

# T-1 3/4 PACKAGE NPN PHOTOTRANSISTOR

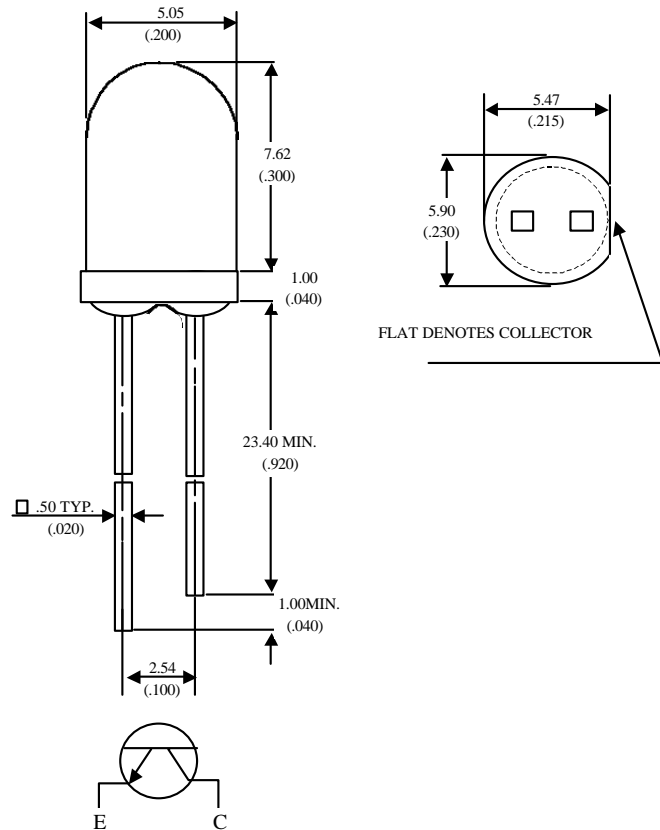
**MID-54H22**

## Description

The MID-54H22 is a NPN silicon phototransistor mounted in a lensed, special dark plastic package. The lensing effect of the package allows an acceptance view angle of 40° so that the product performs a high directional characteristic.

## Package Dimensions

Unit: mm ( inches )



## Features

- Wide range of collector current
- Lensed for high sensitivity
- Standard T-13/4 (5mm) package .
- Acceptance viwe angle : 40°
- Low cost plastic package
- Good spectral matching IRED ( $\lambda_p$  880/850 nm) type

Notes :

- 1.Tolerance is  $\pm 0.25$  mm (.010" ) unless otherwise noted.
- 2.Protruded resin under flange is 1.0 mm (.040") 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	150	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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## 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 E <sub>e</sub> =0	V <sub>(BR)CEO</sub>	30			V
Emitter-Collector Breakdown Voltage	I <sub>e</sub> =0.1mA E <sub>e</sub> =0	V <sub>(BR)ECO</sub>	5			V
Collector-Emitter Saturation Voltage	I <sub>c</sub> =0.5mA E <sub>e</sub> =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 E <sub>e</sub> =0	I <sub>CEO</sub>			100	nA
On State Collector Current	V <sub>CE</sub> =5V, λ=850nm E <sub>e</sub> =0.1mW/cm <sup>2</sup>	I <sub>C(ON)</sub>		0.8		mA

## Typical Optical-Electrical Characteristic Curves

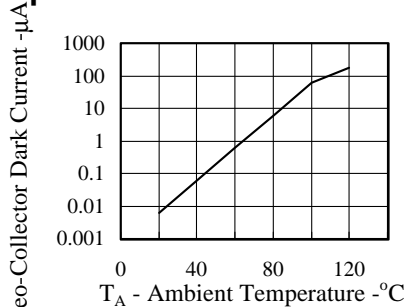


FIG.1 COLLECTOR DARK CURRENT VS AMBIENT TEMPERATURE

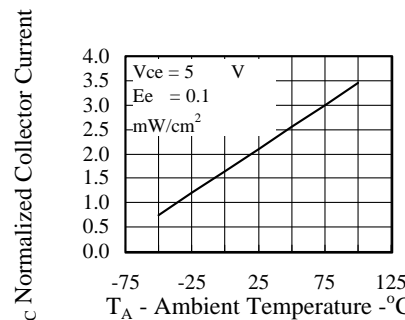


FIG.2 NORMALIZED COLLECTOR CURRENT VS AMBIENT TEMPERATURE

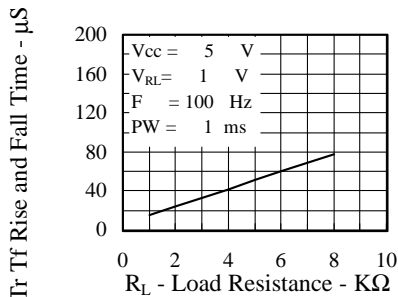


FIG.3 RISE AND FALL TIME VS LOAD RESISTANCE

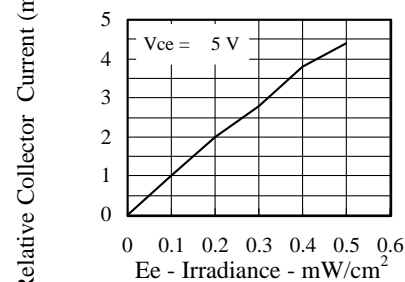


FIG.4 RELATIVE COLLECTOR CURRENT VS IRRADIANCE

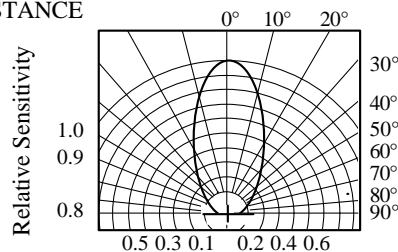


FIG.5 SENSITIVITY DIAGRAM