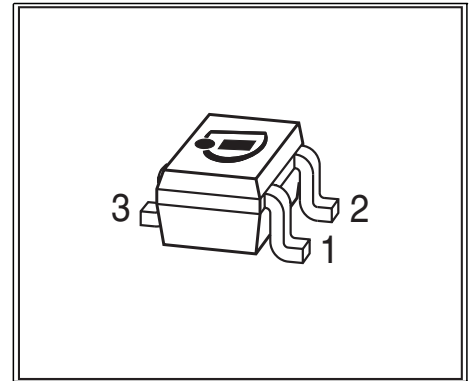


NPN Silicon RF Transistor

- 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
BF799W	LKs	1 = B	2 = E	3 = C	SOT323

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
Base current	I_B	10	
Total power dissipation $T_S = 107^\circ\text{C}$	P_{tot}	280	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-65 ... 150	

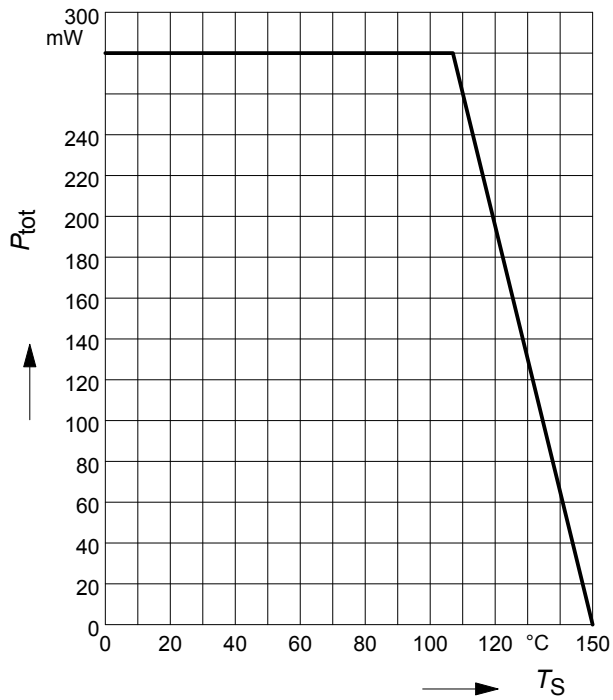
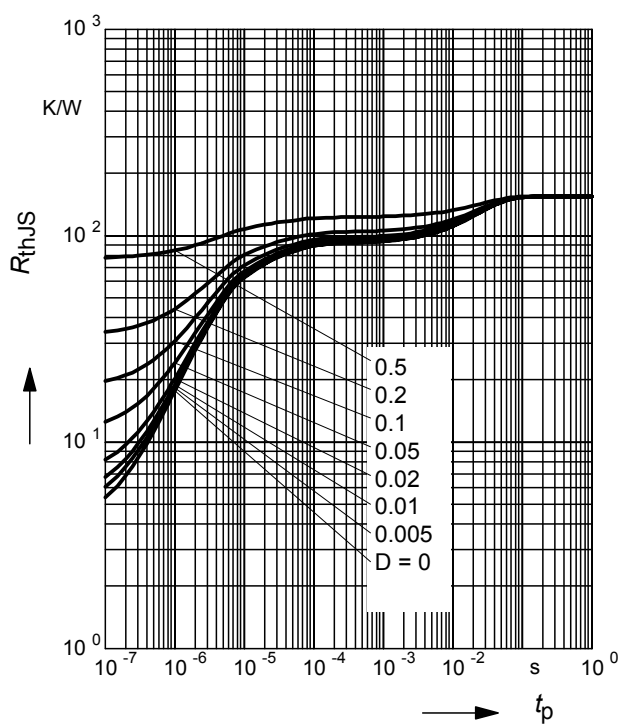
Thermal Resistance

Junction - soldering point ¹⁾	R_{thJS}	≤ 155	K/W
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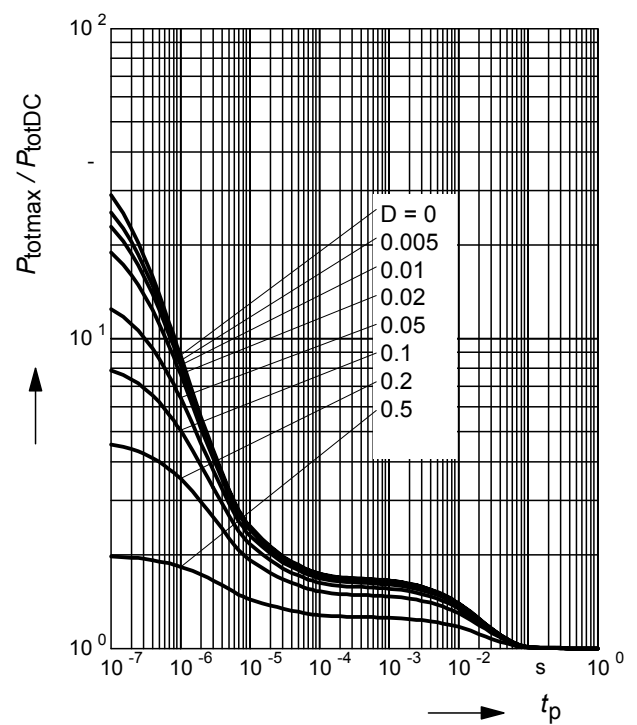
¹⁾For calculation of R_{thJA} please refer to Application Note AN077 (Thermal Resistance Calculation)

