

# T-1 PACKAGE

## NPN PHOTOTRANSISTOR

MID-33H22

### Description

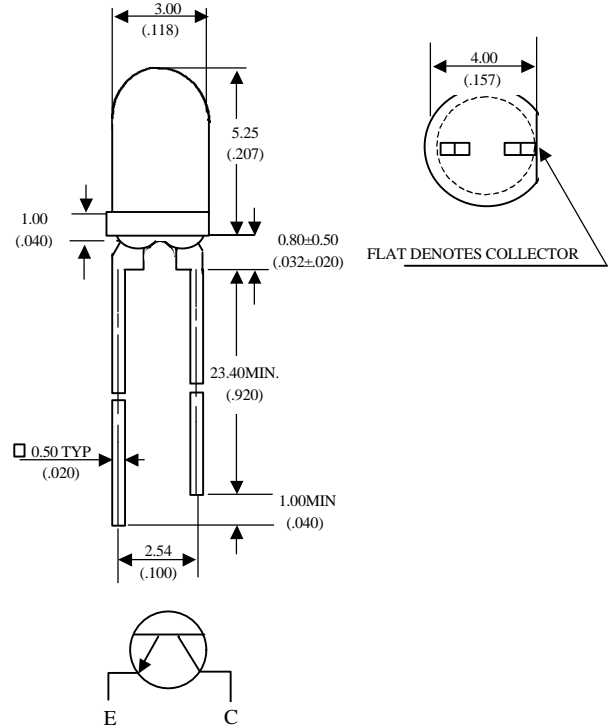
The MID-33H22 is a NPN silicon phototransistor mounted in a lensed, special dark plastic package. The lensing effect of the package allows an acceptance half view angle of 15° that is measured from the optical axis to the half sensitivity point .

### Features

- Wide range of collector current
- Lensed for high sensitivity
- Low cost plastic package
- compatible IRED : 850 nm or above
- Acceptance view angle : 30°

### Package Dimensions

Unit: mm ( inches)



#### Notes :

1. Tolerance is  $\pm 0.25\text{mm}$  (.010") unless otherwise noted .
2. Protruded resin under flange is 0.8 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
Collector-Emitter Voltage	30	V
Emitter-Collector Voltage	5	V
Operating Temperature Range	-55°C to +100°C	
Storage Temperature Range	-55°C to +100°C	
Lead Soldering Temperature	260°C for 5 seconds	

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Unity Opto Technology Co., Ltd.

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## Optical-Electrical Characteristics

@ T<sub>A</sub>=25°C

Parameter	Test Conditions	Symbol	Min.	Typ .	Max.	Unit
Collector-Emitter Breakdown Voltage	I <sub>c</sub> =0.1mA Ee=0	V <sub>(BR)CEO</sub>	30			V
Emitter-Collector Breakdown Voltage	Ie=0.1mA Ee=0	V <sub>(BR)ECO</sub>	5			V
Collector-Emitter Saturation Voltage	I <sub>c</sub> =0.5mA, λ=850nm Ee=0.1mW/cm <sup>2</sup>	V <sub>CE(SAT)</sub>			0.4	V
Rise Time	V <sub>CC</sub> =5V, R <sub>L</sub> =1KΩ	Tr		15		μS
Fall Time	I <sub>C</sub> =1mA	Tf		15		
Collector Dark Current	V <sub>CE</sub> =10V Ee=0	I <sub>CEO</sub>			100	nA
On State Collector Current	V <sub>CE</sub> =5V, λ=850nm Ee=0.1mW/cm <sup>2</sup>	I <sub>C(ON)</sub>		2		mA

## Typical Optical-Electrical Characteristic Curves

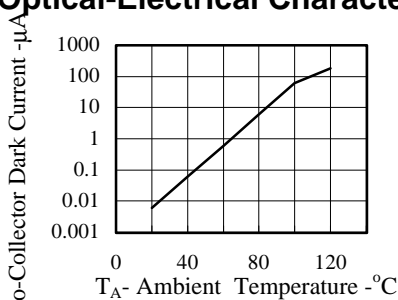


FIG.1 COLLECTOR DARK CURRENT VS AMBIENT TEMPERATURE

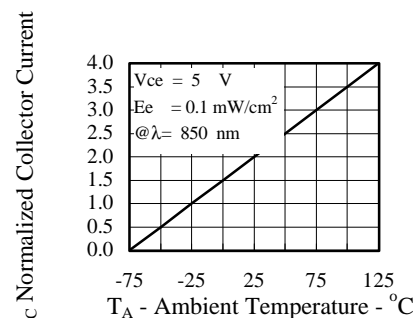


FIG.2 NORMALIZED COLLECTOR CURRENT VS AMBIENT TEMPERATURE

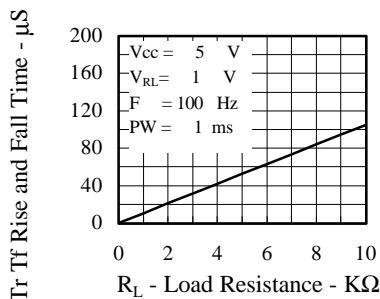


FIG.3 RISE AND FALL TIME VS LOAD RESISTANCE

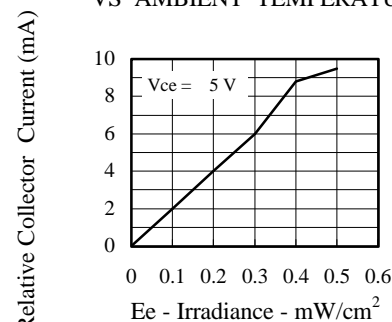


FIG.4 RELATIVE COLLECTOR CURRENT VS IRRADIANCE

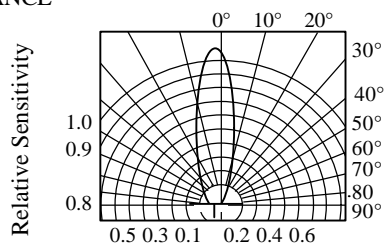


FIG.5 SENSITIVITY DIAGRAM