Ordering number: EN 2671

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 Ta=25°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}	±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	Tj	125	°C
Storage Temperature	Tstg	−55 to +125	°C

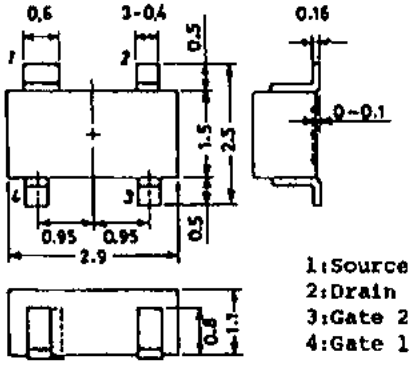
Electrical Characteristics at Ta=25°C

			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	μA
Gate 2 Cutoff 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}=0V, I_D=50μA	13			V
Gate 1 Source Cutoff Voltage	$V_{G1S(off)}$	V_{DS}=5V, V_{G2S}=0V, I_D=200μA			−3.5	V
Gate 2 Source Cutoff Voltage	$V_{G2S(off)}$	V_{DS}=5V, V_{G1S}=0V, I_D=200μA			−3.5	V
Forward Transfer Admittance	|Yfs|	f=1kHz, I_D=10mA, V_{DS}=5V, V_{G2S}=1.5V	14	19		mS
Input Capacitance	C_{iss}	V_{DS}=5V, f=1MHz, V_{G1S}=V_{G2S}=−3.5V		0.6	2.0	pF
Output Capacitance	C_{oss}			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, 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

Continued on next page.

Package Dimensions 2046

(unit: mm)



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

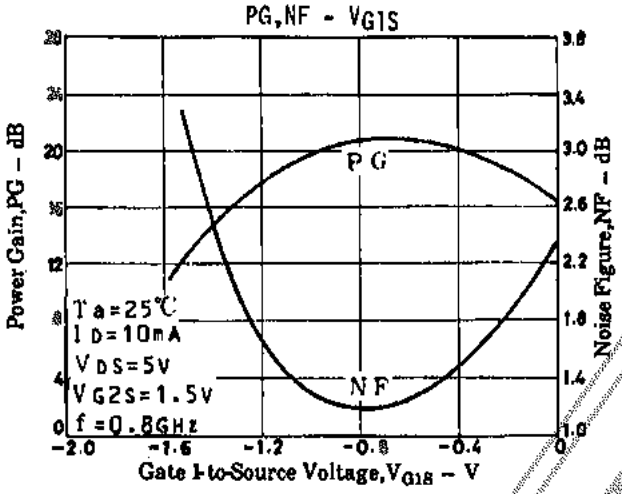
SANYO : CP4

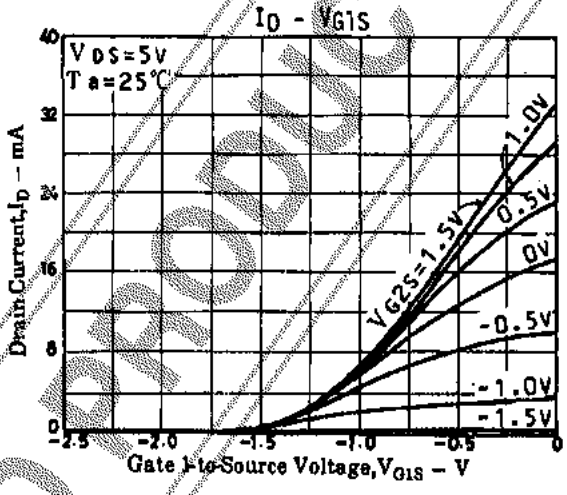
SANYO Electric Co., Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

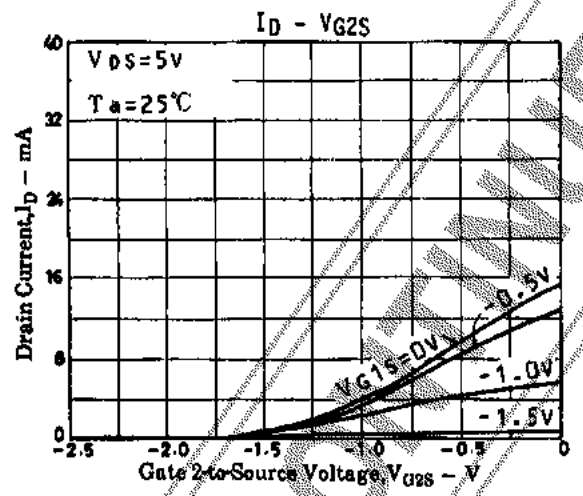
Continued from preceding page.

