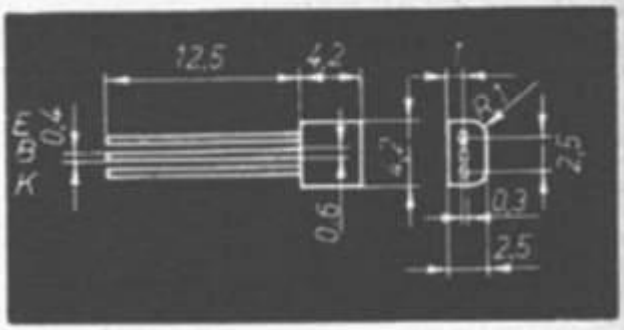
Verwendung: Silizium-npn-Planar-Transistor im Plastgehäuse für analoge Anwendungen in HF-Verstärkern und HF-Oszillatoren bis 100 MHz bei Umgebungstemperaturen ϑa von −40 °C bis +100 °C

SF 216

Abmessungen: Plastgehäuse
Masse ca. 0,1 g



Zulässige Höchstwerte bis ϑ_{jmax}

U_{CBO}	= 40 V	I_B	= 10 mA
U_{CEO}	= 20 V	P_{tot}	= 200 mW
U_{EBO}	= 5 V	bei ϑ_a	= 25 °C
I_C	= 100 mA	ϑ_j	= 100 °C
		ϑ_a	= 100 °C

Wärmewiderstand $R_{th} \leqq 0{,}5 \frac{grd}{mW}$

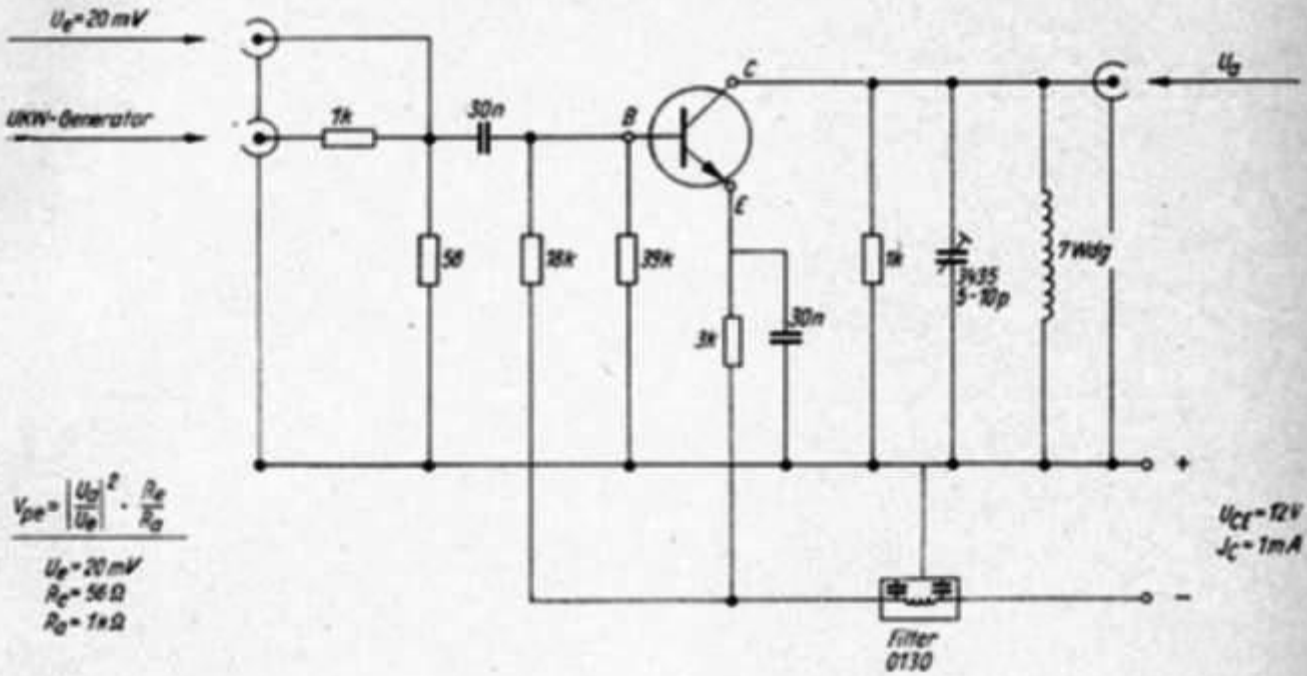
Kennwerte für ϑa = 25 °C −5 grd

	Min.	Typ	Max.	Meßbedingungen	Stromverstärkungsgruppen
Restströme					
I_{CBO}		5 nA	100 nA	U_{CB} = 20 V	
Durchbruchspannungen					
$U_{(BR)CEO}$	15 V	50 V		I_C = 100 µA,	
$U_{(BR)CBo}$		42 V		I_C = 10 µA	
$U_{(BR)EBo}$		6,8 V		I_E = 10 µA	
Stromverstärkung					
h_{21e}	28		71	U_{CE} = 6 V, I_C = 2 mA,	b
h_{21e}	56		140	f = 1 kHz	c
h_{21e}	112		280		d
h_{21e}	224		560		e
h_{21e}	450		1120		f
Leistungsverstärkung					
V_{pe}	4 dB	6 dB		U_{CE} = 8 V, I_C = 1 mA, f = 100 MHz (siehe Meßschaltung)	
Ubergangsfrequenz					
f_T		350 MHz		U_{CE} = 10V, I_C = 5 mA, f = 100 MHz	
Ausgangskapazität					
C_{22b}		3,5 pF		U_{CE} = 10 V, f = 20 MHz	

