

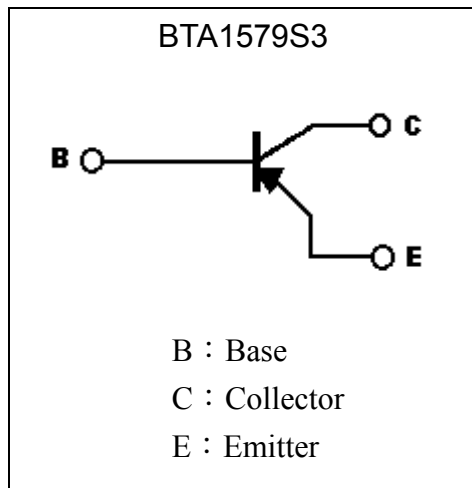
## General Purpose PNP Epitaxial Planar Transistor

# BTA1579S3

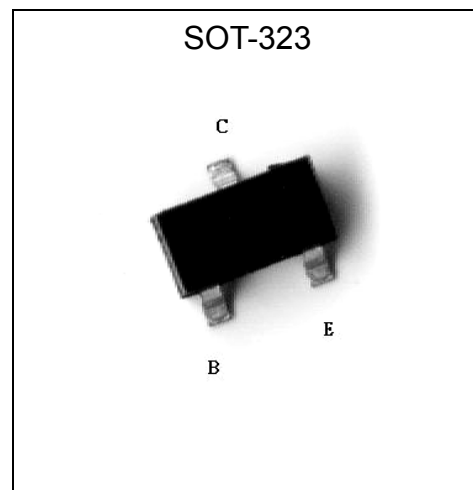
### Description

- The BTP1579S3 is designed for high voltage amplification application.
- High  $BV_{CEO}$ ,  $BV_{CEO} = -160V$
- Complementary to BTC4102S3.
- Pb-free lead plating and halogen-free package

### Symbol

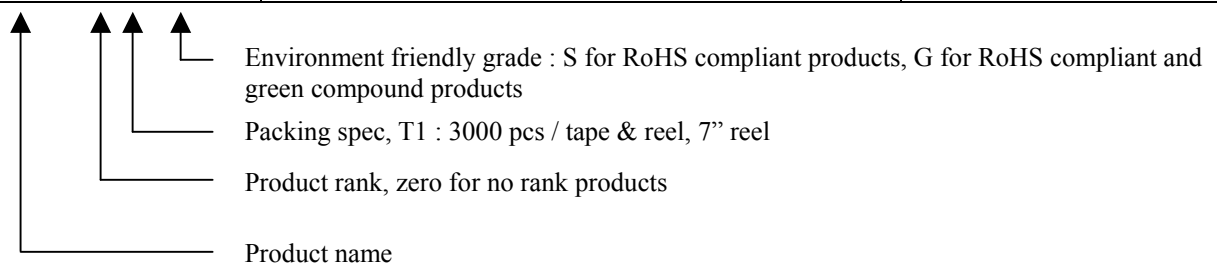


### Outline



### Ordering Information

| Device           | Package                                    | Shipping               |
|------------------|--------------------------------------------|------------------------|
| BTA1579S3-0-T1-G | SOT-323 (Pb-free and halogen-free package) | 3000 pcs / Tape & Reel |



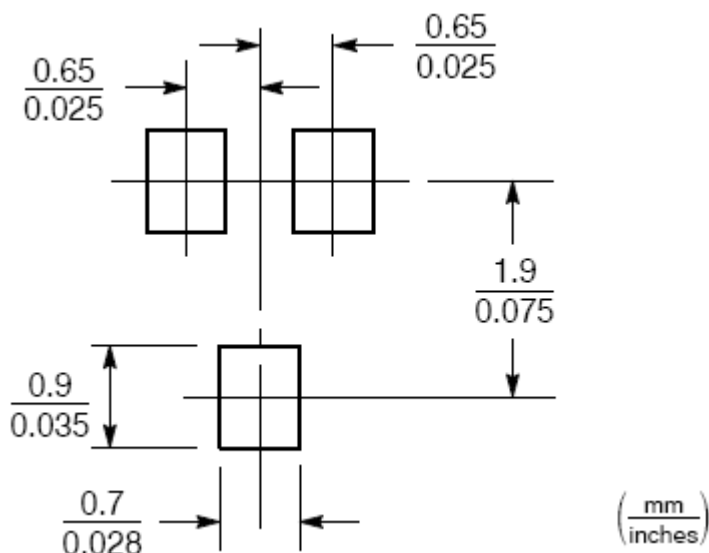
**Absolute Maximum Ratings** (Ta=25°C)

