

Silizium-PNP-HF-Transistor Silicon PNP RF Transistor

Anwendungen: Regelbare VHF-Eingangsstufen

Applications: Gain controlled VHF input stages

Besondere Merkmale:

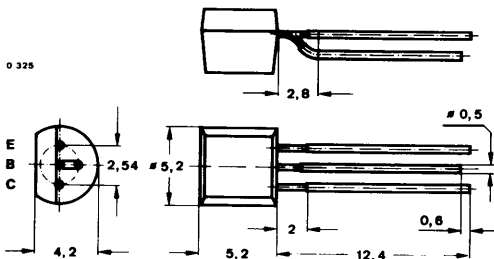
- Hohe Leistungsverstärkung
- Kleine Rauschzahlen
- Hohe Rückwärtsdämpfung

Features:

- High power gain
- Low noise figure
- High reverse attenuation

Abmessungen in mm

Dimensions in mm



Normgehäuse
Case
10 A 3 DIN 41868
JEDEC TO 92 Z
Gewicht · Weight
max. 0,2 g

Absolute Grenzdaten

Absolute maximum ratings

Kollektor-Basis-Sperrspannung <i>Collector-base voltage</i>	$-U_{CBO}$	40	V
Kollektor-Emitter-Sperrspannung <i>Collector-emitter voltage</i>	$-U_{CEO}$	35	V
Emitter-Basis-Sperrspannung <i>Emitter-base voltage</i>	$-U_{EBO}$	4	V
Kollektorstrom <i>Collector current</i>	$-I_C$	30	mA
Basisstrom <i>Base current</i>	$-I_B$	5	mA
Gesamtverlustleistung <i>Total power dissipation</i> $t_{amb} \leq 45^\circ\text{C}$	P_{tot}	300	mW
Sperrschichttemperatur <i>Junction temperature</i>	t_j	150	°C
Lagerungstemperaturbereich <i>Storage temperature range</i>	t_{stg}	-55 ... +150	°C

BF 509 S

Wärmewiderstand Thermal resistance

		Min.	Typ.	Max.
Sperrschicht-Umgebung Junction ambient	R_{thJA}			350 K/W

Statische Kenngrößen DC characteristics

$t_{amb} = 25^\circ\text{C}$, falls nicht anders angegeben
unless otherwise specified

Kollektorreststrom Collector cut-off current - $U_{CB} = 20\text{ V}$	$-I_{CBO}$			100 nA
Kollektor-Basis-Durchbruchspannung Collector-base breakdown voltage - $I_C = 10\ \mu\text{A}$	$-U_{(BR)CBO}$	40		V
Kollektor-Emitter-Durchbruchspannung Collector-emitter breakdown voltage - $I_C = 2\text{ mA}$	$-U_{(BR)CEO}^{1)}$	35		V
Emitter-Basis-Durchbruchspannung Emitter-base breakdown voltage - $I_E = 10\ \mu\text{A}$	$-U_{(BR)EBO}$	4		V
Kollektor-Basis-Gleichstromverhältnis DC forward current transfer ratio - $U_{CE} = 10\text{ V}$, $-I_C = 3\text{ mA}$	h_{FE}	35	70	

Dynamische Kenngrößen AC characteristics

$t_{amb} = 25^\circ\text{C}$

Transitfrequenz Gain bandwidth product - $U_{CB} = 10\text{ V}$, $-I_C = 2\text{ mA}$, $f = 100\text{ MHz}$	f_T		800	MHz
Rückwirkungskapazität Feedback capacitance - $U_{CB} = 10\text{ V}$, $f = 100\text{ MHz}$	C_{urb}		0,12	pF
Kollektor-Basis-Kapazität Collector-base capacitance - $U_{CB} = 10\text{ V}$, $f = 100\text{ MHz}$	C_{CBO}		0,55	pF

¹⁾ $\frac{t_p}{T} = 0,01$, $t_p = 0,3\text{ ms}$

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Rauschmaß

Noise figure

$-U_{CB} = 10\text{ V}, -I_C = 2\text{ mA},$

$f = 200\text{ MHz}, R_C = 510\ \Omega$

$F_{b\text{min}}^2)$

2,6

dB

Leistungsverstärkung

Power gain

$-U_{CB} = 10\text{ V}, -I_C = 3\text{ mA},$

$R_C = 510\ \Omega, R_L = 1\text{ k}\Omega, f = 200\text{ MHz}$

$G_{\text{pb}}^2)$

15

17

dB

Kollektorstrom für:

Collector current for: $G_{\text{pb}} \text{ max}$

$-I_C^2)$

4

mA

$-20\text{ dB } G_{\text{pb}} \text{ max}$

$-I_C^2)$

8

mA

$-30\text{ dB } G_{\text{pb}} \text{ max}$

$-I_C^2)$

9

mA

Regelbereich der Leistungsverstärkung

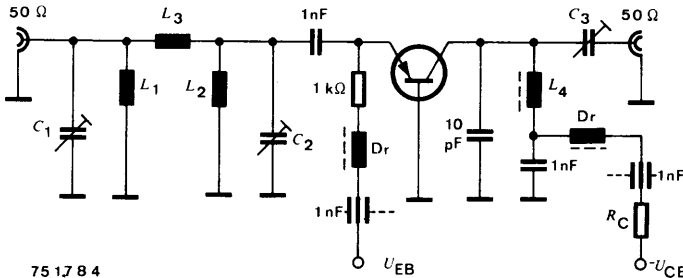
AGC-range

$-U_{CB} = 10\text{ V}, R_C = 510\ \Omega, f = 200\text{ MHz}$

$\Delta G_{\text{pb}}^2)$

35

dB



75 17 8 4

$C_1 = C_2 = 3 \dots 30\text{ pF}$

$C_3 = 2 \dots 8\text{ pF}$

$L_1 = L_2 = 3\text{ Wdg } \varnothing 0,3$

$L_3 = 2,5\text{ Wdg } \varnothing 0,8$

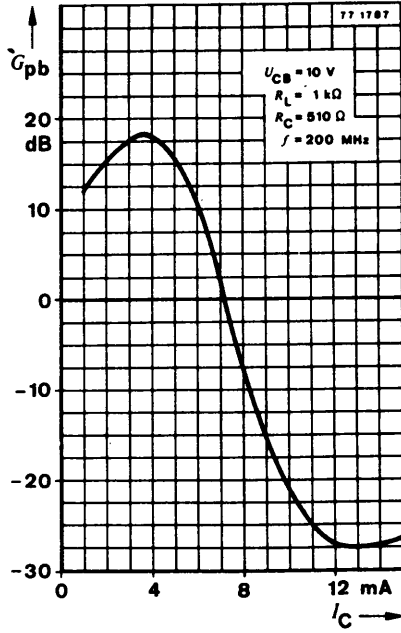
$L_4 = 3\text{ Wdg } \varnothing 0,8$

Meßschaltung für:

Test circuit for: $G_{\text{pb}}, F_{\text{bmin}}$

²⁾ siehe Meßschaltung
see test circuit

BF 509 S





Silizium-PNP-HF-Transistoren Silicon PNP RF Transistors

Anwendungen: BF 679: Regelbare UHF/VHF-Eingangsstufen
BF 680: UHF/VHF-Oszillator und Mischerstufen

Applications: BF 679: Gain controlled UHF/VHF input stages
BF 680: UHF/VHF-Oscillator and mixer stages

Besondere Merkmale:

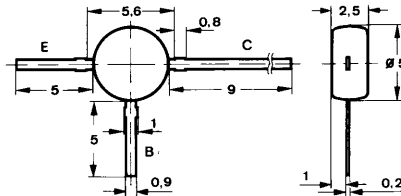
- Hohe Verstärkung
- Kleine Rauschzahlen
- Hohe Rückwärtsdämpfung

Features:

- High power gain
- Low noise figures
- High reverse attenuation

Vorläufige technische Daten · Preliminary specifications

Abmessungen in mm Dimensions in mm



Kunststoffgehäuse
Plastic case
≈ JEDEC TO 50
Gewicht · Weight
max. 0,25 g

Absolute Grenzdaten

Absolute maximum ratings

Kollektor-Basis-Sperrspannung Collector-base voltage	$-U_{CBO}$	40	V
Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$-U_{CEO}$	35	V
Emitter-Basis-Sperrspannung Emitter-base voltage	$-U_{EBO}$	3	V
Kollektorstrom Collector current	$-I_C$	30	mA
Basisstrom Base current	$-I_B$	5	mA
Gesamtverlustleistung Total power dissipation $t_{amb} \leq 55^\circ\text{C}$	P_{tot}	160	mW
Sperrschichttemperatur Junction temperature	t_j	150	$^\circ\text{C}$
Lagerungstemperaturbereich Storage temperature range	t_{stg}	-55 ... +150	$^\circ\text{C}$

BF 679 · BF 680

Wärmewiderstand Thermal resistance

Min. Typ. Max.

Sperrschicht-Umgebung
Junction ambient

R_{thJA}

600 °C/W

Statische Kenngrößen DC characteristics

$t_{amb} = 25^\circ\text{C}$, falls nicht anders angegeben
unless otherwise specified

Kollektorreststrom

Collector cut-off current

- $U_{CB} = 20\text{ V}$

- I_{CBO}

100 nA

Kollektor-Basis-Durchbruchspannung

Collector-base breakdown voltage

- $I_C = 10\ \mu\text{A}$

- $U_{(BR)CBO}$ 40

V

Kollektor-Emitter-Durchbruchspannung

Collector-emitter breakdown voltage

- $I_C = 2\text{ mA}$

- $U_{(BR)CEO}^{1)}$ 35

V

Emitter-Basis-Durchbruchspannung

Emitter-base breakdown voltage

- $I_E = 10\ \mu\text{A}$

- $U_{(BR)EBO}$ 3

V

Kollektor-Basis-Gleichstromverhältnis

DC forward current transfer ratio

$U_{CB} = 10\text{ V}$, $I_C = 3\text{ mA}$

h_{FE}

25

Dynamische Kenngrößen AC characteristics

$t_{amb} = 25^\circ\text{C}$

Transitfrequenz

Gain bandwidth product

- $U_{CB} = 10\text{ V}$, $-I_C = 2\text{ mA}$, $f = 100\text{ MHz}$

BF 679

f_T

880

MHz

BF 680

f_T

750

MHz

Kollektor-Basis-Kapazität

Collector-base capacitance

- $U_{CB} = 10\text{ V}$, $f = 100\text{ MHz}$

C_{CBO}

0,5

pF

¹⁾ $\frac{t_p}{T} = 0,01$, $t_p = 0,3\text{ ms}$

BF 679 · BF 680

Min. Typ. Max.

