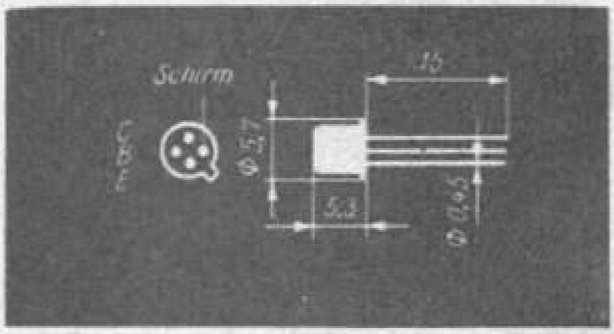
GF 145

Verwendung: Germanium-pnp-Mesatransistor für Vor-, Misch- und Oszillatorstufen bis 860 MHz bei Umgebungstemperaturen ϑ_a bis +60 °C

Abmessungen: Bauform A 4/15 – 4a, TGL 11 811
Masse ≈ 0,4 g



Zulässige Höchstwerte

für ϑ_a = 45 °C

$-U_{CBO}$	= 20 V	$-I_C$	= 10 mA
$-U_{CEO}$	= 15 V	P_{tot}	= 60 mW
$-U_{EBO}$	= 0,3 V	ϑ_j	= 90 °C
$-I_B$	= 1 mA	ϑ_a	= 60 °C

Wärmewiderstand $R_{th} \leqq 750 \frac{grd}{W}$

$R_{thi} \leqq 350 \frac{grd}{W}$

Kennwerte für $\vartheta_a = 25\,°C - 5\,grd$

	Min	Typ	Max	Meßbedingungen
Restströme				
$-I_{CBO}$			8 µA	$-U_{CB}$ = 20 V
$-I_{CEO}$			500 µA	$-U_{CE}$ = 15 V
$-I_{EBO}$			100 µA	$-U_{EB}$ = 0,3 V
Übergangsfrequenz				
f_T	250 MHz	600 MHz		$-U_{CE}$ = 12 V, $-I_C$ = 1,5 mA, f = 100 MHz
Rauschmaß				
F			9 dB	$-U_{CB}$ = 12 V, $-I_C$ = 1,5 mA, f = 800 MHz, R_g = 60 Ω
Leistungsverstärkung				
V_{pb}	9 dB			$-U_{CB}$ = 12 V, $-I_C$ = 1,5 mA, f = 800 MHz (nach angegebener Schaltung)

	Min	Typ	Max	Meßbedingungen

Kollektorkapazität

C_{22b}		1,1 pF		$-U_{CB} = 12$ V, $-I_E = 0$, $f = 2$ MHz

Rückwirkungskapazität

$-C_{12e}$		0,25 pF		$-U_{CE} = 12$ V, $-I_C = 1{,}5$ mA, $f = 500$ kHz

Rückwirkungszeitkonstante

$\frac{\lvert h_{12b} \rvert}{\omega}$		4,5 ps		$-U_{CB} = 12$ V, $-I_C = 1{,}5$ mA, $f = 30$ MHz

