

## AM4457P3C-F-R Phototransistor

### DESCRIPTION

- Made with NPN silicon phototransistor chips

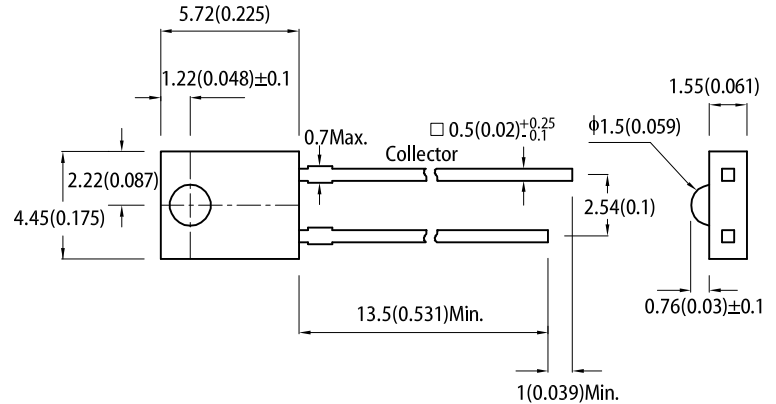
### FEATURES

- Mechanically and spectrally matched to infrared emitting LED lamp
- Halogen-free
- Water clear lens
- RoHS compliant

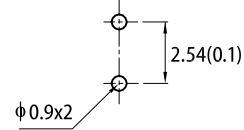
### APPLICATIONS

- Infrared applied systems
- Optoelectronic switches
- Photodetector control circuits
- Sensor technology

### PACKAGE DIMENSIONS



Recommended PCB Layout



**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

### ABSOLUTE MAXIMUM RATINGS at $T_A=25^\circ\text{C}$

Parameter	Max.Ratings	Units
Collector-to-Emitter Voltage	30	V
Emitter-to-Collector Voltage	5	V
Power Dissipation at (or below) $25^\circ\text{C}$ Free Air Temperature	100	mW
Operating Temperature	-40 to +85	$^\circ\text{C}$
Storage Temperature	-40 to +85	$^\circ\text{C}$
Lead Soldering Temperature(>5mm for 5sec)	260	$^\circ\text{C}$

**Note:**

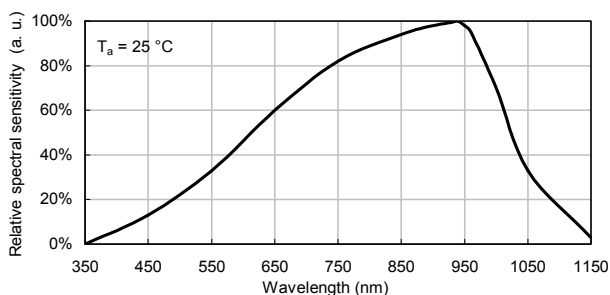
1. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

### ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ\text{C}$

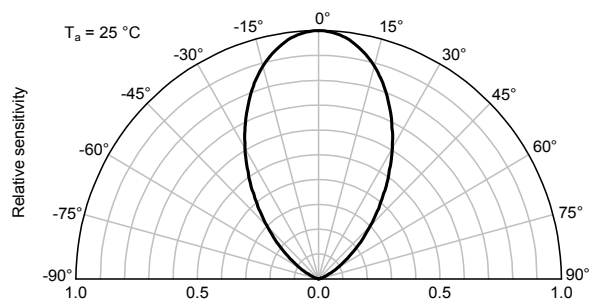
Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Collector-to-Emitter Breakdown Voltage	$V_{BR\ CE0}$	30	-	-	V	$I_C = 100\mu\text{A}$ $E_e = 0\text{mW}/\text{cm}^2$
Emitter-to-Collector Breakdown Voltage	$V_{BR\ ECO}$	5	-	-	V	$I_E = 100\mu\text{A}$ $E_e = 0\text{mW}/\text{cm}^2$
Collector-to-Emitter Saturation Voltage	$V_{CE(SAT)}$	-	-	0.8	V	$I_C = 2\text{mA}$ $E_e = 20\text{mW}/\text{cm}^2$
Collector Dark Current	$I_{CEO}$	-	-	100	nA	$V_{CE} = 10\text{V}$ $E_e = 0\text{mW}/\text{cm}^2$
Rise Time(10% to 90%)	$T_R$	-	15	-	$\mu\text{S}$	$V_{CE} = 5\text{V}$ $I_C = 1\text{mA}$ $R_L = 1000\Omega$
Fall Time(90% to 10%)	$T_F$	-	15	-	$\mu\text{S}$	
On State Collector Current	$I_{(ON)}$	0.35	0.8	-	mA	$V_{CE} = 5\text{V}$ $E_e = 1\text{mW}/\text{cm}^2$ $\lambda = 940\text{nm}$
Range of spectral bandwidth	$\lambda_{0.1}$	420	-	1120	nm	-
Wavelength of peak sensitivity	$\lambda_p$	-	940	-	nm	-
Angle of half sensitivity	$2\theta_{1/2}$	-	70	-	deg	-

