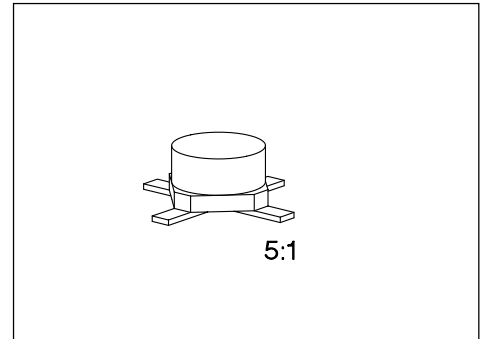


## PNP Silicon RF Transistor

**BFQ 75**

- For broadband amplifiers up to 2 GHz at collector currents from 5 mA to 30 mA.
- Complementary type: BFQ 72 (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 75	75	Q62702-F803	B	E	C	E	Cerec-X

### Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	$V_{CE0}$	12	V
Collector-emitter voltage, $V_{BE} = 0$	$V_{CES}$	1	
Collector-base voltage	$V_{CB0}$	15	
Emitter-base voltage	$V_{EB0}$	2	
Collector current	$I_C$	50	mA
Total power dissipation, $T_s \leq 112 \text{ °C}^3)$	$P_{tot}$	350	mW
Junction temperature	$T_j$	175	°C
Ambient temperature range	$T_A$	- 65 ... + 175	
Storage temperature range	$T_{stg}$	- 65 ... + 175	

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th JA}$	$\leq 260$	K/W
Junction - soldering point <sup>3)</sup>	$R_{th JS}$	$\leq 180$	

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  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

## DC Characteristics

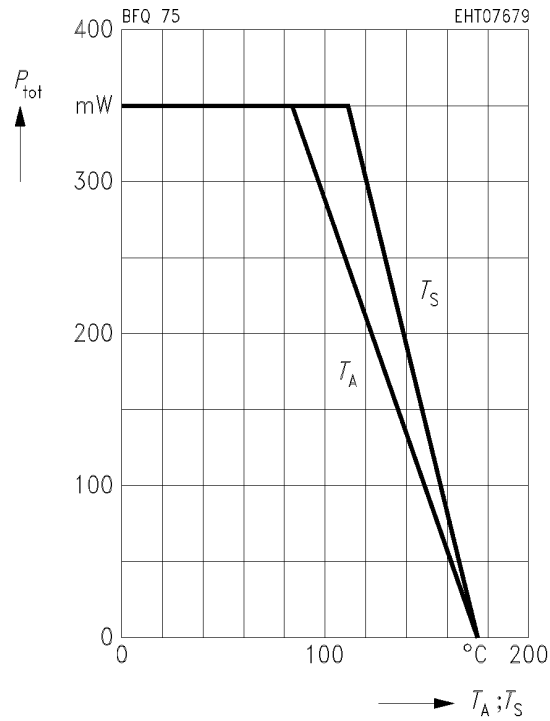
Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR)CE0}$	12	–	–	V
Collector-base cutoff current $V_{CB} = 5\text{ V}, I_E = 0$	$I_{CB0}$	–	–	50	nA
Emitter-base cutoff current $V_{EB} = 2\text{ V}, I_C = 0$	$I_{EB0}$	–	–	10	$\mu\text{A}$
DC current gain $I_C = 30\text{ mA}, V_{CE} = 5\text{ V}$	$h_{FE}$	20	50	–	–

## AC Characteristics

Transition frequency $I_C = 30\text{ mA}, V_{CE} = 5\text{ V}, f = 500\text{ MHz}$	$f_T$	–	5	–	GHz
Collector-base capacitance $V_{CB} = 10\text{ V}, V_{BE} = v_{be} = 0, f = 1\text{ MHz}$	$C_{cb}$	–	0.75	–	pF
Input capacitance $V_{EB} = 0.5\text{ V}, I_C = i_c = 0, f = 1\text{ MHz}$	$C_{ibo}$	–	1.6	–	
Output capacitance $V_{CE} = 10\text{ V}, V_{BE} = v_{be} = 0, f = 1\text{ MHz}$	$C_{obs}$	–	1.1	–	
Noise figure $I_C = 10\text{ mA}, V_{CE} = 8\text{ V}, f = 10\text{ MHz}, Z_S = 50\ \Omega$ $I_C = 10\text{ mA}, V_{CE} = 8\text{ V}, f = 800\text{ MHz}, Z_S = 50\ \Omega$	$F$	–	2.2 3	–	dB
Power gain $I_C = 30\text{ mA}, V_{CE} = 8\text{ V}, f = 800\text{ MHz},$ $Z_S = Z_{Sopt}, Z_L = Z_{Lopt}$	$G_{pe}$	–	14	–	

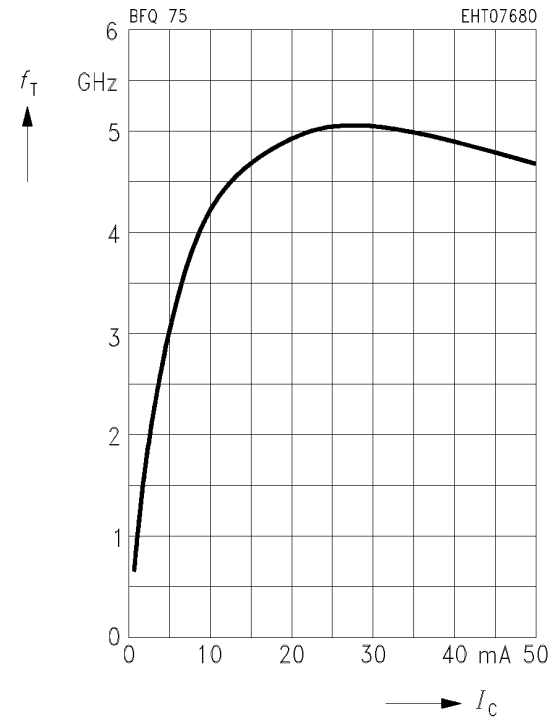
### Total power dissipation $P_{tot} = f(T_A^*; T_S)$

\*Package mounted on alumina



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

$V_{CE} = 5 \text{ V}, f = 500 \text{ MHz}$



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

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

