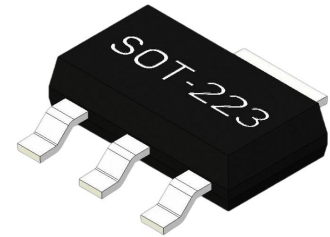
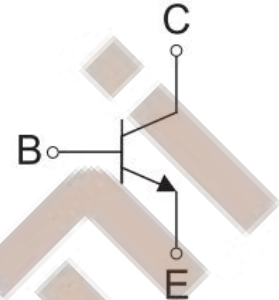
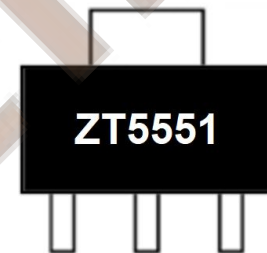


**General Description**


| $V_{CEO}$ | $I_C$ | $V_{CE(sat)}$     | $f_T$  | $T_{jMax}$ |
|-----------|-------|-------------------|--------|------------|
| 160V      | 600mA | 0.15V@ $I_C=10mA$ | 300MHz | 150°C      |
|           |       | 0.2V@ $I_C=50mA$  |        |            |


**Features**

- SOT-223 Package
- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 3
- High temperature soldering guaranteed 260°C/10seconds at terminals


**Package Marking and Ordering Information**

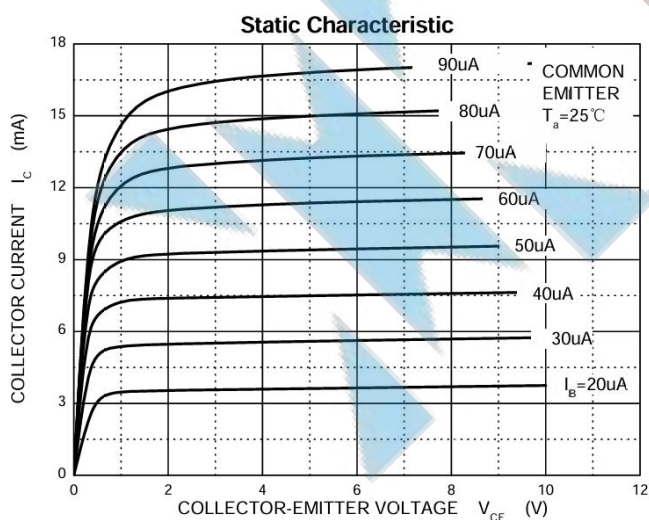
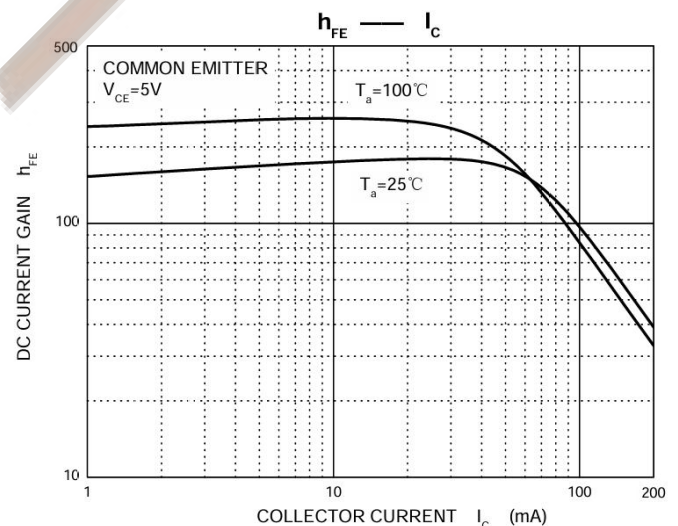
| Product ID | Package | Marking | Qty(PCS) |
|------------|---------|---------|----------|
| ZT5551     | SOT-223 | ZT5551  | 2500     |

