Silizium-NPN-Epitaxial-Planar-HF-Transistor
Silicon NPN Epitaxial Planar RF Transistor

Anwendungen: HF-Verstärker in Emitterschaltung

Applications: RF-amplifier in common emitter configuration

Vergleichbarer Typ: BF 241

Comparable type: BF 241

Besondere Merkmale:

- Niedriger Rauschfaktor

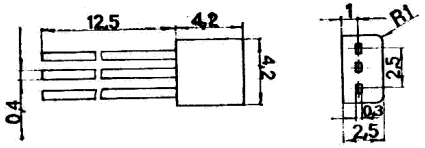
Features:

- Low noise figure

Abmessungen in mm

Dimensions in mm

Gehäuse L 3/12 **B**
TGL 11 811 **E**
Plastgehäuse **C**
Masse ca. 0,1 g



Case L 3/12
TGL 11 811
Plastic case
Weight about 0.1 g

Absolute Grenzdaten
Absolut maximum ratings

Kollektor-Basis-Spannung Collector-base voltage	U_{CBO}	40	V
Kollektor-Emitter-Spannung Collector-emitter voltage	U_{CEO}	25	V
Emitter-Basis-Spannung Emitter-base voltage	U_{EBO}	4	V
Kollektorstrom Collector current	I_C	25	mA
Gesamtverlustleistung Total power dissipation $t_{amb} \leq 25$ °C	P_{tot}	200	mW
Sperrschichttemperatur Junction temperature	t_j	125	°C
Umgebungstemperaturbereich Ambient temperature range	t_{amb}	−40 ... +100	°C
Lagerungstemperaturbereich Storage temperature range	t_{stg}	−40 ... +125	°C

Wärmewiderstand
Thermal resistance

		Min.	Typ.	Max.	
Sperrschicht-Umgebung Junction-ambient	R_{thJA}			0,5	K/mW

Statische Kenngrößen
DC characteristics $t_{amb} = 25$ °C — 5 K

		Min.	Typ.	Max.	
Kollektor-Basis-Reststrom Collector cut-off current $U_{CB} = 40$ V	I_{CBO}		< 1	500	nA
Emitter-Basis-Reststrom Emitter cut-off current $U_{EB} = 4$ V	I_{EBO}		< 1		nA
Basisstrom Base current $U_{CE} = 10$ V, $I_C = 1$ mA	I_B		14	25	µA
Kollektor-Emitter-Durchbruchspannung Collector-emitter breakdown voltage $I_C = 1$ mA	$U_{(BR)\,CEO}$[1]	25	43		V
Emitter-Basis-Durchbruchspannung Emitter-base breakdown voltage $I_E = 10$ µA	$U_{(BR)\,EBO}$	4	6,6		V
Basis-Emitter-Spannung Base-emitter voltage $U_{CE} = 25$ V, $I_C = 100$ µA	U_{BE}		640		mV
$U_{CE} = 2$ V, $I_C = 1$ mA	U_{BE}		700		mV
Gleichstromverstärkung DC forward current transfer ratio $U_{CE} = 10$ V, $I_C = 1$ mA	h_{FE}	40	70		

Dynamische Kenngrößen
AC characteristics $t_{amb} = 25$ °C — 5 K

Transitfrequenz Gain bandwidth product $U_{CE} = 10$ V, $I_C = 1$ mA, $f = 100$ MHz	f_T		500		MHz
Rauschfaktor Noise figure $U_{CE} = 10$ V, $I_C = 1$ mA, $f = 200$ MHz, $R_G = 300$ Ohm	F		1,9	5	dB
Kollektor-Rückwirkungszeitkonstante Feedback time constant $U_{CB} = 10$ V, $I_C = 1$ mA, $f = 30$ MHz	$r_{bb'}C_{b'c}$		29		ps

