

HIGH VOLTAGE IGNITION COIL DRIVER NPN POWER DARLINGTON

PRELIMINARY DATA

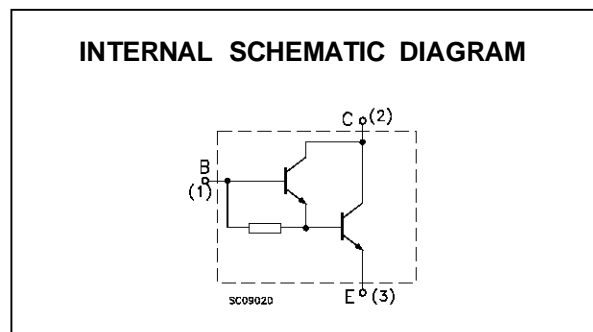
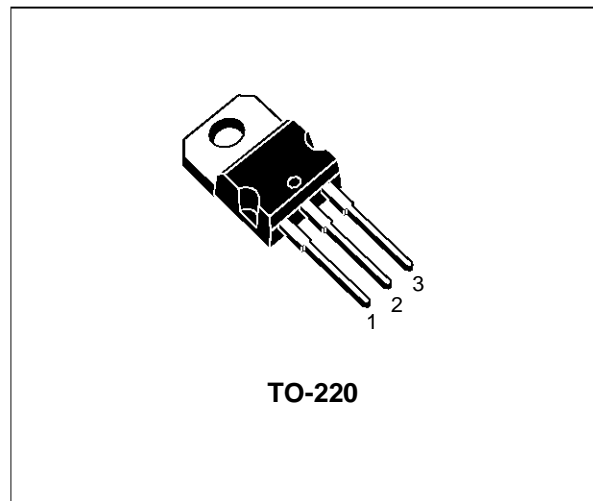
- SGS-THOMSON PREFERRED SALESTYPE
- HIGH VOLTAGE SPECIAL DARLINGTON STRUCTURE
- VERY RUGGED BIPOLAR TECHNOLOGY
- HIGH OPERATING JUNCTION TEMPERATURE
- HIGH DC CURRENT GAIN

APPLICATION

- HIGH RUGGEDNESS ELECTRONIC IGNITION FOR SMALL ENGINES

DESCRIPTION

The ST901T is a high voltage NPN silicon transistor in monolithic special Darlington configuration mounted in Jedec TO-220 plastic package, designed for applications such as electronic ignition for small engines (scooters, lawnmowers, chainsaws).



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | Unit |
|-----------|--|------------|------------------|
| V_{CES} | Collector- Emitter Voltage ($V_{BE} = 0$) | 500 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 350 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 5 | V |
| I_C | Collector Current | 4 | A |
| I_{CM} | Collector Peak Current | 8 | A |
| I_B | Base Current | 0.5 | A |
| I_{BM} | Base Peak Current | 2.5 | A |
| P_{tot} | Total Dissipation at $T_c \leq 25^\circ\text{C}$ | 30 | W |
| T_{stg} | Storage Temperature | -65 to 175 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 175 | $^\circ\text{C}$ |

ST901T

THERMAL DATA

| | | | | |
|----------------|----------------------------------|-----|---|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-case | Max | 5 | $^{\circ}C/W$ |
|----------------|----------------------------------|-----|---|---------------|

