

HIGH CURRENT NPN SILICON TRANSISTOR

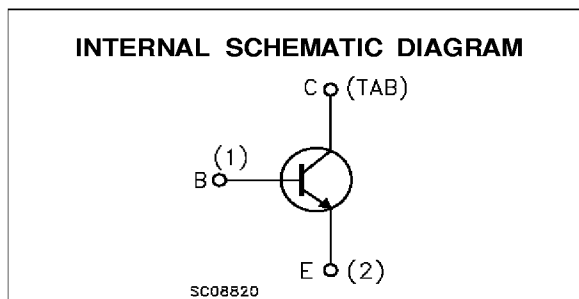
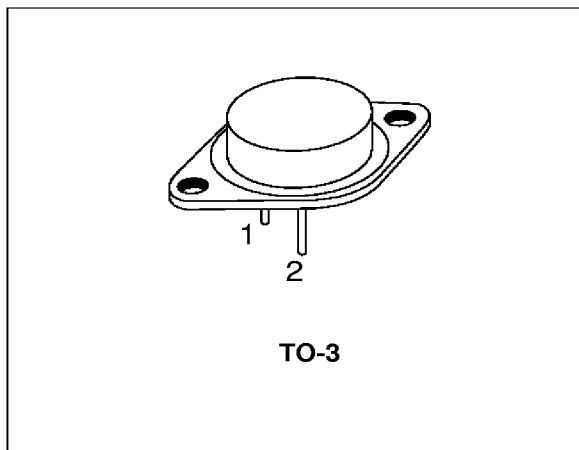
- SGS-THOMSON PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED

APPLICATIONS

- MOTOR CONTROL
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

DESCRIPTION

The BUX41 is a silicon multi-epitaxial planar NPN transistor in 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 ($I_E = 0$) | 250 | V |
| V_{CEX} | Collector-emitter Voltage ($V_{BE} = -1.5V$) | 250 | V |
| V_{CEO} | Collector-emitter Voltage ($I_B = 0$) | 200 | V |
| V_{EBO} | Emitter-base Voltage ($I_C = 0$) | 7 | V |
| I_C | Collector Current | 15 | A |
| I_{CM} | Collector Peak Current ($t_P = 10$ ms) | 20 | A |
| I_B | Base Current | 3 | A |
| P_{tot} | Total Power Dissipation at $T_{case} \leq 25$ °C | 120 | W |
| T_{stg} | Storage Temperature | -65 to 200 | °C |
| T_j | Max Operating Junction Temperature | 200 | °C |

BUX41

THERMAL DATA

| | | | | |
|----------------|----------------------------------|-----|------|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-case | Max | 1.46 | $^{\circ}C/W$ |
|----------------|----------------------------------|-----|------|---------------|

