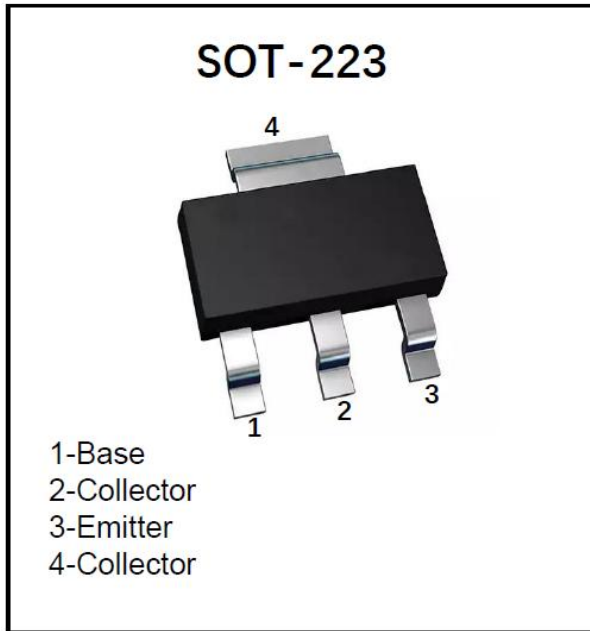


## NPN Transistor



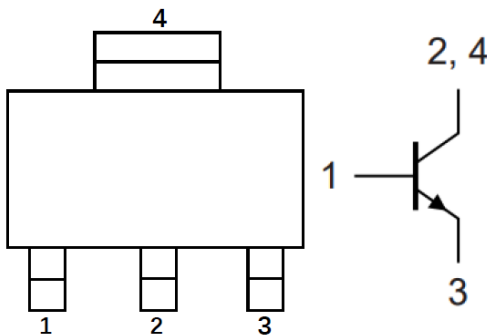
### Features

- Epoxy meets UL-94 V-0 flammability rating
- Halogen free available upon request by adding suffix "HF"
- Moisture Sensitivity Level 1

### Mechanical Data

- **Package:** SOT-223
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** CZT5551

### ■Equivalent circuit



### ■Maximum Ratings (Ta=25°C unless otherwise noted)

| Item                                        | Symbol          | Unit | Conditions            | Value       |
|---------------------------------------------|-----------------|------|-----------------------|-------------|
| Minimum Collector-Emitter Voltage           | $V_{CEO}$       | V    | $I_C=1mA, I_B=0$      | 160         |
| Minimum Collector-Base Voltage              | $V_{CBO}$       | V    | $I_C=100\mu A, I_E=0$ | 180         |
| Minimum Emitter-Base Voltage                | $V_{EBO}$       | V    | $I_E=10\mu A, I_C=0$  | 6           |
| Collector Current                           | $I_C$           | A    |                       | 0.6         |
| Power Dissipation                           | $P_D$           | W    |                       | 1           |
| Thermal Resistance From Junction To Ambient | $R_{\theta JA}$ | °C/W |                       | 125         |
| Operation Junction Temperature              | $T_j$           | °C   |                       | -55 to +150 |
| Storage Temperature                         | $T_{stg}$       | °C   |                       | -55 to +150 |



# CZT5551

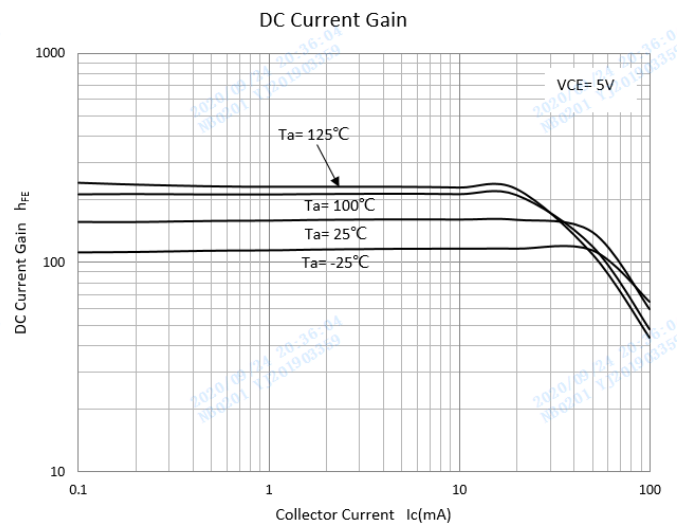
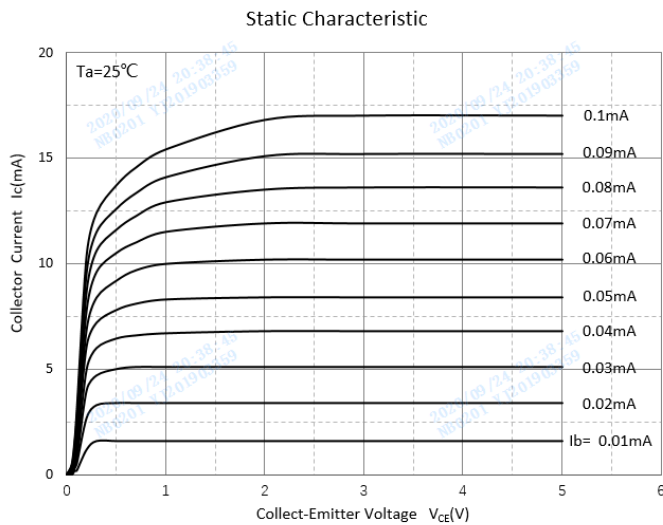
## ■Electrical Characteristics (Ta=25°C unless otherwise noted)

