

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

Electrostatic sensitive device.
Observe precautions for handling.

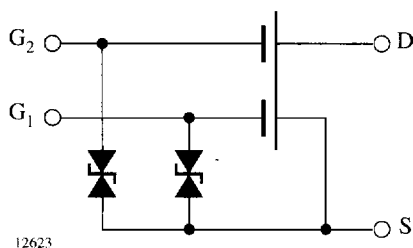
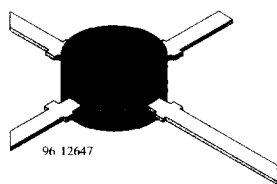
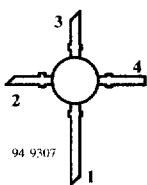


Applications

Input- and mixerstages especially for UHF-tuners.

Features

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



BF966S Marking: BF966S

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}	20	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	Maximum	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°C, unless otherwise specified

Parameters / Test Conditions	Type	Symbol	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage I _D = 10 μA, -V _{G1S} = -V _{G2S} = 4 V		V _{(BR)DS}	20			V
Gate 1-source breakdown voltage ±I _{G1S} = 10 mA, V _{G2S} = V _{DS} = 0		±V _{(BR)G1SS}	8		14	V
Gate 2-source breakdown voltage ±I _{G2S} = 10 mA, V _{G1S} = V _{DS} = 0		±V _{(BR)G2SS}	8		14	V
Gate 1-source leakage current ±V _{G1S} = 5 V, V _{G2S} = V _{DS} = 0		±I _{G1SS}			50	nA
Gate 2-source leakage current ±V _{G2S} = 5 V, V _{G1S} = V _{DS} = 0		±I _{G2SS}			50	nA
Drain current V _{DS} = 15 V, V _{G1S} = 0, V _{G2S} = 4 V	BF966S BF966SA BF966SB	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} = 15 V, V _{G2S} = 4 V, I _D = 20 μA		-V _{G1S(OFF)}			2.5	V
Gate 2-source cut-off voltage V _{DS} = 15 V, V _{G1S} = 0, I _D = 20 μA		-V _{G2S(OFF)}			2.0	V

Electrical AC Characteristics

V_{DS} = 15 V, I_D = 10 mA, V_{G2S} = 4 V, f = 1 MHz, T_{amb} = 25°C, unless otherwise specified

Parameters / Test Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward transadmittance	y _{21s}	15	18.5		mS
Gate 1-input capacitance	C _{issg1}		2.2	2.6	pF
Gate 2-input capacitance V _{G1S} = 0, V _{G2S} = 4 V	C _{issg2}		1.1		pF
Feedback capacitance	C _{rss}		25	35	fF
Output capacitance	C _{oss}		0.8	1.2	pF
Power gain g _S = 2 mS, g _L = 0.5 mS, f = 200 MHz g _S = 3.3 mS, g _L = 1 mS, f = 800 MHz	G _{ps} G _{ps}		25 18		dB dB
AGC range V _{G2S} = 4... -2 V, f = 800 MHz	ΔG _{ps}	40			dB
Noise figure g _S = 2 mS, g _L = 0.5 mS, f = 200 MHz g _S = 3.3 mS, g _L = 1 mS, f = 800 MHz	F F		1.0 1.8		dB dB

