

Part Number: APT2012P3BT

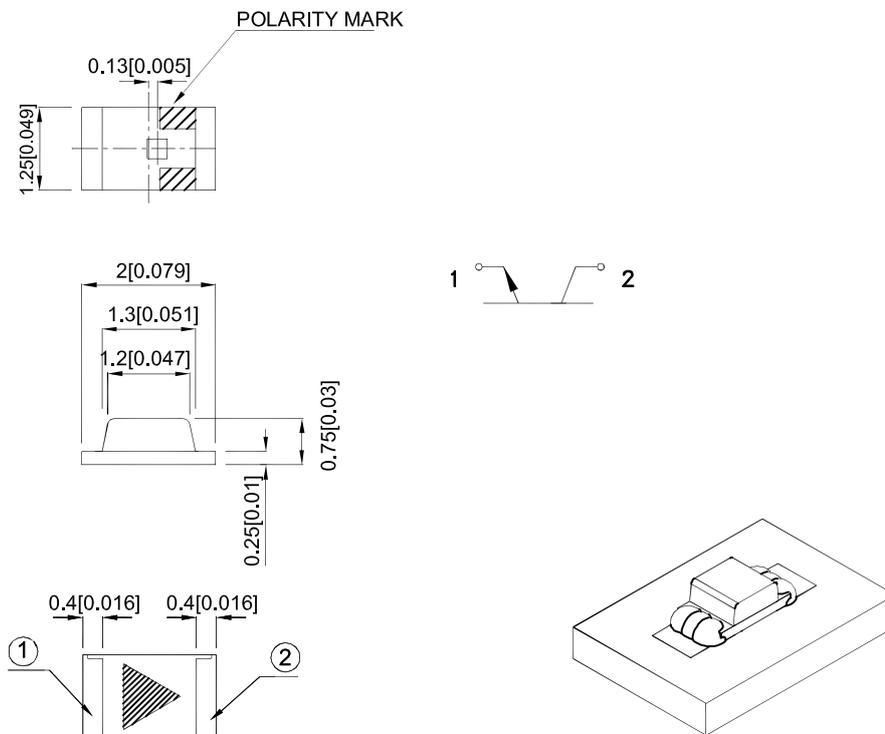
### Features

- 2.0mmx1.25mm SMD LED,0.75mm thickness.
- Mechanically and spectrally matched to infrared emitting LED lamp.
- Package: 2000pcs / reel .
- Blue transparent lens.
- Moisture sensitivity level : level 3.
- RoHS compliant.

### Description

Made with NPN silicon phototransistor chips.

### Package Dimensions



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.1(0.004)$  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.



## Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Min.	Typ.	Max.	Units	Test Conditions
V <sub>BR CEO</sub>	Collector-to-Emitter Breakdown Voltage	30			V	I <sub>C</sub> =100uA E <sub>e</sub> =0mW/cm <sup>2</sup>
V <sub>BR ECO</sub>	Emitter-to-Collector Breakdown Voltage	5			V	I <sub>E</sub> =100uA E <sub>e</sub> =0mW/cm <sup>2</sup>
V <sub>CE (SAT)</sub>	Collector-to-Emitter Saturation Voltage			0.8	V	I <sub>C</sub> =2mA E <sub>e</sub> =20mW/cm <sup>2</sup>
I <sub>CEO</sub>	Collector Dark Current			100	nA	V <sub>CE</sub> =10V E <sub>e</sub> =0mW/cm <sup>2</sup>
T <sub>R</sub>	Rise Time (10% to 90%)		15		us	V <sub>CE</sub> = 5V I <sub>C</sub> =1mA R <sub>L</sub> =1000Ω
T <sub>F</sub>	Fall Time (90% to 10%)		15		us	
I <sub>(ON)</sub>	On State Collector Current	0.1	0.3		mA	V <sub>CE</sub> = 5V E <sub>e</sub> =1mW/cm <sup>2</sup> λ=940nm
λ <sub>0.1</sub>	Range of spectral bandwidth	670		1070	nm	
λ <sub>p</sub>	Wavelength of peak sensitivity		940		nm	
2θ <sub>1/2</sub>	Angle of half sensitivity		160		deg	

## Absolute Maximum Ratings at TA=25°C

Parameter	Max.Ratings
Collector-to-Emitter Voltage	30V
Emitter-to-Collector Voltage	5V
Power Dissipation at (or below) 25°C Free Air Temperature	100mW
Operating Temperature	-40°C To +85°C
Storage Temperature	-40°C To +85°C

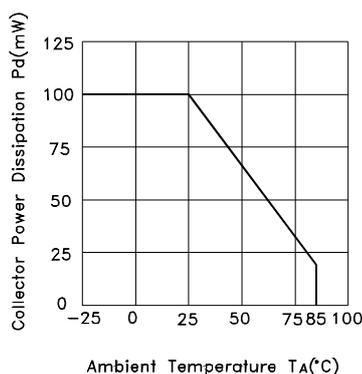
Note:

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.

