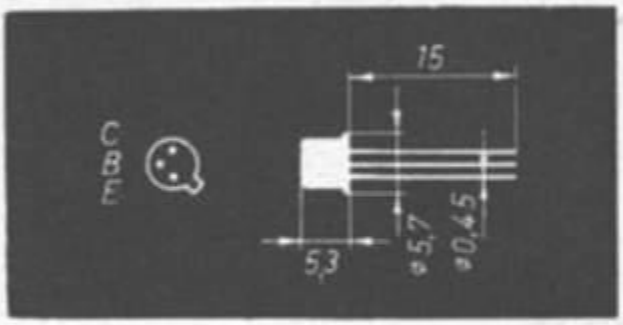
SF 132

Verwendung: Silizium-npn-Planar-Transistor für Breitband-, NF- und HF-Verstärker, sowie für schnellen Schaltbetrieb bei Umgebungstemperaturen von ϑa –40 °C bis +125 °C

Abmessungen: Bauform A 3/15 – 3a, TGL 11 811
Kollektor am Gehäuse
Masse ≈ 0,5 g



Zulässige Höchstwerte bis ϑ_{jmax}

U_{CBO}	= 40 V	Pc	= 300 mW
U_{CEO}	= 15 V	bei ϑ_a	= 25 °C
U_{EBO}	= 5 V	ϑ_j	= 175 °C
I_C	= 50 mA	ϑ_a	= 125 °C
I_B	= 10 mA		

Wärmewiderstand $R_{th} \leqq 500 \frac{grd}{W}$

Kennwerte für ϑa = 25 °C –5 grd

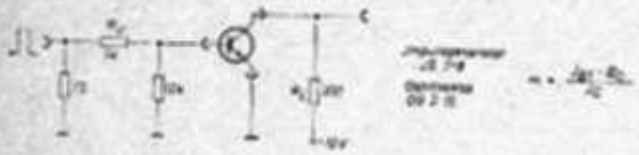
	Min.	Typ	Max.	Meßbedingungen	Stromverstärkungsgruppen
Restströme					
I_{CBO}		1 nA	100 nA	U_{CB} = 40 V	
I_{EBO}		7 nA	100 nA	U_{EB} = 5 V	
Durchbruchspannung					
$U_{(BR)CEO}$	15 V	24 V		I_C = 10 mA	
Sättigungsspannung					
U_{CEsat}		1,15 V	1,6 V	I_C = 50 mA, I_B = 5 mA	
U_{CEsat}		0,25 V	0,5 V	I_C = 10 mA, I_B = 1 mA	
U_{BEsat}	0,73 V	0,78 V	0,85 V	I_C = 10 mA, I_B = 5 mA	
Gleichstromverstärkung					
B	18		35	U_{CE} = 1 V, I_C = 10 mA	A
B	28		71		B
B	56		140		C
B	112		280		D
B	224		560		E
B	450		1120		F
Übergangsfrequenz					
f_T	200 MHz	270 MHz		U_{CE} = 10 V, I_C = 10 mA, f = 100 MHz	
Ausgangskapazität					
c_{22b}	3,4 pF	3,6 pF	5 pF	U_{CB} = 10 V, I_E = 0, f = 2 MHz	

