

## Peak Sensitivity Wavelength: 800nm

The MTAPD-07-005 is a circular ( $\Phi 500\mu\text{m}$ ) .2 mm<sup>2</sup> active area Avalanche Photodiode with optimized sensitivity at 800nm & housed in a LCC3 SMD package. It is well suited for applications requiring High Speed & Low Noise in visible-near IR applications.

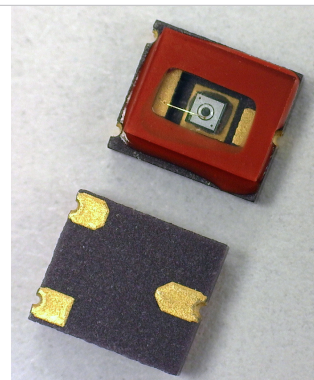
### FEATURES

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

- >Operating Voltages:  
120v - 160v
- 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    |
| Solder Reflow Temperature *1 | Stemp  | 260        | °C   |

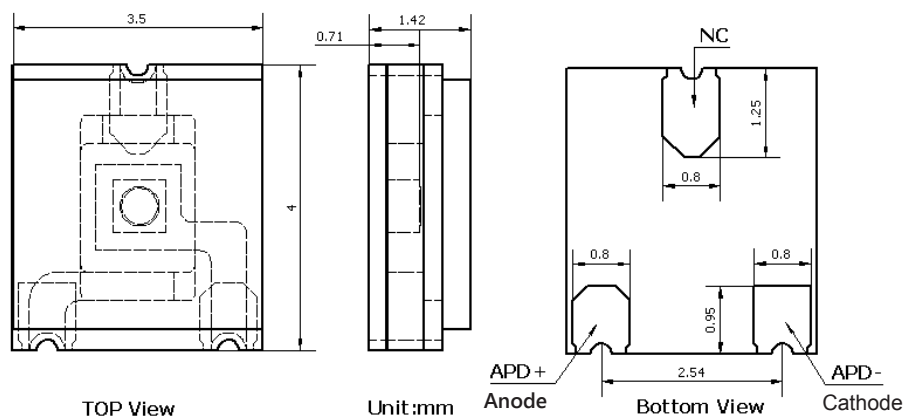
\*1: Time 5 Sec max

## 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        | $\lambda=800\text{nm}$ , $\phi_e=1\mu\text{W}$ , M=100 | 35   | 50           | --   | A/W           |
| Rise Time               | tR        | f=1MHz, RL=50 $\Omega$ , $\lambda=800\text{nm}$        | --   | 0.3          | --   | ns            |
| Dark Current            | ID        | M=100                                                  | 0.05 | 0.1          | 0.5  | nA            |
| Capacitance             | Cj        | M=100, f=1MHz                                          |      | 3            |      | pF            |
| Optimal Gain            | M         | --                                                     |      | 100          |      |               |
| Breakdown Voltage       | Vbr       | IR=2uA                                                 | 80   | --           | 200  | V             |
| Temperature Coefficient |           | Tc=-40°C - 85°C                                        |      | 0.6          |      | V/°C          |

LCC3 SMD Package Dimensions (3 Pin)