Gleichstromverstärkung

B	10			$-U_{CE} = 12$ V, $I_C = 1{,}5$ mA

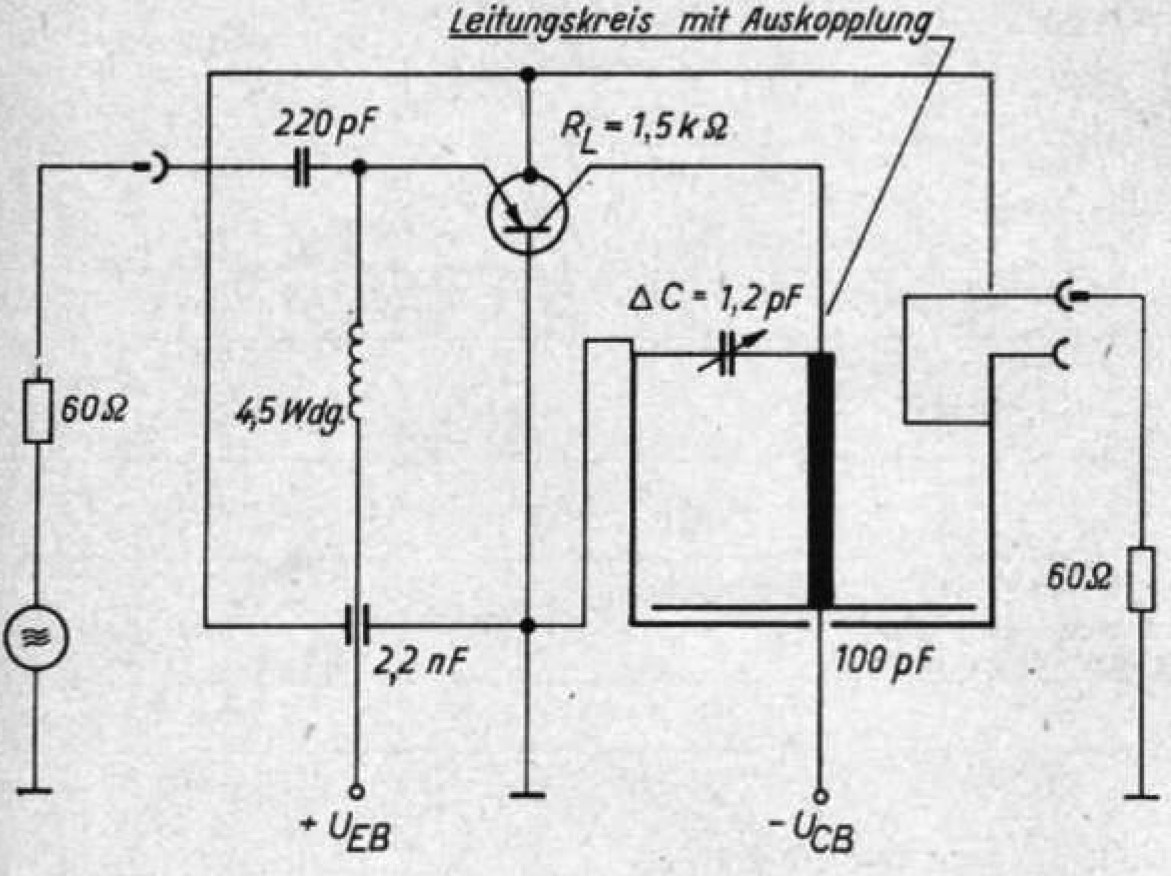
y-Parameter für $\vartheta_a = 25\,°C - 5$ grd

$$\left.\begin{array}{ll} y_{11b} & (5{,}5 - j\ 14{,}5)\ \mathrm{mS} \\ y_{12b} & (-0{,}27 - j\ 0{,}31)\ \mathrm{mS} \\ y_{21b} & (10 + j\ 12)\ \mathrm{mS} \\ y_{22b} & (-0{,}4 + j\ 75{,})\ \mathrm{mS} \end{array}\right\}\ \text{bei } -U_{CB} = 12\ \mathrm{V},\ -I_C = 1{,}5\ \mathrm{mA},\ f = 800\ \mathrm{MHz}$$

$$\left.\begin{array}{ll} y_{11b} & (39{,}5 - j\ 18{,}5)\ \mathrm{mS} \\ y_{12b} & (-0{,}06 - j\ 0{,}15)\ \mathrm{mS} \\ y_{21b} & (-29 + j\ 24)\ \mathrm{mS} \\ y_{22b} & (0{,}08 + j\ 1{,}5)\ \mathrm{mS} \end{array}\right\}\ \text{bei } -U_{CB} = 12\ \mathrm{V};\ -I_C = 1{,}5\ \mathrm{mA},\ f = 200\ \mathrm{MHz}$$

