

APTR3216P3BT Phototransistor

DESCRIPTION

- Made with NPN silicon phototransistor chips

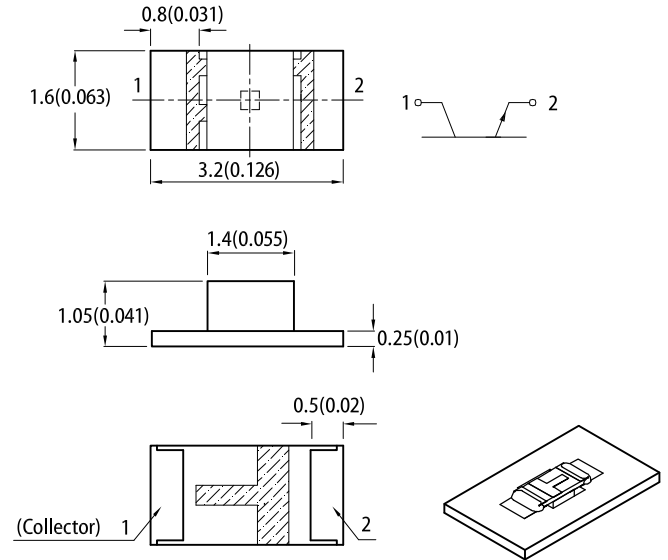
FEATURES

- 3.2 mm x 1.6 mm SMD LED, 1.05 mm thickness
- Mechanically and spectrally matched to the infrared emitting LED lamp
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
- Black diffused lens
- RoHS compliant

APPLICATIONS

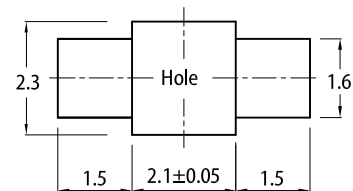
- Infrared applied systems
- Optoelectronic switches
- Photodetector control circuits
- Sensor technology

PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.2(0.008)$ unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

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°C Free Air Temperature	100	mW
Operating Temperature	-40 to +85	°C
Storage Temperature	-40 to +85	°C

Note:

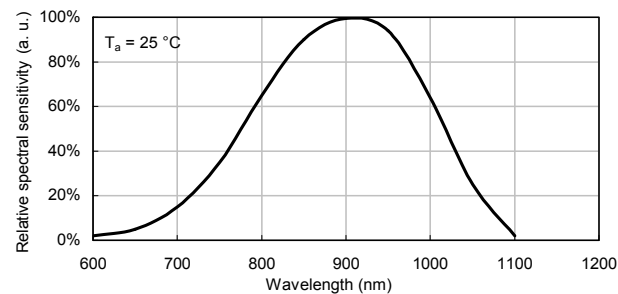
1. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

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

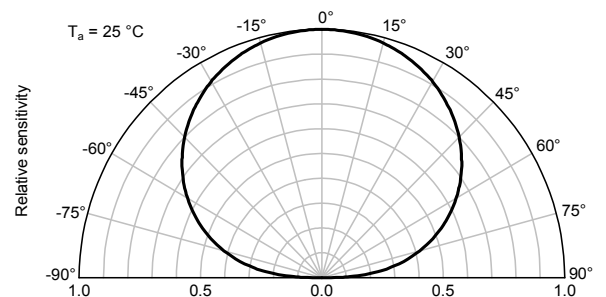
Parameter	Symbol	Min.	Typ.	Max.	Units	Test Conditions
Collector-to-Emitter Breakdown Voltage	$V_{BR\ CE0}$	30	-	-	V	$I_C = 100\mu\text{A}$ $E_e = 0\text{mW/cm}^2$
Emitter-to-Collector Breakdown Voltage	$V_{BR\ ECO}$	5	-	-	V	$I_E = 100\mu\text{A}$ $E_e = 0\text{mW/cm}^2$
Collector-to-Emitter Saturation Voltage	$V_{CE(SAT)}$	-	-	0.8	V	$I_C = 2\text{mA}$ $E_e = 20\text{mW/cm}^2$
Collector Dark Current	I_{CEO}	-	-	100	nA	$V_{CE} = 10\text{V}$ $E_e = 0\text{mW/cm}^2$
Rise Time(10% to 90%)	T_R	-	15	-	μS	$V_{CE} = 5\text{V}$ $I_C = 1\text{mA}$ $R_L = 1000\Omega$
Fall Time(90% to 10%)	T_F	-	15	-	μS	
On State Collector Current	$I_{(ON)}$	0.1	0.3	-	mA	$V_{CE} = 5\text{V}$ $E_e = 1\text{mW/cm}^2$ $\lambda = 940\text{nm}$
Range of spectral bandwidth	$\lambda_{0.1}$	670	-	1070	nm	-
Wavelength of peak sensitivity	λ_p	-	940	-	nm	-
Angle of half sensitivity	$2\theta_{1/2}$	-	140	-	deg	-

TECHNICAL DATA

RELATIVE SPECTRAL SENSITIVITY vs. WAVELENGTH



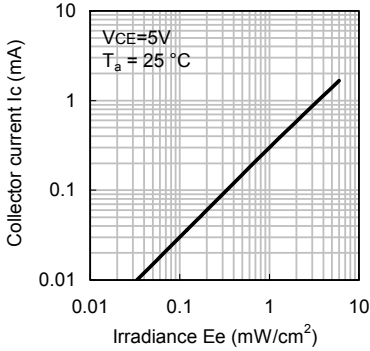
RELATIVE RADIANT SENSITIVITY vs. ANGULAR DISPLACEMENT



