

Bias Resistor Transistors

PNP Silicon Surface Mount Transistors with Monolithic

Bias Resistor Network

FEATURES

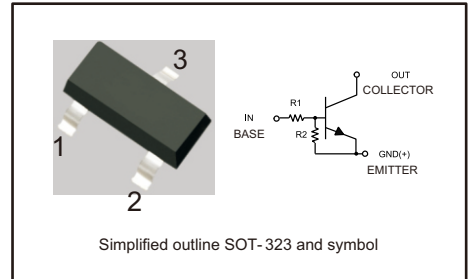
- Reduces board space
- Simplifies Circuit Design
- Reduces Board Space and Component Count

Mechanical Data

- Case: SOT-323
- $R_1 = 2.2K\Omega$ (Typ), $R_2 = 47K\Omega$ (Typ)

PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1 | BASE |
| 2 | EMITTER |
| 3 | COLLECTOR |



MAXIMUM RATINGS (Ta = 25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|-----------|------|
| Collector-Base Voltage | V_{CBO} | -50 | V |
| Collector-Emitter Voltage | V_{CEO} | -50 | V |
| Output current | I_c | -100 | mA |
| Power dissipation | P_D | 200 | mW |
| Thermal Resistance – Junction-to-Ambient | $R_{\theta JA}$ | 625 | °C/W |
| Junction temperature | T_J | 150 | °C |
| Range of storage temperature | T_{stg} | -55~ +150 | °C |

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

| Parameter | Symbol | Test conditions | Min | Typ | Max | Unit |
|--------------------------------------|---------------|--|------|------|-------|------------|
| Collector-Base Breakdown Voltage | $V_{(BR)CBO}$ | $I_c = -10\mu A, I_E = 0$ | -50 | | | V |
| Collector-Emitter Breakdown Voltage | $V_{(BR)CEO}$ | $I_c = -2mA, I_B = 0$ | -50 | | | V |
| Emitter-base breakdown voltage | $V_{(BR)EBO}$ | $I_E = -1mA, I_c = 0$ | -5 | | | V |
| Collector-Base Cut off Current | I_{CBO} | $V_{CB} = -50V, I_E = 0$ | | | -100 | nA |
| Collector-Emitter Cut off Current | I_{CEO} | $V_{CE} = -50V, I_B = 0$ | | | -0.5 | uA |
| Emitter-Base Cut off Current | I_{EBO} | $V_{EB} = -6V, I_c = 0$ | | | -0.2 | mA |
| DC Current Gain | h_{FE} | $V_{CE} = -10V, I_c = -5mA$ | 80 | | | |
| Output Voltage (on) | V_{OL} | $V_{CE} = -5.0V, V_{BE} = -2.5V, R_L = 1.0K\Omega$ | | | -0.2 | V |
| Output Voltage (off) | V_{OH} | $V_{CE} = -5.0V, V_{BE} = -0.5V, R_L = 1.0K\Omega$ | -4.9 | | | V |
| Collector-Emitter Saturation Voltage | $V_{CE(sat)}$ | $I_c = -10mA, I_B = -0.1mA$ | | | -0.25 | V |
| Input Voltage(off) | $V_{I(off)}$ | $V_{CE} = -5V, I_c = -100\mu A$ | -0.5 | | | V |
| Input Voltage(on) | $V_{I(on)}$ | $V_{CE} = -0.3V, I_c = -5mA$ | | | -1.1 | V |
| Input resistance | R_1 | | 1.5 | 2.2 | 2.9 | K Ω |
| Input resistance | R_2 | | 32.9 | 47.0 | 61.1 | K Ω |
| Resistance ratio | R_2 / R_1 | | 17.1 | 21.4 | 25.6 | |



