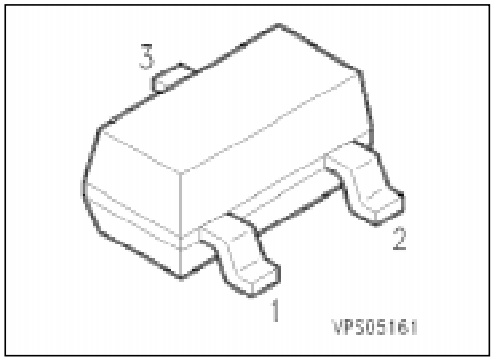
SIEMENS

NPN Silicon RF Transistor — BF 799

- For linear broadband amplifier applications up to 500 MHz
- SAW filter driver in TV tuners



Type	Marking	Ordering Code (tape and reel)	Pin Configuration 1	2	3	Package[1]
BF 799	LK	Q62702-F935	B	E	C	SOT-23

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	20	V
Collector-emitter reverse voltage	V_{CES}	30	
Collector-base voltage	V_{CB0}	30	
Emitter-base voltage	V_{EB0}	3	
Collector current	I_C	35	mA
Peak collector current	I_{CM}	50	
Peak base current	I_{BM}	15	
Total power dissipation, $T_A \leq 25$ °C	P_{tot}	280	mW
Junction temperature	T_j	150	°C
Storage temperature range	T_{stg}	– 65 … + 150	

Thermal Resistance

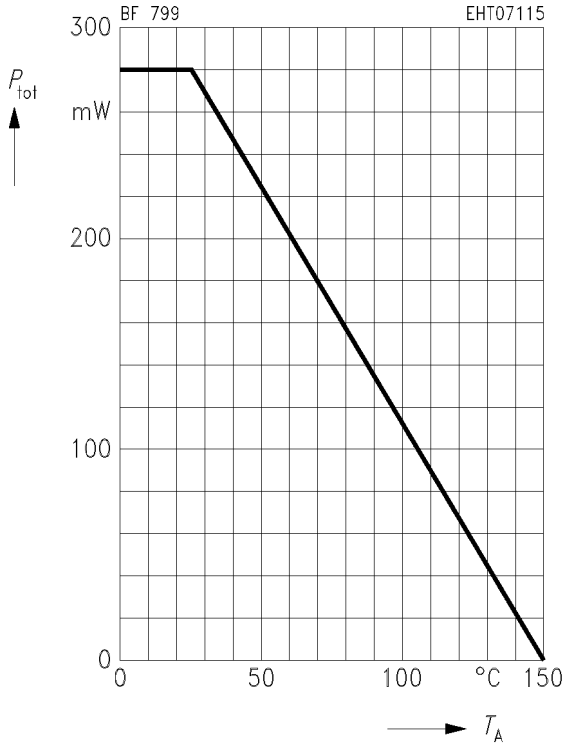
Junction - ambient[2]	$R_{th\ JA}$	≤ 450	K/W

1) For detailed information see chapter Package Outlines.
2) Package mounted on alumina 15 mm × 16.7 mm × 0.7 mm.

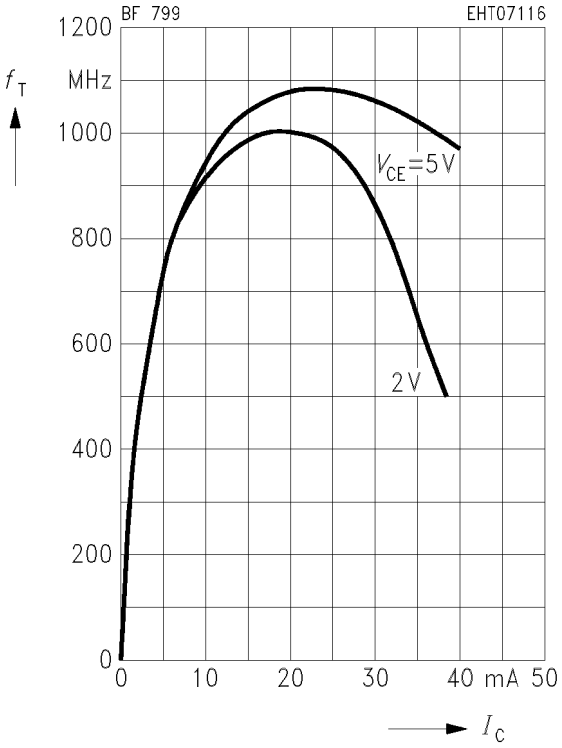
Electrical Characteristics
at T_A = 25 °C, unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-emitter breakdown voltage I_C = 1 mA, I_B = 0	$V_{(BR)\ CE0}$	20	–	–	V
Collector-base breakdown voltage I_C = 10 µA, I_E = 0	$V_{(BR)\ CB0}$	30	–	–	
Emitter-base breakdown voltage I_E = 10 µA	$V_{(BR)\ EB0}$	3	–	–	
Collector cutoff current V_{CB} = 20 V	I_{CB0}	–	–	100	nA
DC current gain, V_{CE} = 10 V I_C = 5 mA I_C = 20 mA	h_{FE}	 35 40	 95 100	 – 250	–
Collector-emitter saturation voltage I_C = 20 mA, I_B = 2 mA	$V_{CE\ sat}$	–	0.15	0.5	V
Base-emitter saturation voltage I_C = 20 mA, I_B = 2 mA	$V_{BE\ sat}$	–	–	0.95	
AC Characteristics					
Transition frequency I_C = 5 mA, V_{CE} = 10 V, f = 100 MHz I_C = 20 mA, V_{CE} = 8 V, f = 100 MHz	f_T	 – –	 800 1100	 – –	MHz
Output capacitance V_{CB} = 10 V, f = 1 MHz, I_E = 0	C_{ob}	–	0.96	–	pF
Collector-base capacitance V_{CB} = 10 V, V_{BE} = 0 V, f = 1 MHz	C_{cb}	–	0.7	–	
Collector-emitter capacitance V_{CE} = 10 V, V_{BE} = 0 V, f = 1 MHz	C_{ce}	–	0.28	–	
Noise figure I_C = 5 mA, V_{CE} = 10 V, f = 100 MHz R_S = 50 Ω	F	–	3	–	dB
Output conductance I_C = 20 mA, V_{CE} = 10 V, f = 35 MHz	g_{22e}	–	60	–	µS

Total power dissipation $P_{tot} = f(T_A)$



Transition frequency $f_T = f(I_C)$
f = 100 MHz



Collector-base capacitance $C_{cb} = f(V_{CB})$
f= 1 MHz