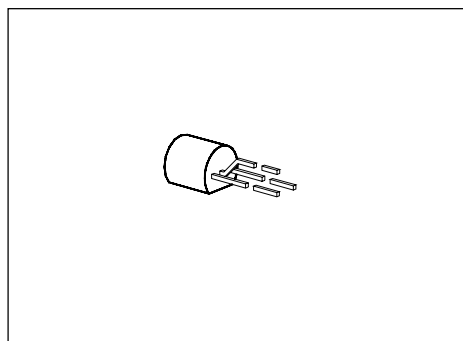


## Silicon N Channel MOSFET Triode

**BF 987**

- For high-frequency stages up to 300 MHz, preferably in FM applications
- High overload capability



Type	Marking	Ordering Code	Pin Configuration			Package <sup>1)</sup>
			1	2	3	
BF 987	–	Q62702-F35	D	S	G	TO-92

### Maximum Ratings

Parameter	Symbol	Values	Unit
Drain-source voltage	$V_{DS}$	20	V
Drain current	$I_D$	30	mA
Gate-source peak current	$\pm I_{GSM}$	10	
Total power dissipation, $T_A \leq 45 \text{ }^\circ\text{C}$	$P_{tot}$	300	mW
Storage temperature range	$T_{stg}$	– 55 ... + 150	$^\circ\text{C}$
Channel temperature	$T_{ch}$	150	

### Thermal Resistance

Junction - ambient	$R_{th JA}$	$\leq 350$	K/W
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<sup>1)</sup> For detailed information see chapter Package Outlines.

## Electrical Characteristics

at  $T_A = 25\text{ }^\circ\text{C}$ , unless otherwise specified.

Parameter	Symbol	Values			Unit
		min.	typ.	max.	

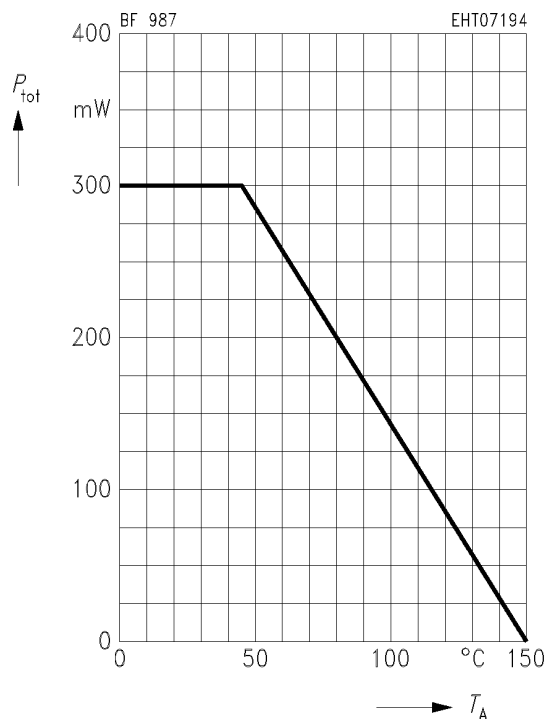
### DC Characteristics

Drain-source breakdown voltage $I_D = 10\text{ }\mu\text{A}$ , $-V_{GS} = 4\text{ V}$	$V_{(BR)DS}$	20	–	–	V
Gate-source breakdown voltage $\pm I_{GS} = 10\text{ mA}$ , $V_{DS} = 0$	$\pm V_{(BR)GSS}$	6.5	–	12	
Gate-source leakage current $\pm V_{GS} = 5\text{ V}$ , $V_{DS} = 0$	$\pm I_{GSS}$	–	–	50	nA
Drain current $V_{DS} = 10\text{ V}$ , $V_{GS} = 0$	$I_{DSS}$	5	–	18	mA
Gate-source pinch-off voltage $V_{DS} = 10\text{ V}$ , $I_D = 20\text{ }\mu\text{A}$	$-V_{GS(p)}$	–	–	2.5	V

