

**SANYO**

No.2671

**3SK189**

GaAs Dual Gate MES FET

UHF Amp, 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;  $V_{DS} = 5V$ .

**Absolute Maximum Ratings at  $T_a = 25^\circ C$** 

			unit
Drain-to-Source Voltage	$V_{DS}$	13	V
Gate 1-to-Source Voltage	$V_{G1S}$	+0, -3.5	V
Gate 2-to-Source Voltage	$V_{G2S}$	$\pm 3.5$	V
Drain Current	$I_D$	50	mA
Gate 1 Current	$I_{G1}$	1	mA
Gate 2 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	$^\circ C$

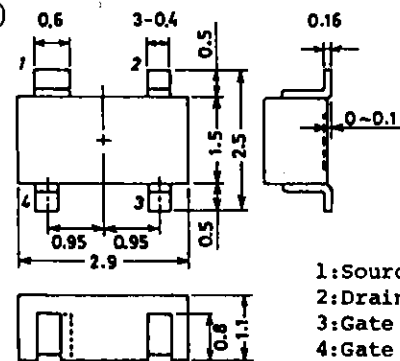
**Electrical Characteristics at  $T_a = 25^\circ C$** 

			min	typ	max	unit
Drain Current	$I_{DSS}$	$V_{DS} = 5V, V_{G1S} = V_{G2S} = 0V$	8.5		40	mA
Gate 2-to-Drain Current	$I_{G2DO}$	$V_{DD} = 13V$			50	mA
Gate 1 Cutoff Current	$I_{G1SS}$	$V_{G1S} = -3.5V, V_{DS} = V_{G2S} = 0V$			20	$\mu A$
Gate 2 Cutoff Current	$I_{G2SS}$	$V_{G2S} = -3.5V, V_{DS} = V_{G1S} = 0V$			20	$\mu A$
Drain-to-Source Breakdown Voltage	$V_{(BR)DSX}$	$V_{G1S} = -3.5V, V_{G2S} = 0V, I_D = 50\mu A$	13			V
Gate 1 Source Cutoff Voltage	$V_{G1S(off)}$	$V_{DS} = 5V, V_{G2S} = 0V, I_D = 200\mu A$			-3.5	V
Gate 2 Source Cutoff Voltage	$V_{G2S(off)}$	$V_{DS} = 5V, V_{G1S} = 0V, I_D = 200\mu A$			-3.5	V
Forward Transfer Admittance	$ Y_{fs} $	$f = 1kHz, I_D = 10mA, V_{DS} = 5V, V_{G2S} = 1.5V$	14	19		mS
Input Capacitance	$c_{iss}$	$V_{DS} = 5V, f = 1MHz,$		0.6	2.0	pF
Output Capacitance	$c_{oss}$	$V_{G1S} = V_{G2S} = -3.5V$		0.35	1.2	pF
Reverse Transfer Capacitance	$c_{rss}$			0.02	0.04	pF
Noise Figure	※NF	$V_{DS} = 5V, I_D = 10mA, f = 0.8GHz$		1.2	2.8	dB
Power Gain	※PG	$V_{G2S} = 1.5V, \text{See specified Test Circuit.}$	13	19	23	dB
Gain Reduction	※GR	$V_{DS} = 5V, f = 0.8GHz,$ $V_{AGC} = 1.5/-3.5V$	37	45		dB

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**Package Dimensions 2046**

(unit: mm)