Rauschmaß
Noise figure

$-U_{CB} = 10 \text{ V}$, $-I_C = 3 \text{ mA}$, $R_G = 50 \Omega$,
 $f = 800 \text{ MHz}$, $R_L = 500 \Omega$, $R_C = 390 \Omega$

Typ.	Min.	Max.	Unit
BF 679 F_b	3,5	5,0	dB
BF 680 F_b	4,8	6,0	dB

Leistungsverstärkung
Power gain

$-U_{CB} = 10 \text{ V}$, $-I_C = 3 \text{ mA}$, $f = 800 \text{ MHz}$,
 $R_G = 50 \Omega$, $R_L = 500 \Omega$, $R_C = 390 \Omega$

Typ.	Min.	Max.	Unit
BF 679 $G_{pb}^{2)}$	10,5	12	dB
BF 680 $G_{pb}^{2)}$	10	12	dB

Kollektorstrom für:
Collector current for:

Typ.	Min.	Max.	Unit
BF 679 $-I_C$	9		mA
BF 679 $-I_C$	10		mA

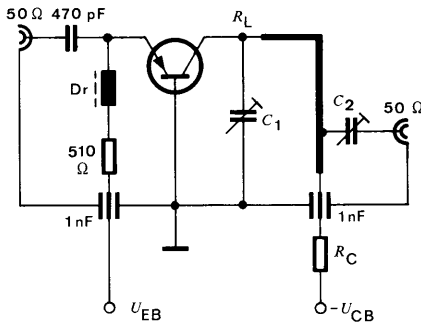
Leistungsverstärkung
Power gain

$-U_{CB} = 10,8 \text{ V}$, $-I_C = 3 \text{ mA}$, $R_L = 2 \text{ k}\Omega$,
 $R_C = 820 \Omega$

Typ.	Min.	Max.	Unit
BF 679 $G_{pb}^{2)}$	12	15	dB
BF 680 $G_{pb}^{2)}$	11	14	dB

Kollektorstrom für:
Collector current for:

Typ.	Min.	Max.	Unit
$-30 \text{ dB } G_{pb\text{max}}$	7		mA



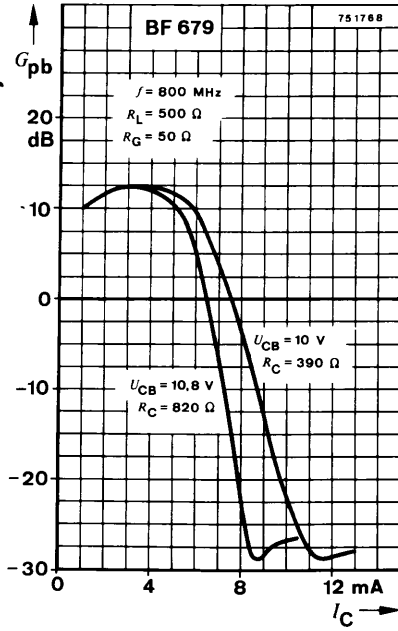
$C_1, C_2 = 0 \dots 2 \text{ pF}$

75 1783

Meßschaltung für:
Test circuit for: G_{pb}

²⁾ siehe Meßschaltung
see test circuit

BF 679 · BF 680



Silizium-PNP-HF-Transistoren Silicon PNP RF Transistors

Anwendungen: Regelbare UHF/VHF-Eingangsstufen

Applications: Gain controlled UHF/VHF input stages

Besondere Merkmale:

- Hohe Verstärkung
- Kleine Rauschzahlen
- Hohe Rückwärtsdämpfung

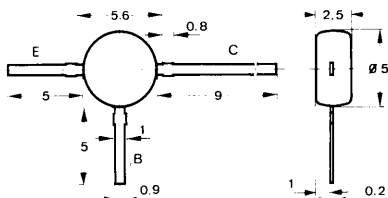
Features:

- High power gain
- Low noise figures
- High reverse attenuation

Vorläufige technische Daten · Preliminary specifications

Abmessungen in mm

Dimensions in mm



Kunststoffgehäuse
Plastic case
≈ JEDEC TO 50
Gewicht · Weight
max. 0,25 g

Absolute Grenzdaten

Absolute maximum ratings

Kollektor-Basis-Sperrspannung <i>Collector-base voltage</i>	$-U_{CBO}$	40	V
Kollektor-Emitter-Sperrspannung <i>Collector-emitter voltage</i>	$-U_{CEO}$	35	V
Emitter-Basis-Sperrspannung <i>Emitter-base voltage</i>	$-U_{EBO}$	3	V
Kollektorstrom <i>Collector current</i>	$-I_C$	30	mA
Basisstrom <i>Base current</i>	$-I_B$	5	mA
Gesamtverlustleistung <i>Total power dissipation</i> $t_{amb} \leq 55^\circ\text{C}$	P_{tot}	160	mW
Sperrschichttemperatur <i>Junction temperature</i>	t_j	150	$^\circ\text{C}$
Lagerungstemperaturbereich <i>Storage temperature range</i>	t_{stg}	-55 ... +150	$^\circ\text{C}$

BF 679 S

Wärmewiderstand Thermal resistance		Min.	Typ.	Max.
Sperrschicht-Umgebung Junction ambient	R_{thJA}			600 °C/W

Statische Kenngrößen DC characteristics

$t_{amb} = 25^\circ\text{C}$, falls nicht anders angegeben
unless otherwise specified

Kollektorreststrom Collector cut-off current $-U_{CB} = 20\text{ V}$	$-I_{CBO}$			100 nA
Kollektor-Basis-Durchbruchspannung Collector-base breakdown voltage $-I_C = 10\ \mu\text{A}$	$-U_{(BR)CBO}$	40		V
Kollektor-Emitter-Durchbruchspannung Collector-emitter breakdown voltage $-I_C = 2\text{ mA}$	$-U_{(BR)CEO}^1)$	35		V
Emitter-Basis-Durchbruchspannung Emitter-base breakdown voltage $-I_E = 10\ \mu\text{A}$	$-U_{(BR)EBO}$	3		V
Kollektor-Basis-Gleichstromverhältnis DC forward current transfer ratio $U_{CB} = 10\text{ V}, I_C = 3\text{ mA}$	h_{FE}	25		

Dynamische Kenngrößen AC characteristics

$t_{amb} = 25^\circ\text{C}$

Transitfrequenz Gain bandwidth product $-U_{CB} = 10\text{ V}, -I_C = 2\text{ mA}, f = 100\text{ MHz}$	f_T		1100	MHz
Kollektor-Basis-Kapazität Collector-base capacitance $-U_{CB} = 10\text{ V}, f = 100\text{ MHz}$	C_{CBO}		0,5	pF

¹⁾ $\frac{t_p}{T} = 0,01, t_p = 0,3\text{ ms}$

BF 679 S

Rauschmaß
Noise figure

$-U_{CB} = 10 \text{ V}$, $-I_C = 3 \text{ mA}$, $R_G = 50 \Omega$,
 $f = 800 \text{ MHz}$, $R_L = 500 \Omega$, $R_C = 390 \Omega$

	Min.	Typ.	Max.	
F_b		3,5	4,2	dB

Leistungsverstärkung
Power gain

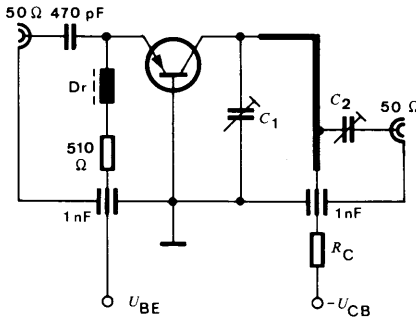
$-U_{CB} = 10 \text{ V}$, $-I_C = 3 \text{ mA}$, $f = 800 \text{ MHz}$,
 $R_G = 50 \Omega$, $R_L = 500 \Omega$, $R_C = 390 \Omega$

	Min.	Typ.	Max.	
$G_{pb}^2)$	11	13		dB

Kollektorstrom für:
Collector current for:

-20 dB $G_{pb} \text{ max}$
-30 dB $G_{pb} \text{ max}$

$-I_C$	9,5		mA
$-I_C$	10,5		mA



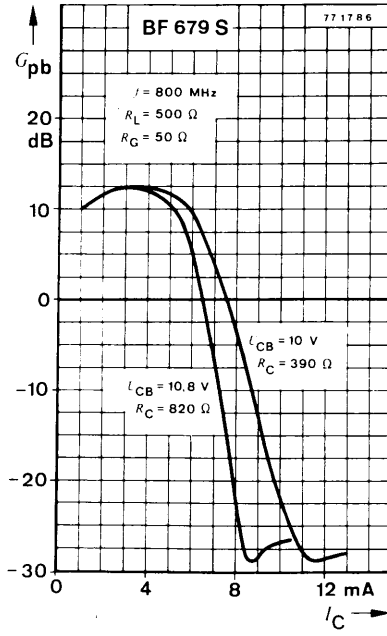
$C_1, C_2 = 0 \dots 2 \text{ pF}$

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Meßschaltung für:
Test circuit for: G_{pb}

²⁾ siehe Meßschaltung
see test circuit

BF 679 S



Silizium-PNP-HF-Transistoren Silicon PNP RF Transistors

Anwendungen: Regelbare UHF/VHF-Eingangsstufen

Applications: Gain controlled UHF/VHF input stages

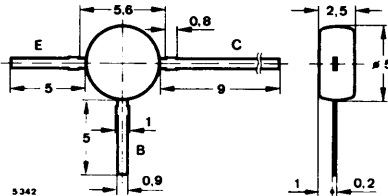
Besondere Merkmale:

- Hohe Verstärkung
- Kleine Rauschzahlen
- Hohe Rückwärtsdämpfung

Features:

- High power gain
- Low noise figures
- High reverse attenuation

**Abmessungen in mm
Dimensions in mm**



Kunststoffgehäuse
Plastic case
≈ JEDEC TO 50
Gewicht · Weight
max. 0,25 g

Absolute Grenzdaten

Absolute maximum ratings

Kollektor-Basis-Sperrspannung <i>Collector-base voltage</i>	$-U_{CB0}$	35	V
Kollektor-Emitter-Sperrspannung <i>Collector-emitter voltage</i>	$-U_{CEO}$	30	V
Emitter-Basis-Sperrspannung <i>Emitter-base voltage</i>	$-U_{EBO}$	3	V
Kollektorstrom <i>Collector current</i>	$-I_C$	30	mA
Basisstrom <i>Base current</i>	$-I_B$	5	mA
Gesamtverlustleistung <i>Total power dissipation</i> $t_{amb} \leq 55^\circ\text{C}$	P_{tot}	160	mW
Sperrschichttemperatur <i>Junction temperature</i>	t_j	150	°C
Lagerungstemperaturbereich <i>Storage temperature range</i>	t_{stg}	-55 ... +150	°C

BF 679 T

Wärmewiderstand Thermal resistance

Min. Typ. Max.

