

## SILICON PNP SWITCHING TRANSISTOR

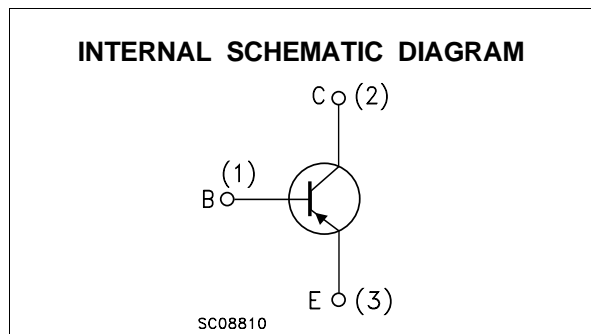
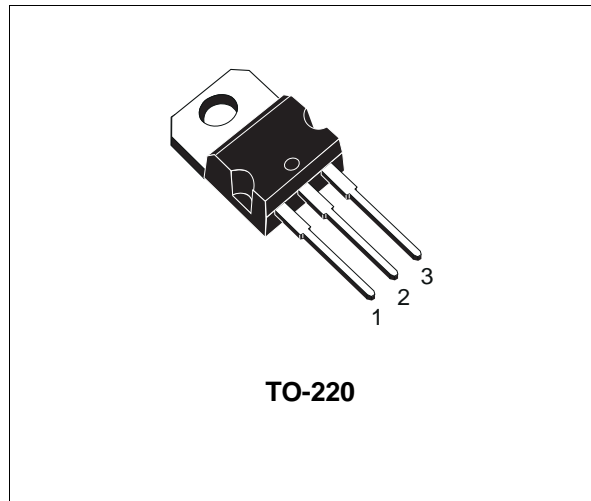
- STMicroelectronics PREFERRED SALESTYPE
- PNP TRANSISTOR

### APPLICATIONS:

- LINEAR AND SWITCHING INDUSTRIAL EQUIPMENT

### DESCRIPTION

The 2N6111 is an Epitaxial-Base PNP silicon transistor in Jedec TO-220 plastic package. It is intended for a wide variety of medium power switching and linear applications.



### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Parameter   | Value      | Unit       |
|-----------|---|------------|------------|
| $V_{CBO}$ | Collector-Base Voltage ( $I_E = 0$ )                | -40        | V          |
| $V_{CEX}$ | Collector-Emitter Voltage ( $R_{BE} = 100 \Omega$ ) | -40        | V          |
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_B = 0$ )             | -30        | V          |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )                  | -5         | V          |
| $I_C$     | Collector Current                                   | -7         | A          |
| $I_B$     | Base Current  | -3         | A          |
| $P_{tot}$ | Total Dissipation at $T_c = 25^\circ C$             | 40         | W          |
| $T_{stg}$ | Storage Temperature                                 | -65 to 150 | $^\circ C$ |
| $T_j$     | Max. Operating Junction Temperature                 | 150        | $^\circ C$ |

## 2N6111

### THERMAL DATA

|                       |                                     |     |      |      |
|-----------------------|-------------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case    | Max | 3.12 | °C/W |
| R <sub>thj-amb</sub>  | Thermal Resistance Junction-ambient | Max | 70   | °C/W |

