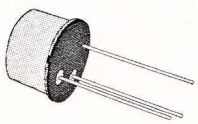
SGS-THOMSON
MICROELECTRONICS

BC142

AUDIO AMPLIFIER

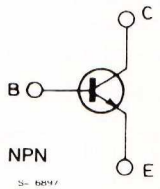
DESCRIPTION

The BC142 is a silicon planar epitaxial NPN transistor in a TO-39 metal case specially intented for use as driver in high power audio amplifier.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	80	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	60	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	1	A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25$ °C at $T_{case} \leq 25$ °C	0.75 4	W W
T_{stg}, T_j	Storage and Junction Temperature	– 55 to 175	°C

THERMAL DATA

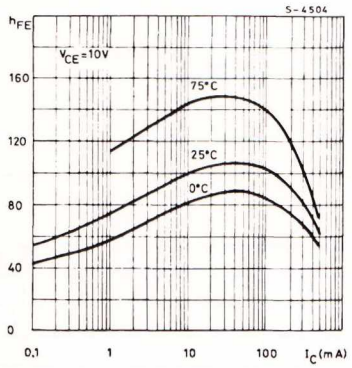
$R_{th\ j\text{-}case}$	Thermal Resistance Junction-case	Max	37	°C/W
$R_{th\ j\text{-}amb}$	Thermal Resistance Junction-ambient	Max	200	°C/W

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

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current (I_E = 0)	V_{CB} = 40 V V_{CB} = 40 V T_{amb} = 150 °C			50 50	nA µA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage (I_E = 0)	I_C = 100 µA	80			V
$V_{(BR)CEO}$*	Collector-emitter Breakdown Voltage (I_B = 0)	I_C = 30 mA	60			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage (I_C = 0)	I_E = 100 µA	7			V
$V_{CE\ (sat)}$*	Collector-emitter Saturation Voltage	I_C = 200 mA I_C = 20 mA I_B = 500 mA I_B = 50 mA		0.15 0.3	0.4	V V
$V_{BE\ (sat)}$*	Base-emitter Saturation Voltage	I_C = 200 mA I_B = 20 mA			1.5	V
V_{BE}*	Base-emitter Voltage	I_C = 200 mA V_{CE} = 2 V		0.85		V
h_{FE}*	DC Current Gain	I_C = 10 mA V_{CE} = 10 V I_C = 100 mA V_{CE} = 10 V I_C = 200 mA V_{CE} = 2 V I_C = 500 mA V_{CE} = 2 V	20	100 100 60 30		
f_T	Transition Frequency	I_C = 50 mA V_{CE} = 10 V f = 20 MHz		80		MHz
C_{CBO}	Collector-base Capacitance	I_E = 0 V_{CB} = 10 V		12		pF

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

DC Current Gain vs. Collector Current.



Base-emitter on Voltage vs. Collector Current.