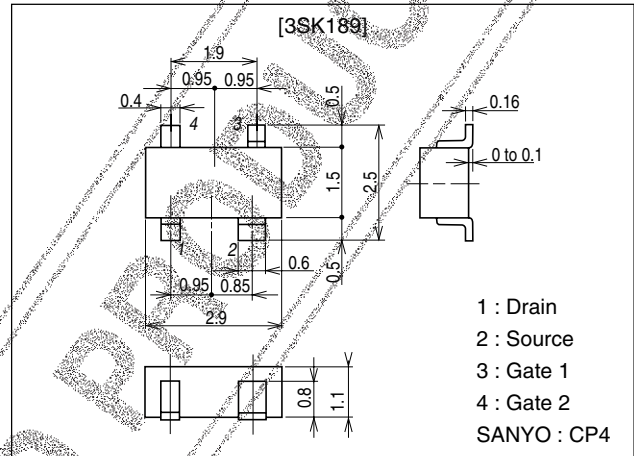


SANYO**3SK189****UHF Amplifier, Mixer Application****Features**

- Low noise figure : 1.2dB typ (0.8GHz).
- High voltage gain : 19dB typ (0.8GHz).
- Capable of being operated from low voltage ;
 $V_{DS}=5V$.

Package Dimensionsunit:mm
2046A**Specifications****Absolute Maximum Ratings at $T_a = 25^\circ C$**

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		13	V
Gate1-to-Source Voltage	V_{G1S}		+0, -3.5	V
Gate2-to-Source Voltage	V_{G2S}		± 3.5	V
Drain Current	I_D		50	mA
Gate1 Current	I_{G1}		1	mA
Gate2 Current	I_{G2}		1	mA
Allowable Power Dissipation	P_D		200	mW
Junction Temperature	T_J		125	$^\circ C$
Storage Temperature	T_{stg}		-55 to +125	$^\circ C$

Electrical Characteristics at $T_a = 25^\circ C$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Zero-Gate Voltage Drain Current	I_{DSS}	$V_{DS}=5V, V_{G1S}=V_{G2S}=0V$	8.5		40	mA
Gate2-to-Drain Current	I_{G2D}	$V_{DD}=13V$			50	mA
Gate1-to-Source Leakage Current	I_{G1SS}	$V_{G1S}=-3.5V, V_{DS}=V_{G2S}=0V$			20	μA
Gate2-to-Source Leakage Current	I_{G2SS}	$V_{G2S}=-3.5V, V_{DS}=V_{G1S}=0V$			20	μA
Drain-to-Source Breakdown Voltage	$V_{(BR)DSX}$	$V_{G1S}=-3.5V, V_{G2S}=0, I_D=50\mu A$	13			V
Gate1-to-Source Cutoff Voltage	$V_{G1S(off)}$	$V_{DS}=5V, V_{G2S}=0V, I_D=200\mu A$			-3.5	V
Gate2-to-Source Cutoff Voltage	$V_{G2S(off)}$	$V_{DS}=5V, V_{G1S}=0V, I_D=200\mu A$			-3.5	V

Continued on next page.

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SANYO Electric Co.,Ltd. Semiconductor Company

