



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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## Peak Sensitivity Wavelength: 905nm

The MTAPD-06-xxx-905F is a circular ( $\Phi 500\mu\text{m}$ ) .2 mm<sup>2</sup> active area Avalanche Photodiode with optimized sensitivity at 905 nm & housed in a hermetic TO-46 metal can package. It is well suited for applications requiring High Speed & Low Noise in visible-near IR applications.

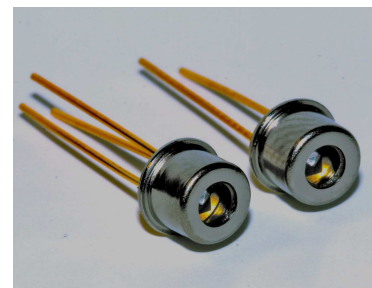
### FEATURES

- >Fast Rise Time
- >Ultra Low Noise
- >Low Capacitance
- >High Gain
- >Optimum Gain M100

- >Operating Voltages:  
120v - 160v, 160v - 200v  
Other Voltages Available

### APPLICATIONS

- >Optical rangefinders
- >High speed optical communications
- >Medical Equipment
- >Bar Code Readers



## Absolute Maximum Ratings



ITEMS	SYMBOL	RATINGS	UNIT
Storage Temperature	Tstg	-55 ~ +125	°C
Operating Temperature	Topr	-20 ~ +85	°C
Power Dissipation	Pd	1	mw
Forward Current	If	1	mA
Operating Voltage	Vop	0.95 x Vbr	V
Lead Soldering Temperature *1	Tls	260	°C

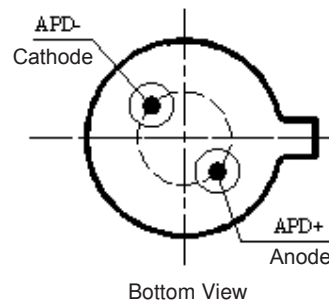
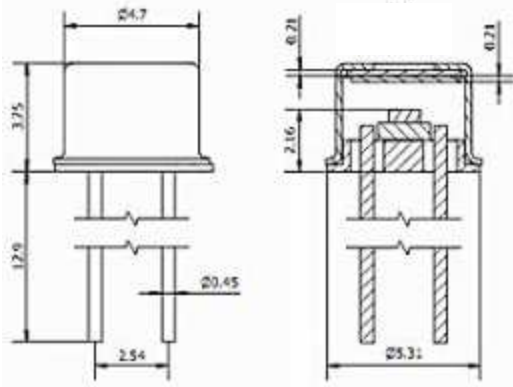
\*1: Time 10 Sec max

## Electrical & Optical Characteristics (Ta=23°C)

ITEMS	SYMBOL	CONDITIONS	MIN.	TYP	MAX.	UNIT
Spectral Response	$\lambda$	--		400 - 1100		nm
Active Area		--		Diameter 500		$\mu\text{m}$
Responsivity	Re	$\lambda=905\text{nm}$ , $\text{oe}=1\mu\text{W}$ , $M=100$	50	55	--	A/W
Rise Time	tR	f=1MHz, RL=50 $\Omega$ , $\lambda=905\text{nm}$	--	0.6	--	ns
Dark Current	I <sub>D</sub>	M=100	0.1	0.4	1.0	nA
Capacitance	Cj	M=100, f=1MHz		1.2		pF
Optimal Gain	M	--		100		
Breakdown Voltage	Vbr	IR=2uA	80	--	200	V
Temperature Coefficient		Tc=-40°C - 85°C		0.9		V/°C

TO-46 Package Dimensions (2 Pin)

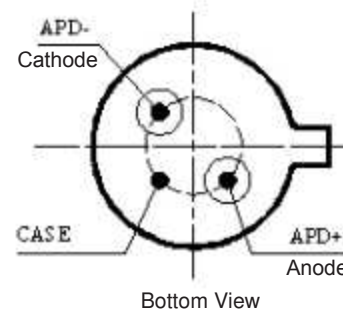
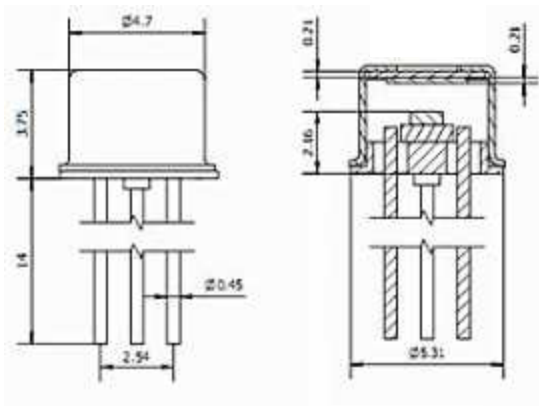
MTAPD-06-013-905F  $V_{br}=120-160V$   
MTAPD-06-014-905F  $V_{br}=160-200V$



Unit: mm, Tolerance:  $\pm 0.2$

TO-46 Package Dimensions (3 Pin)

