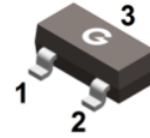
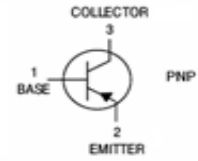


Features

- Epitaxial planar die construction
- Ultra-small surface mount package
- RoHS compliant with Halogen-free

HF



SOT-23

Mechanical Data

- Case: SOT-23
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Tin-plated; solderability per MIL-STD-202, Method 208

Ordering Information

| Part Number | Package | Shipping Quantity | Marking Code |
|-------------|---------|------------------------|--------------|
| MMBT2907 | SOT-23 | 3000 pcs / Tape & Reel | M2B |

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|-------------------------------------|------------------|-------|------|
| Collector-Base Breakdown Voltage | V _{CBO} | -60 | V |
| Collector-Emitter Breakdown Voltage | V _{CEO} | -40 | V |
| Emitter-Base Breakdown Voltage | V _{EBO} | -5 | V |
| Collector Current (Continuous) | I _C | -0.6 | A |
| Collector Current (Peak) | I _{CM} | -1.2 | A |

Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|---|------------------|------------|------|
| Power Dissipation | P _D | 350 | mW |
| Thermal Resistance (Junction-to-Ambient) *1 | R _{θJA} | 275 | °C/W |
| Thermal Resistance (Junction-to-Case) *1 | R _{θJC} | 160 | °C/W |
| Thermal Resistance (Junction-to-Lead) *1 | R _{θJL} | 210 | °C/W |
| Ambient Temperature | T _A | -55 ~ +150 | °C |
| Operating junction Temperature | T _J | -55 ~ +150 | °C |
| Storage Temperature Range | T _{STG} | -55 ~ +150 | °C |

Note 1: The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper

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

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|---|------|------|------|------|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = -10\mu\text{A}, I_E = 0$ | -60 | - | - | V |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = -10\text{mA}, I_B = 0$ | -40 | - | - | 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} | $V_{CB} = -50\text{V}, I_E = 0$ | - | - | -20 | nA |
| Collector Cut-off Current | I_{CEX} | $V_{CE} = -30\text{V}, V_{EB(OFF)} = -0.5\text{V}$ | - | - | -50 | nA |
| DC Current Gain | h_{FE} | $V_{CE} = -10\text{V}, I_C = -0.1\text{mA}$ | 35 | - | - | - |
| | | $V_{CE} = -10\text{V}, I_C = -1\text{mA}$ | 50 | - | - | - |
| | | $V_{CE} = -10\text{V}, I_C = -10\text{mA}$ | 75 | - | - | - |
| | | $V_{CE} = -10\text{V}, I_C = -150\text{mA}$ | 100 | - | 300 | - |
| | | $V_{CE} = -10\text{V}, I_C = -500\text{mA}$ | 30 | - | - | - |
| Collector-emitter Saturation Voltage | $V_{CE(sat)}$ | $I_C = -500\text{mA}, I_B = -50\text{mA}$ | - | - | -1.6 | V |
| | | $I_C = -150\text{mA}, I_B = -15\text{mA}$ | - | - | -0.4 | V |
| Base-emitter Saturation Voltage | $V_{BE(sat)}$ | $I_C = -500\text{mA}, I_B = -50\text{mA}$ | - | - | -2.6 | V |
| | | $I_C = -150\text{mA}, I_B = -15\text{mA}$ | - | - | -1.3 | V |
| Transition Frequency | f_T | $I_C = -50\text{mA}, V_{CE} = -20\text{V}$ $f = 100\text{MHz}$ | 200 | - | - | MHz |
| Collector Output Capacitance | C_{OBO} | $V_{CB} = -10\text{V}, I_E = 0, f = 1\text{MHz}$ | - | - | 8 | pF |
| Input Capacitance | C_{IBO} | $V_{EB} = -2\text{V}, I_C = 0, f = 1\text{MHz}$ | - | - | 30 | pF |
| Delay Time | t_d | $V_{CC} = -30\text{V}, I_C = -150\text{mA}$ | - | - | 10 | ns |
| Rise Time | t_r | $I_{B1} = -15\text{mA}$ | - | - | 40 | ns |
| Storage Time | t_s | $V_{CC} = -6\text{V}, I_C = -150\text{mA}$ | - | - | 80 | ns |
| Fall Time | t_f | $I_{B1} = I_{B2} = -15\text{mA}$ | - | - | 30 | ns |

