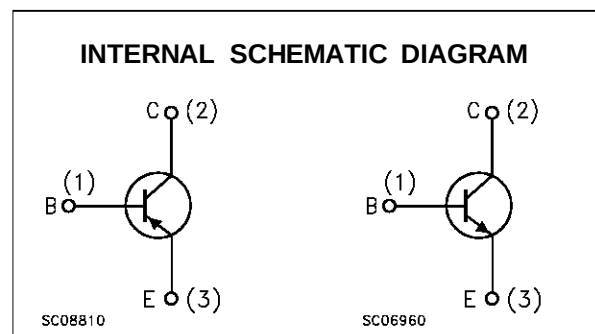
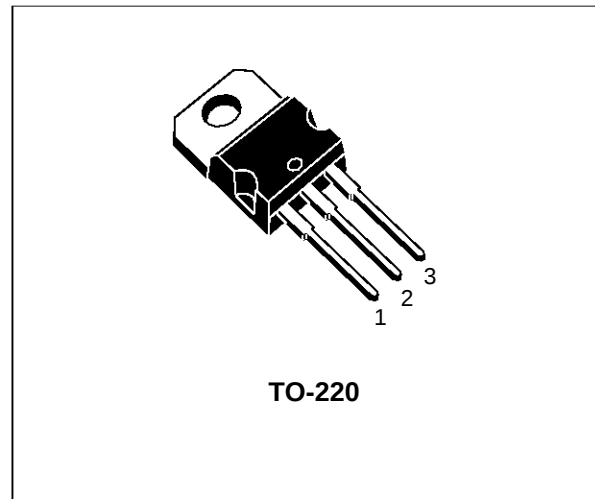


## COMPLEMENTARY SILICON POWER TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- COMPLEMENTARY PNP - NPN DEVICES

### DESCRIPTION

The MJE3055T is a silicon epitaxial-base NPN transistor in Jedec TO-220 package. It is intended for power switching circuits and general-purpose amplifiers. The complementary PNP type is MJE2955T.



### ABSOLUTE MAXIMUM RATINGS

| Symbol    | Parameter                                                   | Value      | Unit             |
|-----------|-------------------------------------------------------------|------------|------------------|
| $V_{CEO}$ | Collector-Emitter Voltage ( $I_B = 0$ )                     | 60         | V                |
| $V_{CBO}$ | Collector-Base Voltage ( $I_E = 0$ )                        | 70         | V                |
| $V_{EBO}$ | Emitter-Base Voltage ( $I_C = 0$ )                          | 5          | V                |
| $I_C$     | Collector Current                                           | 10         | A                |
| $I_B$     | Base Current                                                | 6          | A                |
| $P_{tot}$ | Total Power Dissipation at $T_{case} \leq 25^\circ\text{C}$ | 75         | W                |
| $T_{stg}$ | Storage Temperature                                         | -55 to 150 | $^\circ\text{C}$ |
| $T_j$     | Max. Operating Junction Temperature                         | 150        | $^\circ\text{C}$ |

For PNP types voltage and current values are negative.

**THERMAL DATA**

|                       |                                  |     |      |      |
|-----------------------|----------------------------------|-----|------|------|
| R <sub>thj-case</sub> | Thermal Resistance Junction-case | Max | 1.66 | °C/W |
|-----------------------|----------------------------------|-----|------|------|