MTAPD-06-015-905F  $V_{br}=120-160V$   
MTAPD-06-016-905F  $V_{br}=160-200V$



Unit: mm, Tolerance:  $\pm 0.2$



Fig 1 Responsivity, Vr=0V

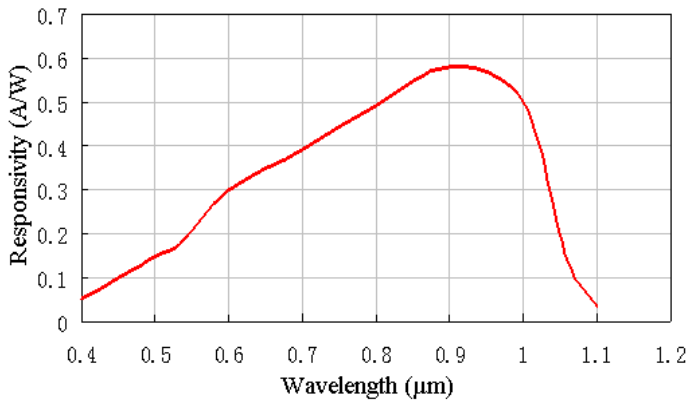


Fig 2 Dark Current

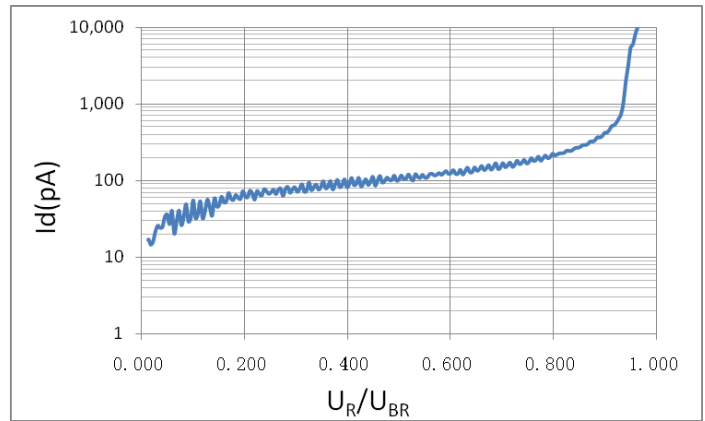


Fig 3 Multiplication

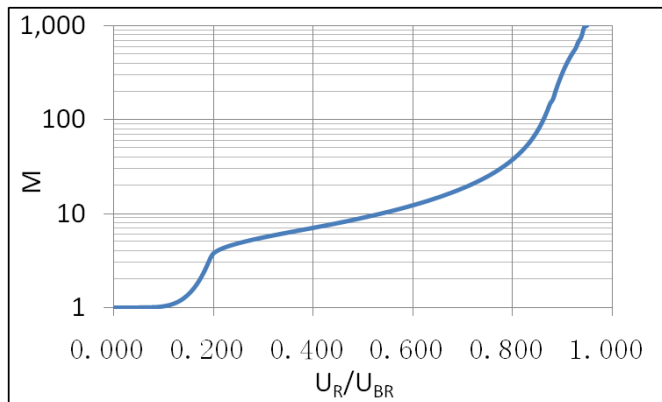


Fig 4 Capacitance

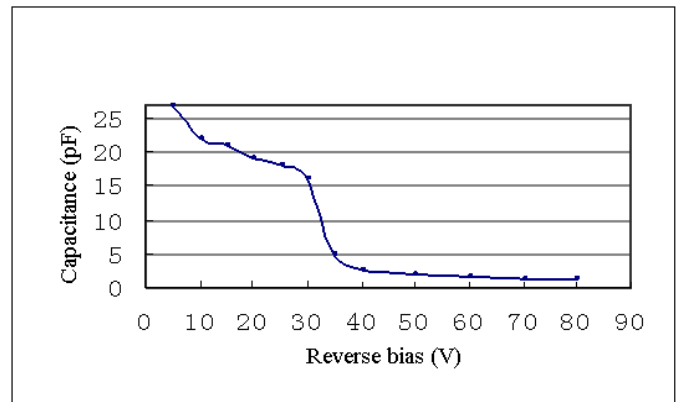
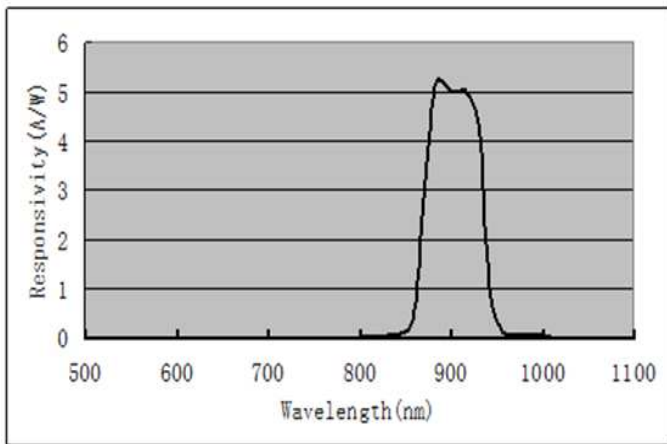
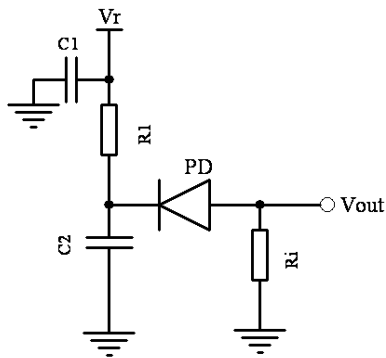


Fig 5 Responsivity,  
905nm Optional Filter, M=10



### Applications Diagram



- Notes: C1 - Filter capacitor, filter noise from Vr.  
 C2 - bypass capacitor, the loop to ground for AC signal.  
 R1 - current-limiting resistor, protect APD from higher voltage.  
 Ri - sampling resistor, convert the current signal into a voltage signal.

### Equivalent Circuit Diagram

