

COMPLEMENTARY SILICON POWER TRANSISTORS

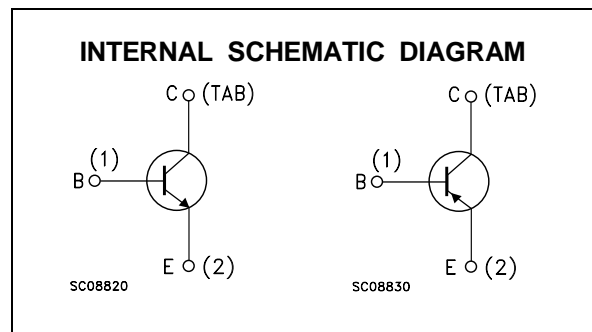
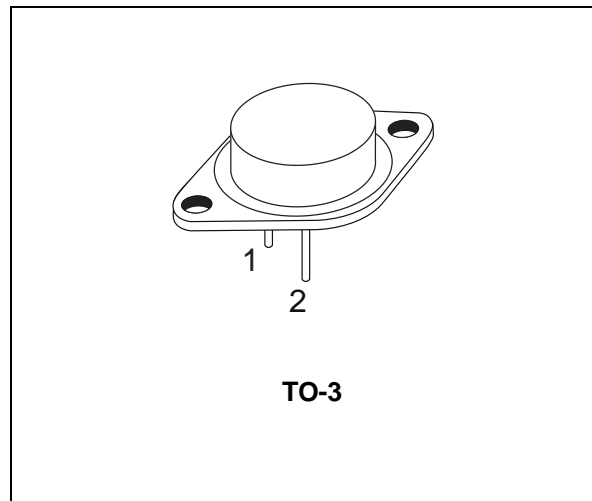
- STMicroelectronics PREFERRED SALESTYPES
- COMPLEMENTARY NPN-PNP DEVICES

DESCRIPTION

The 2N3055 is a silicon Epitaxial-Base Planar NPN transistor mounted in Jedec TO-3 metal case.

It is intended for power switching circuits, series and shunt regulators, output stages and high fidelity amplifiers.

The complementary PNP type is MJ2955.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | Unit |
|-----------|---|-------|------------|------------------|
| | | NPN | 2N3055 | |
| | | PNP | MJ2955 | |
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | | 100 | V |
| V_{CER} | Collector-Emitter Voltage ($R_{BE} \leq 100\Omega$) | | 70 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | | 60 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | | 7 | V |
| I_C | Collector Current | | 15 | A |
| I_B | Base Current | | 7 | A |
| P_{tot} | Total Dissipation at $T_c \leq 25^\circ\text{C}$ | | 115 | W |
| T_{stg} | Storage Temperature | | -65 to 200 | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | | 200 | $^\circ\text{C}$ |

For PNP types voltage and current values are negative.

THERMAL DATA

| | | | | |
|-----------------------|----------------------------------|-----|-----|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 1.5 | °C/W |
|-----------------------|----------------------------------|-----|-----|------|