| Parameter                               | Symbol           | Limits   | Unit |
|-----------------------------------------|------------------|----------|------|
| Collector-Base Voltage                  | V <sub>CBO</sub> | -160     | V    |
| Collector-Emitter Voltage               | V <sub>CEO</sub> | -160     | V    |
| Emitter-Base Voltage                    | V <sub>EBO</sub> | -7       | V    |
| Collector Current                       | I <sub>C</sub>   | -50      | mA   |
| Power Dissipation                       | P <sub>D</sub>   | 200      | mW   |
| Thermal Resistance, Junction to Ambient | R <sub>θJA</sub> | 625      | °C/W |
| Junction Temperature                    | T <sub>j</sub>   | 150      | °C   |
| Storage Temperature                     | T <sub>stg</sub> | -55~+150 | °C   |

**Characteristics** (Ta=25°C)

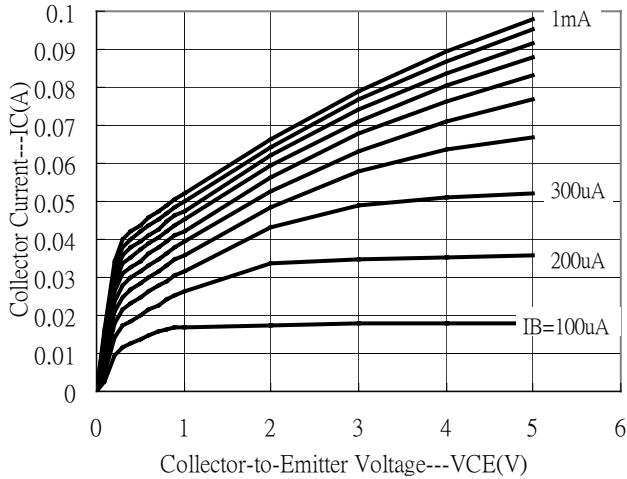
| Symbol                | Min. | Typ.  | Max. | Unit | Test Conditions                                        |
|-----------------------|------|-------|------|------|--------------------------------------------------------|
| BV <sub>CBO</sub>     | -160 | -     | -    | V    | I <sub>C</sub> =-50μA                                  |
| BV <sub>CEO</sub>     | -160 | -     | -    | V    | I <sub>C</sub> =-1mA                                   |
| BV <sub>EBO</sub>     | -7   | -     | -    | V    | I <sub>E</sub> =-50μA                                  |
| I <sub>CBO</sub>      | -    | -     | -100 | nA   | V <sub>CB</sub> =-160V                                 |
| I <sub>EBO</sub>      | -    | -     | -100 | nA   | V <sub>EB</sub> =-6V                                   |
| *V <sub>CE(sat)</sub> | -    | -0.16 | -0.3 | V    | I <sub>C</sub> =-10mA, I <sub>B</sub> =-1mA            |
| h <sub>FE</sub>       | 180  | -     | 390  | -    | V <sub>CE</sub> =-6V, I <sub>C</sub> =-2mA             |
| f <sub>T</sub>        | 100  | 135   | -    | MHz  | V <sub>CE</sub> =-10V, I <sub>C</sub> =-10mA, f=100MHz |
| C <sub>ob</sub>       | -    | 2.7   | 6    | pF   | V <sub>CB</sub> =-10V, f=1MHz                          |

