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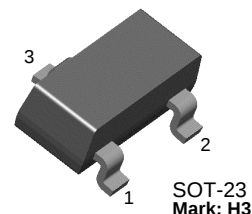
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# BCW89

BCW89

## PNP General Purpose Amplifier

- This device is designed for general purpose medium power amplifiers and switches requiring collector currents to 300mA.
- Sourced from process 68.



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        | -60        | V                  |
| $V_{CES}$      | Collector-Emitter Voltage        | -60        | V                  |
| $V_{EBO}$      | Emitter-Base Voltage             | -5.0       | V                  |
| $I_C$          | Collector current - Continuous   | -500       | mA                 |
| $T_J, T_{stg}$ | Junction and Storage Temperature | -55 ~ +150 | $^{\circ}\text{C}$ |

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

### NOTES:

- These ratings are based on a maximum junction temperature of 150 degrees C.
- These are 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

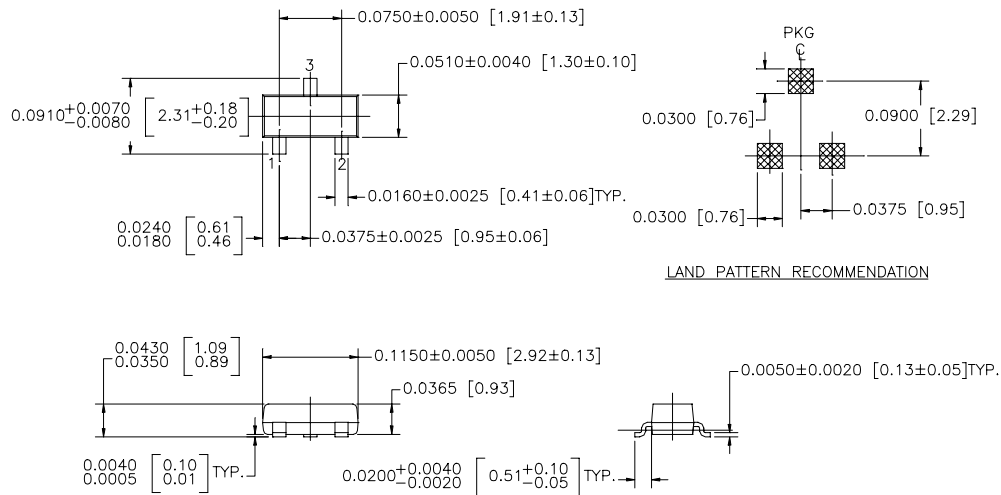
| Symbol                              | Parameter                            | Test Condition                                                                                                         | Min. | Max.        | Units               |
|-------------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------|------|-------------|---------------------|
| <b>Off Characteristics</b>          |                                      |                                                                                                                        |      |             |                     |
| $V_{(BR)CBO}$                       | Collector-Base Breakdown Voltage     | $I_C = -10\mu\text{A}, I_E = 0$                                                                                        | -80  |             | V                   |
| $V_{(BR)CEO}$                       | Collector-Emitter Breakdown Voltage  | $I_C = -2.0\text{mA}, I_B = 0$                                                                                         | -60  |             | V                   |
| $V_{(BR)CES}$                       | Collector-Emitter Breakdown Voltage  | $I_C = -10\mu\text{A}, I_E = 0$                                                                                        | -60  |             | V                   |
| $V_{(BR)EBO}$                       | Emitter-Base Breakdown Voltage       | $I_C = -10\mu\text{A}, I_C = 0$                                                                                        | -5.0 |             | V                   |
| $I_{CBO}$                           | Collector Cutoff Current             | $V_{CB} = -20\text{V}, I_E = 0$<br>$V_{CB} = -20\text{V}, I_E = 0, T_A = +100^{\circ}\text{C}$                         |      | -100<br>-10 | nA<br>$\mu\text{A}$ |
| <b>On Characteristics</b>           |                                      |                                                                                                                        |      |             |                     |
| $h_{FE}$                            | DC Current Gain                      | $V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$                                                                           | 120  | 260         |                     |
| $V_{CE(sat)}$                       | Collector-Emitter Saturation Voltage | $I_C = -10\text{mA}, I_B = -0.5\text{mA}$                                                                              |      | -0.3        | V                   |
| $V_{BE(on)}$                        | Base-Emitter On Voltage              | $V_{CE} = -5.0\text{V}, I_C = -2.0\text{mA}$                                                                           | -0.6 | -0.75       | V                   |
| <b>Small Signal Characteristics</b> |                                      |                                                                                                                        |      |             |                     |
| NF                                  | Noise Figure                         | $V_{CE} = -5.0\text{V}, I_C = -200\mu\text{A}$<br>$R_S = 2.0\text{k}\Omega, f = 1.0\text{kHz}$<br>$B_W = 200\text{Hz}$ |      | 10          | dB                  |

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

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

# Package Dimensions

## SOT-23



CONTROLLING DIMENSION IS INCH  
VALUES IN [ ] ARE MILLIMETERS

SOT 23, 3 LEADS LOW PROFILE

NOTE : UNLESS OTHERWISE SPECIFIED

1. STANDARD LEAD FINISH 150 MICROINCHES / 3.81 MICROMETERS  
MINIMUM TIN / LEAD (SOLDER) ON ALLOY 42
2. REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE G, DATED JUL 1993

Dimensions in Millimeters

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| Datasheet Identification | Product Status         | Definition                                                                                                                                                                                                            |
|--------------------------|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
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