	Min.	Typ	Max.	Meßbedingungen	Stromverstärkungsgruppen
Eingangswiderstand					
h_{11e}		35 Ω		U_{CE} = 6 V, I_C = 2 mA, f = 240 MHz	
Rückwirkungszeitkonstante					
$\frac{\lvert h_{12b} \rvert}{\omega}$	52 ps	72 ps	130 ps	U_{CB} = 6 V, I_C = 2 mA, f = 30 MHz	
Schaltzeiten					
t_d		35 ns		m = 1	siehe Meßschaltung
t_r		160 ns		m = 1	
t_r		30 ns		m = 3	
t_s+t_f		500 ns		m = 3	
Rauschfaktor					
F		7 dB		U_{CE} = 6 V, I_C = I_{Copt}, R_g = R_{gopt}, f = 1 kHz	
F		3,5 dB		f = 10 kHz	
F		2,5 dB		f = 100 kHz	
F		6 dB		f = 50 MHz	
Schwingfrequenz					
f_{max}			410 MHz	U_{CE} = 10 V, I_C = 10 mA	
Leistungsverstärkung					
V_{peopt}		11,9 dB		U_{CE} = 6 V, I_C = 2 mA, f = 100 MHz	
V_{pbopt}		12,3 dB		U_{CB} = 6 V, I_C = 2 mA, f = 50 MHz	
Y-Parameter in Emitterschaltung					
Y_{11e} = (5,3 + j 5,2) mS				U_{CB} = 6 V, I_C = 2 mA, f = 37 MHz	
Y_{12e} = -(58 + j 750) µS					
Y_{21e} = (27 - j 25) mS					
Y_{22e} = (0,45 + j 1,58) mS					
Y-Parameter in Basisschaltung					
Y_{11b} = (30 - j 19) mS				U_{CB} = 6 V, I_C = 2 mA, f = 50 MHz	
Y_{12b} = -(0,48 + j 0,62) mS					
Y_{21b} = (-25 + j 22,5) mS					
Y_{22b} = (0,55 + j 2,05) mS					

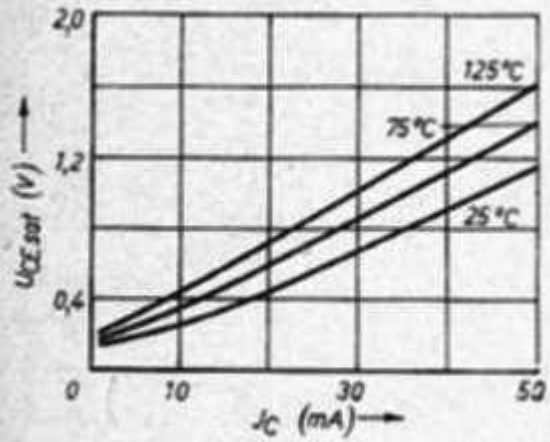
Bestellbeispiel für einen Transistor der Stromverstärkungsgruppe E — **Transistor SF 132 E**

SF 132

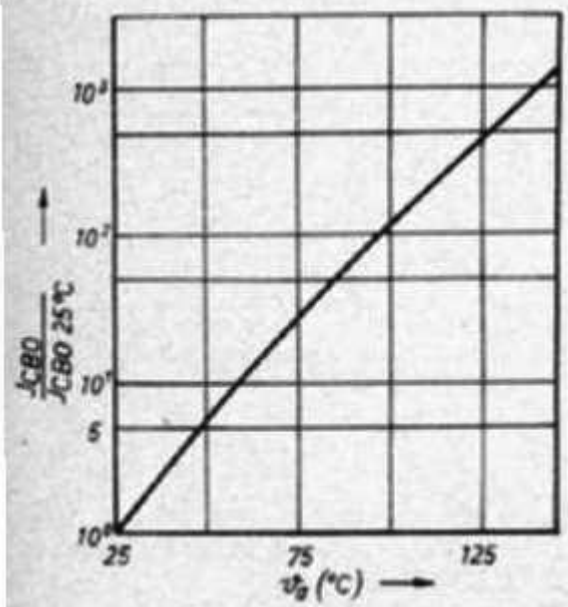
Schaltung für die Schaltzeitmessung:



