

HIGH CURRENT NPN SILICON TRANSISTOR

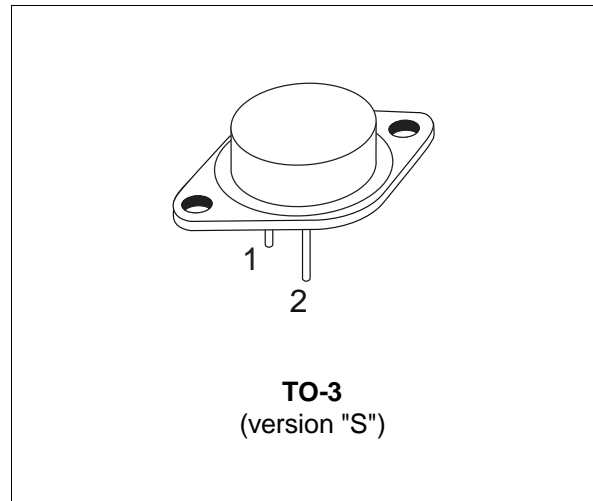
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- HIGH CURRENT CAPABILITY
- FAST SWITCHING SPEED
- HIGH RUGGEDNESS

APPLICATIONS

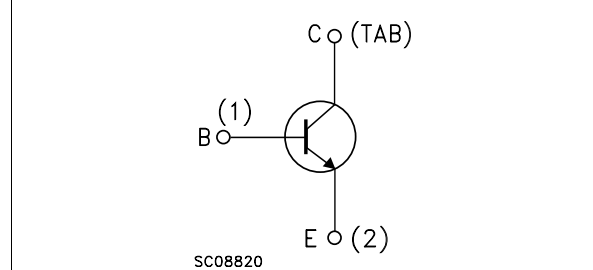
- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT
- SWITCHING REGULATORS

DESCRIPTION

The BUV20 is silicon Multiepitaxial Planar NPN transistor mounted in jedec TO-3 metal case. It is intended for use in switching and linear applications in military and industrial equipment.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|------------|------------|
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 160 | V |
| V_{CER} | Collector-Emitter Voltage ($R_{BE} = 100\Omega$) | 150 | V |
| V_{CEX} | Collector-Emitter Voltage ($V_{BE} = -1.5V$) | 160 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 125 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 7 | V |
| I_C | Collector Current | 50 | A |
| I_{CM} | Collector Peak Current | 60 | A |
| I_B | Base Current | 10 | A |
| P_{tot} | Total Power Dissipation at $T_{case} \leq 25^\circ C$ | 250 | W |
| T_{stg} | Storage Temperature | -65 to 200 | $^\circ C$ |
| T_j | Junction Temperature | 200 | $^\circ C$ |

BUV20

THERMAL DATA

| | | | | |
|-----------------------|----------------------------------|-----|-----|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 0.7 | °C/W |
|-----------------------|----------------------------------|-----|-----|------|

