N-Channel MOSFET Transistor

BF966S

UHF Transistor

20V / 10mA

DATASHEET

OEM – Siemens

Source: Siemens Databook 1986/87

Datasheet Rev. 1.3 – 02/19 – data without warranty / liability

Silizium-N-Kanal-MOSFET-Tetrode

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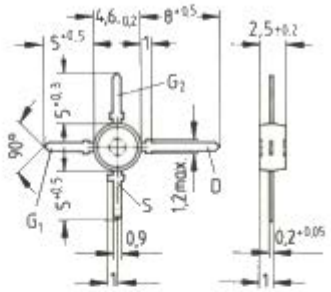
- Für Vorstufen in UHF-TV-Tunern
- Hohe Steilheit
- Kleine Rauschzahl

X-plast



Typ	BF 966 S
Best.-Nr.	Q62702-F438

Grenzdaten

Drain-Source-Spannung	V_{DS}	20	V
Drainstrom	I_D	30	mA
Gate 1/Gate 2-Source-Spitzenstrom	$\pm I_{G1/2SM}$	10	mA
Gesamtverlustleistung $T_A \leq 60\,^\circ C$	P_{tot}	200	mW
Lagertemperatur	T_{stg}	$-55...+150$	°C
Kanaltemperatur	T_{Ch}	150	°C

Wärmewiderstand

Sperrschicht-Umgebung	$R_{th\,JA}$	≤ 450	K/W

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Kenndaten ($T_A = 25\,°C$)

Gleichstromdaten		**min**	**typ**	**max**	
Drain-Source-Durchbruchspannung $I_D = 10\,\mu A$, $-V_{G1S} = -V_{G2S} = 4\,V$	$V_{(BR)\,DS}$	20	—	—	V
Gate 1-Source-Durchbruchspannung $\pm I_{G1S} = 10\,mA$, $V_{G2S} = V_{DS} = 0$	$\pm V_{(BR)\,G1SS}$	8,5	—	17	V
Gate 2-Source-Durchbruchspannung $\pm I_{G2S} = 10\,mA$, $V_{G1S} = V_{DS} = 0$	$\pm V_{(BR)\,G2SS}$	8,5	—	17	V
Gate 1-Reststrom $\pm V_{G1S} = 5\,V$, $V_{G2S} = V_{DS} = 0$	$\pm I_{G1SS}$	—	—	50	nA
Gate 2-Reststrom $\pm V_{G2S} = 5\,V$, $V_{G1S} = V_{DS} = 0$	$\pm I_{G2SS}$	—	—	50	nA
Drainstrom $V_{DS} = 15\,V$, $V_{G1S} = 0$, $V_{G2S} = 4\,V$	I_{DSS}	2	—	20	mA
Gate 1-Source-Abschnürspannung $V_{DS} = 15\,V$, $V_{G2S} = 4\,V$, $I_D = 20\,\mu A$	$-V_{G1S\,(p)}$	—	—	2,5	V
Gate 2-Source-Abschnürspannung $V_{DS} = 15\,V$, $V_{G1S} = 0$, $I_D = 20\,\mu A$	$-V_{G2S\,(p)}$	—	—	2	V

Wechselstromdaten					
Vorwärtssteilheit $V_{DS} = 15\,V$, $I_D = 10\,mA$, $V_{G2S} = 4\,V$, $f = 1\,kHz$	g_{fs}	15	18	—	mS
Gate 1-Eingangskapazität $V_{DS} = 15\,V$, $I_D = 10\,mA$, $V_{G2S} = 4\,V$, $f = 1\,MHz$	c_{g1ss}	—	2,3	—	pF
Gate 2-Eingangskapazität $V_{DS} = 15\,V$, $I_D = 10\,mA$, $V_{G2S} = 4\,V$, $f = 1\,MHz$	c_{g2ss}	—	1,1	—	pF
Rückwirkungskapazität $V_{DS} = 15\,V$, $I_D = 10\,mA$, $V_{G2S} = 4\,V$, $f = 1\,MHz$	c_{dg1}	—	25	—	fF
Ausgangskapazität $V_{DS} = 15\,V$, $I_D = 10\,mA$, $V_{G2S} = 4\,V$, $f = 1\,MHz$	c_{dss}	—	0,8	—	pF
Leistungsverstärkung $V_{DS} = 15\,V$, $I_D = 10\,mA$	G_{ps}				
$f = 200\,MHz$, $G_G = 2\,mS$, $G_L = 0,5\,mS$ (Meßschaltung 1)		—	25	—	dB
$f = 800\,MHz$, $G_G = 3,3\,mS$, $G_L = 1\,mS$ (Meßschaltung 2)		—	18	—	dB
Rauschzahl $V_{DS} = 15\,V$, $I_D = 10\,mA$	F				
$f = 200\,MHz$, $G_G = 2\,mS$, $G_L = 0,5\,mS$ (Meßschaltung 1)		—	1	—	dB
$f = 800\,MHz$, $G_G = 3,3\,mS$, $G_L = 1\,mS$ (Meßschaltung 2)		—	1,8	—	dB
Regelumfang $V_{DS} = 15\,V$, $V_{G2S} = 4 \ldots -2\,V$, $f = 800\,MHz$ (Meßschaltung 2)	ΔG_{ps}	40	—	—	dB

