SILICON PLANAR NPN

BSV 84

PRELIMINARY DATA

GENERAL INFORMATION

TYPICAL APPLICATION: MEDIUM POWER AMPLIFIER

The BSV 84 is a silicon planar epitaxial NPN transistor in a Jedec TO-39 metal case. It is designed for a wide variety of applications. This device features minimum $V_{(BR)CEO}$ of 70 V, current gain specified from 100 μA to 500 mA and low saturation voltage for currents up to 500 mA. It is particularly useful as complementary driver, in output stage applications and as medium speed switch, where high voltage and high current are required.

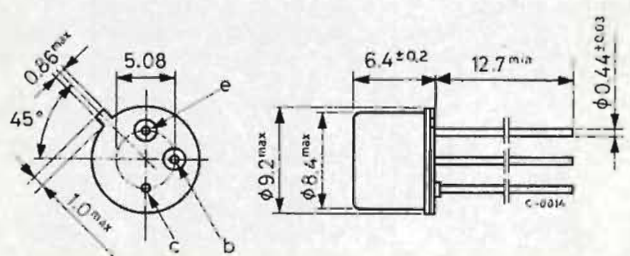
ABSOLUTE MAXIMUM RATINGS

V_{CBO}	Collector-base voltage ($I_E = 0$)	120	V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	70	V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	7	V
I_C	Collector current	2	A
P_{tot}	Total power dissipation at $T_a \leq 25$ °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



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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 °C unless otherwise specified)

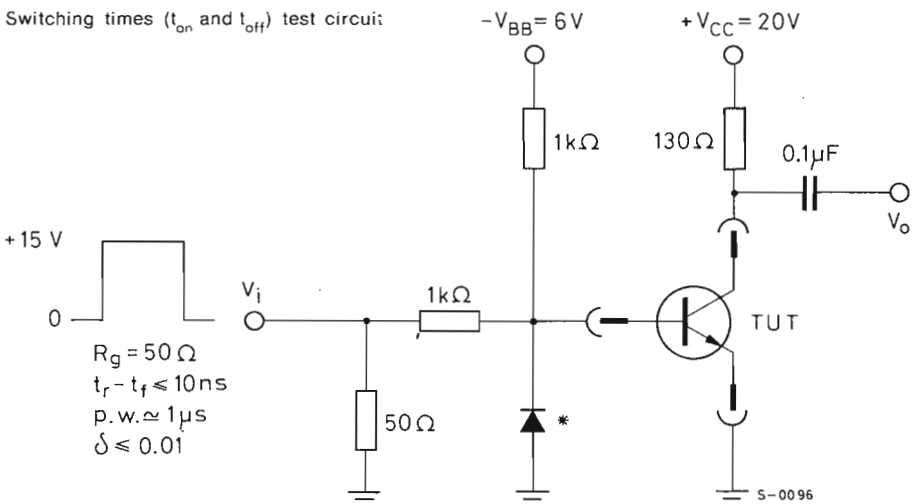
Parameter		Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cutoff current (I_E = 0)	V_{CB} = 80 V V_{CB} = 80 V T_C = 150 °C			30 30	nA μA
I_{CES}	Collector cutoff current (V_{BE} = 0)	V_{CE} = 80 V			60	nA
I_{EBO}	Emitter cutoff current (I_C = 0)	V_{EB} = 5 V			100	nA
V_{CBO}	Collector-base voltage (I_E = 0)	I_C = 0.1 mA	120			V
V_{CEO}	Collector-emitter voltage (I_B = 0)	I_C = 150 mA	70			V
V_{EBO}	Emitter-base voltage (I_C = 0)	I_E = 0.1 mA	7			V
$V_{CE\ (sat)}$	Collector-emitter saturation voltage	I_C = 150 mA I_B = 15 mA I_C = 500 mA I_B = 50 mA			0.35 1	V V
$V_{BE\ (sat)}$	Base-emitter saturation voltage	I_C = 150 mA I_B = 15 mA I_C = 500 mA I_B = 50 mA			1.1 1.5	V V
h_{FE}	DC current gain	I_C = 0.1 mA V_{CE} = 1 V I_C = 0.1 mA V_{CE} = 0.5 V I_C = 5 mA V_{CE} = 1 V I_C = 5 mA V_{CE} = 0.5 V I_C = 50 mA V_{CE} = 1 V I_C = 50 mA V_{CE} = 0.5 V I_C = 150 mA V_{CE} = 1 V I_C = 150 mA V_{CE} = 0.5 V I_C = 500 mA V_{CE} = 10 V	15 15 30 25 50 35 40 25 25			— — — — — — — — —

ELECTRICAL CHARACTERISTICS (continued)

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
h_{fe}	Small signal current gain	I_C = 50 mA V_{CE} = 1 V f = 20 MHz	3			—
C_{ob}	Output capacitance	I_E = 0 V_{CB} = 10 V			25	pF
t_{on}	Turn-on-time	I_C = 150 mA I_{B1} = 7.5 mA V_{BE} ($_{off}$) ≅ -3 V			250	ns
t_{off}	Turn-off-time	I_C = 150 mA I_{B1} = $-I_{B2}$ = 7.5 mA			700	ns

TEST CIRCUIT

Switching times (t_{on} and t_{off}) test circuit



* high speed diode