BF966S

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

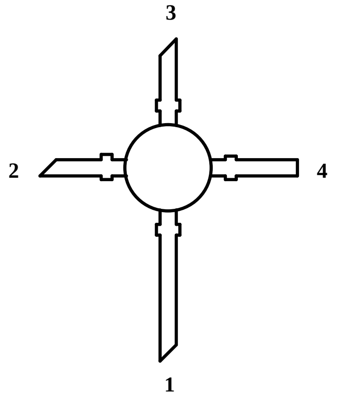
Electrostatic sensitive device.
Observe precautions for handling.

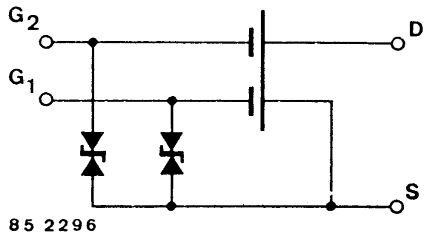
Applications

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 $T_{amb} \leq 60°C$	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°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 $\pm I_{G1S}$ = 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}	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	$\lvert y_{21s} \rvert$	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 V_{DS} = 15 V, I_D = 10 mA, V_{G2S} = 4 V, 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_{DS} = 15 V, V_{G2S} = 4... –2 V, f = 800 MHz	ΔG_{ps}	40			dB
Noise figure V_{DS} = 15 V, I_D = 10 mA, V_{G2S} = 4 V, g_S = 2 mS, f = 200 MHz f = 800 MHz	 F F		 1.0 1.8		 dB dB

Typical Characteristics (T$_j$ = 25°C unless otherwise specified)