SF 216

	Min.	Typ	Max.	Meßbedingungen
Rückwirkungskapazität				
C_{12e}		2,3 pF		U_{CE} = 10 V, Ic = 5 mA, f = 500 kHz
Rückwirkungszeitkonstante				
$\frlvert h_{21b} \frrvert$ / ω		110 ps		U_{CB} = 10 V, Ic = 5 mA, f = 30 MHz
Rauschfaktor				
F		8,0 dB		U_{CE} = 10 V, Ic = 5 mA, f = 100 MHz, R_G = 60 Ω
Vierpolparameter				
h_{11e}		3,2 kΩ		U_{CE} = 6 V, Ic = 2 mA, f = 1 kHz
h_{12e}		$0{,}28 \cdot 10^{-3}$		
h_{21e}		86		
h_{22e}		28 µS		
Schwingfrequenz				
f_{max}			356 MHz	U_{CE} = 10 V, Ic = 5 mA
Y-Parameter in Emitterschaltung				
Y_{11e} = (6,6 + j 7,3) mS				bei U_{CE} = 10 V, Ic = 5 mA, f = 100 MHz
Y_{12e} = (-0,3 - j 1,75) mS				
Y_{21e} = (23,5 - j 40) mS				
Y_{22e} = (1,72 + j 2,74) mS				
Y_{11e} = (4,2 + j 4,0) mS				bei U_{CE} = 10 V, Ic = 5 mA, f = 50 MHz
Y_{12e} = (0 - j 1,0) mS				
Y_{21e} = (35,5 - j 45,5) mS				
Y_{22e} = (1,58 + j 1,8) mS				
Y-Parameter in Basisschaltung				
Y_{11b} = (25 - j 26) mS				bei U_{CB} = 10 V, Ic = 5 mA, f = 100 MHz
Y_{12b} = (-1,7 - j 1,78) mS				
Y_{21b} = (-24,5 + j 38,5) mS				
Y_{22b} = (1,72 + j 2,74) mS				
Y_{11b} = (54,5 - j 33) mS				bei U_{CB} = 10 V, Ic = 5 mA, f = 50 MHz
Y_{12b} = (-1,45 - j 1,32) mS				
Y_{21b} = (-48 + j 36,5) mS				
Y_{22b} = (1,58 + j 1,8) mS				

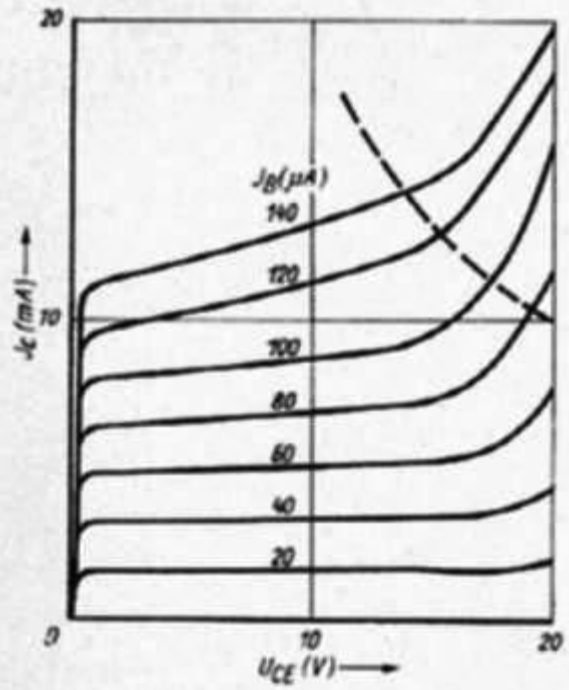
Bestellbeispiel für einen Transistor der Stromverstärkungsgruppe C — **Transistor SF 216 C**



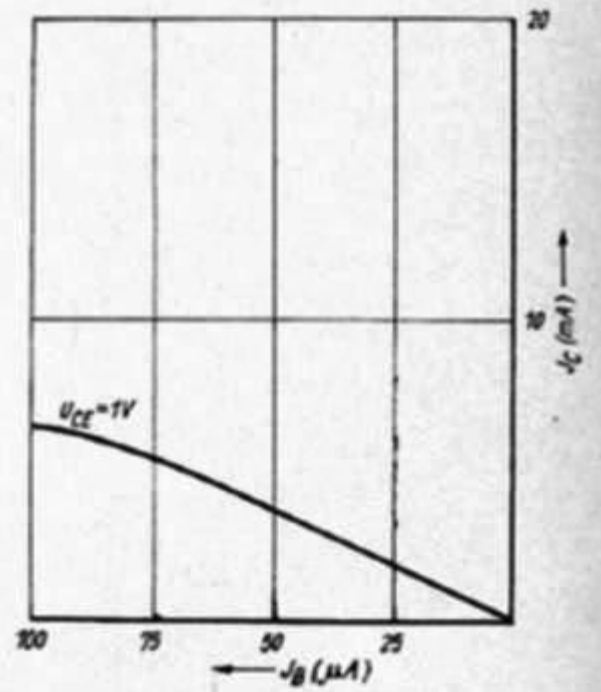
$$V_{pe} = \left|\frac{U_B}{U_e}\right|^2 \cdot \frac{R_e}{R_a}$$

