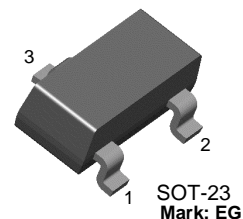


BCW66G

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

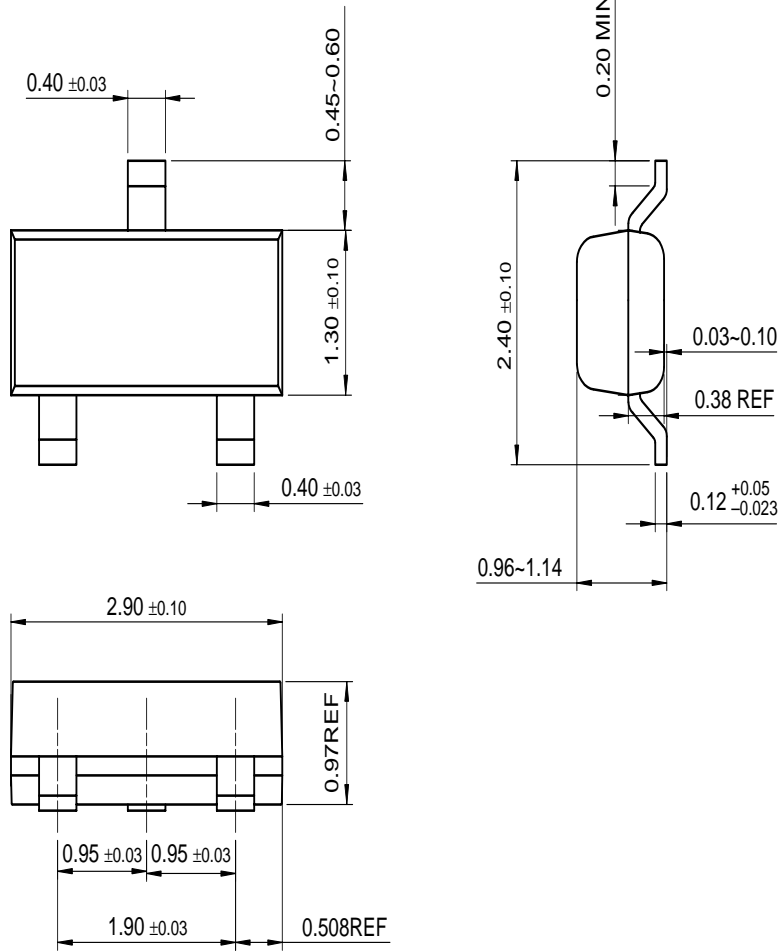
| Symbol | Parameter | Test Condition | Min. | Typ. | Max. | Units |
|---------------|--------------------------------------|---|------|------|------|---------------|
| BV_{CBO} | Collector-Base Breakdown Voltage | $I_C = 10\mu\text{A}$ | 75 | | | V |
| BV_{CEO} | Collector-Emitter Breakdown Voltage | $I_C = 10\text{mA}$ | 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 | μA |
| 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 | $I_{B1} = I_{B2} = 15\text{mA}$ $I_C = 150\text{mA}, R_L = 150\Omega$ | | | 100 | ns |
| t_{off} | Turn-Off Time | | | | 400 | |

Thermal Characteristics

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

Package Dimensions

SOT-23



Dimensions in Millimeters

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|--------------------------|------------------------|---|
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