## APT2012P3BT

Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature



Spectral Sensitivity

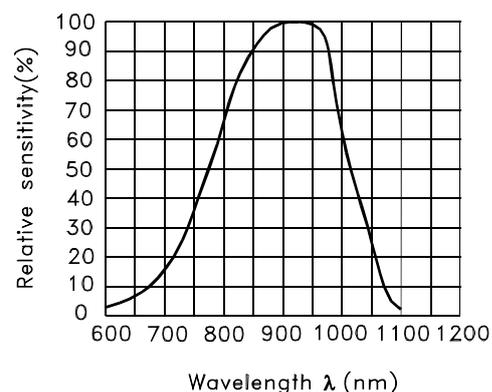


Fig.3 Relative Collector Current vs. Ambient Temperature

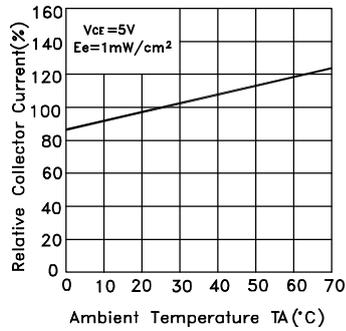


Fig.4 Collector Current vs. Irradiance  
 $I_c=f(E_e), V_{ce}=5V, T_a=25^\circ C$

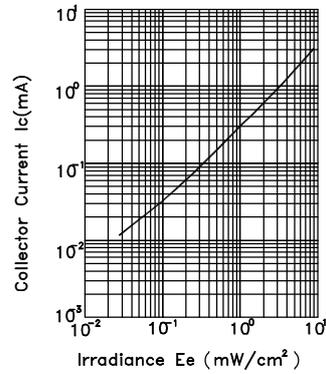


Fig.5 Collector Dark Current vs. Ambient Temperature

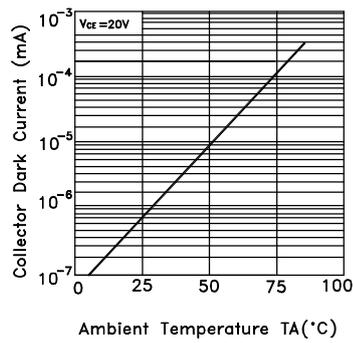


Fig.6 Collector Current vs. Collector-Emitter Voltage

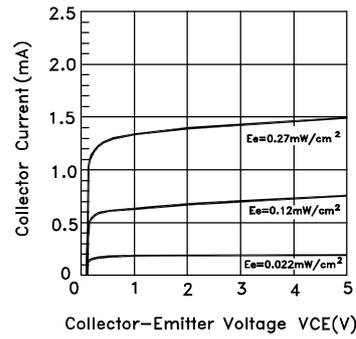
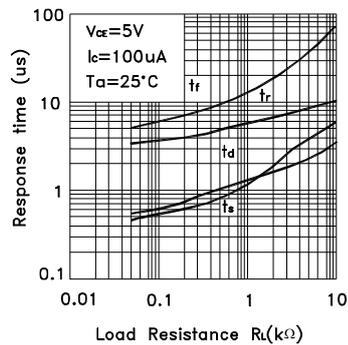
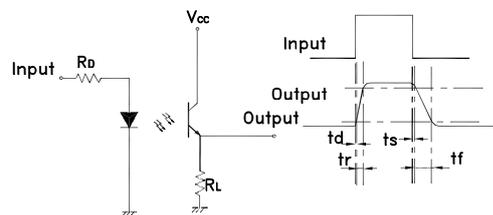


Fig.7 Response Time vs. Load Resistance



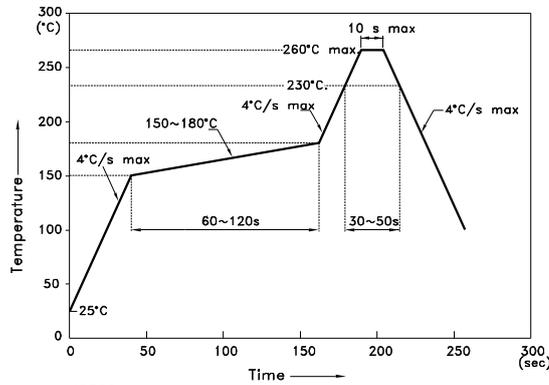
Test Circuit for Response Time



## APT2012P3BT

Reflow soldering is recommended and the soldering profile is shown below.  
Other soldering methods are not recommended as they might cause damage to the product.

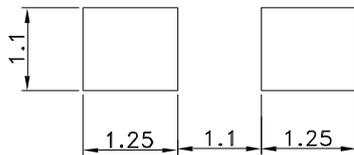
Reflow Soldering Profile For Lead-free SMT Process.