MTAPD-07-005  $V_{br}=120-160V$



Unit: mm, Tolerance: ±0.2

Fig 1 Responsivity,  $V_r=0V$

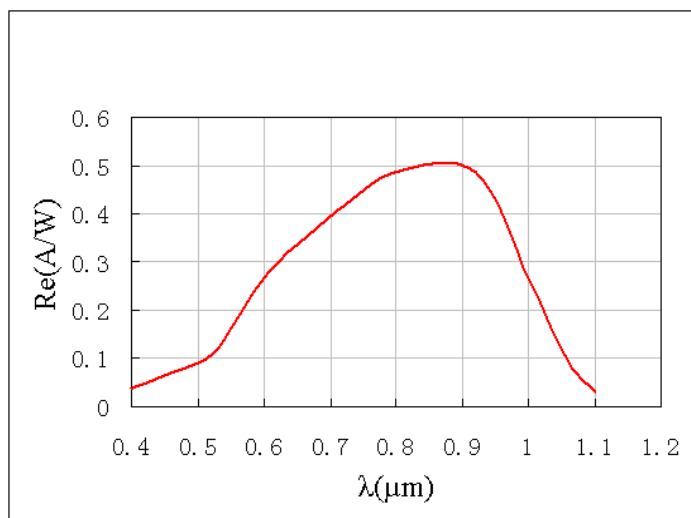


Fig 2 Dark Current

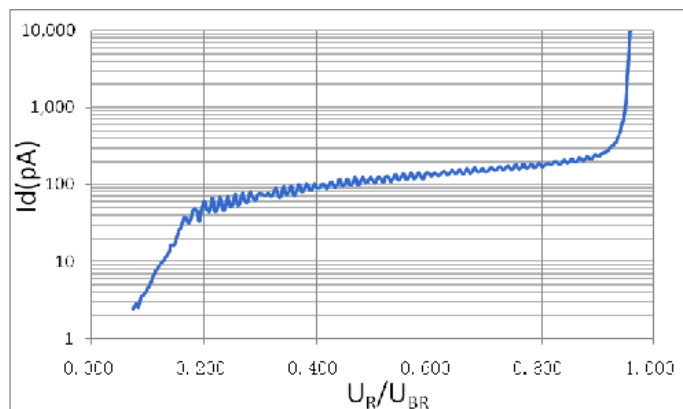


Fig 3 Multiplication

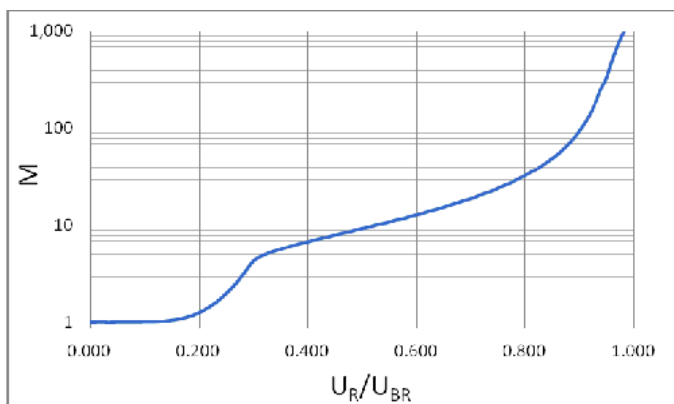
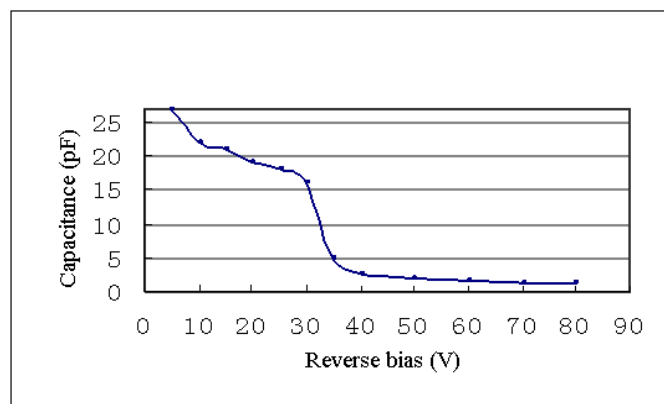
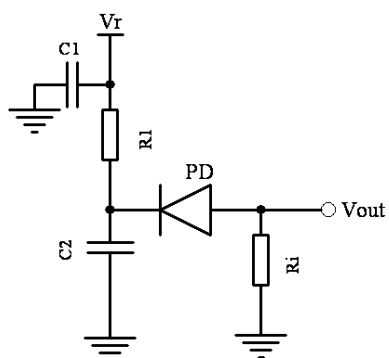


Fig 4 Capacitance

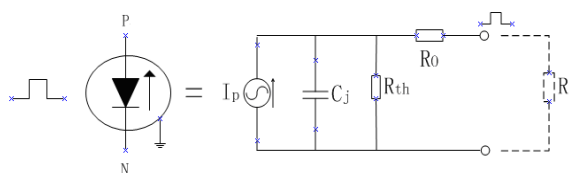


Applications Diagram



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.



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