PLANETA

BFR91A

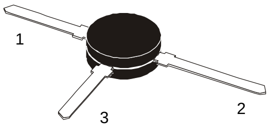
The RF Line
NPN Silicon
High-Frequency Transistor

DESCRIPTION

The BFR91A is an NPN silicon epitaxial transistor designed for low noise amplifier at VHF, UHF and CATV band.

It has dynamic range and good current characteristic.

This small-signal plastic transistor offers superior quality and performance at low cost.



1 – Base
2 – Collector
3 – Emitter

	SOT37
JEDEC	TO-50
EIAJ	–
GOST	KT-29
Weight:	0.2g

FEATURES

- High Gain-Bandwidth Products
  f_T= 6.0 GHz (Typ) @ 30 mA
- Low Noise Figure
  N_F= 1.6 dB (Typ) @ 800 MHz
- High Gain
  G_{PS}= 13.0 dB (Typ) @ 800 MHz

ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

Rating	Symbol	Value	Unit
Collector- Emitter Voltage	V_{CEO}	**12**	V
Collector- Base Voltage	V_{CBO}	**20**	V
Emitter- Base Voltage	V_{EBO}	**2**	V
Collector Current	I_C	**50**	mA
Power Dissipation	P_{tot}	**300**	mW
Junction Temperature	T_{JMAX}	**150**	°C
Operating Junction Temperature Range	T_J	**-45** to **+70**	°C
Storage Temperature Range	T_{STG}	**-65** to **+150**	°C

THERMAL CHARACTERISTIC

Thermal Resistance, Junction to Case	$R_{\Theta JC}$	**400**	°C/W

ORDERING INFORMATION

Device	Marking	Package	Quantity	Packing Style
BFR91A	BFR91A	SOT-37	1 Kpcs / plastic bags	In bulk

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

Characteristic	Symbol	Min	Typ	Max	Unit
DC CHARACTERISTICS					
Collector Cutoff Current, I_E= 0mA, V_{CB}=10V	I_{CBO}	–	–	**100**	nA
Emitter Cutoff Current, I_C= 0mA, V_{EB}= 2V	I_{EBO}	–	–	**10**	µA
Collector – Emitter Breakdown Voltage, I_C= 1mA, I_B= 0mA	$V_{(BR)CEO}$	**12**	–	–	V
DC Current Gain, I_E=30mA, V_{CB}= 5V	h_{FE}	**50**	**120**	**300**	–
Collector – Emitter Saturation Voltage, I_C= 1mA, I_B= 0mA	$V_{CE(sat)}$	–	**100**	**400**	mV
AC CHARACTERISTICS					
Transition Frequency, I_C=30mA, V_{CB}= 5V, f=300MHz	f_T	**4.5**	**6.0**	–	GHz
Collector-Base Capacitance, I_E= 0mA, V_{CB}=10V, f= 1MHz	C_{cb}	–	**0.4**	**0.9**	pF
Noise Figure, I_E= 5mA, V_{CE}= 8V, f=800MHz	N_F	–	**1.6**	**2.0**	dB
Power Gain, I_E=30mA, V_{CE}= 8V, f=800MHz	G_{PS}	**12.0**	**13.0**	–	dB

h_{FE} CLASSIFICATION

Class	K	H	F	E
h_{FE}	**50** to **300**	**50** to **100**	**80** to **160**	**125** to **250**

