

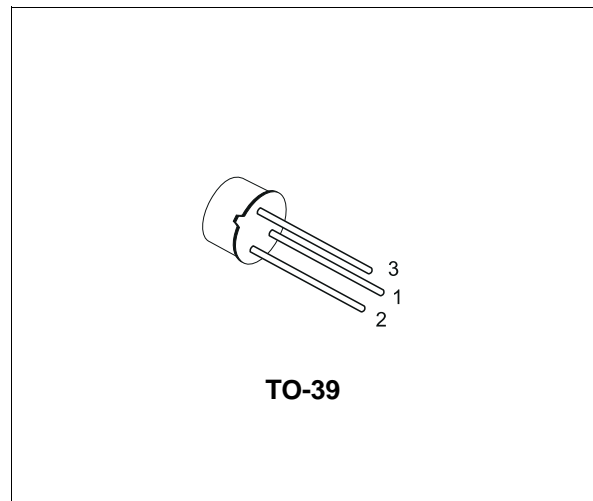
SMALL SIGNAL NPN TRANSISTORS

- SILICON EPITAXIAL PLANAR NPN TRANSISTORS
- MEDIUM POWER AMPLIFIER
- PNP COMPLEMENTS ARE 2N5322 AND 2N5323

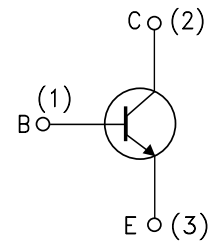
DESCRIPTION

The 2N5320 and 2N5321 are silicon epitaxial planar NPN transistors in Jedec TO-39 metal case. They are especially intended for high-voltage medium power application in industrial and commercial equipments.

The complementary PNP types are respectively the 2N5322 and 2N5323



INTERNAL SCHEMATIC DIAGRAM



SC06960

ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | Unit |
|----------------|---|------------|--------|------------------|
| | | 2N5320 | 2N5321 | |
| V_{CBO} | Collector-Base Voltage ($I_E = 0$) | 100 | 75 | V |
| V_{CEV} | Collector-Emitter Voltage ($V_{BE} = 1.5V$) | 100 | 75 | V |
| V_{CEO} | Collector-Emitter Voltage ($I_B = 0$) | 75 | 50 | V |
| V_{EBO} | Emitter-Base Voltage ($I_C = 0$) | 6 | 5 | V |
| I_C | Collector Current | 1.2 | | A |
| I_{CM} | Collector Peak Current | 2 | | A |
| I_B | Base Current | 1 | | A |
| P_{tot} | Total Dissipation at $T_{amb} = 25\text{ }^\circ\text{C}$ | 1 | | W |
| P_{tot} | Total Dissipation at $T_c = 25\text{ }^\circ\text{C}$ | 10 | | W |
| T_{stg}, T_j | Storage and Junction Temperature | -65 to 200 | | $^\circ\text{C}$ |

2N5320/2N5321

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 |

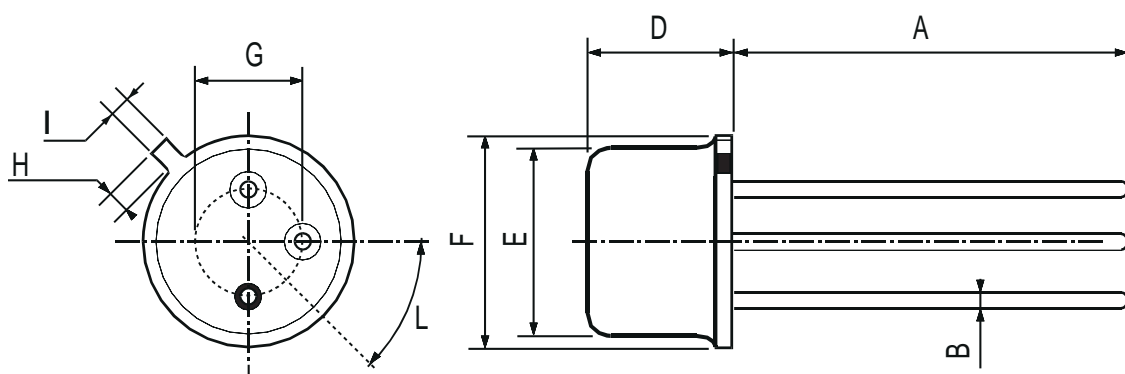
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|-----------------------|--|--|----------------|------------|------------|----------|
| I _{CBO} | Collector Cut-off Current (I _E = 0) | V _{CB} = 80 V for 2N5320 V _{CB} = 60 V for 2N5321 | | | 0.5 5 | μA μA |
| I _{EBO} | Collector Cut-off Current (I _C = 0) | V _{EB} = 5 V for 2N5320 V _{EB} = 4 V for 2N5321 | | 0.1 0.5 | | μA μA |
| V _{(BR)CEV} | Collector-Emitter Breakdown Voltage (V _{BE} = 1.5V) | I _C = 100 μA for 2N5320 for 2N5321 | 100 75 | | | V V |
| V _{(BR)CEO*} | Collector-Emitter Breakdown Voltage (I _B = 0) | I _C = 10 mA for 2N5320 for 2N5321 | 75 50 | | | V V |
| V _{(BR)EBO} | Emitter-Base Breakdown Voltage (I _C = 0) | I _E = 100 μA for 2N5320 for 2N5321 | 6 5 | | | V V |
| V _{CE(sat)*} | Collector-Emitter Saturation Voltage | I _C = 500 mA I _B = 50 mA for 2N5320 for 2N5321 | | | 0.5 0.8 | V V |
| V _{BE*} | Base-Emitter Voltage | I _C = 500 mA V _{CE} = 4 V for 2N5320 for 2N5321 | | | 1.1 1.4 | V V |
| h _{FE*} | DC Current Gain | for 2N5320 I _C = 500 mA V _{CE} = 4 V I _C = 1 A V _{CE} = 2 V for 2N5321 I _C = 500 mA V _{CE} = 4 V | 30 10 40 | | 130 250 | |
| f _T | Transition Frequency | I _C = 50 mA V _{CE} = 4 V f = 10 MHz | 50 | | | MHz |
| t _{on} | Turn-on Time | I _C = 500 mA V _{CC} = 30 V I _{B1} = 50 mA | | | 80 | ns |
| t _{off} | Turn-off Time | I _C = 500 mA V _{CC} = 30 V I _{B1} = -I _{B2} = 50 mA | | | 800 | ns |

* Pulsed: Pulse duration = 300 μs, duty cycle = 1 %

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.) | | | | | |



P008B

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