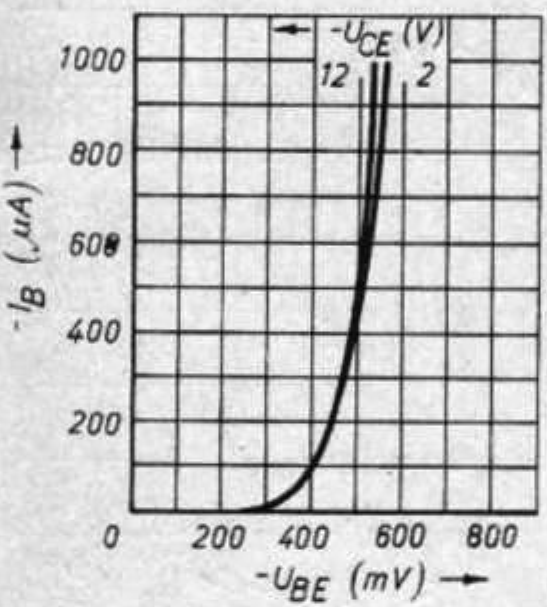
Bestellbeispiel für einen Transistor **Transistor GF 145**

Schaltungsprinzip zur V_{pb}-Messung bei 800 MHz

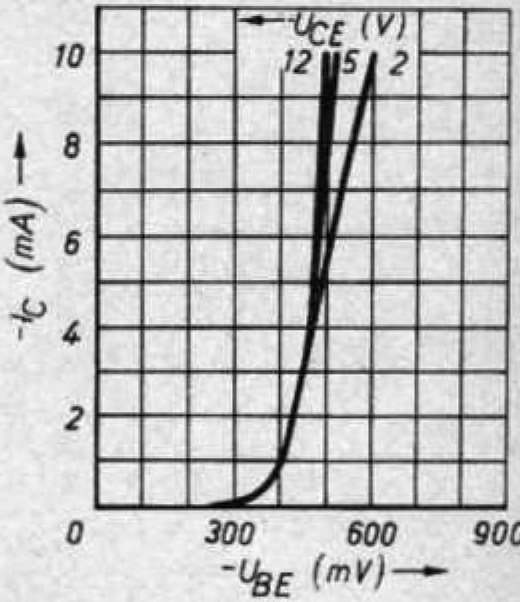


R_L = der auf den Kollektor transformierte Lastwiderstand

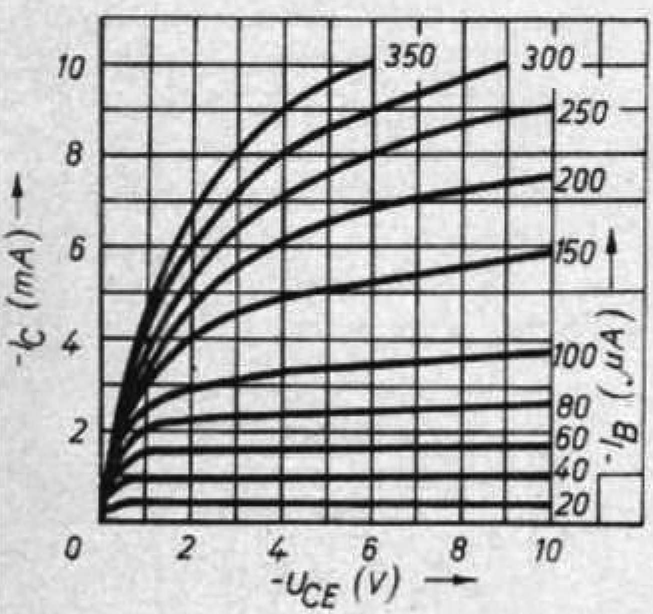
$-I_B = f(-U_{BE})$
$-U_{CE}$ = Parameter