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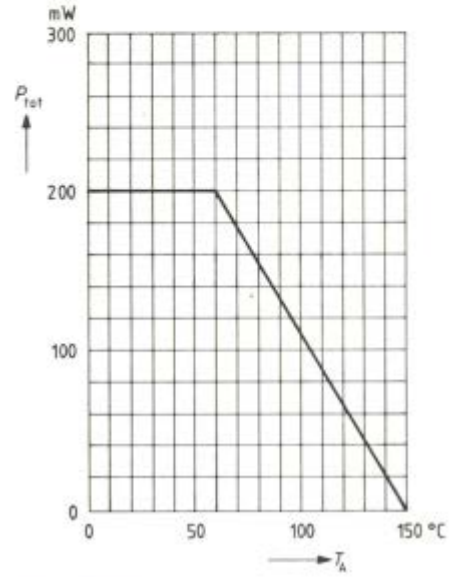
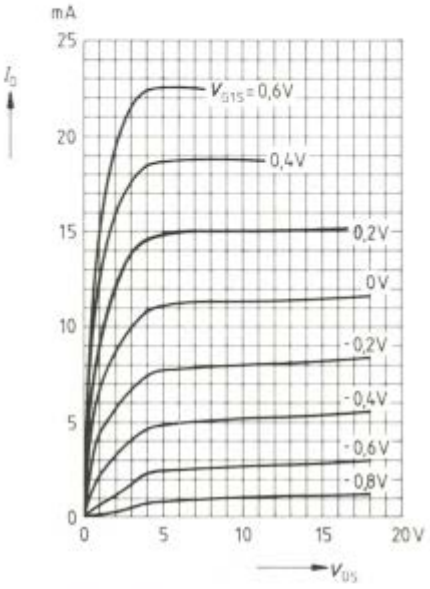
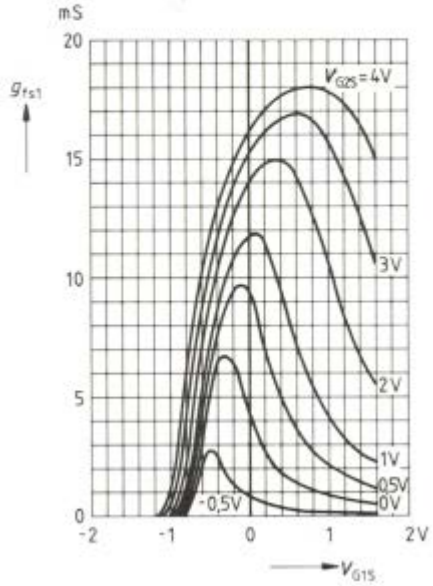
Gesamtverlustleistung $P_{tot} = f(T_A)$



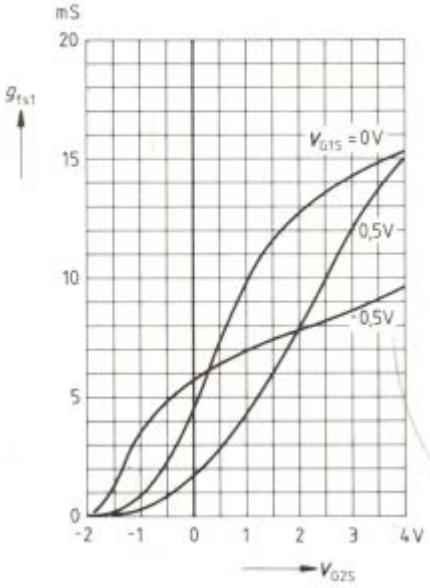
Ausgangskennlinienfeld $I_D = f(V_{DS})$
$V_{G2S} = 4$ V