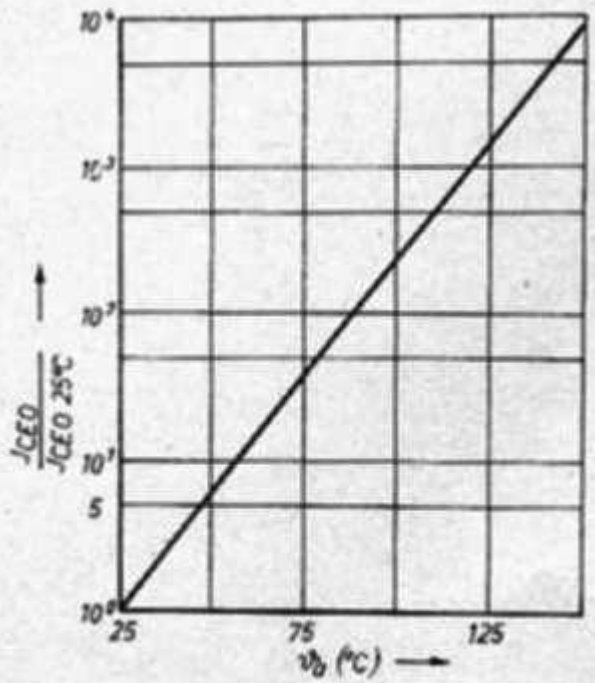
$U_{CEsat} = f(I_C)$
$\frac{I_C}{I_B} = 10$
ϑ_a Parameter



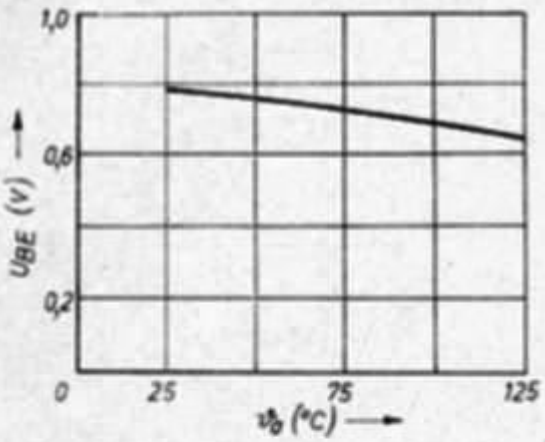
$I_{CBO} = f(\vartheta_a)$
$U_{CB} = 12V$



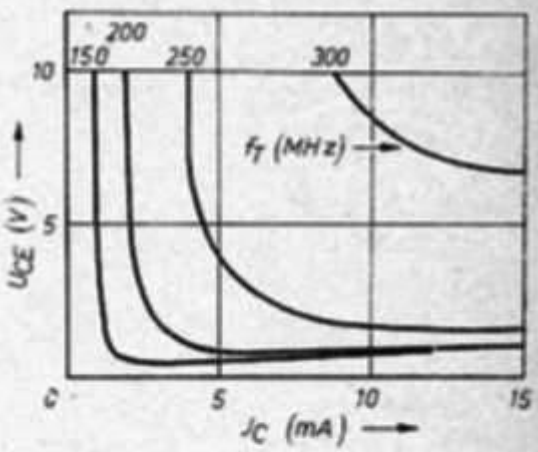
$I_{CEO} = f(\vartheta_a)$
$U_{CE} = 12\ V$



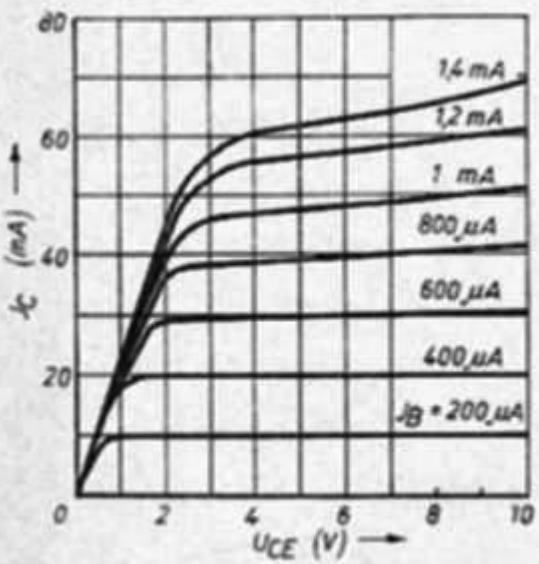
$U_{BE} = f(\vartheta_0)$
$J_C = 10\,mA$
$J_B = 1\,mA$



