

PNP Silicon RF Transistor

BF 550

- For common emitter amplifier stages up to 300 MHz
- For mixer applications in AM/FM radios and VHF TV tuners
- Low feedback capacitance due to shield diffusion
- Controlled low output conductance



5:1

Type	Marking	Ordering Code (tape and reel)	Pin Configuration			Package ¹⁾
			1	2	3	
BF 550	LA	Q62702-F944	B	E	C	SOT-23

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CE0}	40	V
Collector-base voltage	V_{CB0}	40	
Emitter-base voltage	V_{EB0}	4	
Collector current	I_C	25	mA
Base current	I_B	5	
Total power dissipation, $T_A \leq 25^\circ\text{C}$	P_{tot}	280	mW
Junction temperature	T_j	150	$^\circ\text{C}$
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 Characteristicsat $T_A = 25^\circ\text{C}$, unless otherwise specified.

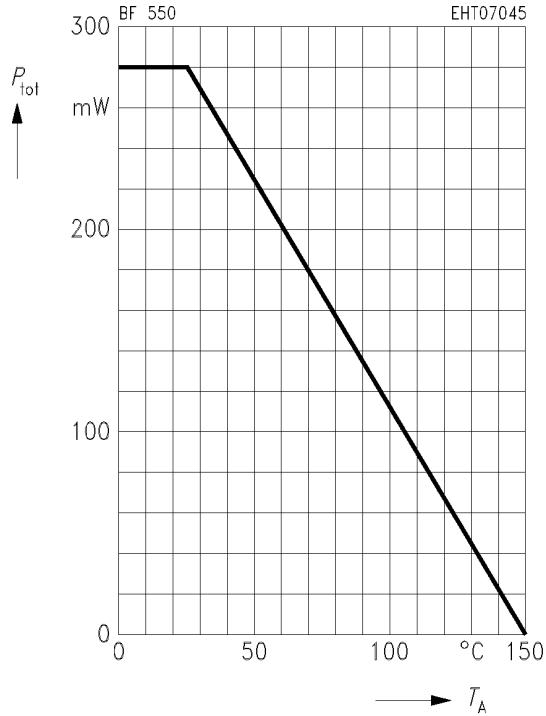
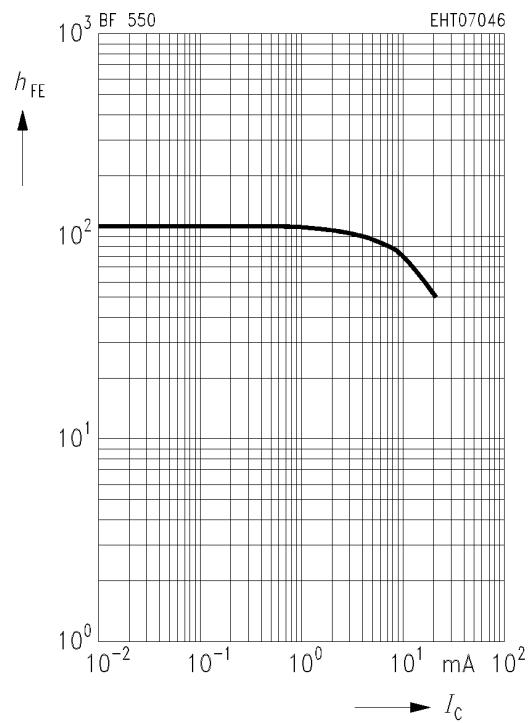
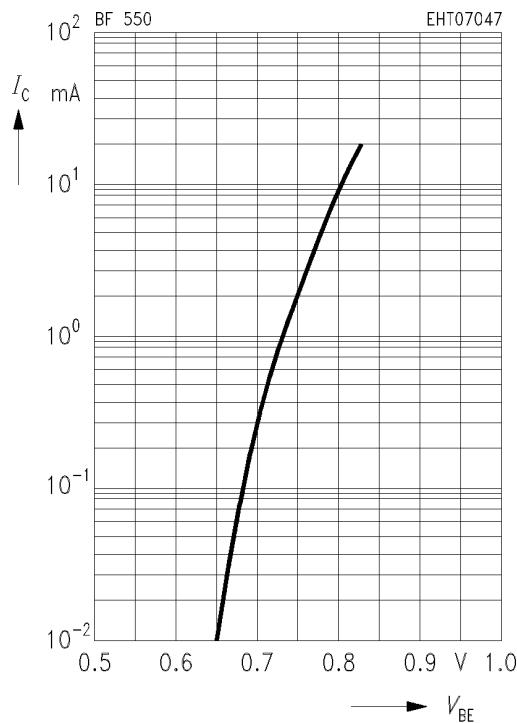
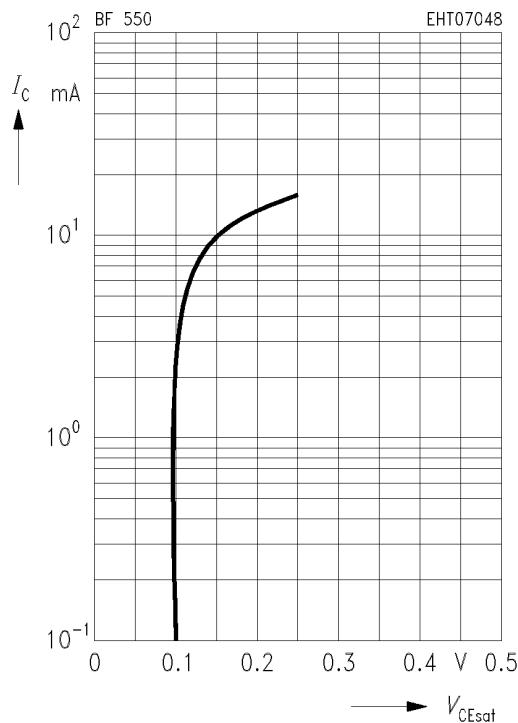
Parameter	Symbol	Values			Unit
		min.	typ.	max.	

