

HIGH CURRENT NPN SILICON TRANSISTOR

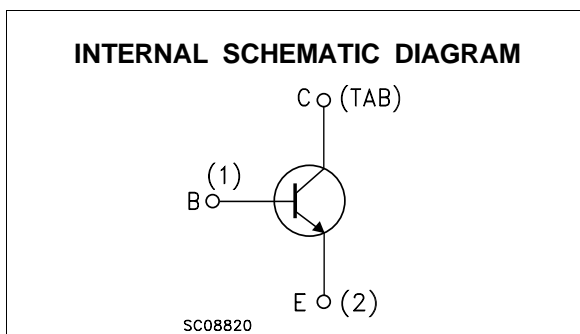
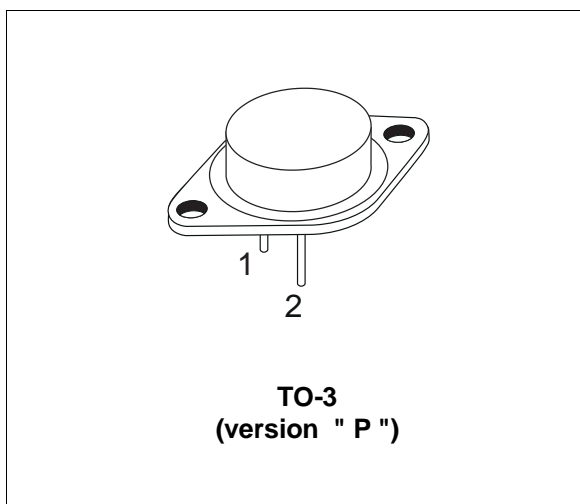
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- MAINTAINS GOOD SWITCHING PERFORMANCE EVEN WITHOUT NEGATIVE BASE DRIVE

APPLICATIONS

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The BUR52 is a silicon multiepitaxial planar NPN transistors in modified Jedec TO-3 metal case, intended for use in switching and linear applications in military and industrial equipment.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 350 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 250 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 10 | V |
| I_C | Collector Current | 60 | A |
| I_{CM} | Collector Peak Current ($t_p = 10$ ms) | 80 | A |
| I_B | Base Current | 16 | A |
| P_{tot} | Total Dissipation at $T_c \leq 25$ °C | 350 | W |
| T_{stg} | Storage Temperature | -65 to 200 | °C |
| T_j | Max. Operating Junction Temperature | 200 | °C |

BUR52

THERMAL DATA

| | | | | |
|----------------|----------------------------------|-----|-----|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-case | Max | 0.5 | $^{\circ}C/W$ |
|----------------|----------------------------------|-----|-----|---------------|

