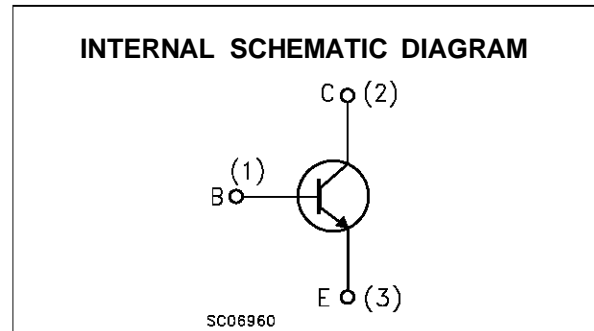


SMALL SIGNAL NPN TRANSISTORS

| Type | Marking |
|--------|---------|
| BCW66F | EF |
| BCW66G | EG |
| BCW66H | EH |

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MINIATURE PLASTIC PACKAGE FOR APPLICATION IN SURFACE MOUNTING CIRCUITS
- MEDIUM CURRENT AF AMPLIFICATION AND SWITCHING
- PNP COMPLEMENT IS BCW68



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------------------|
| V_{CES} | Collector-Emitter Voltage ($V_{BE} = 0$) | 75 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 45 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 5 | V |
| I_C | Collector Current | 0.8 | A |
| I_{CM} | Collector Peak Current | 1 | A |
| I_B | Base Current | 0.1 | A |
| P_{tot} | Total Dissipation at $T_c = 25^\circ\text{C}$ | 360 | mW |
| T_{stg} | Storage Temperature | -65 to 150 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 150 | $^\circ\text{C}$ |

THERMAL DATA

| | | | | |
|---------------|---------------------------------------|-----|-----|-----------------------------|
| $R_{thj-amb}$ | Thermal Resistance Junction-Ambient | Max | 375 | $^{\circ}\text{C}/\text{W}$ |
| R_{thj-SR} | Thermal Resistance Junction-Substrate | Max | 278 | $^{\circ}\text{C}/\text{W}$ |