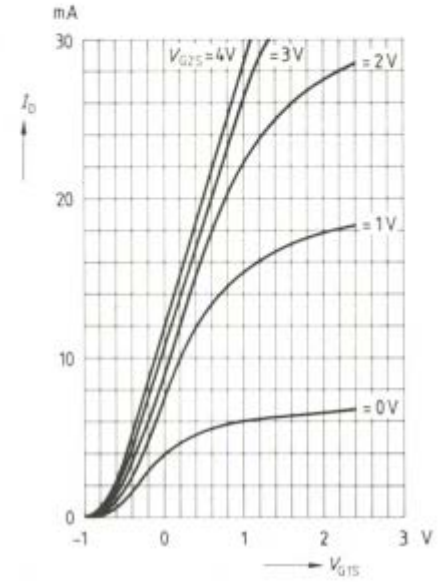
Gate 1-Steilheit $g_{fs1} = f(V_{G1S})$
$V_{DS} = 15$ V
$I_{DSS} = 10$ mA, $f = 1$ kHz



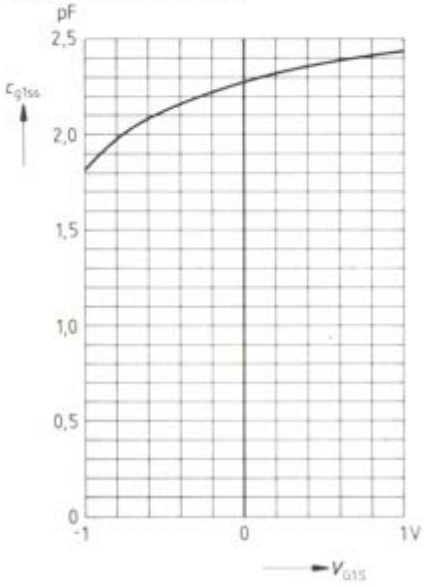
Gate 1-Steilheit $g_{fs1} = f(V_{G2S})$
$V_{DS} = 15$ V
$I_{DSS} = 10$ mA, $f = 1$ kHz



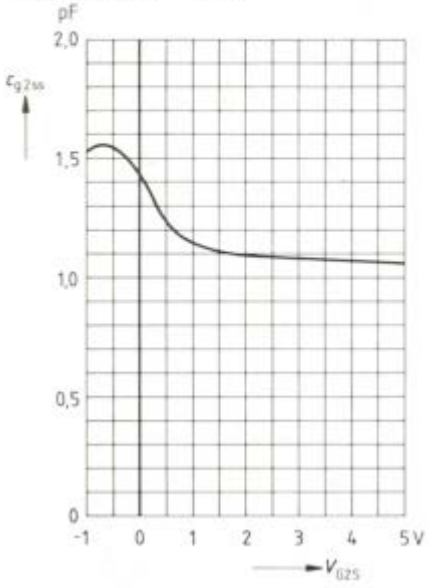
Drainstrom $I_D = f(V_{G1S})$
V_{DS} = 15 V



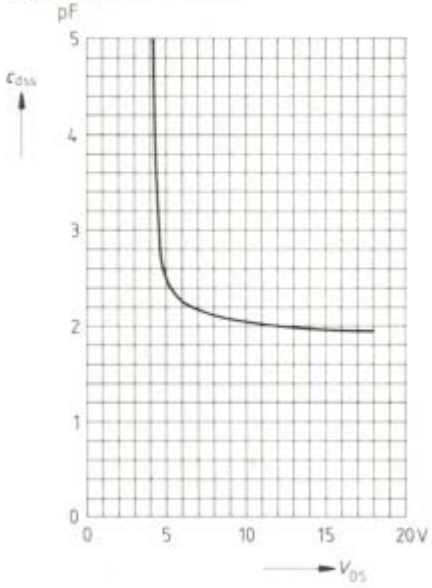
Gate 1-Eingangskapazität $c_{g1ss} = f(V_{G1S})$
V_{G2S} = 4 V, V_{DS} = 15 V
I_{DSS} = 10 mA, f = 1 MHz



Gate 2-Eingangskapazität $c_{g2ss} = f(V_{G2S})$
V_{G1S} = 0 V, V_{DS} = 15 V
I_{DSS} = 10 mA, f = 1 MHz



