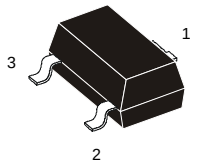
PLANETA BFR93A/BFR93AR

The RF Line
NPN Silicon
High-Frequency Transistor



BFR93A	BFR93AR
1 – Collector	1 – Collector
2 – Emitter	2 – Base
3 – Base	3 – Emitter

DESCRIPTION

The BFR93A/BFR93AR 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 transistor in 3-Pin surface-mountable plastic package SOT23 offers superior quality and performance at low cost.

FEATURES

- High Gain-Bandwidth Products
  f_T=6 GHz (Typ) @ 30 mA
- Low Noise Figure
  N_F=1.6 dB (Typ) @ 800 MHz
- High Gain
  G_{PS}= 14.0 dB (Typ) @ 800 MHz

	SOT23
JEDEC	TO-236
EIAJ	SC-59
GOST	ÊÒ-46
Weight:	0.01g

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}	**200**	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	$R_{\Theta JC}$	**450**	°C/W

ORDERING INFORMATION

Device	Marking	Package	Quantity	Packing Style
BFR93A-T1	R2	SOT-23	3 Kpcs / Reel	Embossed tape 8-mm wide 7" dia. Pin 1 (Collector) face to perforation side of the tape.
BFR93A-T3	R2	SOT-23	10 Kpcs / Reel	Embossed tape 8-mm wide 13" dia. Pin 1 (Collector) face to perforation side of the tape.
BFR93AR-T1	R5	SOT-23	3 Kpcs / Reel	Embossed tape 8-mm wide 7" dia. Pin 1 (Collector) face to perforation side of the tape.
BFR93AR-T3	R5	SOT-23	10 Kpcs / Reel	Embossed tape 8-mm wide 13" dia. Pin 1 (Collector) face to perforation side of the tape.

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

Characteristic	Symbol	Min	Typ	Max	Unit
DC CHARACTERISTICS					
Collector – Base Cutoff Current, I_E= 0mA, V_{CB}=10V	I_{CBO}	–	–	**100**	nA
Emitter – Base Cutoff Current, I_C= 0mA, V_{EB}= 2V	I_{EBO}	–	–	**10.0**	µA
Collector – Emitter Breakdown Voltage, I_C= 1mA, I_B= 0mA	$V_{(BR)CEO}$	**12**	–	–	V
Collector – Emitter Saturation Voltage, I_C=50mA, I_B= 5mA	$V_{CE(sat)}$	–	**100**	**400**	mV
DC Current Gain, I_E=30mA, V_{CB}= 5V	h_{FE}	**40**	**90**	**150**	–
AC CHARACTERISTICS					
Transition Frequency, I_C=30mA, V_{CB}= 5V, f=300MHz	f_T	**4.6**	**6.0**	–	GHz
Collector-Base Capacitance, I_E= 0mA, V_{CB}=10V, f= 1MHz	C_{cb}	–	**0.45**	**0.9**	pF
Noise Figure, I_E= 5mA, V_{CE}= 8V, f=800MHz, Z_S=50Ω	N_F	–	**1.6**	–	dB
Power Gain, I_E=30mA, V_{CE}= 8V, f=800MHz, Z_S=50Ω, Z_L=Z_{Lopt}	G_{PS}	**12.5**	**14.0**	–	dB