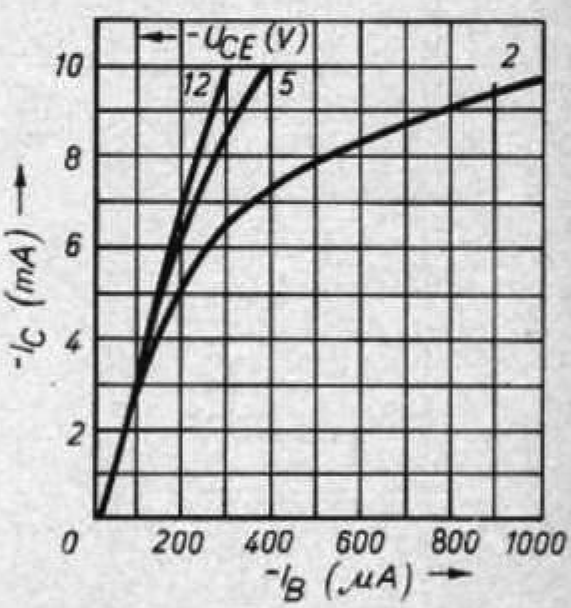
$-I_C = f(-U_{BE})$
$-U_{CE}$ = Parameter



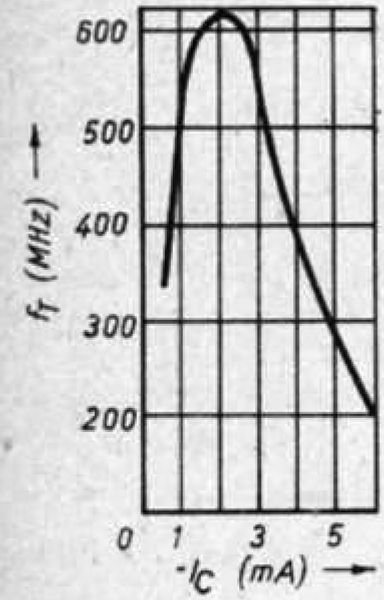
$-I_C = f(-U_{CE})$
I_B = Parameter



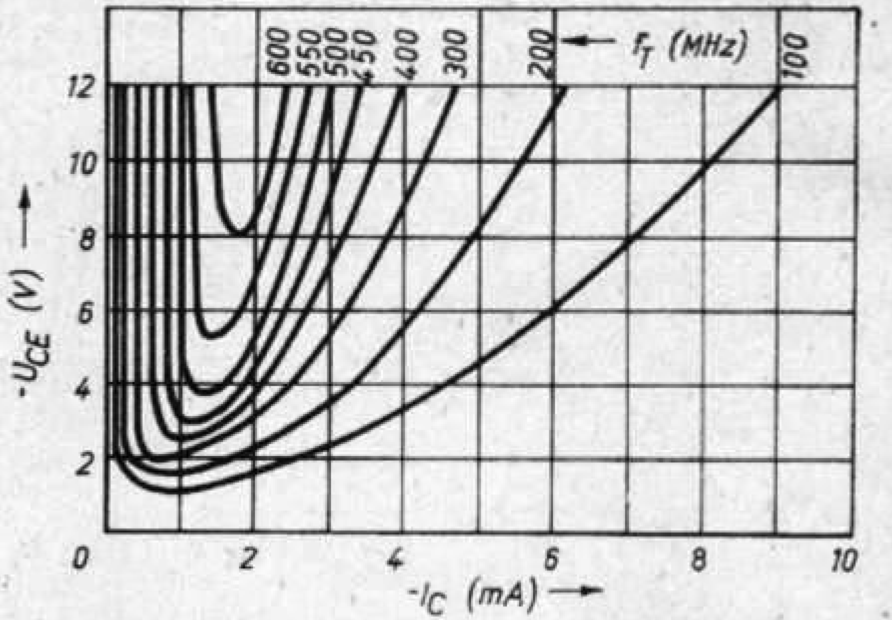
$-I_C = f(-I_B)$
$-U_{CE}$ = Parameter