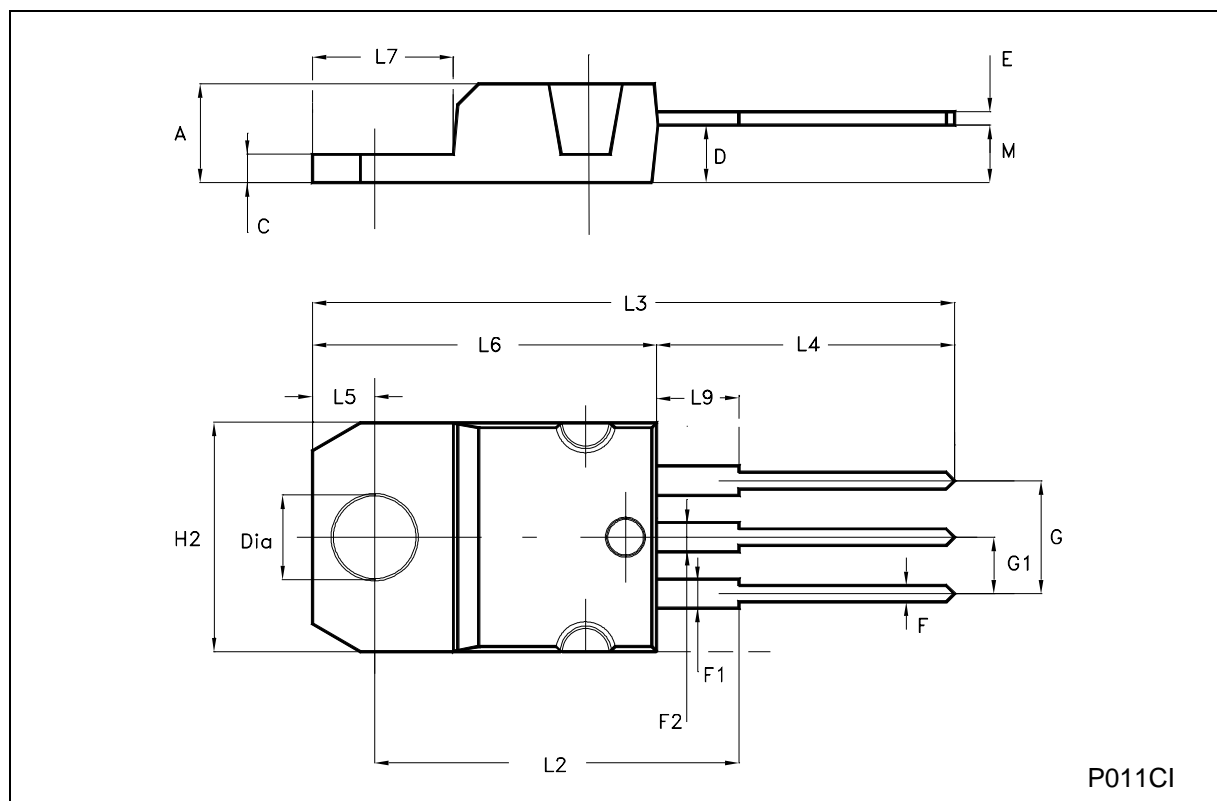
### ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25 °C unless otherwise specified)

| Symbol                 | Parameter   | Test Conditions  | Min.      | Typ. | Max.       | Unit     |
|------------------------|---|--|-----------|------|------------|----------|
| I <sub>CEX</sub>       | Collector Cut-off Current (V <sub>BE</sub> = -1.5V)       | V <sub>CE</sub> = -40 V<br>V <sub>CE</sub> = -30 V<br>T <sub>C</sub> = 150 °C                        |           |      | -0.1<br>-2 | mA<br>mA |
| I <sub>CEO</sub>       | Collector Cut-off Current (I <sub>B</sub> = 0)            | V <sub>CE</sub> = -20 V  |           |      | -1         | mA       |
| I <sub>EBO</sub>       | Emitter Cut-off Current (I <sub>C</sub> = 0)              | V <sub>EB</sub> = -5 V   |           |      | -1         | mA       |
| V <sub>CEO(sus)*</sub> | Collector-Emitter Sustaining Voltage (I <sub>B</sub> = 0) | I <sub>C</sub> = -0.1 A  | -30       |      |            | V        |
| V <sub>CER(sus)*</sub> | Collector-Emitter Sustaining Voltage (I <sub>C</sub> = 0) | I <sub>C</sub> = -0.1 A<br>R <sub>BE</sub> = 100 Ω   | -40       |      |            | V        |
| V <sub>CE(sat)*</sub>  | Collector-Emitter Saturation Voltage                      | I <sub>C</sub> = -2 A<br>I <sub>C</sub> = -7 A<br>I <sub>B</sub> = -0.2 A<br>I <sub>B</sub> = -3.0 A |           |      | -1<br>-3.5 | V<br>V   |
| V <sub>BE(on)*</sub>   | Base-Emitter Voltage                                      | I <sub>C</sub> = -2 A<br>I <sub>C</sub> = -7 A<br>V <sub>CE</sub> = -4 V<br>V <sub>CE</sub> = -4 V   |           |      | -5<br>-3   | V<br>V   |
| h <sub>FE*</sub>       | DC Current Gain   | I <sub>C</sub> = -3 A<br>I <sub>C</sub> = -7 A<br>V <sub>CE</sub> = -4 V<br>V <sub>CE</sub> = -4 V   | 30<br>2.3 |      | 150        |          |
| h <sub>fe</sub>        | Small Signal Current Gain                                 | I <sub>C</sub> = -0.5 A<br>f = 50 KHz<br>V <sub>CE</sub> = -4 V                                      | 20        |      |            |          |
| f <sub>T</sub>         | Transition-Frequency                                      | I <sub>C</sub> = -0.5 A<br>V <sub>CE</sub> = -4 V  | 4         |      |            | MHz      |
| C <sub>cbo</sub>       | Collector-base Capacitance                                | V <sub>CB</sub> = -10 V<br>f = 1 MHz   |           |      | 250        | pF       |

\* 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 |       | 0.052 |
| 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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