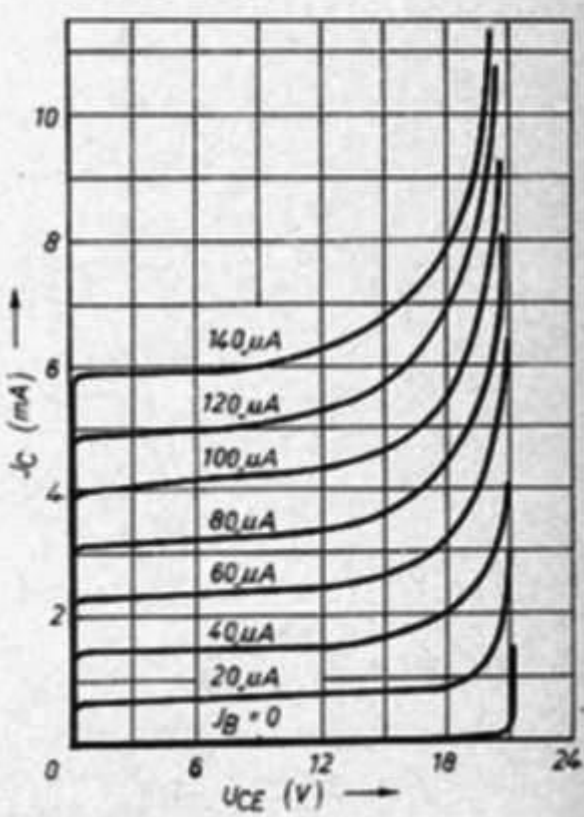
$U_{CE} = f(J_C)$
f_T = Parameter
$f = 100\,MHz$



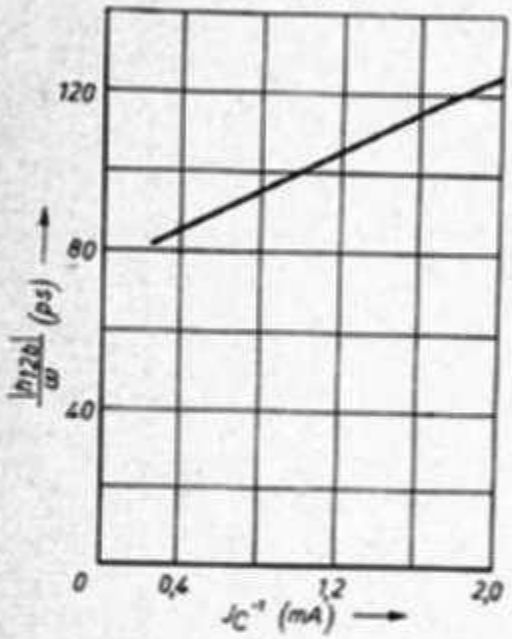
$J_C = f(U_{CE})$
J_B Parameter



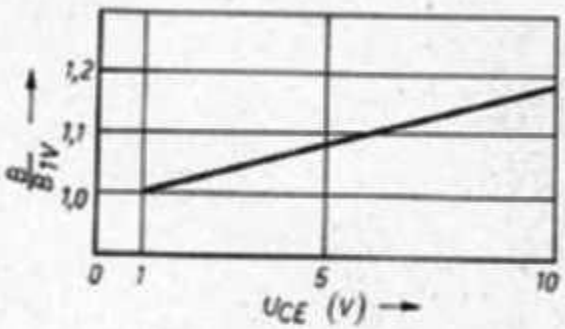
$J_C = f(U_{CE})$
J_B = Parameter



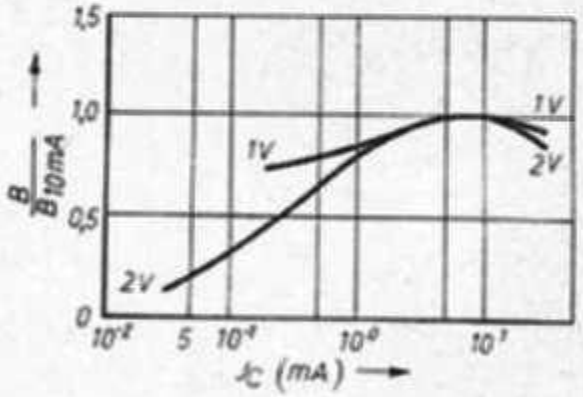
$\frac{|h_{21b}|}{\omega} = f(I_C^{-1})$
$U_{CB} = 6\,V$
$f = 30\,MHz$



