Silicon PNP Planar RF Transistor

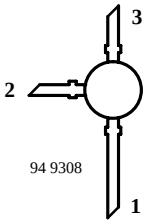
Electrostatic sensitive device.
Observe precautions for handling.

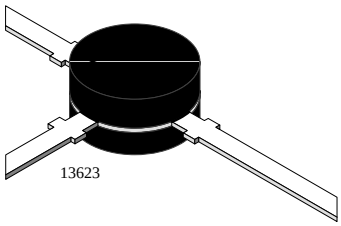
Applications

UHF oscillator and mixer stages.

Features

- High gain
- Low noise





BF970 Marking: BF970
Plastic case (TO 50)
1 = Collector, 2 = Base, 3 = Emitter

Absolute Maximum Ratings

T_{amb} = 25°C, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Collector-base voltage		$-V_{CBO}$	40	V
Collector-emitter voltage		$-V_{CEO}$	35	V
Emitter-base voltage		$-V_{EBO}$	3	V
Collector current		$-I_C$	30	mA
Total power dissipation	$T_{amb} \leq 60$ °C	P_{tot}	300	mW
Junction temperature		T_j	150	°C
Storage temperature range		T_{stg}	–55 to +150	°C

Maximum Thermal Resistance

T_{amb} = 25°C, unless otherwise specified

Parameter	Test Conditions	Symbol	Value	Unit
Junction ambient	on glass fibre printed board (40 x 25 x 1.5) mm^3 plated with 35µm Cu	R_{thJA}	300	K/W

Electrical DC Characteristics

T_{amb} = 25°C, unless otherwise specified

Parameter	Test Conditions	Symbol	Min	Typ	Max	Unit
Collector cut-off current	$-V_{CE}$ = 40 V, V_{BE} = 0	$-I_{CES}$			100	µA
Collector-base cut-off current	$-V_{CB}$ = 20 V, I_E = 0	$-I_{CBO}$			100	nA
Emitter-base cut-off current	$-V_{EB}$ = 2 V, I_C = 0	$-I_{EBO}$			10	µA
Collector-emitter breakdown voltage	$-I_C$ = 1 mA, I_B = 0	$-V_{(BR)CEO}$	35			V
DC forward current transfer ratio	$-V_{CE}$ = 10 V, $-I_C$ = 3 mA	h_{FE}	25	50	90	

Electrical AC Characteristics

T_{amb} = 25°C, unless otherwise specified

Parameter	Test Conditions	Sym-bol	Min	Typ	Max	Unit
Transition frequency	$-V_{CE}$ = 10 V, $-I_C$ = 3 mA, f = 300 MHz	f_T		1000		MHz
Collector-base capacitance	$-V_{CB}$ = 10 V, f = 1 MHz	C_{cb}		0.4		pF
Noise figure	$-V_{CE}$ = 10 V, $-I_C$ = 3 mA, Z_S = 50 Ω, f = 800 MHz	F		4.2	5.0	dB
Power gain	$-V_{CE}$ = 10 V, $-I_C$ = 3 mA, Z_L = 500 Ω, f = 800 MHz	G_{pb}	13	14.5		dB
Collector current for G_{pbmax}	$-V_{CE}$ = 10 V, Z_L = 500 Ω, f = 800 MHz	$-I_C$		5		mA

Typical Characteristics (T_{amb} = 25°C unless otherwise specified)