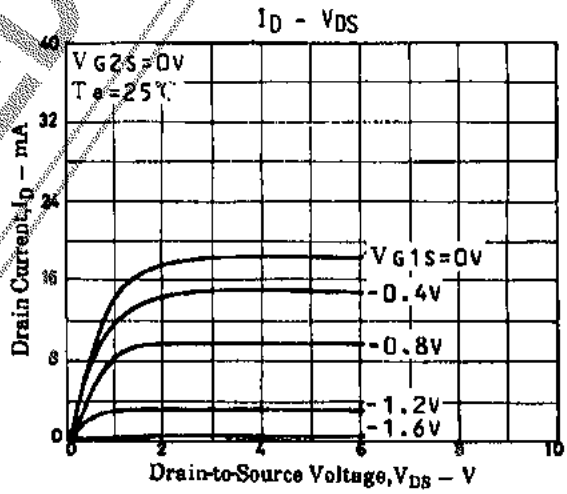
※ When testing other characteristics than these characteristics, connect a series resistor of 33kΩ to G1, G2, respectively.
The 3SK189 is classified by I_{DSS} as follows: (unit:mA)

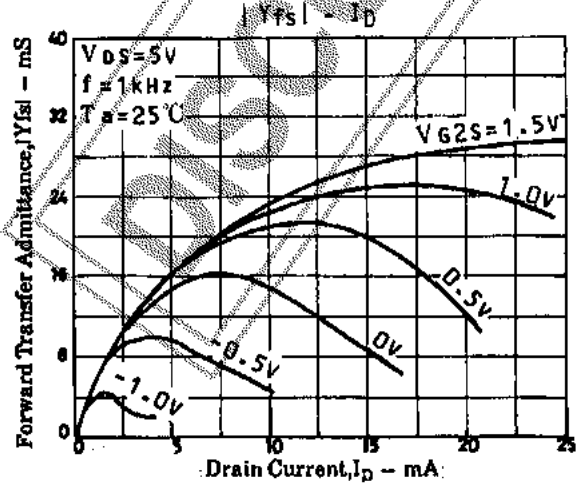
Rank	2	3	4	5	6
I_{DSS}	8.5 to 17	15 to 21	19 to 30	25 to 35	30 to 40