| Item                                 | Symbol         | Unit | Conditions                                 | Min | Max  |
|--------------------------------------|----------------|------|--------------------------------------------|-----|------|
| Collector-Emitter Voltage            | $V_{CE0}$      | V    | $I_C=1mA_{dc}, I_B=0$                      | 160 | -    |
| Collector-Base Voltage               | $V_{CBO}$      | V    | $I_C=100\mu A_{dc}, I_E=0$                 | 180 | -    |
| Emitter-Base Voltage                 | $V_{EBO}$      | V    | $I_E=10\mu A_{dc}, I_C=0$                  | 6.0 | -    |
| Collector-base Cut-off Current       | $I_{CBO}$      | nA   | $V_{CB}=120V_{dc}$                         | -   | 50   |
| Emitter-base Cut-off Current         | $I_{EBO}$      | nA   | $V_{EB}=4.0V_{dc}$                         | -   | 50   |
| DC Current Gain                      | $h_{FE}$       |      | $I_C=1.0mA, V_{CE}=5.0V_{dc}$              | 80  | -    |
|                                      |                |      | $I_C=10mA, V_{CE}=5.0V_{dc}$               | 100 | 300  |
|                                      |                |      | $I_C=50mA, V_{CE}=5.0V_{dc}$               | 30  | -    |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)1}$ | V    | $I_C=10mA, I_B=1.0mA$                      | -   | 0.15 |
|                                      | $V_{CE(sat)2}$ | V    | $I_C=50mA, I_B=5.0mA$                      | -   | 0.2  |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)1}$ | V    | $I_C=10mA, I_B=1.0mA$                      | -   | 1    |
|                                      | $V_{BE(sat)2}$ | V    | $I_C=50mA, I_B=5.0mA$                      | -   | 1    |
| Output Capacitance                   | $C_{ob}$       | pF   | $V_{CB}=10V_{dc}, I_E=0, f=1MHz$           | -   | 6    |
| Transition frequency                 | $f_T$          | MHz  | $I_C=10mA_{dc}, V_{CE}=5.0V_{dc}, f=30MHz$ | 100 | 300  |

## ■Ordering Information (Example)

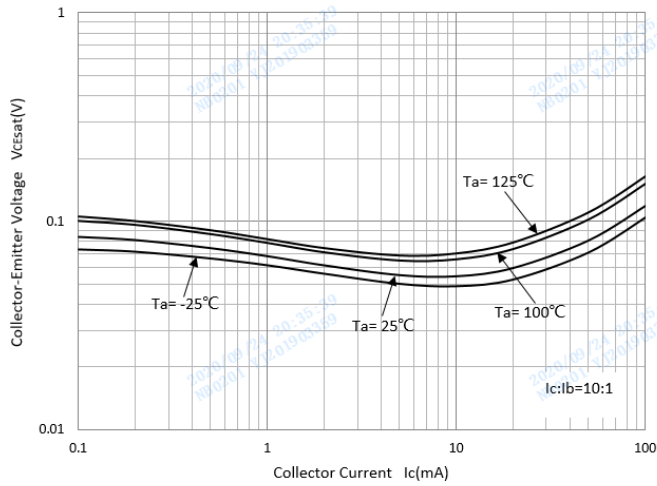
| PREFERRED P/N | PACKING CODE | UNIT WEIGHT(g)   | MINIMUM PACKAGE(pcs) | INNER BOX QUANTITY(pcs) | OUTER CARTON QUANTITY(pcs) | DELIVERY MODE |
|---------------|--------------|------------------|----------------------|-------------------------|----------------------------|---------------|
| CZT5551       | F2           | Approximate 0.11 | 2500                 | 5000                    | 25000                      | 13" reel      |