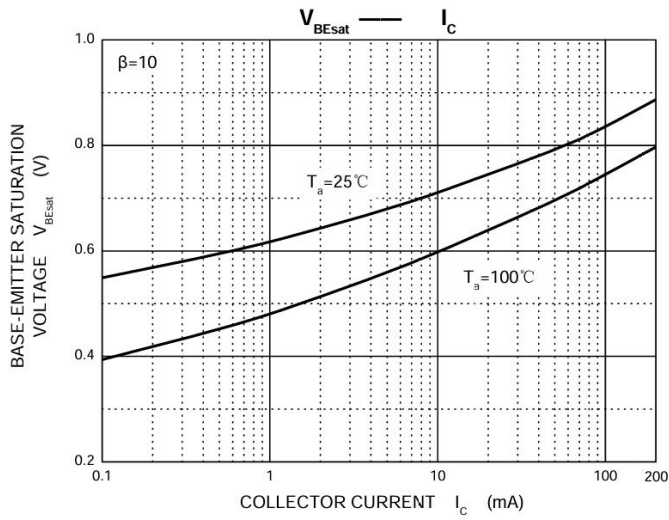
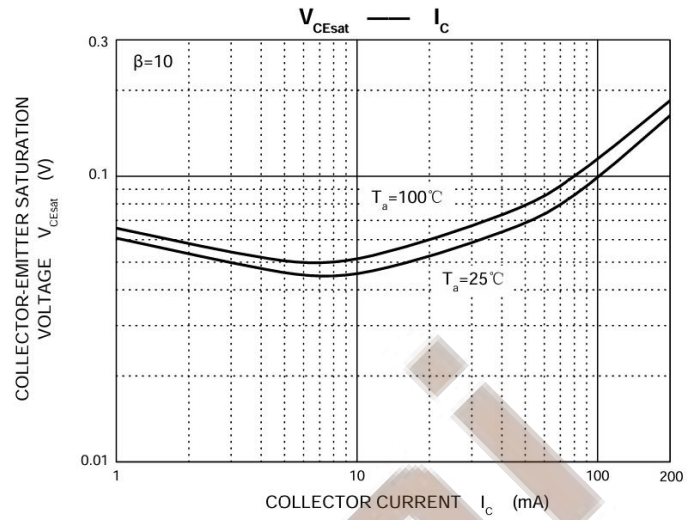
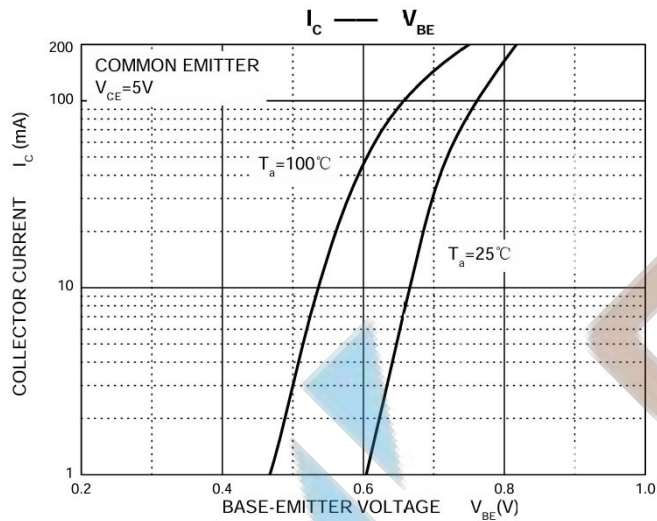
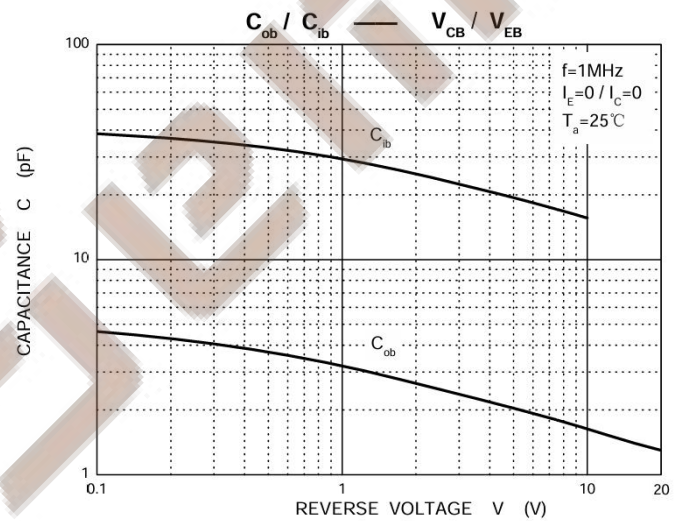
