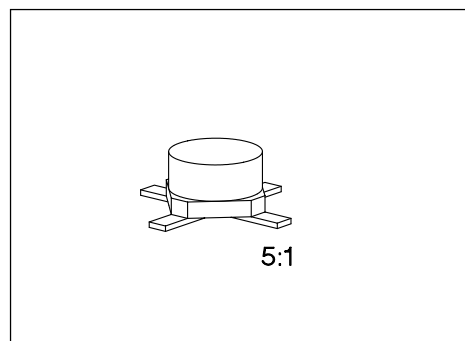


## PNP Silicon RF Transistor

**BFQ 76**

- For broadband amplifiers up to 2 GHz at collector currents up to 20 mA.
- Complementary type: BFQ 71 (NPN).



**ESD: Electrostatic discharge sensitive device, observe handling precautions!**

Type	Marking	Ordering Code (tape and reel)	Pin Configuration				Package <sup>1)</sup>
			1	2	3	4	
BFQ 76	76	Q62702-F804	B	E	C	E	Cerec-X

### Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	$V_{CE0}$	15	V
Collector-base voltage	$V_{CB0}$	20	
Emitter-base voltage	$V_{EB0}$	2	
Collector current	$I_C$	30	mA
Total power dissipation, $T_S \leq 116 \text{ }^\circ\text{C}^3$	$P_{tot}$	250	mW
Junction temperature	$T_j$	175	$^\circ\text{C}$
Ambient temperature range	$T_A$	- 65 ... + 175	
Storage temperature range	$T_{stg}$	- 65 ... + 175	

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th JA}$	$\leq 315$	K/W
Junction - soldering point <sup>3)</sup>	$R_{th JS}$	$\leq 235$	

1) For detailed dimensions see chapter Package Outlines.

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

3)  $T_S$  is measured on the collector lead at the soldering point to the pcb.

### Electrical Characteristics

at  $T_A = 25\text{ °C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

### DC Characteristics

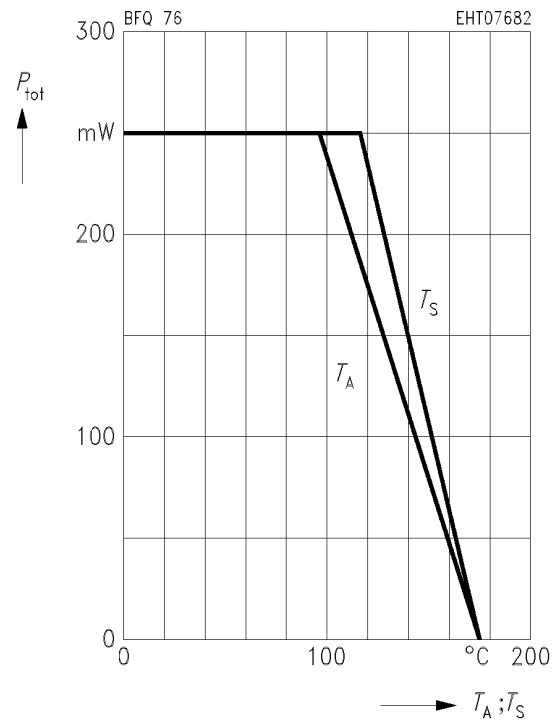
Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR)CE0}$	15	–	–	V
Collector-base cutoff current $V_{CB} = 10\text{ V}, I_E = 0$	$I_{CB0}$	–	–	50	nA
Emitter-base cutoff current $V_{EB} = 2\text{ V}, I_C = 0$	$I_{EB0}$	–	–	10	$\mu\text{A}$
DC current gain $I_C = 14\text{ mA}, V_{CE} = 10\text{ V}$	$h_{FE}$	20	50	–	–

### AC Characteristics

Transition frequency $I_C = 14\text{ mA}, V_{CE} = 10\text{ V}, f = 500\text{ MHz}$	$f_T$	–	5	–	GHz
Collector-base capacitance $V_{CB} = 10\text{ V}, V_{BE} = v_{be} = 0, f = 1\text{ MHz}$	$C_{cb}$	–	0.55	–	pF
Input capacitance $V_{EB} = 0.5\text{ V}, I_C = i_c = 0, f = 1\text{ MHz}$	$C_{ibo}$	–	1.2	–	
Output capacitance $V_{CE} = 10\text{ V}, V_{BE} = v_{be} = 0, f = 1\text{ MHz}$	$C_{obs}$	–	0.9	–	
Noise figure $I_C = 5\text{ mA}, V_{CE} = 6\text{ V}, f = 10\text{ MHz}, Z_S = 75\text{ }\Omega$ $I_C = 4\text{ mA}, V_{CE} = 10\text{ V}, f = 800\text{ MHz}, Z_S = Z_{Sopt}$	$F$	–	1.8 2.5	–	dB
Power gain $I_C = 14\text{ mA}, V_{CE} = 10\text{ V}, f = 800\text{ MHz},$ $Z_S = Z_{Sopt}, Z_L = Z_{Lopt}$	$G_{pe}$	–	17	–	