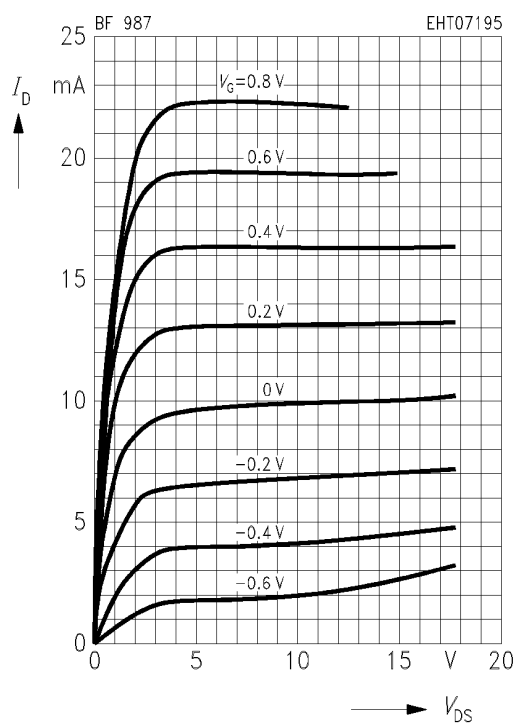
### AC Characteristics

Forward transconductance $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 1\text{ kHz}$	$g_{fs}$	14	16	–	mS
Gate input capacitance $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 1\text{ MHz}$	$C_{gss}$	–	2.7	–	pF
Reverse transfer capacitance $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 1\text{ MHz}$	$C_{dg}$	–	35	–	fF
Output capacitance $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 1\text{ MHz}$	$C_{dss}$	–	1	–	pF
Power gain (test circuit) $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 200\text{ MHz}$ , $G_G = 2\text{ mS}$ , $G_L = 0.5\text{ mS}$	$G_p$	–	25	–	dB
Noise figure (test circuit) $V_{DS} = 10\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 200\text{ MHz}$ , $G_G = 2\text{ mS}$ , $G_L = 0.5\text{ mS}$	$F$	–	1	–	

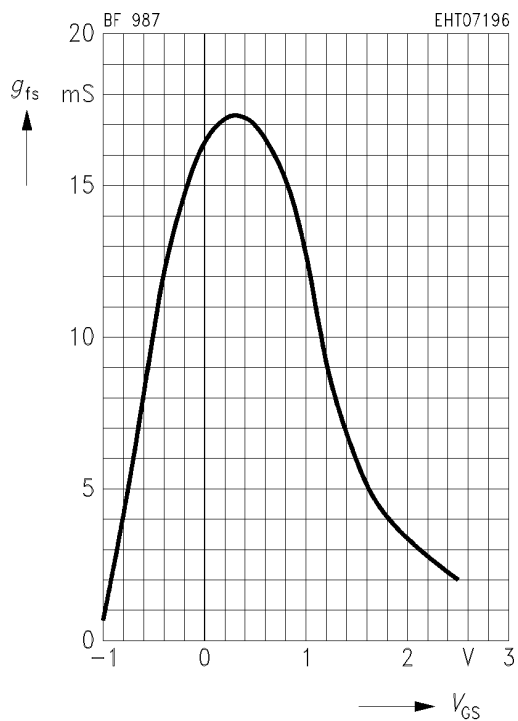
**Total power dissipation  $P_{tot} = f(T_A)$**