• Mounted on a ceramic substrate area = 0.7 mm x 2.5 cm²

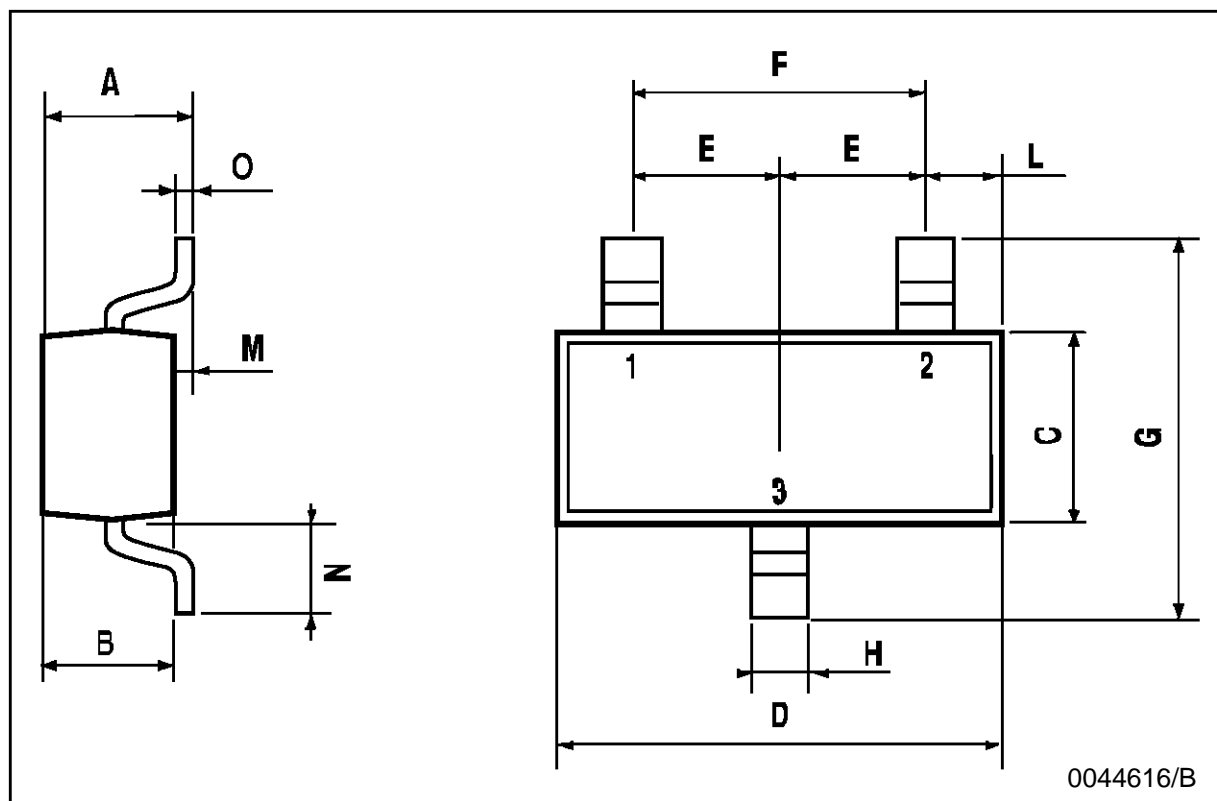
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------|--|--|----------------|------------------|-------------------|---------------------|
| I_{CES} | Collector Cut-off Current ($V_{BE} = 0$) | $V_{CE} = \text{Rated } V_{CES}$ $V_{CE} = \text{Rated } V_{CES} \quad T_{amb} = 150^{\circ}\text{C}$ | | | 20 20 | nA μA |
| I_{EBO} | Collector Cut-off Current ($I_E = 0$) | $V_{EB} = 4 \text{ V}$ | | | 20 | nA |
| $V_{(BR)CEO}^*$ | Collector-Emitter Breakdown Voltage ($I_B = 0$) | $I_C = 10 \text{ mA}$ | 45 | | | V V |
| $V_{(BR)CES}^*$ | Collector-Emitter Breakdown Voltage ($V_{EB} = 0$) | $I_C = 10 \mu\text{A}$ | 75 | | | V 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 | $I_C = 100 \text{ mA} \quad I_B = 10 \text{ mA}$ $I_C = 500 \text{ mA} \quad I_B = 50 \text{ mA}$ | | | 0.3 0.7 | V V |
| $V_{BE(sat)}^*$ | Collector-Base Saturation Voltage | $I_C = 100 \text{ mA} \quad I_B = 10 \text{ mA}$ $I_C = 500 \text{ mA} \quad I_B = 50 \text{ mA}$ | | | 1.25 2 | V V |
| h_{FE}^* | DC Current Gain | $I_C = 0.1 \text{ mA} \quad V_{CE} = 10 \text{ V}$ for group F $I_C = 10 \text{ mA} \quad V_{CE} = 1 \text{ V}$ for group G $I_C = 10 \text{ mA} \quad V_{CE} = 1 \text{ V}$ for group H $I_C = 100 \text{ mA} \quad V_{CE} = 1 \text{ V}$ for group F $I_C = 100 \text{ mA} \quad V_{CE} = 1 \text{ V}$ for group G $I_C = 100 \text{ mA} \quad V_{CE} = 1 \text{ V}$ for group H $I_C = 500 \text{ mA} \quad V_{CE} = 2 \text{ V}$ for group F $I_C = 500 \text{ mA} \quad V_{CE} = 2 \text{ V}$ for group G $I_C = 500 \text{ mA} \quad V_{CE} = 2 \text{ V}$ for group H | 35 50 80 | 75 110 180 | 250 400 630 | |
| f_T | Transition Frequency | $I_C = 20 \text{ mA} \quad V_{CE} = 10 \text{ V} \quad f = 100 \text{ MHz}$ | 100 | | | MHz |
| C_{CB} | Collector Base Capacitance | $I_E = 0 \quad V_{CB} = 10 \text{ V} \quad f = 1 \text{ MHz}$ | | | 12 | pF |
| C_{EB} | Emitter Base Capacitance | $I_C = 0 \quad V_{CE} = 0.5 \text{ V} \quad f = 1 \text{ MHz}$ | | | 80 | pF |
| NF | Noise Figure | $V_{CE} = 5 \text{ V} \quad I_C = 0.2 \text{ mA} \quad f = 1 \text{ KHz}$ $\Delta f = 200 \text{ Hz} \quad R_G = 2 \text{ K}\Omega$ | | 2 | 10 | dB |
| t_{on} | Switching On Time | $I_C = 150 \text{ mA} \quad I_{B1} = -I_{B2} = 15 \text{ mA}$ $R_L = 150 \Omega$ | | | 100 | ns |

* Pulsed: Pulse duration = 300 μs , 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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