Sperrschicht-Umgebung
Junction ambient

R_{thJA}

600 K/W

Statische Kenngrößen DC characteristics

$t_{amb} = 25^\circ\text{C}$, falls nicht anders angegeben
unless otherwise specified

Kollektorreststrom
Collector cut-off current

$-U_{CB} = 20\text{ V}$

$-I_{CBO}$

100 nA

Kollektor-Basis-Durchbruchspannung
Collector-base breakdown voltage

$-I_C = 10\ \mu\text{A}$

$-U_{(BR)CBO}$

35

V

Kollektor-Emitter-Durchbruchspannung
Collector-emitter breakdown voltage

$-I_C = 2\text{ mA}$

$-U_{(BR)CEO}^1)$

30

V

Emitter-Basis-Durchbruchspannung
Emitter-base breakdown voltage

$-I_E = 10\ \mu\text{A}$

$-U_{(BR)EBO}$

3

V

Kollektor-Basis-Gleichstromverhältnis
DC forward current transfer ratio

$U_{CB} = 10\text{ V}, I_C = 3\text{ mA}$

h_{FE}

25

Dynamische Kenngrößen AC characteristics

$t_{amb} = 25^\circ\text{C}$

Transitfrequenz
Gain bandwidth product

$-U_{CB} = 10\text{ V}, -I_C = 2\text{ mA}, f = 100\text{ MHz}$

f_T

930

MHz

Kollektor-Basis-Kapazität
Collector-base capacitance

$-U_{CB} = 10\text{ V}, f = 100\text{ MHz}$

C_{CBO}

0,45

pF

¹⁾ $\frac{t_p}{T} = 0,01, t_p = 0,3\text{ ms}$

Rauschmaß

Noise figure

$-U_{CB} = 10 \text{ V}, -I_C = 3 \text{ mA}, R_G = 50 \Omega,$
 $f = 800 \text{ MHz}, R_L = 500 \Omega, R_C = 390 \Omega$

	Min.	Typ.	Max.	
F_b		2,8	3,5	dB

Leistungsverstärkung

Power gain

$-U_{CB} = 10 \text{ V}, -I_C = 3 \text{ mA}, f = 800 \text{ MHz},$
 $R_G = 50 \Omega, R_L = 500 \Omega, R_C = 390 \Omega$

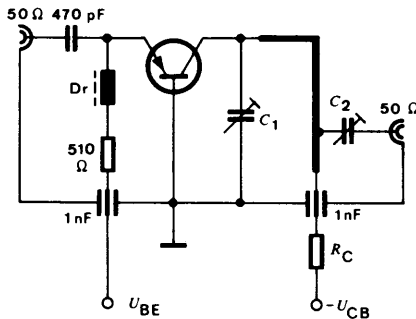
$G_{pb}^{2)}$	11	13		dB
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Kollektorstrom für:

Collector current for:

$-30 \text{ dB } G_{pb} \text{ max}$

$-I_C$		9		mA
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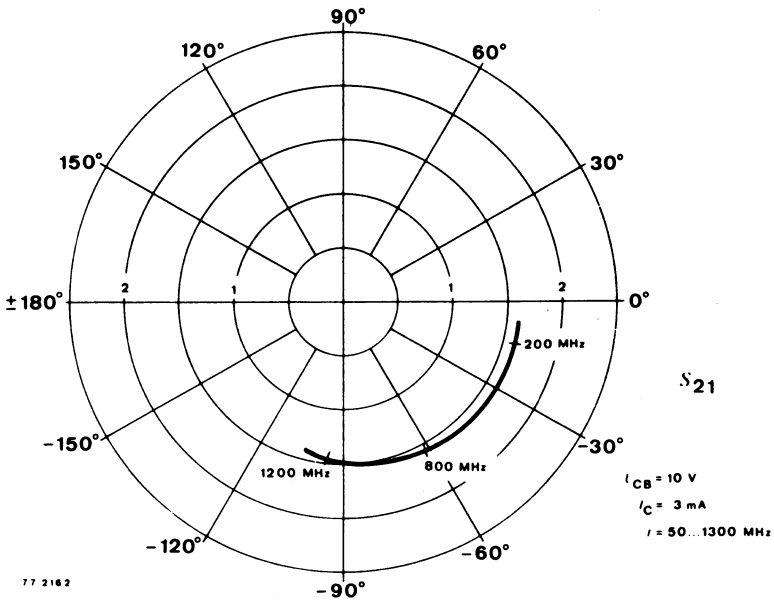
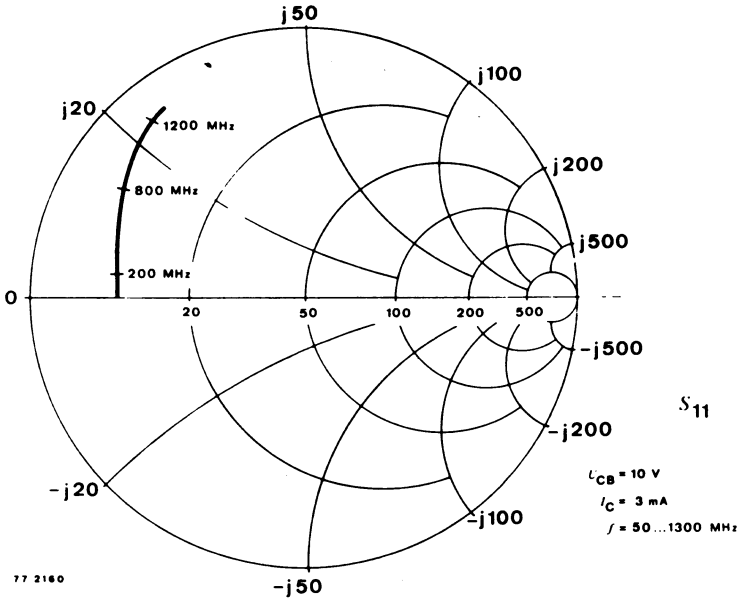
$C_1, C_2 = 0 \dots 2 \text{ pF}$

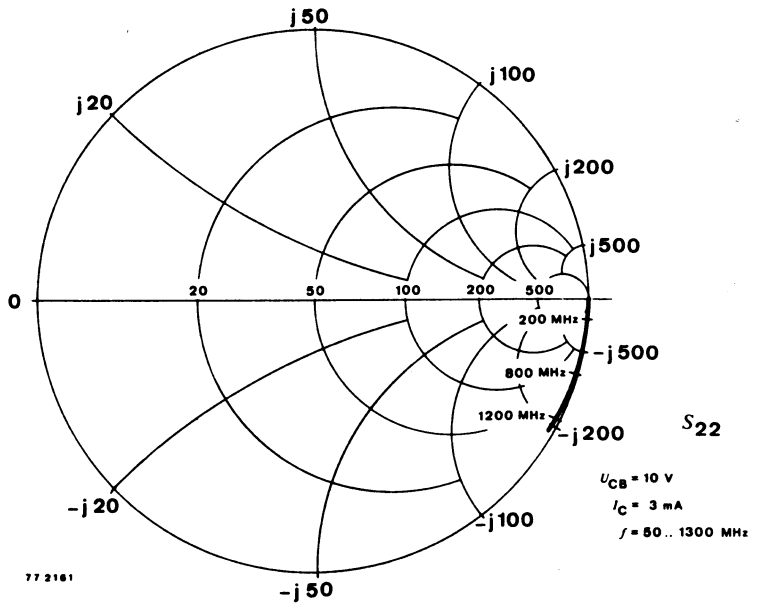
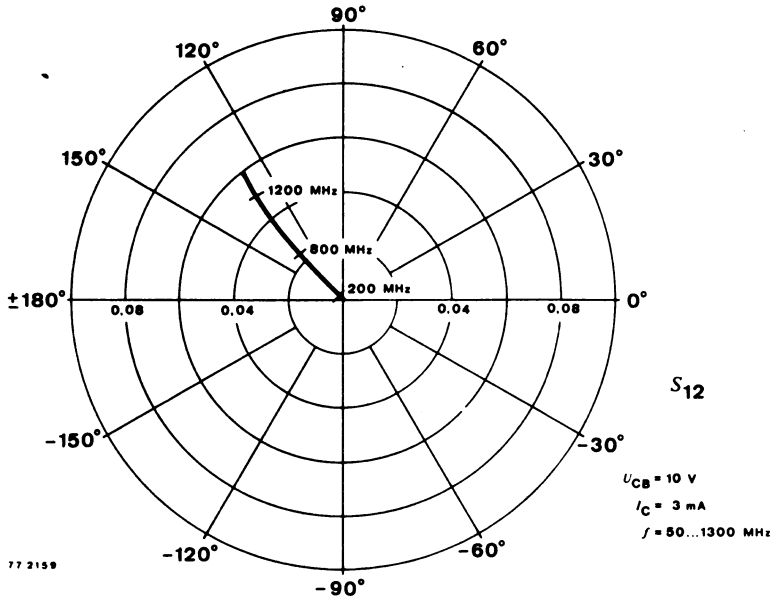
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Meßschaltung für: G_{pb}
 Test circuit for:

²⁾ siehe Meßschaltung
 see test circuit

BF 679 T







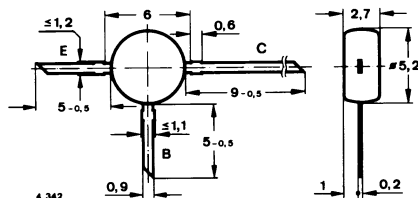
Silizium-PNP-HF-Transistor

Anwendungen: UHF/VHF-Oszillator und Mischerstufen

Besondere Merkmale:

- Hohe Verstärkung
- Kleine Rauschzahl
- Hohe Rückwärtsdämpfung

Abmessungen in mm



Kunststoffgehäuse
50 B 3 DIN 41867
JEDEC TO 50
Gewicht max. 0,25 g

Absolute Grenzwerte

Kollektor-Basis-Sperrspannung	$-U_{CBO}$	40	V
Kollektor-Emitter-Sperrspannung	$-U_{CEO}$	35	V
Emitter-Basis-Sperrspannung	$-U_{EBO}$	3	V
Kollektorstrom	$-I_C$	30	mA
Basisstrom	$-I_B$	5	mA
Gesamtverlustleistung $T_{amb} \le 55^\circ C$	P_{tot}	160	mW
Sperrschichttemperatur	T_j	150	$^\circ C$
Lagerungstemperaturbereich	T_{stg}	-55...+150	$^\circ C$

Wärmewiderstand

		Min.	Typ.	Max.	
Sperrschicht-Umgebung	R_{thJA}			600	K/W

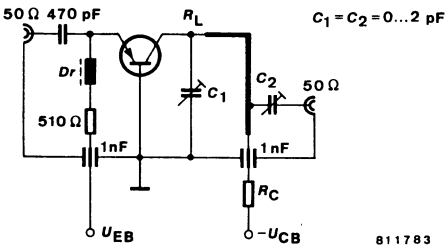
BF 681

Statische Kenndaten

	Min.	Typ.	Max.
$T_{amb} = 25\text{ °C}$			
Kollektorreststrom $-U_{CB} = 20\text{ V}$	$-I_{CBO}$		100 nA
Kollektor-Basis-Durchbruchspannung $-I_C = 10\text{ }\mu\text{A}$	$-U_{(BR)CBO}$	40	V
Kollektor-Emitter-Durchbruchspannung $-I_C = 2\text{ mA}$	$-U_{(BR)CEO}$	35	V
Emitter-Basis-Durchbruchspannung $-I_E = 10\text{ }\mu\text{A}$	$-U_{(BR)EBO}$	3	V
Stromverstärkung $-U_{CB} = 10\text{ V}, I_C = 3\text{ mA}$	h_{FE}	25	

Dynamische Kenndaten

$T_{amb} = 25\text{ °C}$			
Transitfrequenz $-U_{CB} = 10\text{ V}, -I_C = 2\text{ mA}, f = 100\text{ MHz}$	f_T	950	MHz
Kollektor-Basis-Kapazität $-U_{CB} = 10\text{ V}, f = 100\text{ MHz}$	C_{CBO}	0.5	pF
Rauschmaß $-U_{CB} = 10\text{ V}, -I_C = 3\text{ mA}, f = 800\text{ MHz},$ $R_G = 50\text{ }\Omega, R_L = 500\text{ }\Omega, R_C = 390\text{ }\Omega$	F_b	4.3	5.0 dB
Leistungsverstärkung $-U_{CB} = 10\text{ V}, -I_C = 3\text{ mA}, f = 800\text{ MHz},$ $R_G = 50\text{ }\Omega, R_L = 500\text{ }\Omega, R_C = 390\text{ }\Omega$	G_{pb}	12	14 dB
Kollektorstrom für: $G_{pb\text{ max}}$	$-I_C$	5.5	mA