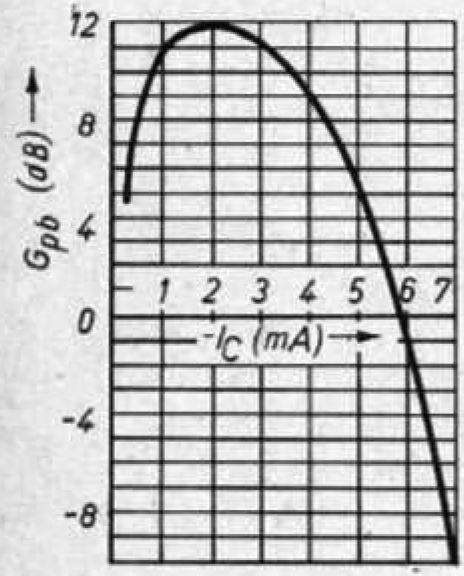
$f_T = f(-I_C)$
$-U_{CE} = 12$ V,
$f = 100$ MHz



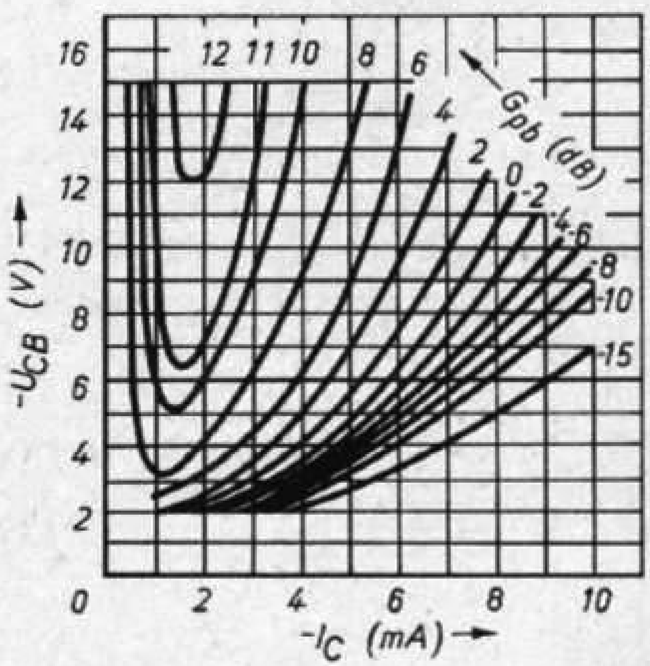
$-U_{CE} = t(-I_C)$
f_T = Parameter



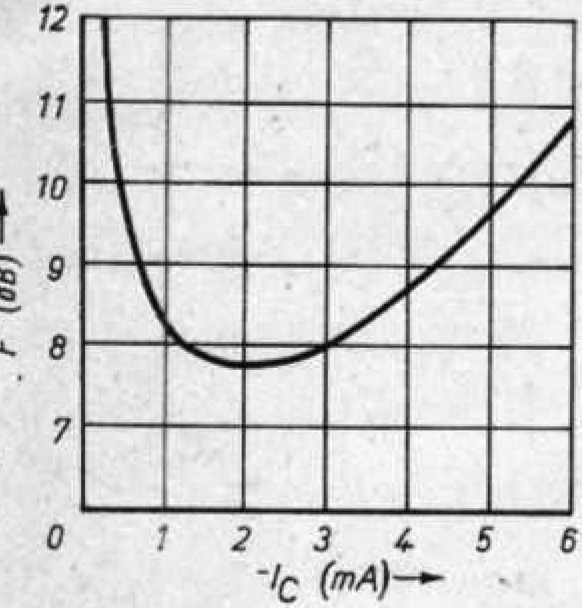
$G_{pb} = f(-I_C)$
$-U_{CB} = 12$ V,
$f = 800$ MHz



