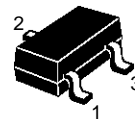


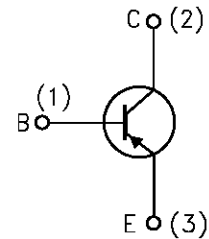
## SMALL SIGNAL PNP TRANSISTORS

| Type  | Marking |
|-------|---------|
| BCW30 | C2      |

- SILICON EPITAXIAL PLANAR PNP TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- LOW LEVEL AUDIO AMPLIFICATION AND SWITCHING


**SOT-23**

### INTERNAL SCHEMATIC DIAGRAM



SC08810

### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Parameter                                     | Value      | Unit             |
|-----------|---|------------|------------------|
| $V_{CES}$ | Collector-Emitter Voltage ( $V_{BE} = 0$ )    | -32        | V                |
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_B = 0$ )       | -32        | V                |
| $V_{CBO}$ | Collector-Base Voltage ( $I_E = 0$ )          | -32        | V                |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )            | -5         | V                |
| $I_C$     | Collector Current                             | -0.1       | A                |
| $I_{CM}$  | Collector Peak Current                        | -0.2       | A                |
| $P_{tot}$ | Total Dissipation at $T_c = 25^\circ\text{C}$ | 300        | mW               |
| $T_{stg}$ | Storage Temperature                           | -65 to 150 | $^\circ\text{C}$ |
| $T_j$     | Max. Operating Junction Temperature           | 150        | $^\circ\text{C}$ |

## BCW30

### THERMAL DATA

|               |                                     |     |     |                             |
|---------------|-------------------------------------|-----|-----|-----------------------------|
| $R_{thj-amb}$ | Thermal Resistance Junction-Ambient | Max | 420 | $^{\circ}\text{C}/\text{W}$ |
|---------------|-------------------------------------|-----|-----|-----------------------------|

• Mounted on a ceramic substrate area = 10 x 8 x 0.6 mm

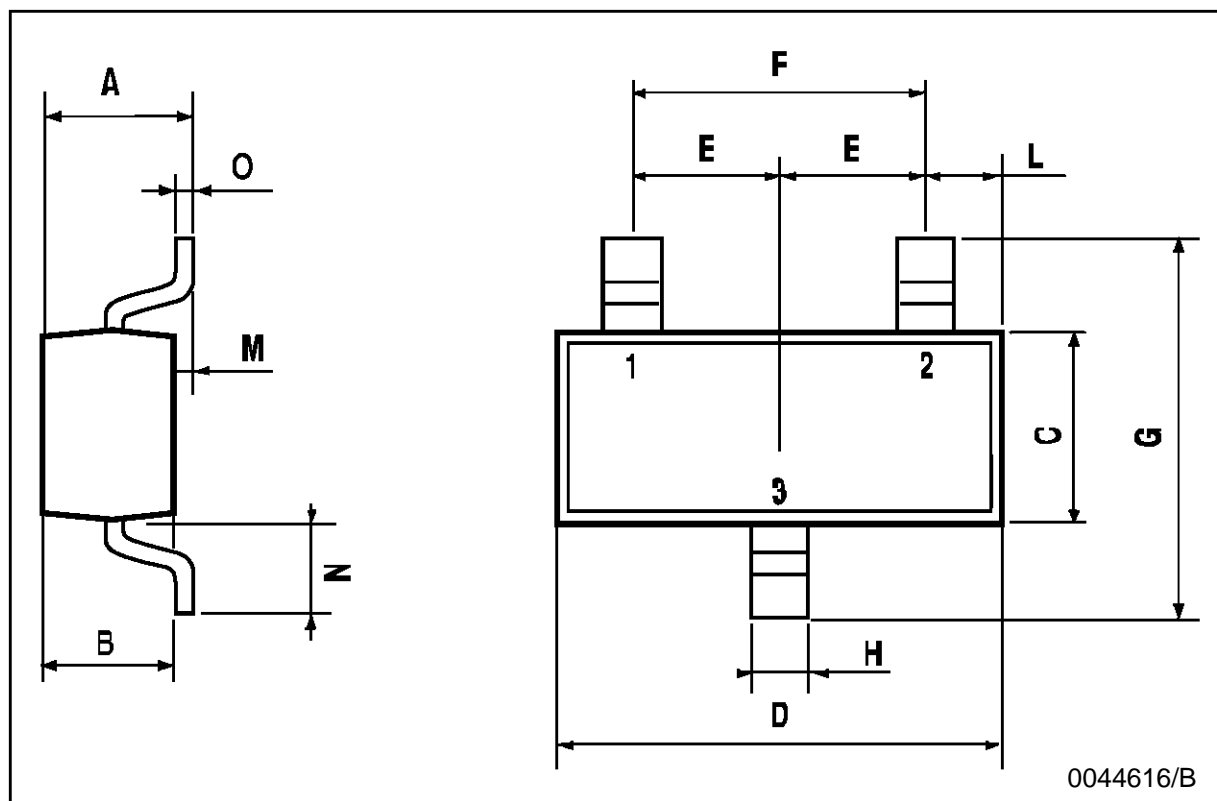
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

