

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

Electrostatic sensitive device.
Observe precautions for handling.



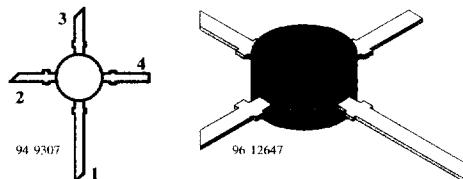
Applications

Input- and mixerstages especially for UHF-tuners.

Features

- Integrated gate protection diodes
- High cross modulation performance
- Low noise figure

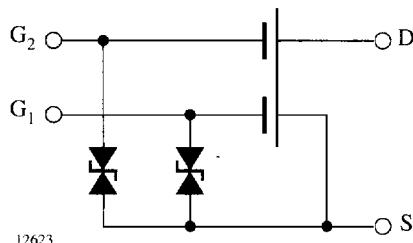
- High AGC-range
- Low feedback capacitance
- Low input capacitance



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	±I _{G1/2SM}	10	mA
Total power dissipation T _{amb} ≤ 60°C	P _{tot}	200	mW
Channel temperature	T _{Ch}	150	°C
Storage temperature range	T _{stg}	-55 to +150	°C

Maximum Thermal Resistance

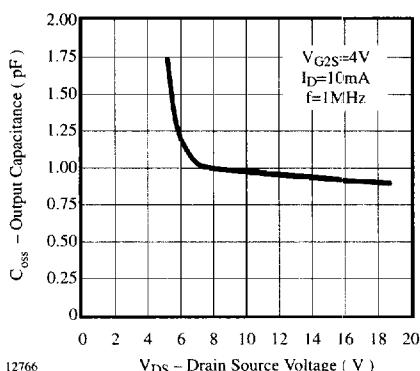
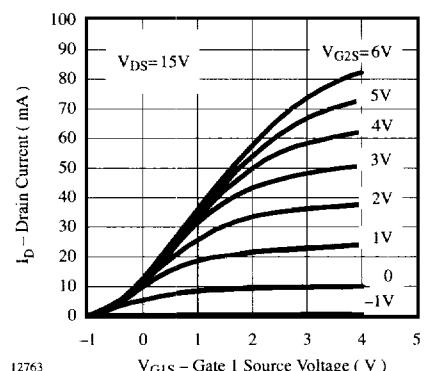
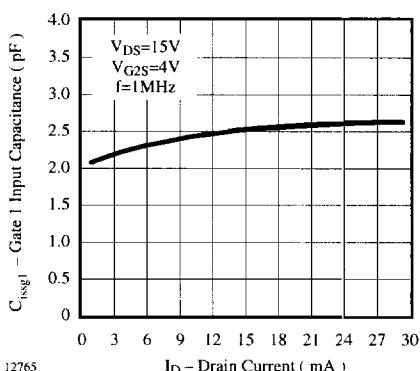
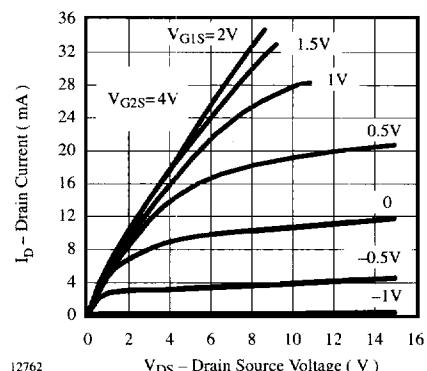
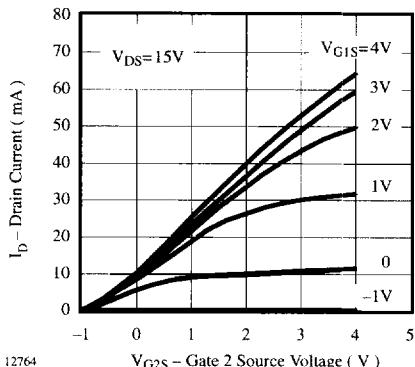
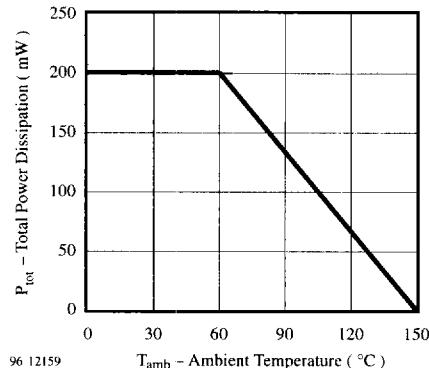
Parameters	Symbol	Maximum	Unit
Channel ambient on glass fibre printed board (40 x 25 x 1.5) mm ³ plated with 35 µm Cu	R _{thChA}	450	K/W

