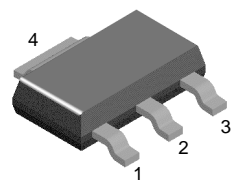


# BCP51

## PNP General Purpose Amplifier

- This device is designed for general purpose medium power amplifiers and switches requiring collector currents to 1.0A.
- Sourced from process 77.



SOT-223

1. Base 2. Collector 3. Emitter

## Absolute Maximum Ratings\* $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol         | Parameter  | Value      | Units            |
|----------------|--|------------|------------------|
| $V_{CEO}$      | Collector-Emitter Voltage                        | -45        | V                |
| $V_{CBO}$      | Collector-Base Voltage                           | -45        | V                |
| $V_{EBO}$      | Emitter-Base Voltage                             | -5.0       | V                |
| $I_C$          | Collector Current - Continuous                   | -1.5       | A                |
| $T_J, T_{STG}$ | Operating and Storage Junction Temperature Range | - 55 ~ 150 | $^\circ\text{C}$ |

\* These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

### NOTES:

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

## Electrical Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

| Symbol                     | Parameter                            | Test Condition   | Min.           | Max.        | Units               |
|----------------------------|--------------------------------------|--|----------------|-------------|---------------------|
| <b>Off Characteristics</b> |                                      |  |                |             |                     |
| $V_{(BR)CEO}$              | Collector-Emitter Sustaining Voltage | $I_C = -10\text{mA}, I_B = 0$  | -45            |             | V                   |
| $V_{(BR)CBO}$              | Collector-Base Breakdown Voltage     | $I_C = -100\mu\text{A}, I_E = 0$   | -45            |             | V                   |
| $V_{(BR)EBO}$              | Emitter-Base Breakdown Voltage       | $I_E = -10\mu\text{A}, I_C = 0$  | -5.0           |             | V                   |
| $I_{CBO}$                  | Collector Cutoff Current             | $V_{CB} = -30\text{V}, I_E = 0$<br>$V_{CB} = -30\text{V}, I_E = 0, T_a = 125^\circ\text{C}$  |                | -100<br>-10 | nA<br>$\mu\text{A}$ |
| $I_{EBO}$                  | Emitter Cut-off Current              | $V_{EB} = -5.0\text{V}, I_C = 0$   |                | -10         | $\mu\text{A}$       |
| <b>On Characteristics</b>  |                                      |  |                |             |                     |
| $h_{FE}$                   | DC Current Gain                      | $I_C = -5.0\text{mA}, V_{CE} = -2.0\text{V}$<br>$I_C = -150\text{mA}, V_{CE} = -2.0$<br>$I_C = -500\text{mA}, V_{CE} = -2.0\text{V}$ | 25<br>40<br>25 | 250         |                     |
| $V_{CE(sat)}$              | Collector-Emitter Saturation Voltage | $I_C = -500\text{mA}, I_B = -50\text{mA}$  |                | -0.5        | V                   |
| $V_{BE(on)}$               | Base-Emitter On Voltage              | $I_C = -500\text{mA}, V_{CE} = -2.0\text{V}$   |                | -1.0        | V                   |

## Thermal Characteristics $T_a=25^\circ\text{C}$ unless otherwise noted

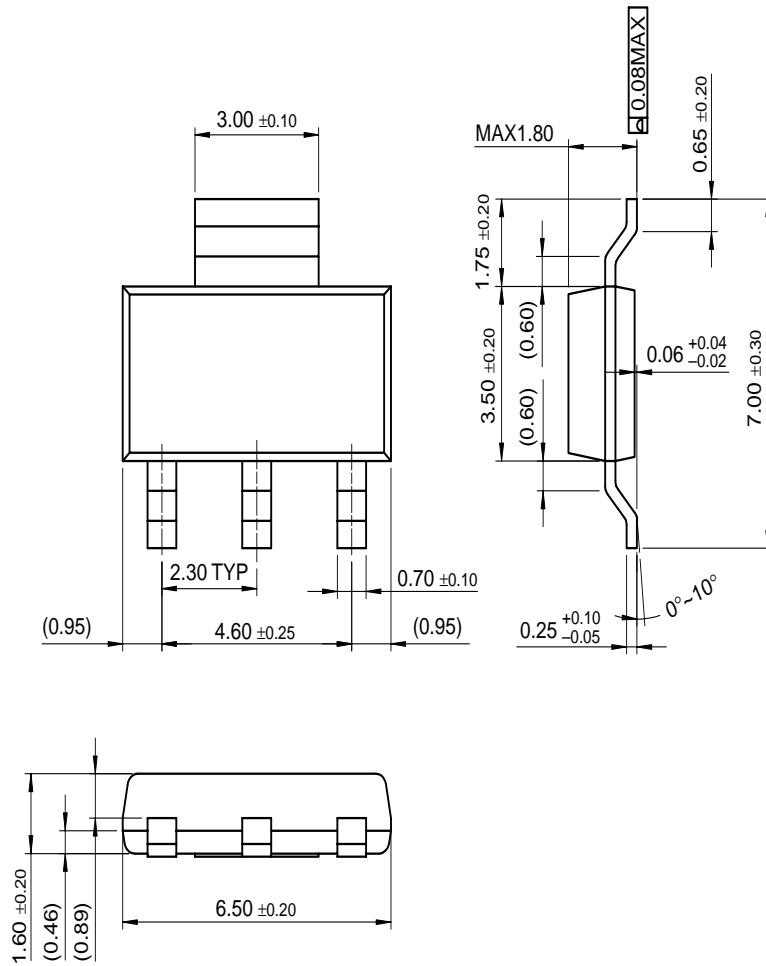
| Symbol          | Parameter   | Max.       | Units                           |
|-----------------|---|------------|---------------------------------|
| $P_D$           | Total Device Dissipation<br>Derate above $25^\circ\text{C}$ | 1.0<br>8.0 | W<br>$\text{mW}/^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient                     | 125        | $^\circ\text{C}/\text{W}$       |

\* Device mounted on FR-4PCB 36mm x 18mm x 1.5mm; mounting pad for the collector lead min. 6cm<sup>2</sup>.

# Package Dimensions

BCP51

## SOT-223



Dimensions in Millimeters

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| ActiveArray <sup>™</sup>                         | FAST <sub>r</sub> <sup>™</sup>  | LittleFET <sup>™</sup>    | PowerSaver <sup>™</sup>         | SuperSOT <sup>™</sup> -3    |
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