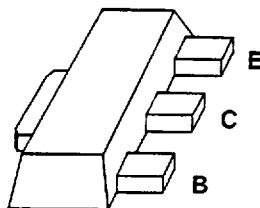


NPN Silicon RF Transistor

BFQ 17P

— SIEMENS AKTIENGESELLSCHAFT —

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

T-33-05

Electrical Characteristicsat $T_A = 25^\circ\text{C}$, unless otherwise specified.**DC characteristics**

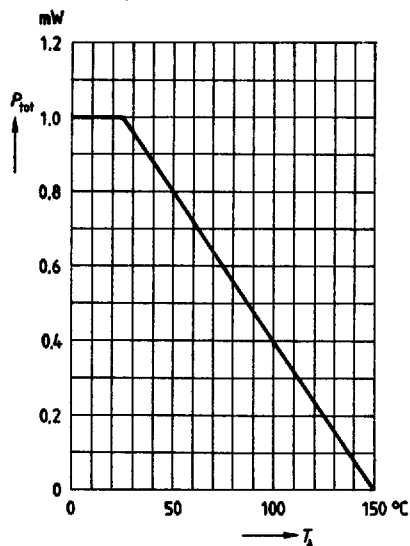
Parameter	Symbol	Values			Unit
		min	typ	max	
Collector-emitter breakdown voltage $I_C = 10\text{ mA}$, $I_B = 0$	$V_{(BR)CEO}$	25	—	—	V
Collector-base cutoff current $V_{CB} = 20\text{ V}$, $I_E = 0$ $V_{CB} = 20\text{ V}$, $I_E = 0$, $T_A = 125^\circ\text{C}$	I_{CBO}	— —	— —	0.1 20	μA
Emitter-base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

*T-33-05***AC characteristics**

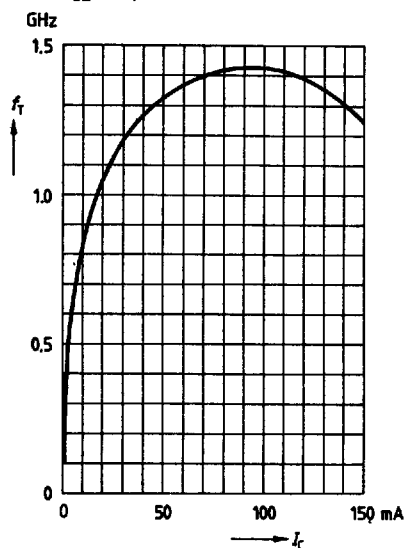
Parameter	Symbol	Values			Unit
		min	typ	max	
Transition frequency $I_C = 70 \text{ mA}$, $V_{CE} = 5 \text{ V}$, $f = 200 \text{ MHz}$ $I_C = 150 \text{ mA}$, $V_{CE} = 5 \text{ V}$, $f = 200 \text{ MHz}$	f_T	— —	1.4 1.2	— —	GHz
Collector-base capacitance $V_{CB} = 10 \text{ V}$, $V_{BE} = v_{be} =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

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



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



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