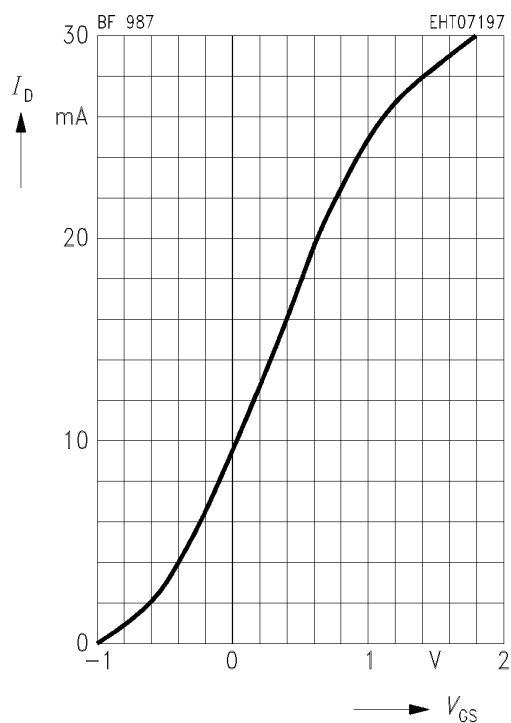
**Output characteristics  $I_D = f(V_{DS})$**



**Gate transconductance  $g_{fs} = f(V_{GS})$**   
 $V_{DS} = 10 \text{ V}, I_{DSS} = 10 \text{ mA}, f = 1 \text{ kHz}$

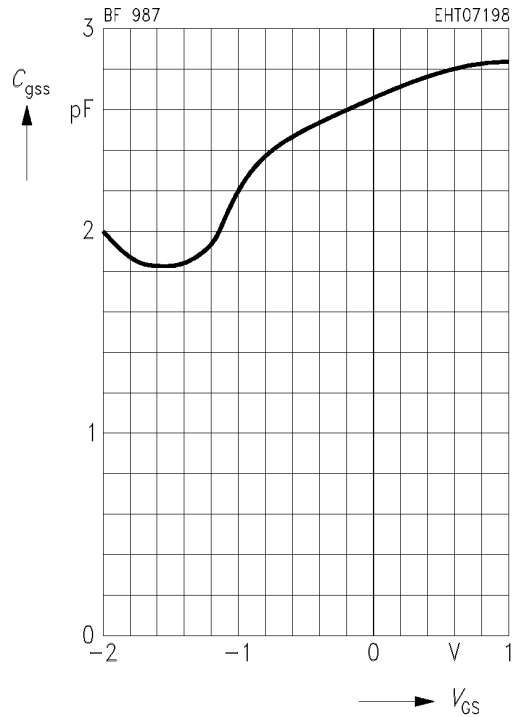


**Drain current  $I_D = f(V_{GS})$**   
 $V_{DS} = 10 \text{ V}$



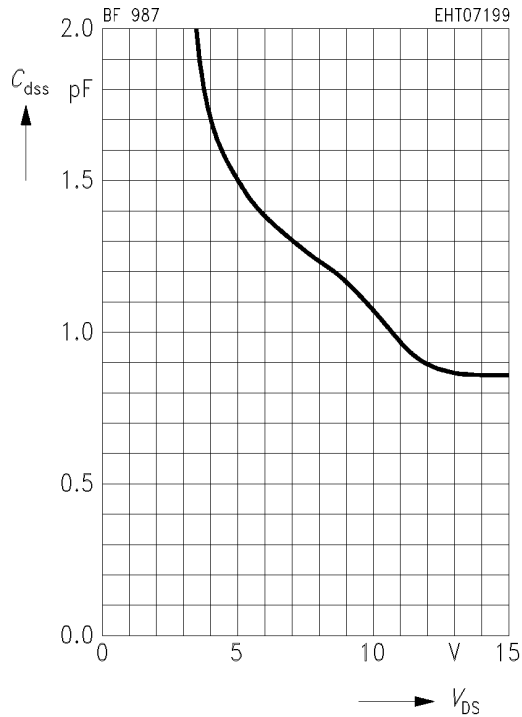
**Gate input capacitance  $C_{gss} = f(V_{GS})$**

