

# T-1 PACKAGE

## NPN PHOTOTRANSISTOR

**MID-30422**

### Description

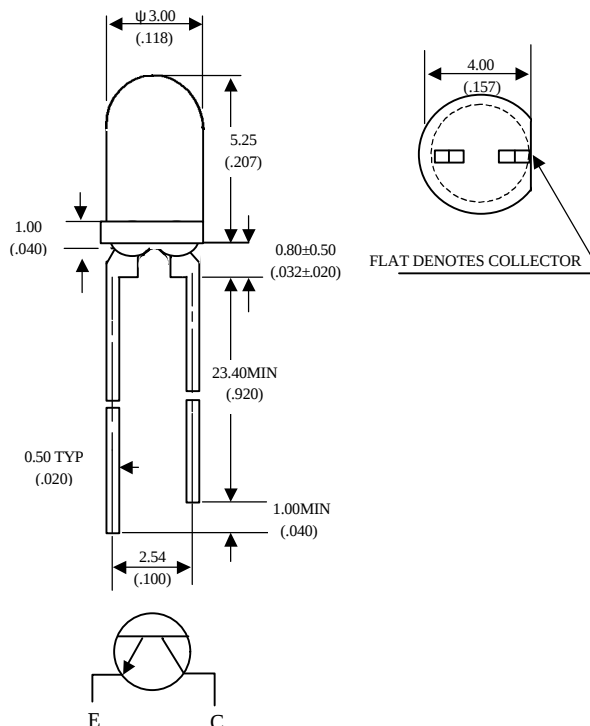
The MID-30422 is a NPN silicon phototransistor mounted in a lensed, clear transparent plastic package. The lensing effect of the package allows an acceptance half view angle of  $10^\circ$  that is measured from the optical axis to the half power point.

### Features

- Wide range of collector current
- Lensed for high sensitivity
- Low cost plastic package
- Acceptance view angle :  $20^\circ$

### Package Dimensions

Unit: mm (inches)



Notes :

1. Tolerance is  $\pm 0.25\text{mm}$  (.010") unless otherwise noted.
2. Protruded resin under flange is 1.5 mm (.059") 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   |
| Collector-Emitter Voltage   | 30                                          | V    |
| Emitter-Collector Voltage   | 5                                           | 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°C for 5 seconds                         |      |

## Optical-Electrical Characteristics

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

| Parameter                            | Test Conditions                               | Symbol        | Min. | Typ . | Max. | Unit          |
|--------------------------------------|-----------------------------------------------|---------------|------|-------|------|---------------|
| Collector-Emitter Breakdown Voltage  | $I_c=0.1\text{mA}$<br>$E_e=0$                 | $V_{(BR)CEO}$ | 30   |       |      | V             |
| Emitter-Collector Breakdown Voltage  | $I_E=0.1\text{mA}$<br>$E_e=0$                 | $V_{(BR)ECO}$ | 5    |       |      | V             |
| Collector-Emitter Saturation Voltage | $I_c=0.5\text{mA}$<br>$E_e=0.1\text{mW/cm}^2$ | $V_{CE(SAT)}$ |      |       | 0.4  | V             |
| Rise Time                            | $V_{CC}=5\text{V}$ , $R_L=1\text{K}\Omega$    | $T_r$         |      | 15    |      | $\mu\text{S}$ |
| Fall Time                            | $I_c=1\text{mA}$                              | $T_f$         |      | 15    |      |               |
| Collector Dark Current               | $V_{CE}=10\text{V}$<br>$E_e=0$                | $I_{CEO}$     |      |       | 100  | nA            |
| On State Collector Current           | $V_{CE}=5\text{V}$<br>$E_e=0.1\text{mW/cm}^2$ | $I_{C(ON)}$   |      | 2.8   |      | mA            |

## Typical Optical-Electrical Characteristic Curves

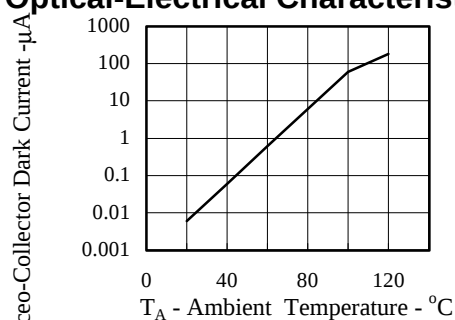
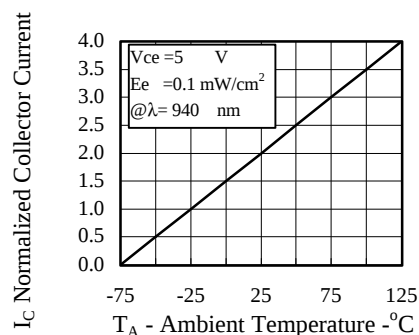
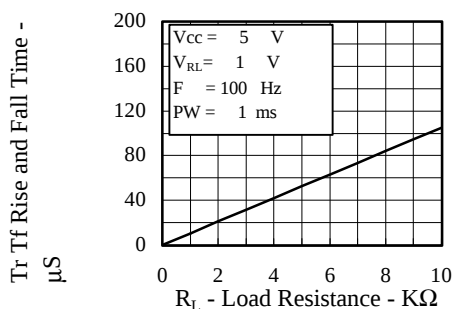
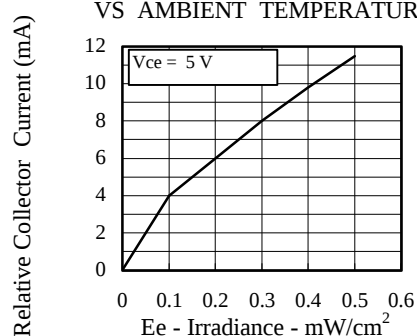
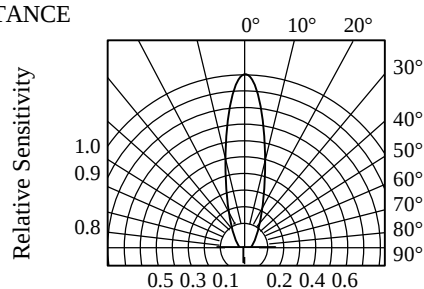
FIG.1 COLLECTOR DARK CURRENT  
VS AMBIENT TEMPERATUREFIG.2 NORMALIZED COLLECTOR CURRENT  
VS AMBIENT TEMPERATUREFIG.3 RISE AND FALL TIME  
VS LOAD RESISTANCEFIG.4 RELATIVE COLLECTOR CURRENT  
VS IRRADIANCE

FIG.5 SENSITIVITY DIAGRAM

MID-30422/MID-30A22