Meßschaltung für: G_{pb}



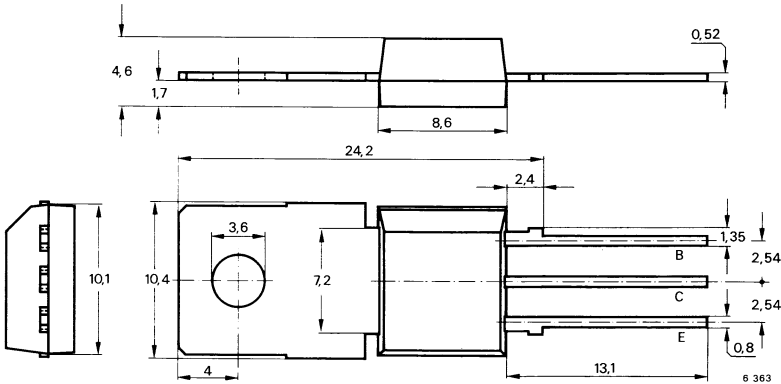
Silizium-NPN-Epitaxial-Planar-HF-Transistoren

Anwendungen: Video-B-Endstufen in Fernsehempfängern

Besondere Merkmale:

- Hohe Sperrspannung
- Temperaturunabhängige h_{FE} -Stabilität

Abmessungen in mm



Standard Kunststoffgehäuse

34 A 3 DIN 41 869

JEDEC TO 202

Gewicht max. 1,8 g

Kollektor mit metallischer Montagefläche verbunden

Absolute Grenzdaten

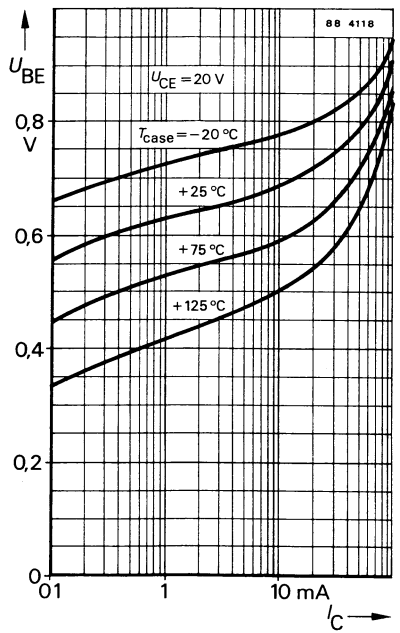
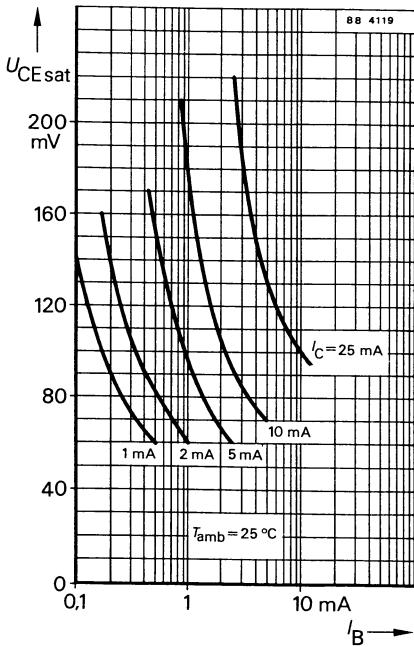
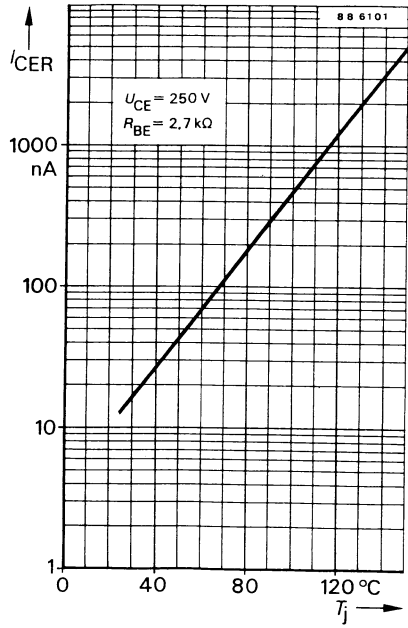
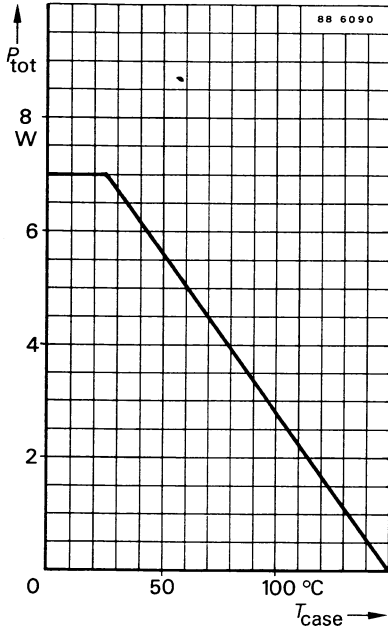
Kollektor-Basis-Sperrspannung	U_{CBO}	300	V
Kollektor-Emitter-Sperrspannung	U_{CEO}	275	V
Emitter-Basis-Sperrspannung	U_{EBO}	5	V
Kollektorstrom	I_C	50	mA
Kollektorspitzenstrom	I_{CM}	300	mA
Geamtverlustleistung $T_{case} \leq 25\text{ °C}$	P_{tot}	7	W
Sperrschichttemperatur	T_j	150	°C
Lagerungstemperaturbereich	T_{stg}	-65 ... +150	°C

Maximale Wärmewiderstände

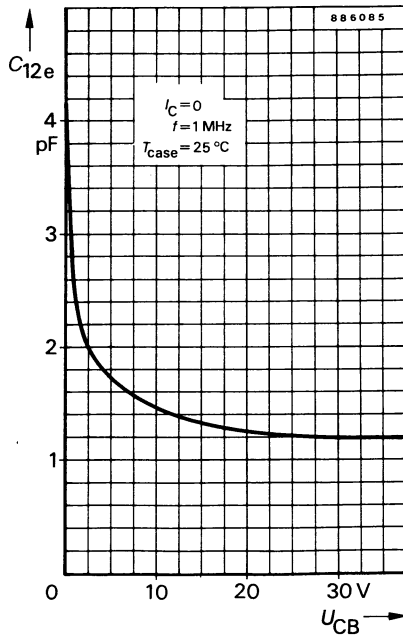
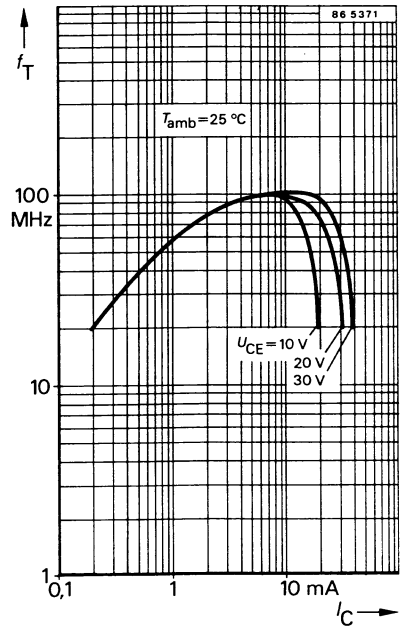
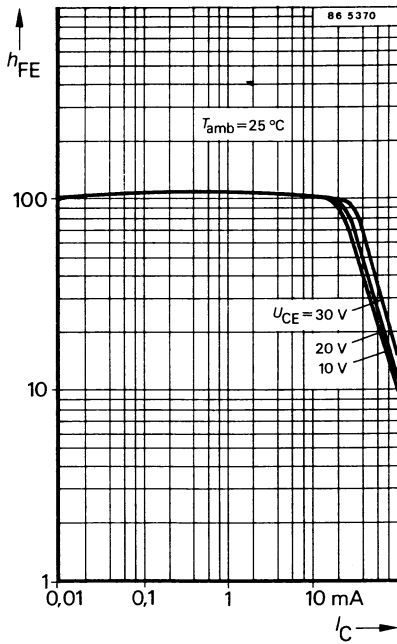
Sperrschicht-Umgebung	R_{thJA}	78	K/W
Sperrschicht-Gehäuse	R_{thJC}	17,8	K/W

BF 883 S

Kenngrößen		Min.	Typ.	Max.
$T_{\text{amb}} = 25\text{ °C}$, falls nicht anders angegeben				
Kollektorreststrom				
$U_{\text{CE}} = 250\text{ V}, R_{\text{BE}} = 2,7\text{ k}\Omega$	I_{CER}			50 nA
$U_{\text{CE}} = 200\text{ V}, R_{\text{BE}} = 2,7\text{ k}\Omega, T_j = 150\text{ °C}$	I_{CER}			10 μA
Emitterreststrom				
$U_{\text{EB}} = 5\text{ V}$	I_{EBO}			10 μA
Kollektor-Emitter-Durchbruchspannung				
$I_{\text{C}} = 1\text{ mA}$	$U_{(\text{BR})\text{CEO}}$	275		V
$I_{\text{C}} = 1\text{ }\mu\text{A}, R_{\text{BE}} = 2,7\text{ k}\Omega$	$V_{(\text{BR})\text{CER}}$	300		V
Kollektor-Basis-Gleichstromverhältnis				
$U_{\text{CE}} = 20\text{ V}, I_{\text{C}} = 25\text{ mA}$	h_{FE}	50		
Transitfrequenz				
$U_{\text{CE}} = 10\text{ V}, I_{\text{C}} = 10\text{ mA}$	f_{T}	60	90	MHz
Rückwirkungskapazität				
$U_{\text{CE}} = 30\text{ V}, I_{\text{C}} = 1\text{ mA}, f = 1\text{ MHz}$	$C_{12\text{e}}$		1,2	1,8 pF
Kollektor-HF-Sättigungsspannung				
$I_{\text{C}} = 25\text{ mA}, T_j = 150\text{ °C}$	$U_{\text{CEsat HF}}$		20	V



BF 883 S





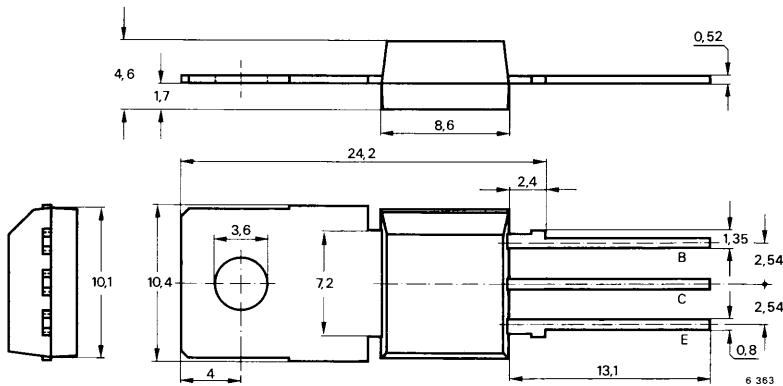
Silizium-NPN-Epitaxial-Planar-HF-Transistoren