\*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

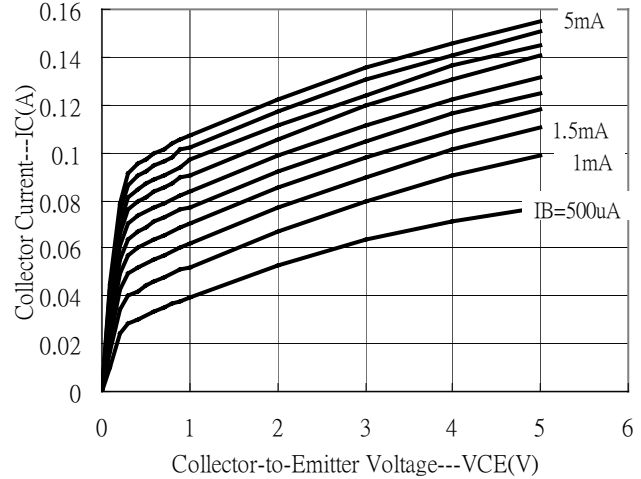
**Recommended Soldering Footprint**


## Typical Characteristics

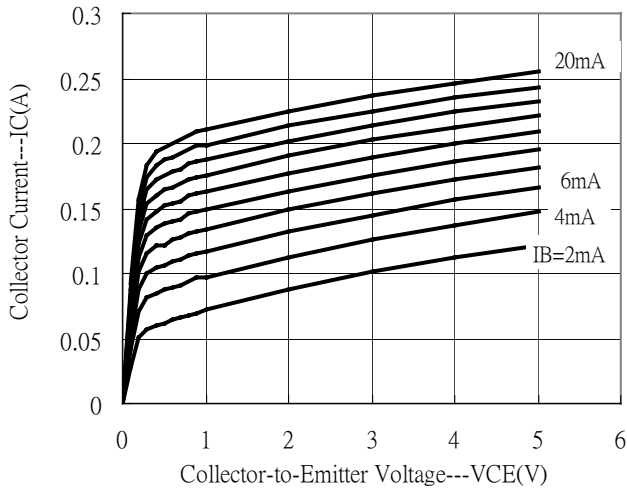
Emitter Grounded Output Characteristics



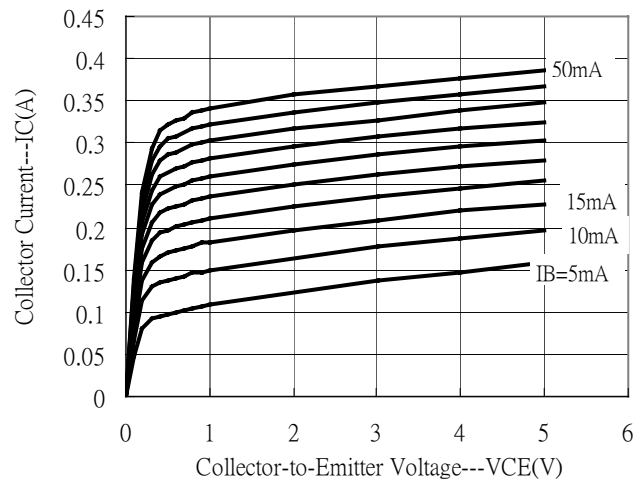
Emitter Grounded Output Characteristics



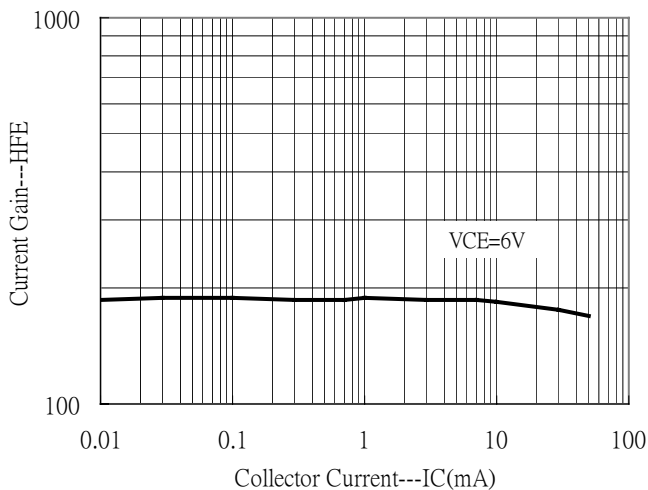
