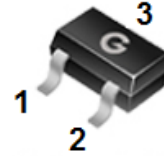
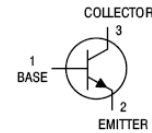


Features

- Epitaxial planar die construction
- Complimentary to 2A1576A
- Ultra-small surface mount package
- RoHS compliant with Halogen-free

HF



SOT-323

Mechanical Data

- Case: SOT-323
- 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 |
|-------------|---------|------------------------|--------------|
| 2SC4081-Q | SOT-323 | 3000 pcs / Tape & Reel | BQ |
| 2SC4081-R | SOT-323 | 3000 pcs / Tape & Reel | BR |
| 2SC4081-S | SOT-323 | 3000 pcs / Tape & Reel | BS |

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} | 50 | V |
| Emitter-Base Breakdown Voltage | V _{EBO} | 7 | V |
| Continuous Collector Current | I _C | 150 | mA |
| Peak Collector Current | I _{CM} | 200 | mA |

Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|---|------------------|------------|------|
| Power Dissipation | P _D | 250 | mW |
| Thermal Resistance Junction-to-Air ^{*1} | R _{θJA} | 387 | °C/W |
| Thermal Resistance Junction-to-Case ^{*1} | R _{θJC} | 199 | °C/W |
| Thermal Resistance Junction-to-Lead ^{*1} | R _{θJL} | 264 | °C/W |
| 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 15mm * 15mm * 1mm FR4-epoxy P.C.B

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

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|--------------------------------------|---------------|--|------|------|------|---------------|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_C = 50\mu\text{A}, I_E = 0$ | 60 | - | - | V |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_C = 1\text{mA}, I_B = 0$ | 50 | - | - | V |
| Emitter-Base Breakdown Voltage | $V_{(BR)EBO}$ | $I_E = 50\mu\text{A}, I_C = 0$ | 7 | - | - | V |
| Collector Cut-off Current | I_{CBO} | $V_{CB} = 60\text{V}, I_E = 0$ | - | - | 0.1 | μA |
| Emitter Cut-off Current | I_{EBO} | $V_{EB} = 7\text{V}, I_C = 0$ | - | - | 0.1 | μA |
| DC Current Gain | h_{FE} | $V_{CE} = 6\text{V}, I_C = 1\text{mA}$ | 120 | - | 560 | - |
| Collector-emitter Saturation Voltage | $V_{CE(sat)}$ | $I_{CE} = 50\text{mA}, I_B = 5\text{mA}$ | - | - | 0.4 | V |
| Base-emitter Voltage | $V_{BE(ON)}$ | $V_{CE} = 6\text{V}, I_C = 1\text{mA}$ | 0.5 | 0.63 | 0.8 | V |
| Transition Frequency | f_T | $I_C = 2\text{mA}, V_{CE} = 12\text{V}$ $f = 100\text{MHz}$ | - | 180 | - | MHz |
| Collector Output Capacitance | C_{ob} | $V_{CB} = 12\text{V}, I_E = 0, f = 1\text{MHz}$ | - | - | 3.5 | pF |

Classification of h_{FE}

| Rank | Q | R | S |
|---------|---------|---------|---------|
| Range | 120-270 | 180-390 | 270-560 |
| Marking | BQ | BR | BS |