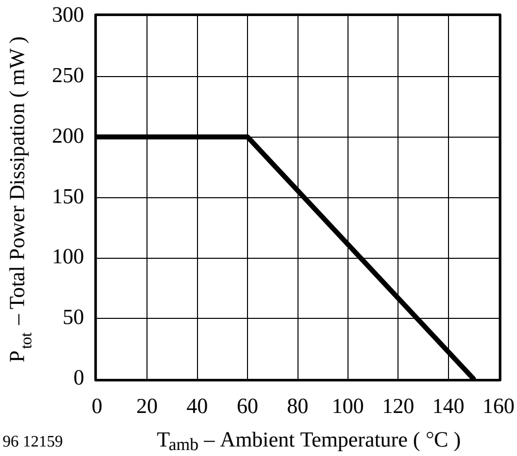


Figure 1. Total Power Dissipation vs. Ambient Temperature

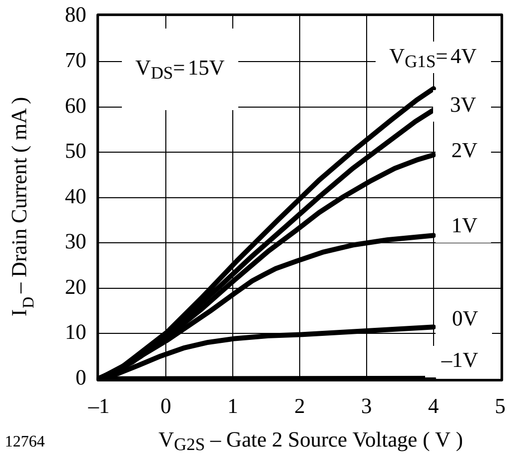


Figure 4. Drain Current vs. Gate 2 Source Voltage

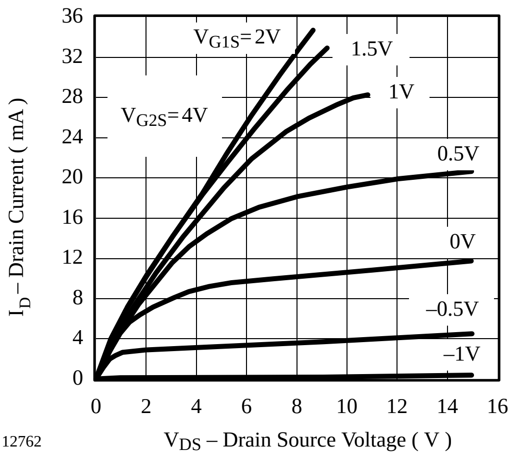


Figure 2. Drain Current vs. Drain Source Voltage

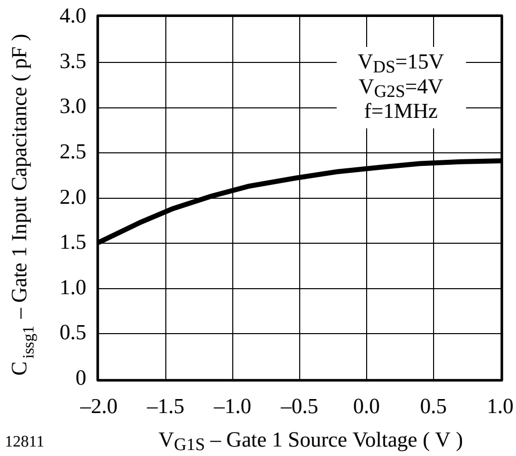


Figure 5. Gate 1 Input Capacitance vs. Gate 1 Source Voltage

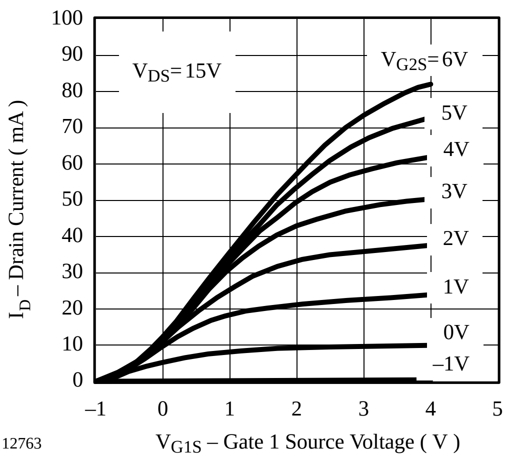


Figure 3. Drain Current vs. Gate 1 Source Voltage

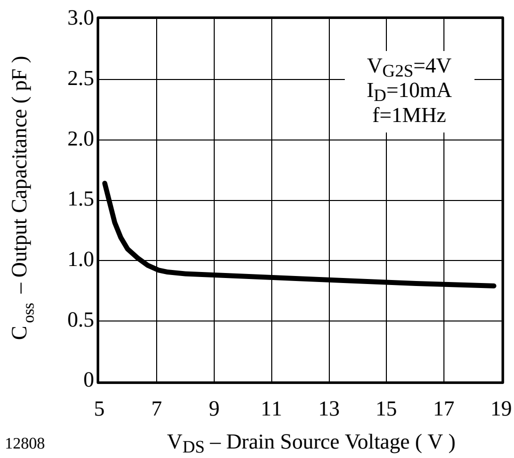


Figure 6. Output Capacitance vs. Drain Source Voltage

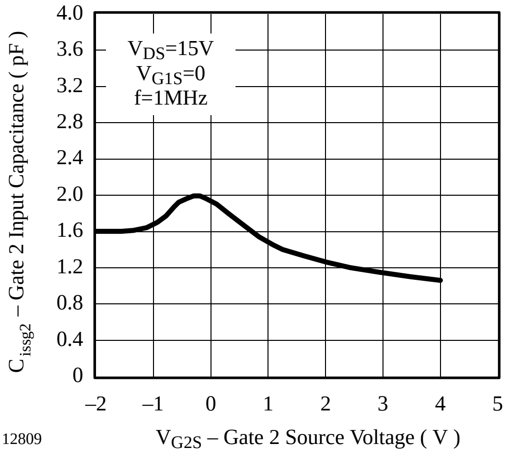


Figure 7. Gate 2 Input Capacitance vs. Gate 2 Source Voltage

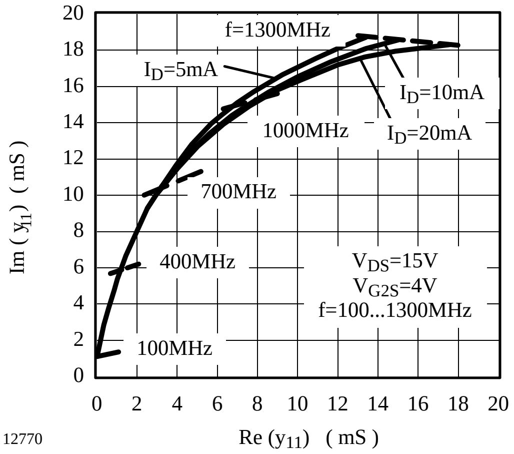


Figure 10. Short Circuit Input Admittance

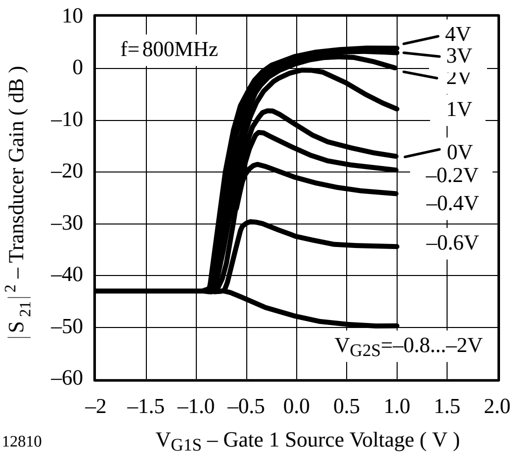


