

**■ Features**

- Collector Current Capability  $I_C = -4A$
- Collector Emitter Voltage  $V_{CE0} = -140V$
- Very low saturation voltages
- Complementary to FZT855


**SOT-223**

1. BASE
2. COLLECTOR
3. EMITTER

**■ Absolute Maximum Ratings  $T_a = 25^\circ C$** 

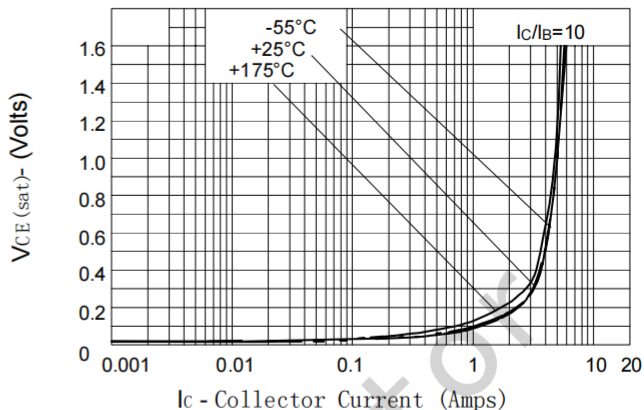
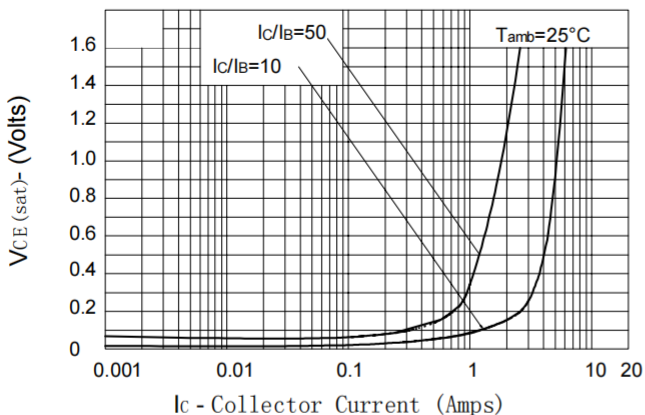
| Parameter                      | Symbol    | Rating     | Unit       |
|--------------------------------|-----------|------------|------------|
| Collector - Base Voltage       | $V_{CB0}$ | -180       | V          |
| Collector - Emitter Voltage    | $V_{CE0}$ | -140       |            |
| Emitter - Base Voltage         | $V_{EB0}$ | -6         |            |
| Collector Current - Continuous | $I_C$     | -4         | A          |
| Peak Pulse Current             | $I_{CM}$  | -10        |            |
| Collector Power Dissipation    | $P_C$     | 3          | W          |
| Junction Temperature           | $T_J$     | 150        | $^\circ C$ |
| Storage Temperature range      | $T_{stg}$ | -55 to 150 |            |

