SGS-THOMSON MICROELECTRONICS

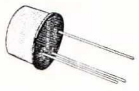
BSS74S

HIGH VOLTAGE AMPLIFIER

PRELIMINARY DATA

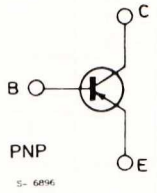
DESCRIPTION

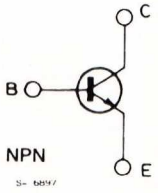
The BSS74S is a silicon planar epitaxial PNP transistor in Jedec TO-18 metal case. It is designed for high voltage amplifier and switching applications at current levels from 100 μA to 100 mA. The complementary NPN type is the BSS71S.



TO-18

INTERNAL SCHEMATIC DIAGRAM





ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage	– 200	V
V_{CEO}	Collector-emitter Voltage	– 200	V
V_{EBO}	Emitter-base Voltage	– 6	V
I_C	Collector Current	– 100	mA
I_B	Base Current	– 50	mA
P_{tot}	Total Device Dissipation at $T_{amb} \leq 25$ °C at $T_{case} \leq 25$ °C	0.5 2.5	W 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	70	°C/W

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

Symbol	Parameter	Test Conditons	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = – 150 V			– 50	nA
I_{CEO}	Collector Cutoff Current (I_B = 0)	V_{CE} = – 150 V			– 500	nA
I_{EBO}	Emitter Cutoff Current (I_C = 0)	V_{BE} = 5 V			– 50	nA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage (I_E = 0)	I_C = – 100 µA	– 200			V
$V_{(BR)CEO}$*	Collector-emitter Breakdown Voltage (I_B = 0)	I_C = – 2 mA	– 200			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage (I_C = 0)	I_E = – 100 µA	– 6			V
$V_{CE(sat)}$*	Collector-emitter Saturation Voltage	I_C = – 10 mA I_B = – 1 mA I_C = – 30 mA I_B = – 3 mA I_C = – 50 mA I_B = – 5 mA			– 0.3 – 0.4 – 0.5	V V V
$V_{BE(sat)}$*	Base-emitter Saturation Voltage	I_C = – 10 mA I_B = – 1 mA I_C = – 30 mA I_B = – 3 mA I_C = – 50 mA I_B = – 5 mA			– 0.8 – 0.9 – 1	V V V
h_{FE}*	DC Current Gain	I_C = – 100 µA V_{CE} = – 1 V I_C = – 1 mA V_{CE} = – 10 V I_C = – 10 mA V_{CE} = – 10 V I_C = – 30 mA V_{CE} = – 10 V	20 30 50 35		 150	
f_T	Transition Frequency	I_C = – 20 mA V_{CE} = – 20 V f = 20 MHz	50		200	MHz
C_{CBO}	Collector-base Capacitance	I_E = 0 V_{CB} = – 20 V f = 1 MHz		3.5		pF
C_{EBO}	Emitter-base Capacitance	I_C = 0 V_{EB} = – 0.5 V f = 1 MHz		45		pF
t_{on}	Turn-on Time	I_C = – 50 mA I_{B1} = – 10 mA V_{CC} = – 100 V		100		ns
t_{off}	Turn-off Time	I_C = – 500 mA I_{B1} = – I_{B2} = – 10 mA V_{CC} = – 100 V		400		ns

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