Emitter Grounded Output Characteristics



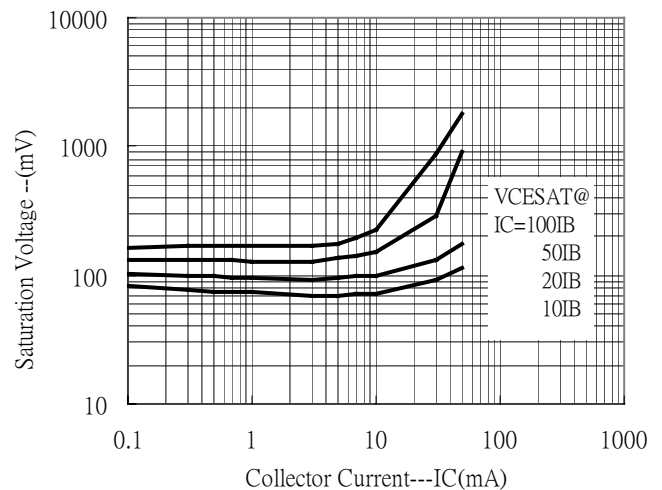
Emitter Grounded Output Characteristics



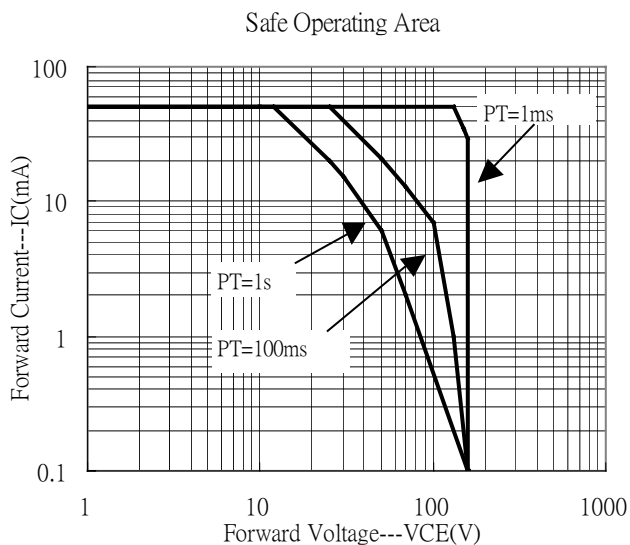
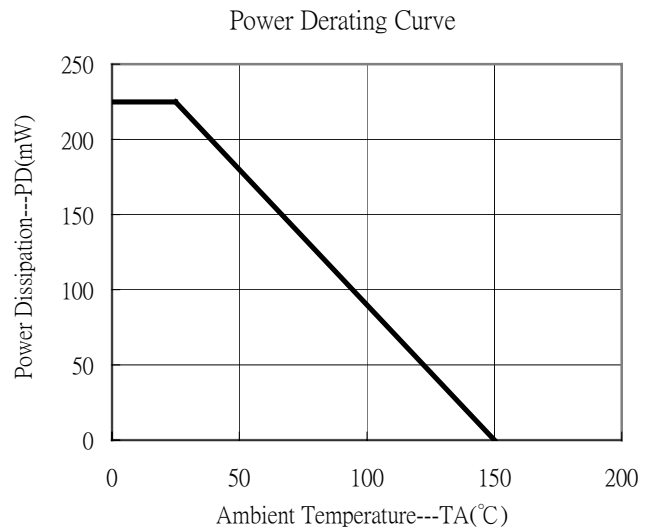
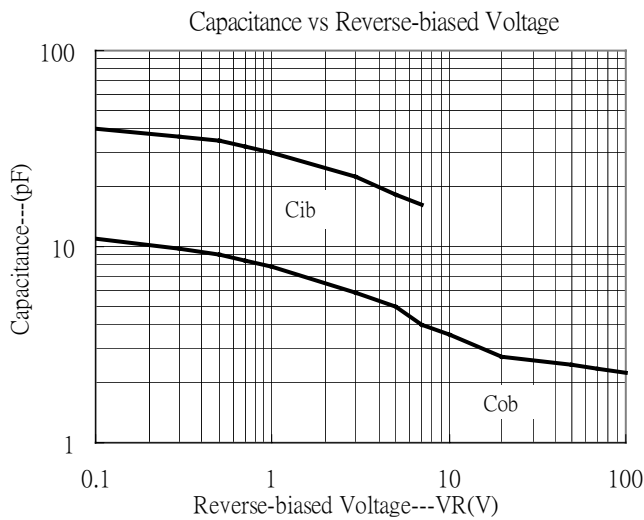
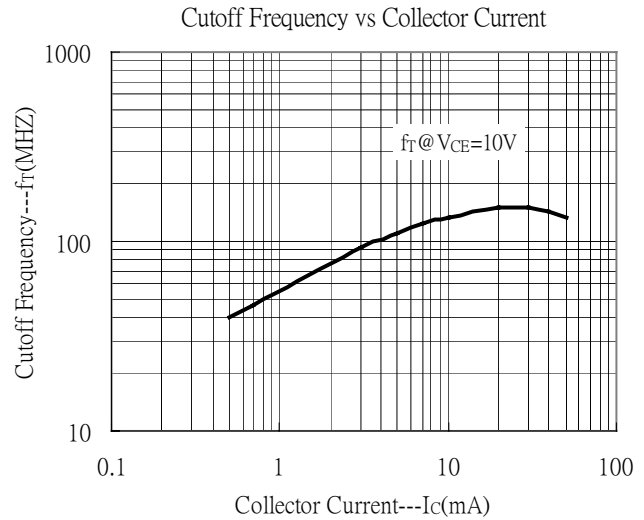
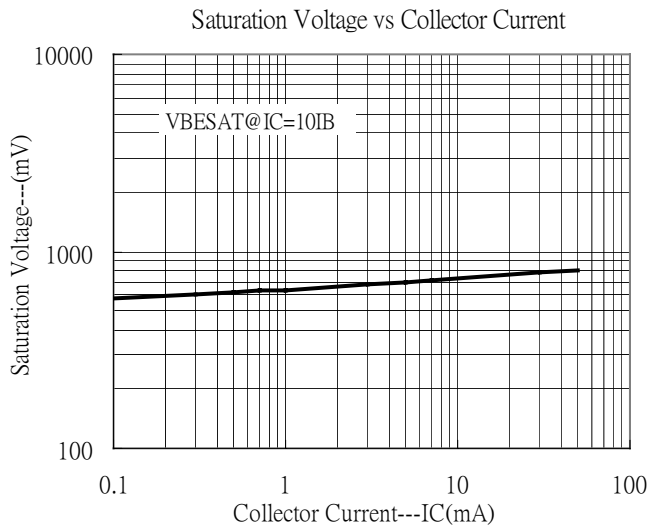
Current Gain vs Collector Current