Figure 8. Transducer Gain vs. Gate 1 Source Voltage

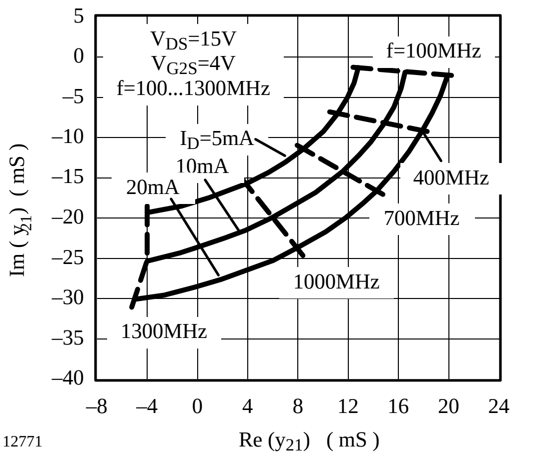


Figure 11. Short Circuit Forward Transfer Admittance

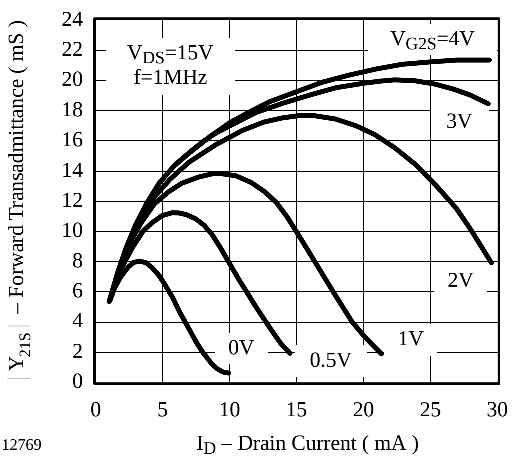


Figure 9. Forward Transadmittance vs. Drain Current

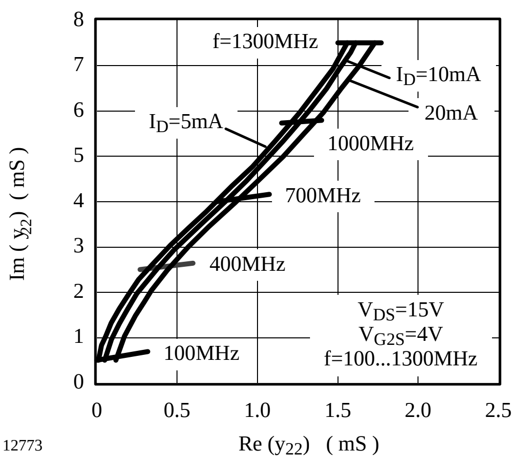
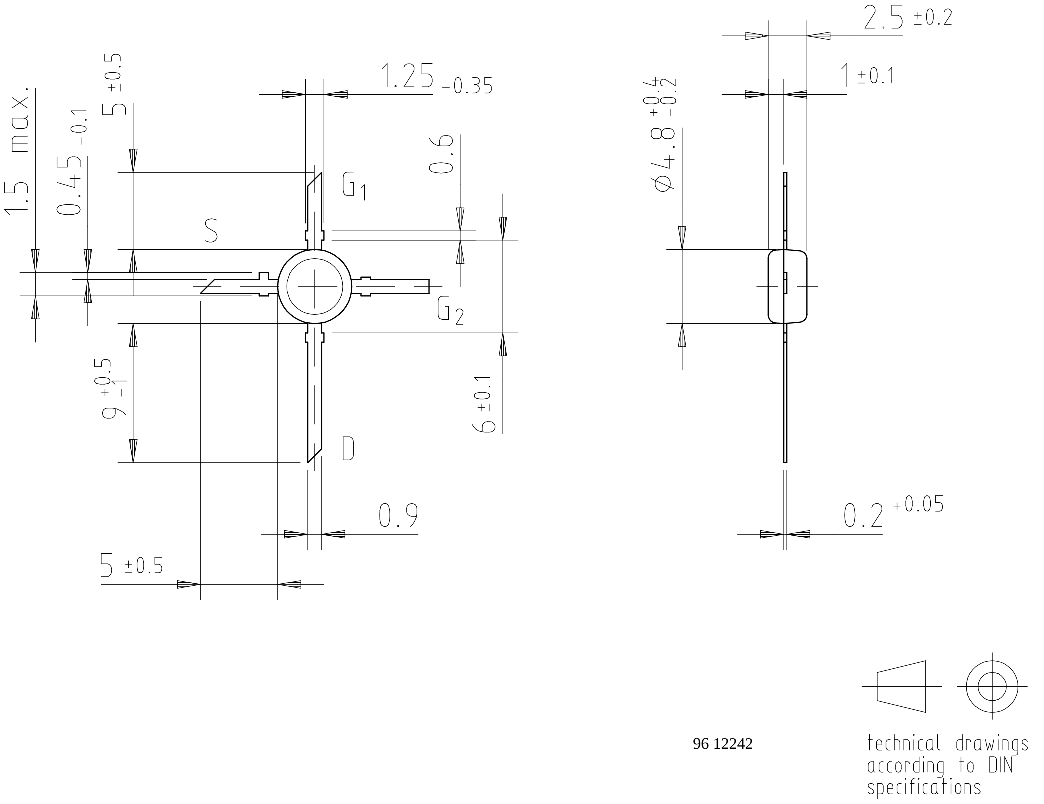


Figure 12. Short Circuit Output Admittance

Dimensions in mm



Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic GmbH** to

1. Meet all present and future national and international statutory requirements.

2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively

2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA

3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

TEMIC can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

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