

MEDIUM POWER NPN SILICON TRANSISTOR

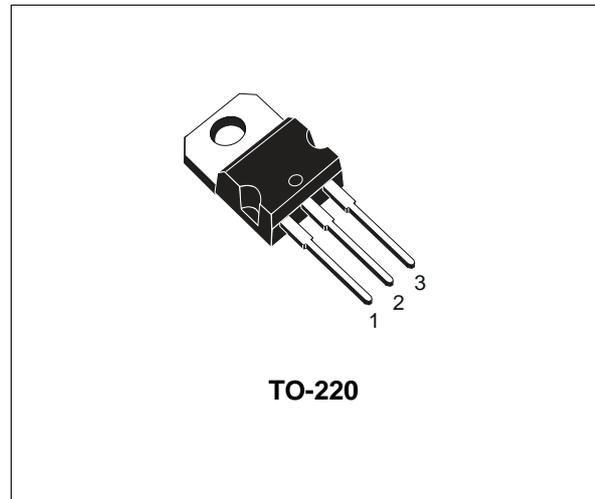
- STMicroelectronics PREFERRED SALESTYPE
- NPN TRANSISTOR
- FAST SWITCHING SPEED
- LOW COLLECTOR EMITTER SATURATION

APPLICATIONS

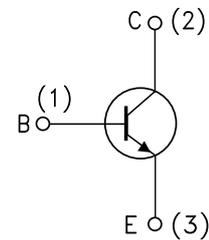
- SWITCHING REGULATORS
- MOTOR CONTROL

DESCRIPTION

The BUV27 is a Multiepitaxial Planar NPN Transistor in TO-220 package. It is intended for use in high frequency and efficiency converters, switching regulators and motor control.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|---|-------------|------------------|
| V_{CBO} | Collector-base Voltage ($I_E = 0$) | 240 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 120 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 7 | V |
| I_C | Collector Current | 12 | A |
| I_{CM} | Collector Peak Current | 20 | A |
| I_B | Base Current | 4 | A |
| I_{BM} | Base Peak Current | 6 | A |
| P_{tot} | Total Dissipation at $T_c < 25\text{ }^\circ\text{C}$ | 85 | W |
| P_{tot} | Total Dissipation at $T_c < 60\text{ }^\circ\text{C}$ | 65 | W |
| T_{stg} | Storage Temperature | -65 to +175 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 175 | $^\circ\text{C}$ |

BUV27

THERMAL DATA

| | | | | |
|-----------------------|----------------------------------|-----|------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 1.76 | °C/W |
|-----------------------|----------------------------------|-----|------|------|