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

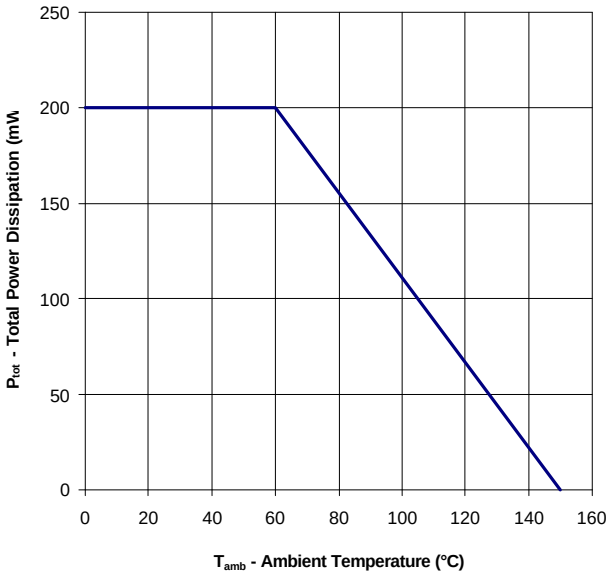

Figure 1. Total Power Dissipation vs. Ambient Temperature

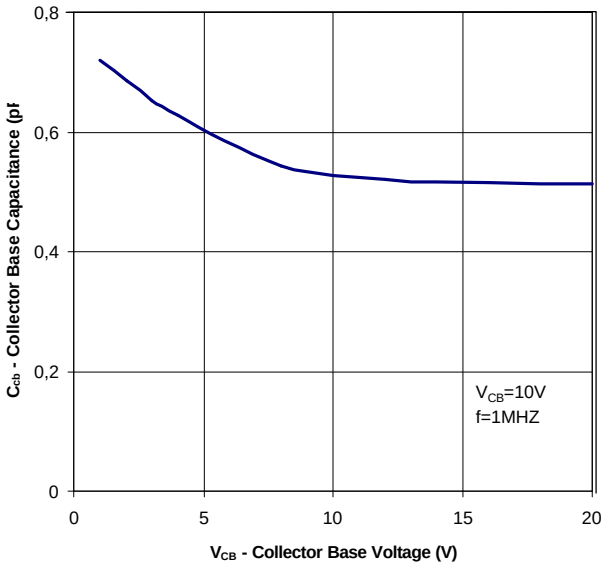

Figure 2. Collector – Base Capacitance vs. Collector – Base Voltage

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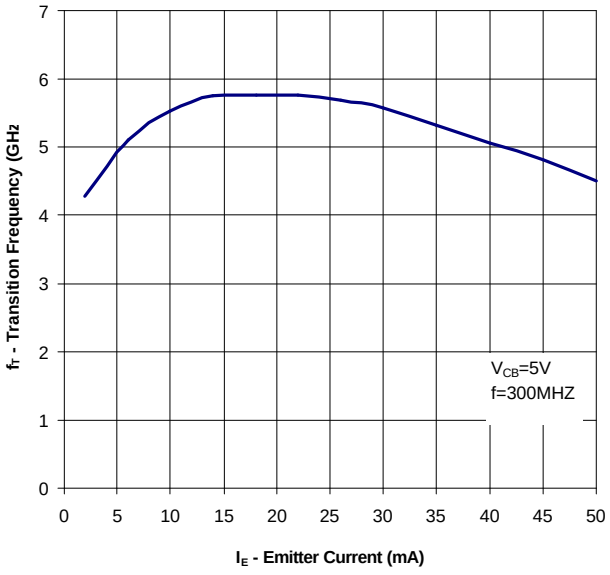

