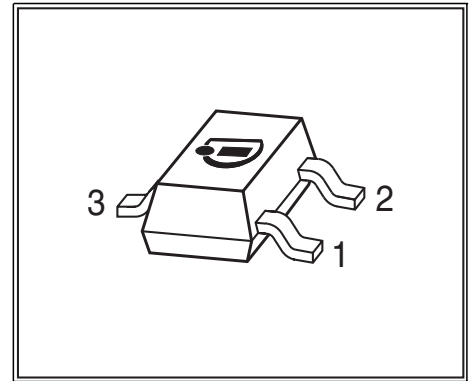


**NPN Silicon RF Transistor**

- For linear broadband amplifier application up to 500 MHz
- SAW filter driver in TV tuners
- Pb-free (RoHS compliant) package



Type	Marking	Pin Configuration			Package
BF799	LKs	1 = B	2 = E	3 = C	SOT23

**Maximum Ratings**

Parameter	Symbol	Value	Unit
Collector-emitter voltage	$V_{CEO}$	20	V
Collector-emitter voltage	$V_{CES}$	30	
Collector-base voltage	$V_{CBO}$	30	
Emitter-base voltage	$V_{EBO}$	3	
Collector current	$I_C$	35	mA
Peak collector current,	$I_{CM}$	50	
Peak base current	$I_{BM}$	15	
Total power dissipation $T_S \leq 69\text{ °C}$ <sup>1)</sup>	$P_{tot}$	280	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-65 ... 150	

**Thermal Resistance**

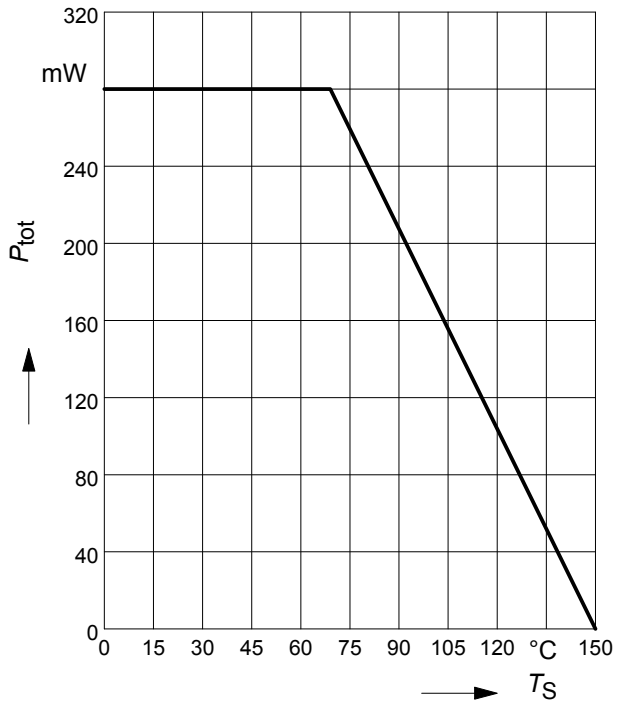
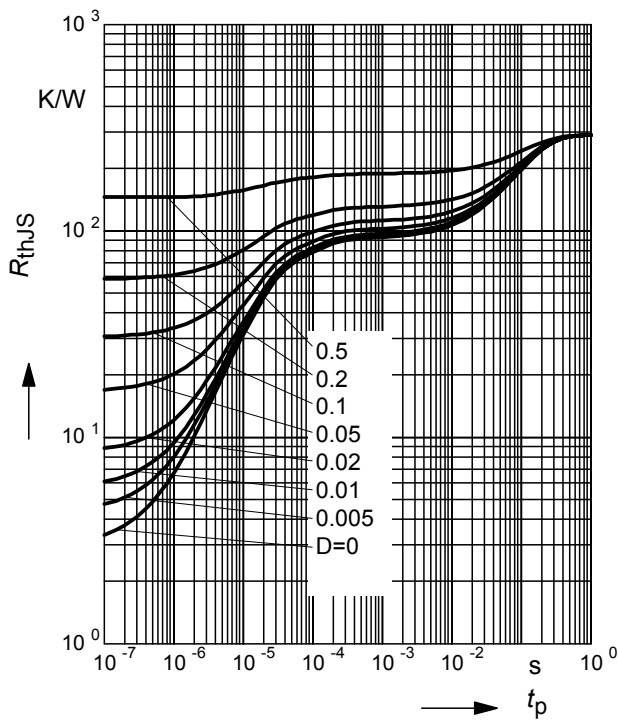
Junction - soldering point <sup>2)</sup>	$R_{thJS}$	$\leq 290$	K/W
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<sup>1)</sup>  $T_S$  is measured on the collector lead at the soldering point to the pcb