U_e = 20 mV
R_e = 56 Ω
R_a = 1 kΩ

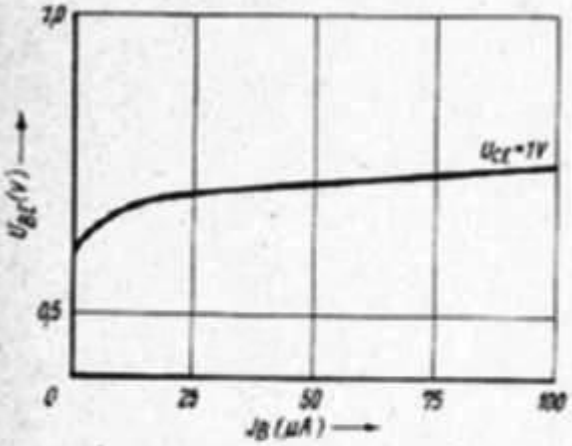
$J_C = f(U_{CE})$
J_B = Parameter



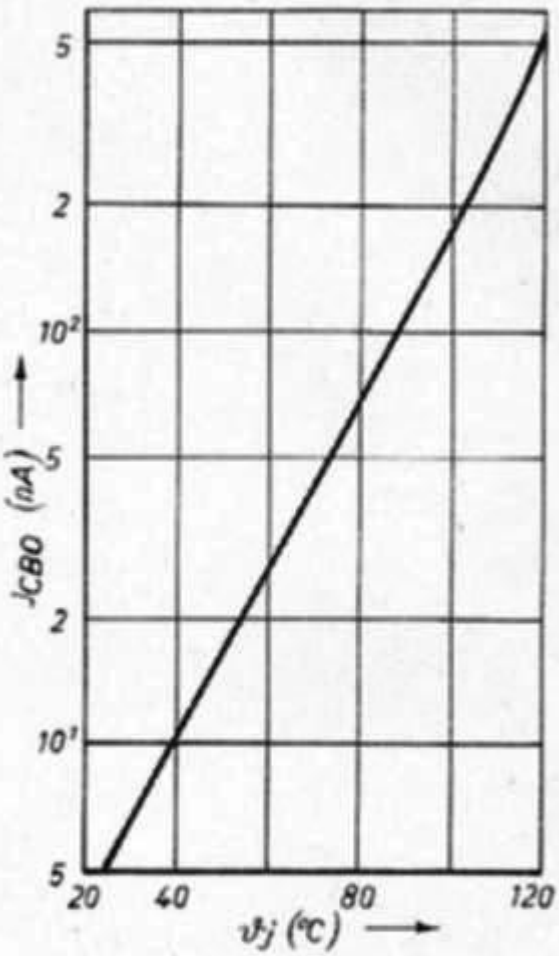
$J_C = f(J_B)$
U_{CE} = Parameter



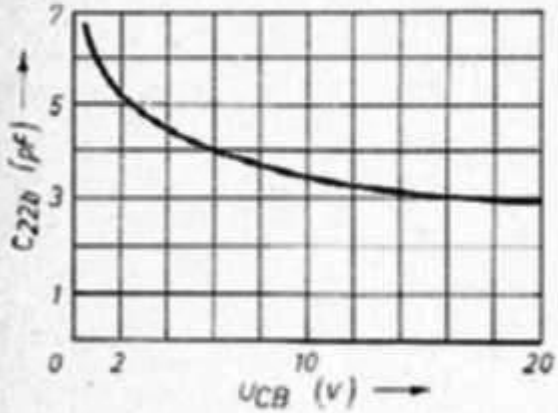
$U_{BE} = f(I_B)$
U_{CE} = Parameter



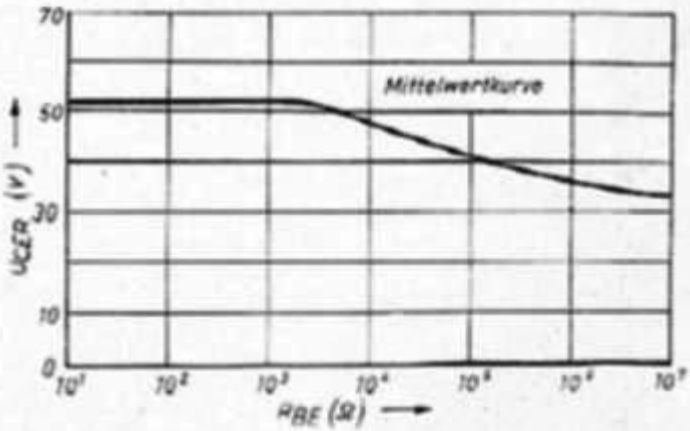
$I_{CBO} = f(\vartheta_j)$
U_{CB} = 20V



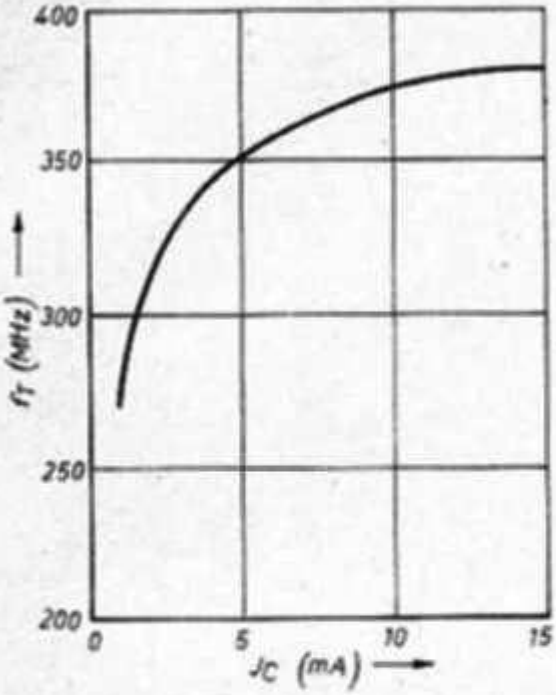
$C_{22b} = f(U_{CB})$
$I_E = 0$
$f = 20MHz$



