



FEATURES

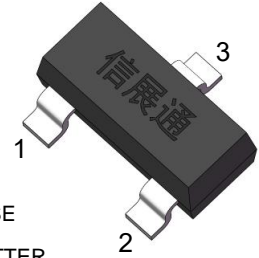
- Epitaxial planar die construction
- Switching Transistor

Marking: 2T

MAXIMUM RATINGS ($T_a=25^\circ\text{C}$ unless otherwise noted)

| Symbol | Parameter | Value | Unit |
|-----------------|--|----------|---------------------------|
| V_{CBO} | Collector-Base Voltage | -40 | V |
| V_{CEO} | Collector-Emitter Voltage | -40 | V |
| V_{EBO} | Emitter-Base Voltage | -5 | V |
| I_C | Collector Current | -600 | mA |
| P_C | Collector Power Dissipation | 300 | mW |
| $R_{\theta JA}$ | Thermal Resistance From Junction To Ambient | 417 | $^\circ\text{C}/\text{W}$ |
| T_j, T_{stg} | Operation Junction and Storage Temperature Range | -55~+150 | $^\circ\text{C}$ |

SOT-23



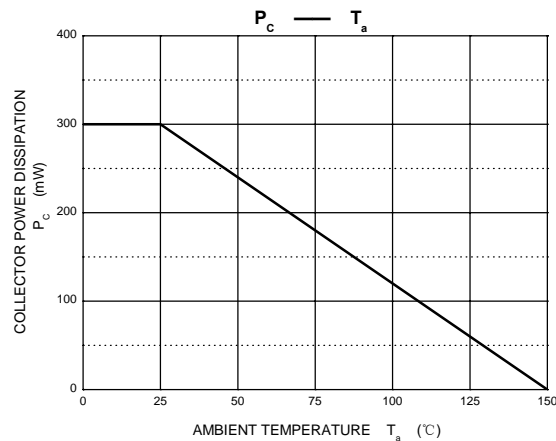
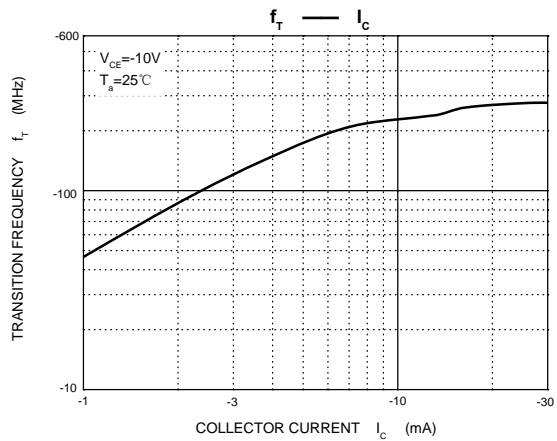
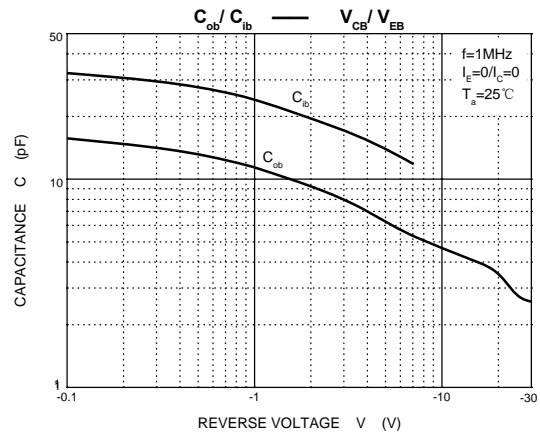
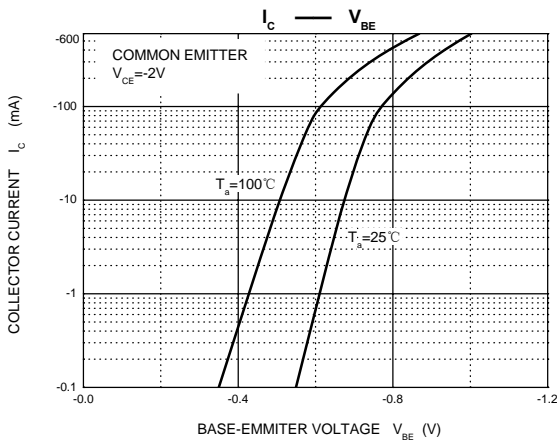
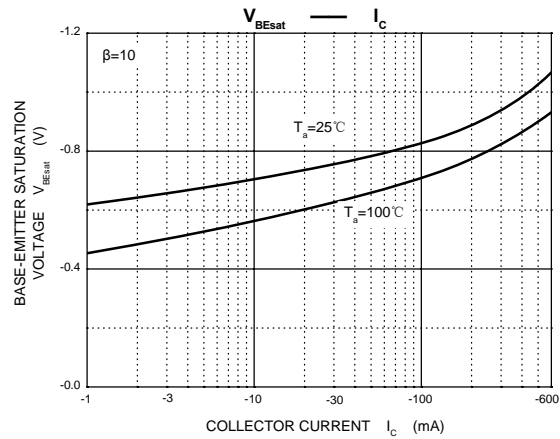
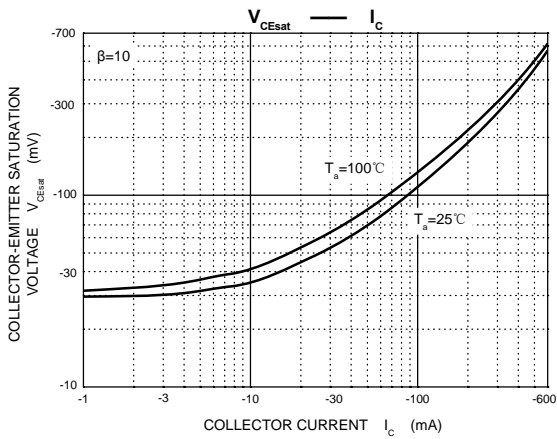
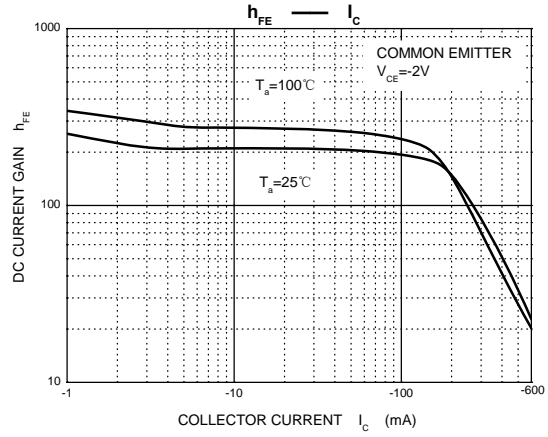
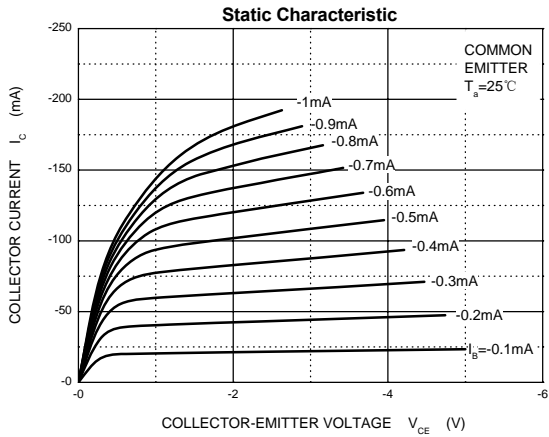
1. BASE
2. EMITTER
3. COLLECTOR

