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Tel: +86-755-8981 8866 Fax: +86-755-8427 6832

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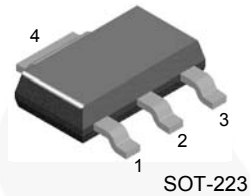


February 2015

BCP56 NPN General-Purpose Amplifier

Description

These devices are designed for general-purpose medium power amplifiers and switches requiring collector currents to 1 A. Sourced from process 39.



1. Base 2.4. Collector 3. Emitter

Ordering Information

| Part Number | Marking | Package | Packing Method |
|-------------|---------|------------|----------------|
| BCP56 | BCP56 | SOT-223 4L | Tape and Reel |

Absolute Maximum Ratings^{(1),(2)}

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Value | Unit |
|----------------|--|-------------|------------------|
| V_{CEO} | Collector-Emitter Voltage | 80 | V |
| V_{CBO} | Collector-Base Voltage | 100 | V |
| V_{EBO} | Emitter-Base Voltage | 5 | V |
| I_C | Collector Current - Continuous | 1.2 | A |
| T_J, T_{STG} | Operating and Storage Junction Temperature Range | -55 to +150 | $^\circ\text{C}$ |

Notes:

1. These ratings are based on a maximum junction temperature of 150°C .
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.

Thermal Characteristics⁽³⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Max. | Unit |
|-----------------|---|------|---------------------------|
| P_D | Total Power Dissipation | 1 | W |
| | Derate Above 25°C | 8 | mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 125 | $^\circ\text{C}/\text{W}$ |

Note:

3. Device is mounted on FR-4 PCB 36 mm X 18 mm X 1.5 mm; mounting pad for the collector lead minimum 6 cm².

Electrical Characteristics

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

| Symbol | Parameter | Conditions | Min. | Max. | Unit |
|---------------|---|--|------|------|---------------|
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = 10\text{ mA}, I_B = 0$ | 80 | | V |
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = 100\ \mu\text{A}, I_E = 0$ | 100 | | V |
| BV_{EBO} | Emitter-Base Breakdown Voltage | $I_E = 10\ \mu\text{A}, I_C = 0$ | 5 | | V |
| I_{CBO} | Collector Cut-Off Current | $V_{CB} = 30\text{ V}, I_E = 0$ | | 100 | nA |
| | | $V_{CB} = 30\text{ V}, I_E = 0, T_J = 125^\circ\text{C}$ | | 10 | μA |
| I_{EBO} | Emitter Cut-Off Current | $V_{EB} = 5\text{ V}, I_C = 0$ | | 10 | μA |
| h_{FE} | DC Current Gain ⁽⁴⁾ | $V_{CE} = 2\text{ V}, I_C = 5\text{ mA}$ | 25 | | |
| | | $V_{CE} = 2\text{ V}, I_C = 150\text{ mA}$ | 40 | 250 | |
| | | $V_{CE} = 2\text{ V}, I_C = 500\text{ mA}$ | 25 | | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage ⁽⁴⁾ | $I_C = 500\text{ mA}, I_B = 50\text{ mA}$ | | 0.5 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage ⁽⁴⁾ | $I_C = 500\text{ mA}, V_{CE} = 2\text{ V}$ | | 1 | V |

Note:

4. Pulse test: pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2.0\%$

Physical Dimensions

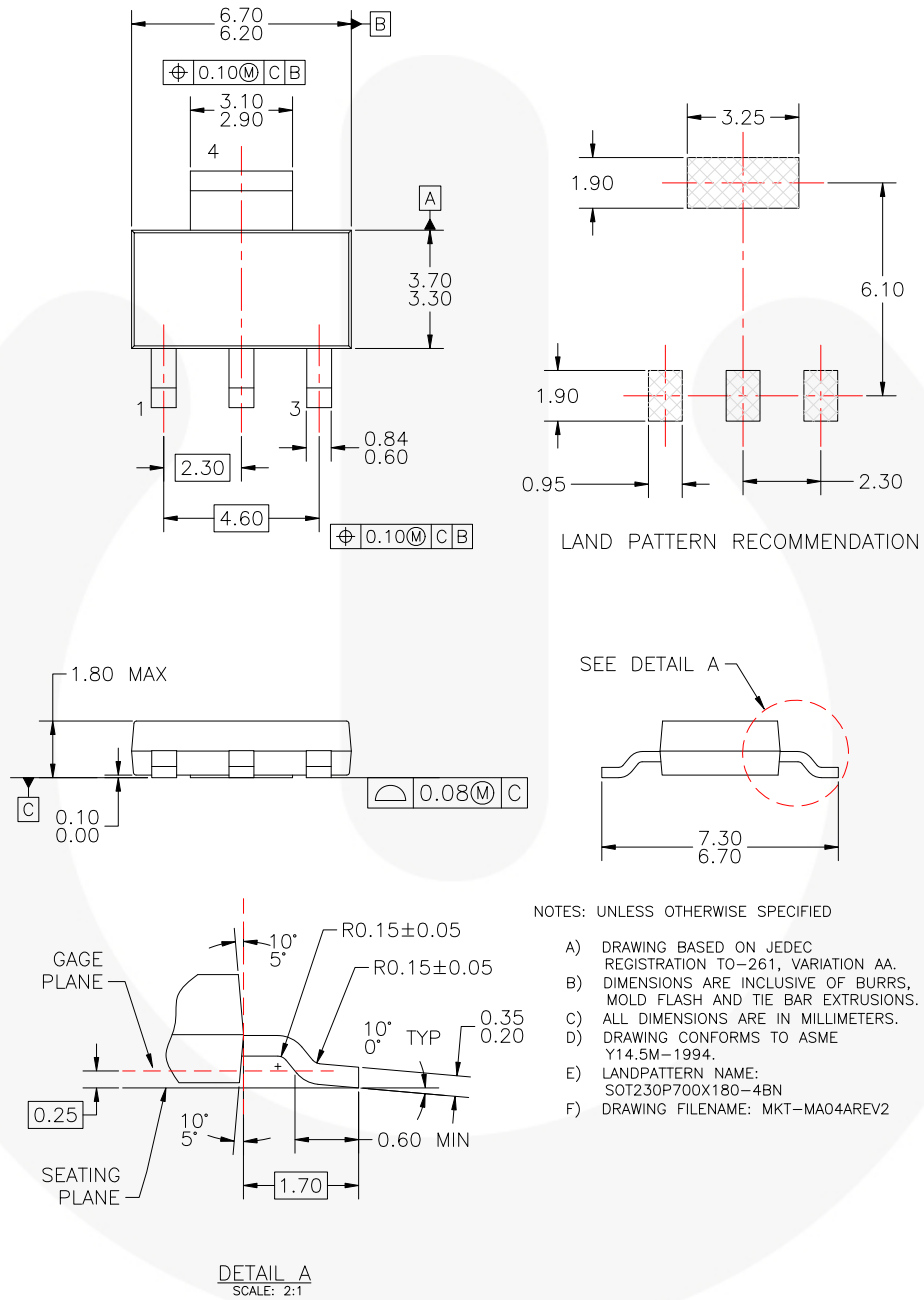







Figure 1. MOLDED PACKAGE, SOT-223, 4-LEAD



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