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

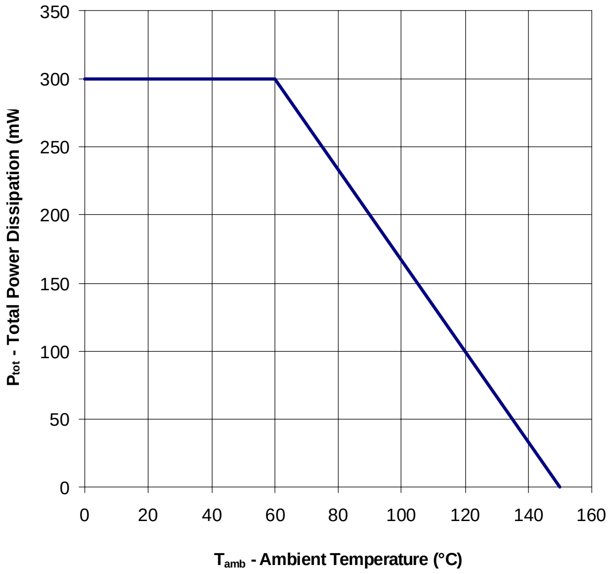


Figure 1. Total Power Dissipation vs. Ambient Temperature

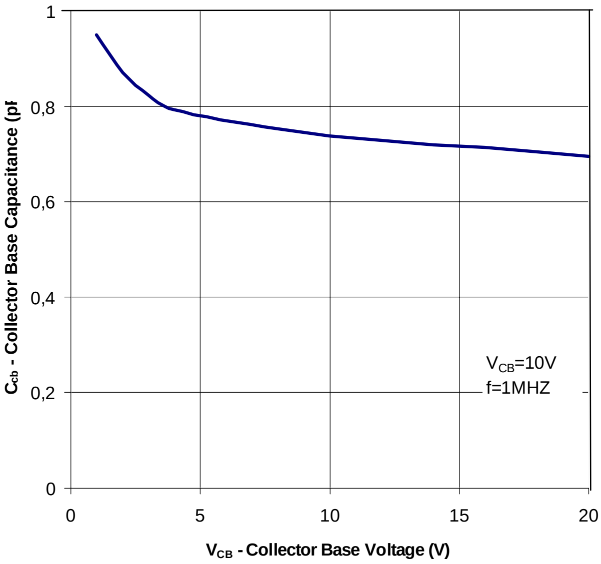


Figure 2. Collector – Base Capacitance vs. Collector – Base Voltage

TIPICAL CHARACTERISTICS (T$_A$ = 25 °C unless otherwise noted)