Anwendungen: Video-B-Endstufen in Fernsehempfängern

Besondere Merkmale:

- Hohe Sperrspannung
- Temperaturunabhängige h_{FE} -Stabilität

Abmessungen in mm



Standard Kunststoffgehäuse

34A 3 DIN 41 869

JEDEC TO 202

Gewicht max. 1,8 g

Kollektor mit metallischer Montagefläche verbunden

Absolute Grenzdaten

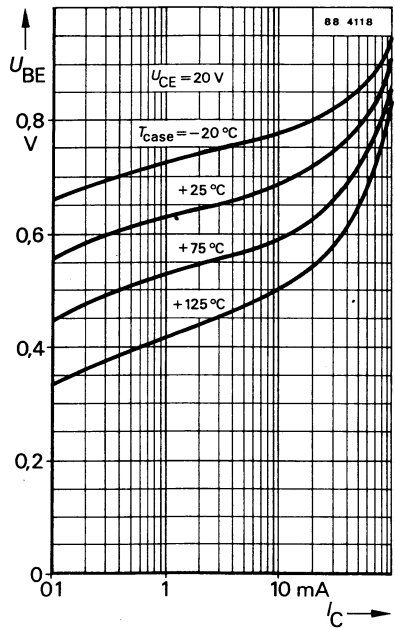
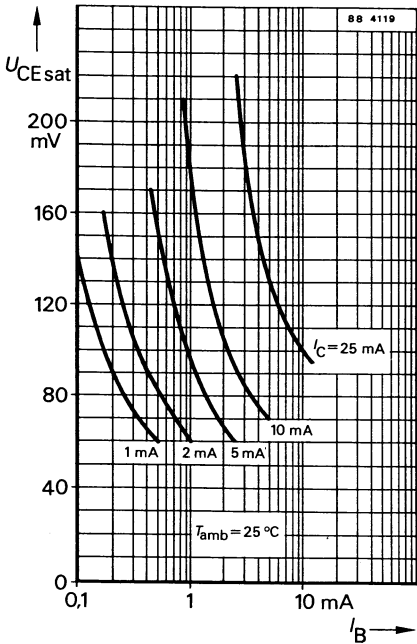
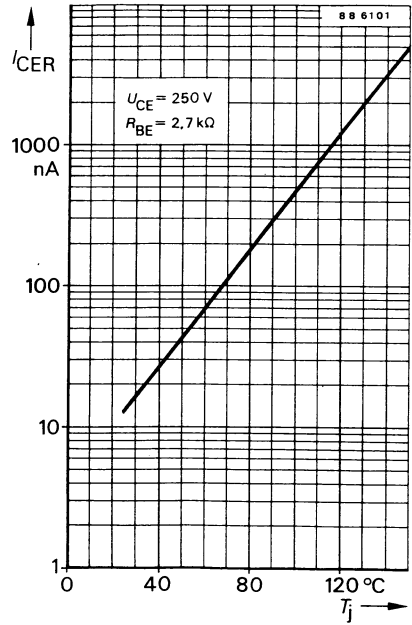
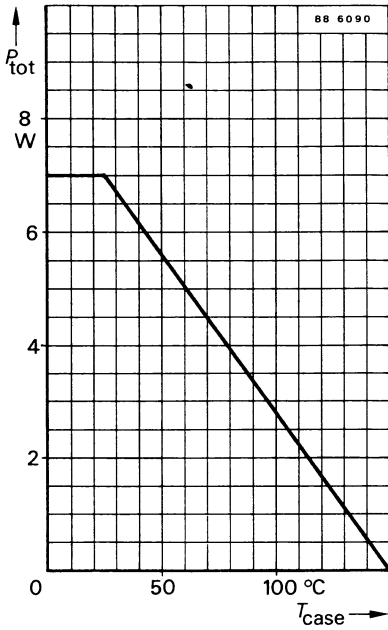
Kollektor-Basis-Sperrspannung	U_{CBO}	300	V
Kollektor-Emitter-Sperrspannung $R_{BE} \leq 2.7 \text{ k}\Omega$	U_{CER}	300	V
Emitter-Basis-Sperrspannung	U_{EBO}	5	V
Kollektorstrom	I_C	50	mA
Kollektorspitzenstrom	I_{CM}	300	mA
Gesamtverlustleistung $T_{case} \leq 25 \text{ }^\circ\text{C}$	P_{tot}	7	W
Sperrschichttemperatur	T_j	150	$^\circ\text{C}$
Lagerungstemperaturbereich	T_{stg}	-65 ... +150	$^\circ\text{C}$

Maximale Wärmewiderstände

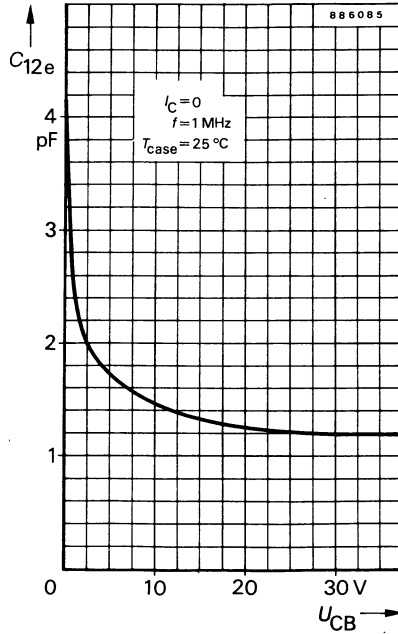
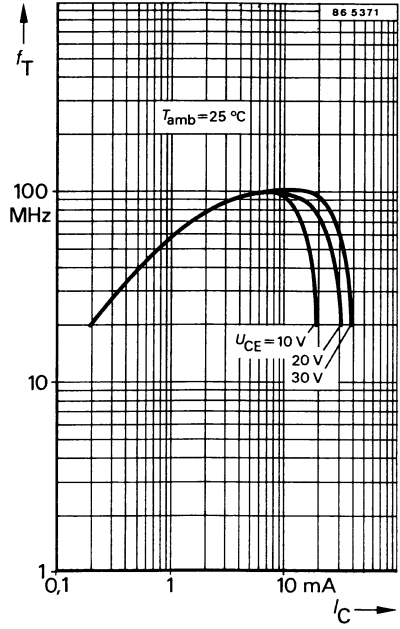
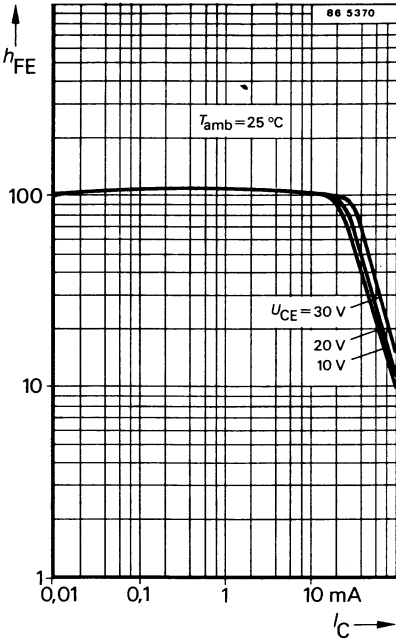
Sperrschicht-Umgebung	R_{thJA}	78	K/W
Sperrschicht-Gehäuse	R_{thJC}	17,8	K/W

BF 885 S

Kenngrößen		Min.	Typ.	Max.
$T_{amb} = 25\text{ °C}$, falls nicht anders angegeben				
Kollektorruhestrom				
$U_{CE} = 250\text{ V}, R_{BE} = 2,7\text{ k}\Omega$	I_{CER}			50 nA
$U_{CE} = 200\text{ V}, R_{BE} = 2,7\text{ k}\Omega, T_j = 150\text{ °C}$	I_{CER}			10 μ A
Emitterruhestrom				
$U_{EB} = 5\text{ V}$	I_{EBO}			10 μ A
Kollektor-Emitter-Durchbruchspannung				
$I_C = 1\text{ }\mu\text{A}, R_{BE} = 2,7\text{ k}\Omega$	$U_{(BR)CER}$	300		V
Kollektor-Basis-Gleichstromverhältnis				
$U_{CE} = 20\text{ V}, I_C = 25\text{ mA}$	h_{FE}	50		
Transitfrequenz				
$U_{CE} = 10\text{ V}, I_C = 10\text{ mA}$	f_T	60	90	MHz
Rückwirkungskapazität				
$U_{CE} = 30\text{ V}, I_C = 1\text{ mA}, f = 1\text{ MHz}$	C_{12e}		1,2	1,8 pF
Kollektor-HF-Sättigungsspannung				
$I_C = 25\text{ mA}, T_j = 150\text{ °C}$	$U_{CEsat HF}$		20	V



BF 885 S



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

Anwendungen: HF-Hochstrom-Eingangsstufen in Basisschaltung speziell für UKW und VHF-Tuner
Applications: RF high current stages in common base configuration especially for FM and VHF Tuners

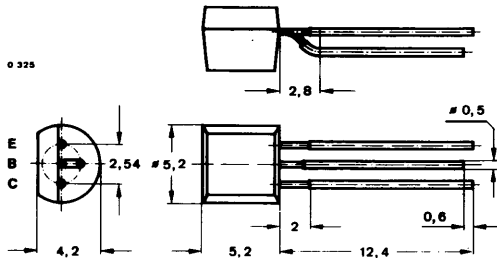
Besondere Merkmale:

- Kleine Rückwirkungskapazität
- Großer Intermodulationsabstand
- Rauschmaß 2,5 dB

Features:

- Small feedback capacitance
- Large signal to intermodulation ratio
- Noise figure 2.5 dB

Abmessungen in mm Dimensions in mm



Normgehäuse
Case
10 A 3 DIN 41 868
JEDEC TO 92 Z
Gewicht · Weight
max. 0,2 g

Absolute Grenzdaten Absolute maximum ratings

Kollektor-Basis-Sperrspannung Collector-base voltage	$-U_{CBO}$	40	V
Kollektor-Emitter-Sperrspannung Collector-emitter voltage	$-U_{CEO}$	35	V
Emitter-Basis-Sperrspannung Emitter-base voltage	$-U_{EBO}$	4	V
Kollektorstrom Collector current	$-I_C$	25	mA
Basisstrom Base current	$-I_B$	3	mA
Gesamtverlustleistung Total power dissipation $t_{amb} \leq 45^\circ\text{C}$	P_{tot}	300	mW
Sperrschichttemperatur Junction temperature	t_j	150	$^\circ\text{C}$
Lagerungstemperaturbereich Storage temperature range	t_{stg}	-55 ... +150	$^\circ\text{C}$

BF 914

Wärmewiderstand Thermal resistance

Min. Typ. Max.

