

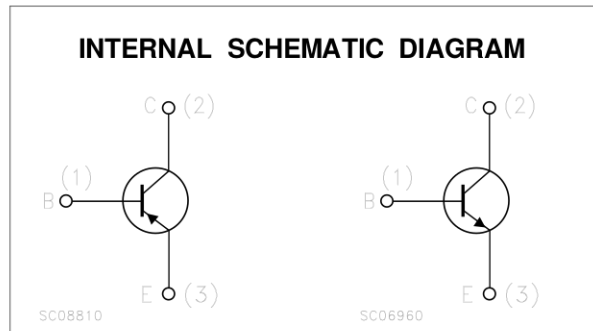
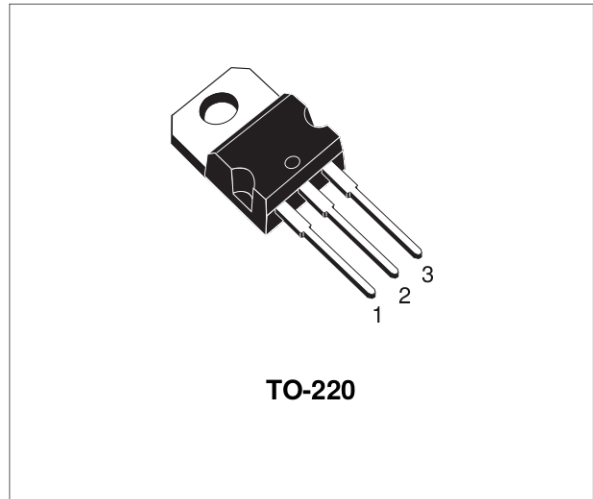


## COMPLEMENTARY SILICON POWER TRANSISTORS

- STMicroelectronics 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             |
|-----------|---|-------|------------|------------------|
|           |   | NPN   | MJE3055T   |                  |
|           |   | PNP   | MJE2955T   |                  |
| $V_{CEO}$ | 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 $T_{case} \leq 25\text{ }^\circ\text{C}$ |       | 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.

## MJE2955T / MJE3055T

### THERMAL DATA

|                |                                  |     |      |               |
|----------------|----------------------------------|-----|------|---------------|
| $R_{thj-case}$ | Thermal Resistance Junction-case | Max | 1.66 | $^{\circ}C/W$ |
|----------------|----------------------------------|-----|------|---------------|

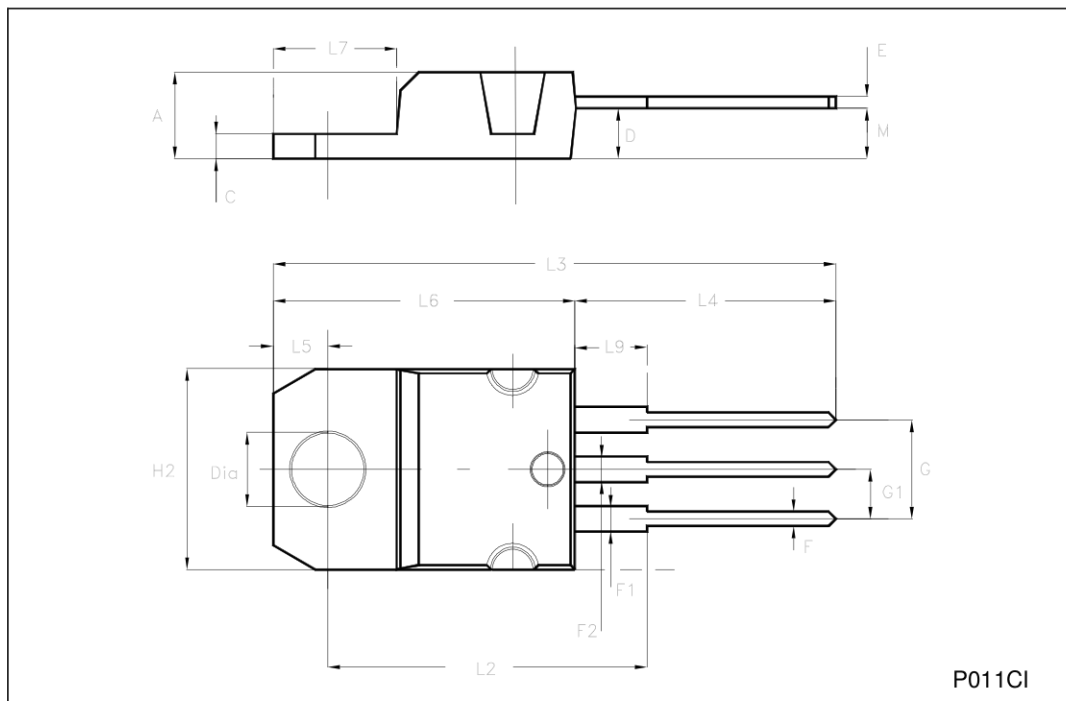
### ELECTRICAL CHARACTERISTICS ( $T_{case} = 25^{\circ}C$ unless otherwise specified)

| Symbol          | Parameter  | Test Conditions                               |                                  | Min.    | Typ. | Max.     | Unit         |
|-----------------|--|---|----------------------------------|---------|------|----------|--------------|
| $I_{CEO}$       | Collector Cut-off Current ( $I_B = 0$ )            | $V_{CE} = 30 V$                               |                                  |         |      | 700      | $\mu A$      |
| $I_{CEX}$       | Collector Cut-off Current ( $V_{BE} = 1.5V$ )      | $V_{CE} = 70 V$<br>$T_{case} = 150^{\circ}C$  |                                  |         |      | 1<br>5   | $mA$<br>$mA$ |
| $I_{CBO}$       | Collector Cut-off Current ( $I_E = 0$ )            | $V_{CBO} = 70 V$<br>$T_{case} = 150^{\circ}C$ |                                  |         |      | 1<br>10  | $mA$<br>$mA$ |
| $I_{EBO}$       | Emitter Cut-off Current ( $I_C = 0$ )              | $V_{EBO} = 5 V$                               |                                  |         |      | 5        | $mA$         |
| $V_{CEO(sus)}*$ | Collector-Emitter Sustaining Voltage ( $I_B = 0$ ) | $I_C = 200 mA$                                |                                  | 60      |      |          | V            |
| $V_{CE(sat)}*$  | Collector-Emitter Sustaining Voltage               | $I_C = 4 A$<br>$I_C = 10 A$                   | $I_B = 0.4 A$<br>$I_B = 3.3 A$   |         |      | 1.1<br>8 | V<br>V       |
| $V_{BE(on)}*$   | Base-Emitter on Voltage                            | $I_C = 4 A$                                   | $V_{CE} = 4 V$                   |         |      | 1.8      | V            |
| $h_{FE}$        | DC Current Gain                                    | $I_C = 4 A$<br>$I_C = 10 A$                   | $V_{CE} = 4 V$<br>$V_{CE} = 4 V$ | 20<br>5 |      | 70       |              |
| $f_T$           | Transistor Frequency                               | $I_C = 500 mA$<br>$f = 500 KHz$               | $V_{CE} = 10 V$                  | 2       |      |          | MHz          |

\*Pulsed: Pulse duration = 300 $\mu s$ , 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 |       | 0.052 |
| 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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