



Micro Commercial Components  
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## BCW68G

### Features

- Ideally Suited for Automatic Insertion
- 150°C Junction Temperature
- Low Current, Low Frequency
- Epitaxial Planar Die Construction

### Mechanical Data

- Case: SOT-23, Molded Plastic
- Terminals: Solderable per MIL-STD-202, Method 208
- Marking: DG
- Weight: 0.008 grams ( approx.)

Maximum Ratings @ 25°C Unless Otherwise Specified

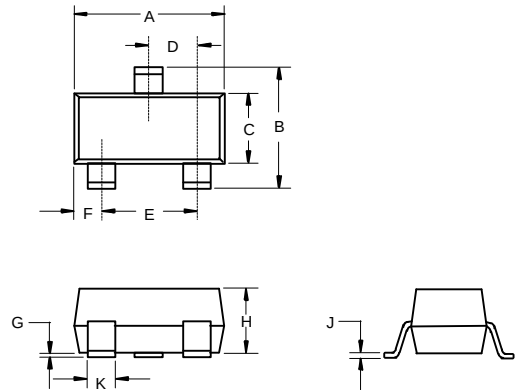
| Charateristic                                   | Symbol          | Value              | Unit               |
|-------------------------------------------------|-----------------|--------------------|--------------------|
| Collector-Emitter Voltage                       | $V_{CEO}$       | -45                | V                  |
| Collector-Base Voltage                          | $V_{CBO}$       | -60                | V                  |
| Emitter-Base Voltage                            | $V_{EBO}$       | -5                 | V                  |
| Collector Current(DC)                           | $I_C$           | -800               | mA                 |
| Peak Collector Current                          | $I_{CM}$        | -1000              | mA                 |
| Base Current(DC)                                | $I_B$           | -100               | mA                 |
| Peak Base Current                               | $I_{BM}$        | -200               | mA                 |
| Power Dissipation@ $T_s=79^\circ\text{C}$       | $P_d$           | 330                | mW                 |
| Thermal Resistance, Junction to Ambient Air     | $R_{\theta JA}$ | 285 <sup>(1)</sup> | $^\circ\text{C/W}$ |
| Thermal Resistance, Junction to Soldering Point | $R_{\theta JS}$ | 215                | $^\circ\text{C/W}$ |
| Operating & Storage Temperature                 | $T_j, T_{STG}$  | -55~150            | $^\circ\text{C}$   |

### Notes:

- (1) Valid provided that leads are kept at ambient temperature.

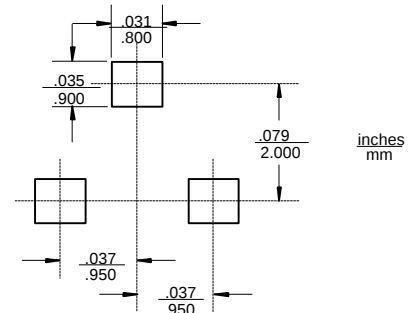
### PNP Small Signal Transistor 330mW

#### SOT-23



| DIMENSIONS |        |       |      |      |      |
|------------|--------|-------|------|------|------|
| DIM        | INCHES |       | MM   |      | NOTE |
|            | MIN    | MAX   | MIN  | MAX  |      |
| A          | .110   | .120  | 2.80 | 3.04 |      |
| B          | .083   | .098  | 2.10 | 2.64 |      |
| C          | .047   | .055  | 1.20 | 1.40 |      |
| D          | .035   | .041  | .89  | 1.03 |      |
| E          | .070   | .081  | 1.78 | 2.05 |      |
| F          | .018   | .024  | .45  | .60  |      |
| G          | .0005  | .0039 | .013 | .100 |      |
| H          | .035   | .044  | .89  | 1.12 |      |
| J          | .003   | .007  | .085 | .180 |      |
| K          | .015   | .020  | .37  | .51  |      |