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

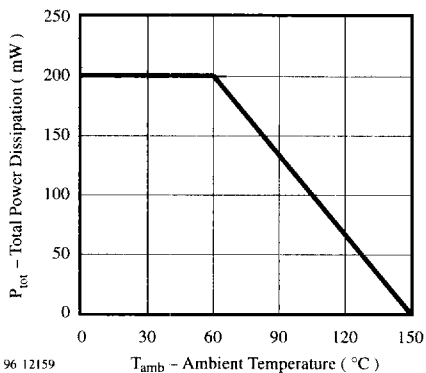


Figure 1. Total Power Dissipation vs. Ambient Temperature

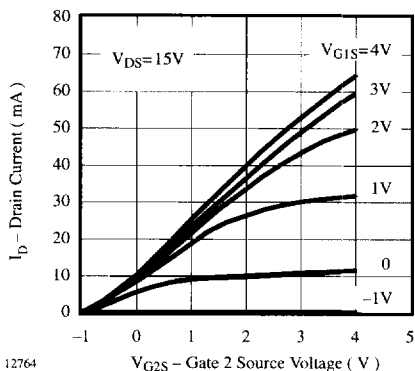


Figure 4. Drain Current vs. Gate 2 Source Voltage

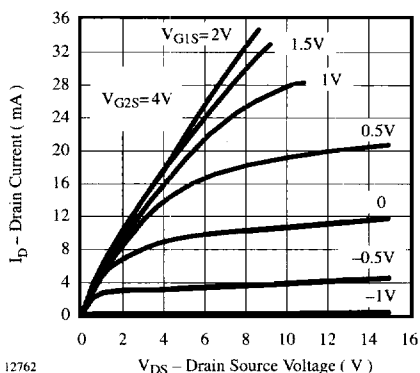


Figure 2. Drain Current vs. Drain Source Voltage

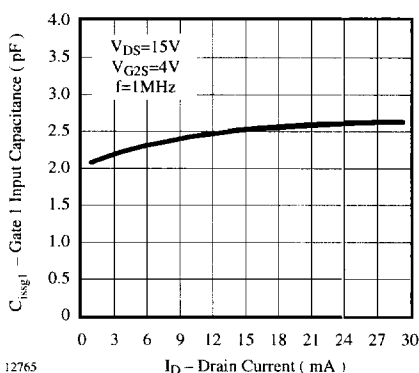


Figure 5. Gate 1 Input Capacitance vs. Drain Current

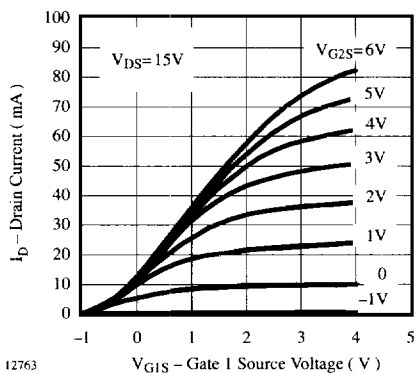


Figure 3. Drain Current vs. Gate 1 Source Voltage

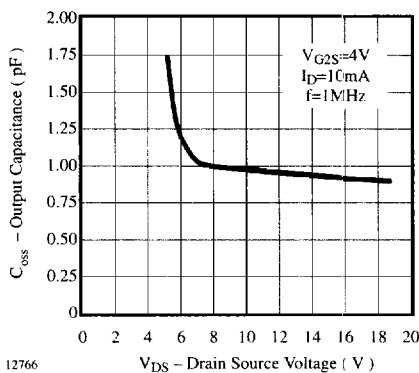


Figure 6. Output Capacitance vs. Drain Source Voltage

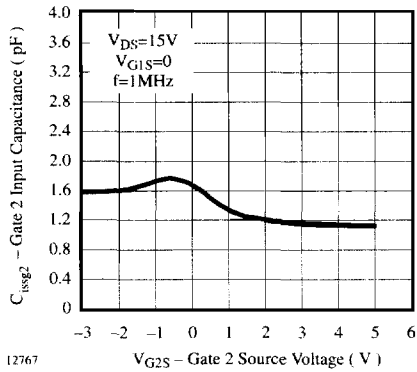