Sperrschicht-Umgebung
Junction ambient R_{thJA} 350 K/W

Statische Kenngrößen DC characteristics

$t_{amb} = 25^\circ\text{C}$, falls nicht anders angegeben
unless otherwise specified

Kollektorreststrom
Collector cut-off current
- $U_{CB} = 20\text{ V}$ $-I_{CBO}$ 100 nA

Kollektor-Basis-Durchbruchspannung
Collector-base breakdown voltage
- $I_C = 10\ \mu\text{A}$ $-U_{(BR)CBO}$ 40 V

Kollektor-Emitter-Durchbruchspannung
Collector-emitter breakdown voltage
- $I_C = 2\text{ mA}$ $-U_{(BR)CEO}^{1)}$ 35 V

Emitter-Basis-Durchbruchspannung
Emitter-base breakdown voltage
- $I_E = 10\ \mu\text{A}$ $U_{(BR)EBO}$ 4 V

Kollektor-Basis-Gleichstromverhältnis
DC forward current transfer ratio
- $U_{CE} = 10\text{ V}$, $-I_C = 3\text{ mA}$ h_{FE} 25

Dynamische Kenngrößen AC characteristics

$t_{amb} = 25^\circ\text{C}$

Transitfrequenz
Gain bandwidth product
- $U_{CB} = 10\text{ V}$, $-I_C = 2\text{ mA}$, $f = 100\text{ MHz}$ f_T 850 MHz

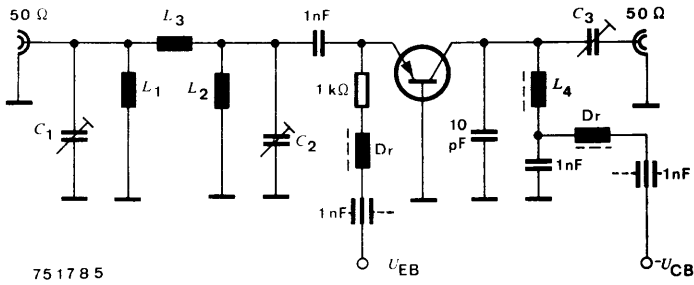
Kollektorstrom für:
Collector current for: f_{Tmax}
- $U_{CB} = 10\text{ V}$, $f = 100\text{ MHz}$ $-I_C$ 7,5 mA

Rückwirkungskapazität
Feedback capacitance
- $U_{CB} = 10\text{ V}$, $f = 100\text{ MHz}$ $C_{\text{ürb}}$ 0,12 pF

Kollektor-Basis-Kapazität
Collector-base capacitance
- $U_{CB} = 10\text{ V}$, $f = 100\text{ MHz}$ C_{CBO} 0,55 pF

¹⁾ $\frac{t_p}{T} = 0,01$, $t_p = 0,3\text{ ms}$

	Min.	Typ.	Max.	
Rauschmaß				
<i>Noise figure</i>				
- $U_{CB} = 8\text{ V}$, $f = 200\text{ MHz}$, $-I_C = 2\text{ mA}$	$F_{b\text{ min}}$	2,5	3,5	dB
$f = 200\text{ MHz}$, $-I_C = 8\text{ mA}$	$F_{b\text{ min}}$		5,0	dB
Leistungsverstärkung				
<i>Power gain</i>				
- $U_{CB} = 10\text{ V}$, $-I_C = 3\text{ mA}$, $f = 200\text{ MHz}$, $R_L = 1\text{ k}\Omega$	$G_{pb\text{ }^2)}$	15	17	dB
Kollektorstrom für: $G_{pb\text{ max}}$				
<i>Collector current for:</i>				
- $U_{CB} = 10\text{ V}$, $R_L = 1\text{ k}\Omega$, $f = 200\text{ MHz}$	$-I_C\text{ }^2)$	10		mA



- $C_1 = C_2 = 3 \dots 30\text{ pF}$
- $C_3 = 2 \dots 8\text{ pF}$
- $L_1 = L_2 = 3\text{ Wdg } \varnothing 0,3$
- $L_3 = 2,5\text{ Wdg } \varnothing 0,8$
- $L_4 = 3\text{ Wdg } \varnothing 0,8'$

75 17 8 5

Meßschaltung für: G_{pb}
 Test circuit for:

²⁾ Siehe Meßschaltung
 see test circuit

Dual Gate MOS-Feldeffekttriode · Verarmungstyp Dual Gate MOS-Fieldeffect triode · Depletion Mode

Anwendungen: Eingangs- und Mischstufen speziell für UKW- und FS-Tuner bis 300 MHz

Applications: Input- and Mixer stages especially for FM- and TV-tuners up to 300 MHz

Besondere Merkmale:

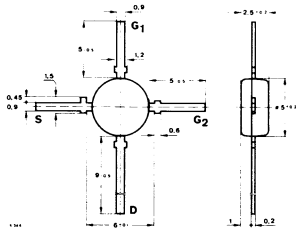
- Integrierte Gate Schutzdioden
- Hohe Kreuzmodulationsfestigkeit
- Kleine Rauschzahl
- Großer Regelhub
- Geringe Rückwirkungskapazität
- Hohe Steilheit

Features:

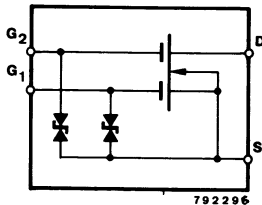
- Integrated Gate protection diodes
- High cross modulation performance
- Low noise figure
- High AGC-range
- Low feedback capacitance
- High forward transfer admittance

Vorläufige technische Daten · Preliminary specifications

**Abmessungen in mm
Dimensions in mm**



Normgehäuse
Case
50 B 4 DIN 41 867
JEDEC TO 50
Gewicht · Weight
max. 0,1 g



Absolute Grenzdaten

Absolute maximum ratings

Drain Source Spannung <i>Drain Source Voltage</i>	U_{DS}	20	V
Drain Strom <i>Drain current</i>	I_D	50	mA
Gate 1/Gate 2-Source Spitzenstrom <i>Gate 1/Gate 2-Source peak current</i>	$\pm I_{G \frac{1}{2}} SM$	10	mA
Gesamtverlustleistung <i>Total power dissipation</i>	$t_{amb} \leq 25^\circ C$ P_{tot}	330	mW
Kanaltemperatur <i>Channel temperature</i>	t_C	150	$^\circ C$
Lagertemperaturbereich <i>Storage temperature range</i>	t_{stg}	-55 ... +150	$^\circ C$

Wärmewiderstand

Thermal resistance

		Min.	Typ.	Max.	
Kanal-Umgebung <i>Channel ambient</i>	R_{thCA}			600	K/W

Statische Kenngrößen

DC-Characteristics

$t_{amb} = 25^\circ C$, falls nicht anders angegeben
unless otherwise specified

Drain-Source Durchbruchspannung <i>Drain-Source breakdown voltage</i> $I_D = 10 \mu A, -U_{G1S} = -U_{G2S} = 4 V$	$U_{(BR)DS}$	20		V
Gate 1-Source Durchbruchspannung <i>Gate 1-Source breakdown voltage</i> $\pm I_{G1S} = 10 mA, U_{G2S} = U_{DS} = 0$	$\pm U_{(BR)G1SS}$	6		V
Gate 2-Source Durchbruchspannung <i>Gate 2-Source breakdown voltage</i> $\pm I_{G2S} = 10 mA, U_{G1S} = U_{DS} = 0$	$\pm U_{(BR)G2SS}$	6		V
Gate 1-Source Reststrom <i>Gate 1-Source cut-off current</i> $\pm U_{G1S} = 5 V, U_{G2S} = U_{DS} = 0$	I_{G1SS}		100	nA
Gate 2-Source Reststrom <i>Gate 2-Source cut-off current</i> $\pm U_{G2S} = 5 V, U_{G1S} = U_{DS} = 0$	I_{G2SS}		100	nA
Drainstrom <i>Drain current</i> $U_{DS} = 15 V, U_{G1S} = 0, U_{G2S} = 4 V$	I_{DSS}	6	40	mA

	Min.	Typ.	Max.	
Gate 1-Source-Abschnürspannung Gate 1-Source cut-off voltage				
$U_{DS} = 15 \text{ V}, U_{G2S} = 4 \text{ V}, I_D = 200 \mu\text{A}$	$-U_{G1S} \text{ (p)}$		3,5	V
Gate 2-Source-Abschnürspannung Gate 2-Source cut-off voltage				
$U_{DS} = 15 \text{ V}, U_{G1S} = 4 \text{ V}, I_D = 200 \mu\text{A}$	$-U_{G2S} \text{ (p)}$		3,0	V

Dynamische Kenngrößen
AC-characteristics

$U_{DS} = 15 \text{ V}, I_D = 10 \text{ mA}, U_{G2S} = 4 \text{ V}, f = 1 \text{ MHz},$
 $t_{\text{amb}} = 25^\circ\text{C},$ falls nicht anders angegeben
unless otherwise specified

Vorwärts-Steilheit Forward transadmittance	$ y_{21S} $	16	25	mS
Gate 1-Source-Kapazität Gate 1-Source capacitance	C_{g1S}		6	pF
Gate 1-Drain-Kapazität Gate 1-Drain capacitance	$C_{dg1} \text{ } ^1)$		35	fF
Drain-Source-Kapazität Drain-Source capacitance	C_{dS}		2,5	pF
Leistungsverstärkung Power gain				
$U_D = 12 \text{ V}, U_{G1} = 0, U_{G2} = 4 \text{ V},$ $R_S = 68 \Omega, B = 12 \text{ MHz}, f = 200 \text{ MHz}$	G_{ps}		25	dB
Rauschzahl Noise figure				
$U_D = 12 \text{ V}, U_{G1} = 0, U_{G2} = 4 \text{ V},$ $R_S = 68 \Omega, B = 12 \text{ MHz}, f = 200 \text{ MHz}$	F		1,8	dB

¹⁾ G_2 und S auf Massepotential
 G_2 and S grounded

N-Channel Dual Gate MOS-Fieldeffect Tetrode, Depletion Mode

Electrostatic sensitive device.
Observe precautions for handling.

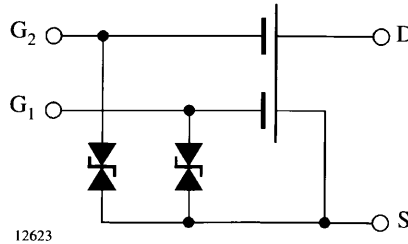
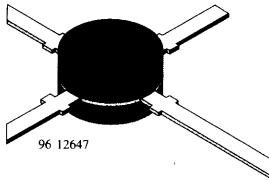
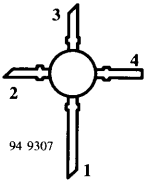


Applications

Input and mixer stages of VHF- and UHF-tuners.

