

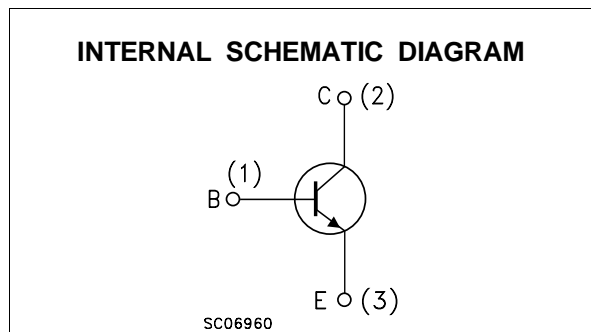
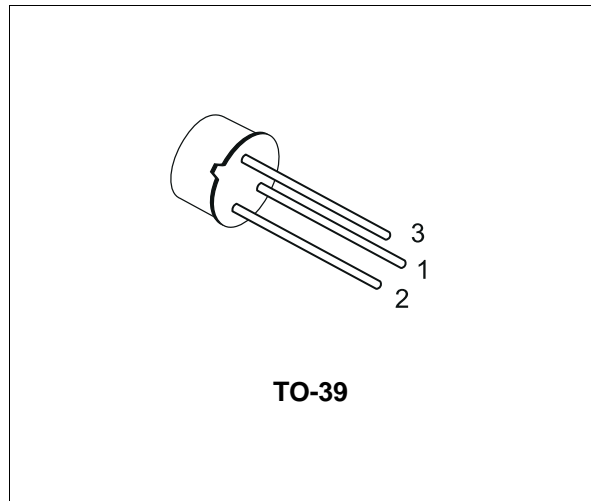
SILICON NPN TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES
- NPN TRANSISTOR

DESCRIPTION

The 2N3439, 2N3440 are silicon epitaxial planar NPN transistors in jedec TO-39 metal case designed for use in consumer and industrial line-operated applications.

These devices are particularly suited as drivers in high-voltage low current inverters, switching and series regulators.



ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | Unit |
|-----------|--|------------|--------|------------------|
| | | 2N3439 | 2N3440 | |
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 450 | 300 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 350 | 250 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 7 | | V |
| I_C | Collector Current | 1 | | A |
| I_B | Base Current | 0.5 | | A |
| P_{tot} | Total Dissipation at $T_c \leq 25^\circ\text{C}$ | 10 | | W |
| P_{tot} | Total Dissipation at $T_{amb} \leq 50^\circ\text{C}$ | 1 | | W |
| T_{stg} | Storage Temperature | -65 to 200 | | $^\circ\text{C}$ |
| T_j | Max. Operating Junction Temperature | 200 | | $^\circ\text{C}$ |

2N3439 / 2N3440

THERMAL DATA

| | | | | |
|-----------------------|-------------------------------------|-----|------|------|
| R _{thj-case} | Thermal Resistance Junction-case | Max | 17.5 | °C/W |
| R _{thj-amb} | Thermal Resistance Junction-ambient | Max | 175 | °C/W |