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|---|------------|-----|------------|---------------|
| Collector-base breakdown voltage | $V_{(BR)CBO}$ | $I_C=-100\ \mu\text{A}, I_E=0$ | -40 | | | V |
| Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | $I_C=-1\text{mA}, I_B=0$ | -40 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E=-100\ \mu\text{A}, I_C=0$ | -5 | | | V |
| Collector cut-off current | I_{CBO} | $V_{CB}=-35\text{V}, I_E=0$ | | | -0.1 | μA |
| Collector cut-off current | I_{CEX} | $V_{CE}=-35\text{V}, V_{BE}=0.4\text{V}$ | | | -0.1 | μA |
| Emitter cut-off current | I_{EBO} | $V_{EB}=-4\text{V}, I_C=0$ | | | -0.1 | μA |
| DC current gain | h_{FE1} | $V_{CE}=-1\text{V}, I_C=-0.1\text{mA}$ | HD | | | |
| | h_{FE2} | $V_{CE}=-1\text{V}, I_C=-1\text{mA}$ | $\hat{I}0$ | | | |
| | h_{FE3} | $V_{CE}=-1\text{V}, I_C=-10\text{mA}$ | F \in 0 | | | |
| | h_{FE4} | $V_{CE}=-2\text{V}, I_C=-150\text{mA}$ | 100 | | 300 | |
| | h_{FE5} | $V_{CE}=-2\text{V}, I_C=-500\text{mA}$ | G0 | | | |
| Collector-emitter saturation voltage | $V_{CE(sat)}$ | $I_C=-150\text{mA}, I_B=-15\text{mA}$ | | | -0.4 | V |
| | | $I_C=-500\text{mA}, I_B=-50\text{mA}$ | | | -0.75 | V |
| Base-emitter saturation voltage | $V_{BE(sat)}$ | $I_C=-150\text{mA}, I_B=-15\text{mA}$ | | | -0.95 | V |
| | | $I_C=-500\text{mA}, I_B=-50\text{mA}$ | | | -1.3 | V |
| Transition frequency | f_T | $V_{CE}=-10\text{V}, I_C=-20\text{mA}, f=100\text{MHz}$ | 200 | | | MHz |
| Delay time | t_d | $V_{CC}=-30\text{V}, V_{BE(off)}=-0.5\text{V}$ | | | 15 | μs |
| Rise time | t_r | $I_C=-150\text{mA}, I_{B1}=-15\text{mA}$ | | | 20 | μs |
| Storage time | t_s | $V_{CC}=-30\text{V}, I_C=-150\text{mA}$ | | | 225 | μs |
| Fall time | t_f | $I_{B1}=I_{B2}=-15\text{mA}$ | | | $\hat{I}0$ | μs |

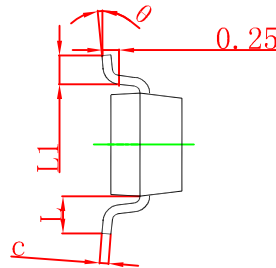


Typical Characteristics



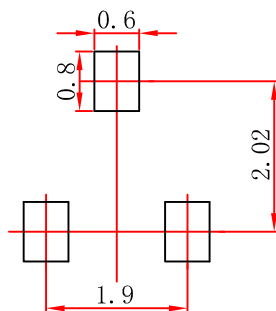


SOT-23 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min | Max | Min | Max |
| A | 0.900 | 1.150 | 0.035 | 0.045 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.900 | 1.050 | 0.035 | 0.041 |
| b | 0.300 | 0.500 | 0.012 | 0.020 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 2.800 | 3.000 | 0.110 | 0.118 |
| E | 1.200 | 1.400 | 0.047 | 0.055 |
| E1 | 2.250 | 2.550 | 0.089 | 0.100 |
| e | 0.950 TYP | | 0.037 TYP | |
| e1 | 1.800 | 2.000 | 0.071 | 0.079 |
| L | 0.550 REF | | 0.022 REF | |
| L1 | 0.300 | 0.500 | 0.012 | 0.020 |
| θ | 0° | 8° | 0° | 8° |

SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: ± 0.05mm.
3. The pad layout is for reference purposes only.