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

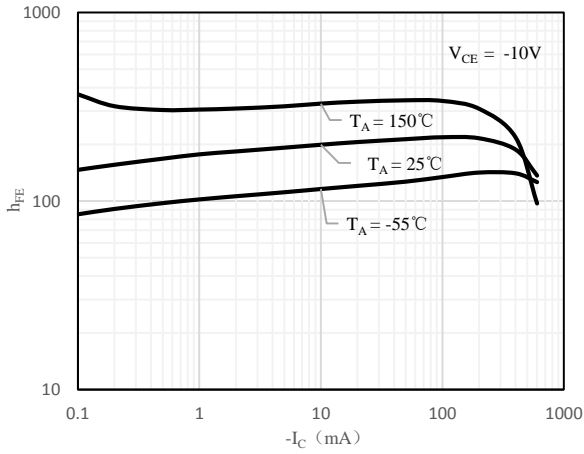


Fig 1 h_{FE} vs. I_c

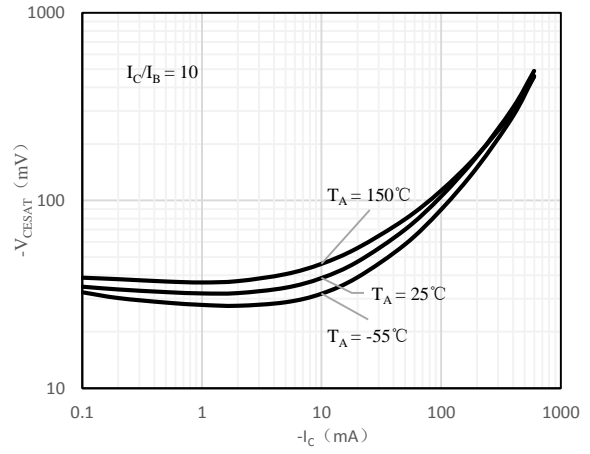


Fig 2 $V_{CE(sat)}$ vs. I_c

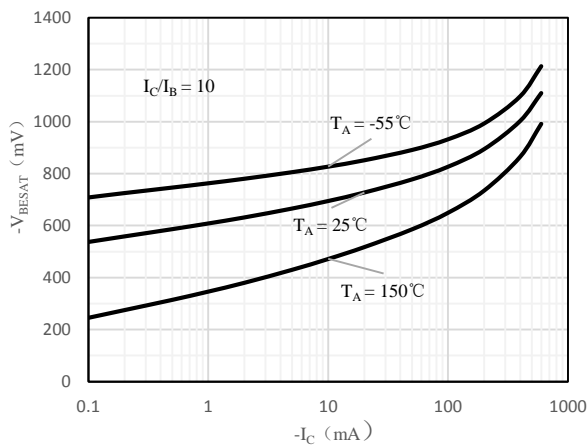


Fig 3 $V_{BE(sat)}$ vs. I_c

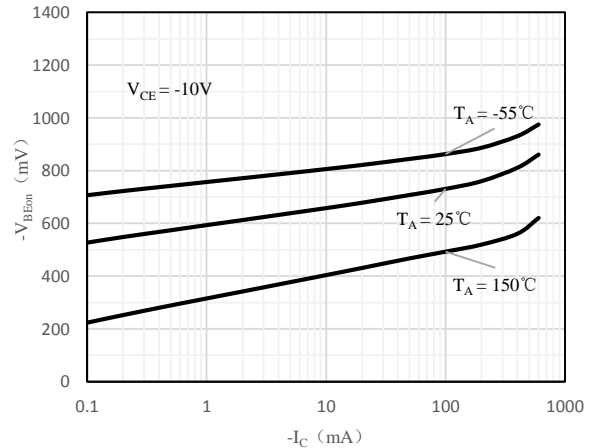


Fig 4 $V_{BE(ON)}$ vs. I_c