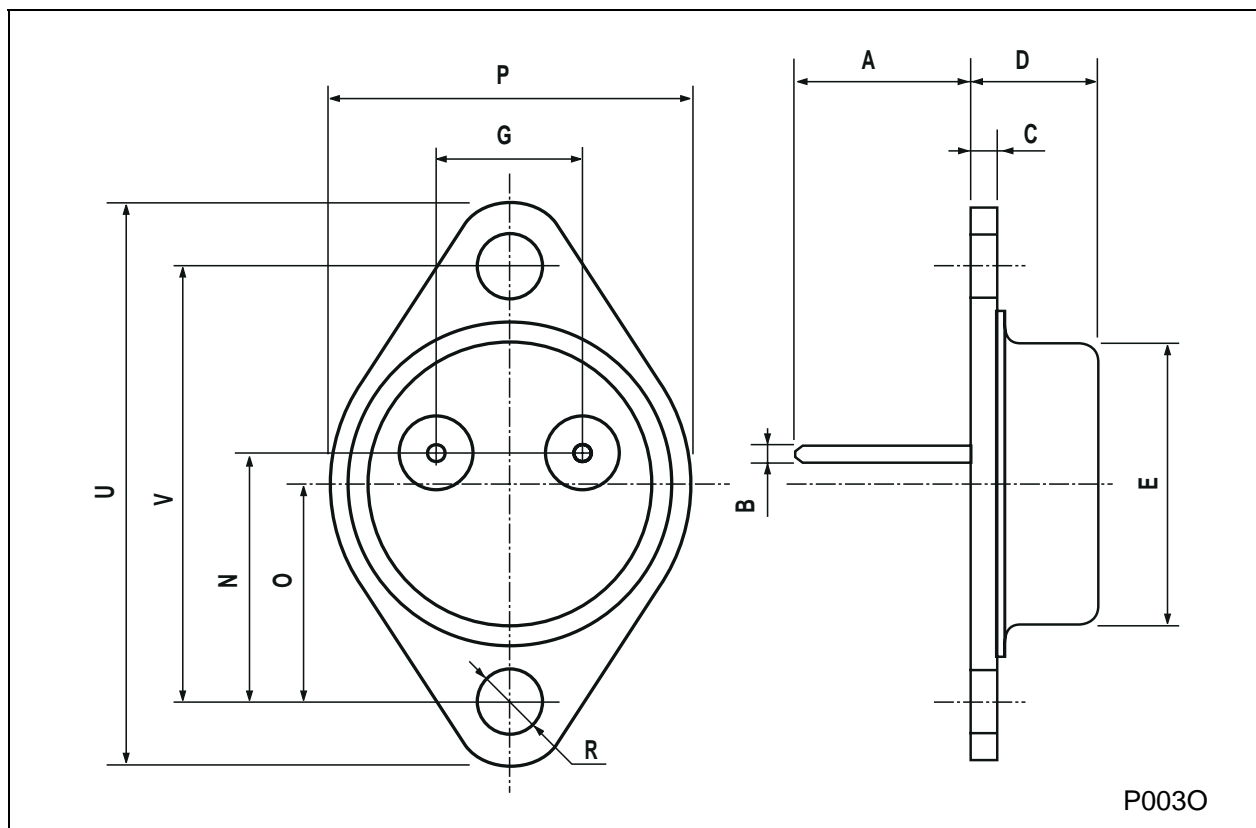
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|--|----------|------------|-------------------|----------------|
| I _{CEX} | Collector Cut-off Current (V _{BE} = -1.5V) | V _{CE} = 160 V V _{CE} = 160 V T _{case} = 125 °C | | | 3 12 | mA mA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | V _{CE} = 100 V | | | 3 | mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 5 V | | | 1 | mA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 200 mA L = 25 mH | 125 | | | V |
| V _{(BR)EB0*} | Emitter-base Breakdown Voltage (I _C = 0) | I _E = 50 mA | 7 | | | V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 25 A I _B = 2.5 A I _C = 50 A I _B = 5 A | | 0.3 0.7 | 0.6 1.2 | V V |
| V _{BE(sat)*} | Base-Emitter Saturation Voltage | I _C = 50 A I _B = 5 A | | 1.4 | 2 | V |
| h _{FE*} | DC Current Gain | V _{CE} = 2 V I _C = 25 A V _{CE} = 4 V I _C = 50 A | 20 10 | | 60 | |
| f _T | Transition frequency | V _{CE} = 15 V I _C = 2 A f = 100 MHz | 8 | | | MHz |
| t _{on} t _f t _s | RESISTIVE LOAD Turn-on Time Fall Time Storage Time | I _C = 50 A I _{B1} = -I _{B2} = 5 A | | | 1.5 0.3 1.2 | μs μs μs |

* Pulsed: Pulse duration = 300 μs, duty cycle ≤ 2 %.

TO-3 (version S) MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 11.00 | | 13.10 | 0.433 | | 0.516 |
| B | 1.47 | | 1.60 | 0.058 | | 0.063 |
| C | 1.50 | | 1.65 | 0.059 | | 0.065 |
| D | 8.32 | | 8.92 | 0.327 | | 0.351 |
| E | 19.00 | | 20.00 | 0.748 | | 0.787 |
| G | 10.70 | | 11.10 | 0.421 | | 0.437 |
| N | 16.50 | | 17.20 | 0.649 | | 0.677 |
| P | 25.00 | | 26.00 | 0.984 | | 1.023 |
| R | 4.00 | | 4.09 | 0.157 | | 0.161 |
| U | 38.50 | | 39.30 | 1.515 | | 1.547 |
| V | 30.00 | | 30.30 | 1.187 | | 1.193 |



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