Features

- Integrated gate protection diodes
- High cross modulation performance
- Low noise figure
- High gain
- High AGC-range
- Low feedback capacitance
- Low input capacitance



BF988 Marking: BF988

Plastic case (TO 50)

1 = Drain, 2 = Source, 3 = Gate 1, 4 = Gate 2

Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Drain source voltage	V_{DS}	12	V
Drain current	I_D	30	mA
Gate 1/gate 2-source peak current	$\pm I_{G1/2SM}$	10	mA
Total power dissipation $T_{amb} \leq 60^\circ\text{C}$	P_{tot}	200	mW
Channel temperature	T_{Ch}	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to +150	$^\circ\text{C}$

Maximum Thermal Resistance

Parameters	Symbol	Value	Unit
Channel ambient on glass fibre printed board (40 x 25 x 1.5) mm ³ plated with 35 μm Cu	R_{thChA}	450	K/W

Electrical DC Characteristics

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameters / Test Conditions	Type	Symbol	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage $I_D = 10 \mu\text{A}$, $-V_{G1S} = -V_{G2S} = 4 \text{ V}$		$V_{(BR)DS}$	12			V
Gate 1-source breakdown voltage $\pm I_{G1S} = 10 \text{ mA}$, $V_{G2S} = V_{DS} = 0$		$\pm V_{(BR)G1SS}$	8		14	V
Gate 2-source breakdown voltage $\pm I_{G2S} = 10 \text{ mA}$, $V_{G1S} = V_{DS} = 0$		$\pm V_{(BR)G2SS}$	8		14	V
Gate 1-source leakage current $\pm V_{G1S} = 5 \text{ V}$, $V_{G2S} = V_{DS} = 0$		$\pm I_{G1SS}$			50	nA
Gate 2-source leakage current $\pm V_{G2S} = 5 \text{ V}$, $V_{G1S} = V_{DS} = 0$		$\pm I_{G2SS}$			50	nA
Drain current $V_{DS} = 8 \text{ V}$, $V_{G1S} = 0$, $V_{G2S} = 4 \text{ V}$	BF988 BF988A BF988B	I_{DSS} I_{DSS} I_{DSS}	4 4 9.5		18 10.5 18	mA mA mA
Gate 1-source cut-off voltage $V_{DS} = 8 \text{ V}$, $V_{G2S} = 4 \text{ V}$, $I_D = 20 \mu\text{A}$		$-V_{G1S(OFF)}$			2.5	V
Gate 2-source cut-off voltage $V_{DS} = 8 \text{ V}$, $V_{G1S} = 0$, $I_D = 20 \mu\text{A}$		$-V_{G2S(OFF)}$			2.0	V

Electrical AC Characteristics

$V_{DS} = 8 \text{ V}$, $I_D = 10 \text{ mA}$, $V_{G2S} = 4 \text{ V}$, $f = 1 \text{ MHz}$, $T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

Parameters / Test Conditions	Type	Symbol	Min.	Typ.	Max.	Unit
Forward transmittance		$ y_{21s} $	21	24		mS
Gate 1-input capacitance		C_{issg1}		2.1	2.5	pF
Gate 2-input capacitance $V_{G1S} = 0$, $V_{G2S} = 4 \text{ V}$		C_{issg2}		1.2		pF
Feedback capacitance		C_{rfs}		25		fF
Output capacitance		C_{oss}		1.05		pF
Power gain $g_S = 2 \text{ mS}$, $g_L = 0.5 \text{ mS}$, $f = 200 \text{ MHz}$ $g_S = 3.3 \text{ mS}$, $g_L = 1 \text{ mS}$, $f = 800 \text{ MHz}$		G_{ps} G_{ps}	16.5	28 20		dB dB
AGC range $V_{G2S} = 4$ to -2 V , $f = 800 \text{ MHz}$		ΔG_{ps}	40			dB
Noise figure $g_S = 2 \text{ mS}$, $g_L = 0.5 \text{ mS}$, $f = 200 \text{ MHz}$ $g_S = 3.3 \text{ mS}$, $g_L = 1 \text{ mS}$, $f = 800 \text{ MHz}$		F F		1 1.5		dB dB

Common Source S-Parameters

$V_{GS} = 4 \text{ V}$, $Z_0 = 50 \Omega$

V_{DS}/V	I_D/mA	f/MHz	S_{11}		S_{21}		S_{12}		S_{22}	
			LOG MAG	ANG	LOG MAG	ANG	LOG MAG	ANG	LOG MAG	ANG
			dB	deg	dB	deg	dB	deg	dB	deg
5	5	100	-0.02	-7.8	6.01	168.4	-56.27	83.0	-0.02	-3.6
		200	-0.10	-15.3	5.87	156.3	-50.61	76.6	-0.06	-7.3
		300	-0.31	-22.8	5.69	144.2	-47.70	70.9	-0.13	-10.6
		400	-0.56	-30.2	5.42	132.9	-46.19	65.6	-0.20	-14.2
		500	-0.87	-37.3	5.17	121.5	-45.46	60.6	-0.28	-17.5
		600	-1.26	-44.3	4.85	110.6	-45.84	55.4	-0.36	-20.5
		700	-1.59	-50.9	4.54	100.4	-47.31	58.6	-0.43	-23.8
		800	-2.04	-58.0	4.25	90.2	-48.19	63.3	-0.49	-26.8
		900	-2.42	-64.4	4.02	80.6	-50.37	81.5	-0.52	-30.2
		1000	-2.88	-71.4	3.78	70.8	-49.48	115.6	-0.54	-33.4
		1100	-3.39	-78.3	3.42	60.5	-47.92	131.7	-0.66	-36.8
		1200	-3.94	-85.2	3.21	51.6	-44.65	153.0	-0.66	-40.1
1300	-4.46	-91.8	3.01	42.0	-41.76	159.8	-0.66	-43.9		
8	10	100	-0.02	-8.3	7.84	168.5	-55.67	83.0	-0.04	-3.7
		200	-0.11	-16.1	7.70	156.6	-50.01	76.4	-0.09	-7.4
		300	-0.35	-24.0	7.49	144.8	-47.20	70.3	-0.16	-10.8
		400	-0.62	-31.6	7.21	133.6	-45.60	65.1	-0.23	-14.3
		500	-0.97	-39.2	6.93	122.5	-44.88	60.0	-0.31	-17.9
		600	-1.39	-46.4	6.59	111.9	-45.25	54.5	-0.42	-20.9
		700	-1.76	-53.2	6.27	101.9	-46.51	57.4	-0.48	-24.1
		800	-2.25	-60.3	5.97	92.1	-47.19	61.4	-0.55	-27.3
		900	-2.67	-67.1	5.71	82.8	-49.28	76.0	-0.58	-30.6
		1000	-3.16	-74.1	5.46	73.3	-48.99	107.1	-0.60	-33.8
		1100	-3.72	-81.1	5.07	63.3	-48.03	123.3	-0.73	-37.2
		1200	-4.30	-88.0	4.85	54.6	-45.15	147.6	-0.73	-40.6
1300	-4.87	-94.4	4.63	45.4	-42.46	157.0	-0.73	-44.3		
8	15	100	-0.01	-8.4	8.62	168.6	-55.26	83.0	-0.07	-3.7
		200	-0.13	-16.4	8.46	156.8	-49.61	76.3	-0.12	-7.5
		300	-0.37	-24.5	8.26	145.2	-46.70	70.3	-0.20	-11.0
		400	-0.66	-32.3	7.96	134.0	-45.10	64.9	-0.27	-14.4
		500	-1.02	-39.8	7.66	122.9	-44.38	59.7	-0.36	-18.0
		600	-1.47	-47.0	7.33	112.3	-44.65	54.3	-0.47	-20.9
		700	-1.85	-54.1	6.98	102.6	-45.72	57.0	-0.53	-24.2
		800	-2.36	-61.3	6.68	92.8	-46.29	60.0	-0.61	-27.4
		900	-2.80	-67.9	6.42	83.7	-48.18	71.9	-0.64	-30.6
		1000	-3.30	-75.0	6.15	74.3	-48.49	98.7	-0.66	-33.9
		1100	-3.89	-82.0	5.75	64.6	-47.93	114.8	-0.77	-37.3
		1200	-4.49	-88.8	5.52	56.0	-45.75	141.2	-0.79	-40.8
1300	-5.06	-95.2	5.30	46.9	-43.05	153.4	-0.79	-44.5		