$V_{DS} = 10\text{ V}$ ,  $I_{DSS} = 10\text{ mA}$ ,  $f = 1\text{ MHz}$



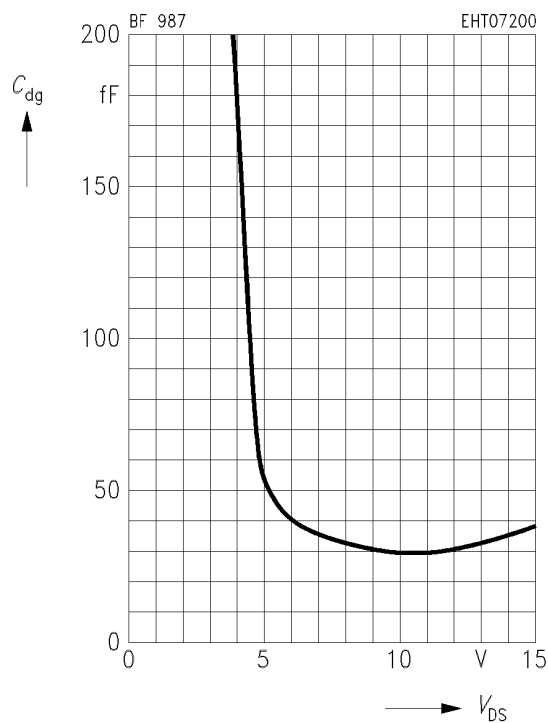
**Output capacitance  $C_{dss} = f(V_{DS})$**

$V_{GS} = 0$ ,  $I_{DSS} = 10\text{ mA}$ ,  $f = 1\text{ MHz}$



**Reverse transfer capacitance  $C_{dg} = f(V_{DS})$**

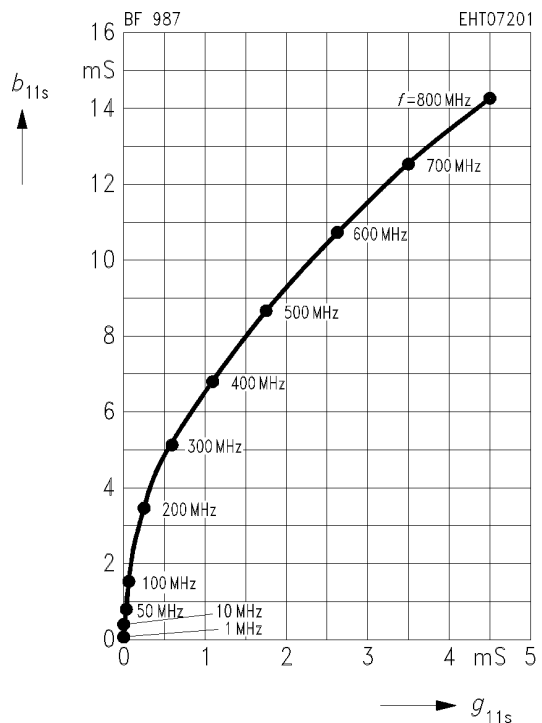
$I_{DSS} = 10\text{ mA}$ ,  $f = 1\text{ MHz}$ ,  $V_{GS} = 0$



**Gate input admittance  $y_{11s}$**

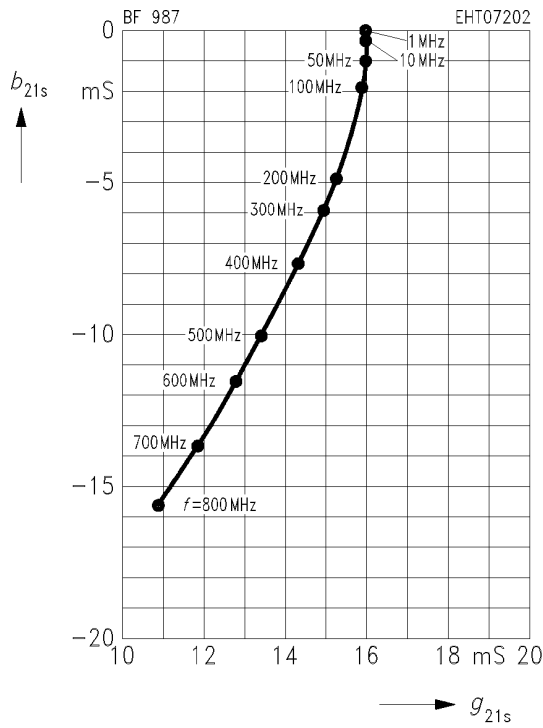
$V_{DS} = 10\text{ V}$ ,  $I_{DSS} = 10\text{ mA}$ ,  $V_G = 0$

