

# SOT23 NPN SILICON PLANAR DARLINGTON TRANSISTORS

## BCV27 BCV47

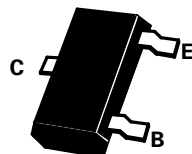
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### FEATURES

- \* High  $V_{CE0}$
- \* Low saturation voltage

COMPLEMENTARY TYPES – BCV27 – BCV28  
BCV47 – BCV48

PARTMARKING DETAILS – BCV27 – ZFF  
BCV47 – ZFG



SOT23

### ABSOLUTE MAXIMUM RATINGS.

| PARAMETER                                       | SYMBOL         | BCV27       | BCV47 | UNIT             |
|---|----------------|-------------|-------|------------------|
| Collector-Base Voltage                          | $V_{CBO}$      | 40          | 80    | V                |
| Collector-Emitter Voltage                       | $V_{CEO}$      | 30          | 60    | V                |
| Emitter-Base Voltage                            | $V_{EBO}$      | 10          |       | V                |
| Peak Pulse Current                              | $I_{CM}$       | 800         |       | mA               |
| Continuous Collector Current                    | $I_C$          | 500         |       | mA               |
| Base Current                                    | $I_B$          | 100         |       | mA               |
| Power Dissipation at $T_{amb}=25^\circ\text{C}$ | $P_{tot}$      | 330         |       | mW               |
| Operating and Storage Temperature Range         | $T_j; T_{stg}$ | -55 to +150 |       | $^\circ\text{C}$ |

### ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^\circ\text{C}$ unless otherwise stated).

| PARAMETER                             | SYMBOL        | BCV27                  |      | BCV47                 |      | UNIT                                       | CONDITIONS.   |
|---------------------------------------|---------------|------------------------|------|-----------------------|------|--|---|
|                                       |               | MIN.                   | MAX. | MIN.                  | MAX. |  |   |
| Collector-Base Breakdown Voltage      | $V_{(BR)CBO}$ | 40                     |      | 80                    |      | V  | $I_C=100\mu\text{A}$  |
| Collector-Emitter Breakdown Voltage   | $V_{(BR)CEO}$ | 30                     |      | 60                    |      | V  | $I_C=10\text{mA}^*$   |
| Emitter-Base Breakdown Voltage        | $V_{(BR)EBO}$ | 10                     |      | 10                    |      | V  | $I_E=10\mu\text{A}$   |
| Collector Cut-Off Current             | $I_{CBO}$     |                        | 100  |                       | 100  | nA<br>nA<br>$\mu\text{A}$<br>$\mu\text{A}$ | $V_{CB}=30\text{V}$<br>$V_{CB}=60\text{V}$<br>$V_{CB}=30\text{V}, T_{amb}=150^\circ\text{C}$<br>$V_{CB}=60\text{V}, T_{amb}=150^\circ\text{C}$                              |
| Emitter Base Cut-Off Current          | $I_{EBO}$     |                        | 100  |                       | 100  | nA   | $V_{EB}=4\text{V}$  |
| Collector-Emitter Saturation Voltage  | $V_{CE(sat)}$ |                        | 1.0  |                       | 1.0  | V  | $I_C=100\text{mA}, I_B=0.1\text{mA}^*$  |
| Base-Emitter Saturation Voltage       | $V_{BE(sat)}$ |                        | 1.5  |                       | 1.5  | V  | $I_C=100\text{mA}, I_B=0.1\text{mA}^*$  |
| Static Forward Current Transfer Ratio | $h_{FE}$      | 4K<br>10K<br>20K<br>4K |      | 2K<br>4K<br>10K<br>2K |      |  | $I_C=100\mu\text{A}, V_{CE}=1\text{V}^\dagger$<br>$I_C=10\text{mA}, V_{CE}=5\text{V}^*$<br>$I_C=100\text{mA}, V_{CE}=5\text{V}^*$<br>$I_C=500\text{mA}, V_{CE}=5\text{V}^*$ |
| Transition Frequency                  | $f_T$         | 170 Typical            |      | 170 Typical           |      | MHz  | $I_C=50\text{mA}, V_{CE}=5\text{V}$<br>$f = 20\text{MHz}$   |
| Output Capacitance                    | $C_{obo}$     | 3.5 Typical            |      | 3.5 Typical           |      | pF   | $V_{CB}=10\text{V}, f=1\text{MHz}$  |

\*Measured under pulsed conditions. Pulse width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

† Periodic Sample Test Only. For typical graphs see FMMT38A datasheet