Typical Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

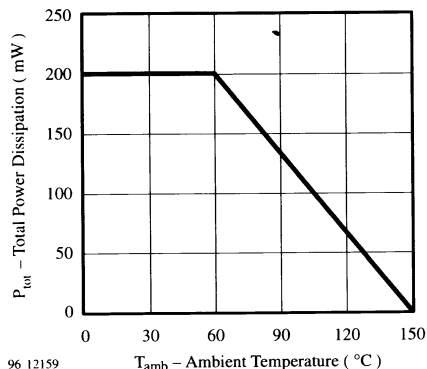


Figure 1. Total Power Dissipation vs. Ambient Temperature

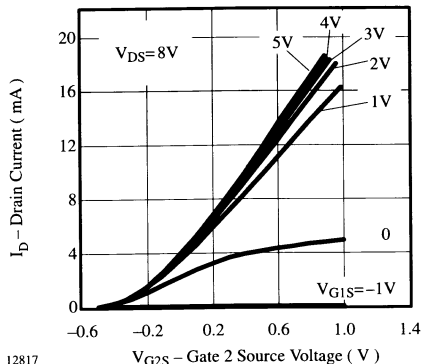


Figure 4. Drain Current vs. Gate 2 Source Voltage

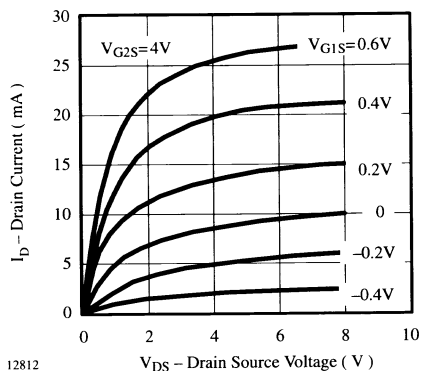


Figure 2. Drain Current vs. Drain Source Voltage

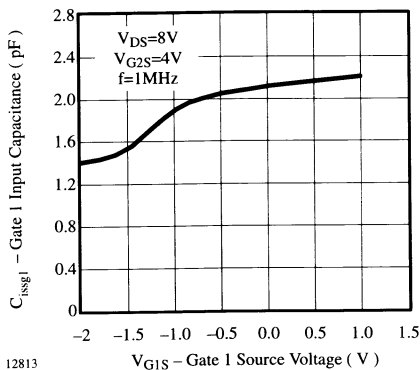


Figure 5. Gate 1 Input Capacitance vs. Gate 1 Source Voltage

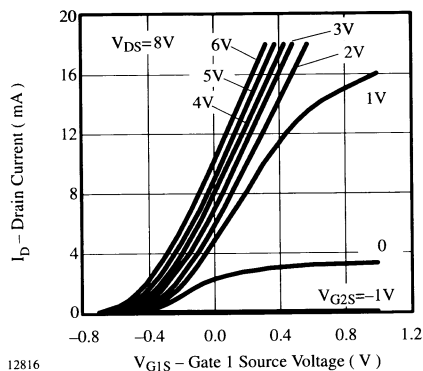


Figure 3. Drain Current vs. Gate 1 Source Voltage

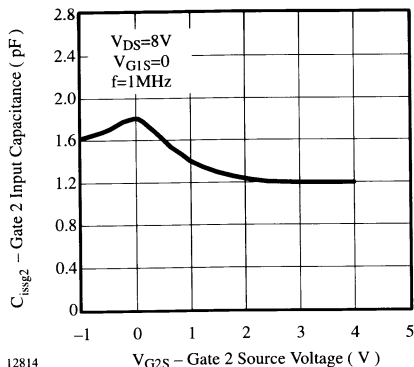


Figure 6. Gate 2 Input Capacitance vs. Gate 2 Source Voltage

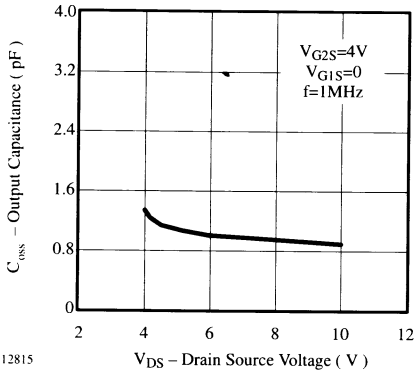


Figure 7. Output Capacitance vs. Drain Source Voltage

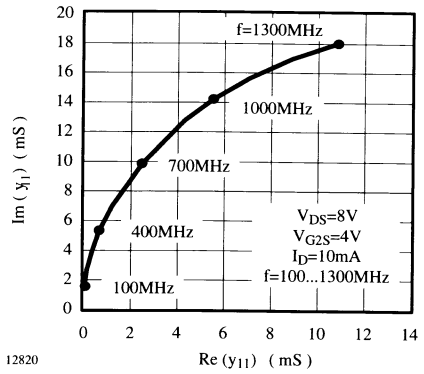


Figure 10. Short Circuit Input Admittance

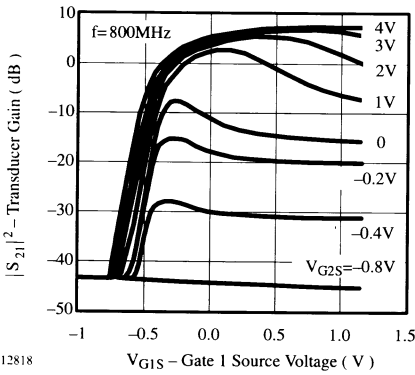


Figure 8. Transducer Gain vs. Gate 1 Source Voltage

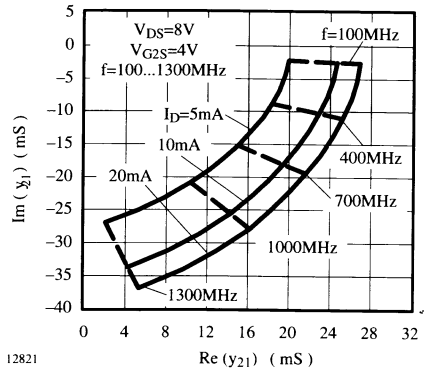


Figure 11. Short Circuit Forward Transfer Admittance

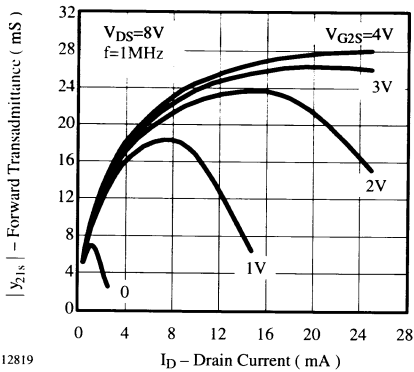


Figure 9. Forward Transadmittance vs. Drain Current

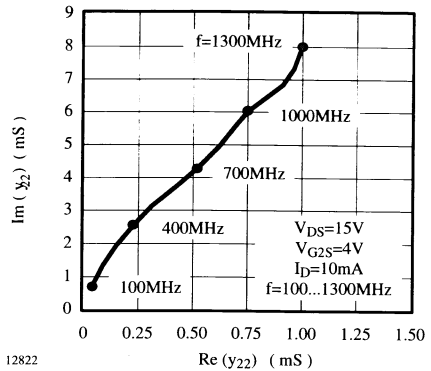


Figure 12. Short Circuit Output Admittance

$V_{DS} = 8 \text{ V}; I_D = 10 \text{ mA}; V_{G2S} = 4 \text{ V}; Z_0 = 50 \Omega$

S_{11}

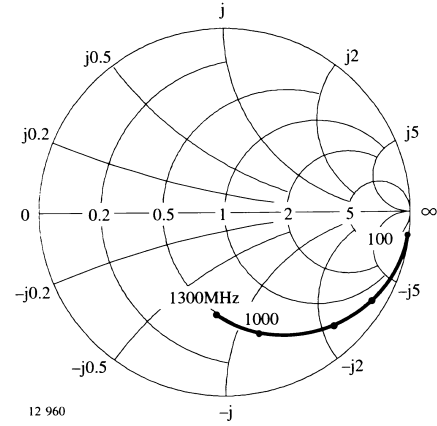


Figure 13. Input reflection coefficient

S_{12}

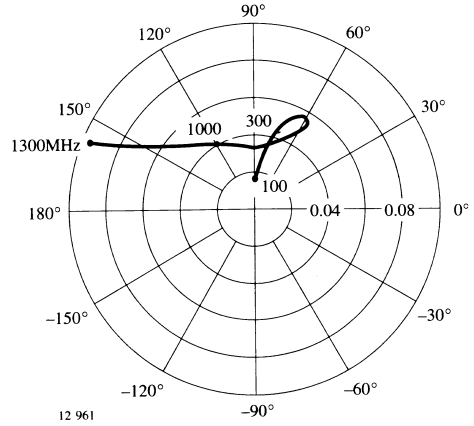


Figure 15. Reverse transmission coefficient

S_{21}

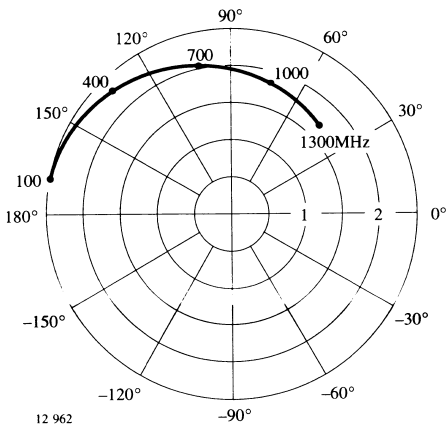


Figure 14. Forward transmission coefficient

S_{22}

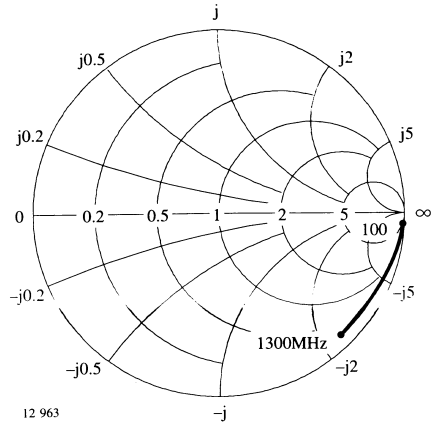


Figure 16. Output reflection coefficient



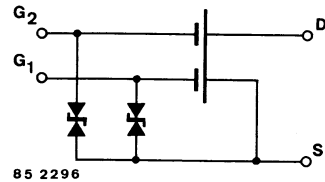
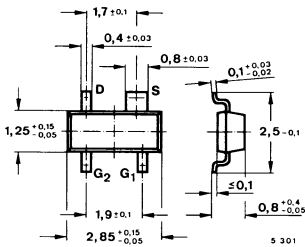
N-Kanal-Dual Gate MOS-Feldeffekttetrode · Verarmungstyp

Anwendungen: Eingangs- und Mischstufen speziell für UHF FS-Tuner bis 900 MHz

Besondere Merkmale:

- Integrierte Gate Schutzdioden
- Hohe Kreuzmodulationsfestigkeit
- Kleine Rauschzahl
- Großer Regelhub
- Geringe Rückwirkungskapazität
- Geringe Eingangskapazität

Abmessungen in mm



Kunststoffgehäuse
(SOT 143)
Gewicht max. 0,01 g

Absolute Grenzdaten

Drain Source Spannung	U_{DS}	20	V
Drain Strom	I_D	30	mA
Gate 1/ Gate 2-Source Spitzenstrom	$\pm I_{G1/2 SM}$	10	mA
Gesamtverlustleistung $T_{amb} = 60^\circ\text{C}$	P_{tot}	200	mW
Kanaltemperatur	T_C	150	$^\circ\text{C}$
Lagerungstemperaturbereich	T_{stg}	-55...+150	$^\circ\text{C}$

Wärmewiderstand

Kanal-Umgebung
auf Leiterplatte, einseitig kaschiert
Cu 35 μm 40x25x1,5 mm³

	Min.	Typ.	Max.
R_{thCA}			450 K/W

Statische Kenngrößen

		Min.	Typ.	Max.
$T_{amb} = 25\text{ °C}$, falls nicht anders angegeben				
Drain-Source Durchbruchspannung $I_D = 10\ \mu\text{A}$, $-U_{G1S} = -U_{G2S} = 4\ \text{V}$	$U_{(BR) DS}$	20		V
Gate 1-Source Durchbruchspannung $\pm I_{G1S} = 10\ \text{mA}$, $U_{G2S} = U_{DS} = 0$	$\pm U_{(BR) G1SS}$	6	20	V
Gate 2-Source Durchbruchspannung $\pm I_{G2S} = 10\ \text{mA}$, $U_{G1S} = U_{DS} = 0$	$\pm U_{(BR) G2SS}$	6	20	V
Gate 1-Source Reststrom $\pm U_{G1S} = 5\ \text{V}$, $U_{G2S} = U_{DS} = 0$	I_{G1SS}		50	nA
Gate 2-Source Reststrom $\pm U_{G2S} = 5\ \text{V}$, $U_{G1S} = U_{DS} = 0$	I_{G2SS}		50	nA
Drainstrom $U_{DS} = 15\ \text{V}$, $U_{G1S} = 0$, $U_{G2S} = 4\ \text{V}$	I_{DSS}	2	20	mA
Gate 1-Source-Abschnürspannung $U_{DS} = 15\ \text{V}$, $U_{G2S} = 4\ \text{V}$, $I_D = 20\ \mu\text{A}$	$-U_{G1S (OFF)}$		2.7	V
Gate 2-Source-Abschnürspannung $U_{DS} = 15\ \text{V}$, $U_{G1S} = 0\ \text{V}$, $I_D = 20\ \mu\text{A}$	$-U_{G2S (OFF)}$		2.7	V

Dynamische Kenngrößen

$U_{DS} = 15\ \text{V}$, $I_D = 7\ \text{mA}$, $U_{G2S} = 4\ \text{V}$, $f = 1\ \text{MHz}$,
 $T_{amb} = 25\text{ °C}$, falls nicht anders angegeben

Vorwärts-Steilheit	$ y_{21} $	10	13	mS	
Gate 1-Eingangskapazität	C_{iSSg1}		1.8	pF	
Gate 2-Eingangskapazität $U_{G1S} = 0$, $U_{G2S} = 4\ \text{V}$	C_{iSSg2}		1.0	pF	
Rückwirkungskapazität	$C_{rSS}^{1)}$		25	fF	
Ausgangskapazität	C_{oSS}		0.8	pF	
Leistungsverstärkung $U_{DS} = 15\ \text{V}$, $I_D = 7\ \text{mA}$, $U_{G2S} = 4\ \text{V}$, $g_G = 2\ \text{mS}$, $g_L = 5\ \text{mS}$, $f = 200\ \text{MHz}$	G_{ps}		23	dB	
$g_L = 1\ \text{mS}$, $f = 800\ \text{MHz}$	G_{ps}		16.5	dB	
Rauschzahl $g_G = 2\ \text{mS}$, $f = 800\ \text{MHz}$ $U_{DS} = 15\ \text{V}$, $I_D = 7\ \text{mA}$, $U_{G2S} = 4\ \text{V}$, $U_{G1S} = 0$	F		2,2	3	dB

¹⁾ G_2 und S auf Massepotential