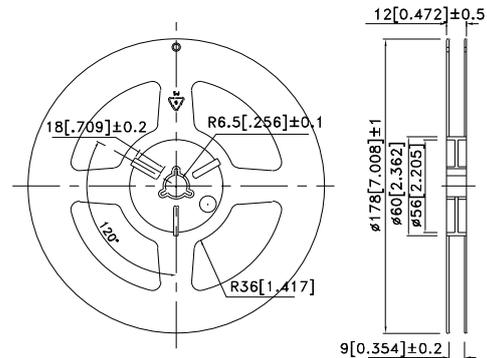
NOTES:

1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

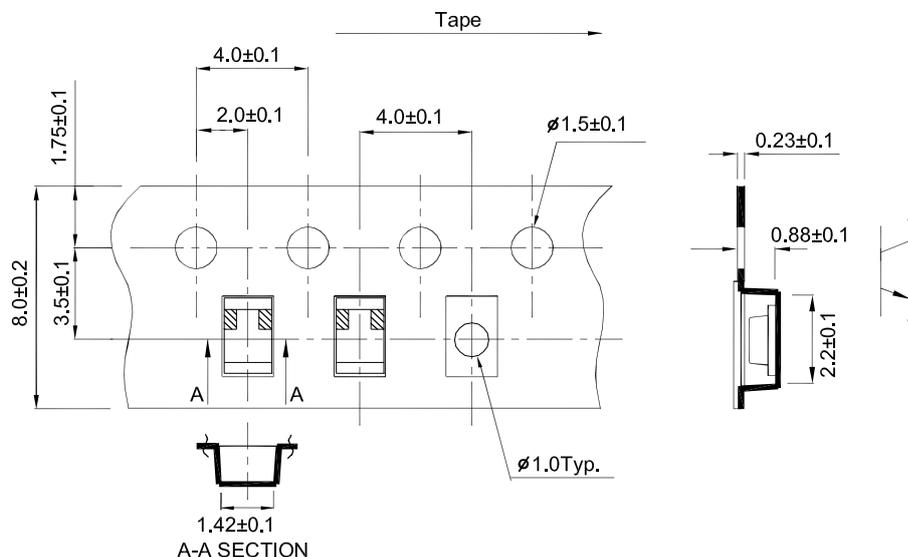
### Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)



### Reel Dimension

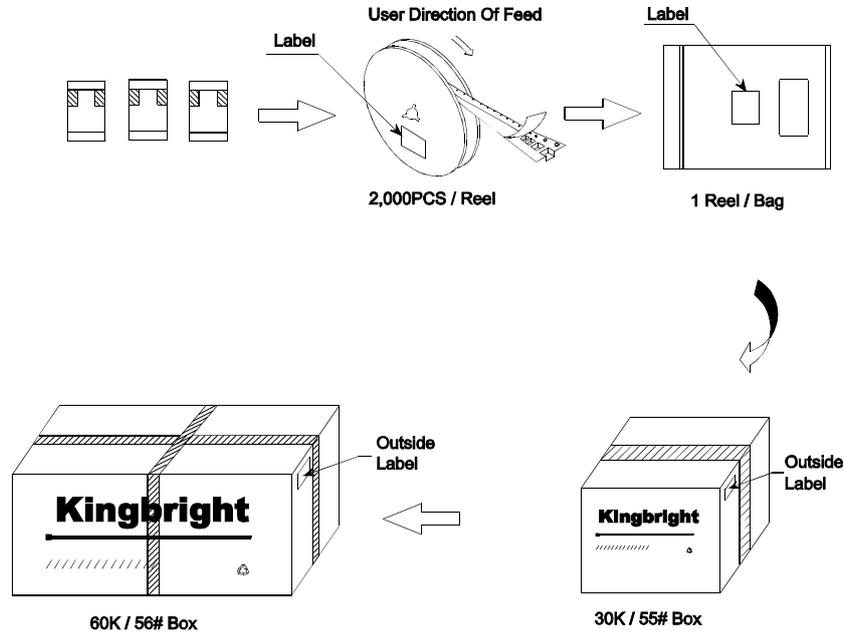


### Tape Specifications (Units : mm)



## PACKING & LABEL SPECIFICATIONS

## APT2012P3BT



<b>Kingbright</b>			
P/NO: APT2012xxx			
QTY: 2,000 PCS	Q.C.		
S/N: XXXX	<table border="1"> <tr> <td style="text-align: center;">Q.C.</td> </tr> <tr> <td style="text-align: center;">XX XX XXXX PASSED</td> </tr> </table>	Q.C.	XX XX XXXX PASSED
Q.C.			
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CODE: XXX			
LOT NO:			
RoHS Compliant			

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