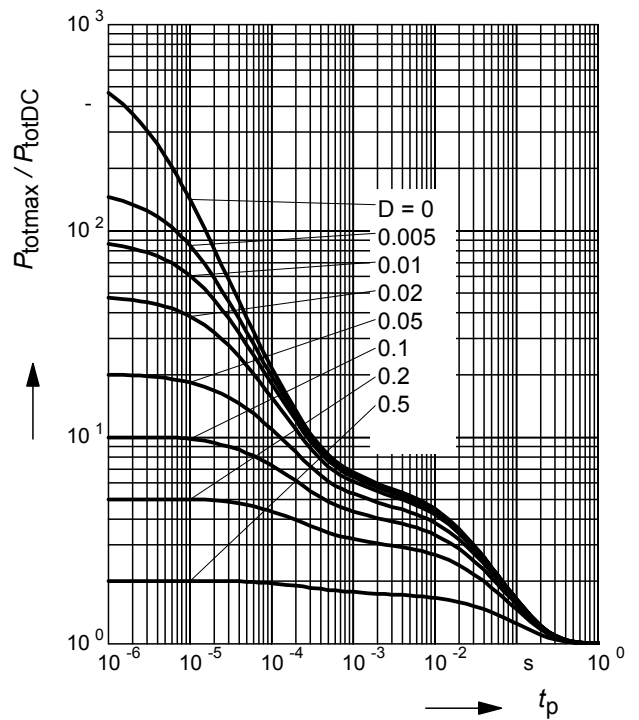
<sup>2)</sup> For calculation of  $R_{thJA}$  please refer to Application Note AN077 (Thermal Resistance Calculation)