1:Source  
2:Drain  
3:Gate 2  
4:Gate 1

SANYO : CP4

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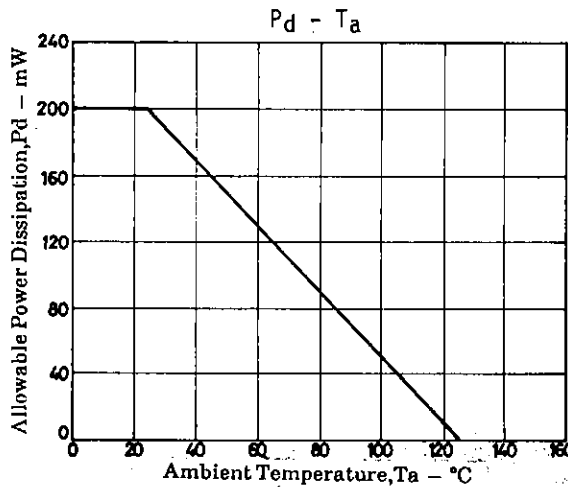
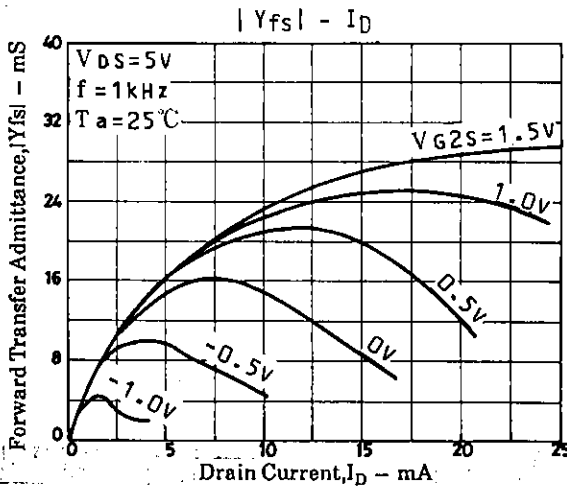
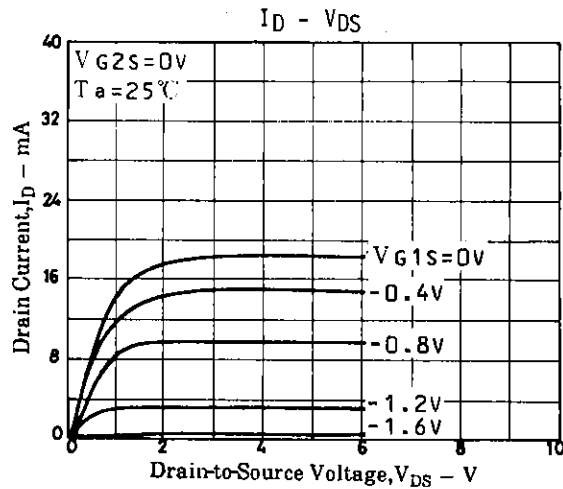
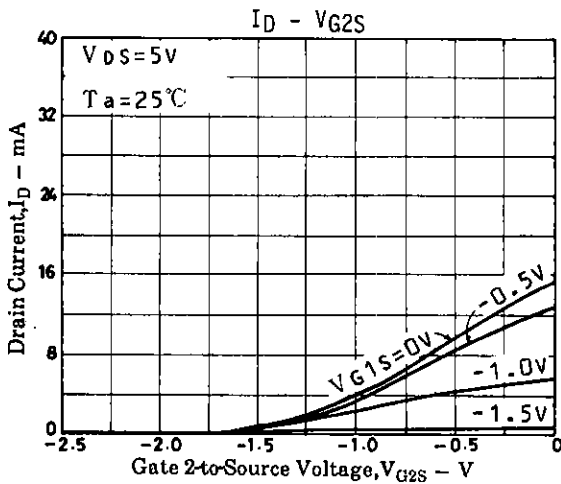
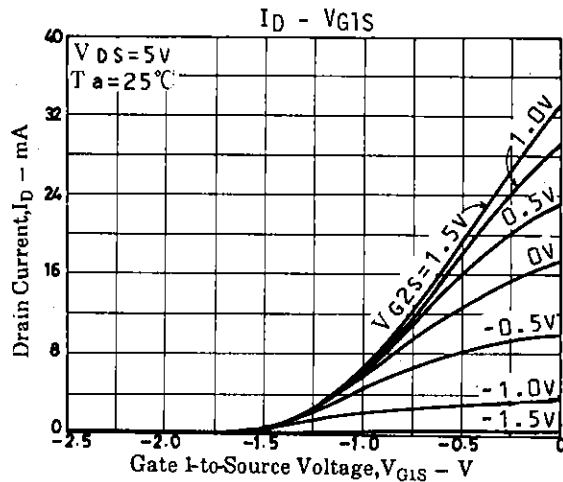
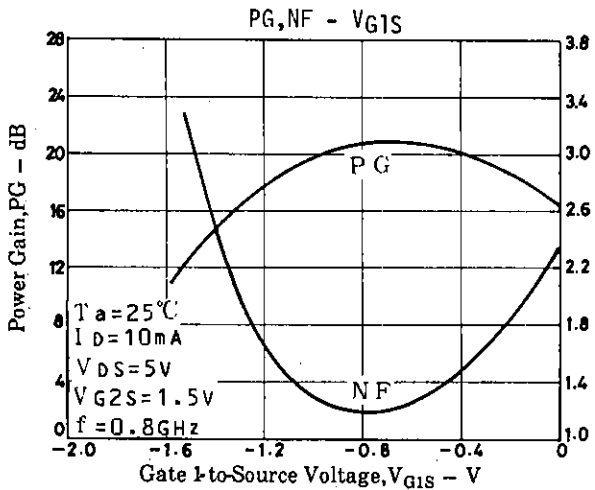
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※ When testing other characteristics than these characteristics, connect a series resistor of 33kΩ to G1, G2, respectively.