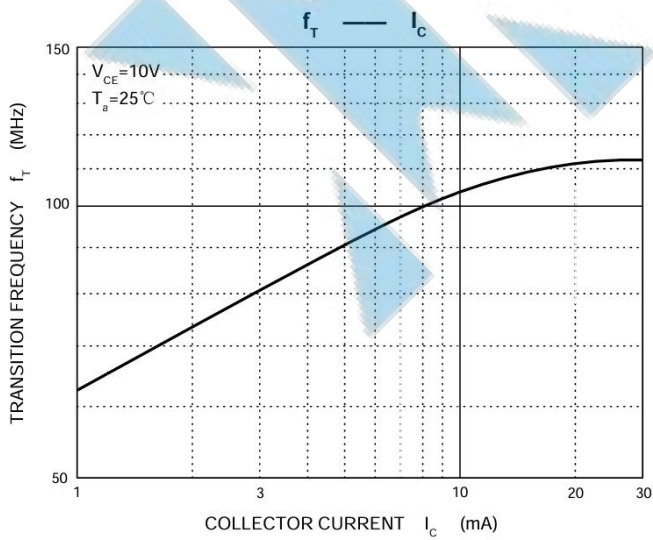
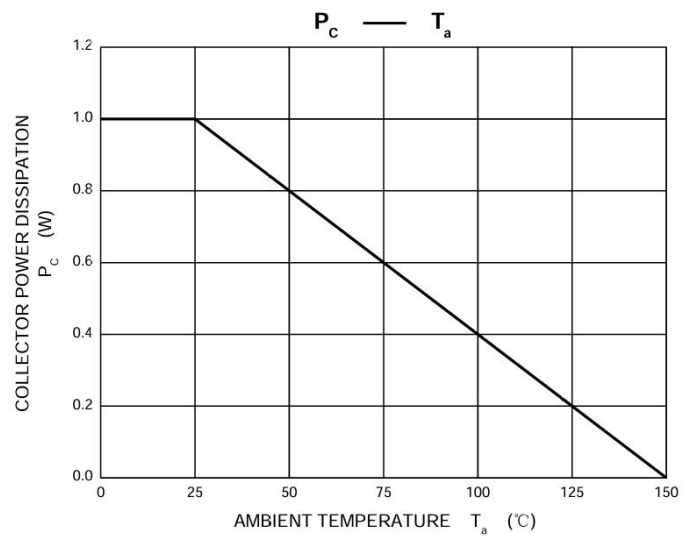
**Absolute Maximum Ratings (Ta=25°C unless otherwise noted)**

