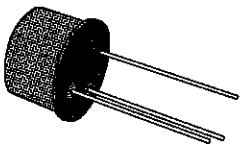
SGS-THOMSON MICROELECTRONICS

# 2N5322
# 2N5323

## MEDIUM-POWER AMPLIFIERS

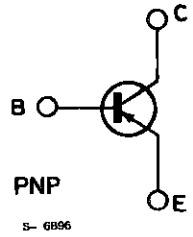
### DESCRIPTION

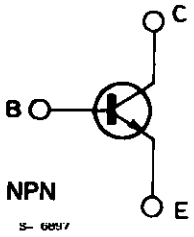
The 2N5322 and 2N5323 are silicon planar epitaxial PNP transistors in Jedec TO-39 metal case. They are especially intended for high-voltage medium power applications in industrial and commercial equipments.



TO-39

### INTERNAL SCHEMATIC DIAGRAM




### ABSOLUTE MAXIMUM RATINGS

| Symbol | Parameter | Value | | Unit |
|---|---|---|---|---|
| | | 2N5322 | 2N5323 | |
| $V_{CBO}$ | Collector-base Voltage ($I_E$ = 0) | – 100 | – 75 | V |
| $V_{CEV}$ | Collector-emitter Voltage ($V_{BE}$ = 1.5 V) | – 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 | – 2 | | A |
| $I_B$ | Base Current | – 1 | | A |
| $P_{tot}$ | Total Power Dissipation at $T_{amb} \leq 25$ °C<br>at $T_{case} \leq 25$ °C | 1<br>10 | | W<br>W |
| $T_{stg}$, $T_j$ | Storage and Junction Temperature | – 65 to 200 | | °C |

## THERMAL DATA

| | | | | |
|---|---|---|---|---|
| $R_{th\ j\text{-}case}$ | Thermal Resistance Junction-case | Max | 17.5 | °C/W |
| $R_{th\ j\text{-}amb}$ | Thermal Resistance Junction-ambient | Max | 175 | °C/W |

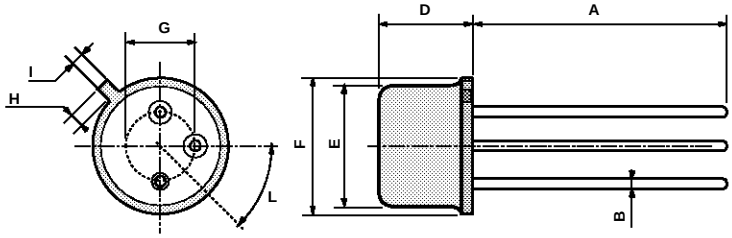
## ELECTRICAL CHARACTERISTICS ($T_{case}$ = 25 °C unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|
| $I_{CBO}$ | Collector Cutoff Current ($I_E$ = 0) | For **2N5322**<br>$V_{CB}$ = – 80 V<br>For **2N5323**<br>$V_{CB}$ = – 60 V | | | – 0.5<br><br>– 5 | µA<br><br>µA |
| $I_{EBO}$ | Emitter Cutoff Current ($I_C$ = 0) | For **2N5322**<br>$V_{EB}$ = – 5 V<br>For **2N5323**<br>$V_{EB}$ = – 4 V | | – 0.1<br><br>– 0.5 | | µA<br><br>µA |
| $V_{(BR)CEV}$ | Collector-emitter Breakdown Voltage ($V_{BE}$ = 1.5 V) | $I_C$ = – 0.1 mA<br>For **2N5322**<br>For **2N5323** | – 100<br>– 75 | | | V<br>V |
| $V_{(BR)CEO}$* | Collector-emitter Breakdown Voltage ($I_B$ = 0) | $I_C$ = – 10 mA<br>For **2N5322**<br>For **2N5323** | – 75<br>– 50 | | | V<br>V |
| $V_{(BR)EBO}$ | Emitter-base Breakdown Voltage ($I_C$ = 0) | $I_E$ = –0.1 mA<br>For **2N5322**<br>For **2N5323** | – 6<br>– 5 | | | V<br>V |
| $V_{CE(sat)}$* | Collector-emitter Saturation Voltage | $I_C$ = – 500 mA $I_B$ = – 50 mA<br>For **2N5322**<br>For **2N5323** | | | – 0.7<br>– 1.2 | V<br>V |
| $V_{BE}$* | Base-emitter Voltage | $I_C$ = – 500 mA $V_{CE}$ = – 4 V<br>For **2N5322**<br>For **2N5323** | | | – 1.1<br>– 1.4 | V<br>V |
| $h_{FE}$* | DC Current Gain | For **2N5322**<br>$I_C$ = – 500 mA $V_{CE}$ = – 4 V<br>$I_C$ = – 1 A $V_{CE}$ = – 2 V<br>For **2N5323**<br>$I_C$ = – 500 mA $V_{CE}$ = – 4 V | <br>30<br>10<br><br>40 | | <br>130<br><br><br>250 | |
| $f_T$ | Transition Frequency | $I_C$ = – 50 mA $V_{CE}$ = – 4 V<br>f = 10 MHz | 50 | | | MHz |
| $t_{on}$ | Turn-on Time | $I_C$ = – 500 mA $V_{CC}$ = – 30 V<br>$I_{B1}$ = – 50 mA | | | 100 | ns |
| $t_{off}$ | Turn-off Time | $I_C$ = – 500 mA $V_{CC}$ = – 30 V<br>$I_{B1}$ = – $I_{B2}$ = – 50 mA | | | 1000 | ns |

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

## TO39 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 | $45^{o}$ (typ.) | | | | | |




P008B