#### Suggested Solder Pad Layout



**Electrical Characteristics** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

|                                                                    | Symbol        | Min. | TYP. | Max. | Unit          |
|--------------------------------------------------------------------|---------------|------|------|------|---------------|
| DC Current Gain <sup>(1)</sup>                                     |               |      |      |      |               |
| at $V_{CE} = 10\text{V}$ , $I_C = 100\mu\text{A}$                  | $h_{FE}$      | 50   | —    | —    | —             |
| at $V_{CE} = 1\text{V}$ , $I_C = 10\text{mA}$                      | $h_{FE}$      | 120  | —    | —    | —             |
| at $V_{CE} = 1\text{V}$ , $I_C = 100\text{mA}$                     | $h_{FE}$      | 160  | 250  | 400  | —             |
| at $V_{CE} = 2\text{V}$ , $I_C = 500\text{mA}$                     | $h_{FE}$      | 60   | —    | —    | —             |
| Collector-Emitter Saturation Voltage <sup>(1)</sup>                |               |      |      |      |               |
| at $I_C = 100\text{mA}$ , $I_B = 10\text{mA}$                      | $V_{CEsat}$   | —    | —    | 0.3  | V             |
| at $I_C = 500\text{mA}$ , $I_B = 50\text{mA}$                      | $V_{CEsat}$   | —    | —    | 0.7  | V             |
| Base-Emitter Saturation Voltage <sup>(1)</sup>                     |               |      |      |      |               |
| at $I_C = 100\text{mA}$ , $I_B = 10\text{mA}$                      | $V_{BEsat}$   | —    | —    | 1.25 | V             |
| at $I_C = 500\text{mA}$ , $I_B = 50\text{mA}$                      | $V_{BEsat}$   | —    | —    | 2    | V             |
| Collector-Emitter Breakdown Voltage                                |               |      |      |      |               |
| at $I_C = 10\text{mA}$ , $I_B = 0$                                 | $V_{(BR)CEO}$ | 45   | —    | —    | V             |
| Collector-Base Breakdown Voltage                                   |               |      |      |      |               |
| at $I_C = 10\mu\text{A}$ , $I_B = 0$                               | $V_{(BR)CBO}$ | 60   | —    | —    | V             |
| Emitter-Base Breakdown Voltage                                     |               |      |      |      |               |
| at $I_E = 10\mu\text{A}$ , at $I_C = 0$                            | $V_{(BR)EBO}$ | 5    | —    | —    | V             |
| Collector-Base Cut-off Current                                     |               |      |      |      |               |
| at $V_{CB} = 45\text{V}$ , $I_E = 0$                               | $I_{CBO}$     | —    | —    | 20   | nA            |
| at $V_{CB} = 45\text{V}$ , $I_E = 0$ , $T_A = 150^\circ\text{C}$   | $I_{CBO}$     | —    | —    | 20   | $\mu\text{A}$ |
| Emitter-Base Cut-off Current                                       |               |      |      |      |               |
| at $V_{EB} = 4\text{V}$ , $I_C = 0$                                | $I_{EBO}$     | —    | —    | 20   | nA            |
| Gain-Bandwidth Product                                             |               |      |      |      |               |
| at $V_{CE} = 5\text{V}$ , $I_C = 50\text{mA}$ , $f = 20\text{MHz}$ | $f_T$         | —    | 200  | —    | MHz           |
| Collector-Base Capacitance                                         |               |      |      |      |               |
| at $V_{CB} = 10\text{V}$ , $f = 1\text{MHz}$                       | $C_{CB}$      | —    | 6    | —    | pF            |
| Emitter-Base Capacitance                                           |               |      |      |      |               |
| at $V_{EB} = 0.5\text{V}$ , $f = 1\text{MHz}$                      | $C_{EB}$      | —    | 60   | —    | pF            |

**Note:** (1) Pulse test:  $t \leq 300\mu\text{s}$ ,  $D = 2\%$