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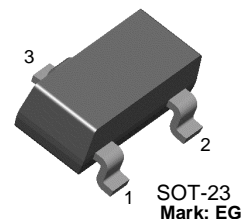
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# BCW66G

## NPN General Purpose Amplifier

- This device is designed for general purpose amplifier applications at collector currents to 500mA.
- Sourced from process 13.



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                           | 75          | V                |
| $V_{EBO}$      | Emitter-Base Voltage                             | 5           | V                |
| $I_C$          | Collector Current - Continuous                   | 1           | 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 150degrees C.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

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

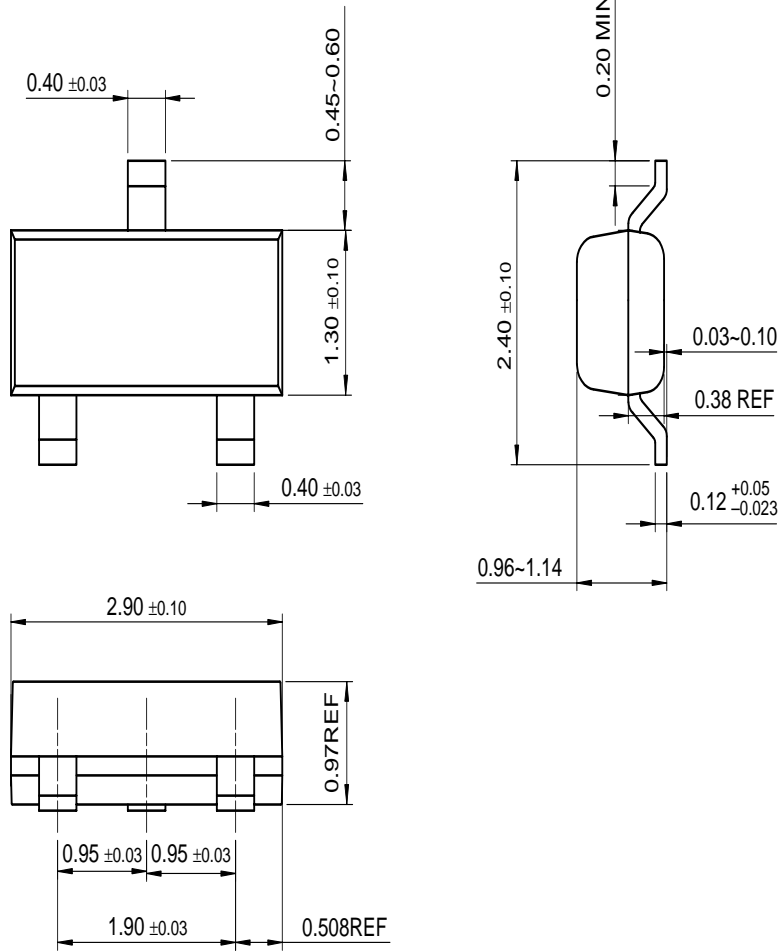
| Symbol        | Parameter                            | Test Condition  | Min. | Typ. | Max. | Units         |
|---------------|--------------------------------------|---|------|------|------|---------------|
| $BV_{CBO}$    | Collector-Base Breakdown Voltage     | $I_C = 10\mu\text{A}$   | 75   |      |      | V             |
| $BV_{CEO}$    | Collector-Emitter Breakdown Voltage  | $I_C = 10\text{mA}$   | 45   |      |      | V             |
| $BV_{EBO}$    | Emitter-Base Breakdown Voltage       | $I_E = 10\mu\text{A}$   | 5    |      |      | V             |
| $I_{CES}$     | Collector Cut-off Current            | $V_{CB} = 45\text{V}, I_E = 0$  |      |      | 20   | nA            |
|               |                                      | $V_{CB} = 45\text{V}, I_E = 0$ $T_A = 150^\circ\text{C}$  |      |      | 20   | $\mu\text{A}$ |
| $I_{EBO}$     | Emitter Cut-off Current              | $V_{EB} = 4\text{V}$  |      |      | 20   | nA            |
| $h_{FE}$      | DC Current Gain                      | $V_{CE} = 10\text{V}, I_C = 100\mu\text{A}$   | 50   |      |      |               |
|               |                                      | $V_{CE} = 1\text{V}, I_C = 10\text{mA}$   | 110  |      |      |               |
|               |                                      | $V_{CE} = 1\text{V}, I_C = 100\text{mA}$  | 160  |      | 400  |               |
|               |                                      | $V_{CE} = 2\text{V}, I_C = 500\text{mA}$  | 60   |      |      |               |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C = 100\text{mA}, I_B = 10\text{mA}$   |      |      | 0.3  | V             |
|               |                                      | $I_C = 500\text{mA}, I_B = 50\text{mA}$   |      |      | 0.7  |               |
| $V_{BE(sat)}$ | Base-Emitter Saturation Voltage      | $I_C = 500\text{mA}, I_B = 50\text{mA}$   |      |      | 2    | V             |
| $C_{obo}$     | Output Capacitance                   | $V_{CB} = 10\text{V}, f = 1\text{MHz}$  |      |      | 12   | pF            |
| $C_{ibo}$     | Input Capacitance                    | $V_{EB} = 0.5\text{V}, f = 1\text{MHz}$   |      |      | 80   | pF            |
| $f_T$         | Current gain Bandwidth Product       | $V_{CE} = 10\text{V}, I_C = 20\text{mA}, f = 100\text{MHz}$   | 100  |      |      | MHz           |
| NF            | Noise Figure                         | $V_{CE} = 5\text{V}, I_C = 0.2\text{mA}, R_S = 1\text{k}\Omega, f = 1\text{KHz}, BW = 200\text{Hz}$ |      |      | 10   | dB            |
| $t_{on}$      | Turn-On Time                         | $I_{B1} = I_{B2} = 15\text{mA}$<br>$I_C = 150\text{mA}, R_L = 150\Omega$                            |      |      | 100  | ns            |
| $t_{off}$     | Turn-Off Time                        |   |      |      | 400  |               |

**Thermal Characteristics**

| Symbol          | Parameter                                     | Min. | Typ. | Max.       | Units       |
|-----------------|---|------|------|------------|-------------|
| $P_D$           | Total Device Dissipation<br>Derate above 25°C |      |      | 350<br>2.8 | mW<br>mW/°C |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient       |      |      | 357        | °C/W        |

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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