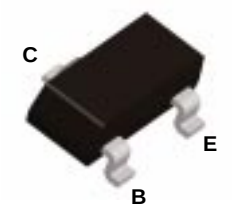
FAIRCHILD SEMICONDUCTOR TM

*Discrete POWER & Signal Technologies*

# BCW30




**SOT-23**
**Mark: C2**

## PNP General Purpose Amplifier

This device is designed for general purpose medium power amplifiers and switches requiring collector currents to 300 mA. Sourced from Process 68. See BC857A for characteristics.

## Absolute Maximum Ratings*

TA = 25°C unless otherwise noted

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $V_{CEO}$ | Collector-Emitter Voltage | 32 | V |
| $V_{CES}$ | Collector-Emitter Voltage | 32 | V |
| $V_{EBO}$ | Emitter-Base Voltage | 5.0 | V |
| $I_C$ | Collector Current - Continuous | 500 | mA |
| $T_J$, $T_{stg}$ | Operating and Storage Junction Temperature Range | -55 to +150 | °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 steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

## Thermal Characteristics

TA = 25°C unless otherwise noted

| Symbol | Characteristic | Max | Units |
|---|---|---|---|
| | | ***BCW30** | |
| $P_D$ | 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 |

*Device mounted on FR-4 PCB 40 mm X 40 mm X 1.5 mm.

## PNP General Purpose Amplifier
(continued)

### Electrical Characteristics
TA = 25°C unless otherwise noted

| Symbol | Parameter | Test Conditions | Min | Max | Units |
|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | |
| $V_{(BR)CBO}$ | Collector-Base Breakdown Voltage | $I_C$ = 10 μA, $I_E$ = 0 | 32 | | V |
| $V_{(BR)CEO}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 2.0 mA, $I_B$ = 0 | 32 | | V |
| $V_{(BR)CES}$ | Collector-Emitter Breakdown Voltage | $I_C$ = 10 μA, $I_E$ = 0 | 32 | | V |
| $V_{(BR)EBO}$ | Emitter-Base Breakdown Voltage | $I_E$ = 10 μA, $I_C$ = 0 | 5.0 | | V |
| $I_{CBO}$ | Collector-Cutoff Current | $V_{CB}$ = 32 V, $I_E$ = 0<br>$V_{CB}$ = 32 V, $I_E$ = 0, $T_A$ = +100 °C | | 100<br>10 | nA<br>μA |
| **ON CHARACTERISTICS** | | | | | |
| $h_{FE}$ | DC Current Gain | $V_{CE}$ = 5.0 V, $I_C$ = 2.0 mA | 215 | 500 | |
| $V_{CE(sat)}$ | Collector-Emitter Saturation Voltage | $I_C$ = 10 mA, $I_B$ = 0.5 mA | | 0.30 | V |
| $V_{BE(on)}$ | Base-Emitter On Voltage | $V_{CE}$ = 5.0 V, $I_C$ = 2.0 mA | 0.60 | 0.75 | V |
| **SMALL SIGNAL CHARACTERISTICS** | | | | | |
| NF | Noise Figure | $V_{CE}$ = 5.0 V, $I_C$ = 200 μA,<br>$R_S$ = 2.0 kΩ, f = 1.0 kHz,<br>$B_W$ = 200 Hz | | 10 | dB |