Figure 3. Transition Frequency vs. Emitter Current

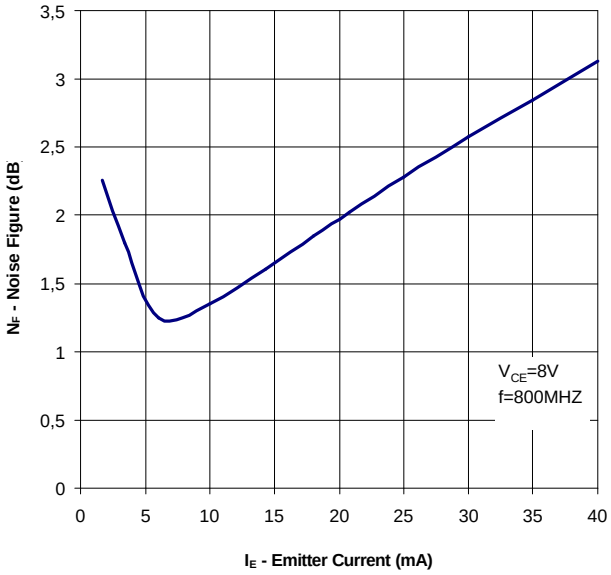

Figure 4. Noise Figure vs. Emitter Current

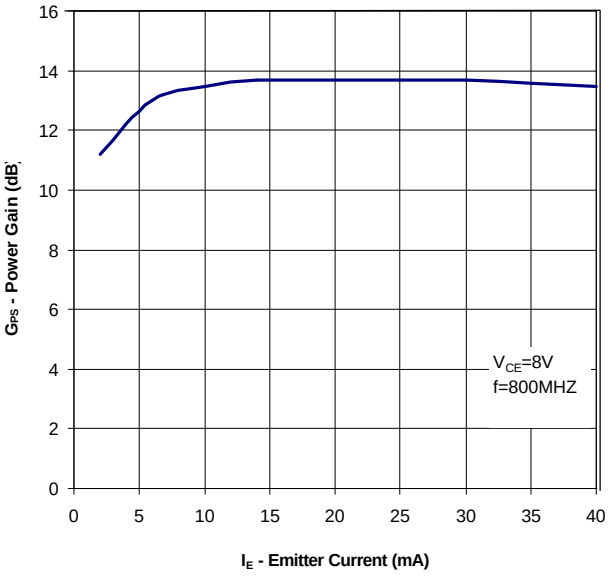

Figure 5. Power Gain vs. Emitter Current

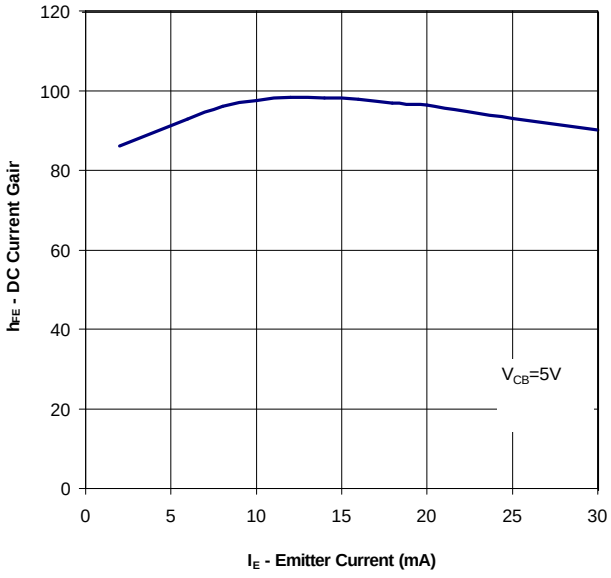

Figure 6. DC Current Gain vs. Emitter Current