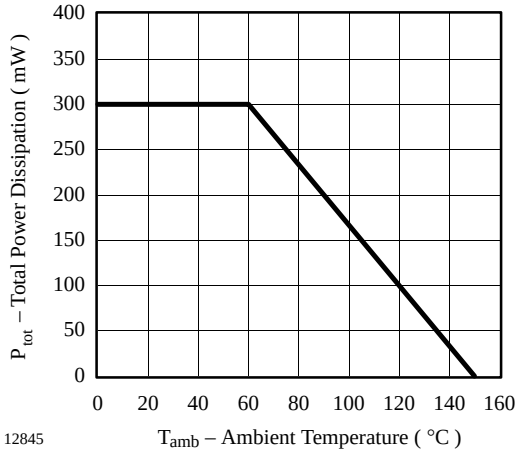


Figure 1. Total Power Dissipation vs. Ambient Temperature

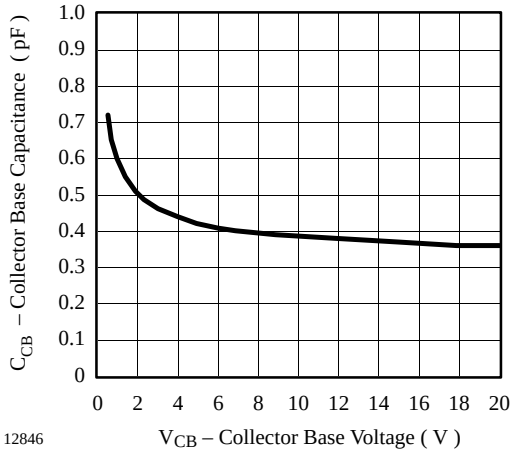


Figure 3. Collector Base Capacitance vs. Collector Base Voltage

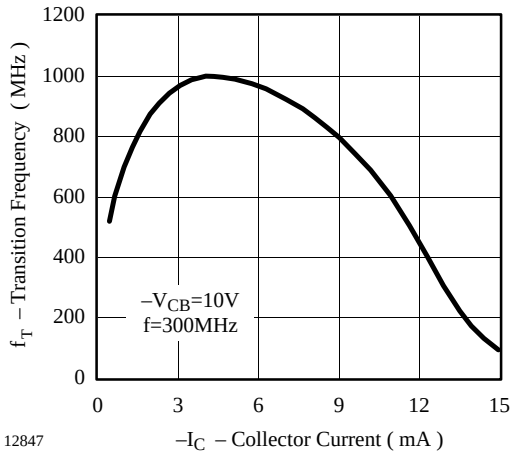
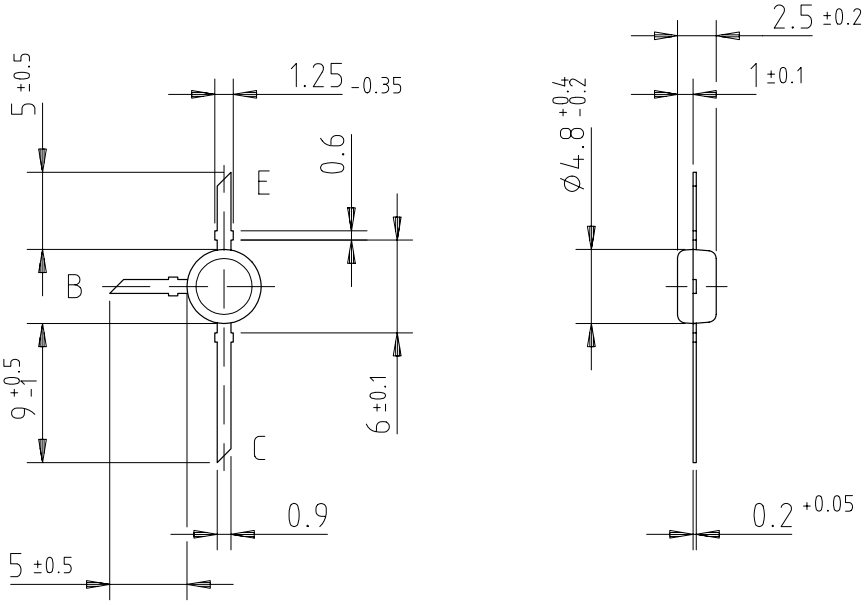


Figure 2. Transition Frequency vs. Collector Current

Dimensions of BF970 in mm



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technical drawings
according to DIN
specifications