DC Characteristics

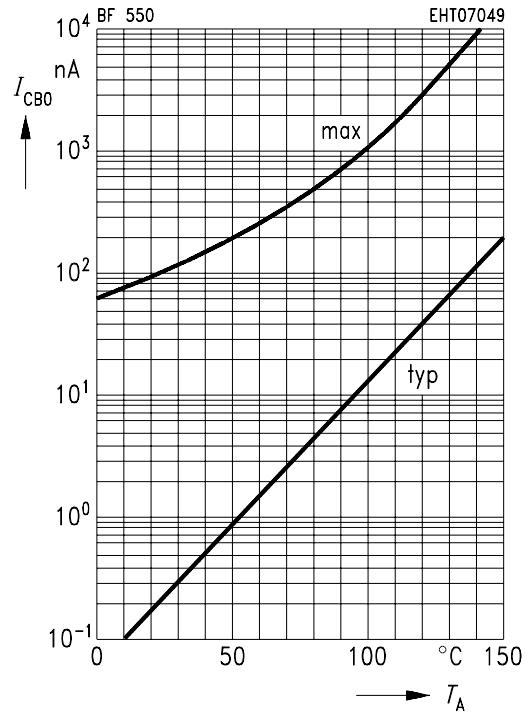
Collector-emitter breakdown voltage $I_C = 1 \text{ mA}, I_B = 0$	$V_{(\text{BR})\text{CEO}}$	40	—	—	V
Collector-base breakdown voltage $I_C = 10 \mu\text{A}, I_E = 0$	$V_{(\text{BR})\text{CB0}}$	40	—	—	
Emitter-base breakdown voltage $I_E = 10 \mu\text{A}, I_C = 0$	$V_{(\text{BR})\text{EB0}}$	4	—	—	
Collector cutoff current $V_{CB} = 30 \text{ V}, I_E = 0$	I_{CB0}	—	—	100	nA
DC current gain $I_C = 1 \text{ mA}, V_{CE} = 10 \text{ V}$	h_{FE}	50	—	250	—
Base-emitter voltage $I_C = 1 \text{ mA}, V_{CE} = 10 \text{ V}$	V_{BE}	—	0.72	—	V