Electrical DC Characteristics $T_{amb} = 25^\circ C$, unless otherwise specified

Parameters / Test Conditions	Type	Symbol	Min.	Typ.	Max.	Unit
Drain-source breakdown voltage $I_D = 10 \mu A, -V_{G1S} = -V_{G2S} = 4 V$		$V_{(BR)DS}$	20			V
Gate 1-source breakdown voltage $\pm I_{G1S} = 10 mA, V_{G2S} = V_{DS} = 0$		$\pm V_{(BR)G1SS}$	8		14	V
Gate 2-source breakdown voltage $\pm I_{G2S} = 10 mA, V_{G1S} = V_{DS} = 0$		$\pm V_{(BR)G2SS}$	8		14	V
Gate 1-source leakage current $\pm V_{G1S} = 5 V, V_{G2S} = V_{DS} = 0$		$\pm I_{G1SS}$			50	nA
Gate 2-source leakage current $\pm V_{G2S} = 5 V, V_{G1S} = V_{DS} = 0$		$\pm I_{G2SS}$			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 $V_{DS} = 15 V, V_{G2S} = 4 V, I_D = 20 \mu A$		$-V_{G1S(OFF)}$			2.5	V
Gate 2-source cut-off voltage $V_{DS} = 15 V, V_{G1S} = 0, I_D = 20 \mu A$		$-V_{G2S(OFF)}$			2.0	V

Electrical AC Characteristics $V_{DS} = 15 V, I_D = 10 mA, V_{G2S} = 4 V, f = 1 MHz, T_{amb} = 25^\circ C$, 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 $V_{G2S} = 4 \dots -2 V, f = 800 MHz$	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)