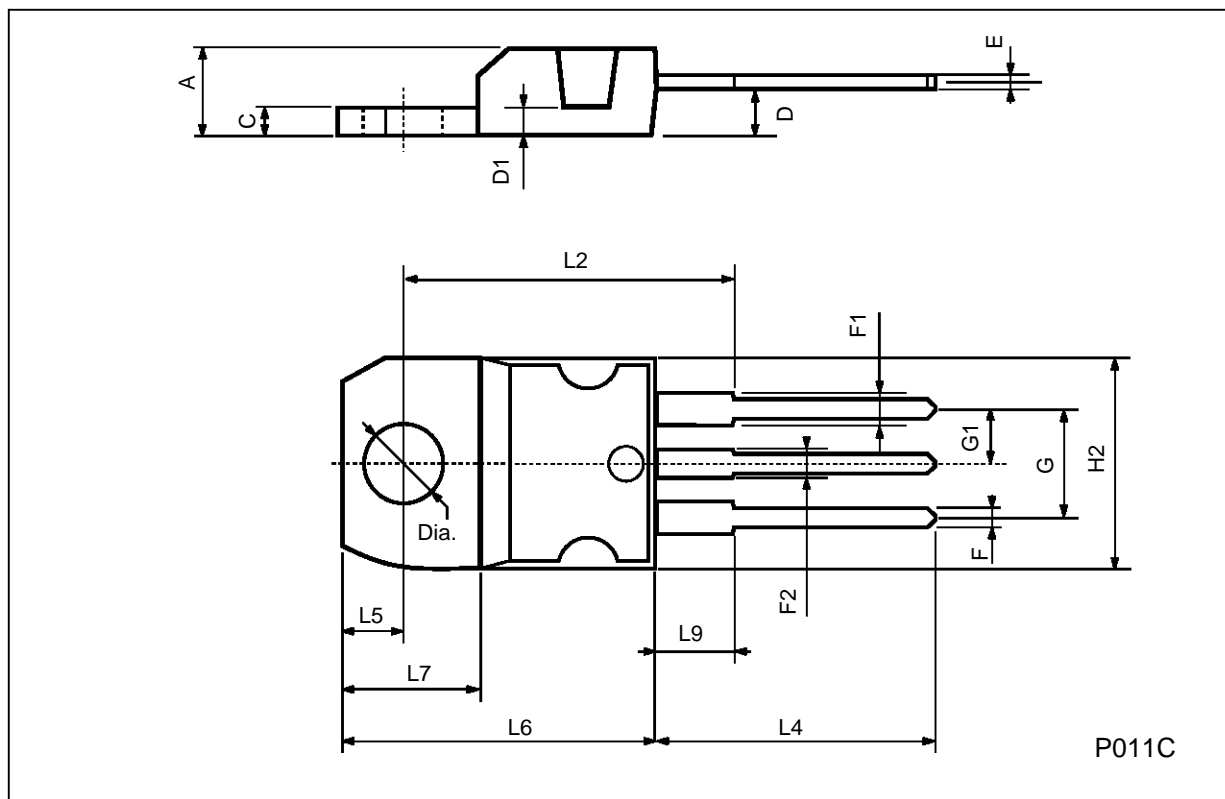
ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------|---|---|-------------|-----------|------------|--------------------|
| I_{CES} | Collector Cut-off Current ($I_E = 0$) | $V_{CE} = 500 V$ $V_{CE} = 500 V$ $T_{case} = 125^{\circ}C$ | | | 100 0.5 | μA mA |
| I_{CEO} | Collector Cut-off Current ($I_B = 0$) | $V_{CE} = 350 V$ $V_{CE} = 350 V$ $T_{case} = 125^{\circ}C$ | | | 100 0.5 | μA mA |
| I_{EBO} | Emitter Cut-off Current ($I_C = 0$) | $V_{EB} = 5 V$ | | | 10 | μA |
| $V_{CEO(sus)}^*$ | Collector-Emitter Sustaining Voltage | $I_C = 10 mA$ $L = 10 mH$ $I_B = 0$ | 350 | | | V |
| $V_{CE(sat)}^*$ | Collector-Emitter Saturation Voltage | $I_C = 2 A$ $I_B = 20 mA$ | | | 1.3 | V |
| $V_{BE(sat)}^*$ | Base-Emitter Saturation Voltage | $I_C = 2 A$ $I_B = 20 mA$ | | | 1.8 | V |
| h_{FE}^* | DC Current Gain | $I_C = 2 A$ $V_{CE} = 2 V$ $I_C = 4 A$ $V_{CE} = 2 V$ | 1500 500 | | | |
| | Functional Test | $V_{CC} = 24 V$ $V_{clamp} = 350 V$ $L = 4 mH$ | 4 | | | A |
| t_s t_f | INDUCTIVE LOAD Storage Time Fall Time | $V_{CC} = 12 V$ $V_{clamp} = 250 V$ $L = 4 mH$ $I_B = 20 mA$ $I_C = 2 A$ $V_{BE} = -3 V$ | | 15 1.5 | | μs μs |

* 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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