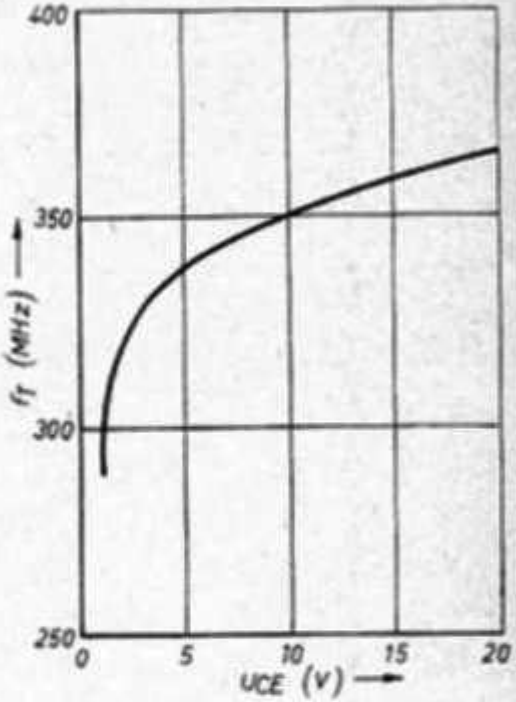
$U_{CER} = f(R_{BE})$
I_C = 100 µA



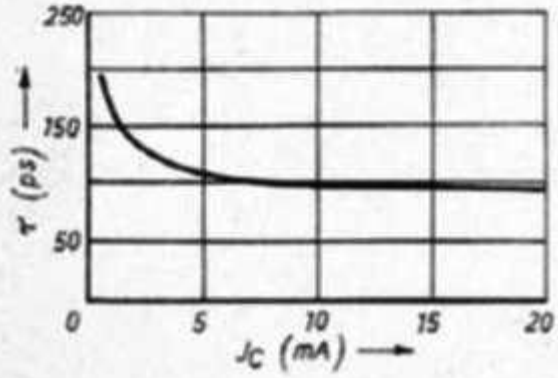
$f_T = f(J_C)$
$U_{CE} = 10\,V$



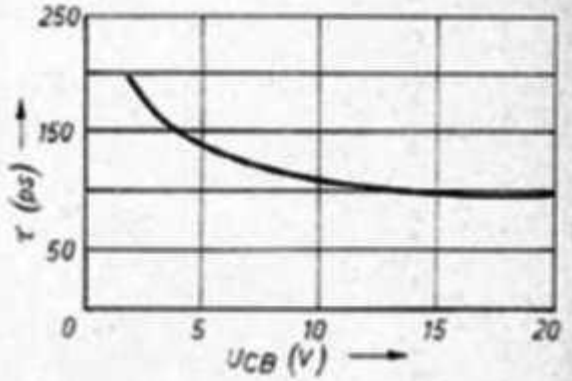
$f_T = f(U_{CE})$
$J_C = 5\,mA$



$\tau = f(J_C)$
$U_{CB} = 10\,V$
$f = 30\,MHz$

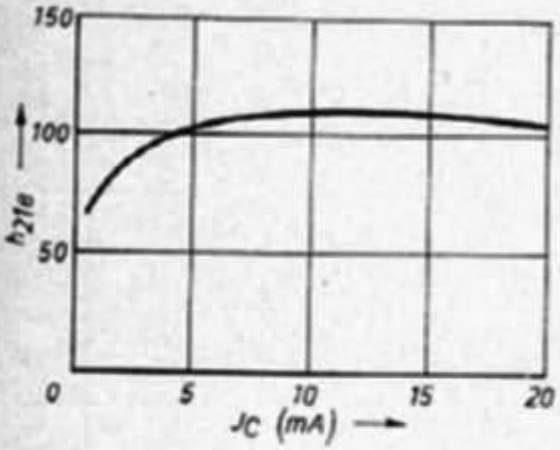


$\tau = f(U_{CB})$
$J_C = 5\,mA$
$f = 30\,MHz$

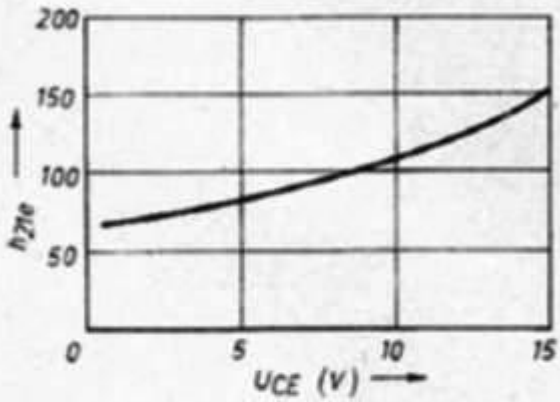


SF 216

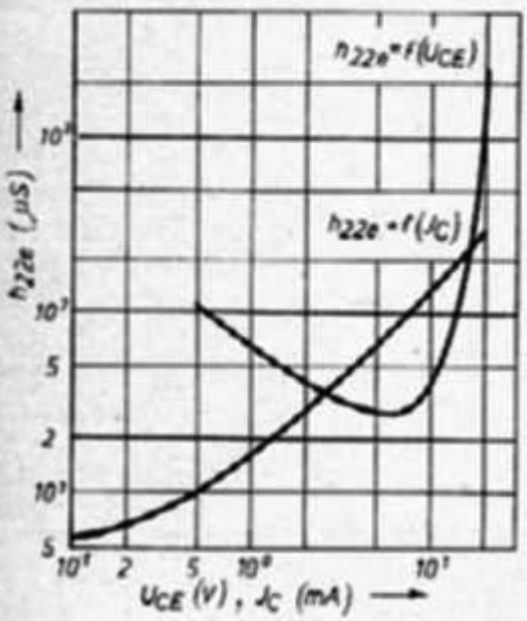
$h_{21e} = f(J_C)$
$U_{CE} = 6V$
$f = 1kHz$



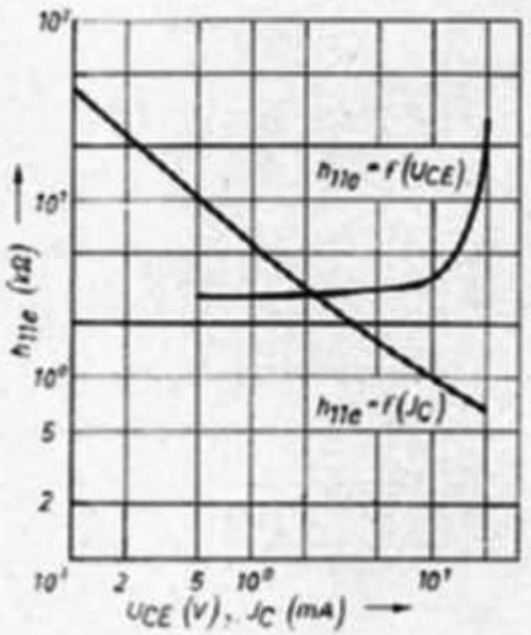
$h_{21e} = f(U_{CE})$
$J_C = 2mA$
$f = 1kHz$