Typical Performance Characteristics

Fig 1. HFE vs. IC

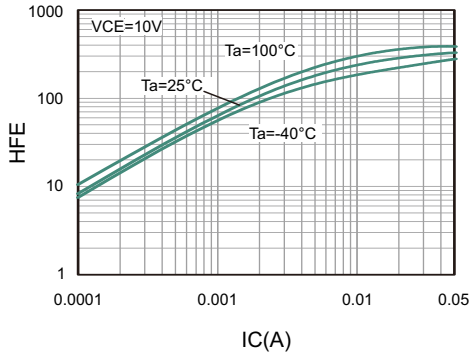


Fig 2. Vin vs. IC

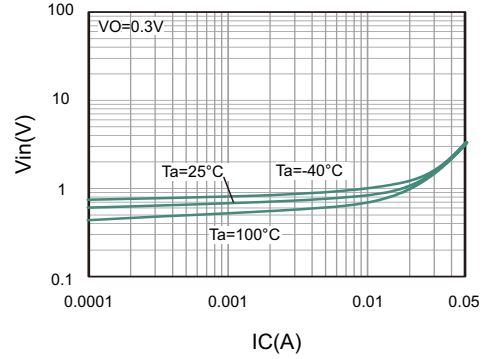


Fig 3. IC vs. Vin

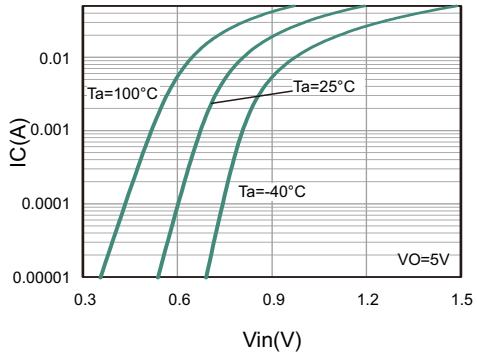


Fig 4. VCE(sat) vs. IC

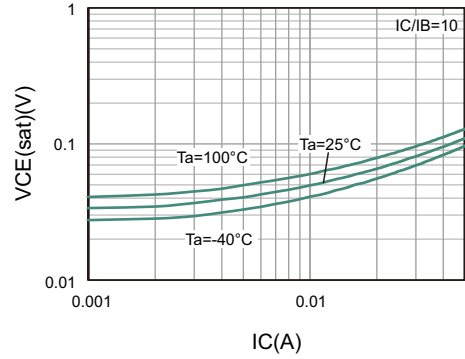
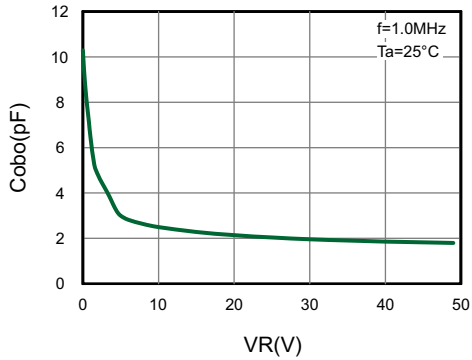