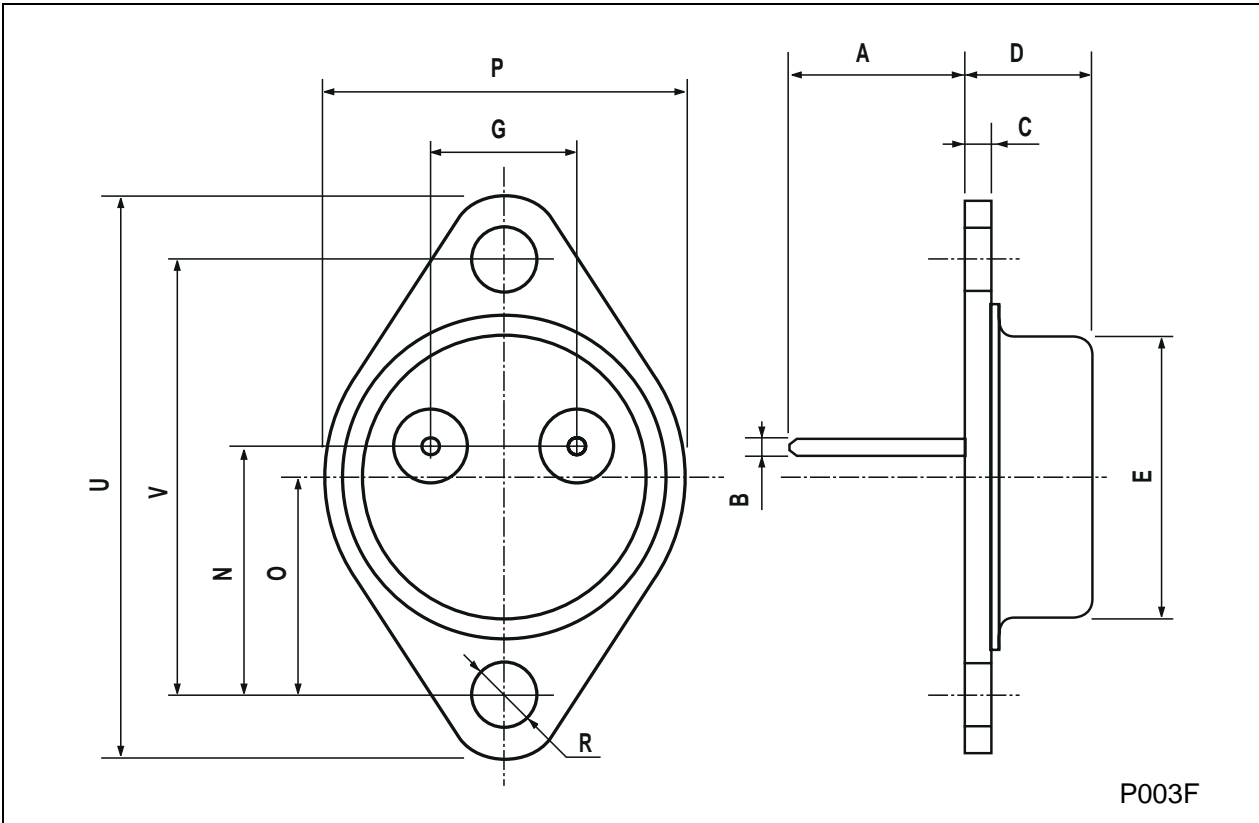
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------------|--|--|---------|------|--------|----------|
| I _{CEX} | Collector Cut-off Current (V _{BE} = -1.5V) | V _{CE} = 100 V V _{CE} = 100 V T _j = 150 °C | | | 1 5 | mA mA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | V _{CE} = 30 V | | | 0.7 | mA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 7 V | | | 5 | mA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage (I _B = 0) | I _C = 200 mA | 60 | | | V |
| V _{CER(sus)*} | Collector-Emitter Sustaining Voltage (R _{BE} = 100 Ω) | I _C = 200 mA | 70 | | | V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 4 A I _B = 400 mA I _C = 10 A I _B = 3.3 A | | | 1 3 | V V |
| V _{BE*} | Base-Emitter Voltage | I _C = 4 A V _{CE} = 4 A | | | 1.8 | V |
| h _{FE*} | DC Current Gain | I _C = 4 A V _{CE} = 4 A I _C = 10 A V _{CE} = 4 A | 20 5 | | 70 | |
| f _T | Transition frequency | I _C = 0.5 A V _{CE} = 10 V | 3 | | | MHz |
| I _{s/b*} | Second Breakdown Collector Current | V _{CE} = 40 V | 2.87 | | | A |

* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %
For PNP types voltage and current values are negative.

TO-3 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|-------|------|-------|-------|------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 11.00 | | 13.10 | 0.433 | | 0.516 |
| B | 0.97 | | 1.15 | 0.038 | | 0.045 |
| C | 1.50 | | 1.65 | 0.059 | | 0.065 |
| D | 8.32 | | 8.92 | 0.327 | | 0.351 |
| E | 19.00 | | 20.00 | 0.748 | | 0.787 |
| G | 10.70 | | 11.10 | 0.421 | | 0.437 |
| N | 16.50 | | 17.20 | 0.649 | | 0.677 |
| P | 25.00 | | 26.00 | 0.984 | | 1.023 |
| R | 4.00 | | 4.09 | 0.157 | | 0.161 |
| U | 38.50 | | 39.30 | 1.515 | | 1.547 |
| V | 30.00 | | 30.30 | 1.187 | | 1.193 |



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