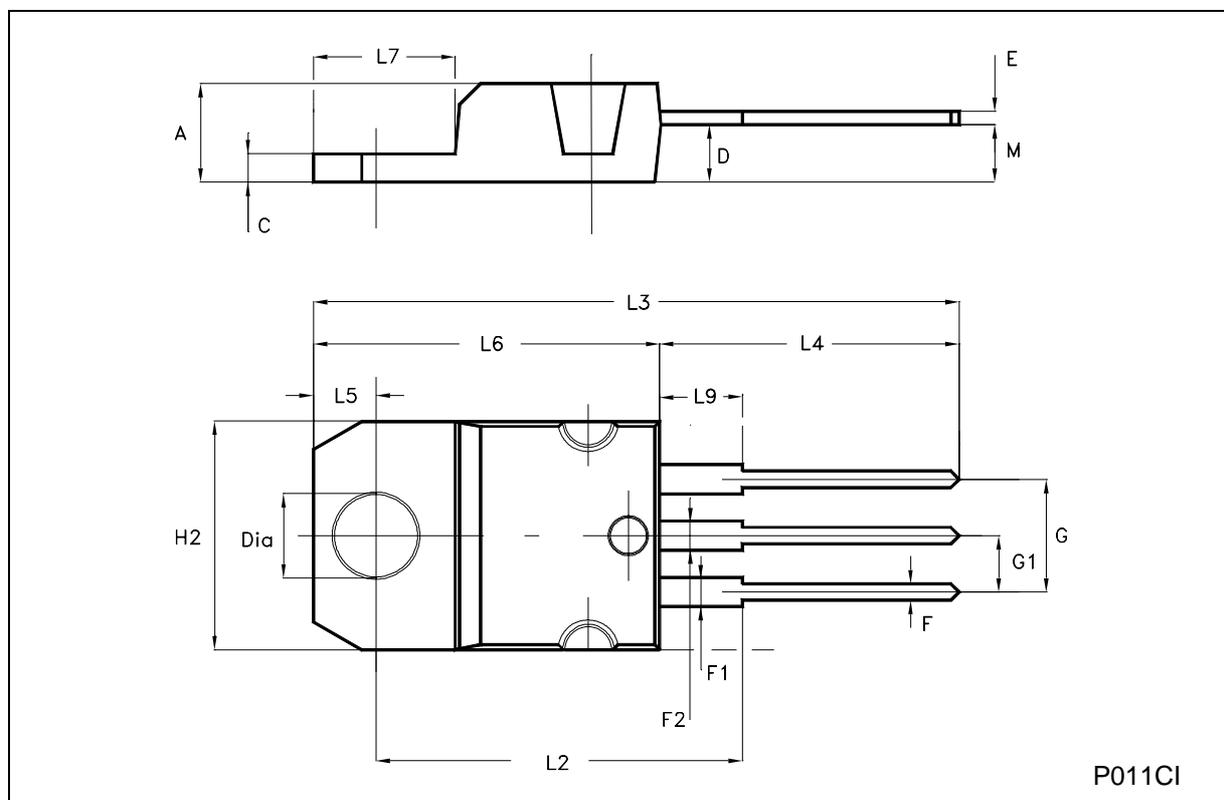
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|------|--------------------|--------------------|----------------|
| I _{CEr} | Collector Cut-off Current (R _{BE} = 50Ω) | V _{CE} = 240V T _c = 125°C | | | 3 | mA |
| I _{CEX} | Collector Cut-off Current (V _{BE} = -1.5V) | V _{CE} = 240V T _c = 125°C | | | 1 | 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 = 0.2 A L = 25mH | 120 | | | V |
| V _{EBO} | Emitter-Base Voltage (I _C = 0) | I _E = 50mA | 7 | | 30 | V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 4A I _B = 0.4A I _C = 8A I _B = 0.8A | | | 0.7 1.5 | V V |
| V _{BE(sat)*} | Base-Emitter Saturation Voltage | I _C = 8A I _B = 0.8A | | | 2 | V |
| t _{on} t _s t _f | RESISTIVE LOAD Turn-on Time Storage Time Fall Time | V _{CC} = 90V I _C = 8A V _{BE} = - 6V I _{B1} = 0.8A R _{BB} = 3.75Ω | | 0.4 0.5 0.12 | 0.8 1.2 0.25 | ms μs μs |
| t _s t _f | INDUCTIVE LOAD Storage time Fall Time | V _{CC} = 90V I _C = 8A I _{B1} = 0.8A V _{BE} = - 5V L _B = 1μH | | 0.6 0.04 | | μs μs |
| t _s t _f | Storage Time Fall Time | V _{CC} = 90V I _C = 8 A I _{B1} = 0.8A V _{BE} = - 5V L _B = 1μH T _c = 125°C | | | 2 0.15 | μs μs |

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

TO-220 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|-------|-------|-------|-------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 4.40 | | 4.60 | 0.173 | | 0.181 |
| C | 1.23 | | 1.32 | 0.048 | | 0.052 |
| D | 2.40 | | 2.72 | 0.094 | | 0.107 |
| E | 0.49 | | 0.70 | 0.019 | | 0.027 |
| F | 0.61 | | 0.88 | 0.024 | | 0.034 |
| F1 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| F2 | 1.14 | | 1.70 | 0.044 | | 0.067 |
| G | 4.95 | | 5.15 | 0.194 | | 0.202 |
| G1 | 2.40 | | 2.70 | 0.094 | | 0.106 |
| H2 | 10.00 | | 10.40 | 0.394 | | 0.409 |
| L2 | | 16.40 | | | 0.645 | |
| L4 | 13.00 | | 14.00 | 0.511 | | 0.551 |
| L5 | 2.65 | | 2.95 | 0.104 | | 0.116 |
| L6 | 15.25 | | 15.75 | 0.600 | | 0.620 |
| L7 | 6.20 | | 6.60 | 0.244 | | 0.260 |
| L9 | 3.50 | | 3.93 | 0.137 | | 0.154 |
| M | | 2.60 | | | 0.102 | |
| DIA. | 3.75 | | 3.85 | 0.147 | | 0.151 |



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