UHF/VHF amplifier

The BFR 37 is a silicon planar epitaxial transistor with very high f_T (typ. 1.4GHz at I_C = 10mA), and very low C_{re} (typ. 0.22pF).
The BFR 37 is particularly suitable as driver in CATV applications.

ELECTRICAL CHARACTERISTICS
(T_A = 25°C unless otherwise noted)

Symbol	Characteristic and test conditions	Min.	Typ.	Max.	Unit
h_{FE}	DC Current Gain (5) I_C = 10mA V_{CE} = 15V	80	150	250	
$V_{BE\ on}$	Base-Emitter On Voltage I_C = 10mA V_{CE} = 15V		0.74	0.9	V
$V_{CE\ sat}$	Collector Saturation Voltage (5) I_C = 10mA I_B = 1mA		0.13		V
I_{CES}	Collector Reverse Current V_{CE} = 15V V_{EB} = 0 V_{CE} = 15V V_{EB} = 0 (125°C)			100 50	nA μA
BV_{CES}	Collector to Emitter Breakdown Voltage I_C = 10μA V_{EB} = 0	30			V
BV_{EBO}	Emitter to Base Breakdown Voltage I_E = 10μA I_C = 0	4			V
LV_{CEO}	Collector to Emitter Sustaining Voltage (4 and 5) I_C = 5mA I_B = 0	30			V
h_{fe}	High Freq. Current Gain I_C = 10mA V_{CE} = 15V f = 100MHz	8	14		
C_{re}	Reverse Transfer Capacitance I_C = 0 V_{CE} = 15V		0.22		pF
NF	Narrow Band Noise Figure (6) I_C = 3mA V_{CE} = 15V		5		dB
PG	Power Gain (7) I_C = 10mA V_{CE} = 15V		14		dB

NOTES:

(1) These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
(2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
(3) These ratings give a maximum junction temperature of 200°C and junction-to-case thermal resistance of 400°C/W (derating factor of 2.5 mW/°C); junction-to-ambient thermal resistance of 700°C/W (derating factor of 1.43 mW/°C).
(4) These ratings refer to a high-current point where collector-to-emitter voltage is lowest. For more information send for SGS AR5.
(5) Measured under pulse conditions: pulse length = 300μsec; duty cycle = 1%.
(6) f = 500MHz; R_S = 50Ω.
(7) f = 500MHz; R_S = 50Ω; R_L = 500Ω; P_o = 10mW

ABSOLUTE MAXIMUM RATINGS (1)
(T_A = 25°C unless otherwise noted)

Voltages and Currents

Collector to Emitter (4)	V_{CEO}	30 V
Collector to Emitter	V_{CES}	30 V
Emitter to Base	V_{EBO}	4 V
DC Collector Current	I_C	50 mA

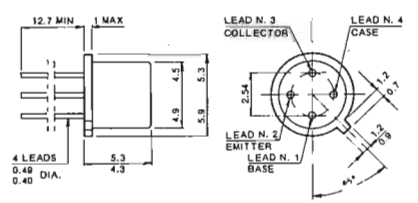
Temperatures

Storage Temperature Range	T_{STG}	-55°C to 200°C
Operating Junction Temperature	T_J	200°C
Lead Temperature (Soldering, 10sec. time limit)	T_L	260°C

Power (2 and 3)

Dissipation at 25°C Case Temperature	P_D	430 mW
Dissipation at 25°C Ambient Temperature	P_D	250 mW

PHYSICAL DIMENSIONS
In accordance with JEDEC TO-72 outline



NOTE: all dimensions in mm.

TYPICAL HIGH FREQUENCY Y PARAMETERS (I_C = 10mA; V_{CE} = 15V)

SYMBOL	CHARACTERISTIC	200MHz	500MHZ	800MHZ	UNIT
g_{11e}	Input Conductance	12	22	30	mmho
b_{11e}	Input Susceptance	9.5	3	-7	mmho
g_{21e}	Forward Transfer Conductance	45	-3	-28	mmho
b_{21e}	Forward Transfer Susceptance	-92	-48	-26	mmho
g_{22e}	Output Conductance	0.36	0.45	1.1	mmho
b_{22e}	Output Susceptance	1.7	4.1	7	mmho

TYPICAL ELECTRICAL CHARACTERISTICS (25° C free air temperature unless otherwise noted)