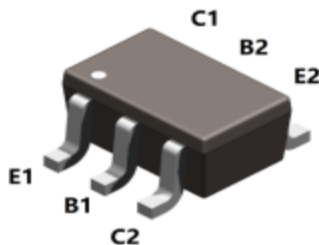


### Features

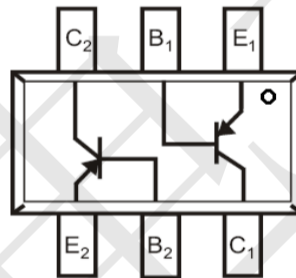
- Epitaxial planar die construction
- Ultra-small surface mount package



SOT-363

### Mechanical Data

- Case: SOT-363
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208



### Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                      | Symbol    | Value | Unit |
|--------------------------------|-----------|-------|------|
| Collector-Base Voltage         | $V_{CB0}$ | -50   | V    |
| Collector-Emitter Voltage      | $V_{CE0}$ | -45   | V    |
| Emitter-Base Voltage           | $V_{EB0}$ | -5    | V    |
| Collector Current (Continuous) | $I_C$     | -200  | mA   |

### Thermal Characteristics

| Parameter                                      | Symbol          | Value      | Unit               |
|------------------------------------------------|-----------------|------------|--------------------|
| Power Dissipation ( $T_A = 25^\circ\text{C}$ ) | $P_D$           | 300        | mW                 |
| Thermal Resistance Junction-to-Air             | $R_{\theta JA}$ | 417        | $^\circ\text{C/W}$ |
| Operating Junction Temperature                 | $T_J$           | -55 ~ +150 | $^\circ\text{C}$   |
| Storage Temperature Range                      | $T_{STG}$       | -55 ~ +150 | $^\circ\text{C}$   |

### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

| Parameter                            | Symbol        | Test Condition                                                                                          | Min. | Typ.  | Max.  | Unit          |
|--------------------------------------|---------------|---------------------------------------------------------------------------------------------------------|------|-------|-------|---------------|
| Collector-Base Breakdown Voltage     | $V_{(BR)CBO}$ | $I_C = -10\mu\text{A}, I_E = 0$                                                                         | -50  | -     | -     | V             |
| Collector-Emitter Breakdown Voltage  | $V_{(BR)CEO}$ | $I_C = -10\text{mA}, I_B = 0$                                                                           | -45  | -     | -     | V             |
| Emitter-Base Breakdown Voltage       | $V_{(BR)EBO}$ | $I_E = -10\mu\text{A}, I_C = 0$                                                                         | -5   | -     | -     | V             |
| Collector Cut-off Current            | $I_{CBO}$     | $V_{CB} = -30\text{V}, I_E = 0, T_J = 25^\circ\text{C}$                                                 | -    | -     | -15   | nA            |
|                                      |               | $V_{CB} = -30\text{V}, I_E = 0, T_J = 150^\circ\text{C}$                                                | -    | -     | -4    | $\mu\text{A}$ |
| Emitter-base Cut-off Current         | $I_{EBO}$     | $V_{EB} = -5\text{V}, I_C = 0$                                                                          | -    | -     | -100  | nA            |
| DC Current Gain                      | $h_{FE}$      | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$                                                                | 200  | -     | 475   | -             |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -10\text{mA}, I_B = -0.5\text{mA}$                                                               | -    | -     | -0.3  | V             |
|                                      |               | $I_C = -100\text{mA}, I_B = -5\text{mA}$                                                                | -    | -     | -0.65 | V             |
| Base-Emitter Saturation Voltage      | $V_{BE(sat)}$ | $I_C = -10\text{mA}, I_B = -0.5\text{mA}$                                                               | -    | -0.70 | -     | V             |
|                                      |               | $I_C = -100\text{mA}, I_B = -5\text{mA}$                                                                | -    | -0.85 | -     | V             |
| Base-Emitter Voltage                 | $V_{BE(ON)}$  | $V_{CE} = -5\text{V}, I_C = -2\text{mA}$                                                                | -0.6 | -     | -0.75 | V             |
|                                      |               | $V_{CE} = -5\text{V}, I_C = -10\text{mA}$                                                               | -    | -     | -0.82 | V             |
| Transition Frequency                 | $f_T$         | $V_{CE} = -5\text{V}, I_C = -10\text{mA}$<br>$f = 100\text{MHz}$                                        | 200  | -     | -     | MHz           |
| Collector Capacitance                | $C_C$         | $V_{CB} = -10\text{V}, I_E = I_C = 0, f = 1\text{MHz}$                                                  | -    | -     | 3.5   | pF            |
| Noise Figure                         | $N_F$         | $I_C = 0.2\text{mA}, V_{CE} = 5\text{V}, R_S = 2\text{k}\Omega$<br>$f = 1\text{kHz}, BW = 200\text{Hz}$ | -    | -     | 2.5   | dB            |

### Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

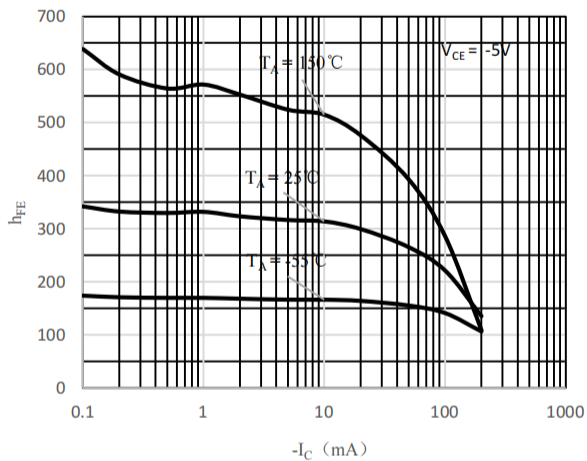


Fig 1  $h_{FE}$  vs.  $I_C$

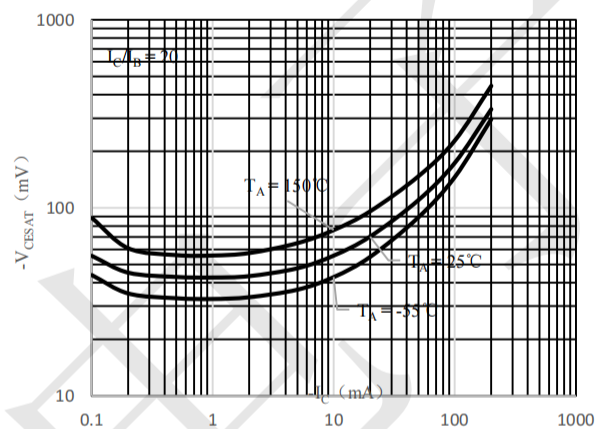


Fig 2  $V_{CE(sat)}$  vs.  $I_C$

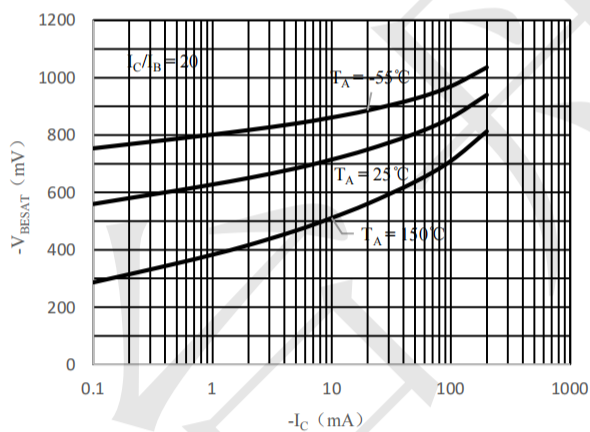


Fig 3  $V_{BE(sat)}$  vs.  $I_C$

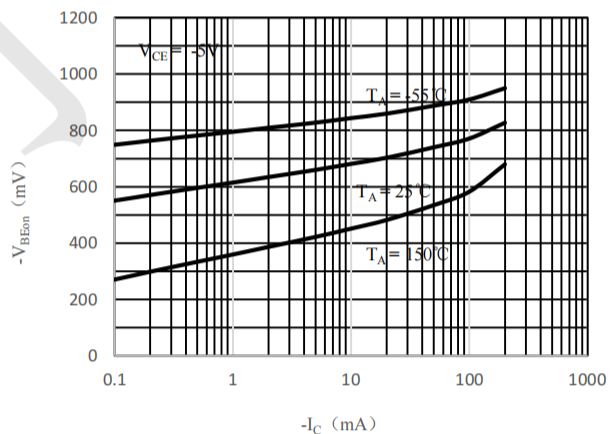
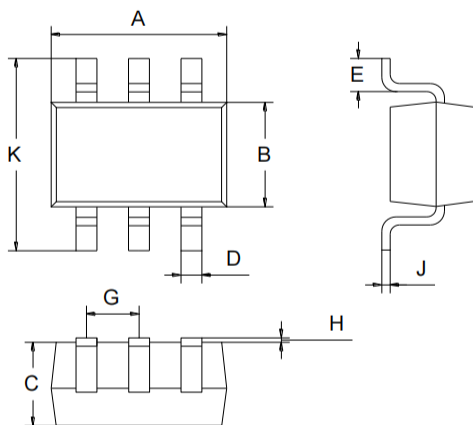


Fig 4  $V_{BE(on)}$  vs.  $I_C$

### Package Outline Dimensions (Unit: mm)

#### SOT-363



| SOT-363   |      |      |
|-----------|------|------|
| Dimension | Min. | Max. |
| A         | 2.00 | 2.20 |
| B         | 1.15 | 1.35 |
| C         | 0.85 | 1.05 |
| D         | 0.15 | 0.35 |
| E         | 0.25 | 0.40 |
| G         | 0.60 | 0.70 |
| H         | 0.02 | 0.10 |
| J         | 0.05 | 0.15 |
| K         | 2.20 | 2.40 |

### Package Outline Dimensions (Unit: mm)