| Parameter                                   | Symbols | Value    | Units |
|---------------------------------------------|---------|----------|-------|
| Collector-Base Voltage                      | VCBO    | 180      | V     |
| Collector-Emitter Voltage                   | VCEO    | 160      | V     |
| Emitter -Base Voltage                       | VEBO    | 6        | V     |
| Collector Current-Continuous                | IC      | 600      | mA    |
| Collector Power Dissipation                 | PC      | 1        | W     |
| Junction Temperature                        | Tj      | -55-+150 | °C    |
| Storage Temperature                         | Tstg    | -55-+150 | °C    |
| Thermal resistance From junction to ambient | R θ JA  | 125      | °C/W  |
| Collector-Base Voltage                      | VCBO    | 180      | V     |

**Electrical Characteristics(Ta=25°C unless otherwise noted)**

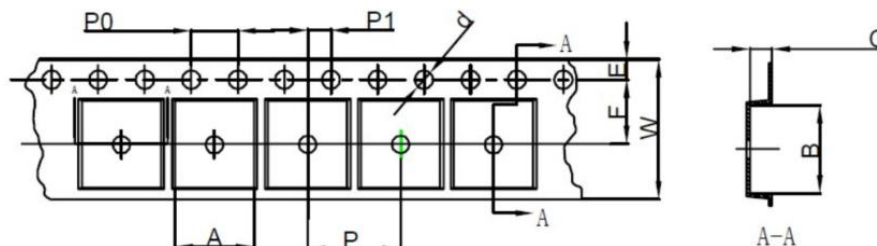
| Parameter                            | Symbol      | Conditions                 | Min. | Max. | Unit |
|--------------------------------------|-------------|----------------------------|------|------|------|
| Collector-base breakdown voltage     | V(BR)CBO    | IC=100uA, IE=0             | 180  |      | V    |
| Collector-emitter breakdown voltage  | V(BR)CEO *  | IC=1mA, IB=0               | 160  |      | V    |
| Emitter-base breakdown voltage       | V(BR)EBO    | IE=10uA, IC=0              | 6    |      | V    |
| Collector cut-off current            | ICBO        | VCB=120V, IE=0             |      | 50   | nA   |
| Emitter cut-off current              | IEBO        | VEB=4V, IC=0               |      | 50   | nA   |
| DC current gain                      | hFE(1) *    | VCE=5V, IC=1mA             | 80   |      |      |
|                                      | hFE(2) *    | VCE=5V, IC=10mA            | 100  | 300  |      |
|                                      | hFE(3) *    | VCE=5V, IC=50mA            | 30   |      |      |
| Collector-emitter saturation voltage | VCE(sat)1 * | IC=10mA, IB=1mA            |      | 0.15 | V    |
|                                      | VCE(sat)2 * | IC=50mA, IB=5mA            |      | 0.20 | V    |
| Base -emitter saturation voltage     | VBE(sat)1 * | IC=10mA, IB=1mA            |      | 1.00 | V    |
|                                      | VBE(sat)2 * | IC=50mA, IB=5mA            |      | 1.00 | V    |
| Transition frequency                 | fT          | VCE=10V, IC=10mA, f=100MHz | 100  | 300  | MHz  |
| Collector output capacitance         | Cob         | VCB=10V, IE=0, f=1MHz      |      | 6    | pF   |
| Emitter input capacitance            | Cib         | VBE=0.5V, IC=0, f=1MHz     |      | 20   | pF   |