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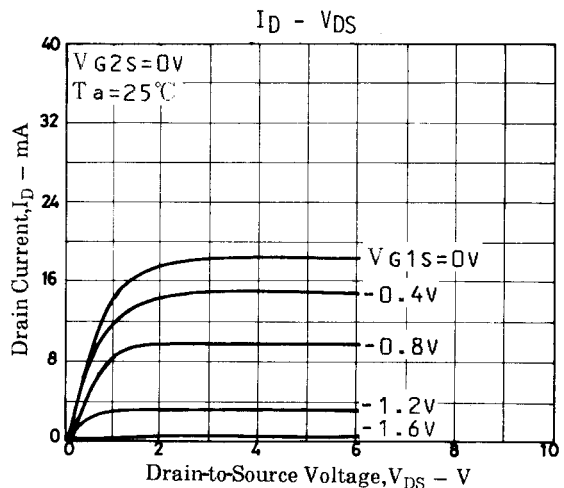
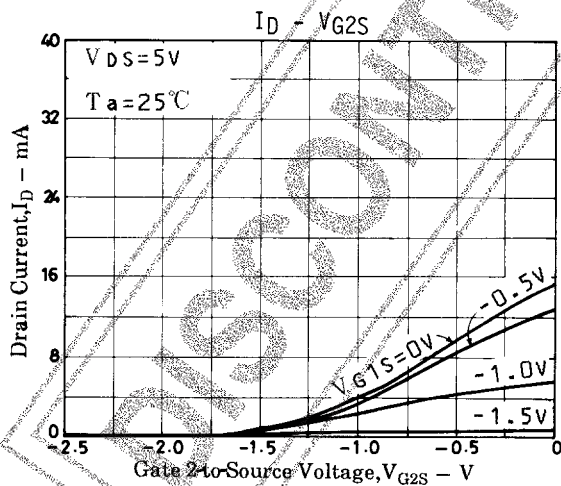
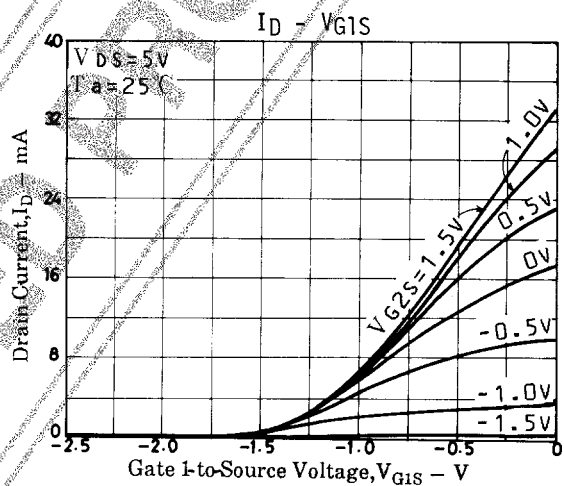
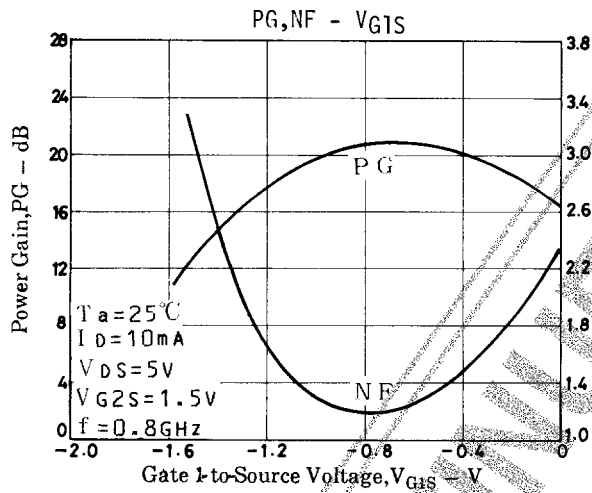
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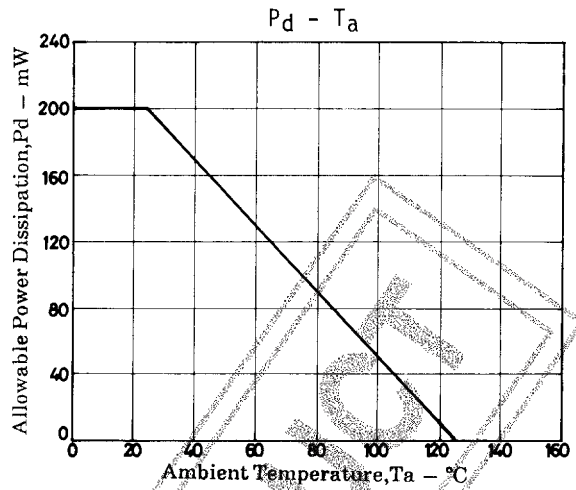
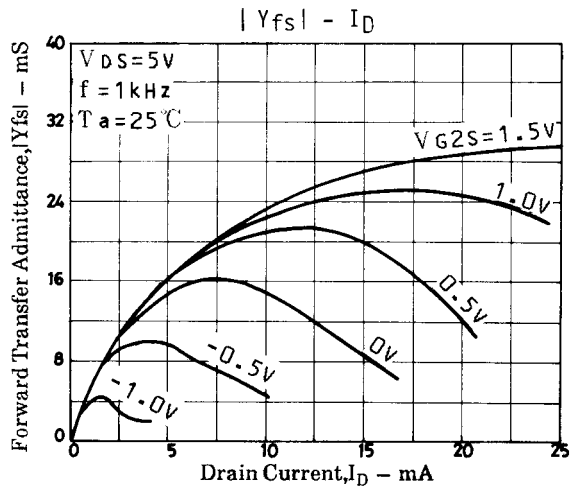
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Forward Transfer Admittance	$ y_{fs} $	$f=1\text{kHz}, I_D=10\text{mA}, V_{DS}=5\text{V}, V_{G2S}=1.5\text{V}$	14	19		mS
Input Capacitance	C_{iss}	$V_{DS}=5\text{V}, f=1\text{MHz}, V_{G1S}=V_{G2S}=-3.5\text{V}$		0.6	2.0	pF
Output Capacitance	C_{oss}	$V_{DS}=5\text{V}, f=1\text{MHz}, V_{G1S}=V_{G2S}=-3.5\text{V}$		0.35	1.2	pF
Reverse Transfer Capacitance	C_{rss}	$V_{DS}=5\text{V}, f=1\text{MHz}, V_{G1S}=V_{G2S}=-3.5\text{V}$		0.02	0.04	pF
Noise Figure	*NF	$V_{DS}=5\text{V}, I_D=10\text{mA}, f=0.8\text{GHz}, V_{G2S}=1.5\text{V}$, See specified Test Circuit		1.2	2.8	dB
Power Gain	*PG	$V_{DS}=5\text{V}, I_D=10\text{mA}, f=0.8\text{GHz}, V_{G2S}=1.5\text{V}$, See specified Test Circuit	13	19	23	dB
Gain Reduction	*GR	$V_{DS}=5\text{V}, f=0.8\text{GHz}, V_{AGC}=1.5/-3.5\text{V}$	37	45		dB