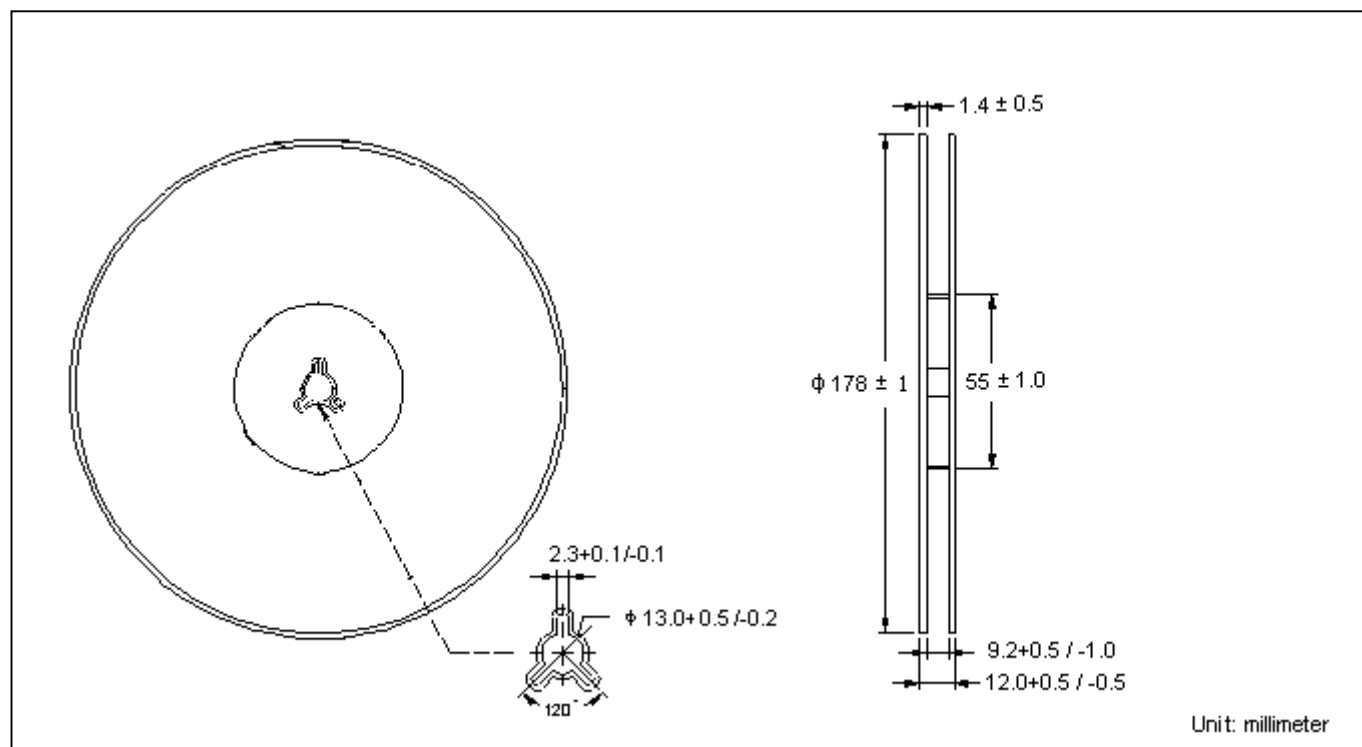
Saturation Voltage vs Collectoe Current



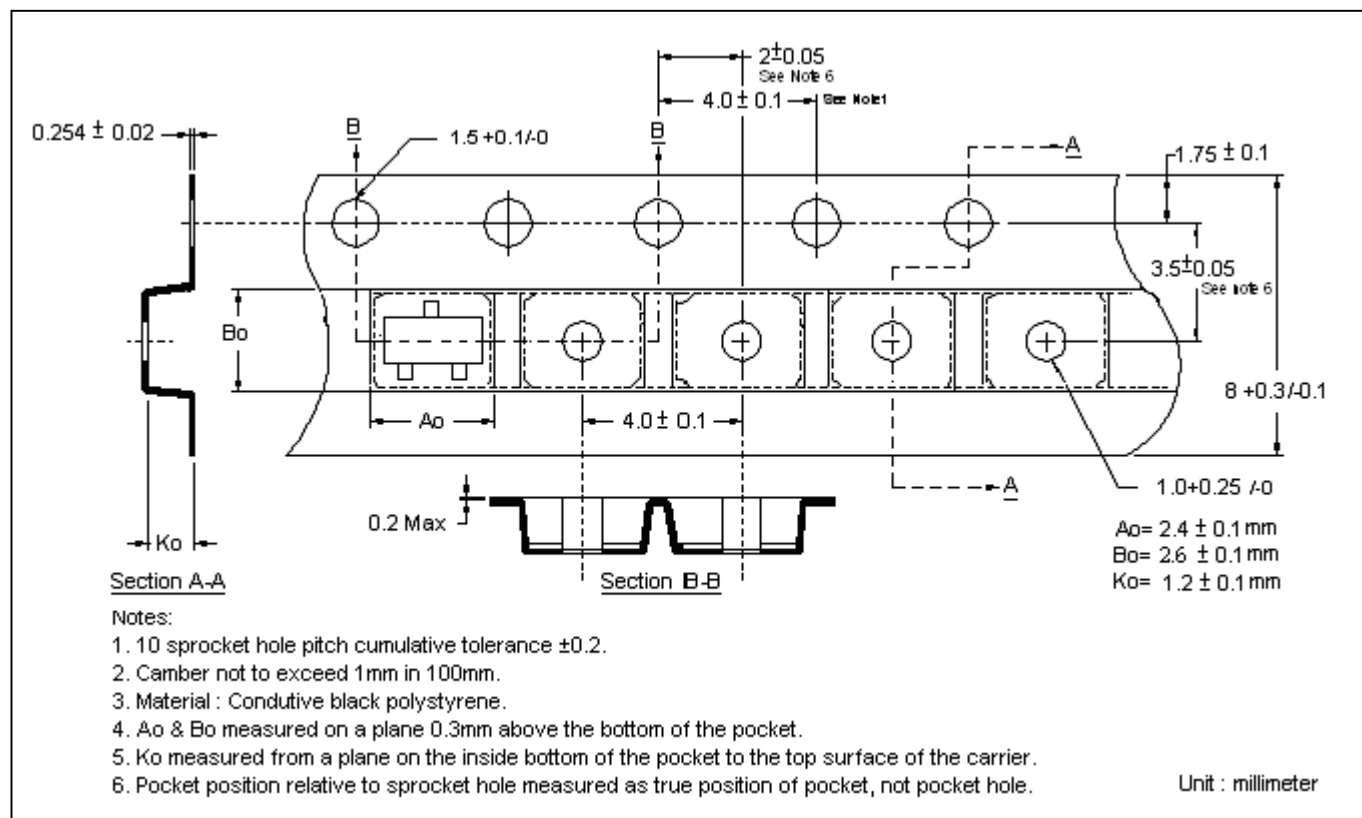
## Typical Characteristics (Cont.)