**Typical characteristics**




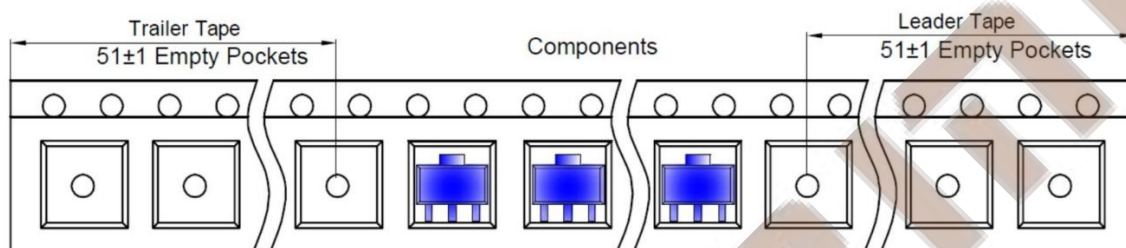
## Package Information

### Carrier Dimension(mm)

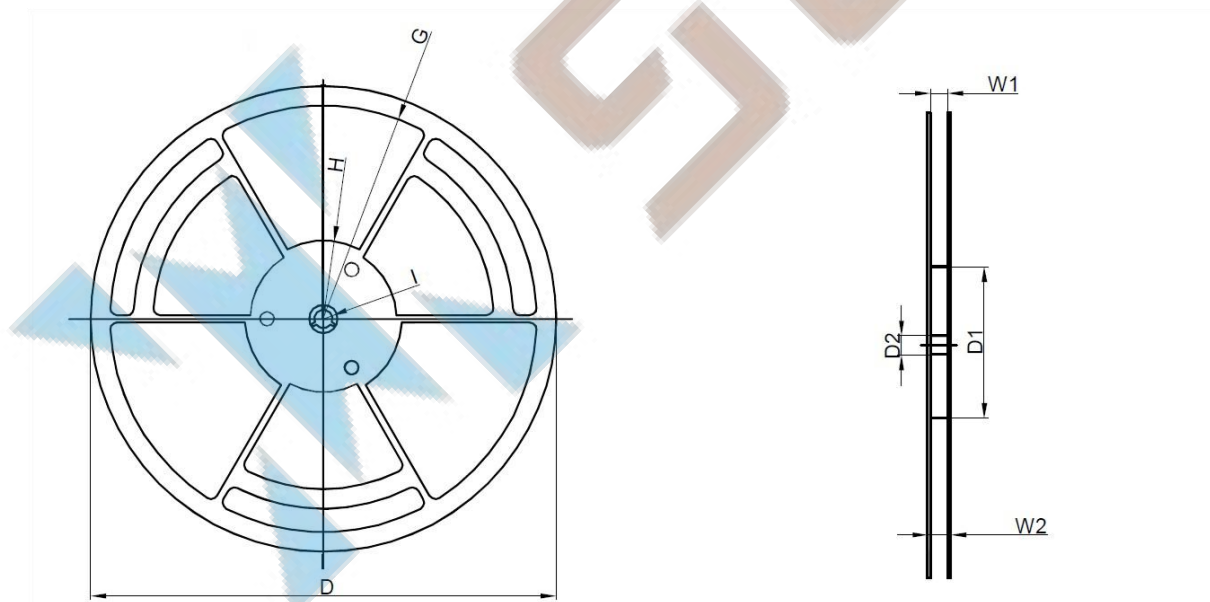


Dimensions are in millimeter

| Pkg Type | A     | B     | C    | d     | E    | F    | P0   | P    | P1   | W     |
|----------|-------|-------|------|-------|------|------|------|------|------|-------|
| SOT-223  | 6.765 | 7.335 | 1.88 | Ø1.50 | 1.75 | 5.50 | 4.00 | 8.00 | 2.00 | 12.00 |



### Reel Dimension(mm)



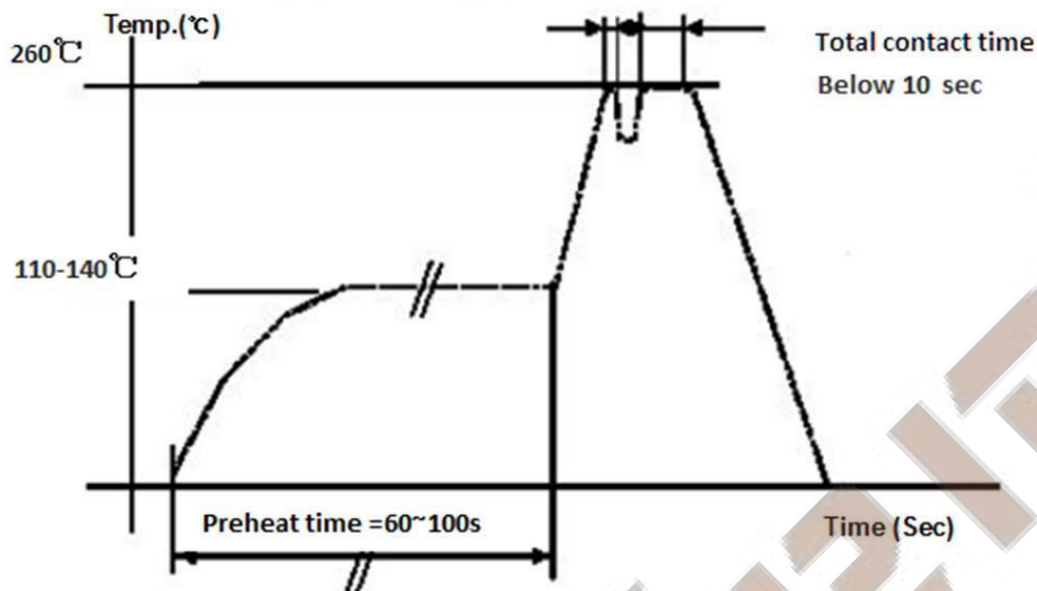
| Reel Option | D       | D1     | D2    | G       | H      | I     | W1    | W2    |
|-------------|---------|--------|-------|---------|--------|-------|-------|-------|
| 13"Dia      | Φ330.00 | 100.00 | 13.00 | R151.00 | R56.00 | R6.50 | 12.40 | 17.60 |

