

## HIGH VOLTAGE PNP POWER TRANSISTOR

- SGS-THOMSON PREFERRED SALESTYPE
- PNP TRANSISTOR
- HIGH VOLTAGE CAPABILITY

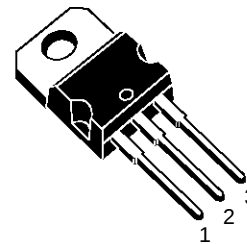
### APPLICATIONS:

- SWITCHING REGULATORS
- MOTOR CONTROL
- INVERTERS

### DESCRIPTION

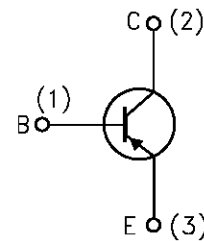
The MJE5852 is manufactured using high voltage PNP multi-epitaxial technology for high switching speed and high voltage capability.

It is intended for use in high frequency and efficiency converters, switching regulators and motor control.



TO-220

### INTERNAL SCHEMATIC DIAGRAM



SC08810

### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Parameter                                  | Value      | Unit       |
|-----------|--------------------------------------------|------------|------------|
| $V_{CES}$ | Collector-Emitter Voltage ( $V_{BE} = 0$ ) | 450        | V          |
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_B = 0$ )    | 400        | V          |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )         | 7          | V          |
| $I_C$     | Collector Current                          | 8          | A          |
| $I_{CM}$  | Collector Peak Current ( $t_p < 5ms$ )     | 16         | A          |
| $I_B$     | Base Current                               | 4          | A          |
| $I_{BM}$  | Base Peak Current ( $t_p < 5ms$ )          | 8          | A          |
| $P_{tot}$ | Total Dissipation at $T_c \leq 25^\circ C$ | 80         | W          |
| $T_{stg}$ | Storage Temperature                        | -65 to 150 | $^\circ C$ |
| $T_j$     | Max. Operating Junction Temperature        | 150        | $^\circ C$ |

For PNP type voltage and current values are negative.

## THERMAL DATA

|                       |                                     |     |      |      |
|-----------------------|-------------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case    | Max | 1.56 | °C/W |
| R <sub>thj-amb</sub>  | Thermal Resistance Junction-ambient | Max | 62.5 | °C/W |

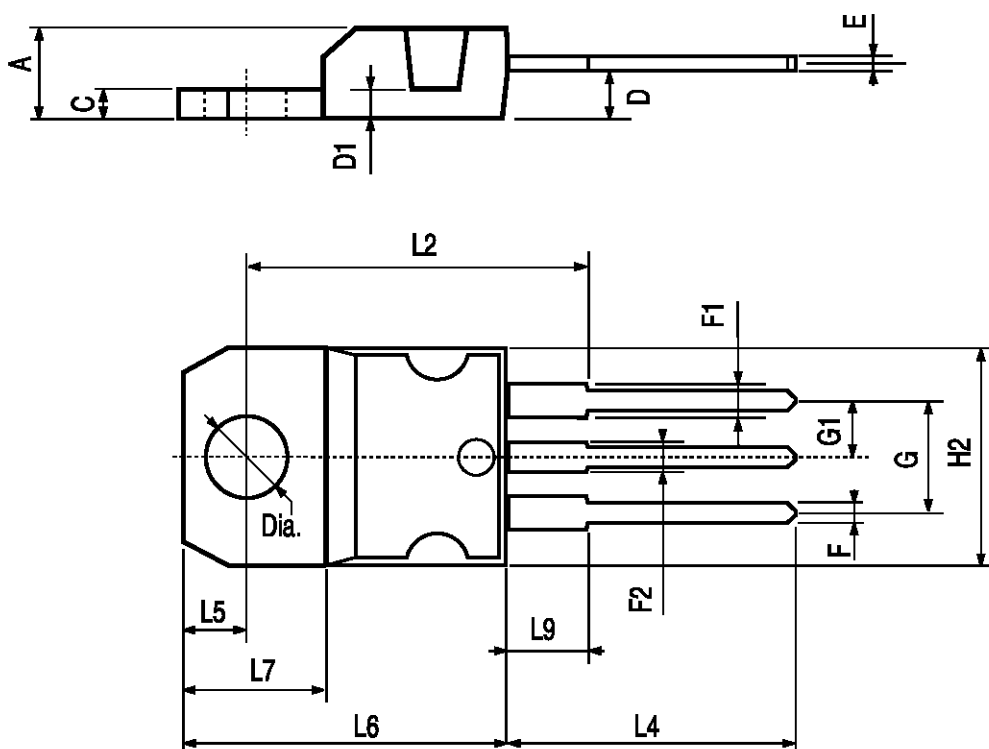
ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