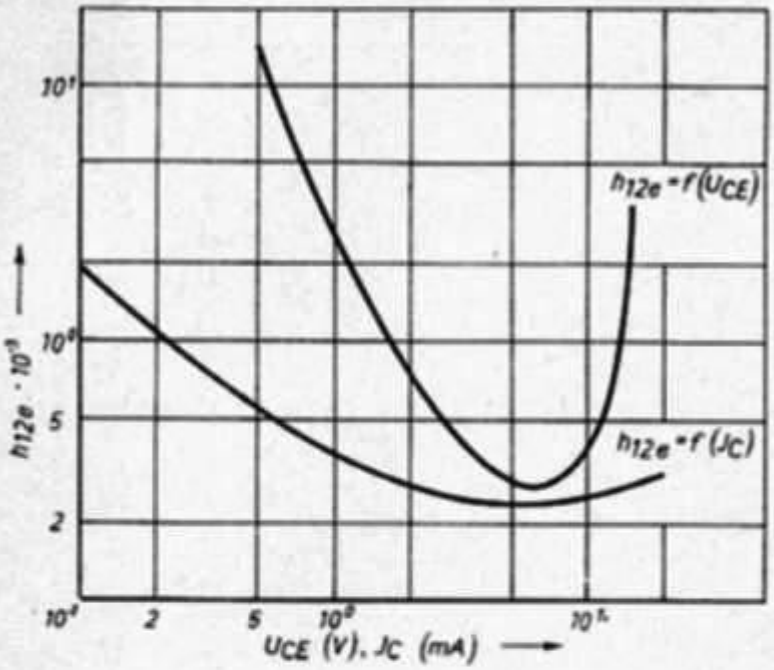


$h_{22e} = f(U_{CE})$, $J_C = 2mA$
$h_{22e} = f(J_C)$, $U_{CE} = 6V$
$f = 1kHz$



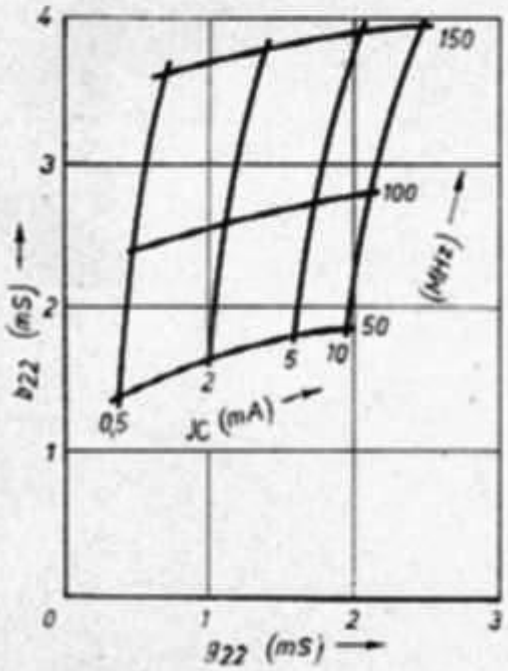
$h_{11e} = f(U_{CE})$, $J_C = 2mA$
$h_{11e} = f(J_C)$, $U_{CE} = 6V$
$f = 1kHz$