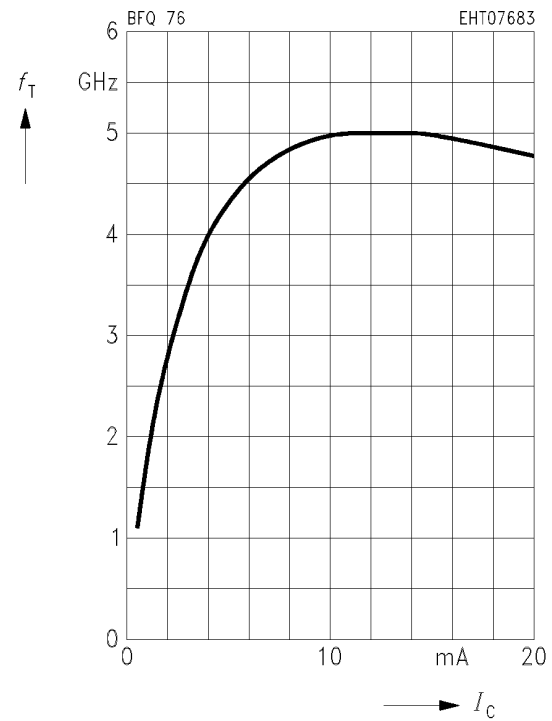
### Total power dissipation $P_{tot} = f(T_A^*; T_S)$

\*Package mounted on alumina



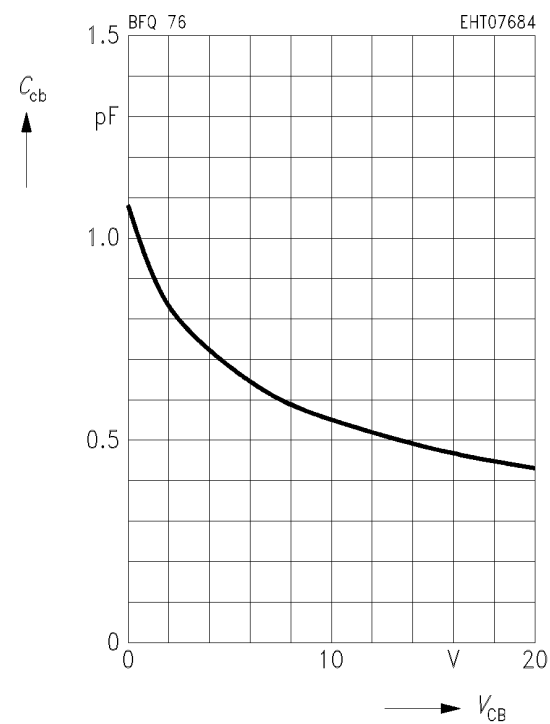
### Transition frequency $f_T = f(I_C)$

$V_{CE} = 10$  V,  $f = 200$  MHz



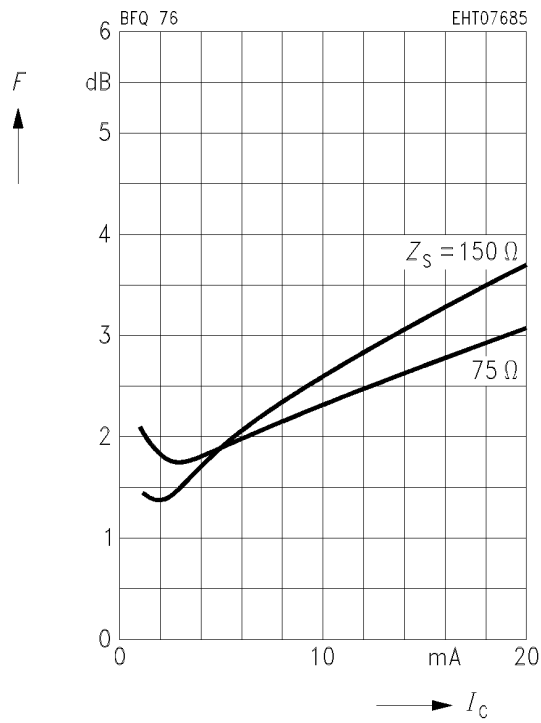
### Collector-base capacitance $C_{cb} = f(V_{CB})$

$V_{BE} = v_{be} = 0$ ,  $f = 1$  MHz



### Noise figure $F = f(I_C)$

$V_{CE} = 10 \text{ V}, f = 10 \text{ MHz}$



### Noise figure $F = f(I_C)$

$V_{CE} = 10 \text{ V}, f = 900 \text{ MHz}$

