

## T-1 PACKAGE PIN PHOTODIODE

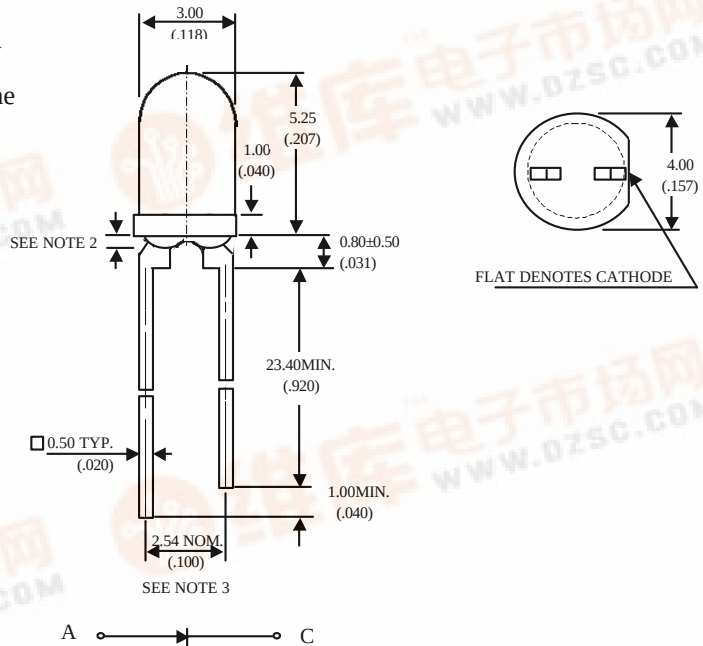
MID-30A12

### Description

The MID-30A12 is a PIN photodiode mounted in a lensed, special dark plastic package. The lensing effect of the package allows an acceptance half view angle of  $10^\circ$  that is measured from the optical axis to the half power point.

### Package Dimensions

Unit : mm (inches)



### Features

- High photo sensitivity
- Low junction capacitance
- High cut-off frequency
- Fast switching time
- Good spectral matching IRED ( $\lambda_p=940\text{nm}$ ) type.

#### Notes :

1. Tolerance is  $\pm 0.25\text{ mm}$  (.010") unless otherwise noted.
2. Protruded resin under flange is  $0.8\text{ mm}$  (.031") max.
3. Lead spacing is measured where the leads emerge from the package.

### Absolute Maximum Ratings

@  $T_A=25^\circ\text{C}$

| Parameter                   | Maximum Rating                              | Unit |
|-----------------------------|---------------------------------------------|------|
| Power Dissipation           | 100                                         | mW   |
| Reverse Break Down Voltage  | 30                                          | V    |
| Operating Temperature Range | $-55^\circ\text{C}$ to $+100^\circ\text{C}$ |      |
| Storage Temperature Range   | $-55^\circ\text{C}$ to $+100^\circ\text{C}$ |      |
| Lead Soldering Temperature  | $260^\circ\text{C}$ for 5 seconds           |      |

## Optical-Electrical Characteristics

@  $T_A=25^{\circ}\text{C}$

| Parameter                  | Test Conditions                                                     | Symbol          | Min. | Typ. | Max. | Unit          |
|----------------------------|---------------------------------------------------------------------|-----------------|------|------|------|---------------|
| Reverse Break Down Voltage | $I_R=100\mu\text{A}$<br>$E_e=0$                                     | $V_{(BR)R}$     | 30   |      |      | V             |
| Reverse Dark Current       | $V_R=10\text{V}$<br>$E_e=0$                                         | $I_D$           |      |      | 30   | nA            |
| Open Circuit Voltage       | $\lambda=940\text{nm}$<br>$E_e=0.1\text{mW/cm}^2$                   | $V_{OC}$        |      | 350  |      | mV            |
| Rise Time                  | $V_R=10\text{V}$ $\lambda=940\text{nm}$<br>$R_L=1\text{K}\Omega$    | $T_r$           |      | 40   |      | nsec          |
| Fall Time                  |                                                                     | $T_f$           |      | 30   |      |               |
| Light Current              | $V_R=5\text{V}$ , $\lambda=940\text{nm}$<br>$E_e=0.1\text{mW/cm}^2$ | $I_L$           | 1    | 4    |      | $\mu\text{A}$ |
| Total Capacitance          | $V_R=3\text{V}$ , $f=1\text{MHz}$<br>$E_e=0$                        | $C_T$           |      | 15   |      | pF            |
| Half Acceptance Angle      | $V_R=5\text{V}$<br>$E_e=0.1\text{mW/cm}^2$                          | $2\theta_{1/2}$ |      | 25   |      | deg.          |

## Typical Optical-Electrical Characteristic Curves

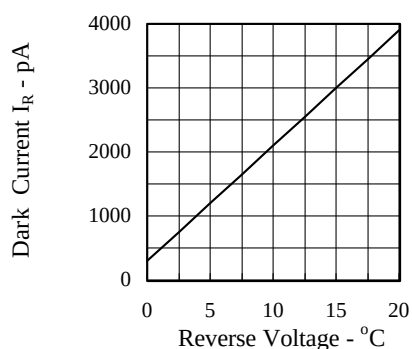


FIG.1 DARK CURRENT VS REVERSE VOLTAGE  
 $T_{AMB}=25^{\circ}\text{C}$ ,  $E_e=0\text{ mW/cm}^2$

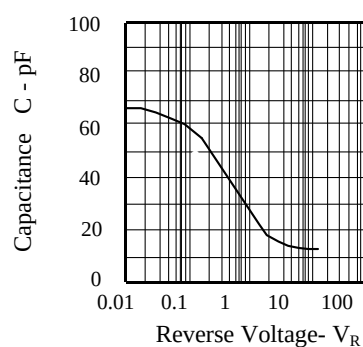


FIG.2 CAPACITANCE VS. REVERSE VOLTAGE  
 $F=1\text{MHz}$  ;  $E_e=0\text{mW/cm}^2$

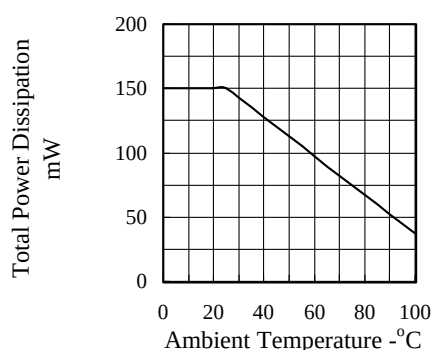


FIG.3 TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE

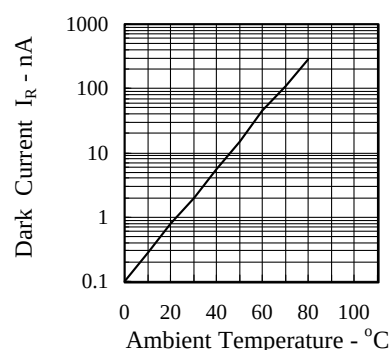


FIG.4 DARK CURRENT VS AMBIENT TEMPERATURE  
 $V_R=10$ ,  $E_e=0\text{ mw/cm}^2$

# Typical Optical-Electrical Characteristic Curves