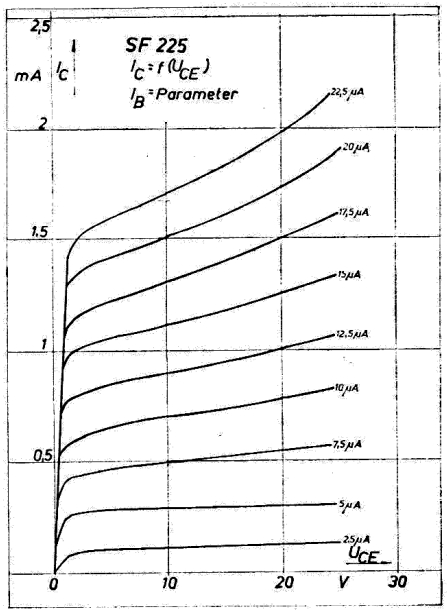
		Min.	Typ.	Max.	
Rückwirkungskapazität Feedback capacitance					
$U_{CE} = 10$ V, $I_C = 1$ mA, $f = 450$ kHz	$-C_{re}$		0,45		pF
$U_{CE} = 10$ V, $I_C = 1$ mA, $f = 10{,}7$ MHz	$-C_{re}$		0,46	0,6	pF

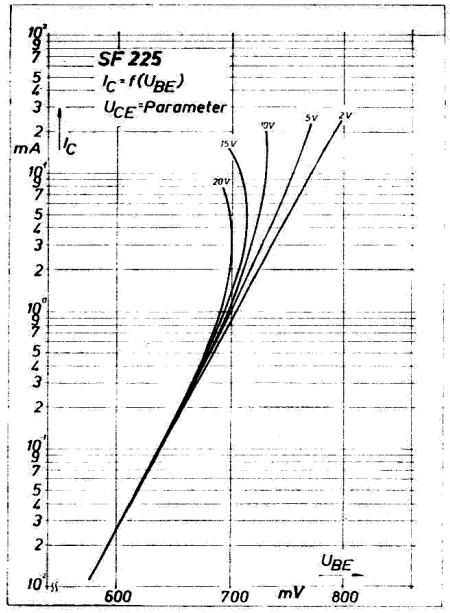
y-Parameter in Emitterschaltung
y-parameters in common emitter configuration

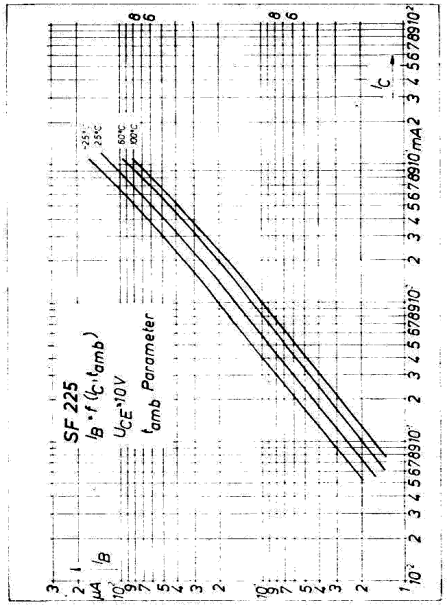
$U_{CE} = 10$ V, $I_C = 1$ mA

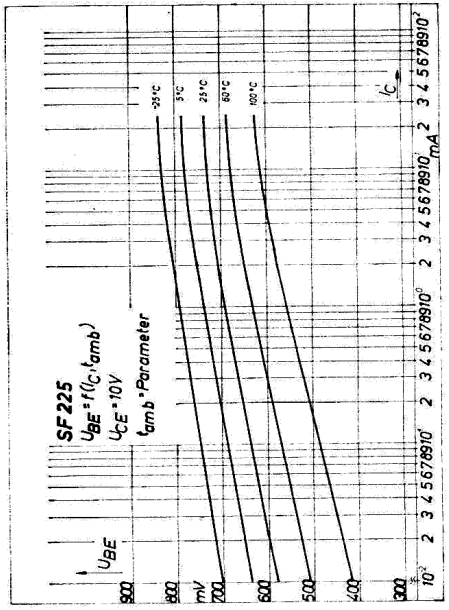
	f = 450 kHz	f = 10,7 MHz	
g_{ie}	187	202,0	µS
C_{ie}	15,2	10,0	pF
$\lvert y_{re}\rvert$	1,3	31,0	µS
$-\varphi_{re}$	81,0	89,1	°
$\lvert y_{fe}\rvert$	34,0	36,2	mS
$-\varphi_{fe}$	0,3	5,7	°
g_{oe}	7,0	8,0	µS
C_{oe}	1,8	1,6	pF