Figure 7. Gate 2 Input Capacitance vs. Gate 2 Source Voltage

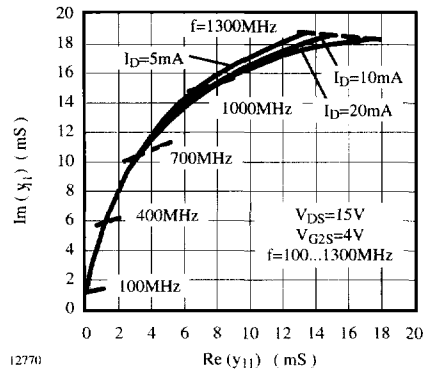


Figure 10. Short Circuit Input Admittance

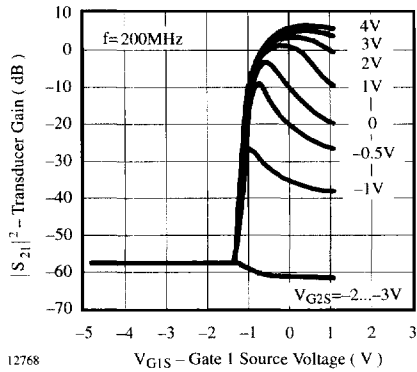


Figure 8. Transducer Gain vs. Gate 1 Source Voltage

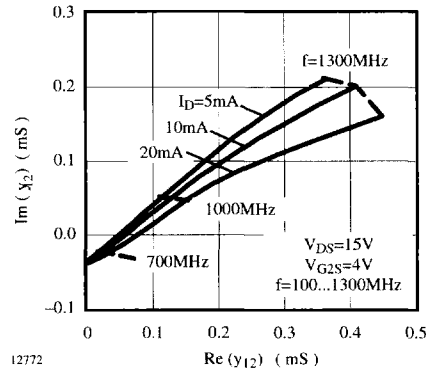


Figure 11. Short Circuit Reverse Transfer Admittance

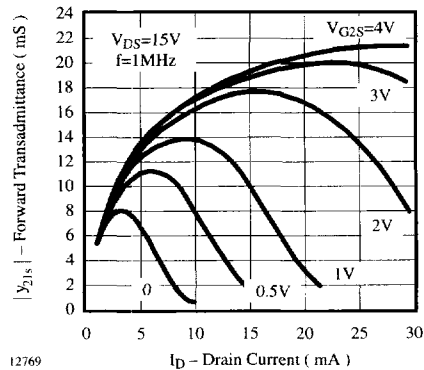


Figure 9. Forward Transadmittance vs. Drain Current

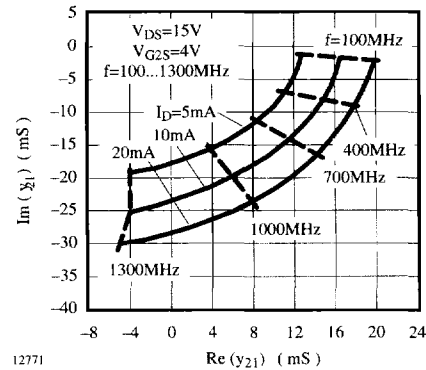


Figure 12. Short Circuit Forward Transfer Admittance

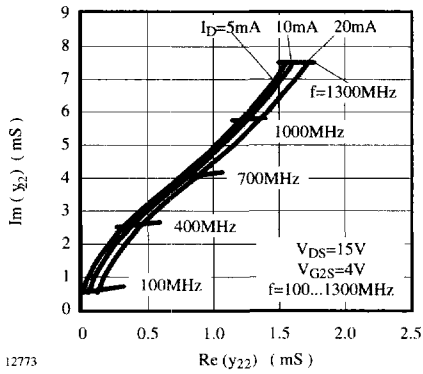


Figure 13. Short Circuit Output Admittance

$V_{DS} = 15 \text{ V}; I_D = 5 \text{ to } 20 \text{ mA}; V_{G2S} = 4 \text{ V}; Z_0 = 50 \Omega$