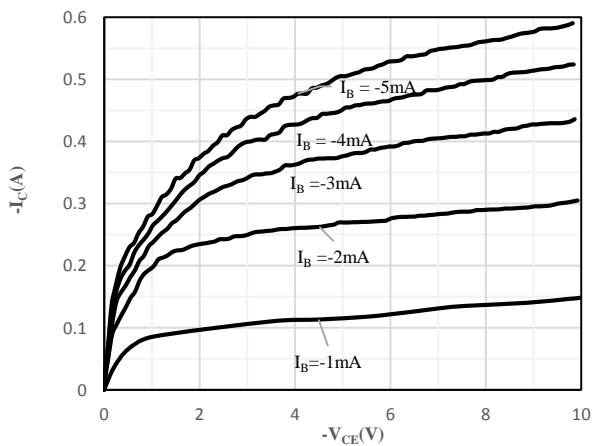


Fig 5 I_c vs. V_{CE}

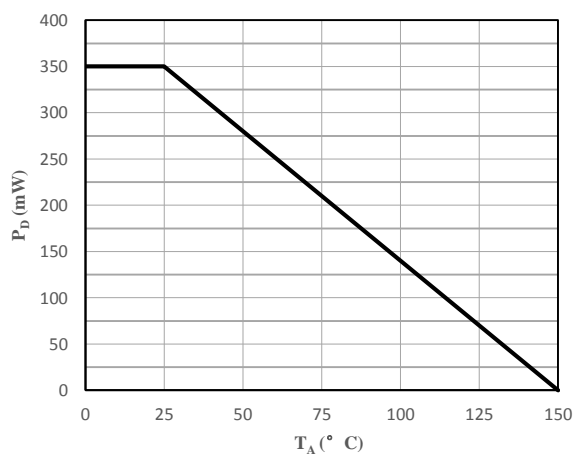


Fig 6 P_D vs. T_A

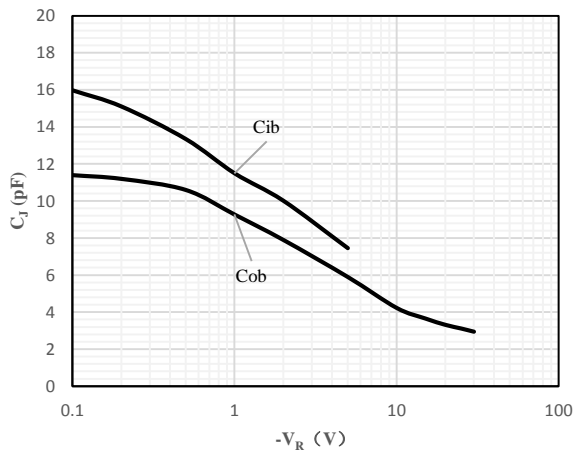
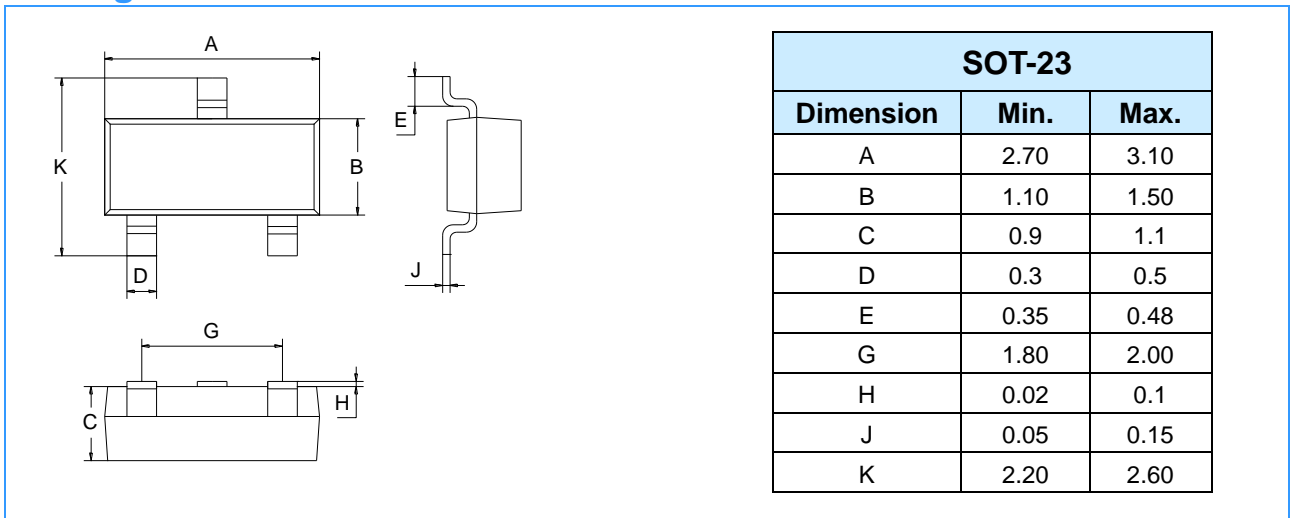


Fig 7 C_J vs. V_R

Package Outline Dimensions (Unit: mm)



Package Outline Dimensions (Unit: mm)