## Package Specifications

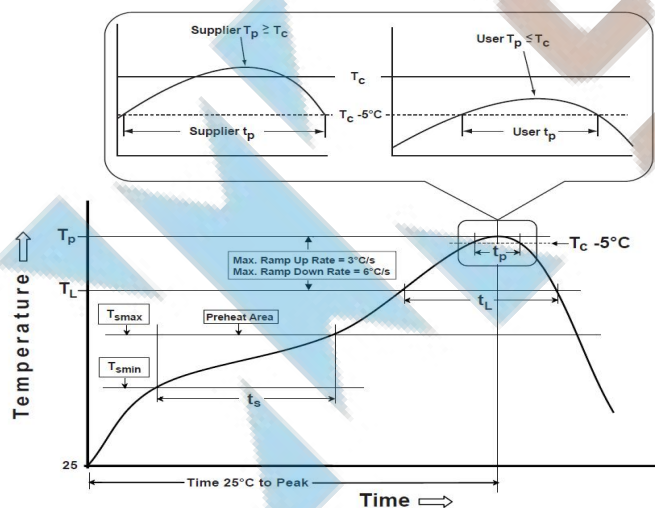
| Package | Reel Size | Reel DIA.<br>(mm) | Q'TY/Reel<br>(Kpcs) | Box Size<br>(mm) | QTY/Box<br>(Kpcs) | Carton Size<br>(mm) | Q'TY/Carton<br>(Kpcs) |
|---------|-----------|-------------------|---------------------|------------------|-------------------|---------------------|-----------------------|
| SOT223  | 13'       | 330               | 2.5                 | 340*345*45       | 5                 | 365*360*460         | 50                    |

## Recommended Soldering Profile for Rectifier Diodes (Pb Free)

### a) Wave Soldering Profile



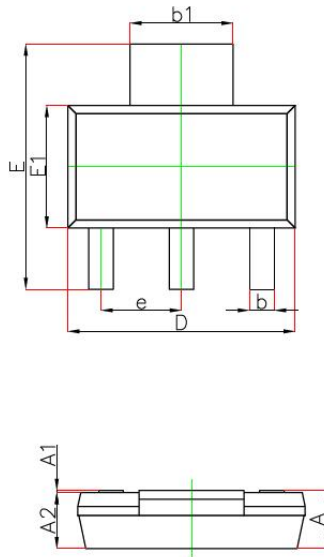
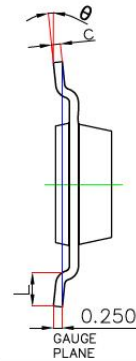
### b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020



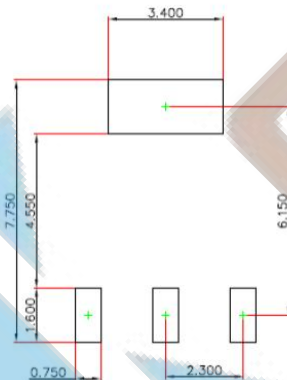
| Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax) | 50 °C<br>200 °C<br>60-120 seconds |
|----------------------------------------------------------------------------------------------|-----------------------------------|
| Melting Point of Solder (Sn Ag Cu)                                                           | 217°C                             |
| Ramp-up Rate to 217°C(Melting Point of Solder)                                               | 3°C/sec                           |
| Time at Temp.>217°C (Melting Point of Solder)                                                | 60~150 Sec                        |
| Peak Temperature                                                                             | 255±5°C                           |
| Time within 5°Cbelow Peak Temp.                                                              | 20~40 Sec                         |
| Cooling Rate                                                                                 | 6°C/sec (max)                     |
| Time from 25°C to Peak Temp.                                                                 | 8min (max)                        |

### c) Manual Soldering

When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

**Package Mechanical Data**


| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | —                         | 1.800 | —                    | 0.071 |
| A1     | 0.020                     | 0.100 | 0.001                | 0.004 |
| A2     | 1.500                     | 1.700 | 0.059                | 0.067 |
| b      | 0.660                     | 0.840 | 0.026                | 0.033 |
| b1     | 2.900                     | 3.100 | 0.114                | 0.122 |
| c      | 0.230                     | 0.350 | 0.009                | 0.014 |
| D      | 6.300                     | 6.700 | 0.248                | 0.264 |
| E      | 6.700                     | 7.300 | 0.264                | 0.287 |
| E1     | 3.300                     | 3.700 | 0.130                | 0.146 |
| e      | 2.300(BSC)                |       | 0.091(BSC)           |       |
| L      | 0.750                     | —     | 0.030                | —     |
| θ      | 0°                        | 10°   | 0°                   | 10°   |

**Suggested Pad Layout**


**Note:**  
 1. Controlling dimension; in millimeters.  
 2. General tolerance:  $\pm 0.050\text{mm}$ .  
 3. The pad layout is for reference purposes only.

**Disclaimer**

The information presented in this document is for reference only. Yancheng **Xirun Semiconductor Co., Ltd** reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), **Xirun Semiconductor** or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website [http:// www.x-semi.cn](http://www.x-semi.cn) , or consult your nearest **Xirun Semiconductor's** sales office for further assistance.