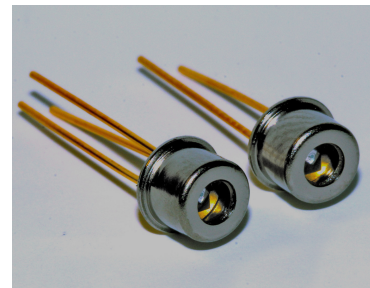


## Peak Sensitivity Wavelength: 800nm

The MTAPD-06-xxx is a circular ( $\Phi 230\mu\text{m}$ )  $0.04\text{ mm}^2$  active area Avalanche Photodiode with optimized sensitivity at 800 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
- >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

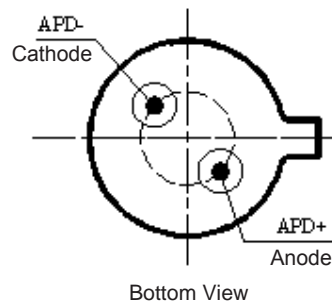
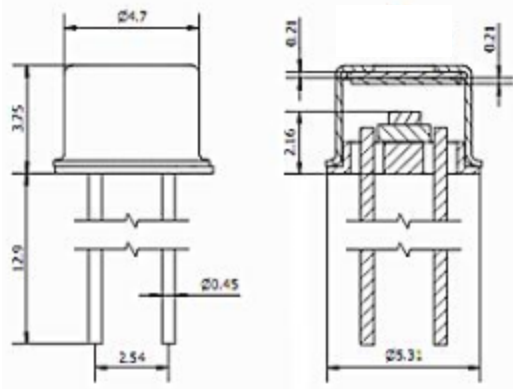
\*1: Time 10 Sec max

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

ITEMS	SYMBOL	CONDITIONS	MIN.	TYP	MAX.	UNIT
Spectral Response	$\lambda$	--		400 - 1100		nm
Active Area		--		Diameter 230		$\mu\text{m}$
Responsivity	Re	$\lambda=800\text{nm}$ , $oe=1\mu\text{W}$ , $M=100$	35	50	--	A/W
Rise Time	$t_R$	$f=1\text{MHz}$ , $R_L=50\Omega$ , $\lambda=800\text{nm}$	--	0.3	--	ns
Dark Current	$I_D$	$M=100$	0.02	0.05	0.4	nA
Capacitance	Cj	$M=100$ , $f=1\text{MHz}$		1.5		pF
Optimal Gain	M	--		100		
Breakdown Voltage	Vbr	$I_R=2\mu\text{A}$	80	--	200	V
Temperature Coefficient		$T_c=-40^\circ\text{C} - 85^\circ\text{C}$		0.6		V/°C

TO-46 Package Dimensions (2 Pin)

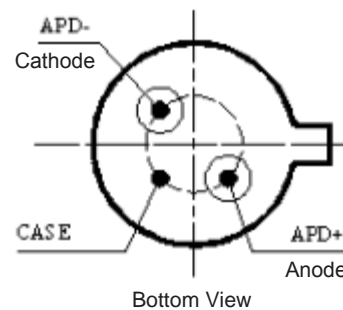
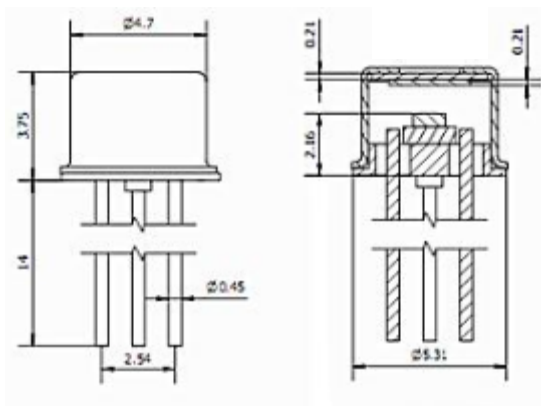
MTAPD-06-001 Vbr=120-160V  
MTAPD-06-002 Vbr=160-200V



Unit: mm, Tolerance:  $\pm 0.2$

TO-46 Package Dimensions (3 Pin)