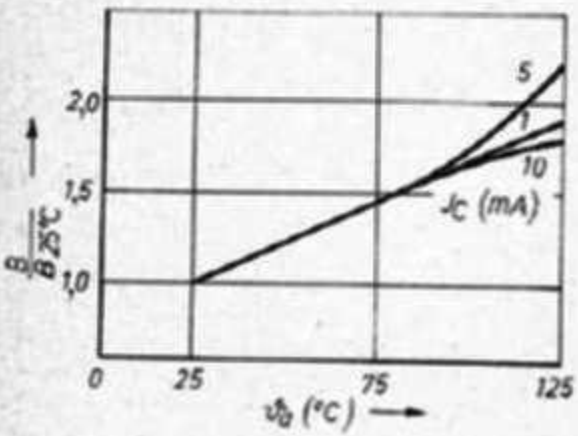
$B = f(U_{CE})$
$I_C = 10\,mA$
$\vartheta_a = 25°C$



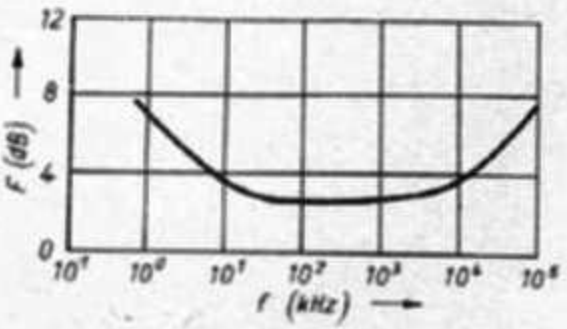
$B = f(I_C)$
$\vartheta_a = 25°C$
U_{CE} = Parameter



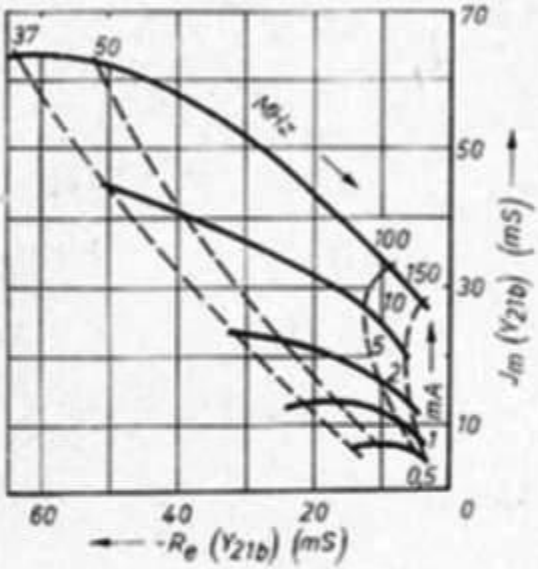
$B = f(\vartheta_a)$
$U_{CE} = 1\,V$
I_C Parameter



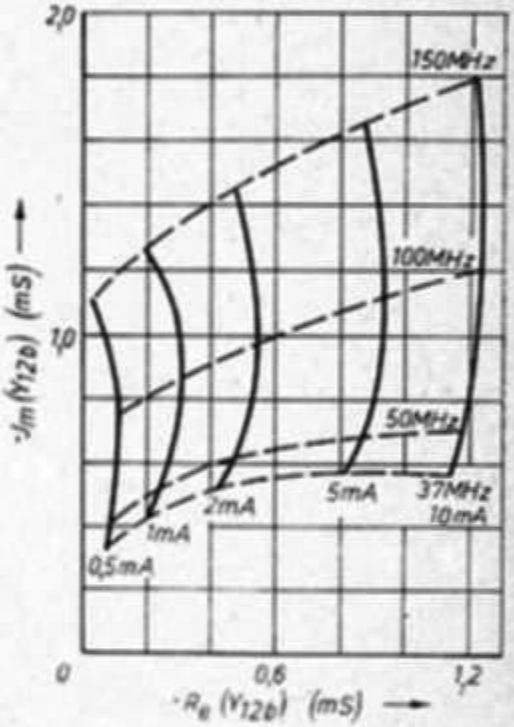
$F = g(f)$
$U_{CE} = 6\,V$
$R_g = R_{g\,opt}$ (70 ... 600 Ω)
$I_C = I_{C\,opt}$ (0,2 ... 2 mA)



