Kingbright

**2.0x1.25mm PHOTOTRANSISTOR**

Part Number: APT2012P3BT

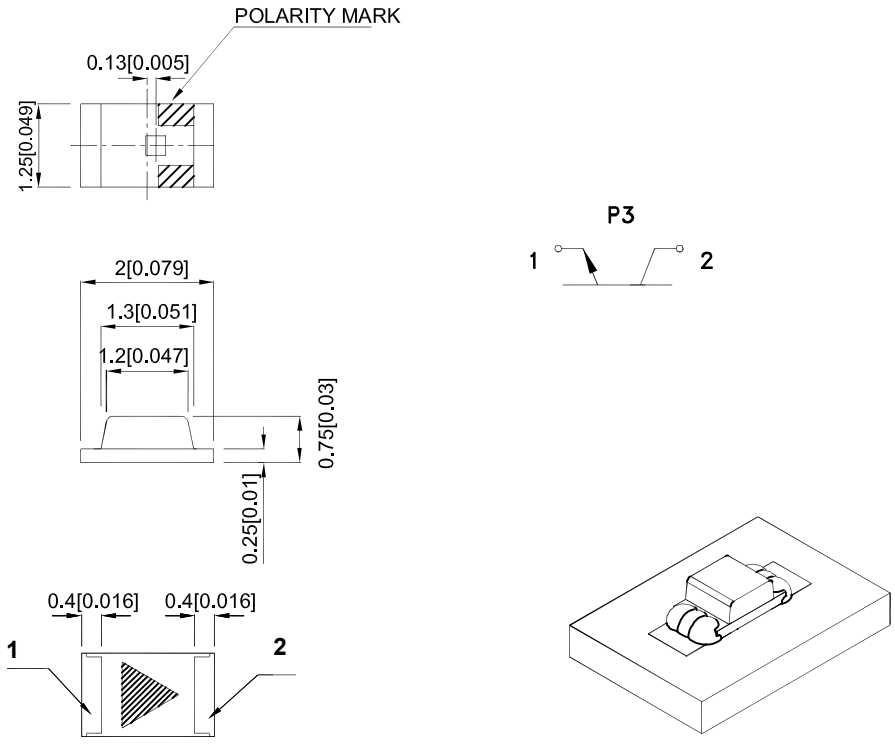
## Features

- 2.0mmx1.25mm SMT 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 ±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 |
|---|---|---|---|---|---|---|
| $V_{BR\ CEO}$ | Collector-to-Emitter Breakdown Voltage | 30 | | | V | $I_C$=100uA Ee=0mW/c㎡ |
| $V_{BR\ ECO}$ | Emitter-to-Collector Breakdown Voltage | 5 | | | V | $I_E$=100uA Ee=0mW/c㎡ |
| $V_{CE\ (SAT)}$ | Collector-to-Emitter Saturation Voltage | | | 0.8 | V | $I_C$=2mA Ee=20mW/c㎡ |
| $I_{CEO}$ | Collector Dark Current | | | 100 | nA | $V_{CE}$=10V Ee=0mW/c㎡ |
| $T_R$ | Rise Time (10% to 90% ) | | 15 | | us | $V_{CE}$ = 5V $I_C$=1mA $R_L$=1000Ω |
| $T_F$ | Fall Time (90% to 10% ) | | 15 | | us | |
| $I_{(ON)}$ | On State Collector Current | 0.1 | 0.3 | | mA | $V_{CE}$ = 5V Ee=1mW/c㎡ λ=940nm |