## ■Characteristics (Typical)

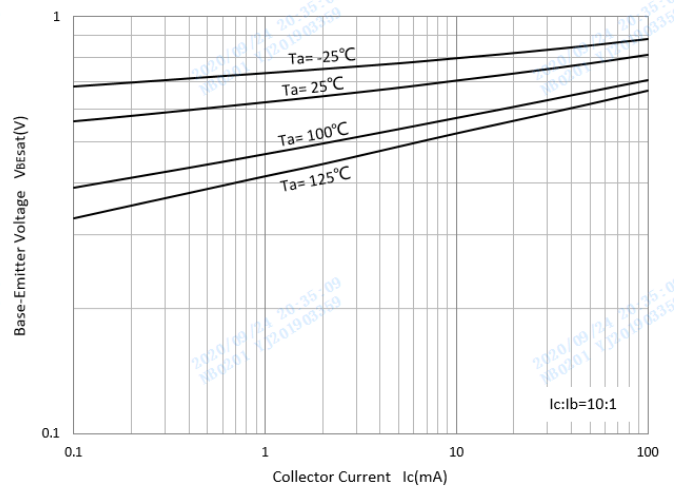




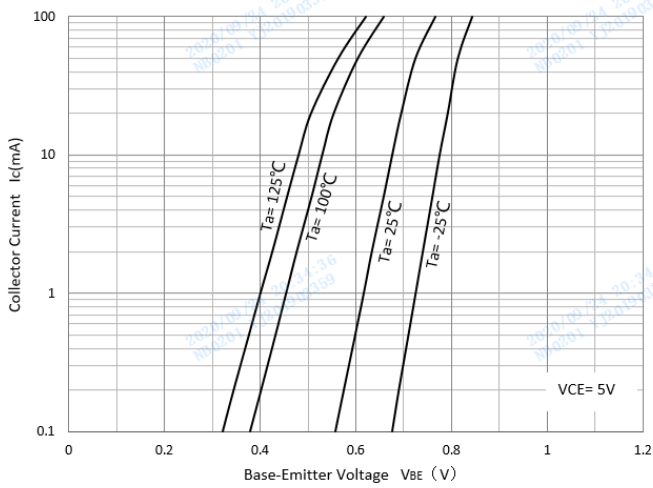
### Collector-Emitter Saturation Voltage



