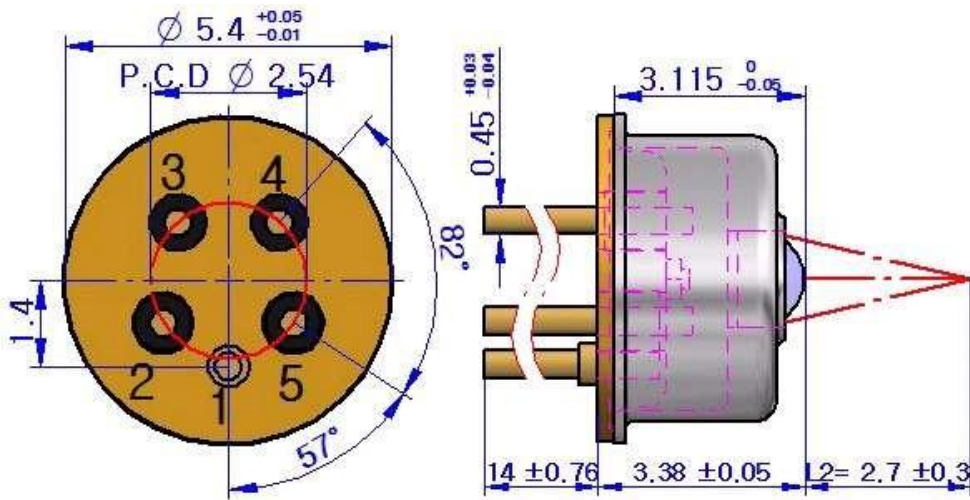
Mechanical Dimension & Pin Layout

Mechanical Dimension

(unit : mm)



Short Cap



A-Lens 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	Supply voltage
4	RSSI	O	Analog current source output
5	Data N	O	Negative data output

Other Requirements

Precautions for use

This device is susceptible to damage as a result of ESD(electrostatic discharge). Use of ground straps, antistatic 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 345 °C for more than 3 seconds.

Ordering Information