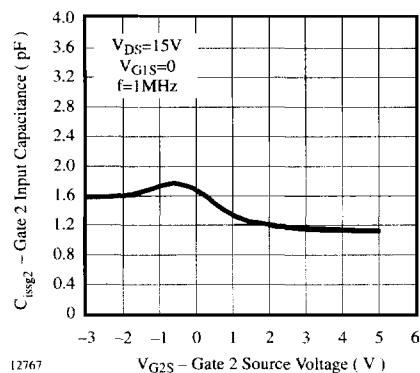


Figure 7. Gate 2 Input Capacitance vs. Gate 2 Source Voltage

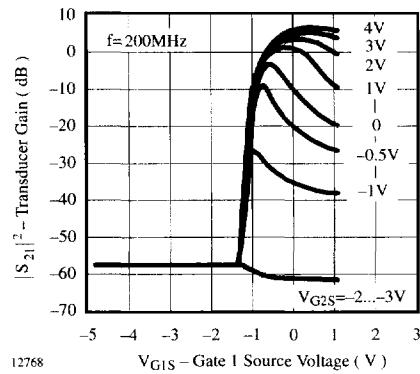


Figure 8. Transducer Gain vs. Gate 1 Source Voltage

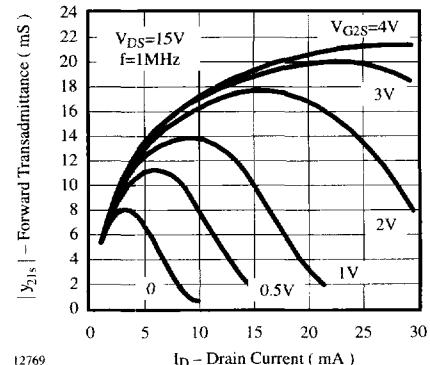


Figure 9. Forward Transadmittance vs. Drain Current

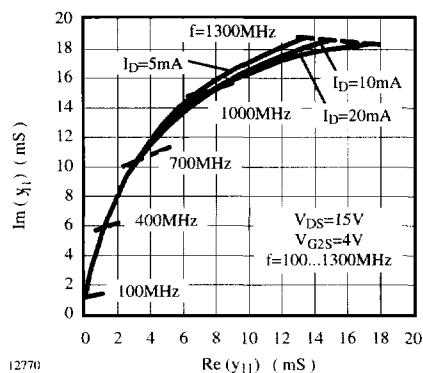


Figure 10. Short Circuit Input Admittance

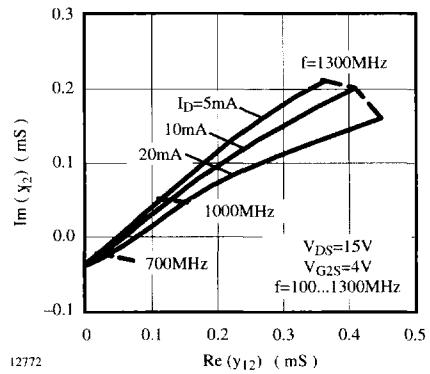


Figure 11. Short Circuit Reverse Transfer Admittance

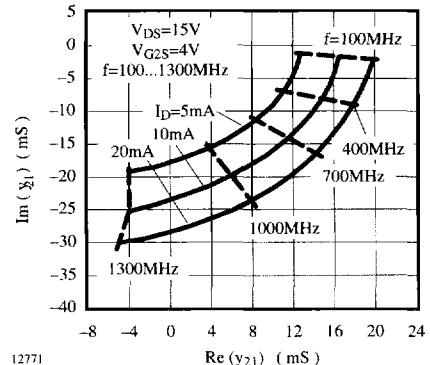


Figure 12. Short Circuit Forward Transfer Admittance

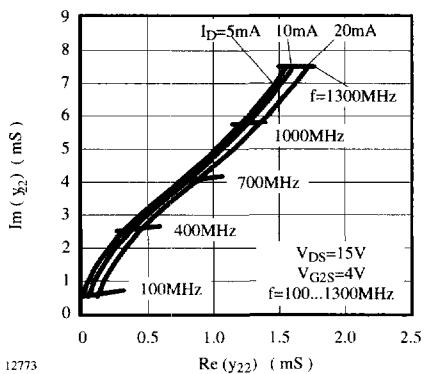


Figure 13. Short Circuit Output Admittance

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

S_{11}

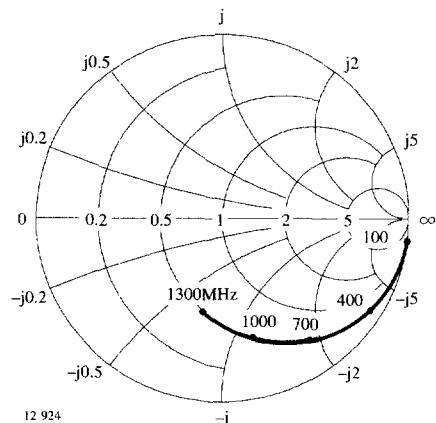


Figure 14. Input reflection coefficient

S_{12}

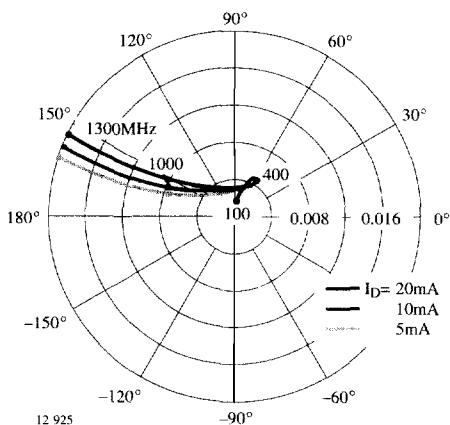


Figure 16. Reverse transmission coefficient

S_{21}

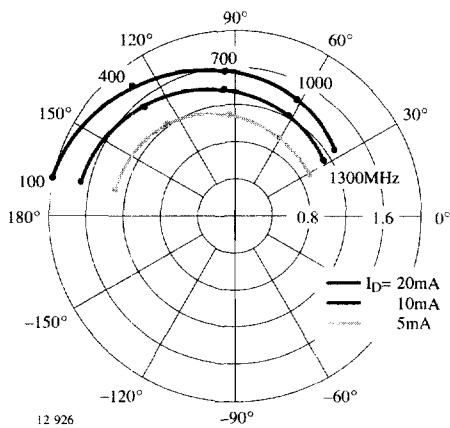


Figure 15. Forward transmission coefficient

S_{22}

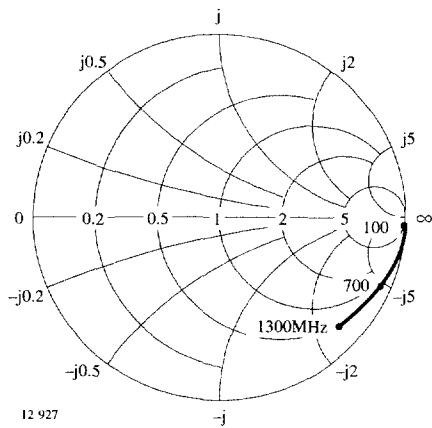
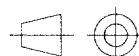
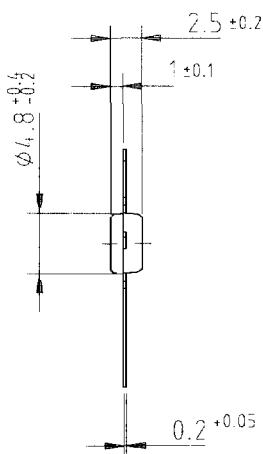
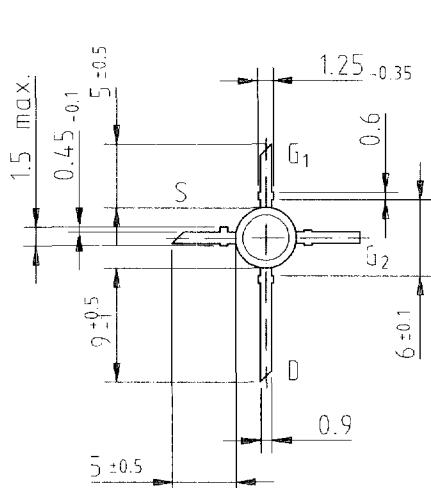


Figure 17. Output reflection coefficient

BF966S**Dimensions in mm**

96 12242

technical drawings
according to DIN
specifications