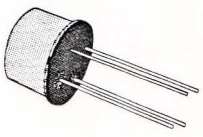
SGS-THOMSON
MICROELECTRONICS

BFR99

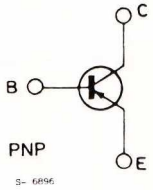
DESCRIPTION

The BFR99 is a silicon planar epitaxial PNP transistor in Jedec TO-72 metal case, particularly designed for wide band common-emitter linear amplifier applications up to 1GHz. It features high fT, low reverse capacitance, good cross-modulation properties and low noise.



TO-72

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector–base Voltage (I_E = 0)	– 25	V
V_{CEO}	Collector–emitter Voltage (I_B = 0)	– 25	V
V_{EBO}	Emitter–base Voltage (I_C = 0)	– 3	V
I_C	Collector Current	– 50	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25$ °C at $T_{case} \leq 25$ °C	225 360	mW mW
T_{stg}, T_j	Storage and Junction Temperature	– 55 to 200	°C

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction–case	Max	486	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction–ambient	Max	777	°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} = – 15 V			– 100	nA
$V_{(BR)CBO}$	Collector–base Breakdowm Voltage (I_E = 0)	I_C = – 100 μA	– 25			V
$V_{CEO(sus)}$*	Collector–emitter Sustaining Voltage (I_B = 0)	I_C = – 5 mA	– 25			V
$V_{(BR)EBO}$	Emitter–base Breakdown Voltage (I_C = 0)	I_E = – 10 μA	– 3			V
V_{BE}	Base–emitter Voltage	I_C = – 10 mA V_{CE} = – 10 V		– 0.75		V
h_{FE}*	DC Current Gain	I_C = – 1 mA V_{CE} = – 10 V		75		
		I_C = – 10 mA V_{CE} = – 10 V	25	80		
		I_C = – 20 mA V_{CE} = – 10 V	20			
f_T	Transition Frequency	I_C = – 10 mA V_{CE} = – 15 V f = 200 MHz		2		GHz
C_{re}	Reverse Capacitance	I_C = 0 V_{CE} = – 15 V f = 1 MHz		0.4		pF
NF	Noise Figure	I_C = – 3 mA V_{CE} = – 15 V R_g = 50 Ω				
		f = 200 MHz		2.5		dB
		f = 800 MHz		3.5	5	dB
		I_C = – 10 mA V_{CE} = – 15 V R_g = 50 Ω				
		f = 200 MHz		3		dB
		f = 800 MHz		4		dB

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