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

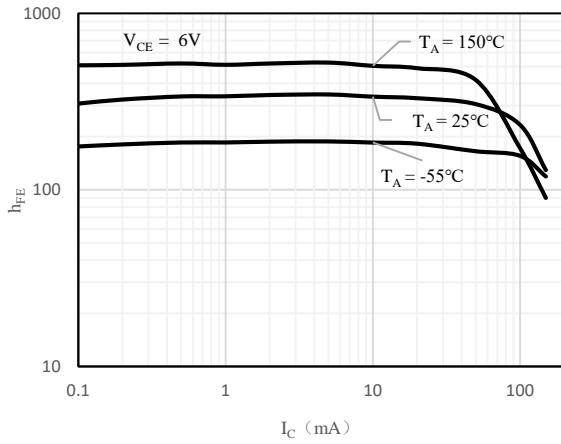


Fig 1 h_{FE} vs. I_C

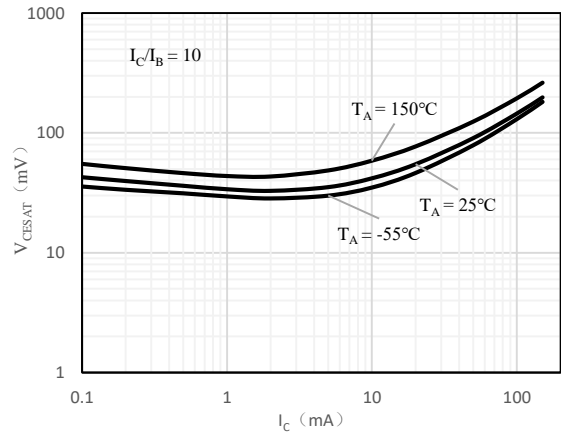


Fig 2 $V_{CE(sat)}$ vs. I_C

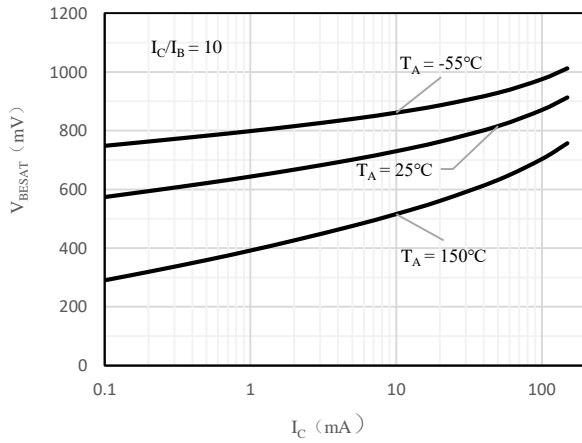


Fig 3 $V_{BE(sat)}$ vs. I_C

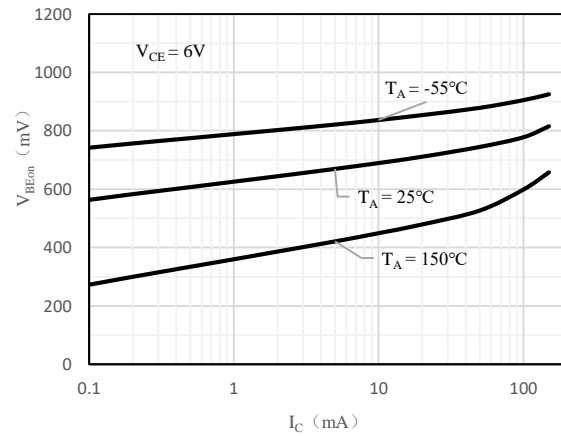
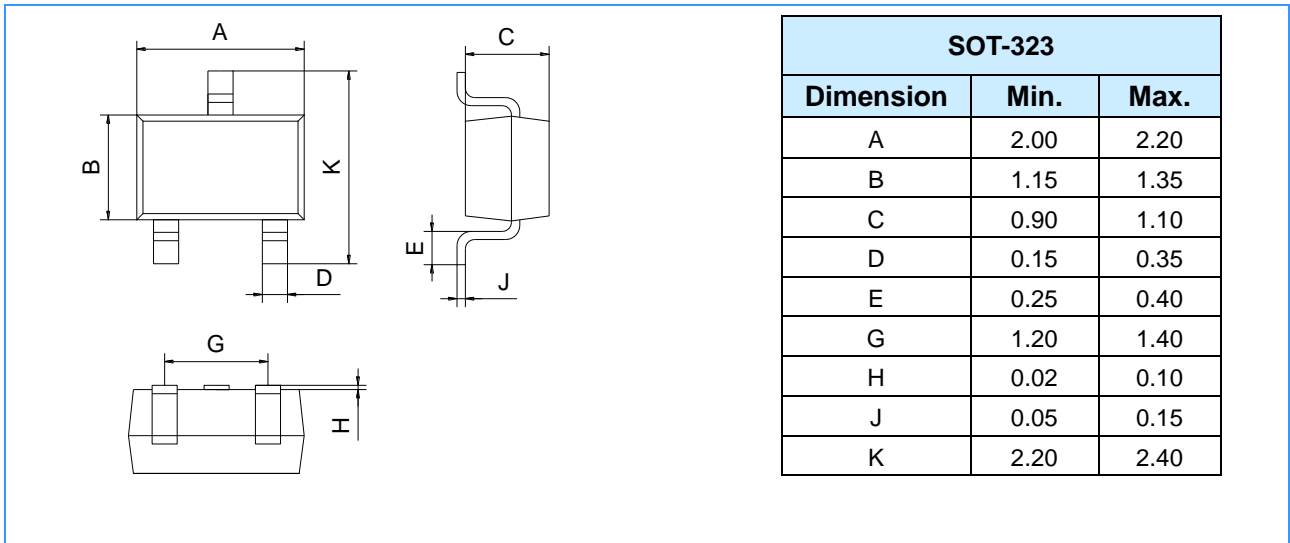


Fig 4 $V_{BE(on)}$ vs. I_C

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)