Ausgangskapazität $c_{dss} = f(V_{DS})$
V_{G1S} = 0 V, V_{G2S} = 4 V
I_{DSS} = 10 mA, f = 1 MHz



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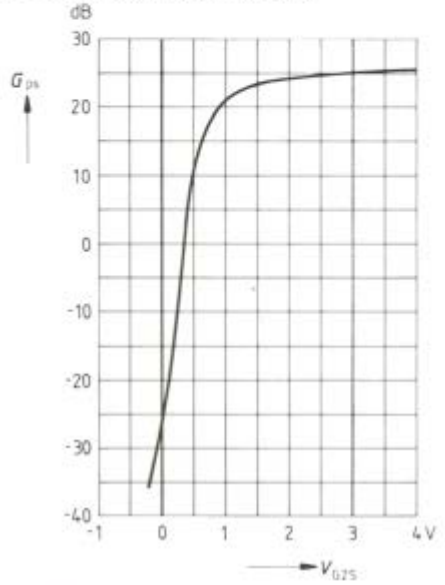
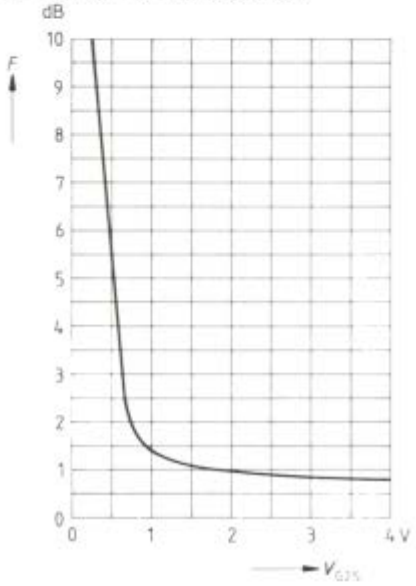
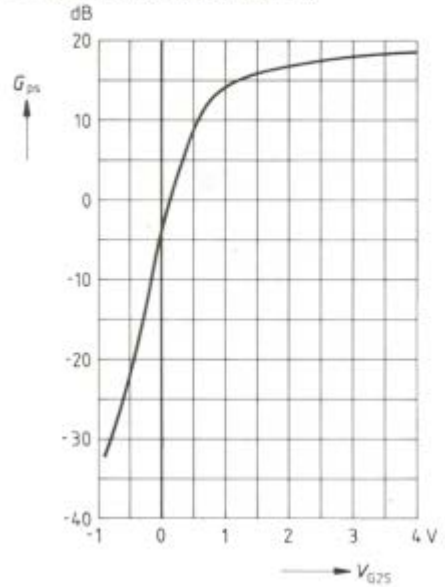
Leistungsverstärkung $G_{ps} = f(V_{G2S})$
V_{DS} = 15 V, V_{G1S} = 0 V, I_{DSS} = 10 mA
f = 200 MHz (s. Meßschaltung 1)



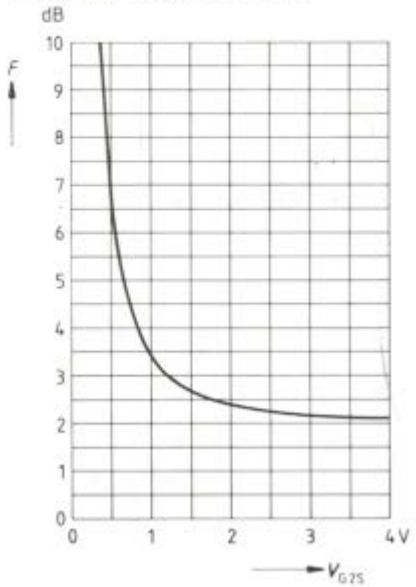
Rauschzahl $F = f(V_{G2S})$
V_{DS} = 15 V, V_{G1S} = 0 V, I_{DSS} = 10 mA
f = 200 MHz (s. Meßschaltung 1)



Leistungsverstärkung $G_{ps} = f(V_{G2S})$
V_{DS} = 15 V, V_{G1S} = 0 V, I_{DSS} = 10 mA
f = 800 MHz (s. Meßschaltung 2)



Rauschzahl $F = f(V_{G2S})$
V_{DS} = 15 V, V_{G1S} = 0 V, I_{DSS} = 10 mA
f = 800 MHz (s. Meßschaltung 2)



