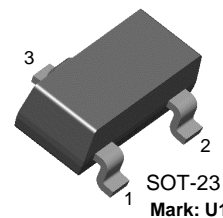


# BCX19

## NPN Medium Power Transistor

- This device is designed for general purpose amplifiers.
- Sourced from process 38.



SOT-23  
Mark: U1  
1. Base 2. Emitter 3. Collector

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

| Symbol         | Parameter                        | Value      | Units            |
|----------------|----------------------------------|------------|------------------|
| $V_{CEO}$      | Collector-Emitter Voltage        | 45         | V                |
| $V_{CBO}$      | Collector-Base Voltage           | 50         | V                |
| $V_{EBO}$      | Emitter-Base Voltage             | 5.0        | V                |
| $I_C$          | Collector current - Continuous   | 500        | mW               |
| $T_J, T_{stg}$ | Junction and Storage Temperature | -55 ~ +150 | $^\circ\text{C}$ |

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

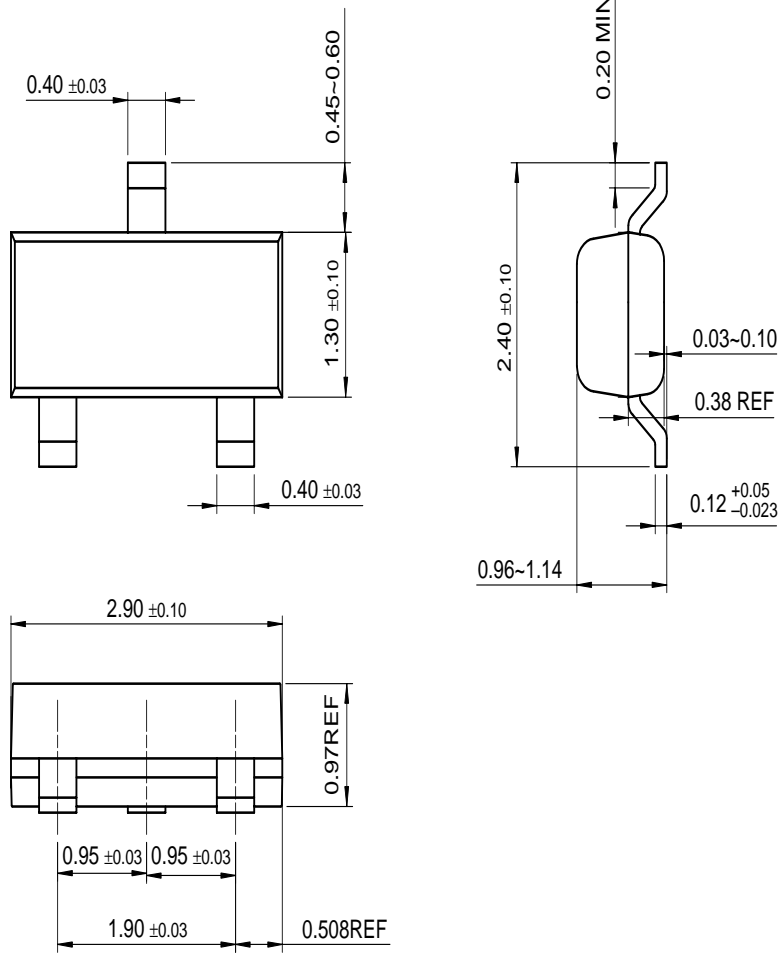
| Symbol                     | Parameter                            | Test Condition   | Min.            | Typ. | Max.       | Units               |
|----------------------------|--------------------------------------|--|-----------------|------|------------|---------------------|
| <b>Off Characteristics</b> |                                      |  |                 |      |            |                     |
| $V_{(BR)CEO}$              | Collector-Emitter Breakdown Voltage  | $I_C = 10\text{mA}, I_B = 0$   | 45              |      |            | V                   |
| $V_{(BR)CES}$              | Collector-Emitter Breakdown Voltage  | $I_C = 10\mu\text{A}, I_C = 0$   | 50              |      |            | V                   |
| $I_{CBO}$                  | Collector Cutoff Current             | $V_{CB} = 20\text{V}, I_E = 0$<br>$V_{CB} = 20\text{V}, I_E = 0, T_A = 150^\circ\text{C}$  |                 |      | 100<br>5.0 | nA<br>$\mu\text{A}$ |
| $I_{EBO}$                  | Emitter Cutoff Current               | $V_{EB} = 5.0\text{V}, I_C = 0$  |                 |      | 10         | $\mu\text{A}$       |
| <b>On Characteristics</b>  |                                      |  |                 |      |            |                     |
| $h_{FE}$                   | DC Current Gain                      | $I_C = 100\text{mA}, V_{CE} = 1.0\text{V}$<br>$I_C = 300\text{mA}, V_{CE} = 1.0\text{V}$<br>$I_C = 500\text{mA}, V_{CE} = 1.0\text{V}$ | 100<br>70<br>40 |      | 600        |                     |
| $V_{CE(sat)}$              | Collector-Emitter Saturation Voltage | $I_C = 500\text{mA}, I_B = 50\text{mA}$  |                 |      | 0.62       | V                   |
| $V_{BE(on)}$               | Base-Emitter On Voltage              | $I_C = 500\text{mA}, V_{CE} = 1.0\text{V}$   |                 |      | 1.2        | V                   |

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

| Symbol          | Parameter   | Max.       | Units                            |
|-----------------|---|------------|----------------------------------|
| $P_D$           | Total Device Dissipation<br>Derate above $25^\circ\text{C}$ | 300<br>2.4 | mW<br>$\text{mW}/^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient                     | 417        | $^\circ\text{C}/\text{W}$        |

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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