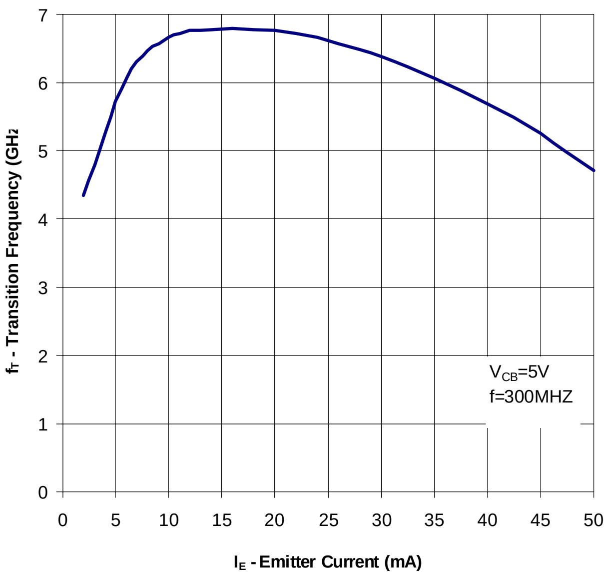


Figure 3. Transition Frequency vs. Emitter Current

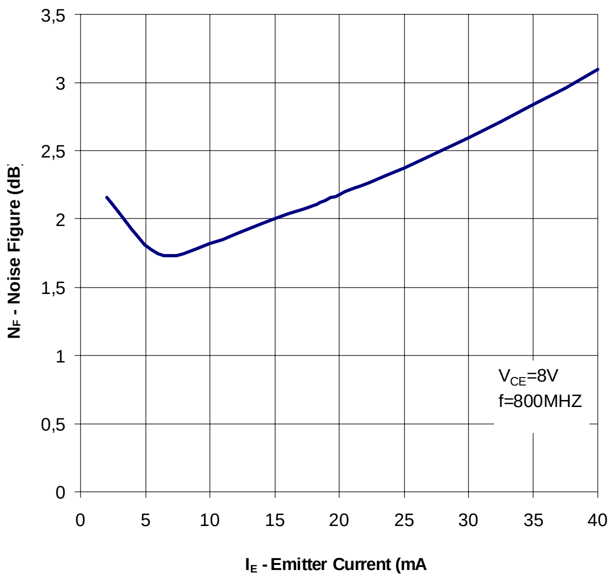


Figure 4. Noise Figure vs. Emitter Current

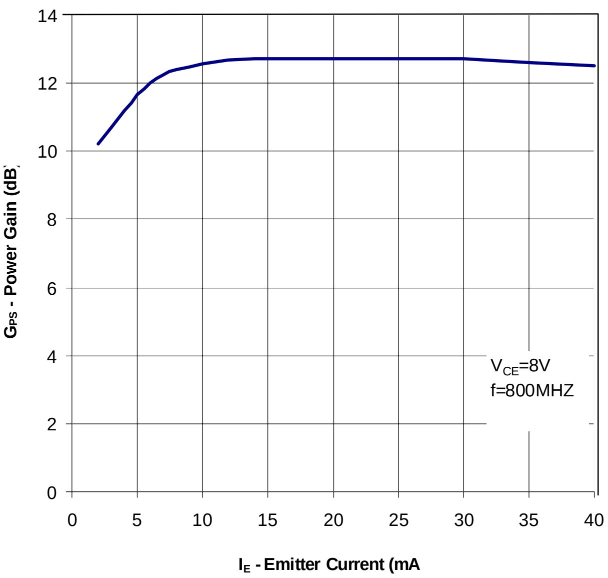


Figure 5. Power Gain vs. Emitter Current

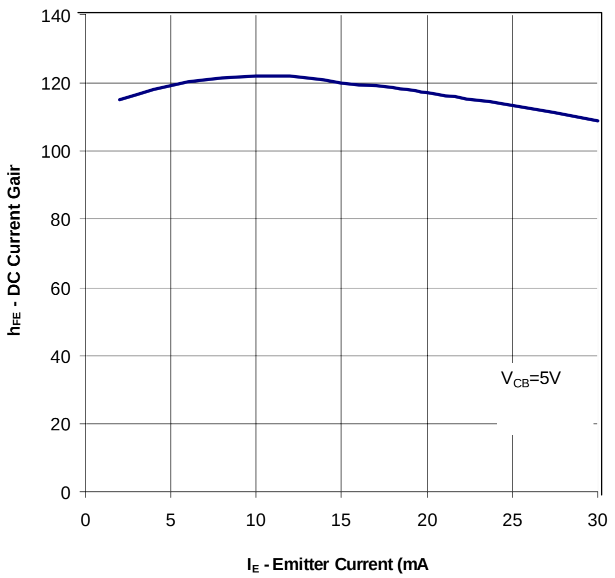
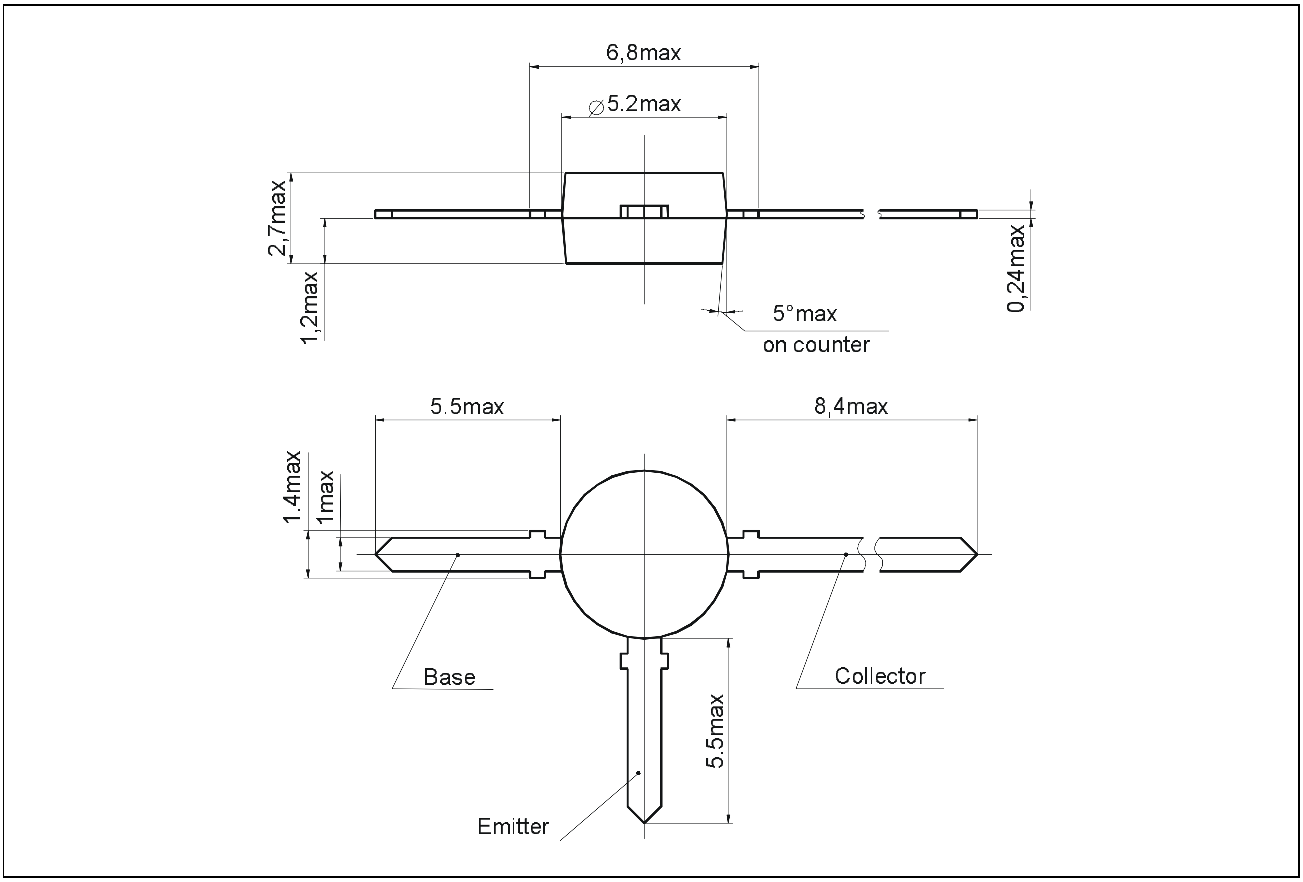


Figure 6. DC Current Gain vs. Emitter Current+

PACKAGE DIMENSIONS in mm



PLASTIC CASE KT-29