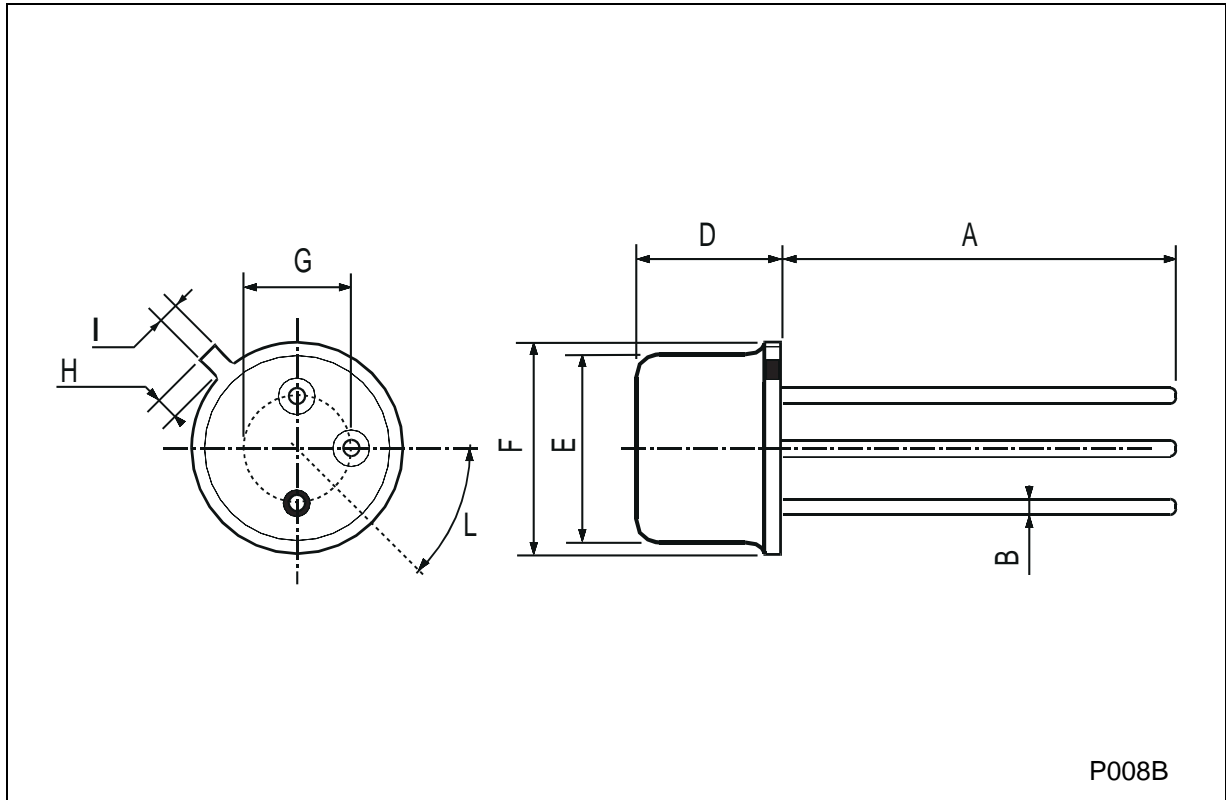
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|------------------------|---|---|------------|------|------------|----------|
| I _{CBO} | Collector Cut-off Current (I _E = 0) | for 2N3439 V _{CB} = 360 V for 2N3440 V _{CB} = 250 V | | | 20 20 | μA μA |
| I _{CEO} | Collector Cut-off Current (I _B = 0) | for 2N3439 V _{CE} = 300 V for 2N3440 V _{CE} = 200 V | | | 20 50 | μA μA |
| I _{CEX} | Collector Cut-off Current (V _{BE} = -1.5V) | for 2N3439 V _{CE} = 450 V for 2N3440 V _{CE} = 300 V | | | 500 500 | μA μA |
| I _{EBO} | Emitter Cut-off Current (I _C = 0) | V _{EB} = 6 V | | | 20 | μA |
| V _{CEO(sus)*} | Collector-Emitter Sustaining Voltage | I _C = 50 mA for 2N3439 for 2N3440 | 350 250 | | | V V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 50 mA I _B = 4 mA | | | 0.5 | V |
| V _{BE(sat)*} | Base-Emitter Saturation Voltage | I _C = 50 mA I _B = 4 mA | | | 1.3 | V |
| h _{FE*} | DC Current Gain | I _C = 20 mA V _{CE} = 10 V I _C = 2 mA V _{CE} = 10 V for 2N3439 | 40 30 | | 160 | |
| h _{FE} | Small Signal Current Gain | I _C = 5 mA V _{CE} = 10 V f = 1KHz | 25 | | | |
| f _T | Transition frequency | I _C = 5 mA V _{CE} = 10 V f = 5MHz | 15 | | | MHz |

* Pulsed: Pulse duration = 300 μs, duty cycle 1.5 %

TO-39 MECHANICAL DATA

| DIM. | mm | | | inch | | |
|------|------------|------|------|-------|------|-------|
| | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. |
| A | 12.7 | | | 0.500 | | |
| B | | | 0.49 | | | 0.019 |
| D | | | 6.6 | | | 0.260 |
| E | | | 8.5 | | | 0.334 |
| F | | | 9.4 | | | 0.370 |
| G | 5.08 | | | 0.200 | | |
| H | | | 1.2 | | | 0.047 |
| I | | | 0.9 | | | 0.035 |
| L | 45° (typ.) | | | | | |



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