* When testing other characteristics than these characteristics, connect a series resistor of 33kΩ to G1, G2, respectively.
The 3SK189 is classified by I_{DSS} as follows : (unit : mA)

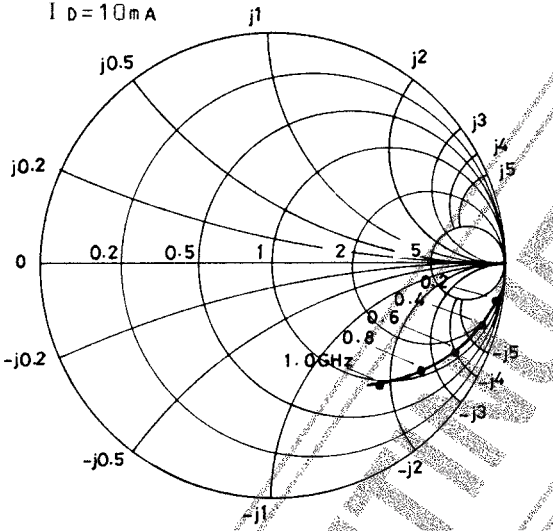
Rank	2	3	4	5	6
I_{DSS}	8.5 to 17	15 to 21	19 to 30	25 to 35	30 to 40



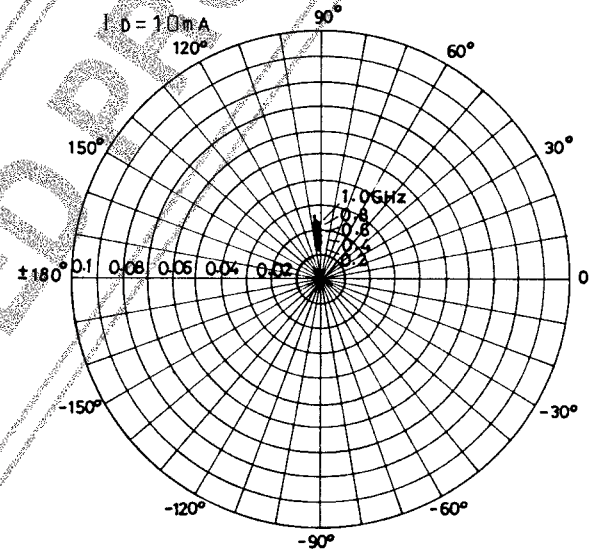
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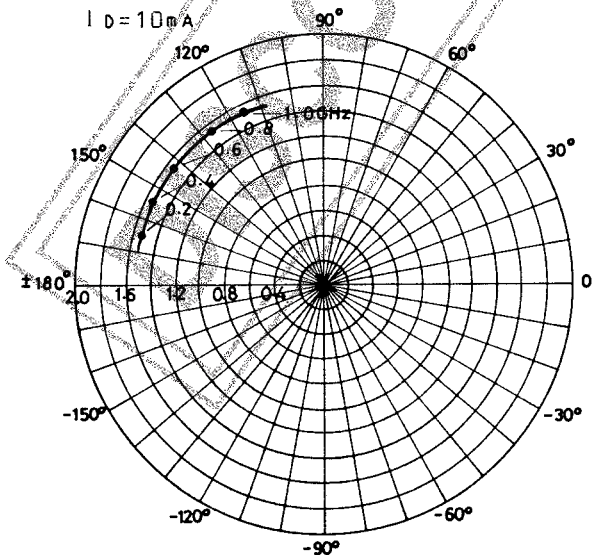
S11S: $V_{DS} = 5V$
 $V_{GS} = 1.5V$
 $I_D = 10mA$



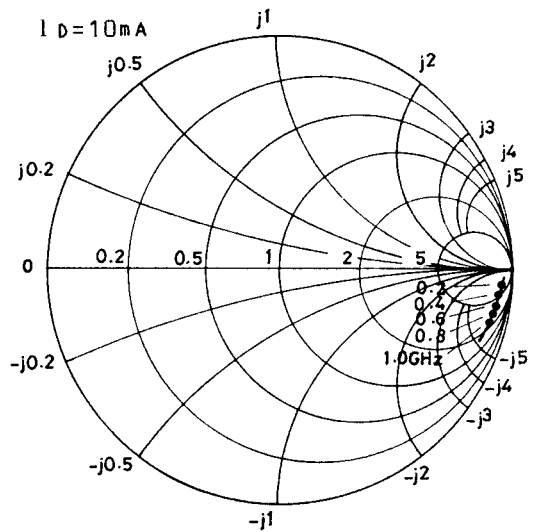
S12S: $V_{DS} = 5V$
 $V_{GS} = 1.5V$
 $I_D = 10mA$



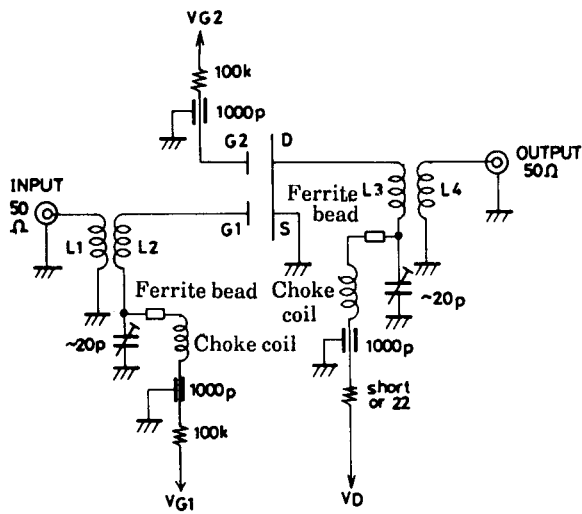
S21S: $V_{DS} = 5V$
 $V_{GS} = 1.5V$
 $I_D = 10mA$



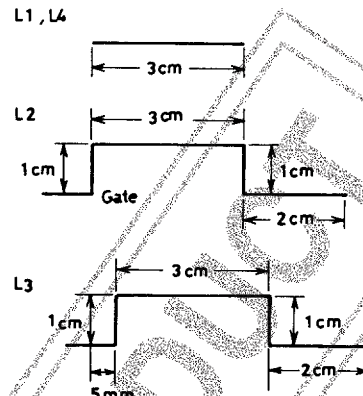
S22S: $V_{DS} = 5V$
 $V_{GS} = 1.5V$
 $I_D = 10mA$



PG, NF Specified Test Circuit



Coil Data 1.5mm \varnothing Sn-plated Cu wire



Unit (Resistance : Ω , Capacitance : F)

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