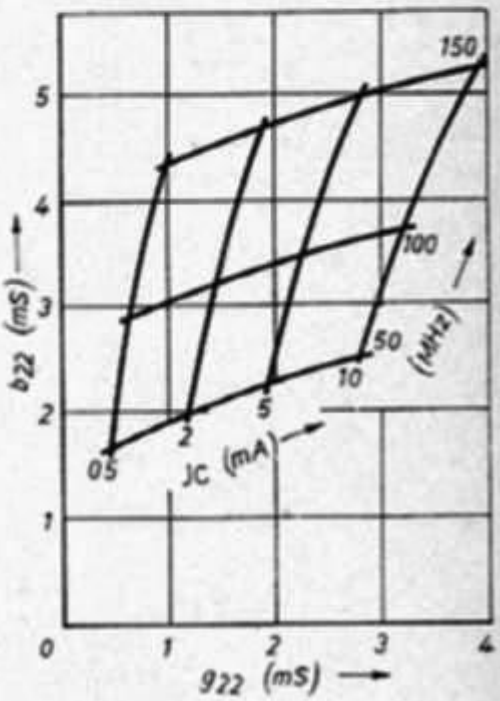


$h_{12e} = f(U_{CE})$, J_C = 2mA
$h_{12e} = f(J_C)$, U_{CE} = 6V
f = 1kHz

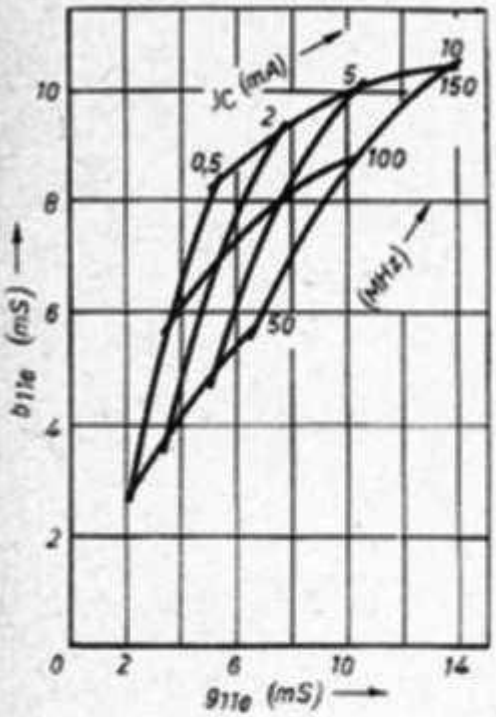
$Y_{22} = f(I_c, f)$
U_{CE} = 10 V



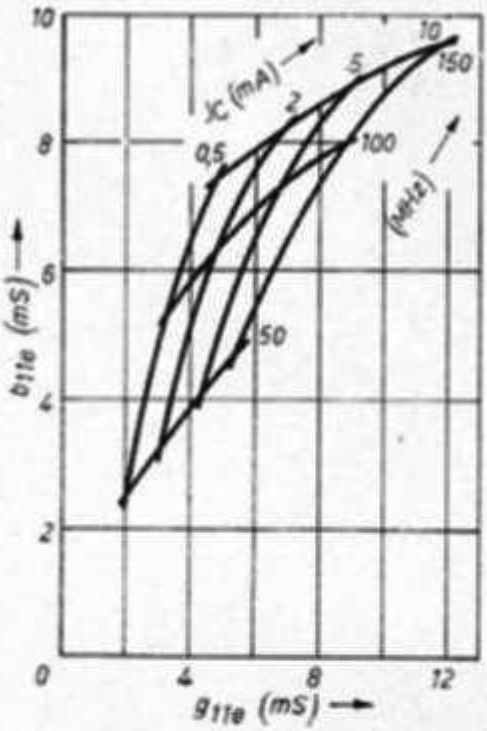
$Y_{22} = f(J_C, f)$
U_{CE} = 5V



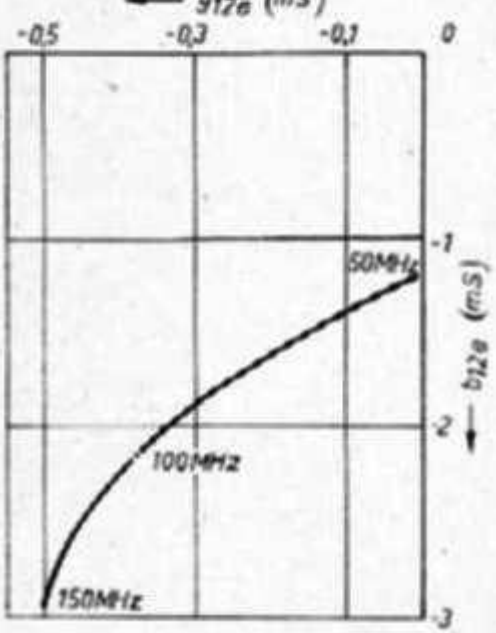