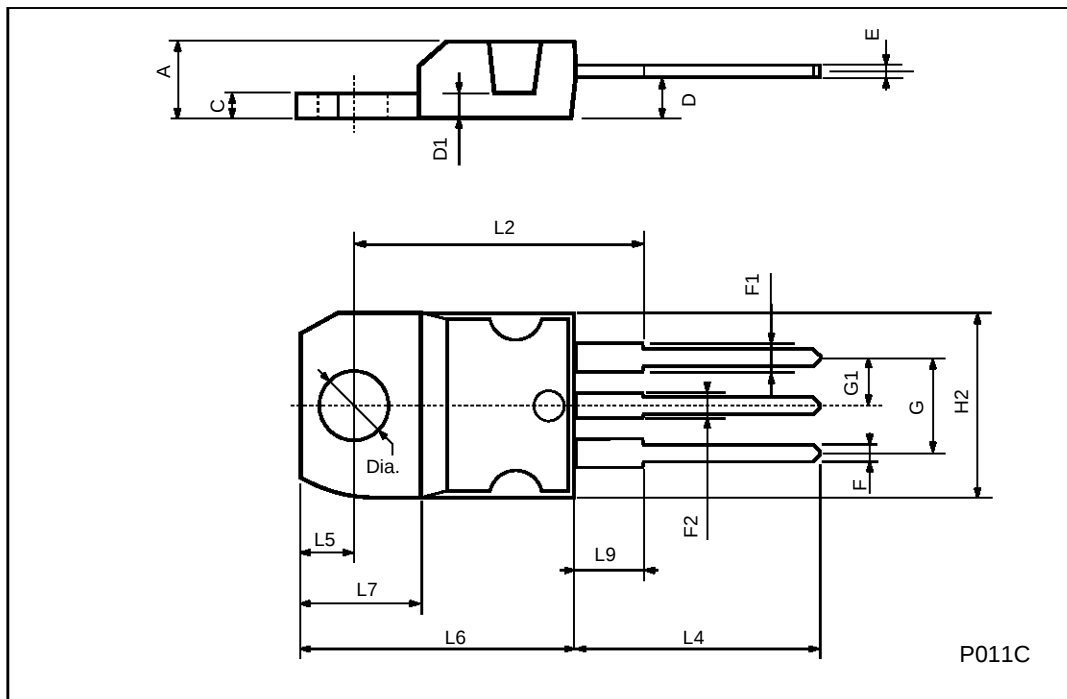
**ELECTRICAL CHARACTERISTICS** ( $T_{case} = 25^{\circ}\text{C}$  unless otherwise specified)

| Symbol                 | Parameter                                            | Test Conditions                                             | Min.    | Typ. | Max.     | Unit                       |
|------------------------|------------------------------------------------------|-------------------------------------------------------------|---------|------|----------|----------------------------|
| I <sub>CEO</sub>       | Collector Cut-off Current ( $I_B = 0$ )              | $V_{CE} = 30\text{ V}$                                      |         |      | 700      | $\mu\text{A}$              |
| I <sub>CEX</sub>       | Collector Cut-off Current ( $V_{BE} = 1.5\text{V}$ ) | $V_{CE} = 70\text{ V}$<br>$T_{CASE} = 150^{\circ}\text{C}$  |         |      | 1<br>5   | $\text{mA}$<br>$\text{mA}$ |
| I <sub>CBO</sub>       | Collector Cut-off Current ( $I_E = 0$ )              | $V_{CBO} = 70\text{ V}$<br>$T_{CASE} = 150^{\circ}\text{C}$ |         |      | 1<br>10  | $\text{mA}$<br>$\text{mA}$ |
| I <sub>EBO</sub>       | Emitter Cut-off Current ( $I_C = 0$ )                | $V_{EBO} = 5\text{ V}$                                      |         |      | 5        | $\text{mA}$                |
| V <sub>CEO(sus)*</sub> | Collector-Emitter Sustaining Voltage                 | $I_C = 200\text{ mA}$                                       | 60      |      |          | V                          |
| V <sub>CE(sat)*</sub>  | Collector-Emitter Sustaining Voltage                 | $I_C = 4\text{ A}$<br>$I_C = 10\text{ A}$                   |         |      | 1.1<br>8 | V<br>V                     |
| V <sub>BE(on)*</sub>   | Base-Emitter on Voltage                              | $I_C = 4\text{ A}$<br>$V_{CE} = 4\text{ V}$                 |         |      | 1.8      | V                          |
| h <sub>FE</sub>        | DC Current Gain                                      | $I_C = 4\text{ A}$<br>$I_C = 10\text{ A}$                   | 20<br>5 |      | 70       |                            |
| f <sub>T</sub>         | Transistor Frequency                                 | $I_C = 500\text{ mA}$<br>$f = 500\text{ KHz}$               | 2       |      |          | MHz                        |

\* Pulsed: Pulse duration = 300 $\mu\text{s}$ , duty cycle  $\leq 2\%$   
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 |



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