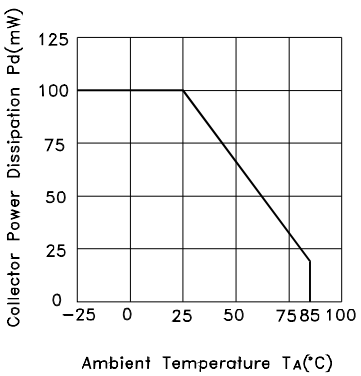
## Absolute Maximum Ratings at TA=25°C

| 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 |

**APT2012P3BT**

Typical Electro-Optical Characteristics Curves

Fig.1 Collector Power Dissipation vs. Ambient Temperature




Spectral Sensitivity

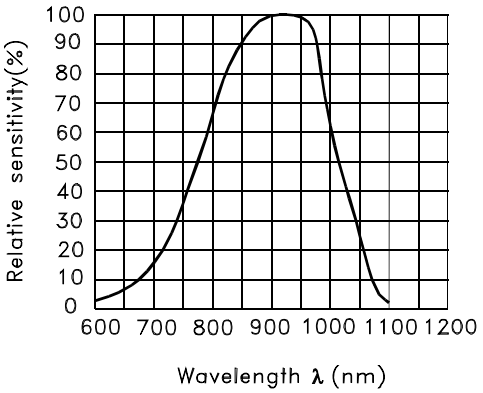


Fig.3 Relative Collector Current vs. Ambient Temperature

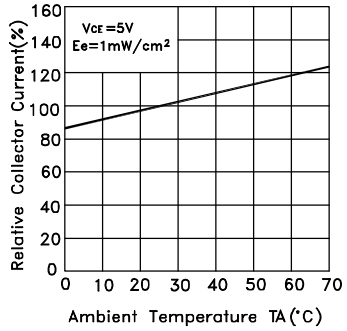



Fig.4 Collector Current vs. Irradiance
Ic=f(Ec),Vce=5V, Ta=25°C

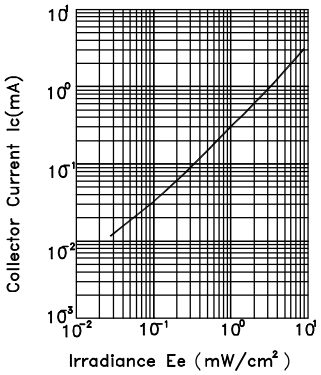



Fig.5 Collector Dark Current vs. Ambient Temperature

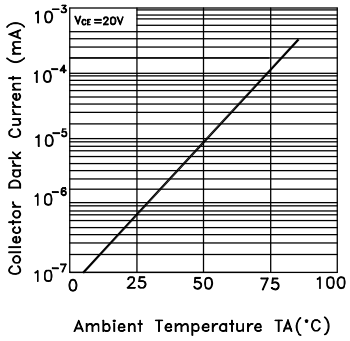



Fig.6 Collector Current vs. Collector-Emitter Voltage

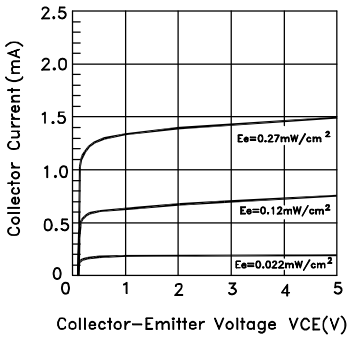
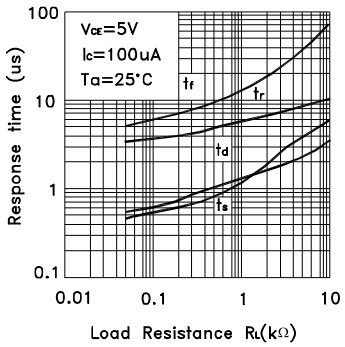
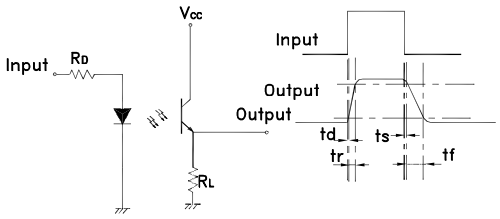



Fig.7 Response Time vs. Load Resistance



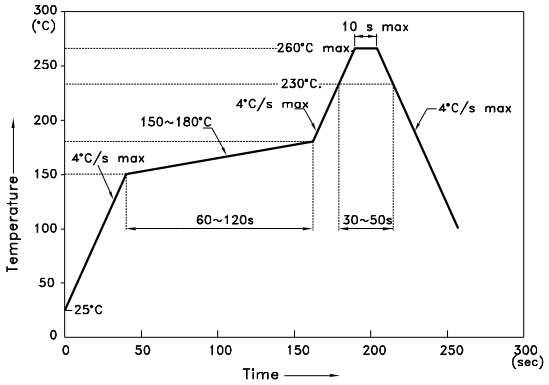

Test Circuit for Response Time



## APT2012P3BT

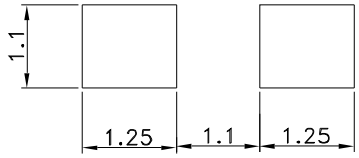
**Reflow soldering is recommended and the soldering profile is shown below.**
**Other soldering methods are not recommended as they might cause damage to the product.**

Reflow Soldering Profile For Lead-free SMT Process.

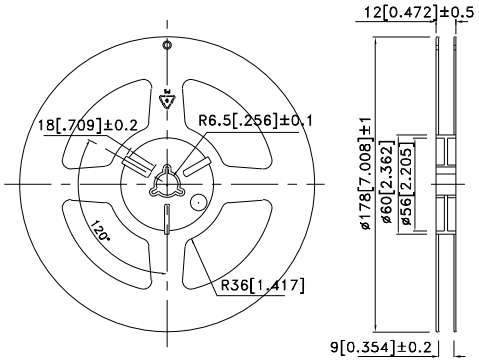



NOTES:
1. We recommend the reflow temperature 245°C(+/-5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