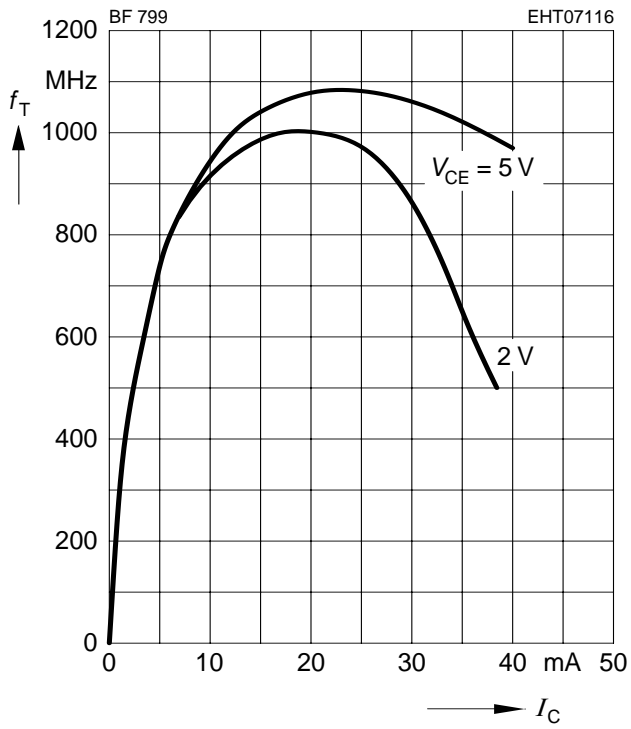
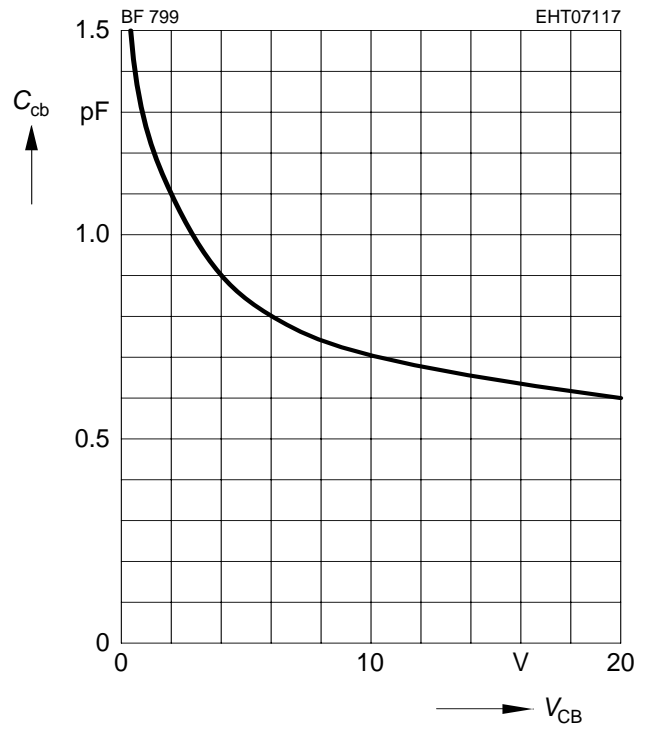
**Electrical Characteristics** at  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC characteristics</b>					
Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR)CEO}$	20	-	-	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}, I_E = 0$	$V_{(BR)CBO}$	30	-	-	
Base-emitter breakdown voltage $I_E = 10\text{ }\mu\text{A}, I_C = 0$	$V_{(BR)EBO}$	3	-	-	
Collector-base cutoff current $V_{CB} = 20\text{ V}, I_E = 0$	$I_{CBO}$	-	-	100	nA
DC current gain $I_C = 5\text{ mA}, V_{CE} = 10\text{ V}$ $I_C = 20\text{ mA}, V_{CE} = 10\text{ V}$	$h_{FE}$	35 40	95 100	- 250	-
Collector-emitter saturation voltage $I_C = 20\text{ mA}, I_B = 2\text{ mA}$	$V_{CEsat}$	-	0.1	0.3	V
Base-emitter saturation voltage $I_C = 20\text{ mA}, I_B = 2\text{ mA}$	$V_{BEsat}$	-	-	0.95	
<b>AC characteristics</b>					
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 $V_{CB} = 10\text{ V}, I_E = 0\text{ mA}, f = 1\text{ MHz}$	$C_{ob}$	-	0.96	-	pF
Collector-base capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	$C_{cb}$	-	0.7	-	
Collector-emitter capacitance $V_{CE} = 10\text{ V}, f = 1\text{ MHz}$	$C_{ce}$	-	0.28	-	
Noise figure $I_C = 5\text{ mA}, V_{CE} = 10\text{ V}, f = 100\text{ MHz},$ $Z_S = 50\text{ }\Omega$	$F$	-	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  $P_{tot} = f(T_S)$** 

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

**Permissible Pulse Load**

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



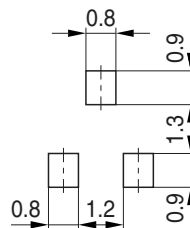
**Transition frequency  $f_T = f(I_C)$** 
 $f = 100\text{MHz}$ 

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


Package Outline

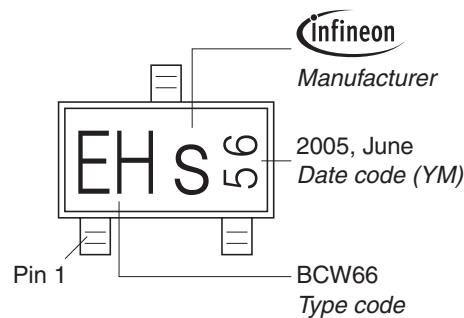


1) Lead width can be 0.6 max. in dambar area

Foot Print

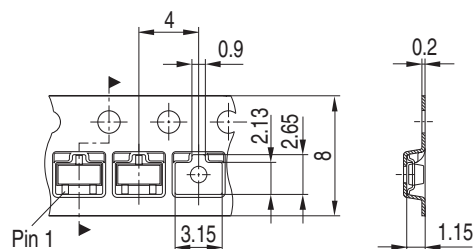


Marking Layout (Example)



Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel



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