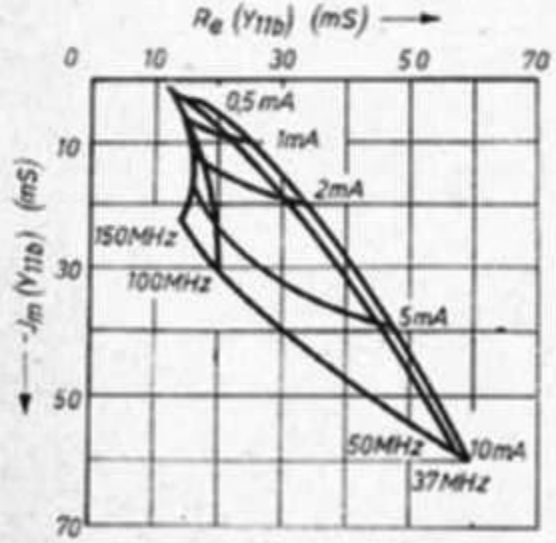
$Y_{21b} = g\,(J_C, f)$
$U_{CB} = 6\,V$



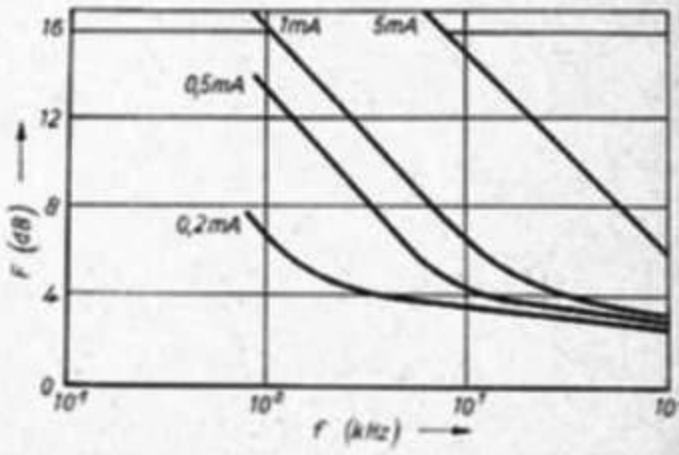
$Y_{12b} = g\,(J_C, f)$
$U_{CB} = 6\,V$



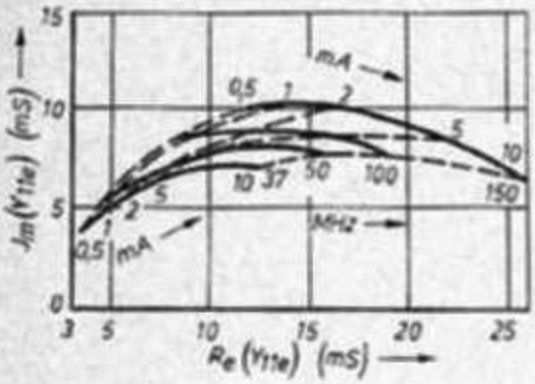
$Y_{11b} = g\,(J_C, f)$
$U_{CB} = 6\,V$



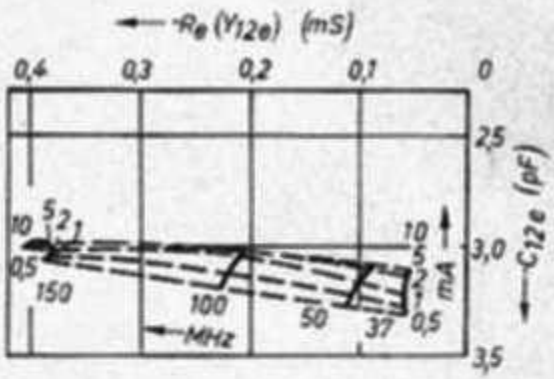
$F = g\,(f)$
$U_{CE} = 6\,V$
$R_g = 500\,\Omega$
J_C Parameter