S_{11}

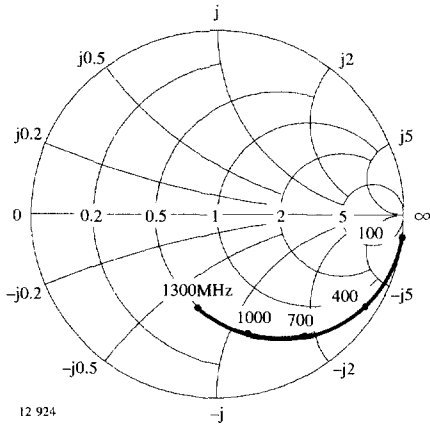


Figure 14. Input reflection coefficient

S_{12}

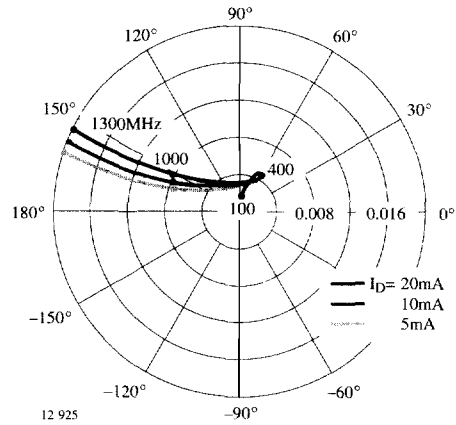


Figure 16. Reverse transmission coefficient

S_{21}

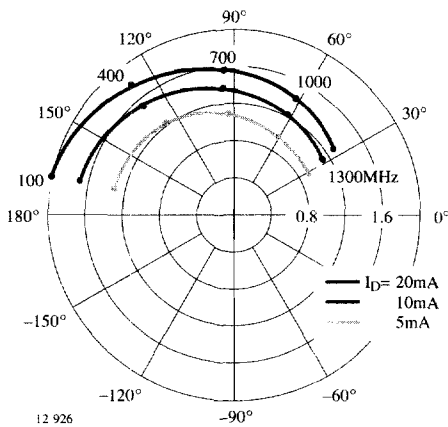


Figure 15. Forward transmission coefficient

S_{22}

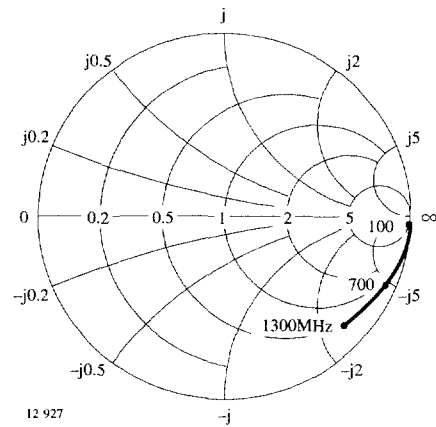
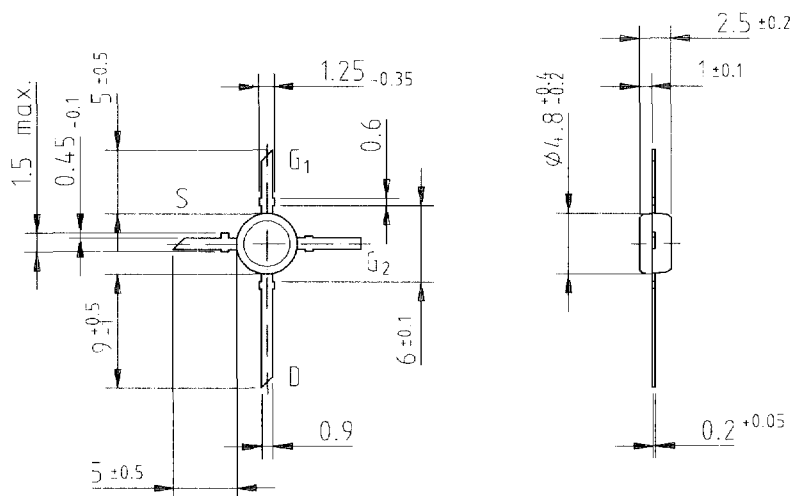
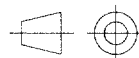


Figure 17. Output reflection coefficient

Dimensions in mm



96 12242



technical drawings
according to DIN
specifications