$Y_{11e} = f(I_C, f)$
$U_{CE} = 5\,V$



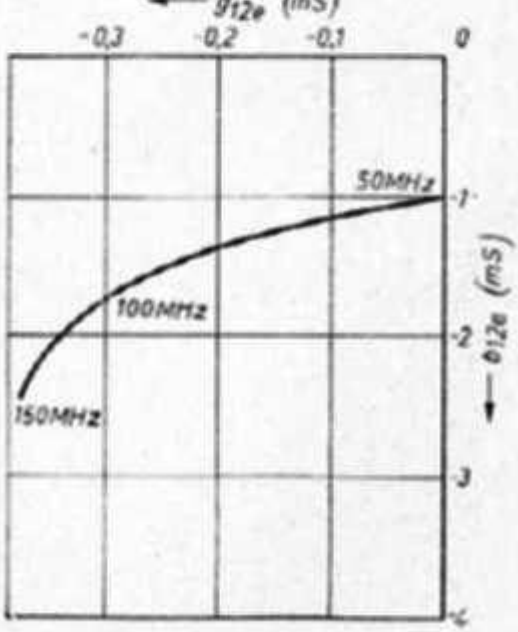
$Y_{11e} = f(I_C, f)$
$U_{CE} = 10\,V$



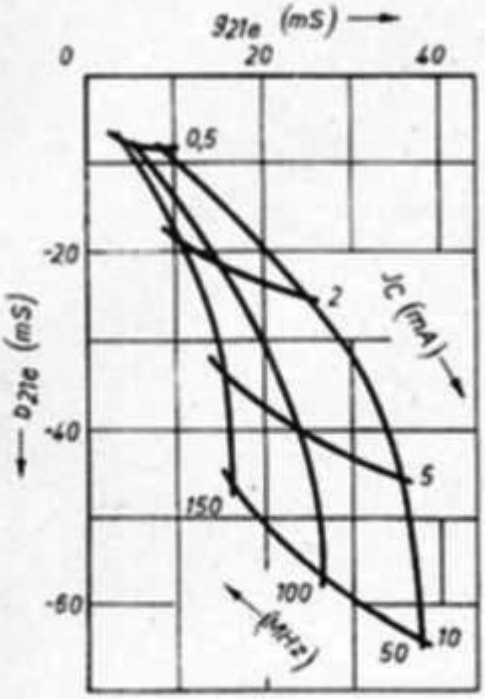
$Y_{12e} = f(f)$
$U_{CE} = 5\,V$
$I_C = 5\,mA$



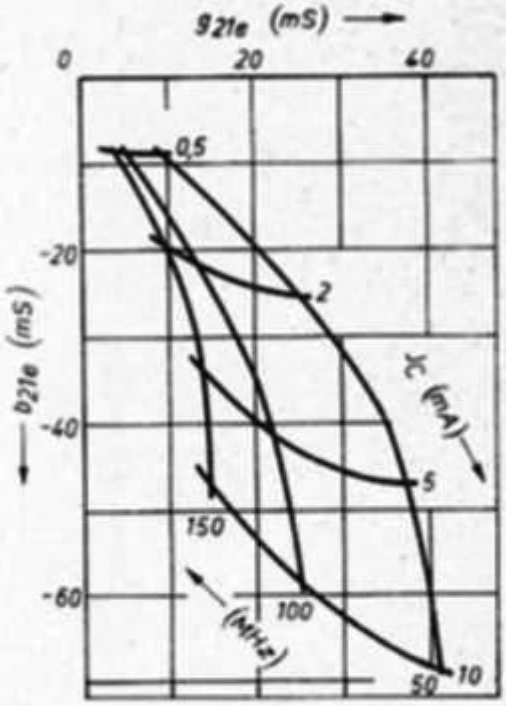
$Y_{12e} = f(f)$
$U_{CE} = 10\,V$
$I_C = 5\,mA$