| Symbol                           | Parameter                                                | Test Conditions                                                                                                           | Min.    | Typ. | Max.     | Unit     |
|----------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------|------|----------|----------|
| I <sub>CES</sub>                 | Collector Cut-off Current (V <sub>BE</sub> = -1.5V)      | V <sub>CE</sub> = 450 V                                                                                                   |         |      | 500      | μA       |
| I <sub>EBO</sub>                 | Emitter Cut-off Current (I <sub>C</sub> = 0)             | V <sub>EB</sub> = 6 V                                                                                                     |         |      | 1        | mA       |
| V <sub>CEO(sus)*</sub>           | Collector-Emitter Sustaining Voltage (I <sub>B</sub> =0) | I <sub>C</sub> = 10 mA                                                                                                    | 400     |      |          | V        |
| V <sub>CE(sat)*</sub>            | Collector-Emitter Saturation Voltage                     | I <sub>C</sub> = 4 A      I <sub>B</sub> = 1 A<br>I <sub>C</sub> = 8 A      I <sub>B</sub> = 3 A                          |         |      | 2<br>5   | V<br>V   |
| V <sub>BE(sat)*</sub>            | Base-Emitter Saturation Voltage                          | I <sub>C</sub> = 4 A      I <sub>B</sub> = 1 A                                                                            |         |      | 1.5      | V        |
| h <sub>FE*</sub>                 | DC Current Gain                                          | I <sub>C</sub> = 2 A      V <sub>CE</sub> = 5 V<br>I <sub>C</sub> = 5 A      V <sub>CE</sub> = 5 V                        | 15<br>5 |      |          |          |
| t <sub>s</sub><br>t <sub>f</sub> | RESISTIVE LOAD<br>Storage Time<br>Fall Time              | I <sub>C</sub> = 4 A      V <sub>CC</sub> = 250 V<br>I <sub>B1</sub> = -I <sub>B2</sub> = 1 A      t <sub>p</sub> = 40 μs |         |      | 2<br>0.5 | μs<br>μs |

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %  
For PNP type voltage and current values are negative.

## 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 |       | 0.051 |
| D    | 2.40  |      | 2.72  | 0.094 |       | 0.107 |
| D1   |       | 1.27 |       |       | 0.050 |       |
| 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 |       | 0.203 |
| G1   | 2.4   |      | 2.7   | 0.094 |       | 0.106 |
| H2   | 10.0  |      | 10.40 | 0.393 |       | 0.409 |
| L2   |       | 16.4 |       |       | 0.645 |       |
| L4   | 13.0  |      | 14.0  | 0.511 |       | 0.551 |
| L5   | 2.65  |      | 2.95  | 0.104 |       | 0.116 |
| L6   | 15.25 |      | 15.75 | 0.600 |       | 0.620 |
| L7   | 6.2   |      | 6.6   | 0.244 |       | 0.260 |
| L9   | 3.5   |      | 3.93  | 0.137 |       | 0.154 |
| DIA. | 3.75  |      | 3.85  | 0.147 |       | 0.151 |



P011C

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