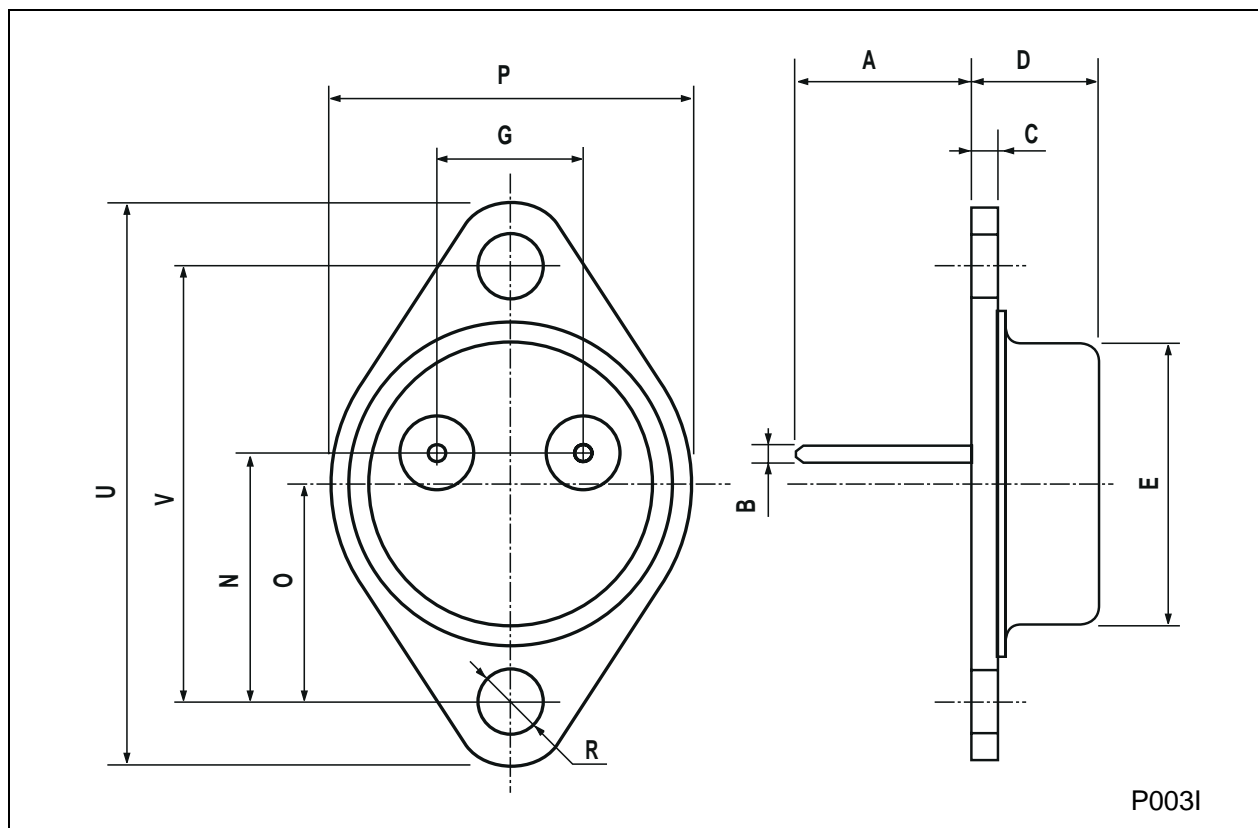
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------|---|--|----------|------|----------|----------|
| I_{CBO} | Collector Cut-off Current ($I_E = 0$) | $V_{CB} = 350 V$ $V_{CB} = 350 V$ $T_{case} = 125^{\circ}C$ | | | 0.2 2 | mA mA |
| I_{CEO} | Collector Cut-off Current ($I_B = 0$) | $V_{CE} = 250 V$ | | | 1 | mA |
| I_{EBO} | Emitter Cut-off Current ($I_C = 0$) | $V_{EB} = 7 V$ | | | 0.2 | μA |
| $V_{CEO(sus)}^*$ | Collector-Emitter Sustaining Voltage | $I_C = 200 mA$ | 250 | | | V |
| V_{EBO} | Emitter-base Voltage ($I_C = 0$) | $I_E = 10 mA$ | 10 | | | V |
| $V_{CE(sat)}^*$ | Collector-emitter Saturation Voltage | $I_C = 25 A$ $I_B = 2 A$ $I_C = 40 A$ $I_B = 4 A$ | | 0.7 | 1 1.5 | V V |
| $V_{BE(sat)}^*$ | Base-emitter Saturation Voltage | $I_C = 25 A$ $I_B = 2 A$ $I_C = 40 A$ $I_B = 4 A$ | | 1.5 | 1.8 2 | V V |
| h_{FE}^* | DC Current Gain | $I_C = 5 A$ $V_{CE} = 4 V$ $I_C = 40 A$ $V_{CE} = 4 V$ | 20 15 | | 100 | |
| $I_{s/b}$ | Second Breakdown Collector Current | $V_{CE} = 20 V$ $t = 1 s$ | 17.5 | | | A |
| f_T | Transition-Frequency | $I_C = 1 A$ $V_{CE} = 5 V$ $f = 1 MHz$ | | 10 | 16 | MHz |
| t_{on} | Turn-on Time | $I_C = 40 A$ $I_{B1} = 4 A$ $V_{CC} = 100 V$ | | 0.3 | 1 | μs |
| t_s | Storage Time | $I_C = 40 A$ $I_{B1} = 4 A$ | | 1.2 | 2 | μs |
| t_f | Fall Time | $I_{B2} = -4 A$ $V_{CC} = 100 V$ | | 0.2 | 0.6 | μs |
| | Clamped $E_{s/b}$ Collector Current | $V_{clamp} = 250 V$ $L = 500 \mu H$ | 40 | | | A |

* Pulsed: Pulse duration = 300 μs , duty cycle 1.5 %

TO-3 (version P) MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|-------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 11.00 | 11.7 | 13.10 | 0.433 | | 0.516 |
| B | 1.45 | 1.5 | 1.60 | 0.057 | | 0.063 |
| C | 2.7 | | 2.92 | 0.106 | | 0.115 |
| D | 8.9 | | 9.4 | 0.350 | | 0.370 |
| E | 19.00 | | 20.00 | 0.748 | | 0.787 |
| G | 10.70 | 10.9 | 11.10 | 0.421 | 0.429 | 0.437 |
| N | 16.50 | 16.9 | 17.20 | 0.650 | 0.665 | 0.677 |
| P | 25.00 | | 26.00 | 0.984 | | 1.024 |
| R | 3.88 | | 4.2 | 0.153 | | 0.165 |
| U | 38.50 | | 39.30 | 1.516 | | 1.547 |
| V | 30.00 | 30.14 | 30.30 | 1.181 | 1.186 | 1.193 |



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