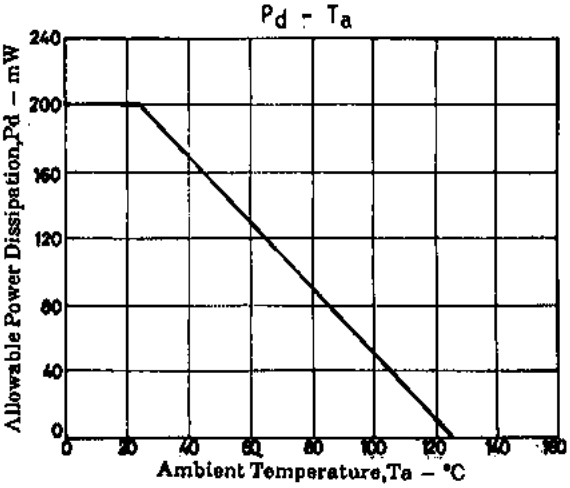




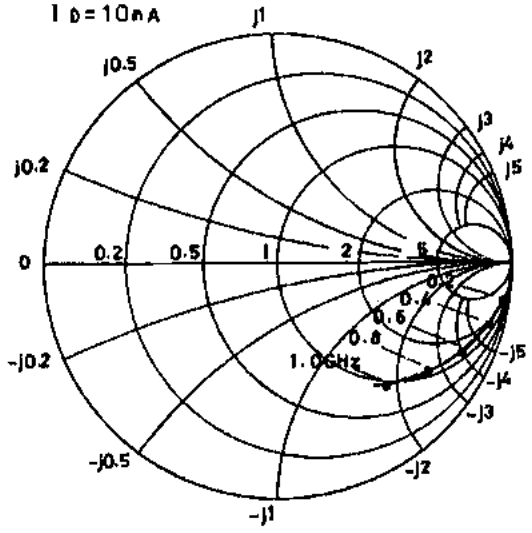




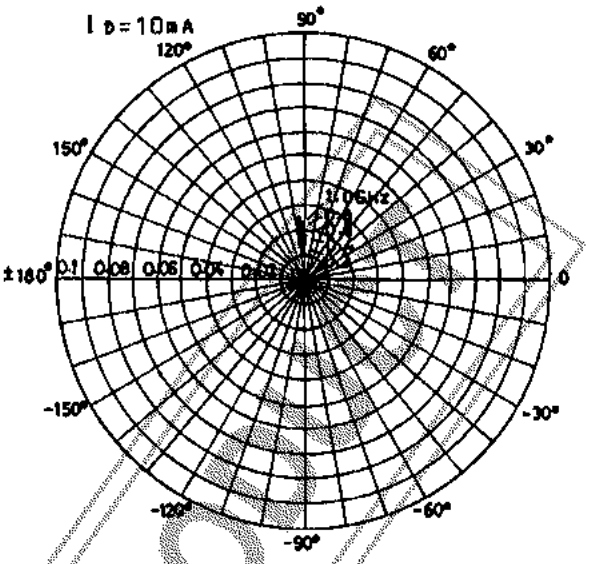




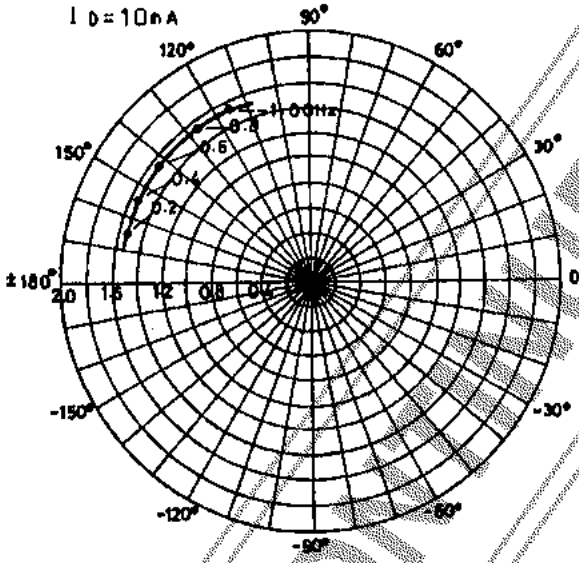
S11S : VDS=5V
VG2S=1.5V
ID=10mA



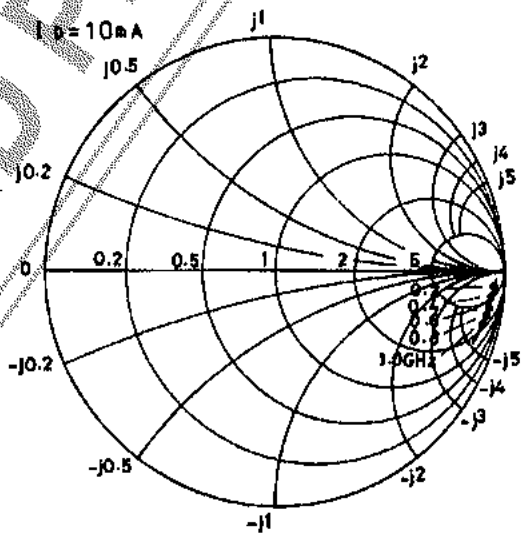
S12S : VDS=5V
VG2S=1.5V
ID=10mA



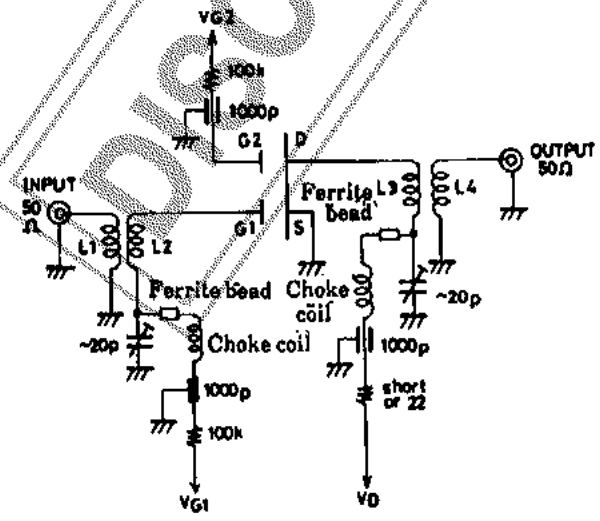
S21S : VDS=5V
VG2S=1.5V
ID=10mA



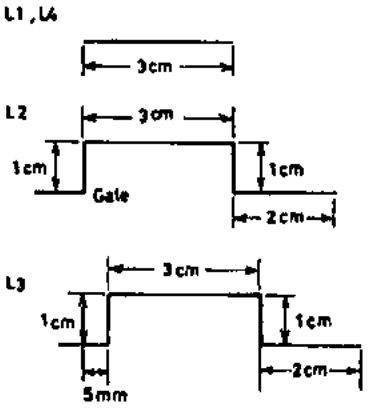
S22S : VDS=5V
VG2S=1.5V
ID=10mA



PG,NF Test Circuit



Coil Data 1.5mmØ Sn-plated Cu wire



Unit (Resistance : Ω, Capacitance : F)

■ No products described or contained herein are intended for use in surgical implants, life-support systems, aerospace equipment, nuclear power control systems, vehicles, disaster/crime-prevention equipment and the like, the failure of which may directly or indirectly cause injury, death or property loss.

■ Anyone purchasing any products described or contained herein for an above-mentioned use shall:
① Accept full responsibility and indemnify and defend SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors and all their officers and employees, jointly and severally, against any and all claims and litigation and all damages, cost and expenses associated with such use:
② Not impose any responsibility for any fault or negligence which may be cited in any such claim or litigation on SANYO ELECTRIC CO., LTD., its affiliates, subsidiaries and distributors or any of their officers and employees jointly or severally.

■ Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.