MTAPD-06-003 Vbr=120-160V  
MTAPD-06-004 Vbr=160-200V



Unit: mm, Tolerance:  $\pm 0.2$

Fig 1 Responsivity, Vr=0V

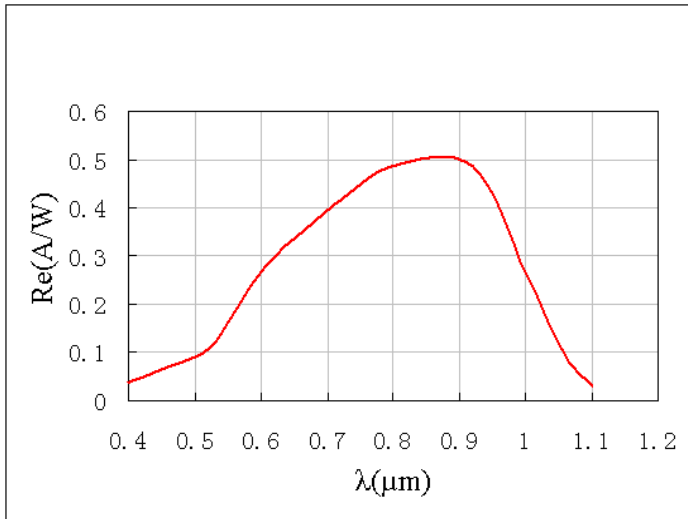


Fig 2 Dark Current

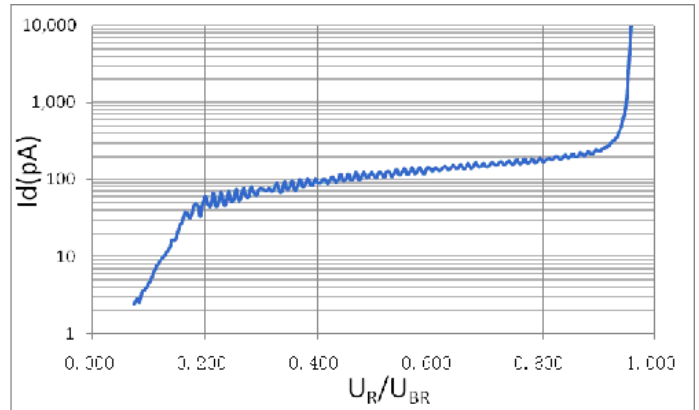


Fig 3 Multiplication

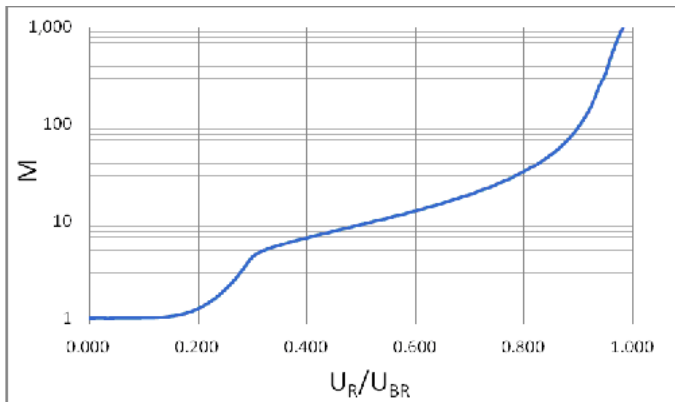
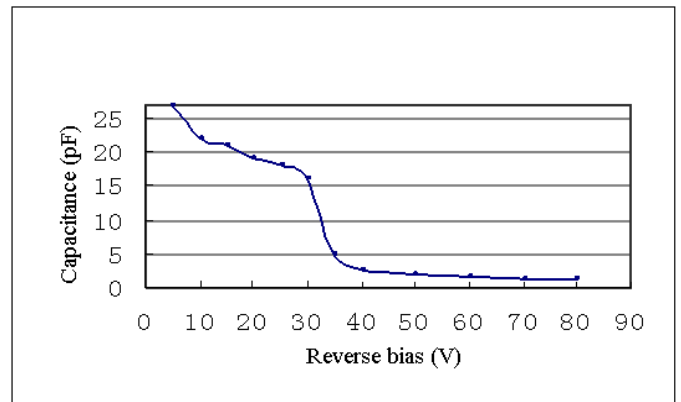
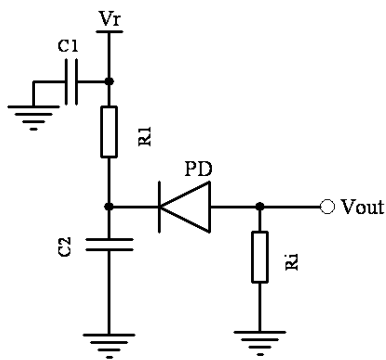


Fig 4 Capacitance

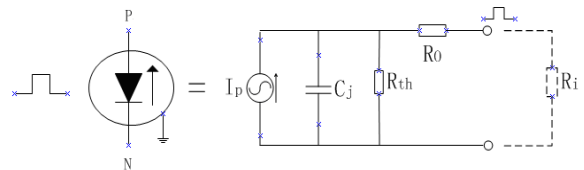


### Applications Diagram



- 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



The information contained herein is subject to change without notice.



2016-11-04