| Symbol          | Parameter  | Test Conditions  | Min. | Typ.           | Max.        | Unit                |
|-----------------|--|--|------|----------------|-------------|---------------------|
| $I_{CBO}$       | Collector Cut-off Current ( $I_E = 0$ )              | $V_{CB} = -30\text{ V}$<br>$V_{CB} = -30\text{ V}$ $T_j = 100^{\circ}\text{C}$   |      |                | -100<br>-10 | nA<br>$\mu\text{A}$ |
| $V_{(BR)CES}^*$ | Collector-Emitter Breakdown Voltage ( $V_{BE} = 0$ ) | $I_C = -10\ \mu\text{A}$   | -32  |                |             | V                   |
| $V_{(BR)CEO}^*$ | Collector-Emitter Breakdown Voltage ( $I_B = 0$ )    | $I_C = -2\ \text{mA}$  | -32  |                |             | V                   |
| $V_{(BR)CBO}^*$ | Collector-Base Breakdown Voltage ( $I_B = 0$ )       | $I_C = -10\ \mu\text{A}$   | -32  |                |             | V                   |
| $V_{(BR)EBO}$   | Emitter-Base Breakdown Voltage ( $I_C = 0$ )         | $I_C = -10\ \mu\text{A}$   | -5   |                |             | V                   |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage                 | $I_C = -10\ \text{mA}$ $I_B = -0.5\ \text{mA}$<br>$I_C = -50\ \text{mA}$ $I_B = -2.5\ \text{mA}$                             |      | -0.18          | -0.3        | V<br>V              |
| $V_{BE(sat)}^*$ | Collector-Base Saturation Voltage                    | $I_C = -10\ \text{mA}$ $I_B = -0.5\ \text{mA}$<br>$I_C = -50\ \text{mA}$ $I_B = -2.5\ \text{mA}$                             |      | -0.72<br>-0.81 |             | V<br>V              |
| $V_{BE(on)}^*$  | Base-Emitter On Voltage                              | $I_C = -2\ \text{mA}$ $V_{CE} = -5\ \text{V}$  | -0.6 |                | -0.75       | V                   |
| $h_{FE}^*$      | DC Current Gain                                      | $I_C = -10\ \mu\text{A}$ $V_{CE} = -5\ \text{V}$<br>$I_C = -2\ \text{mA}$ $V_{CE} = -5\ \text{V}$                            | 215  | 150            | 500         |                     |
| $f_T$           | Transition Frequency                                 | $I_C = -10\ \text{mA}$ $V_{CE} = -5\ \text{V}$ $f = 100\ \text{MHz}$   |      | 150            |             | MHz                 |
| $C_{CB}$        | Collector Base Capacitance                           | $I_E = 0$ $V_{CB} = -10\ \text{V}$ $f = 1\ \text{MHz}$   |      |                | 7           | dB                  |
| NF              | Noise Figure   | $I_C = -0.2\ \text{mA}$ $V_{CE} = -5\ \text{V}$ $f = 1\ \text{KHz}$<br>$\Delta f = 200\ \text{Hz}$ $R_g = 2\ \text{K}\Omega$ |      |                | 10          | dB                  |

\* Pulsed: Pulse duration = 300  $\mu\text{s}$ , duty cycle  $\leq 2\%$

## SOT-23 MECHANICAL DATA

| DIM. | mm   |      |      | mils  |      |      |
|------|------|------|------|-------|------|------|
|      | MIN. | TYP. | MAX. | MIN.  | TYP. | MAX. |
| A    | 0.85 |      | 1.1  | 33.4  |      | 43.3 |
| B    | 0.65 |      | 0.95 | 25.6  |      | 37.4 |
| C    | 1.20 |      | 1.4  | 47.2  |      | 55.1 |
| D    | 2.80 |      | 3    | 110.2 |      | 118  |
| E    | 0.95 |      | 1.05 | 37.4  |      | 41.3 |
| F    | 1.9  |      | 2.05 | 74.8  |      | 80.7 |
| G    | 2.1  |      | 2.5  | 82.6  |      | 98.4 |
| H    | 0.38 |      | 0.48 | 14.9  |      | 18.8 |
| L    | 0.3  |      | 0.6  | 11.8  |      | 23.6 |
| M    | 0    |      | 0.1  | 0     |      | 3.9  |
| N    | 0.3  |      | 0.65 | 11.8  |      | 25.6 |
| O    | 0.09 |      | 0.17 | 3.5   |      | 6.7  |



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