AC Characteristics

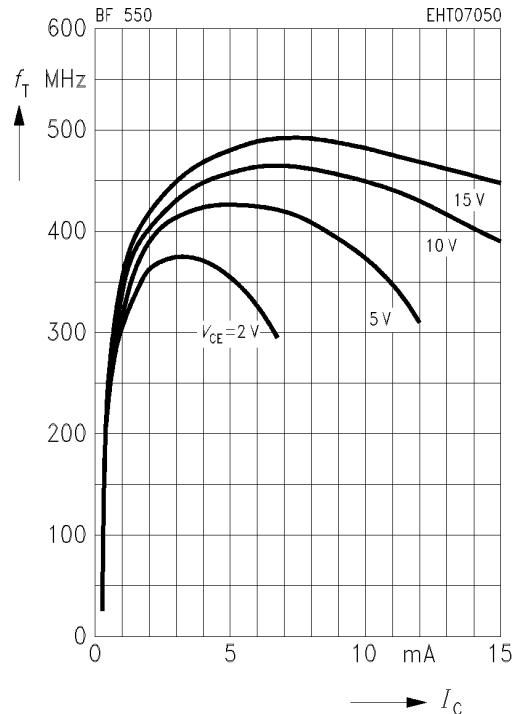
Transition frequency $I_C = 1 \text{ mA}, V_{CE} = 10 \text{ V}, f = 100 \text{ MHz}$	f_T	—	350	—	MHz
Collector-base capacitance $V_{CB} = 10 \text{ V}, V_{BE} = 0 \text{ V}, f = 1 \text{ MHz}$	C_{cb}	—	0.33	—	pF
Collector-emitter capacitance $V_{CE} = 10 \text{ V}, V_{BE} = 0 \text{ V}, f = 1 \text{ MHz}$	C_{ce}	—	0.67	—	
Noise figure $V_{CE} = 10 \text{ V}$ $I_C = 1 \text{ mA}, f = 100 \text{ kHz}, R_S = 300 \Omega$ $I_C = 2 \text{ mA}, f = 100 \text{ MHz}, R_S = 60 \Omega$	F	— —	2 3.4	—	dB
Y parameters , common emitter $I_C = 1 \text{ mA}, V_{CE} = 10 \text{ V}$ $f = 0.45 \dots 10 \text{ MHz}$ $f = 500 \text{ kHz}$ $f = 10 \text{ MHz}$	g_{11e} C_{11e} $ y_{21e} $ C_{22e} g_{22e} g_{22e}	— — — — — —	550 17 35 1.3 5 5	— — — — 8 10	μS pF mS pF μS μS

Total power dissipation $P_{\text{tot}} = f(T_A)$ **DC current gain $h_{\text{FE}} = f(I_c)$** $V_{\text{CE}} = 10 \text{ V}$ **Collector current $I_c = f(V_{\text{BE}})$** $V_{\text{CE}} = 10 \text{ V}$ **Collector-emitter saturation voltage** $V_{\text{CEsat}} = f(I_c)$ $h_{\text{FE}} = 10$ 