**■ Electrical Characteristics Ta = 25°C**

| Parameter                            | Symbol               | Test Conditions  | Min  | Typ  | Max   | Unit |
|--------------------------------------|----------------------|--|------|------|-------|------|
| Collector- base breakdown voltage    | V <sub>CB0</sub>     | I <sub>C</sub> = -100 μA, I <sub>E</sub> =0              | -180 |      |       | V    |
| Collector- emitter breakdown voltage | V <sub>CER</sub>     | I <sub>C</sub> =-1 uA, R <sub>B</sub> < 1kΩ              | -180 |      |       |      |
| Collector- emitter breakdown voltage | V <sub>CEO</sub>     | I <sub>C</sub> = -10 mA, I <sub>B</sub> =0               | -140 |      |       |      |
| Emitter - base breakdown voltage     | V <sub>EBO</sub>     | I <sub>E</sub> = -100 μ A, I <sub>C</sub> =0             | -6   |      |       |      |
| Collector-base cut-off current       | I <sub>CBO</sub>     | V <sub>CB</sub> = -150 V, I <sub>E</sub> =0              |      |      | -50   | nA   |
|                                      |                      | V <sub>CB</sub> = -150 V, I <sub>E</sub> =0, Ta = 100°C  |      |      | -1    | uA   |
| Collector cut-off current R < 1kΩ    | I <sub>CER</sub>     | V <sub>CB</sub> = -150 V, I <sub>E</sub> =0              |      |      | -50   | nA   |
|                                      |                      | V <sub>CB</sub> = -150 V, I <sub>E</sub> =0, Ta = 100°C  |      |      | -1    | uA   |
| Emitter cut-off current              | I <sub>EBO</sub>     | V <sub>EB</sub> = -6V, I <sub>C</sub> =0                 |      |      | -100  | nA   |
| Collector-emitter saturation voltage | V <sub>CE(sat)</sub> | I <sub>C</sub> =-100 mA, I <sub>B</sub> =-5 mA           |      |      | -60   | mV   |
|                                      |                      | I <sub>C</sub> =-500 mA, I <sub>B</sub> =-50mA           |      |      | -120  |      |
|                                      |                      | I <sub>C</sub> =-1 A, I <sub>B</sub> =-100mA             |      |      | -150  |      |
|                                      |                      | I <sub>C</sub> =-3 A, I <sub>B</sub> =-300mA             |      |      | -370  |      |
| Base - emitter saturation voltage    | V <sub>BE(sat)</sub> | I <sub>C</sub> =-3 A, I <sub>B</sub> =-300mA             |      |      | -1110 |      |
| Base - emitter turn-on voltage       | V <sub>BE(on)</sub>  | V <sub>CE</sub> = -5V, I <sub>C</sub> = -3A              |      |      | -950  |      |
| DC current gain                      | h <sub>FE</sub>      | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10mA            | 100  |      |       |      |
|                                      |                      | V <sub>CE</sub> =- 5V, I <sub>C</sub> = -1 A             | 100  |      | 300   |      |
|                                      |                      | V <sub>CE</sub> = -5V, I <sub>C</sub> = -3 A             | 75   |      |       |      |
|                                      |                      | V <sub>CE</sub> = -5V, I <sub>C</sub> = -10 A            |      | 10   |       |      |
| Switching Times                      | t <sub>on</sub>      | I <sub>C</sub> =-1A, I <sub>B1</sub> =-100mA             |      | 68   |       | ns   |
|                                      | t <sub>off</sub>     | I <sub>B2</sub> =100mA, V <sub>CC</sub> =-50V            |      | 1030 |       |      |
| Collector output capacitance         | C <sub>ob</sub>      | V <sub>CB</sub> = -20V, f=1MHz                           |      | 40   |       | pF   |
| Transition frequency                 | f <sub>T</sub>       | V <sub>CE</sub> = -10V, I <sub>C</sub> = -100mA, f=50MHz |      | 110  |       | MHz  |

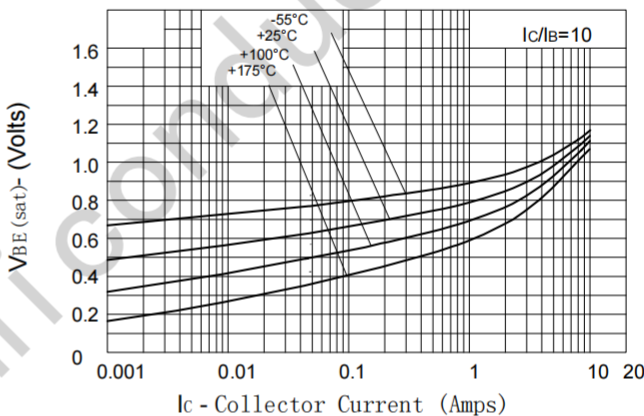
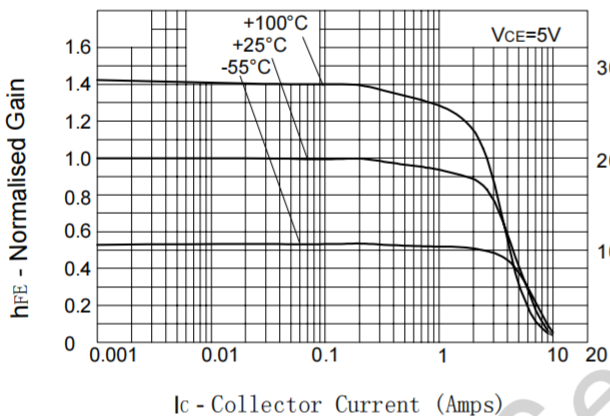
Note : Measured under pulsed conditions. Pulse width=300 us. Duty cycle ≤2%