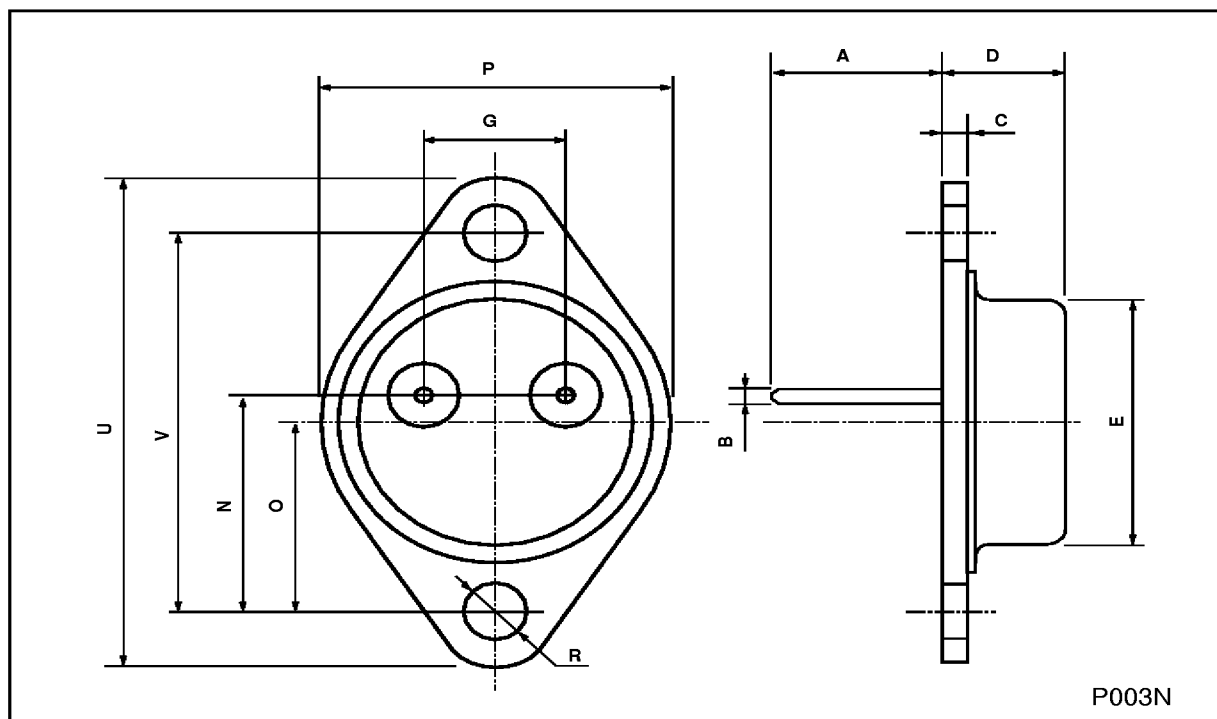
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit | |
|-----------------|---|---|----------------------------------|-------------|------------|--------|---------|
| I_{CEO} | Collector Cut-off Current ($I_B = 0$) | $V_{CE} = 160 V$ | | | 1 | mA | |
| I_{CEX} | Collector Cut-off Current | $V_{CE} = 250 V$ $T_{case} = 125^{\circ}C$ | | | 1 | mA | |
| | | $V_{CE} = 250 V$ $V_{BE} = -1.5V$ | | | 5 | mA | |
| I_{EBO} | Emitter Cut-off Current ($I_C = 0$) | $V_{EB} = 5 V$ | | | 1 | mA | |
| $V_{CEO(sus)*}$ | Collector-Emitter Sustaining Voltage | $I_C = 200 mA$ | 200 | | | V | |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | $I_E = 50 mA$ | 7 | | | V | |
| $V_{CE(sat)*}$ | Collector-Emitter Saturation Voltage | $I_C = 5 A$ $I_C = 8 A$ | $I_B = 0.5 A$ $I_B = 1 A$ | 0.38 0.6 | 1.2 1.6 | V V | |
| | | $I_C = 8 A$ | $I_B = 1 A$ | 1.35 | 2 | V | |
| $V_{BE(sat)*}$ | Base-Emitter Saturation Voltage | $I_C = 8 A$ | | 1.35 | 2 | V | |
| h_{FE*} | DC Current Gain | $I_C = 5 A$ $I_C = 8 A$ | $V_{CE} = 4 V$ $V_{CE} = 4 V$ | 15 8 | | 45 | |
| $I_{S/b}$ | Second Breakdown Collector Current | $V_{CE} = 30 V$ | $t = 1 s$ | 4 | | A | |
| | | $V_{CE} = 135 V$ | $t = 1 s$ | 0.15 | | A | |
| f_T | Transistor Frequency | $V_{CE} = 15 V$ $f = 10 MHz$ | $I_C = 1 A$ | 8 | | MHz | |
| t_{on} | Turn-on Time | $I_C = 8 A$ $V_{CC} = 150 V$ | $I_{B1} = 1 A$ | | 0.28 | 1 | μs |
| t_s t_f | Storage Time Fall Time | $I_C = 8 A$ | $I_{B1} = 1 A$ | | 1.2 | 1.7 | μs |
| | | $I_{B2} = -1 A$ | $V_{CC} = 150V$ | | 0.25 | 0.8 | μs |
| | Clamped $E_{S/b}$ Collector Current | $V_{clamp} = 200 V$ $L = 500 \mu H$ | 8 | | | A | |

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 2\%$

TO-3 (H) MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|------|-------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | | 11.7 | | | 0.460 | |
| B | 0.96 | | 1.10 | 0.037 | | 0.043 |
| C | | | 1.70 | | | 0.066 |
| D | | | 8.7 | | | 0.342 |
| E | | | 20.0 | | | 0.787 |
| G | | 10.9 | | | 0.429 | |
| N | | 16.9 | | | 0.665 | |
| P | | | 26.2 | | | 1.031 |
| R | 3.88 | | 4.09 | 0.152 | | 0.161 |
| U | | | 39.50 | | | 1.555 |
| V | | 30.10 | | | 1.185 | |



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