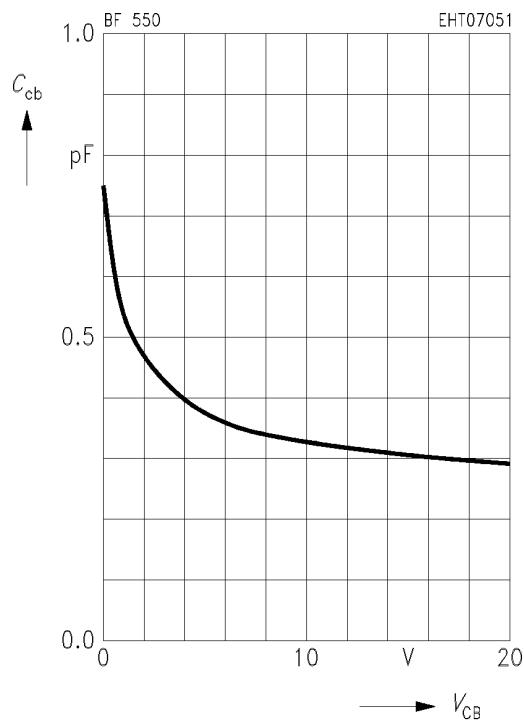
Collector cutoff current $I_{CBO} = f(T_A)$
 $V_{CB} = 30 \text{ V}$



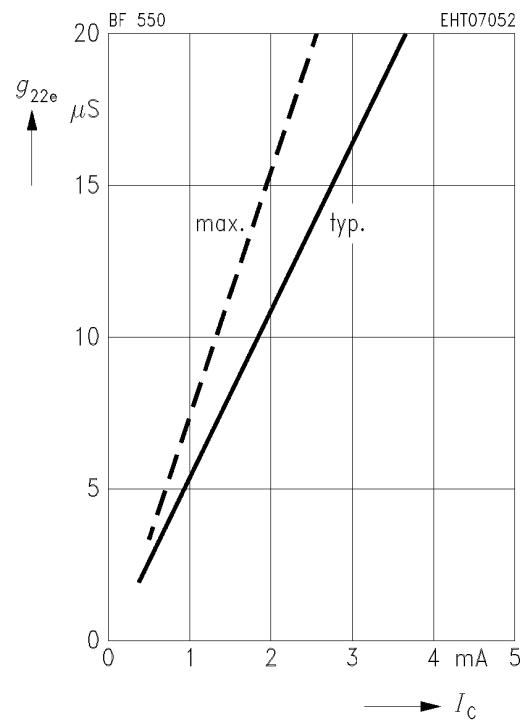
Transition frequency $f_T = f(I_c)$
 $f = 100 \text{ MHz}$



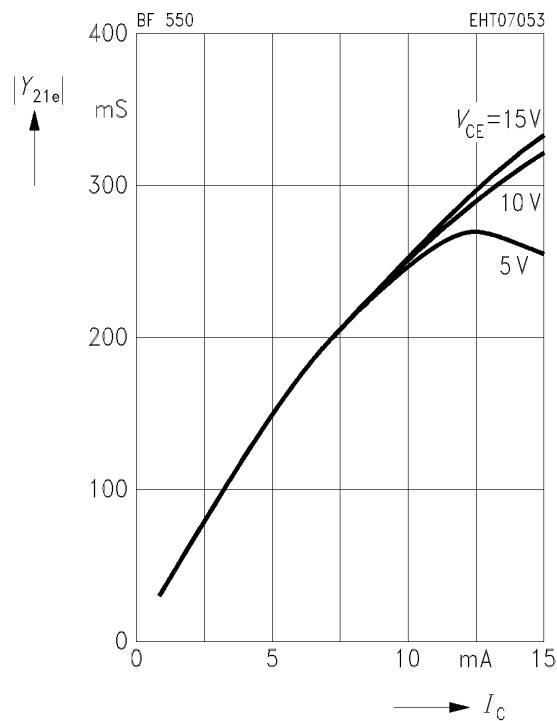
Collector-base capacitance $C_{cb} = f(V_{CB})$
 $f = 1 \text{ MHz}$



Output conductance $g_{22e} = f(I_c)$
 $V_{CE} = 10 \text{ V}, f = 500 \text{ kHz}$



Forward transfer admittance $|y_{21e}| = f(I_c)$
 $f = 10.7 \text{ MHz}$



Forward transfer admittance y_{21e}
 $V_{CE} = 10 \text{ V}$