The 3SK189 is classified by  $I_{DSS}$  as follows: (unit: mA)

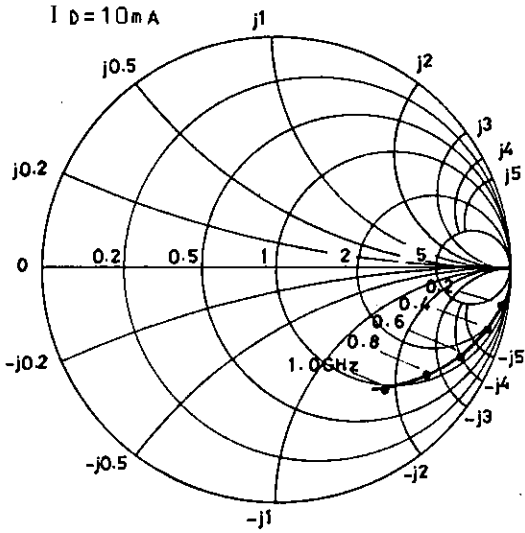
Rank	2	3	4	5	6
$I_{DSS}$	8.5 to 17	15 to 21	19 to 30	25 to 35	30 to 40



S11S:  $V_{DS}=5V$

$V_{G2S}=1.5V$

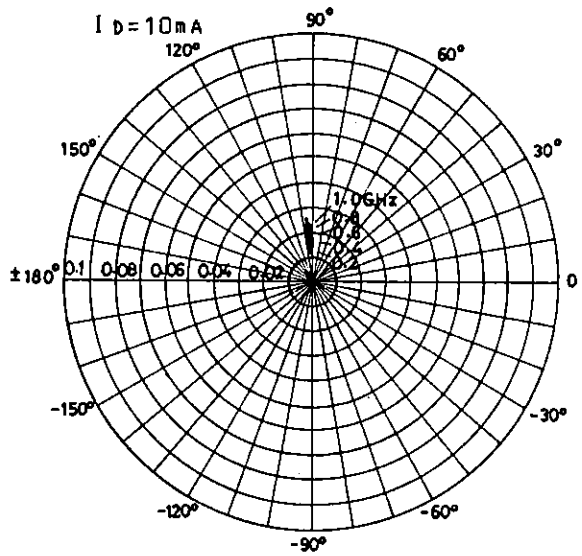
$I_D=10mA$



S12S:  $V_{DS}=5V$

$V_{G2S}=1.5V$

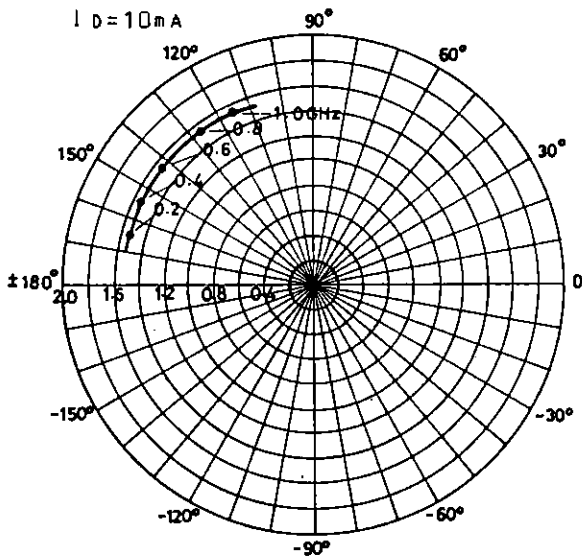
$I_D=10mA$



S21S:  $V_{DS}=5V$

$V_{G2S}=1.5V$

