



## ZPT054B

### 5mm Infrared LED



### Descriptions

The ZPT054B is a high speed and high sensitive NPN silicon phototransistor molded in a standard  $\phi 5$  mm package. Due to its black epoxy the device is sensitive to visible and near infrared radiation.

### Features

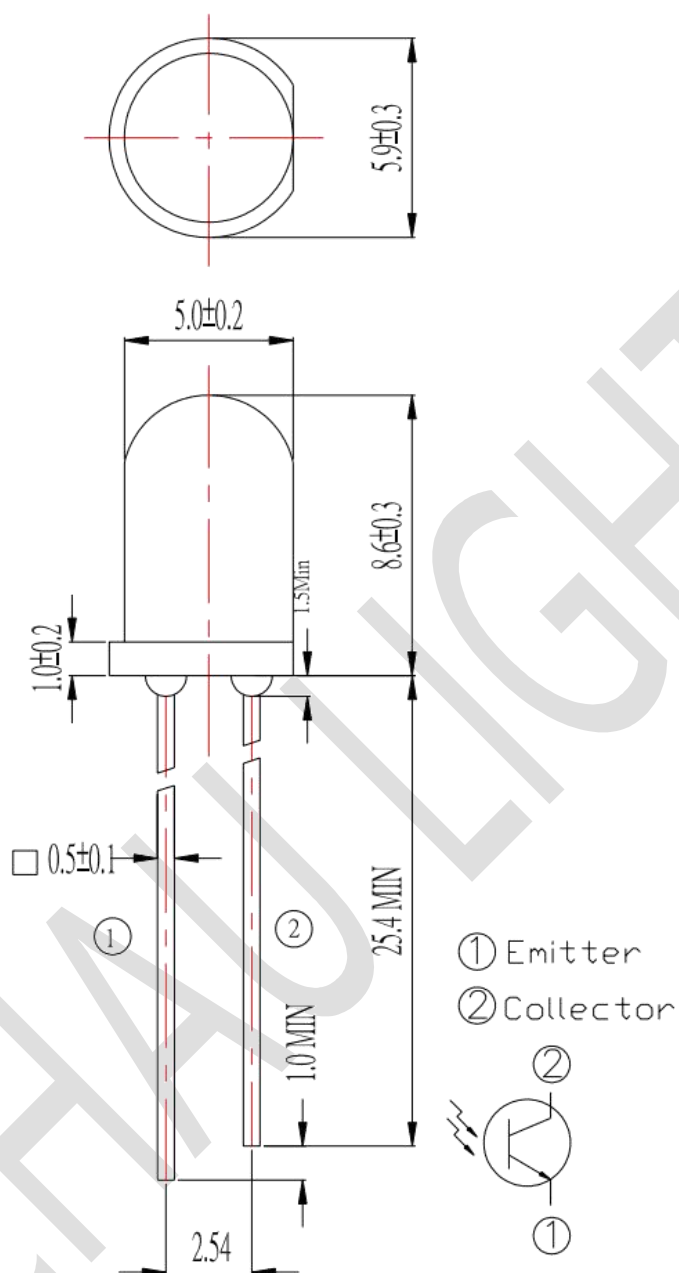
- Fast response time
- High photo sensitivity
- Pb.Free
- This product itself will remain within RoHS compliant version.

### Applications

- Infrared applied system
- Optoelectronic switch
- Copiers
- Scanners
- Amusement machines



### Package Dimension



#### Notes:

1. All dimensions are in millimeters
2. Tolerances unless dimensions  $\pm 0.3 \text{ mm}$
3. Lead spacing is measured where the lead emerge from the package



### Absolute Maximum Ratings

Parameter (Ta=25°C)	Symbol	Ratings	Unit
Power Dissipation at(or below) 25 Free Air Temperature	Pd	75	mW
Collector-Emitter Voltage	V <sub>CEO</sub>	30	V
Emitter-Collector-Voltage	V <sub>ECO</sub>	5	V
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-40~+100	°C
Lead Soldering Temperature (2mm form body for 5 seconds)	Tsol	260	°C

### Electro-Optical Characteristics

Paramete (Ta=25°C)	Symbol	Condition	Min.	Typ.	Max.	Units
Collector – Emitter Breakdown Voltage	BV <sub>CEO</sub>	I <sub>C</sub> =100μA Ee=0mW/cm <sup>2</sup>	30	--	--	V
Emitter-Collector Breakdown Voltage	BV <sub>ECO</sub>	I <sub>C</sub> =100μA Ee=0mW/cm <sup>2</sup>	5	--	--	V
Collector-Emitter Saturation Voltage	V <sub>CE(sat)</sub>	I <sub>C</sub> =100μA Ee=0mW/cm <sup>2</sup>	--	--	0.4	V
Rise Time	t <sub>r</sub>	V <sub>CE</sub> =5V I <sub>C</sub> =1mA R <sub>L</sub> =1000Ω	--	15	--	μS
Fall Time	t <sub>f</sub>	V <sub>CE</sub> =5V I <sub>C</sub> =1mA R <sub>L</sub> =1000Ω	--	15	--	μS
Collector Dark Current	I <sub>CEO</sub>	Ee=0mW/cm <sup>2</sup> V <sub>CE</sub> =20V	--	--	100	nA
On State Collector Current	I <sub>C(ON)</sub>	Ee=0.555mW/cm <sup>2</sup> V <sub>CE</sub> =5V	0.7	--	--	mA
Rang Of Spectral Bandwidth	λ <sub>0.5</sub>	--	760	--	1100	nm
Wavelength of Peak Sensitivity	λ <sub>P</sub>	--	--	940	--	nm