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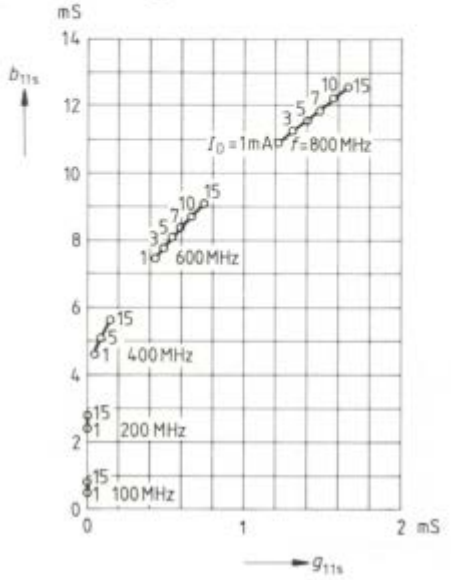
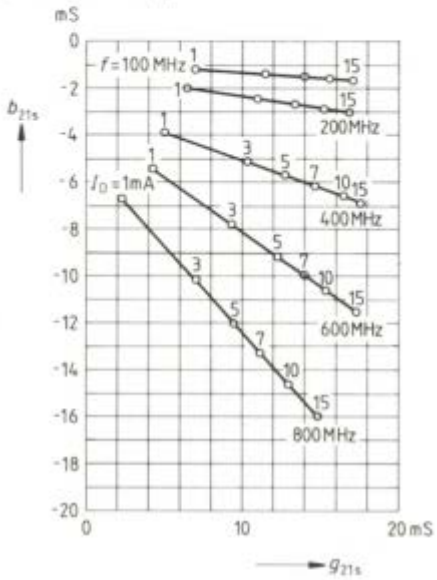
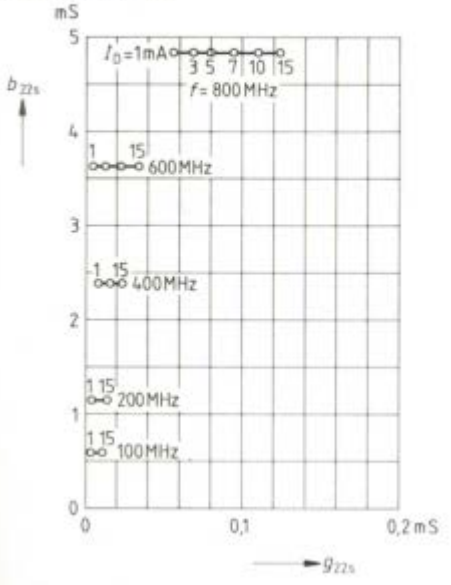
Gate 1-Eingangsleitwert y_{11s}
V_{DS} = 15 V, V_{G2S} = 4 V
(Sourceschaltung)



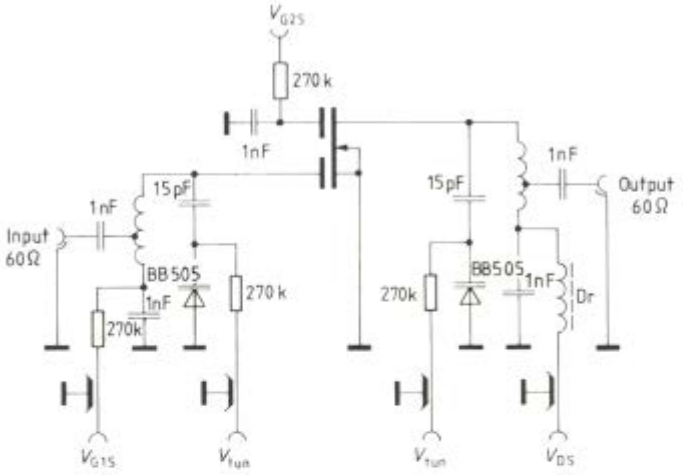
Gate 1-Steilheit y_{21s}
V_{DS} = 15 V, V_{G2S} = 4 V
(Sourceschaltung)



Ausgangsleitwert y_{22s}
V_{DS} = 15 V, V_{G2S} = 4 V
(Sourceschaltung)



Meßschaltung 1 für Leistungsverstärkung und Rauschen
$f = 200$ MHz, $G_G = 2$ mS, $G_L = 0{,}5$ mS



Meßschaltung 2 für Leistungsverstärkung, Rauschen und Kreuzmodulation
$f = 800$ MHz, $G_G = 3{,}3$ mS, $G_L = 1{,}0$ mS