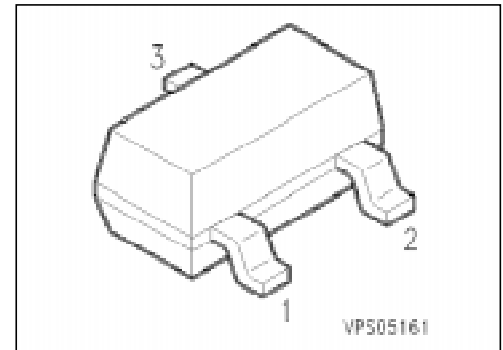


## NPN Silicon RF Transistor

**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			Package <sup>1)</sup>
			1	2	3	
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, $T_A \leq 25\text{ °C}$	$P_{tot}$	280	mW
Junction temperature	$T_j$	150	°C
Storage temperature range	$T_{stg}$	- 65 ... + 150	

### Thermal Resistance

Junction - ambient <sup>2)</sup>	$R_{th\ JA}$	≤ 450	K/W
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<sup>1)</sup> For detailed information see chapter Package Outlines.

<sup>2)</sup> Package mounted on alumina 15 mm × 16.7 mm × 0.7 mm.

## Electrical Characteristics

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

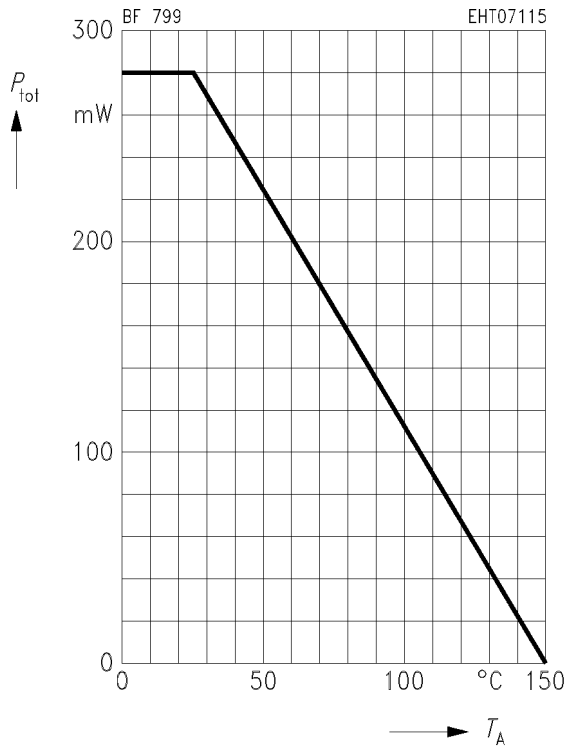
### DC Characteristics

Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR) CE0}$	20	–	–	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}, I_E = 0$	$V_{(BR) CB0}$	30	–	–	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$	$V_{(BR) EB0}$	3	–	–	
Collector cutoff current $V_{CB} = 20\text{ V}$	$I_{CB0}$	–	–	100	nA
DC current gain, $V_{CE} = 10\text{ V}$ $I_C = 5\text{ mA}$ $I_C = 20\text{ mA}$	$h_{FE}$	35 40	95 100	– 250	–
Collector-emitter saturation voltage $I_C = 20\text{ mA}, I_B = 2\text{ mA}$	$V_{CE\text{ sat}}$	–	0.15	0.5	V
Base-emitter saturation voltage $I_C = 20\text{ mA}, I_B = 2\text{ mA}$	$V_{BE\text{ sat}}$	–	–	0.95	

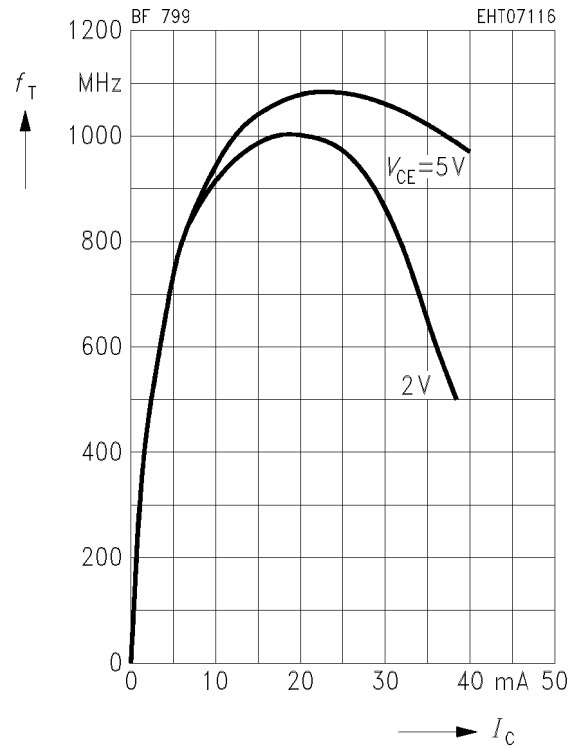
### AC Characteristics

Transition frequency $I_C = 5\text{ mA}, V_{CE} = 10\text{ V}, f = 100\text{ MHz}$ $I_C = 20\text{ mA}, V_{CE} = 8\text{ V}, f = 100\text{ MHz}$	$f_t$	– –	800 1100	– –	MHz
Output capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}, I_E = 0$	$C_{ob}$	–	0.96	–	pF
Collector-base capacitance $V_{CB} = 10\text{ V}, V_{BE} = 0\text{ V}, f = 1\text{ MHz}$	$C_{cb}$	–	0.7	–	
Collector-emitter capacitance $V_{CE} = 10\text{ V}, V_{BE} = 0\text{ V}, f = 1\text{ MHz}$	$C_{ce}$	–	0.28	–	
Noise figure $I_C = 5\text{ mA}, V_{CE} = 10\text{ V}, f = 100\text{ MHz}$ $R_S = 50\text{ }\Omega$	$F$	–	3	–	dB
Output conductance $I_C = 20\text{ mA}, V_{CE} = 10\text{ V}, f = 35\text{ MHz}$	$g_{22e}$	–	60	–	$\mu\text{S}$

### 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

