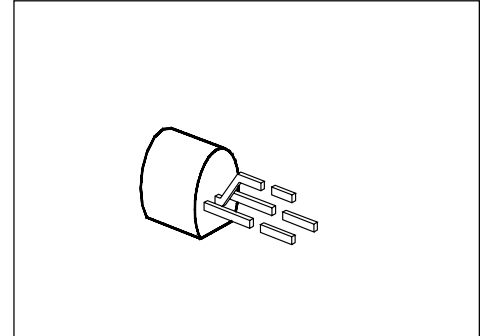


NPN Silicon RF Transistor

BF 959

- For SAW filter driver applications in TV tuners
- For linear broadband VHF amplifier stages
- For oscillator applications



Type	Marking	Ordering Code	Pin Configuration			Package ¹⁾
			1	2	3	
BF 959	—	Q62702-F640	C	E	B	TO-92

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	
Peak collector current	I_{CM}	100	mA
Peak base current	I_{BM}	30	
Total power dissipation, $T_A \leq 25^\circ\text{C}$ $V_{CE} \leq 15\text{ V}$	P_{tot}	500	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	– 55 ... + 150	

Thermal Resistance

Junction - ambient	$R_{th JA}$	≤ 250	K/W
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¹⁾ For detailed information see chapter Package Outlines.

Electrical Characteristics

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

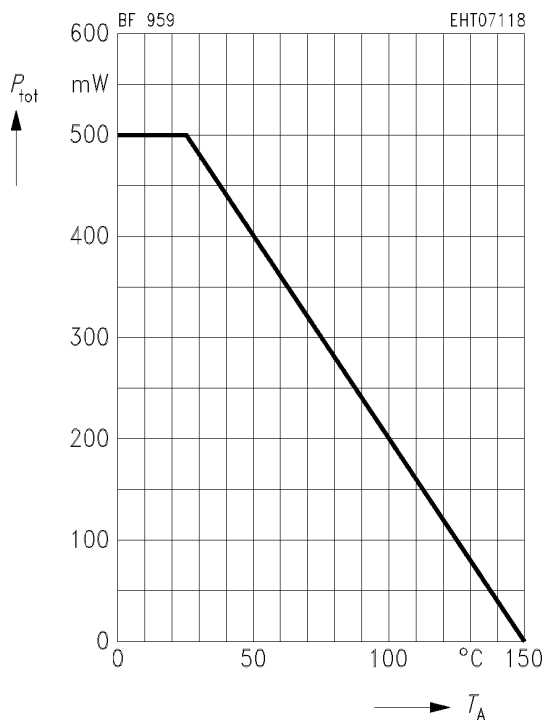
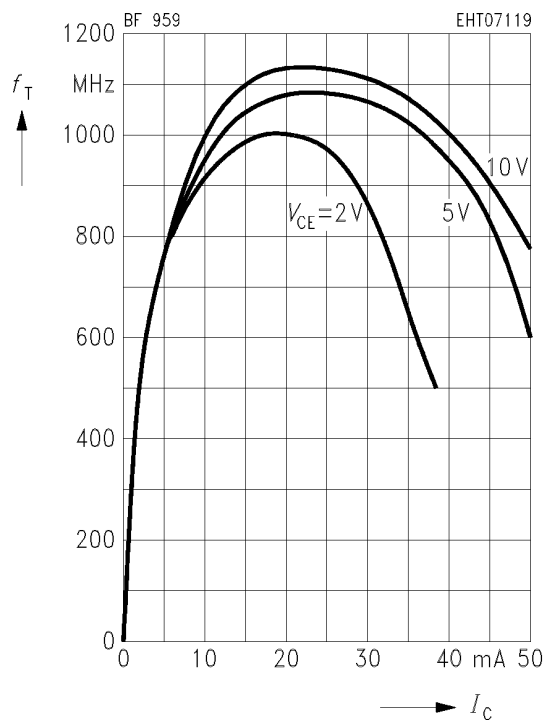
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC Characteristics

Collector-emitter breakdown voltage $I_C = 1\text{ mA}$	$V_{(BR)\text{ CE0}}$	20	—	—	V
Collector-base breakdown voltage $I_C = 10\text{ }\mu\text{A}$	$V_{(BR)\text{ CB0}}$	30	—	—	
Emitter-base breakdown voltage $I_E = 10\text{ }\mu\text{A}$	$V_{(BR)\text{ EB0}}$	3	—	—	
Collector cutoff current $V = 20\text{ V}$	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	— 85	— —	—
Base-emitter voltage $I_C = 20\text{ mA}$, $V_{CE} = 10\text{ V}$	V_{BE}	—	0.75	—	V
Collector-emitter saturation voltage $I_C = 30\text{ mA}$, $I_B = 2\text{ mA}$	$V_{CE\text{ sat}}$	—	—	1	
Base-emitter saturation voltage $I_C = 30\text{ mA}$, $I_B = 2\text{ mA}$	$V_{BE\text{ sat}}$	—	—	0.95	

AC Characteristics

Transition frequency $I_C = 20\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 100\text{ MHz}$ $I_C = 30\text{ mA}$, $V_{CE} = 5\text{ V}$	f_T	700 600	1100 —	— —	MHz
Output capacitance $V_{CB} = 10\text{ V}$, $I_E = 0$, $f = 1\text{ MHz}$	C_{obo}	—	0.9	—	
Collector-base capacitance $V_{CE} = 10\text{ V}$, $V_{BE} = 0$, $f = 1\text{ MHz}$	C_{cb}	—	0.75	—	
Noise figure $V_{CE} = 10\text{ V}$, $f = 200\text{ MHz}$, $R_S = 60\text{ }\Omega$ $I_C = 5\text{ mA}$ $I_C = 20\text{ mA}$	F	— —	3 4	— —	dB
Output conductance $I_C = 20\text{ mA}$, $V_{CE} = 10\text{ V}$, $f = 35\text{ MHz}$	g_{22e}	—	0.06	—	

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

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

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