■ Typical Characteristics



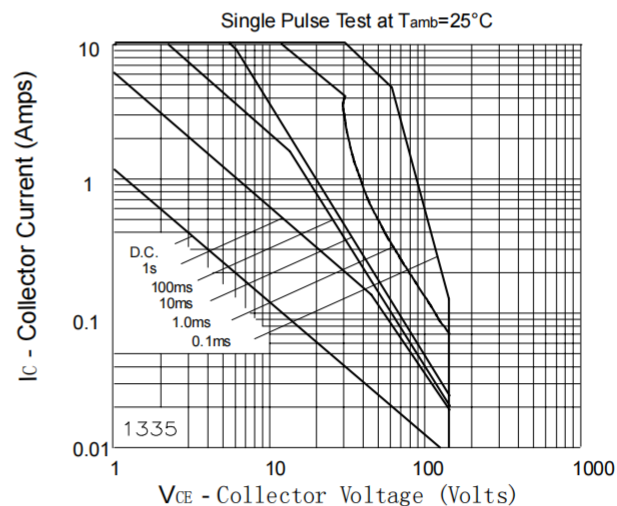
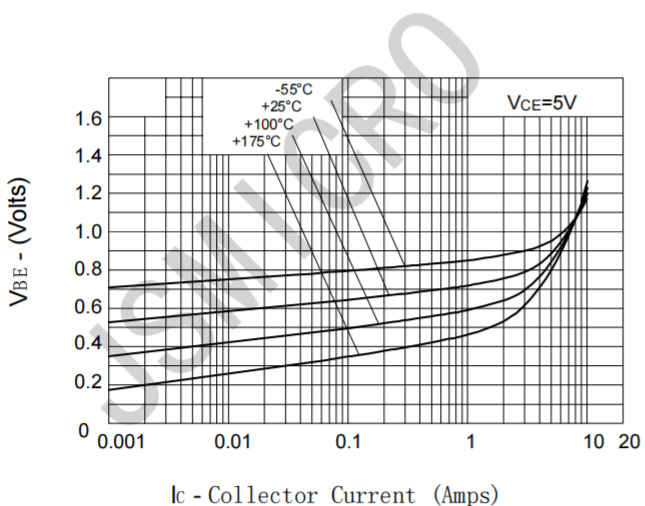
**$V_{CE(sat)}$  v  $I_C$**

**$V_{CE(sat)}$  v  $I_C$**



**$h_{FE}$  v  $I_C$**

**$V_{BE(sat)}$  v  $I_C$**

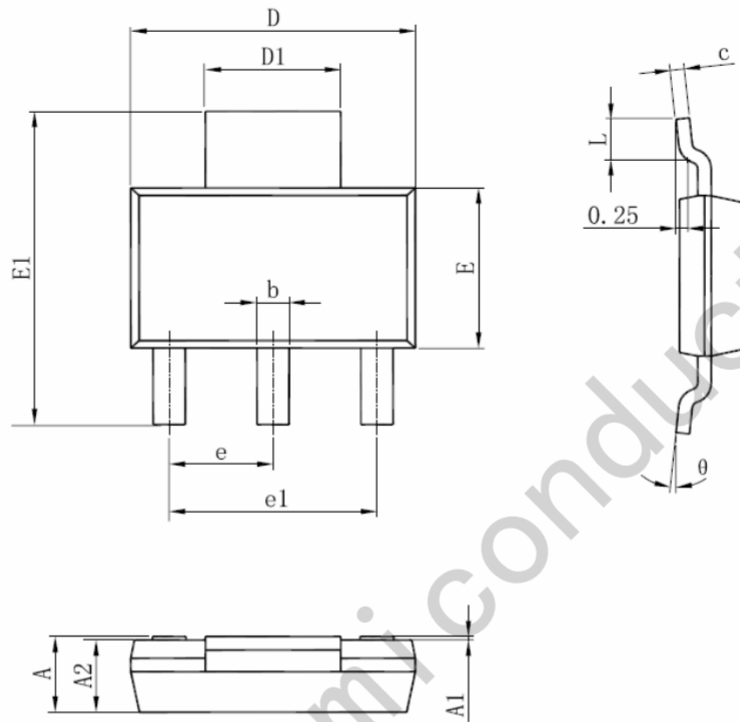


**$V_{BE(on)}$  v  $I_C$**

**Safe Operating Area**

## Package Information

SOT-223



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min                       | Max   | Min                  | Max   |
| A      | 1.520                     | 1.800 | 0.060                | 0.071 |
| A1     | 0.000                     | 0.100 | 0.000                | 0.004 |
| A2     | 1.500                     | 1.700 | 0.059                | 0.067 |
| b      | 0.660                     | 0.820 | 0.026                | 0.032 |
| c      | 0.250                     | 0.350 | 0.010                | 0.014 |
| D      | 6.200                     | 6.400 | 0.244                | 0.252 |
| D1     | 2.900                     | 3.100 | 0.114                | 0.122 |
| E      | 3.300                     | 3.700 | 0.130                | 0.146 |
| E1     | 6.830                     | 7.070 | 0.269                | 0.278 |
| e      | 2.300(BSC)                |       | 0.091(BSC)           |       |
| e1     | 4.500                     | 4.700 | 0.177                | 0.185 |
| L      | 0.900                     | 1.150 | 0.035                | 0.045 |
| theta  | 0°                        | 10°   | 0°                   | 10°   |

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