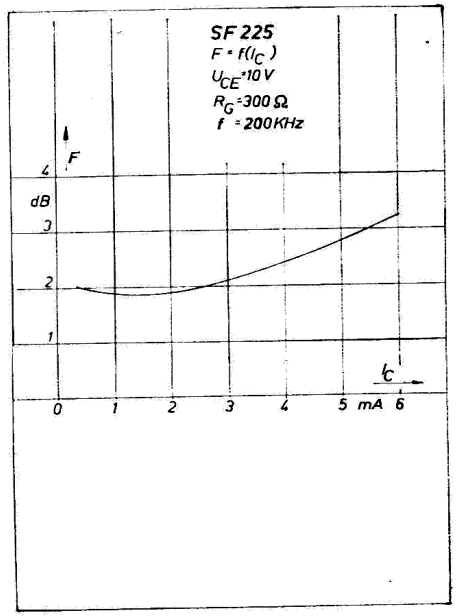
1) Messung erfolgt impulsmäßig, $t_p/T = 0{,}01$, $t_p = 0{,}3$ ms
Pulse measurement

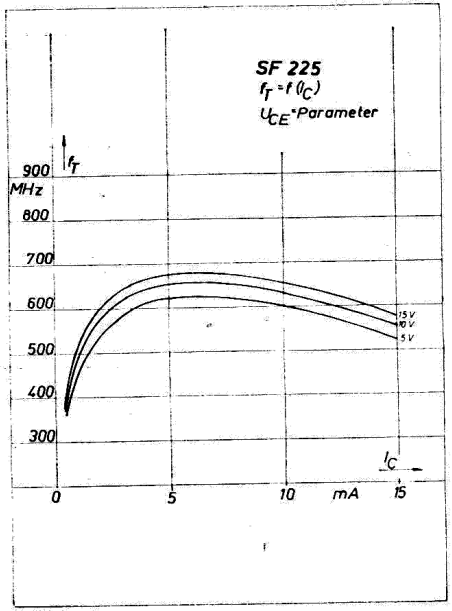


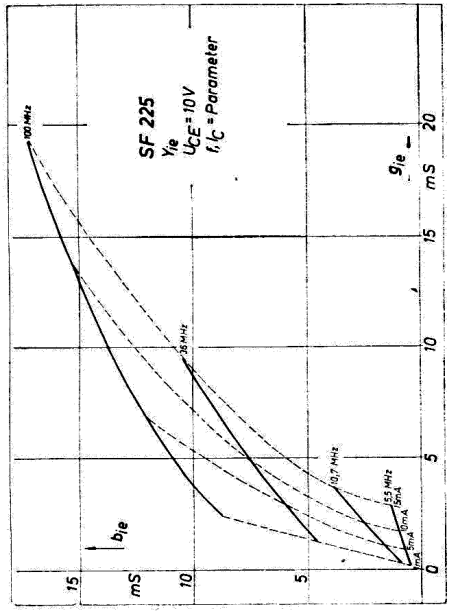


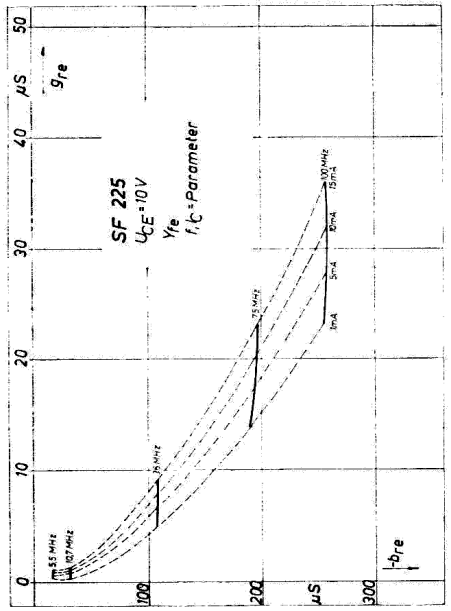


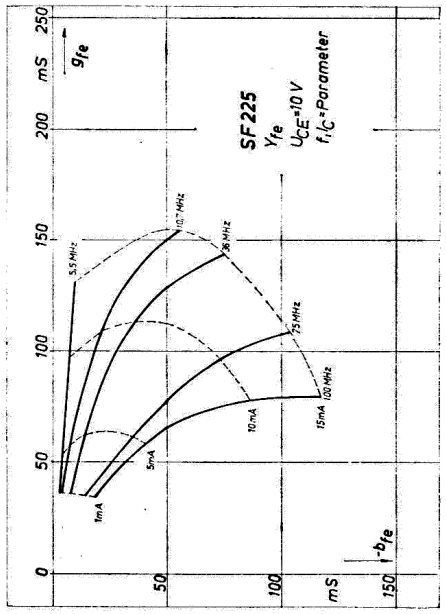


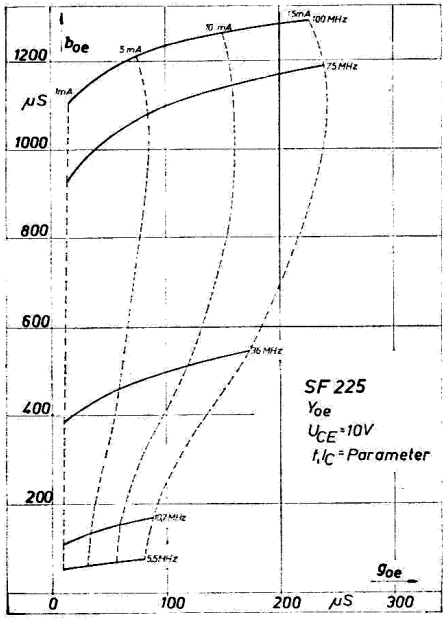


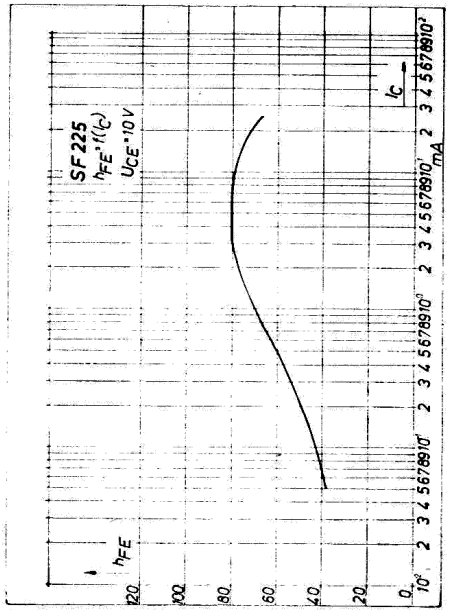


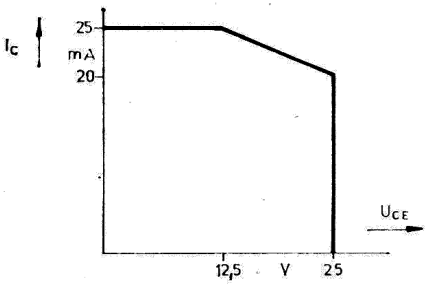

SF 225
Y_{ie}
U_{CE}=10V
f,I_C=Parameter
g_{ie}
b_{ie}
mS
100 MHz
36 MHz
10,7 MHz
5,5 MHz
15mA
10mA
5mA
1mA


SF 225
U_{CE}=10V
Y_{fe}
f,I_C=Parameter
g_{fe}
$-b_{fe}$
µS
100 MHz
75 MHz
36 MHz
15mA
10mA
5mA
1mA


SF 225
Y_{fe}
U_{CE}=10 V
f,I_C=Parameter
g_{fe}
$-b_{fe}$
mS
100 MHz
75 MHz
36 MHz
10,7 MHz
5,5 MHz
15mA
10mA
5mA
1mA


b_{oe}
g_{oe}
µS
SF 225
Y_{oe}
U_{CE}=10V
f,I_C=Parameter
100 MHz
75 MHz
36 MHz
10,7 MHz
5,5 MHz
15mA
10 mA
5 mA
1mA


SF 225
h_{FE}=f(I_C)
U_{CE}=10 V
I_C
mA
h_{FE}


I_C
25
mA
20
U_{CE}
12,5
V
25