



## 10G InGaAs APD Photodiode W/ TIA

### Description

The A10T-TO is a high sensitivity 10G APD-TIA receiver in a pigtail fiber coupled TO package. It includes a 10G APD photodiode with a high gain TIA in a hermetically sealed package.

### Features

- Dark Current ~ 25 nA (typical)
- High Sensitivity ~- 29 dBm
- Terminal Capacitance 1 pF at VBR<sub>90%</sub>
- 8 GHz Cutoff Frequency
- 4K Ohm Transimpedance Gain
- Ability to choose desired optical connector.
- Ability to choose desired fiber length.



### Applications

- 10G RFoF
- 10G Base-L Ethernet
- Fiber Optic Sensors



### Electro-Optical Characteristics ( $T_{op} 23 \pm 3^{\circ}C$ , unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Supply Voltage	$V_{cc}$		3.3	3.6	V	
Supply Current	$I_{cc}$		26	35	mA	$V_{cc} = 3.3 V$
Response Spectrum	$\lambda$	1100		1650	nm	$V_{cc} = 3.3 V$
Bandwidth	BW		8		GHz	-3 dB bandwidth
Overload	OL	2.2			dBm	$V_{cc} = 3.3 V$
Sensitivity	Sen		-29	-28	dBm	25.78 Gbps, 1310 nm, ER = 4 dB, BER = $10^{-5}$
Optical Return Loss	ORL			-27	dB	CW = 1310 nm
RSSI Offset Current	$I_{RSS}$			100	nA	$V_{cc} = 3.3 V$
Responsivity	R	0.7	0.8		A/W	1310 nm, 50 % VBR, M=2, Pin -20 dBm
Dark Current	$I_d$		25	100	nA	VBr
Operation Current	$I_{op}$		5		uA	
Output Impedance	$Z_o$		100			Differential
Maximum Output Voltage	$V_o$		300		mV <sub>p-p</sub>	Differential
Low Frequency Cutoff	$F_{low}$	25	100		KHz	

### Absolute Maximum Ratings

Parameter	Symbol	Condition	Min.	Max.	Unit
Reverse Voltage	$V_r$			5	V
Forward Current	$I_F$			8	mA
Reverse Current	$I_R$			0.5	mA
Optical Input power	$P_{in}$			10	mW
Storage Temperature	$T_{stg}$		-25	90	$^{\circ}C$
Storage Humidity	$H_{stg}$			85	% r.H.
Operating Temperature	$T_{op}$		-10	80	$^{\circ}C$
Soldering Temperature	$T_{st}$	60 sec		200	$^{\circ}C$
ESD Susceptibility		HBM	100		V

Operating at maximum ratings for a prolonged period will cause damage to the device.