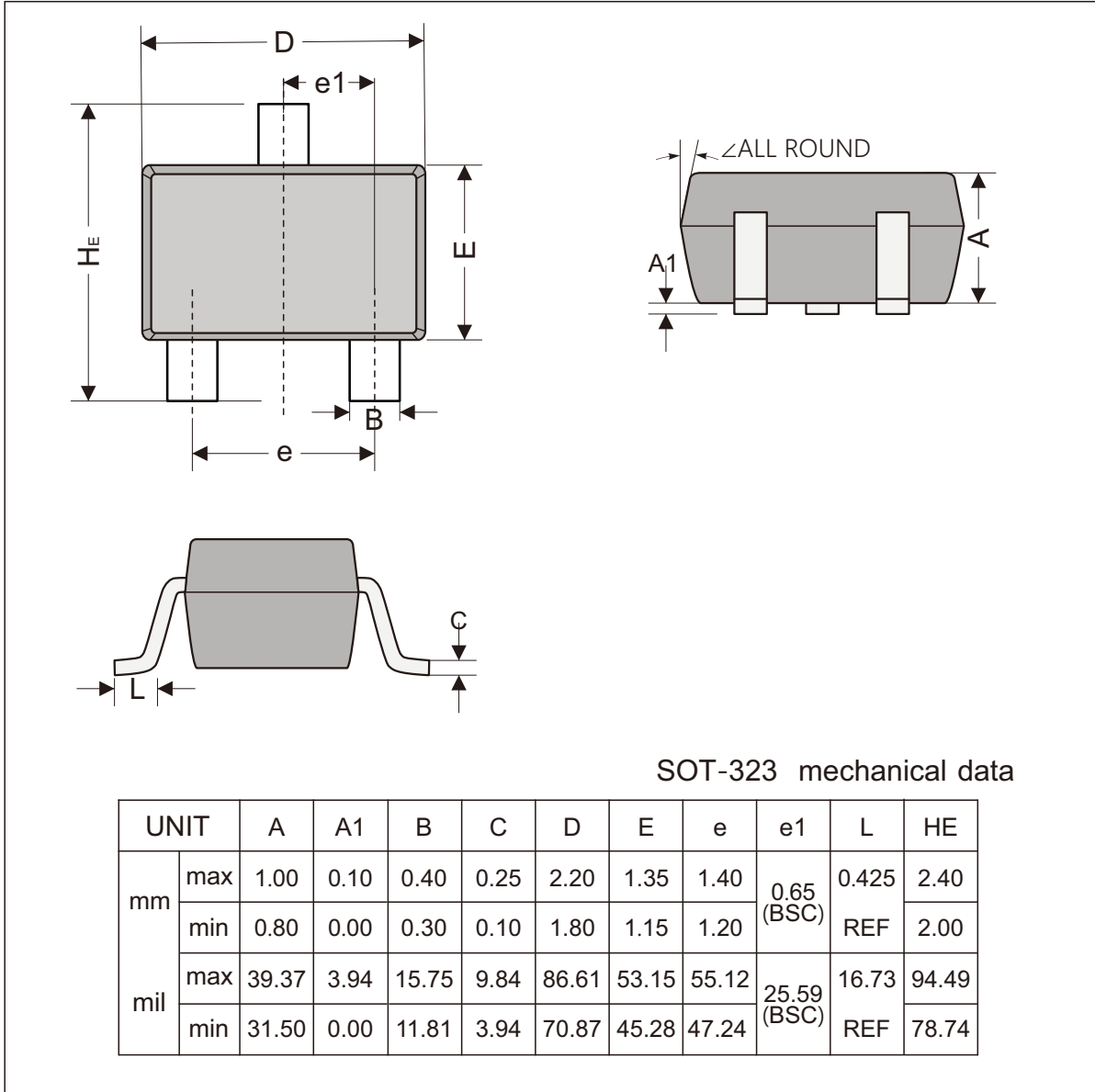


Fig 5. Capacitance

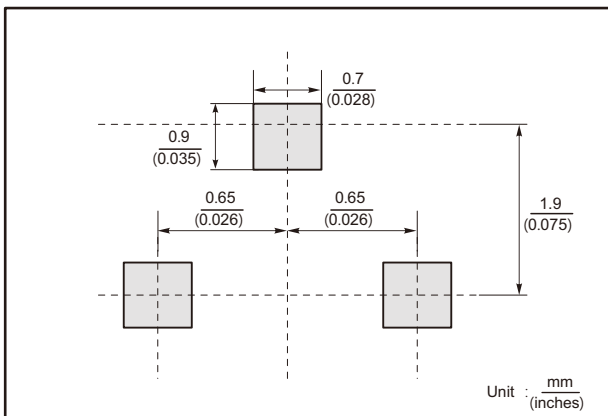




SOT-323 Package Outline Dimensions



The recommended mounting pad size



Marking

| Type number | Marking code |
|-------------|--------------|
| JDTA123JWG | J23 |



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