

## MEDIUM VOLTAGE NPN IGNITION DARLINGTON

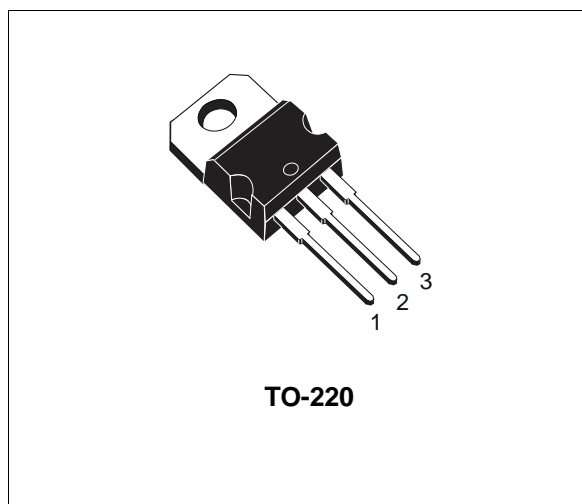
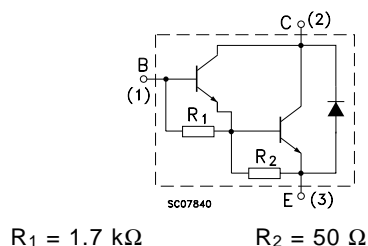
- SGS-THOMSON PREFERRED SALESTYPE
- NPN DARLINGTON
- LOW BASE-DRIVE REQUIREMENTS
- INTEGRATED ANTIPARALLEL COLLECTOR-EMITTER DIODE

**APPLICATIONS:**

- SOLENOID / RELAY DRIVERS
- MOTOR CONTROL
- ELECTRONIC AUTOMOTIVE IGNITION

**DESCRIPTION**

The BU911 is an NPN transistor in monolithic Darlington configuration Jedec TO-220 plastic package, designed for applications such as electronic ignition, DC and AC motor controls, solenoid drivers, etc.

**INTERNAL SCHEMATIC DIAGRAM****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 ( $I_C = 0$ )                        | 5          | V                |
| $I_C$     | Collector Current   | 6          | A                |
| $I_{CM}$  | Collector Peak Current                                    | 10         | A                |
| $I_B$     | Base Current  | 1          | A                |
| $P_{tot}$ | Total Dissipation at $T_c \leq 25 \text{ }^\circ\text{C}$ | 60         | W                |
| $T_{stg}$ | Storage Temperature                                       | -65 to 150 | $^\circ\text{C}$ |
| $T_j$     | Max. Operating Junction Temperature                       | 150        | $^\circ\text{C}$ |

**THERMAL DATA**

|                       |                                  |     |      |      |
|-----------------------|----------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case | Max | 2.08 | °C/W |
|-----------------------|----------------------------------|-----|------|------|

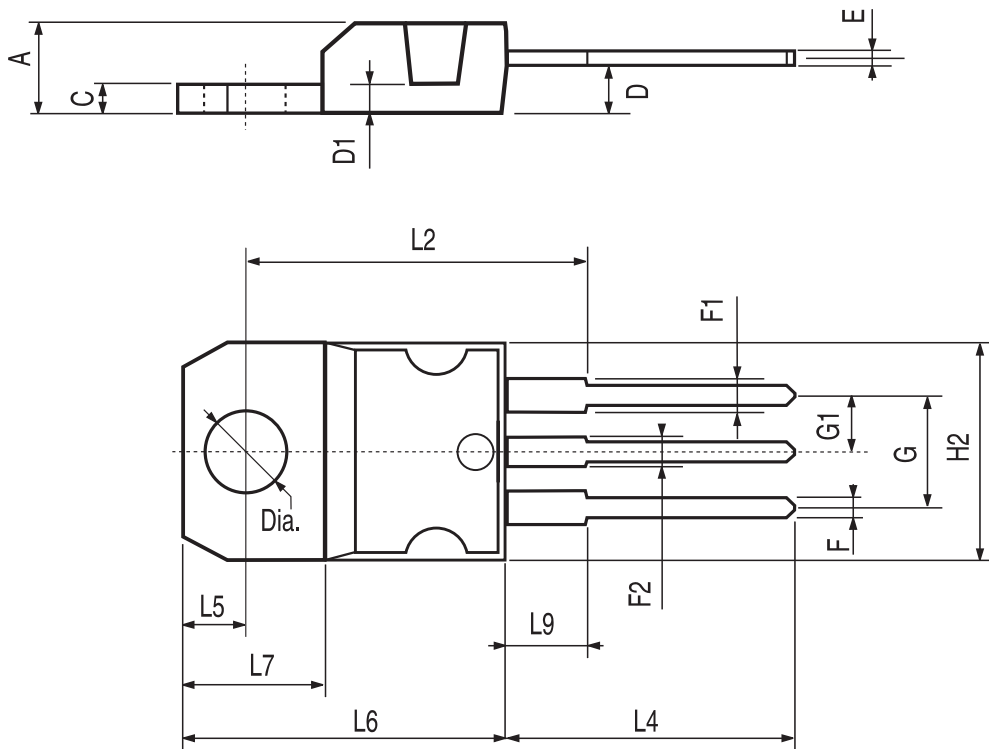
**ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

| Symbol                 | Parameter   | Test Conditions   | Min. | Typ. | Max.       | Unit     |
|------------------------|---|---|------|------|------------|----------|
| I <sub>CES</sub>       | Collector Cut-off Current (V <sub>BE</sub> = 0)           | V <sub>CE</sub> = 450 V<br>V <sub>CE</sub> = 450 V      T <sub>case</sub> = 125°C                       |      |      | 1<br>5     | mA<br>mA |
| I <sub>CEO</sub>       | Collector Cut-off Current (I <sub>B</sub> = 0)            | V <sub>CE</sub> = 400 V   |      |      | 1          | mA       |
| I <sub>EBO</sub>       | Emitter Cut-off Current (I <sub>C</sub> = 0)              | V <sub>EB</sub> = 5 V   |      |      | 5          | mA       |
| V <sub>CEO(sus)*</sub> | Collector-emitter Sustaining Voltage (I <sub>B</sub> = 0) | I <sub>C</sub> = 100 mA   | 400  |      |            | V        |
| V <sub>CE(sat)*</sub>  | Collector-emitter Saturation Voltage                      | I <sub>C</sub> = 2.5 A      I <sub>B</sub> = 50 mA<br>I <sub>C</sub> = 4 A      I <sub>B</sub> = 200 mA |      |      | 1.8<br>1.8 | V<br>V   |
| V <sub>BE(sat)*</sub>  | Base-emitter Saturation Voltage                           | I <sub>C</sub> = 2.5 A      I <sub>B</sub> = 50 mA<br>I <sub>C</sub> = 4 A      I <sub>B</sub> = 200 mA |      |      | 2.2<br>2.5 | V<br>V   |
| V <sub>F*</sub>        | Diode Forward Voltage                                     | I <sub>F</sub> = 4 A  |      |      | 2.5        | V        |

\* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %.

**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 |



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