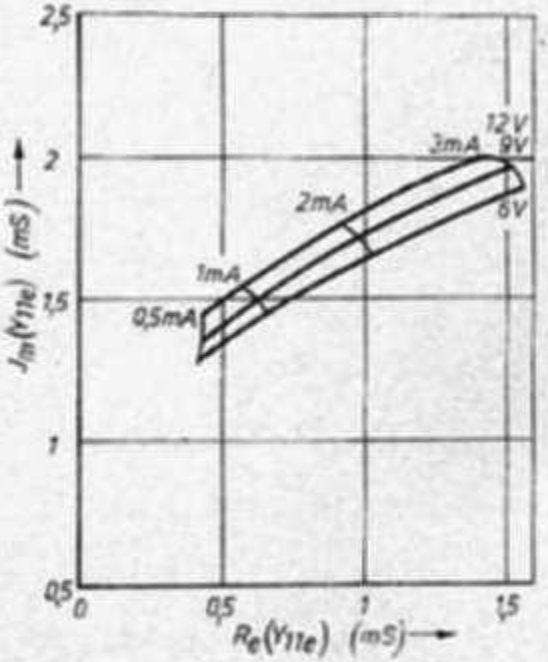
$Y_{11e} = g\,(J_C, f)$
$U_{CE} = 6V$



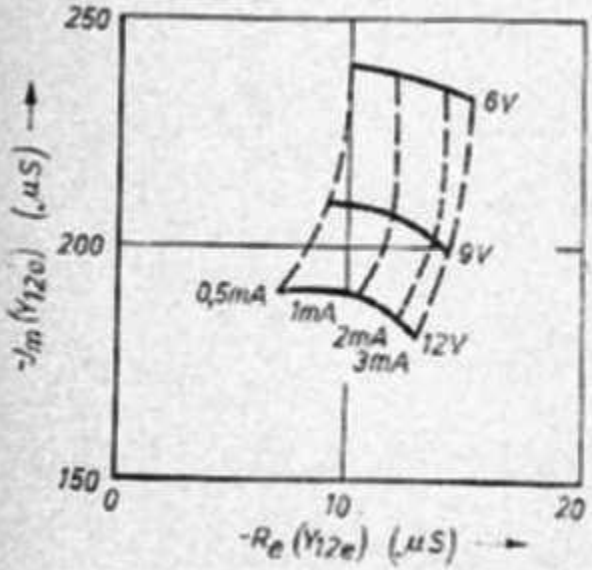
$Y_{12e} = g\,(J_C, f)$
$U_{CE} = 6V$



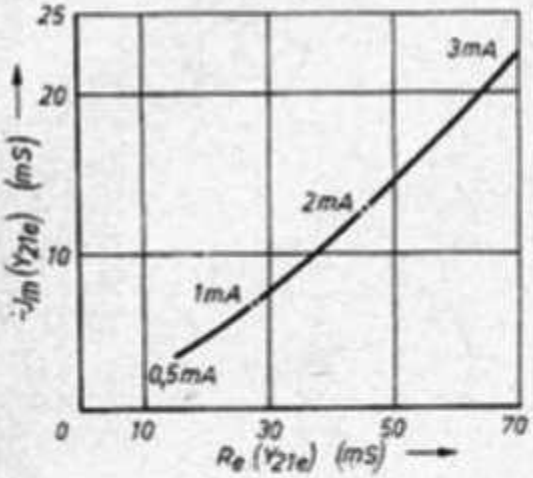
$Y_{11e} = f\,(J_C)$
U_{CE} = Parameter
$f = 10{,}7$ MHz