## Reel Dimension



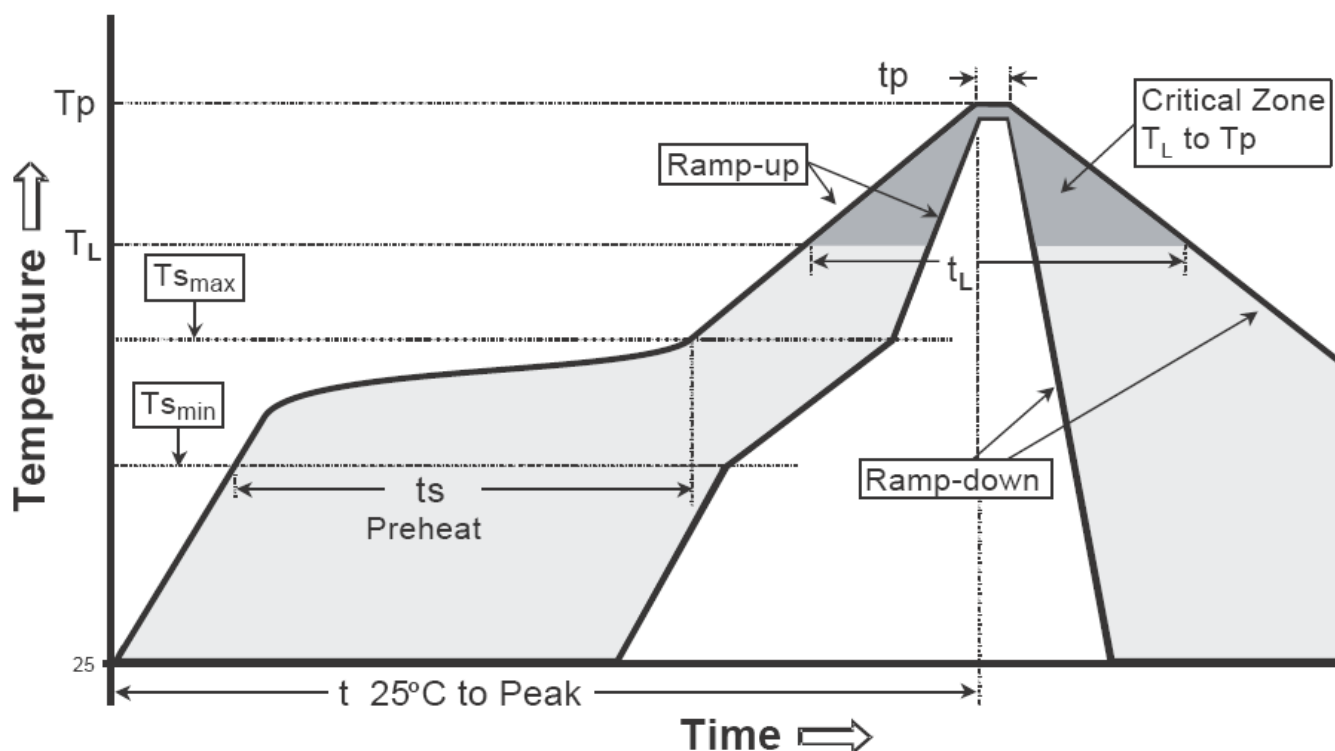
## Carrier Tape Dimension



### Recommended wave soldering condition

| Product         | Peak Temperature | Soldering Time  |
