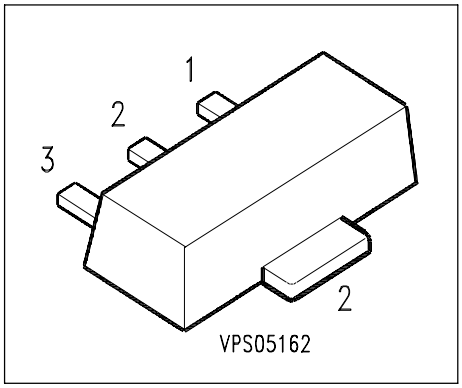
NPN Silicon RF Transistor

- For low noise, low distortion broadband amplifiers in antenna and telecommunications systems up to 1.5GHz at collector currents from 10 mA to 70 mA
- CECC-type available: CECC 50 002/259



ESD: **E**lectro**s**tatic **d**ischarge sensitive device, observe handling precaution!

Type	Marking	Ordering Code	Pin Configuration			Package
BFQ 19S	FGs	Q62702-F1088	1 = B	2 = C	3 = E	SOT-89

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CEO}	15	V
Collector-base voltage	V_{CBO}	20	
Emitter-base voltage	V_{EBO}	3	
Collector current	I_C	75	mA
Base current	I_B	12	
Total power dissipation $T_S \leq 85$ °C	P_{tot}	1	W
Junction temperature	T_j	150	°C
Ambient temperature	T_A	- 65 ... + 150	
Storage temperature	T_{stg}	- 65 ... + 150	
Thermal Resistance			
Junction - soldering point [1)]	R_{thJS}	≤ 65	K/W

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

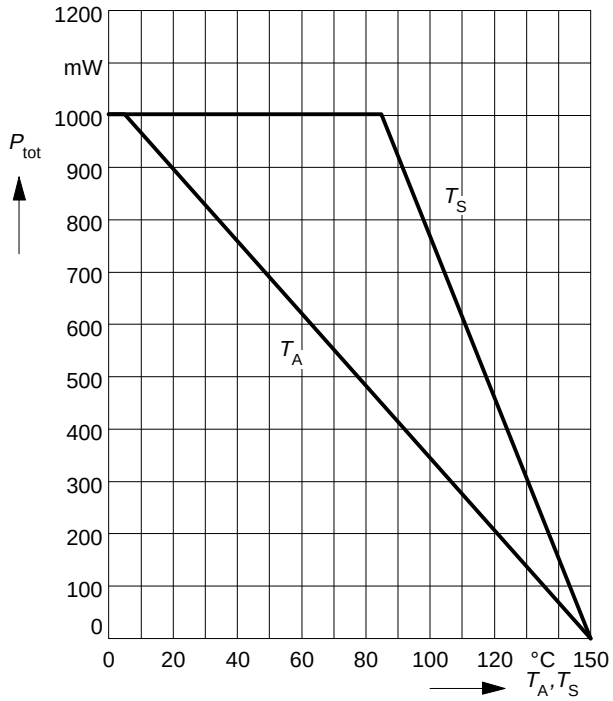
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{(BR)CEO}$	15	-	-	V
Collector-emitter cutoff current V_{CE} = 20 V, V_{BE} = 0	I_{CES}	-	-	100	µA
Collector-base cutoff current V_{CB} = 10 V, I_E = 0	I_{CBO}	-	-	100	nA
Emitter-base cutoff current V_{EB} = 2 V, I_C = 0	I_{EBO}	-	-	10	µA
DC current gain I_C = 70 mA, V_{CE} = 8 V	h_{FE}	40	100	220	-

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

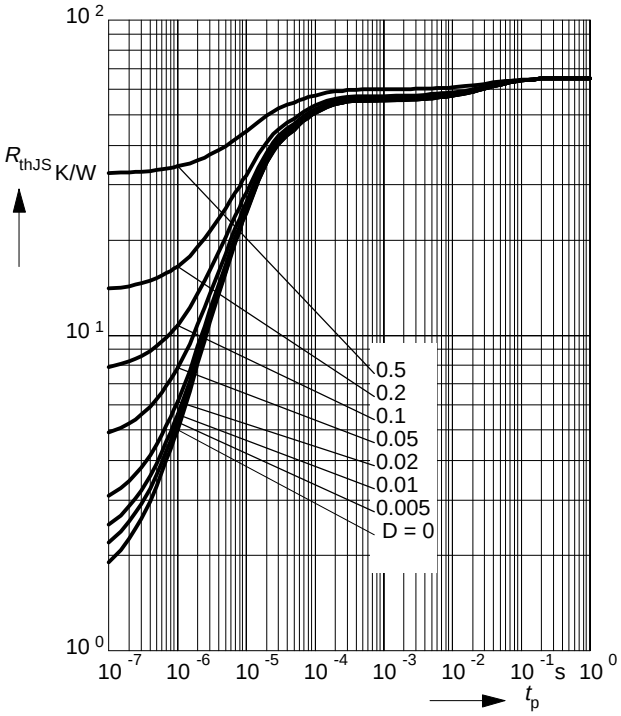
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
AC Characteristics					
Transition frequency I_C = 70 mA, V_{CE} = 8 V, f = 500 MHz	f_T	4	5.5	-	GHz
Collector-base capacitance V_{CB} = 10 V, f = 1 MHz	C_{cb}	-	1	1.5	pF
Collector-emitter capacitance V_{CE} = 10 V, f = 1 MHz	C_{ce}	-	0.4	-	
Emitter-base capacitance V_{EB} = 0.5 V, f = 1 MHz	C_{eb}	-	4.4	-	
Noise figure I_C = 20 mA, V_{CE} = 8 V, Z_S = Z_{Sopt} f = 900 MHz f = 1.8 GHz	F	 - -	 2.5 4	 - -	dB
Power gain [2)] I_C = 70 mA, V_{CE} = 8 V, Z_S = Z_{Sopt} Z_L = Z_{Lopt} f = 900 MHz f = 1.8 GHz	G_{ma}	 - -	 11.5 7	 - -	
Transducer gain I_C = 30 mA, V_{CE} = 8 V, Z_S =Z_L= 50 Ω f = 900 MHz f = 1.8 GHz	$\lvert S_{21e}\rvert^2$	 - -	 9.5 4	 - -	
Third order intercept point I_C = 70 mA, V_{CE} = 8 V, f = 900 MHz Z_S =Z_L= 50 Ω	IP_3	-	35	-	dBm

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

* Package mounted on epoxy



Permissible Pulse Load $R_{thJS} = f(t_p)$



Permissible Pulse Load $P_{totmax}/P_{totDC} = f(t_p)$