### Rank

Parameter	Symbol	Condition	Min.	Max.	Unit
G	$I_{c(ON)}$	$E_e=1\text{mW/cm}^2, V_{CE}=5\text{V}$	0.70	1.90	mA
H	$I_{c(ON)}$	$E_e=1\text{mW/cm}^2, V_{CE}=5\text{V}$	1.14	2.60	mA
J	$I_{c(ON)}$	$E_e=1\text{mW/cm}^2, V_{CE}=5\text{V}$	1.77	3.61	mA
K	$I_{c(ON)}$	$E_e=1\text{mW/cm}^2, V_{CE}=5\text{V}$	2.67	5.07	mA
L	$I_{c(ON)}$	$E_e=1\text{mW/cm}^2, V_{CE}=5\text{V}$	4.18	7.07	mA

Note:

\*Measurement Uncertainty of Forward Voltage:  $\pm 0.1\text{V}$

\*Measurement Uncertainty of Photographic Intensity:  $\pm 10\%$

\*Measurement Uncertainty of Dominant Wavelength  $\pm 1.0\text{nm}$



### Typical Electrical/Optical/Characteristics Curves

Fig.1 Collector Power Dissipation vs.

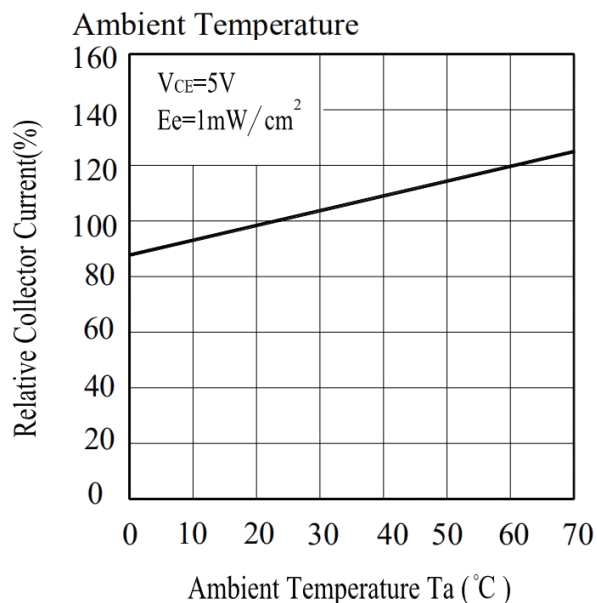


Fig.2 Spectral Sensitivity

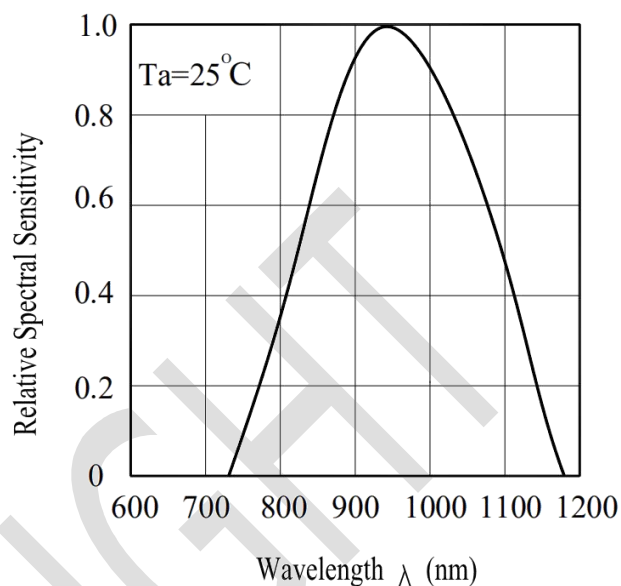


