SGS-THOMSON MICROELECTRONICS

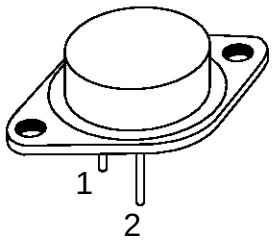
# BUX80

## SILICON NPN SWITCHING TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE

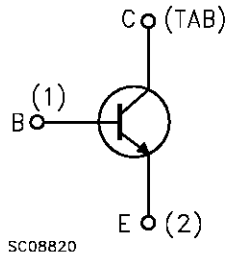
**DESCRIPTION**

The BUX80 is a silicon multiepitaxial mesa NPN transistor in Jedec TO-3 metal case, particularly intended for converters, inverters, switching regulators and motors control system applications.




**TO-3**

**INTERNAL SCHEMATIC DIAGRAM**




**ABSOLUTE MAXIMUM RATINGS**

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $V_{CES}$ | Collector-emitter Voltage ($V_{BE}$ = 0) | 800 | V |
| $V_{CER}$ | Collector-emitter Voltage ($R_{BE}$ = 50Ω) | 500 | V |
| $V_{CEO}$ | Collector-emitter Voltage ($I_B$ = 0) | 400 | V |
| $V_{EBO}$ | Emitter-base Voltage (Ic = 0) | 10 | V |
| $I_C$ | Collector Current | 10 | A |
| $I_{CM}$ | Collector Peak Current | 15 | A |
| $I_B$ | Base Current | 5 | A |
| $P_{tot}$ | Total Power Dissipation at $T_{case} \leq 40\ ^oC$ | 100 | W |
| $T_{stg}$ | Storage Temperature | -65 to 150 | $^oC$ |
| $T_j$ | Max Operating Junction Temperature | 150 | $^oC$ |

## THERMAL DATA

| | | | | |
|---|---|---|---|---|
| $R_{thj\text{-}case}$ | Thermal Resistance Junction-case | Max | 1.1 | $^oC/W$ |

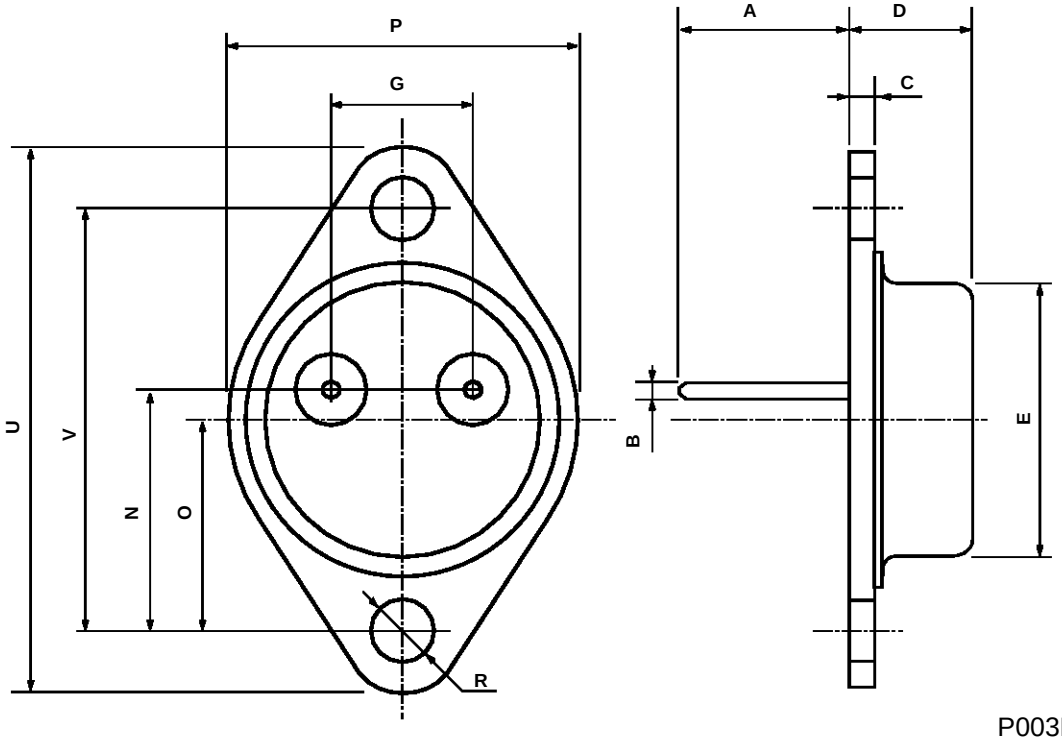
## ELECTRICAL CHARACTERISTICS ($T_{case}$ = 25 $^oC$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_{CES}$ | Collector Cut-off Current ($V_{BE}$ = 0) | $V_{CE}$ = 800 V<br>$V_{CE}$ = 800 V $T_{case}$ = 125$^oC$ | | | 1<br>3 | mA<br>mA |
| $I_{EBO}$ | Emitter Cut-off Current ($I_C$ = 0) | $V_{BE}$ = 10 V | | | 10 | mA |
| $V_{CEO(sus)}$* | Collector-Emitter SustainingVoltage ($I_B$ = 0) | $I_C$ = 100 mA | 400 | | | V |
| $V_{CER(sus)}$* | Collector-Emitter Sustaining Voltage ($R_{BE}$ = 50 Ω) | $I_C$ = 100 mA | 500 | | | V |
| $V_{CE(sat)}$* | Collector-Emitter Saturation Voltage | $I_C$ = 5 A $I_B$ = 1 A<br>$I_C$ = 8 A $I_B$ = 2.5 A | | | 1.5<br>3 | V<br>V |
| $V_{BE(sat)}$* | Base-Emitter Saturation Voltage | $I_C$ = 5 A $I_B$ = 1 A<br>$I_C$ = 8 A $I_B$ = 2.5 A | | | 1.4<br>1.8 | V<br>V |
| $h_{FE}$* | DC Current Gain | $I_C$ = 1.2 A $V_{CE}$ = 5 V | | 30 | | |
| $t_{on}$ | Turn-on Time | $I_C$ = 5 A $I_{B1}$ = 1 A<br>$V_{CC}$ = 250 V | | | 0.5 | µs |
| $t_s$ | Storage Time | $I_C$ = 5 A $I_{B1}$ = 1 A<br>$I_{B2}$ = - 2 A $V_{CC}$= 250 V | | | 3.5 | µs |
| $t_f$ | Fall Time | IC = 5 A $I_{B1}$ = 1 A<br>$I_{B2}$ = - 2 A $V_{CC}$= - 250 V | | | 0.5 | µs |

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

## 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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