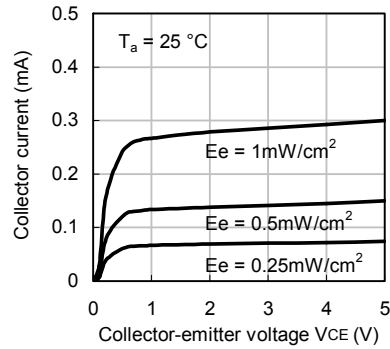
TECHNICAL DATA

PHOTOTRANSISTOR

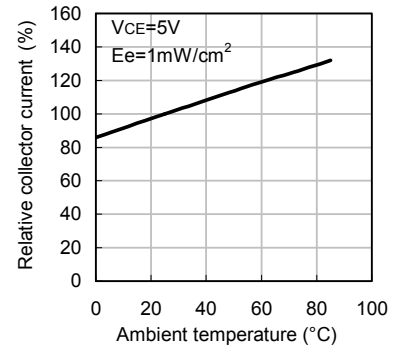
Collector Current vs. Irradiance



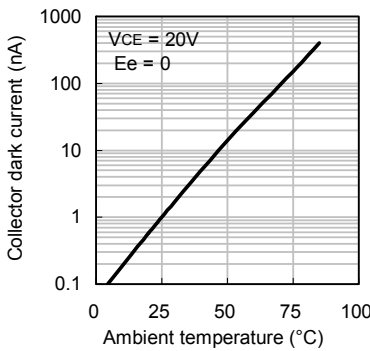
Collector Current vs. Collector-Emitter Voltage



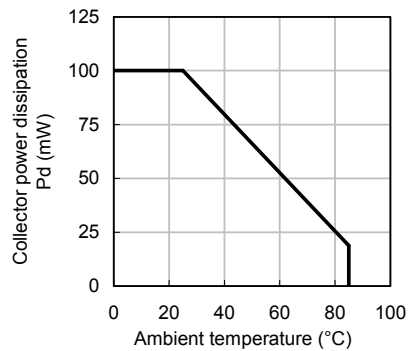
Relative Collector Current vs. Ambient Temperature



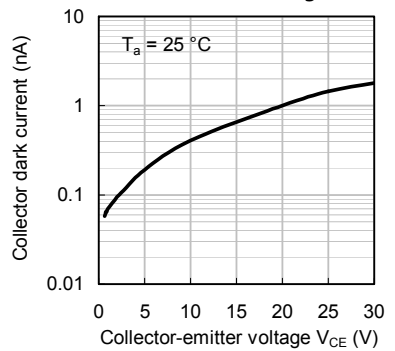
Collector Dark Current vs. Ambient Temperature



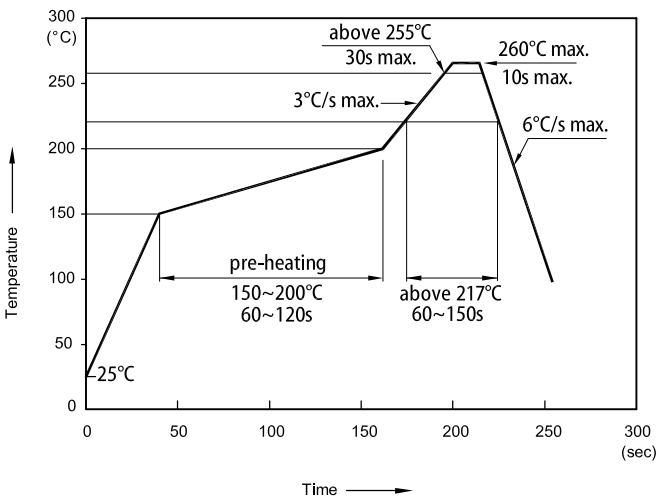
Collector Power Dissipation vs. Ambient Temperature



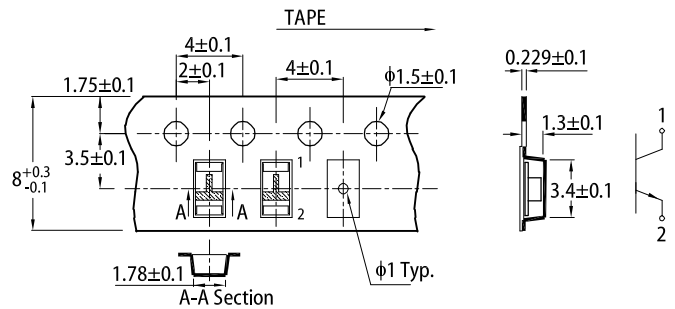
Collector Dark Current vs. Collector-Emitter Voltage



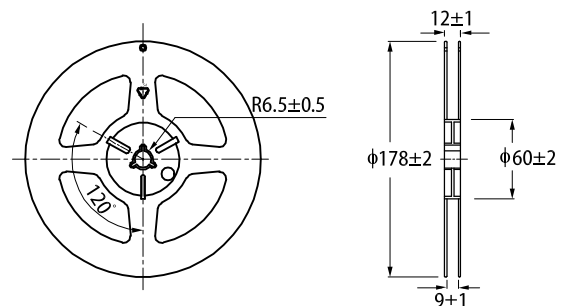
REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS



TAPE SPECIFICATIONS (units : mm)



REEL DIMENSION (units : mm)



- Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
 2. The maximum number of reflow soldering passes is 2 times.
 3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.