|-----------------|------------------|-----------------|
| Pb-free devices | 260 +0/-5 °C     | 5 +1/-1 seconds |

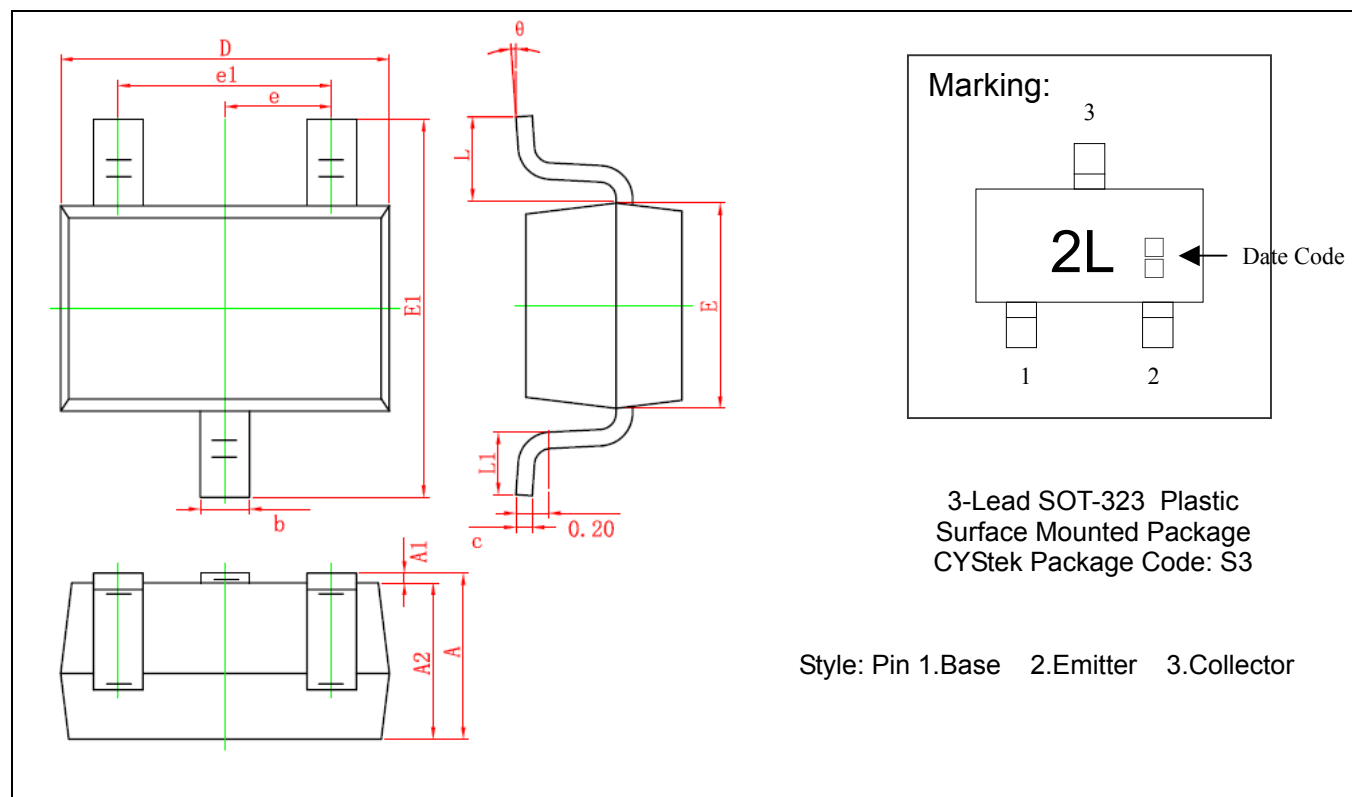
### Recommended temperature profile for IR reflow



