

SILICON PLANAR NPN

GENERAL INFORMATION

TYPICAL APPLICATION: MEDIUM POWER AMPLIFIER

The BSS 16/2N 5321 is a silicon planar epitaxial NPN transistor in a Jedec TO-39 metal case. It is especially intended for small-signal medium-power applications in industrial and commercial equipments.

The complementary PNP type is the 2N 5323.

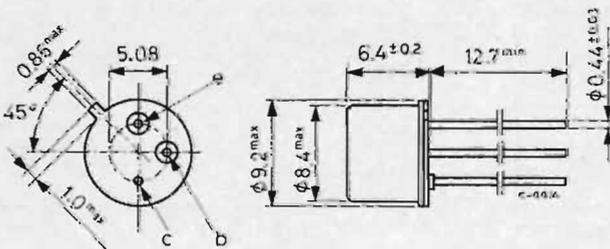
ABSOLUTE MAXIMUM RATINGS

| | | | |
|-----------------|--|-----------|----|
| V_{CBO} | Collector-base voltage ($I_E = 0$) | 75 | V |
| $V_{CEO (sus)}$ | Collector-emitter voltage ($I_B = 0$) | 50 | V |
| $V_{CE- (sus)}$ | Collector-emitter voltage ($V_{BE} = -1.5$ V) | 75 | V |
| V_{EBO} | Emitter-base voltage ($I_C = 0$) | 5 | V |
| I_C | Collector current | 2 | A |
| I_B | Base current | 1 | A |
| P_{tot} | Total power dissipation at $T_s \leq 25$ °C | 1 | W |
| | at $T_c \leq 25$ °C | 10 | W |
| T_s | Storage temperature | -65 ÷ 200 | °C |
| T_j | Junction temperature | 200 | °C |

MECHANICAL DATA

Dimensions in mm

Collector connected to case



BSS 16 2N5321

THERMAL DATA

| | | | | |
|---------------|-------------------------------------|-----|------|------|
| $R_{th\ j-c}$ | Thermal resistance junction-case | max | 17.5 | °C/W |
| $R_{th\ j-a}$ | Thermal resistance junction-ambient | max | 175 | °C/W |

ELECTRICAL CHARACTERISTICS ($T_c = 25^\circ\text{C}$ unless otherwise specified)

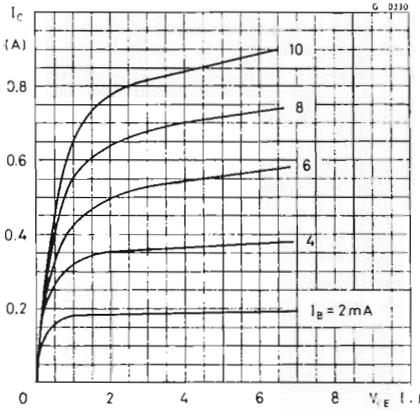
| Parameter | Test Conditions | Min. | Typ. | Max. | Unit |
|--|--|------|------|------|---------------|
| I_{CBO} Collector cutoff current ($I_E = 0$) | $V_{CB} = 60\text{ V}$ | | | 5 | μA |
| I_{EBO} Emitter cutoff current ($I_C = 0$) | $V_{EB} = 4\text{ V}$ | | | 0.5 | μA |
| V_{EBO} Emitter-base voltage ($I_C = 0$) | $I_E = 0.1\text{ mA}$ | 5 | | | V |
| $V_{CEO(sus)}$ Collector-emitter voltage ($I_B = 0$) | $I_C = 100\text{ mA}$ | 50 | | | V |
| $V_{CE(sat)}$ Collector-emitter saturation voltage | $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$ | | | 0.8 | V |
| V_{CEV} Collector-emitter voltage | $I_C = 0.1\text{ mA}$ $V_{BE} = -1.5\text{ V}$ | 75 | | | V |
| V_{BE} Base-emitter voltage | $I_C = 500\text{ mA}$ $V_{CE} = 4\text{ V}$ | | | 1.4 | V |
| h_{FE} DC current gain * | $I_C = 500\text{ mA}$ $V_{CE} = 4\text{ V}$ | 40 | | 250 | — |
| f_T Transition frequency | $I_C = 50\text{ mA}$ $V_{CE} = 4\text{ V}$ | 50 | | | MHz |
| t_{on} Turn on time | $I_C = 500\text{ mA}$ $V_{CE} = 30\text{ V}$ $I_B = 50\text{ mA}$ | | | 80 | ns |
| t_{off} Turn off time | $I_C = 500\text{ mA}$ $V_{CE} = 30\text{ V}$ $I_B = 50\text{ mA}$ | | | 800 | ns |
| $I_{S/B}^{**}$ Second breakdown collector current | $V_{CE} = 50\text{ V}$ | 200 | | | mA |

* Pulse conditions

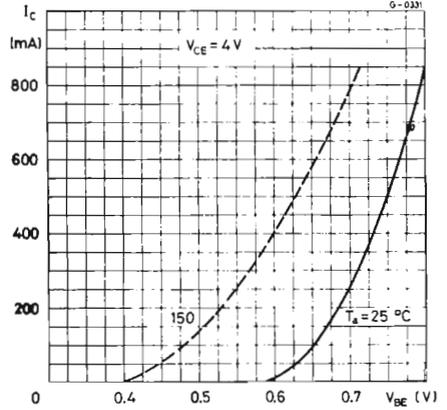
** 0.4 s non repetitive pulse

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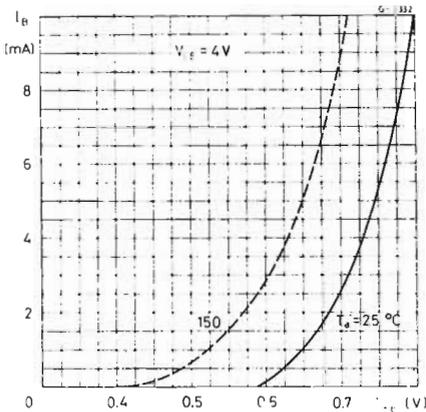
Typical output characteristics



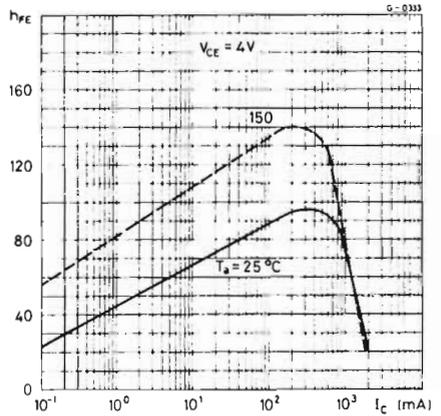
Typical DC transconductance



Typical input characteristics

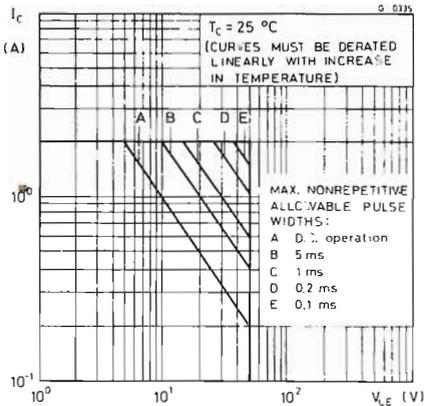


Typical DC current gain



BSS 16 2N5321

Maximum operating areas



TEST CIRCUIT

Switching times test circuit