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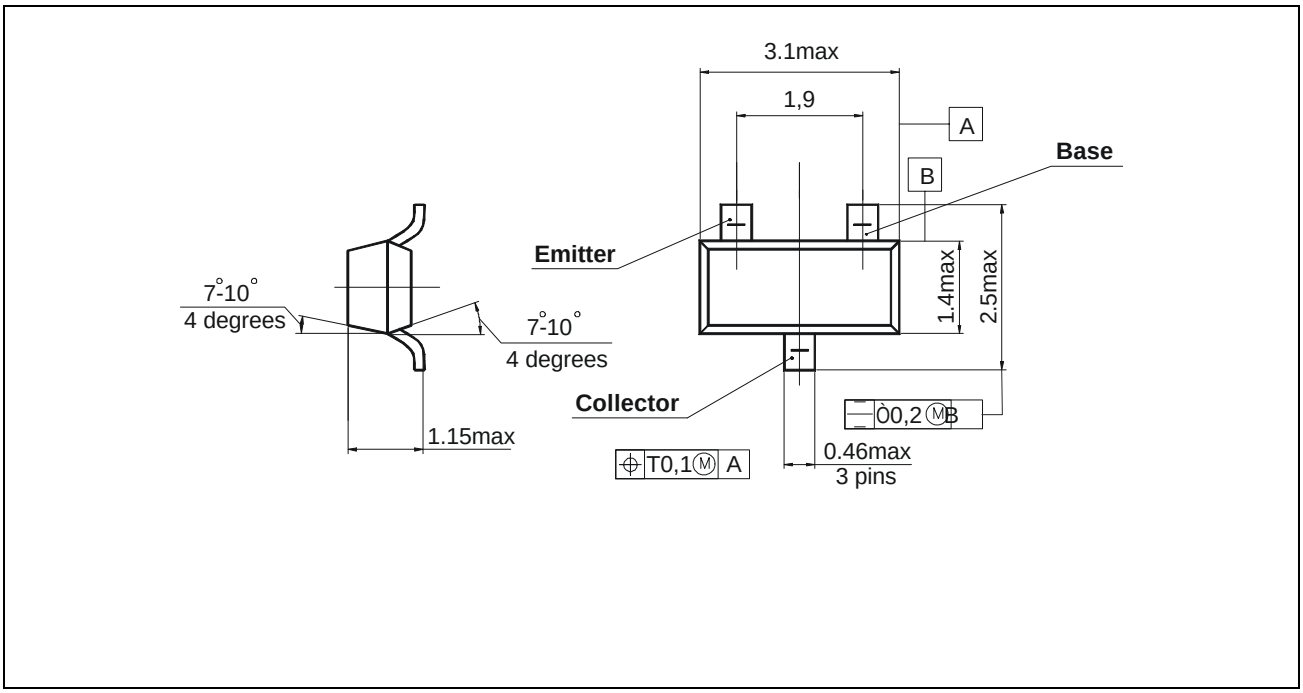
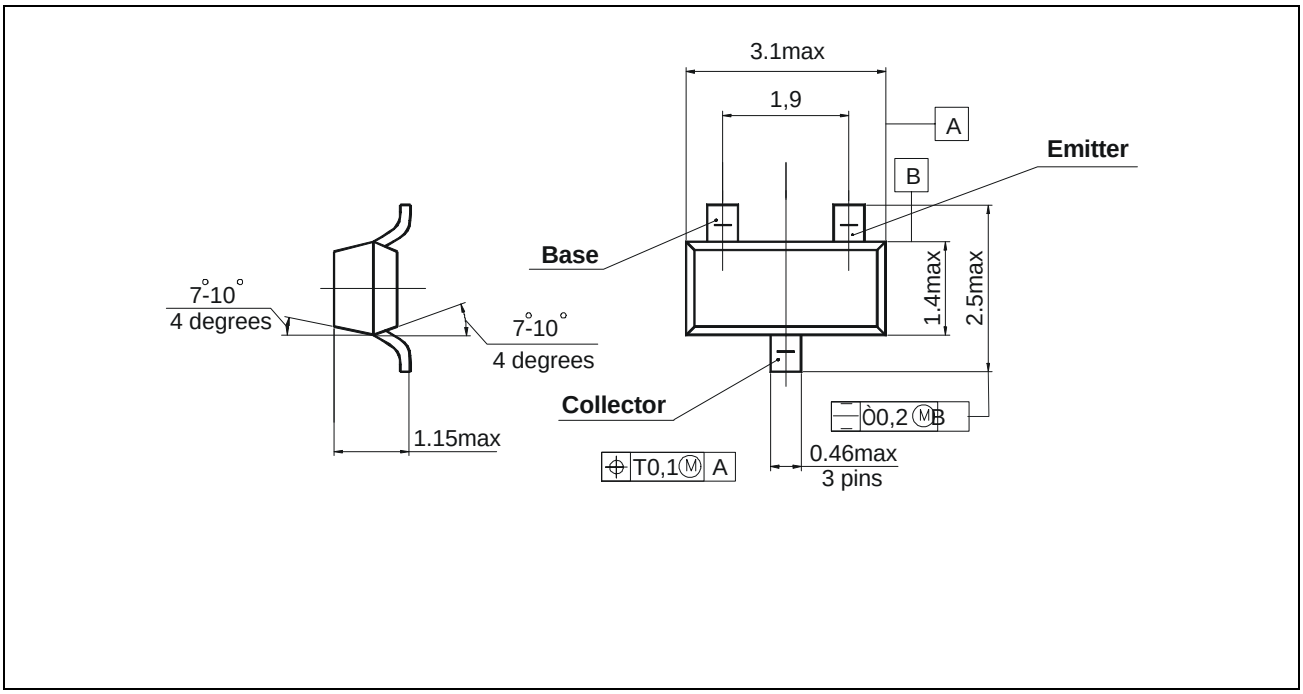
PACKAGE DIMENSIONS of BFR93A in mm



PLASTIC CASE KT-46

PACKAGE DIMENSIONS of BFR93AR in mm



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