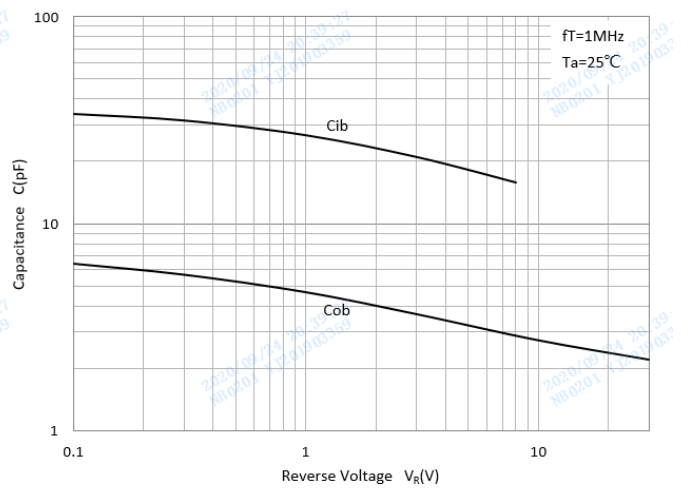
### Base-Emitter Saturation Voltage



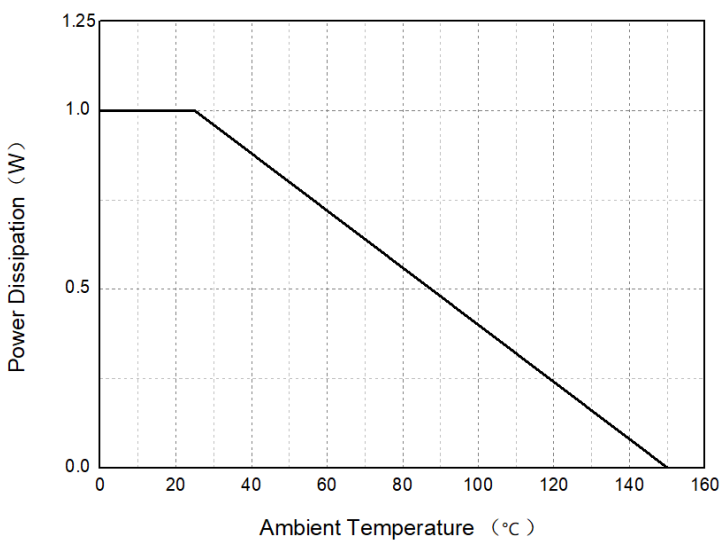
### Base-Emitter On Voltage



### $C_{ob}/C_{ib}-V_{CB}/V_{EB}$



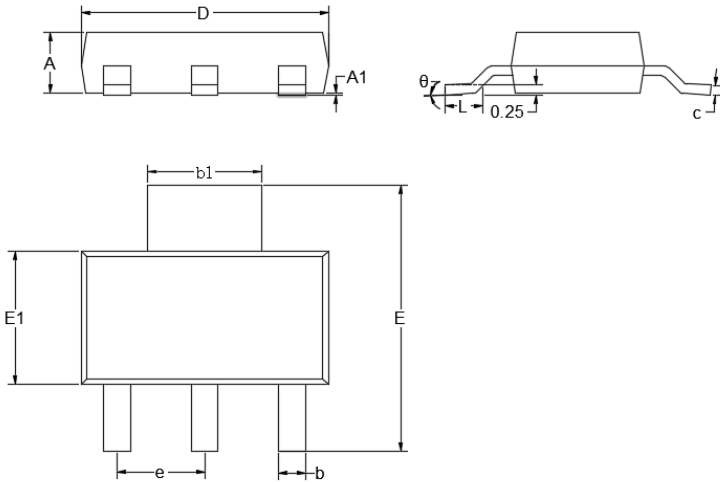
### Power Derating Curve





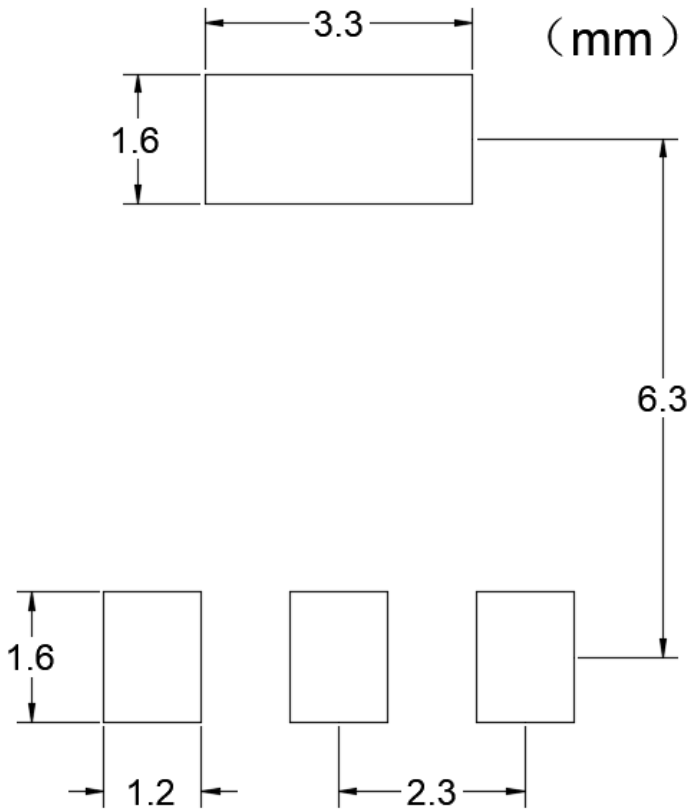
# CZT5551

## ■SOT-223 Package Outline Dimensions



| DIMENSIONS |        |        |        |        |
|------------|--------|--------|--------|--------|
| DIM        | INCHES |        | MM     |        |
|            | MIN    | MAX    | MIN    | MAX    |
| A          | 0.0591 | 0.0670 | 1.5000 | 1.7000 |
| A1         | 0.0008 | 0.0039 | 0.0200 | 0.1000 |
| b          | 0.0259 | 0.0330 | 0.6600 | 0.8400 |
| b1         | 0.1140 | 0.1220 | 2.9000 | 3.1000 |
| c          | 0.0090 | 0.0138 | 0.2300 | 0.3500 |
| D          | 0.2480 | 0.2640 | 6.3000 | 6.7000 |
| E          | 0.2637 | 0.2874 | 6.7000 | 7.3000 |
| E1         | 0.1290 | 0.1460 | 3.3000 | 3.7000 |
| e          | 0.0866 | 0.0945 | 2.2000 | 2.4000 |
| L          | 0.0295 | 0.0492 | 0.7500 | 1.2500 |
| $\theta$   | 0°     | 10°    | 0°     | 10°    |

## ■SOT-223 Suggested Pad Layout





## Disclaimer

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