| Profile feature                                | Sn-Pb eutectic Assembly | Pb-free Assembly |
|------------------------------------------------|-------------------------|------------------|
| Average ramp-up rate (Tsmax to Tp)             | 3°C/second max.         | 3°C/second max.  |
| Preheat                                        |                         |                  |
| –Temperature Min(Ts min)                       | 100°C                   | 150°C            |
| –Temperature Max(Ts max)                       | 150°C                   | 200°C            |
| –Time(ts min to ts max)                        | 60-120 seconds          | 60-180 seconds   |
| Time maintained above:                         |                         |                  |
| –Temperature (TL)                              | 183°C                   | 217°C            |
| – Time (tL)                                    | 60-150 seconds          | 60-150 seconds   |
| Peak Temperature(TP)                           | 240 +0/-5 °C            | 260 +0/-5 °C     |
| Time within 5°C of actual peak temperature(tp) | 10-30 seconds           | 20-40 seconds    |
| Ramp down rate                                 | 6°C/second max.         | 6°C/second max.  |
| Time 25 °C to peak temperature                 | 6 minutes max.          | 8 minutes max.   |

Note : All temperatures refer to topside of the package, measured on the package body surface.

## SOT-323 Dimension



| DIM | Millimeters |       | Inches |       | DIM | Millimeters |       | Inches |       |
|-----|-------------|-------|--------|-------|-----|-------------|-------|--------|-------|
|     | Min.        | Max.  | Min.   | Max.  |     | Min.        | Max.  | Min.   | Max.  |
| A   | 0.900       | 1.100 | 0.035  | 0.043 | E1  | 2.150       | 2.450 | 0.085  | 0.096 |
| A1  | 0.000       | 0.100 | 0.000  | 0.004 | e   | 0.650       | TYP   | 0.026  | TYP   |
| A2  | 0.900       | 1.000 | 0.035  | 0.039 | e1  | 1.200       | 1.400 | 0.047  | 0.055 |
| b   | 0.200       | 0.400 | 0.008  | 0.016 | L   | 0.525       | REF   | 0.021  | REF   |
| c   | 0.080       | 0.150 | 0.003  | 0.006 | L1  | 0.260       | 0.460 | 0.010  | 0.018 |
| D   | 2.000       | 2.200 | 0.079  | 0.087 | θ   | 0°          | 8°    | 0°     | 8°    |
| E   | 1.150       | 1.350 | 0.045  | 0.053 |     |             |       |        |       |

Notes: 1.Controlling dimension: millimeters.

2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

### Material:

- Lead: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.

### Important Notice:

- All rights are reserved. Reproduction in whole or in part is prohibited without the prior written approval of CYStek.
- CYStek reserves the right to make changes to its products without notice.
- CYStek **semiconductor products are not warranted to be suitable for use in Life-Support Applications, or systems.**
- CYStek assumes no liability for any consequence of customer product design, infringement of patents, or application assistance.