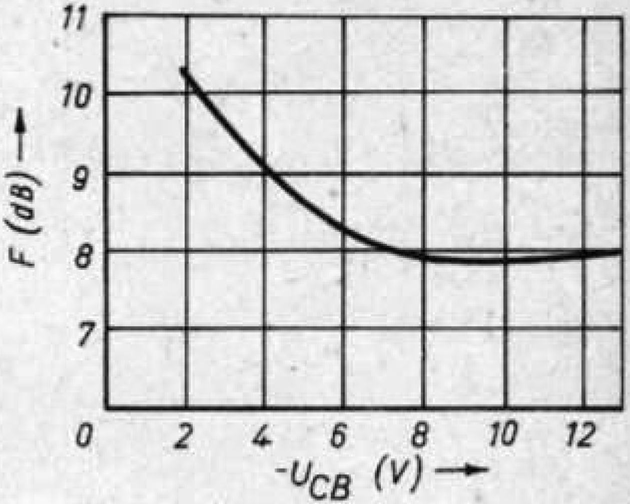
$-U_{CB} = f(-I_C)$
G_{pb} = Parameter



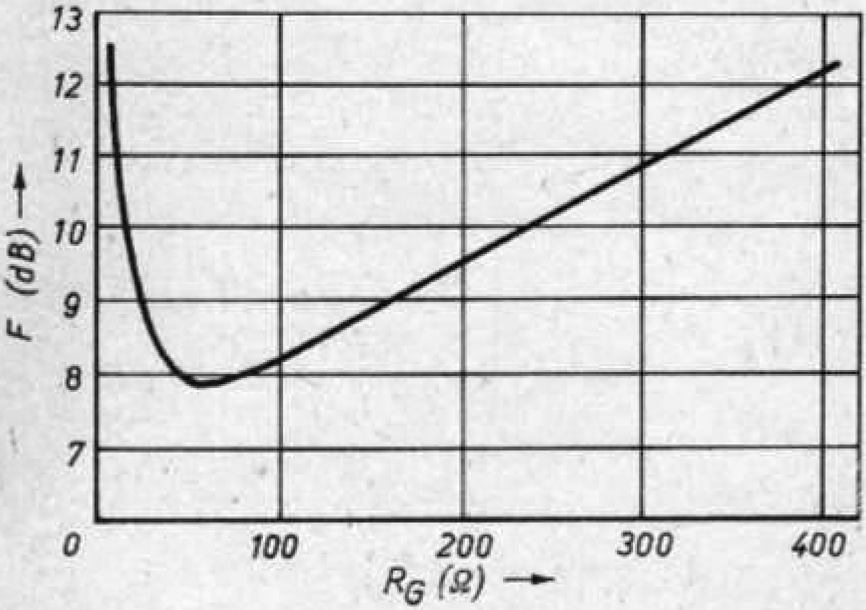
$F = f(-I_C)$
$-U_{CB} = 12$ V, $R_G = 60\ \Omega$,
$f = 800$ MHz



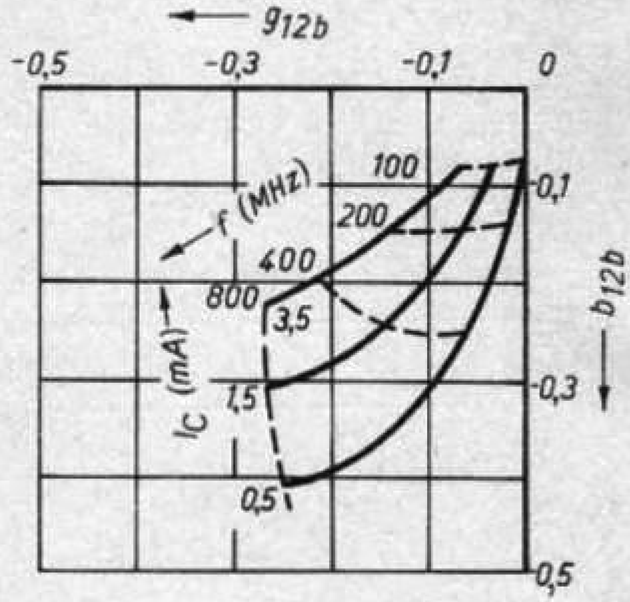
$F = f(-U_{CB})$
$-I_C = 1{,}5$ mA, $R_G = 60\ \Omega$,
$f = 800$ MHz