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

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC characteristics					
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	
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 $V_{CB} = 10\text{ V}, I_E = 0\text{ mA}, f = 1\text{ MHz}$	C_{ob}	-	0.96	-	
Collector-base capacitance $V_{CB} = 10\text{ V}, f = 1\text{ MHz}$	C_{cb}	-	0.7	-	pF
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	-	μS

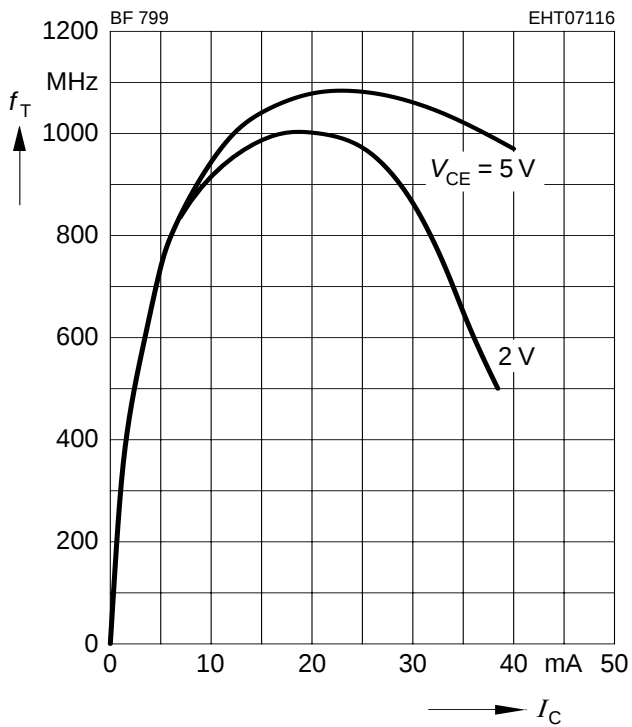
Total power dissipation $P_{\text{tot}} = f(T_S)$

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

Permissible Pulse Load

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



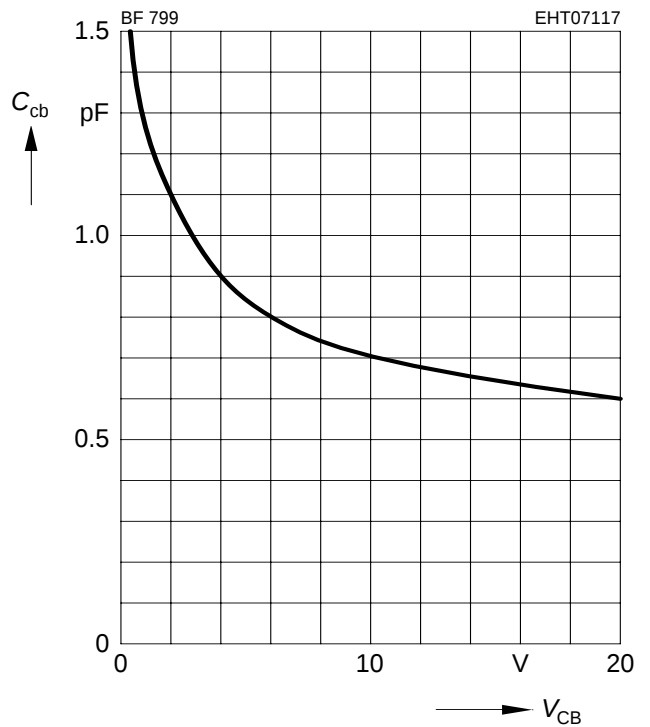
Transition frequency $f_T = f(I_C)$

$f = 100\text{MHz}$

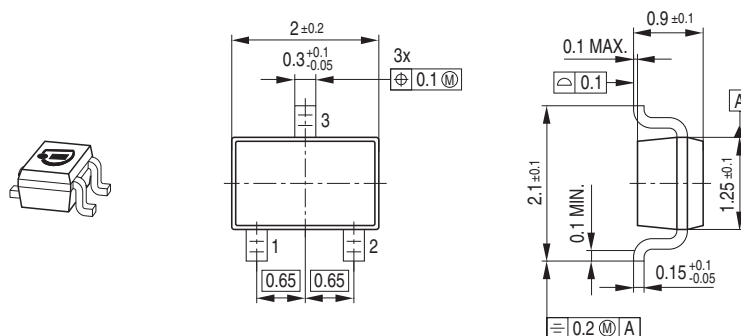


Collector-base capacitance $C_{cb} = f(V_{CB})$

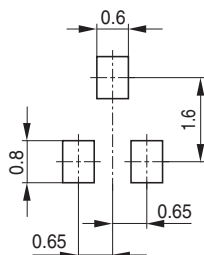
$f = 1\text{ MHz}$



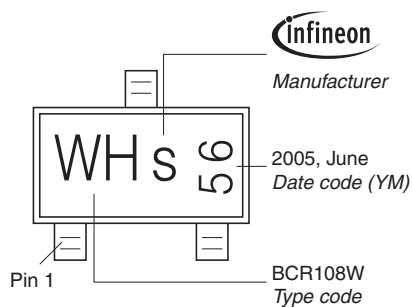
Package Outline



Foot Print

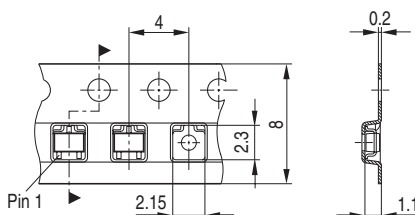


Marking Layout (Example)



Standard Packing

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



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