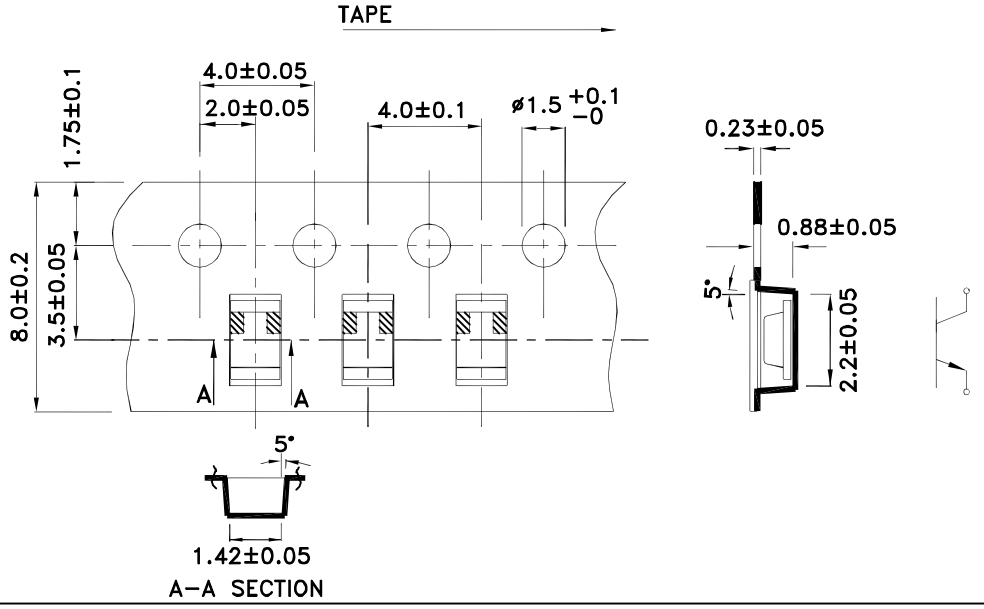
### Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)



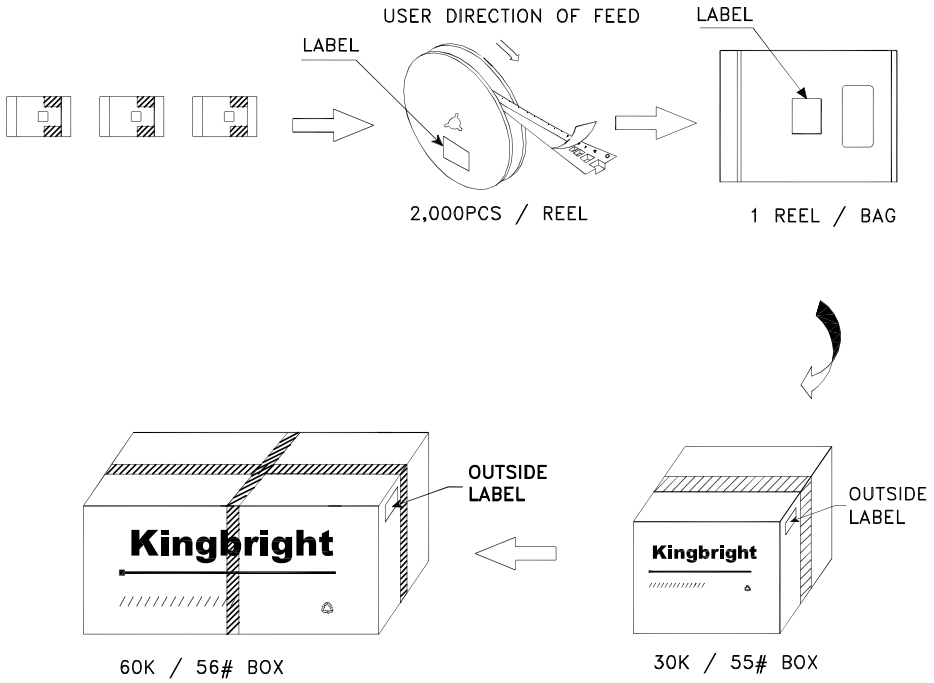

### Reel Dimension

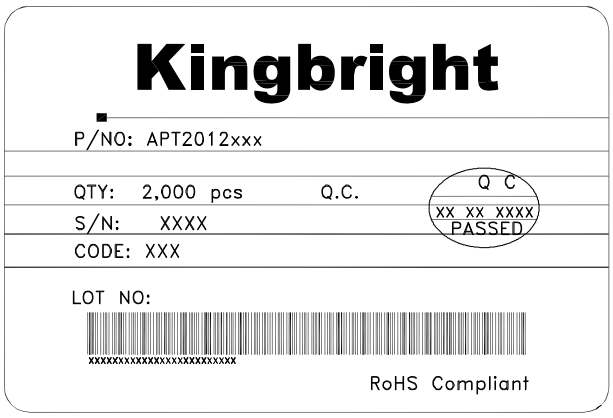



### Tape Specifications (Units : mm)



**PACKING & LABEL SPECIFICATIONS** **APT2012P3BT**




## Terms and conditions for the usage of this document

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. 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.
3. 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.
4. The information in this document applies to typical usage in consumer electronics applications. If customer's application has special reliability requirements or have life-threatening liabilities, such as automotive or medical usage, please consult with Kingbright representative for further assistance.
5. The contents and information of this document may not be reproduced or re-transmitted without permission by Kingbright.
6. All design applications should refer to Kingbright application notes available at http://www.KingbrightUSA.com/ApplicationNotes

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Kingbright:
APT2012P3BT