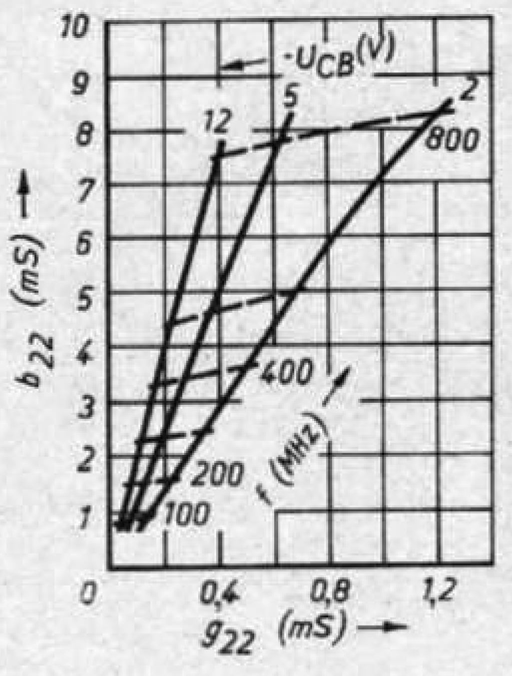
$F = f(R_G)$
$-U_{CB} = 12$ V, $-I_C = 1{,}5$ mA, $f = 800$ MHz



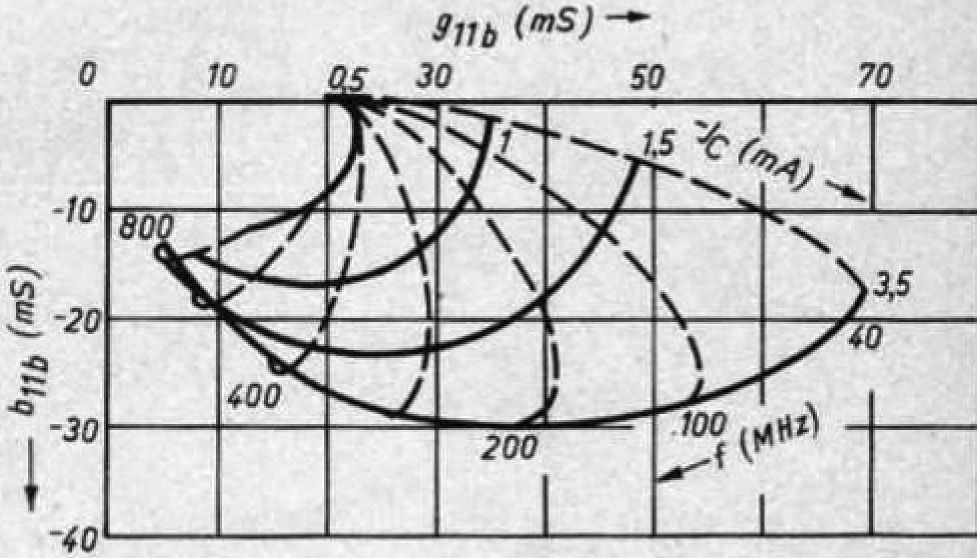
Rückwärtssteilheit y_{12b}
$-U_{CB}$ = 12 V
Meßebene 1 mm unter Gehäuseboden



Ausgangsleitwert y_{22b}
$-I_C$ = 1,5 mA
Meßebene 5 mm unter Gehäuseboden



Eingangsleitwert $y_{11\,b}$
$-U_{CB}$ = 12 V
Meßebene 5 mm unter Gehäuseboden



Vorwärtssteilheit y_{21b}
$-U_{CB}$ = 12 V
Meßebene 5 mm unter Gehäuseboden