## Pin Configuration

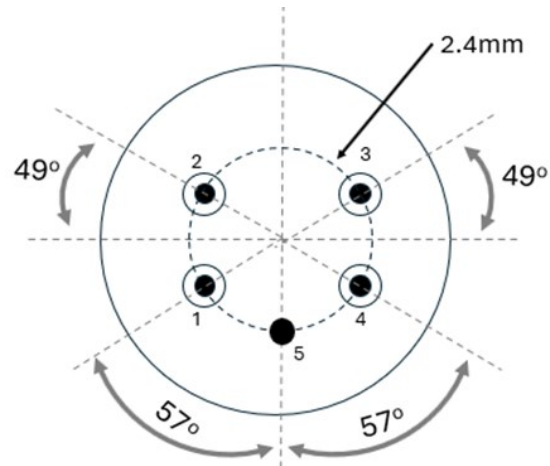


Fig 1A: Bottom View

Pin Number	Function
1	Dout (+)
2	VCC
3	I <sub>mon</sub>
4	Dout (-)
5	GND

Table 1: Device Pin out

## Device Dimensions

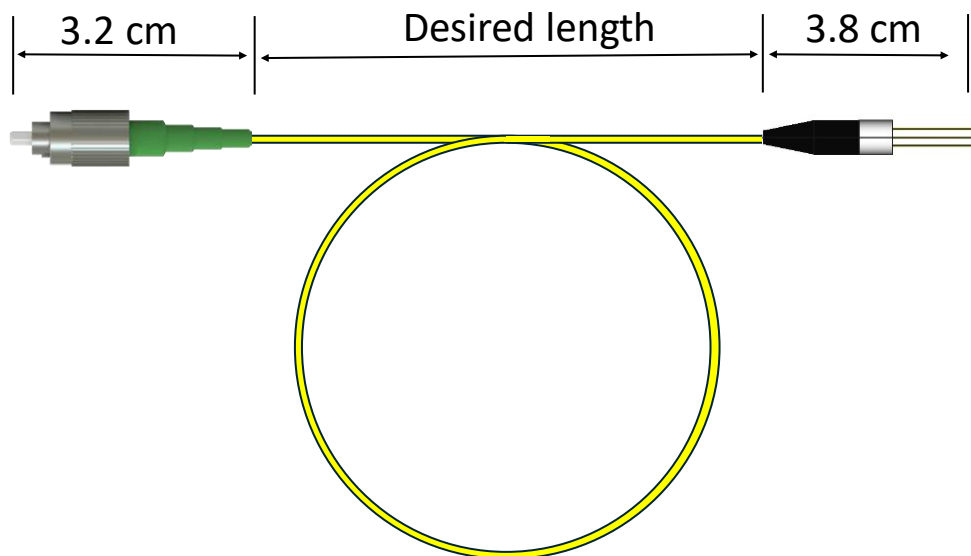
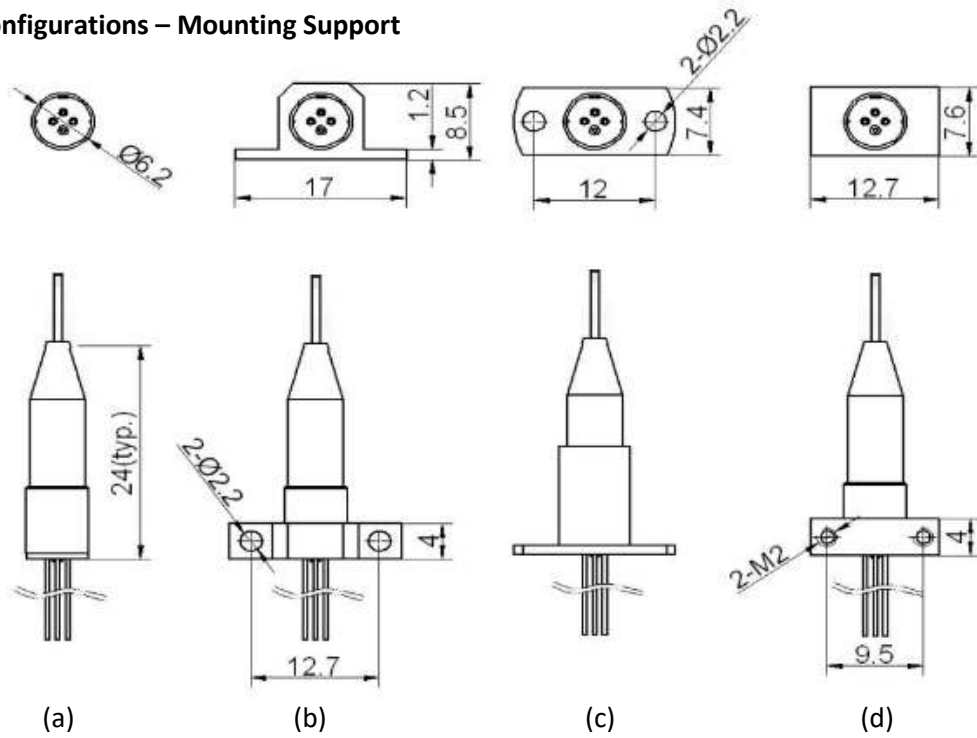


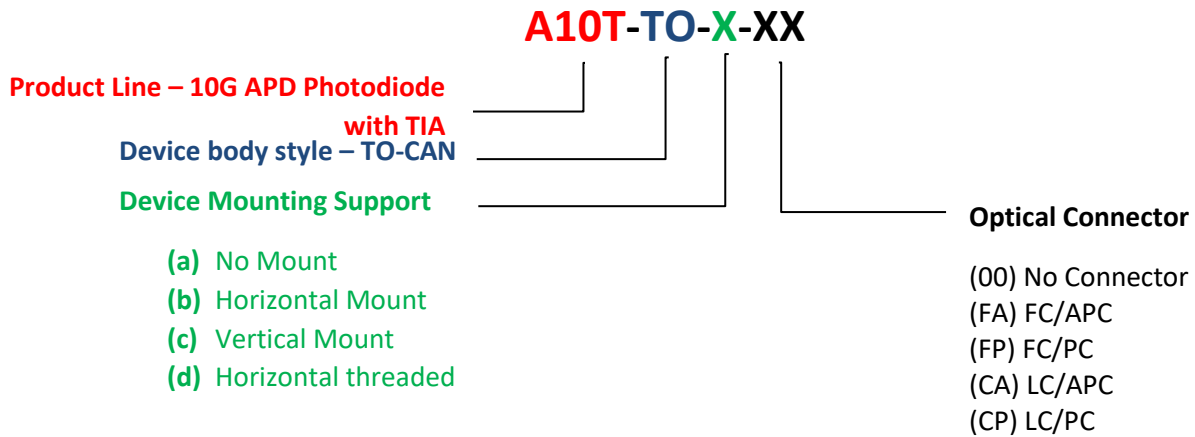
Fig 2: Device mechanical drawing. (All units in mm). Fiber and connector size differs based on build configuration.



## Build Configurations – Mounting Support



## Device Nomenclature



## Inquiry Information

**Sales:** All inquiries regarding sales please contact [Sales@NuPhotonics.com](mailto:Sales@NuPhotonics.com)

**General:** If you are interested in a custom solution, general information, or engineering related information please contact [Inquiry@NuPhotonics.com](mailto:Inquiry@NuPhotonics.com)

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