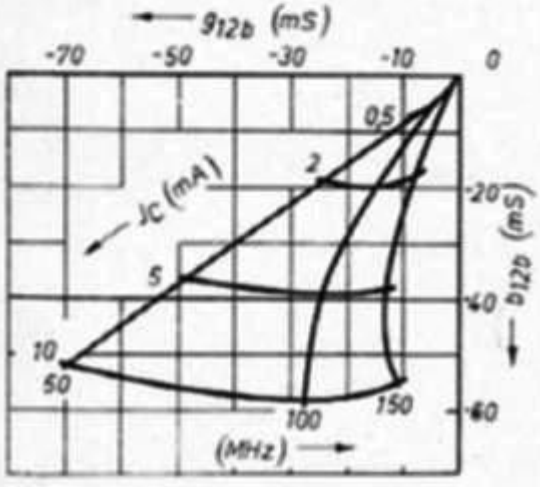
$Y_{21e} = f(I_C, f)$
$U_{CE} = 10\ V$



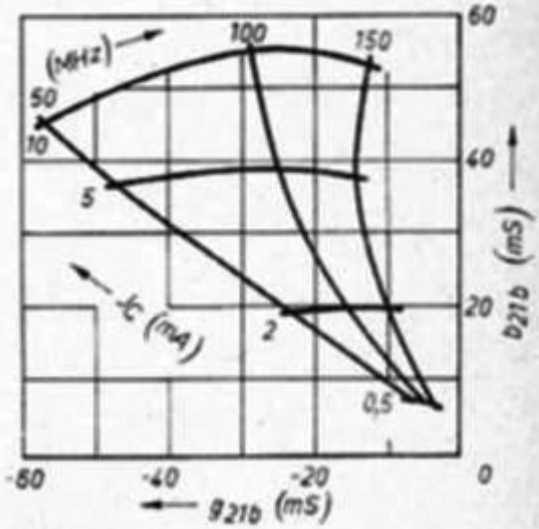
$Y_{21e} = f(I_C, t)$
$U_{CE} = 5\ V$



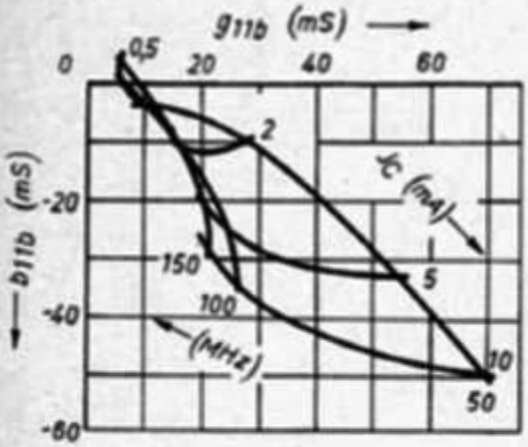
$Y_{21b} = f(J_C, f)$
$U_{CB} = 5\ V$



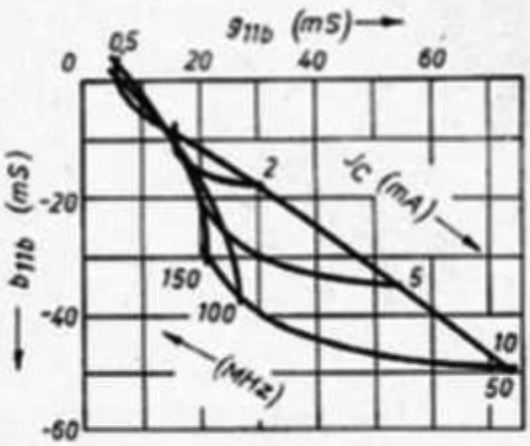
$Y_{21b} = f(J_C, f)$
$U_{CB} = 10\ V$



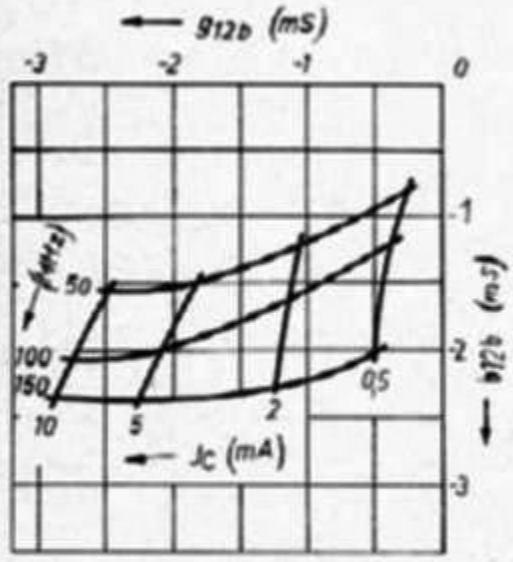
$Y_{11b} = f(J_C, f)$
$U_{CB} = 10\,V$



$Y_{11b} = f(J_C, f)$
$U_{CB} = 5\,V$



$Y_{12b} = f(J_C, f)$
$U_{CB} = 5\,V$



$Y_{12b} = f(J_C, f)$
$U_{CB} = 10\,V$