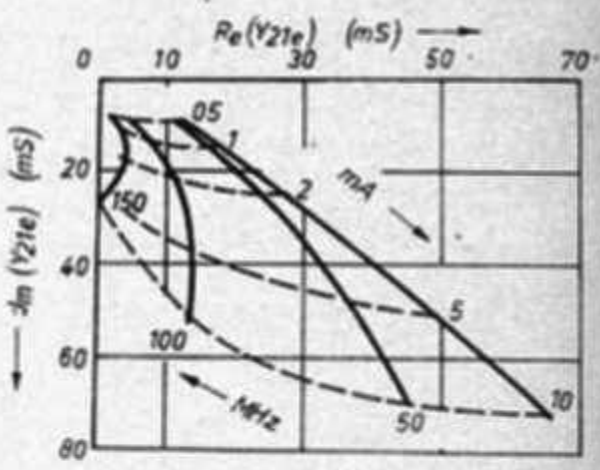
$Y_{12e} = f\,(J_C)$
U_{CE} = Parameter
$f = 10{,}7$ MHz



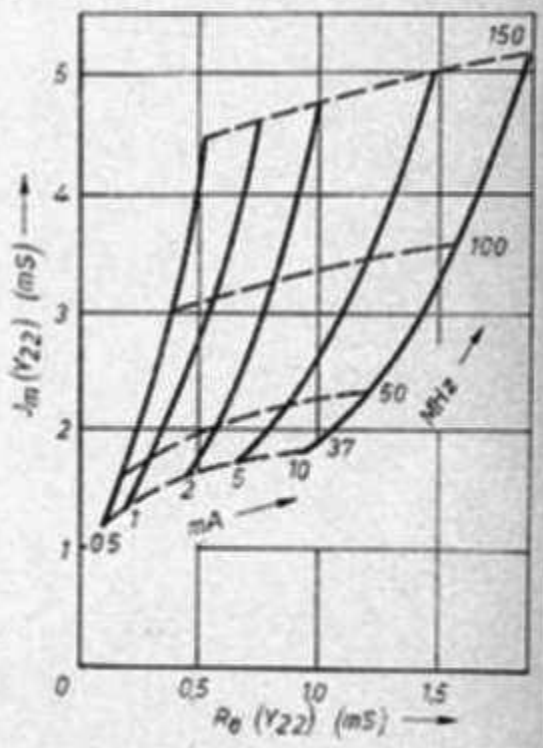
$Y_{21e} = f(J_C)$
$U_{CE} = 6...12\,V$
$f = 10{,}7\,MHz$



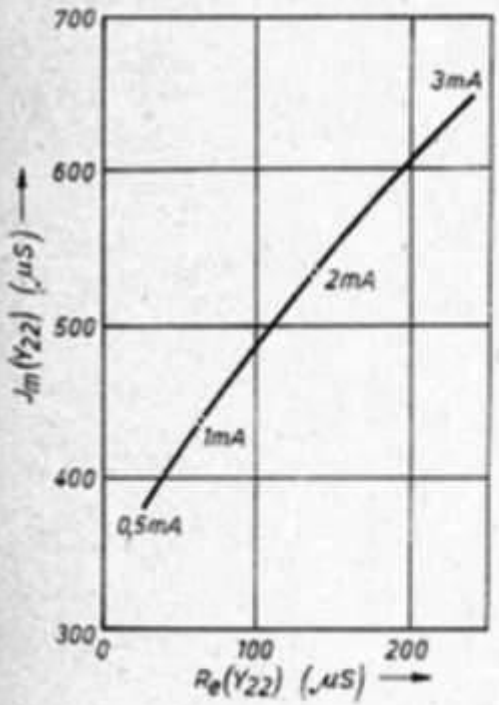
$Y_{21e} = f(J_C, f)$
$U_{CE} = 6\,V$



$Y_{22e} = f(J_C, f)$
$U_{CE} = 6\,V$



$Y_{22e} = f(I_C)$
$U_{CE} = 6...12V$
$f = 10{,}7\,MHz$



$C_{22b} = f(U_{CB})$
$I_E = 0$
$f = 2\,MHz$