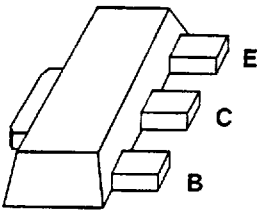
NPN Silicon RF Transistor

BFQ 17P

— SIEMENS AKTIENGESELLSCHAF —

- For low-distortion broadband amplifiers up to 900 MHz at collector currents from 20 to 150 mA.



Type	Marking	Ordering code (tape and reel)	Package
BFQ 17P	FD	Q 62702 – F983	SOT-89

Maximum Ratings

Parameter	Symbol	Value	Unit
Collector-emitter voltage	V_{CEO}	25	V
Collector-base voltage	V_{CBO}	40	V
Emitter-base voltage	V_{EBO}	2	V
Collector current	I_C	150	mA
Peak collector current, $f \geq 1$ MHz	I_{CM}	300	mA
Total power dissipation, $T_A \leq 25$ °C[2])	P_{tot}	1	W
Junction temperature	T_j	150	°C
Ambient temperature range	T_A	–65 ... +150	°C
Storage temperature range	T_{stg}	–65 ... +150	°C

Thermal Resistance

Junction – ambient[1])	R_{thJA}	≤125	K/W

1) Package mounted on alumina 15 mm × 16.7 mm × 0.7 mm.

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Electrical Characteristics
at T_A = 25 °C, unless otherwise specified.

DC characteristics

Parameter	Symbol	Values			Unit
		min	typ	max	
Collector-emitter breakdown voltage I_C = 10 mA, I_B = 0	$V_{(BR)CEO}$	25	–	–	V
Collector-base cutoff current V_{CB} = 20 V, I_E = 0 V_{CB} = 20 V, I_E = 0, T_A = 125 °C	I_{CBO}	 – –	 – –	 0.1 20	µA
Emitter-base cutoff current V_{EB} = 1 V, I_C = 0	I_{EBO}	–	–	100	nA
DC current gain I_C = 50 mA, V_{CE} = 5 V I_C = 150 mA, V_{CE} = 5 V	h_{FE}	 25 25	 – –	 – –	–
Collector-emitter saturation voltage I_C = 100 mA, I_B = 10 mA	V_{CEsat}	–	0.2	0.5	V

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AC characteristics

Parameter	Symbol	Values			Unit
		min	typ	max	
Transition frequency	f_T				GHz
I_C = 70 mA, V_{CE} = 5 V, f = 200 MHz		–	1.4	–	
I_C = 150 mA, V_{CE} = 5 V, f = 200 MHz		–	1.2	–	
Collector-base capacitance V_{CB} = 10 V, V_{BE} = v_{be} = 0, f = 1 MHz	C_{cb}	–	1.9	–	pF
Input capacitance V_{EB} = 0.5 V, I_C = i_c = 0, f = 1 MHz	C_{ibo}	–	13	–	pF
Output capacitance V_{CE} = 10 V, V_{BE} = v_{be} = 0, f = 1 MHz	C_{obs}	–	2.5	4	pF
Power gain I_C = 60 mA, V_{CE} = 15 V, f = 500 MHz, Z_S = Z_{Sopt}, Z_L = Z_{Lopt}	G_{pe}	–	11.5	–	dB
Linear output voltage two-tone intermodulation test I_C = 60 mA, V_{CE} = 15 V, d_{IM} = 60 dB f_1 = 206 MHz, f_2 = 210 MHz, Z_S = Z_L = 50 Ω	V_{o1} = V_{o2}	–	480	–	mV
Third order intercept point I_C = 60 mA, V_{CE} = 15 V, f = 200 MHz	IP_3	–	36.5	–	dBm

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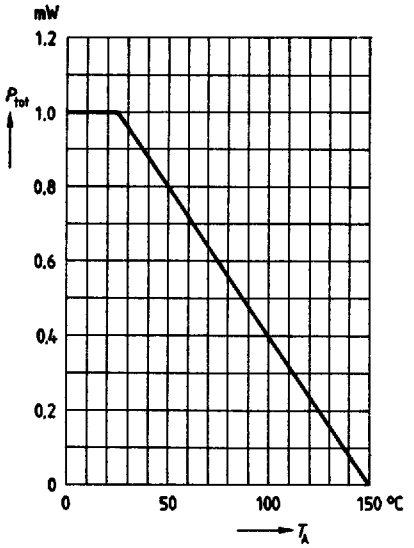
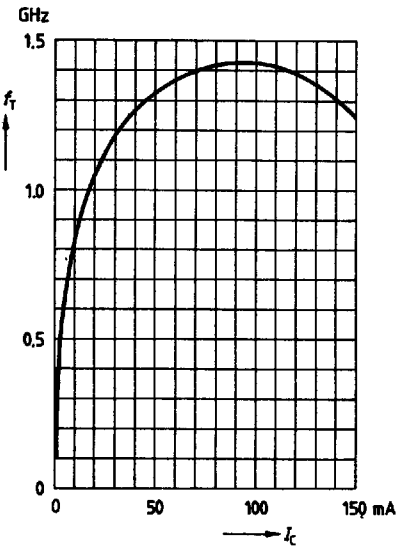
Total power dissipation $P_{tot} = f(T_A)$
Package mounted on alumina



Transition frequency $f_T = f(I_C)$
$V_{CE} = 5$ V, $f = 200$ MHz



Collector-base capacitance $C_{cb} = f(V_{CB})$
$V_{BE} = v_{be} = 0$, $f = 1$ MHz