### TECHNICAL DATA

#### RELATIVE SPECTRAL SENSITIVITY vs. WAVELENGTH

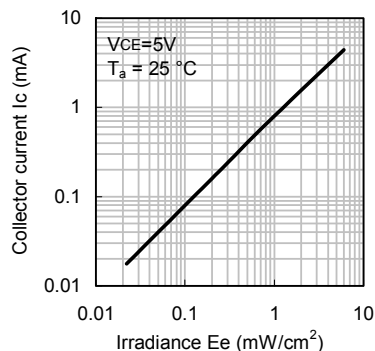


#### RELATIVE RADIANT SENSITIVITY vs. ANGULAR DISPLACEMENT

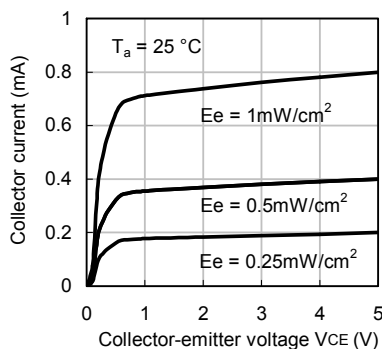


### PHOTOTRANSISTOR

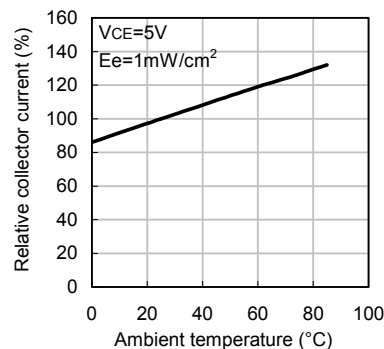
Collector Current vs. Irradiance



Collector Current vs. Collector-Emitter Voltage



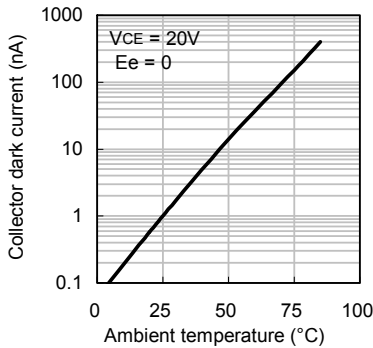
Relative Collector Current vs. Ambient Temperature



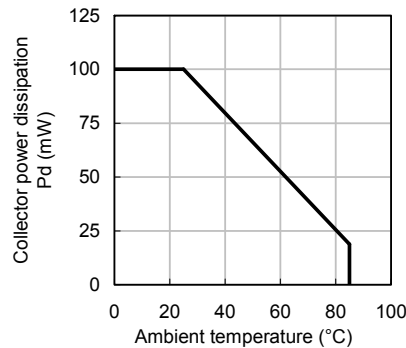
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#### PHOTOTRANSISTOR

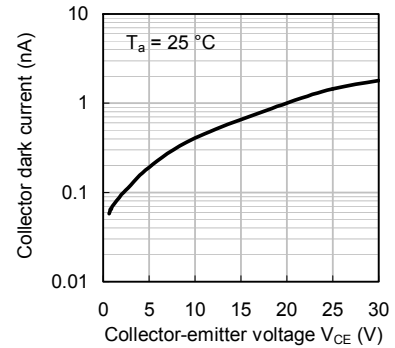
**Collector Dark Current vs. Ambient Temperature**



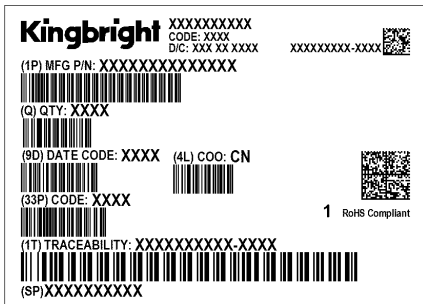
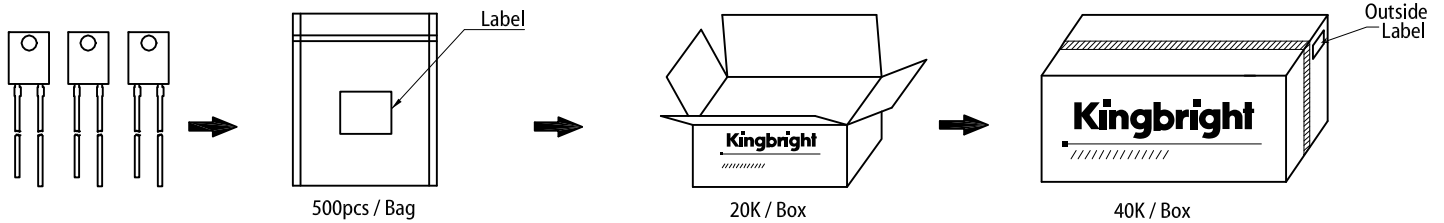
**Collector Power Dissipation vs. Ambient Temperature**



**Collector Dark Current vs. Collector-Emitter Voltage**



### PACKING & LABEL SPECIFICATIONS



### PRECAUTIONARY NOTES

- The information included in this document reflects representative usage scenarios and is intended for technical reference only.
- The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
- When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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