(common source)



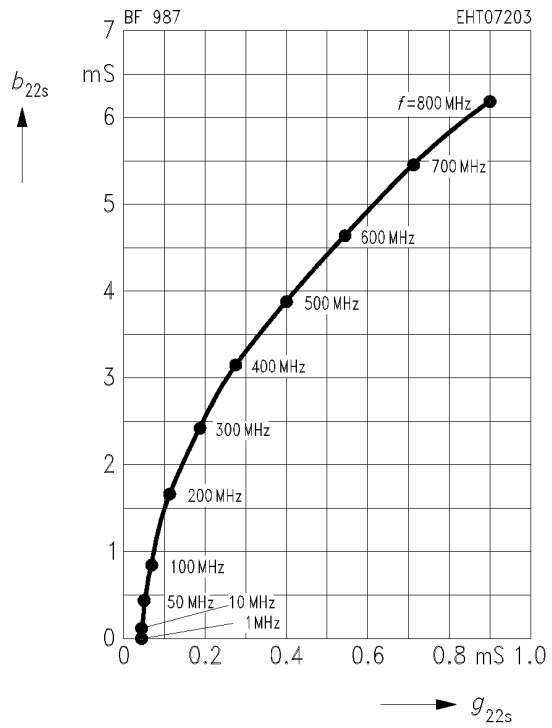
**Gate forward transfer admittance  $y_{21s}$**

$V_{DS} = 10\text{ V}$ ,  $V_G = 0$ ,  $I_{DSS} = 10\text{ mA}$   
(common source)

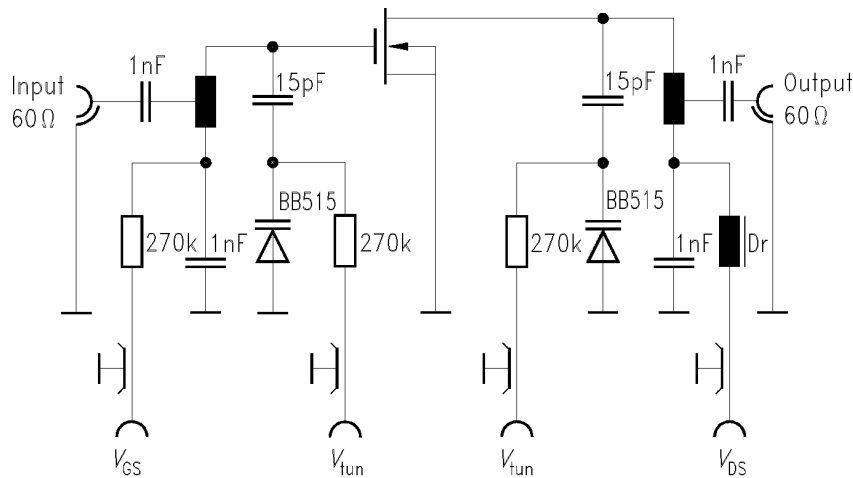


**Output admittance  $y_{22s}$**

$V_{DS} = 10\text{ V}$ ,  $I_{DSS} = 10\text{ mA}$ ,  $V_G = 0$   
(common source)



**Test circuit for power gain and noise figure**  
 $f = 200\text{ MHz}$



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