Fig.3 Relative Collector Current vs.  
Ambient Temperature

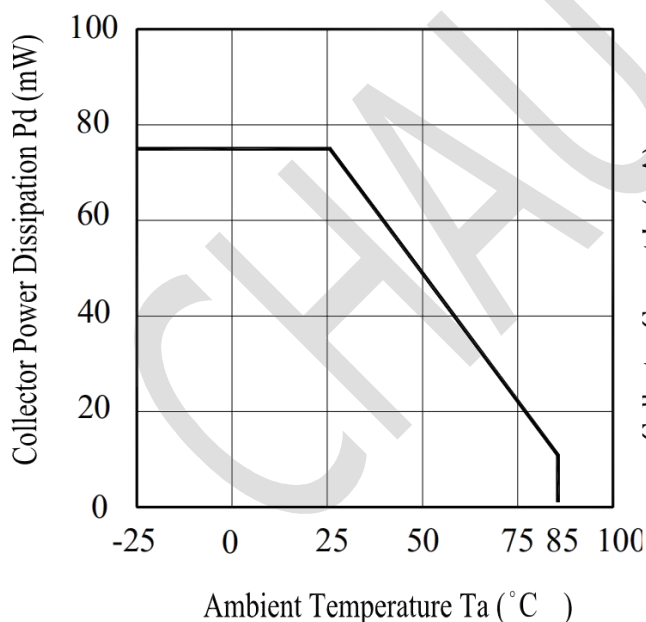


Fig.4 Collector Current vs.  
Irradiance

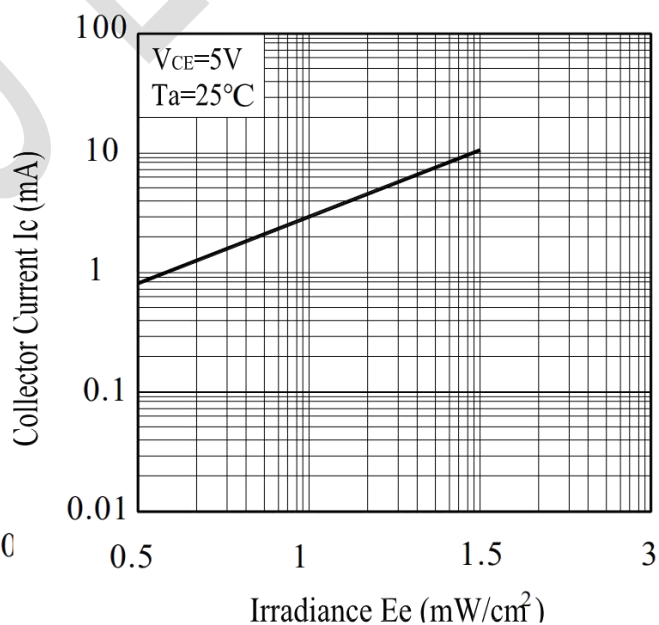




Fig.5 Collector Dark Current vs.  
Ambient Temperature

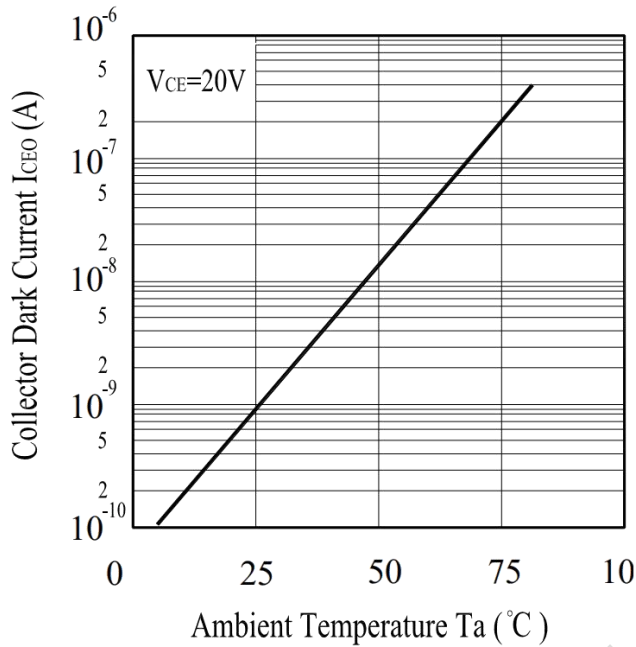
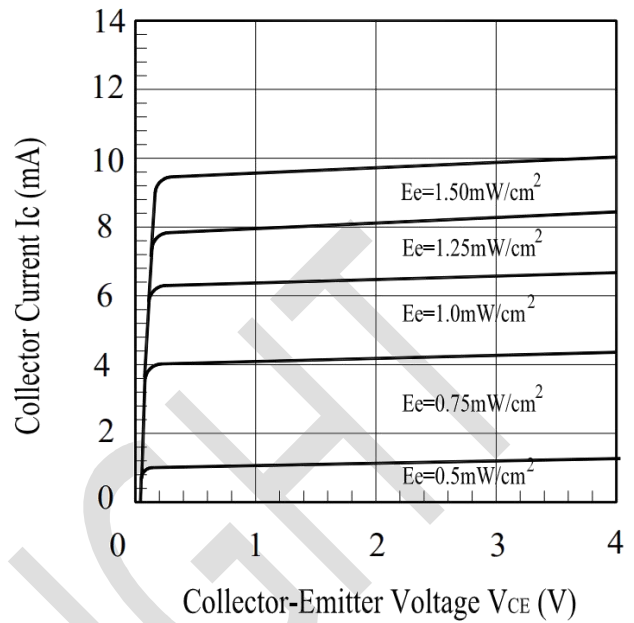


Fig.6 Collector Current vs.  
Collector-Emitter Voltage





### Packing Quantity Specification

1. 500PCS/1Bag, 5Bags/1Box
2. 10Boxes/1Carton

### Notes

1. Above specification may be changed without notice. CHAU LIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instruction for using outlined in these specification sheets. CHAU LIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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