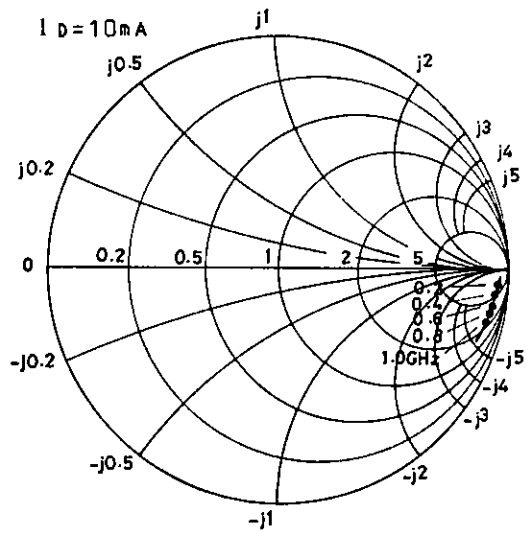
$I_D=10mA$



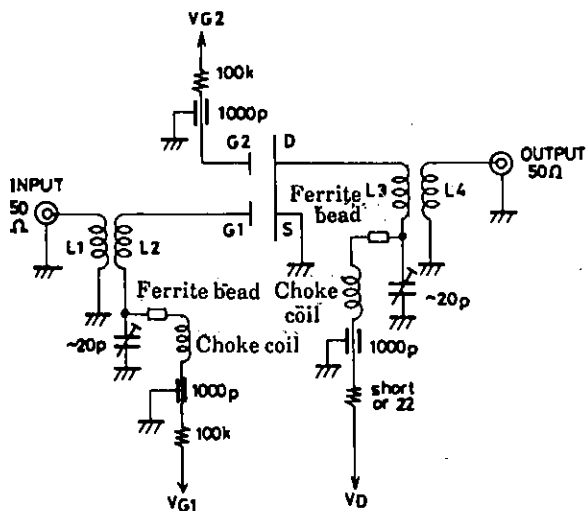
S22S:  $V_{DS}=5V$

$V_{G2S}=1.5V$

$I_D=10mA$

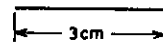


PG,NF Test Circuit



Coil Data 1.5mm $\varnothing$  Sn-plated Cu wire

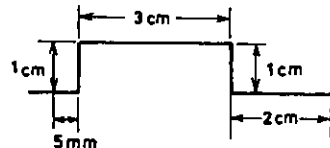
L1, L4



L2



L3



Unit (Resistance :  $\Omega$ , Capacitance : F)

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