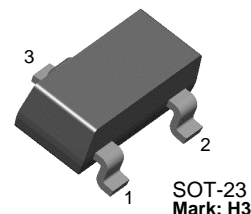


BCW89

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:

- 1) These ratings are based on a maximum junction temperature of 150 degrees C.
- 2) 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

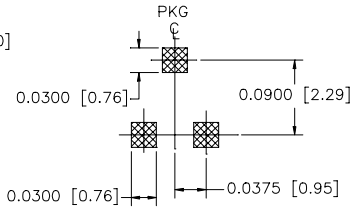
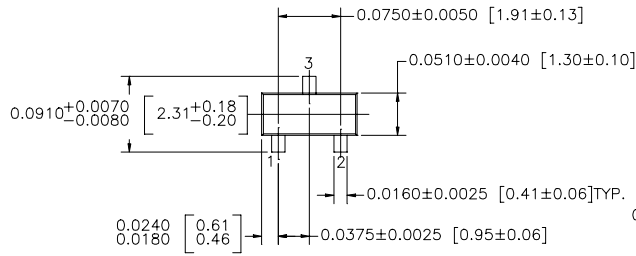
| Symbol | Parameter | Test Condition | Min. | Max. | Units |
|-------------------------------------|--------------------------------------|--|------|-------------|---------------------|
| Off Characteristics | | | | | |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C = -10\mu\text{A}, I_E = 0$ | -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 | $V_{CB} = -20\text{V}, I_E = 0$ $V_{CB} = -20\text{V}, I_E = 0, T_A = +100^\circ\text{C}$ | | -100 -10 | nA μA |
| On Characteristics | | | | | |
| 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 |
| Small Signal Characteristics | | | | | |
| NF | Noise Figure | $V_{CE} = -5.0\text{V}, I_C = -200\mu\text{A}$ $R_S = 2.0\text{k}\Omega, f = 1.0\text{kHz}$ $B_W = 200\text{Hz}$ | | 10 | dB |

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

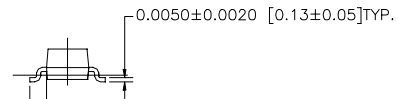
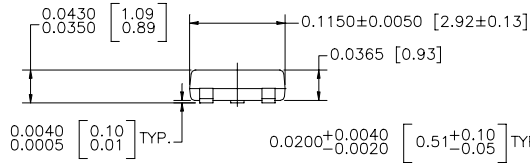
| Symbol | Parameter | Max. | Units |
|-----------------|---|------------|----------------------------|
| P_D | Total Device Dissipation Derate above 25°C | 350 2.8 | mW mW/ $^\circ\text{C}$ |
| $R_{\theta JA}$ | Thermal Resistance, Junction to Ambient | 357 | $^\circ\text{C}/\text{W}$ |

Package Dimensions

SOT-23



LAND PATTERN RECOMMENDATION



SOT 23, 3 LEADS LOW PROFILE

CONTROLLING DIMENSION IS INCH
VALUES IN [] ARE MILLIMETERS

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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|--|---------------------------------|--------------------------------|---------------------------------|-----------------------------|
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| Bottomless [™] | FAST [®] | LittleFET [™] | Power247 [™] | SuperSOT [™] -3 |
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| DOME [™] | GlobalOptoisolator [™] | MICROWIRE [™] | QS [™] | SyncFET [™] |
| EcoSPARK [™] | GTO [™] | MSX [™] | QT Optoelectronics [™] | TinyLogic [®] |
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PRODUCT STATUS DEFINITIONS

Definition of Terms

| Datasheet Identification | Product Status | Definition |
|--------------------------|------------------------|---|
| Advance Information | Formative or In Design | This datasheet contains the design specifications for product development. Specifications may change in any manner without notice. |
| Preliminary | First Production | This datasheet contains preliminary data, and supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice in order to improve design. |
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