

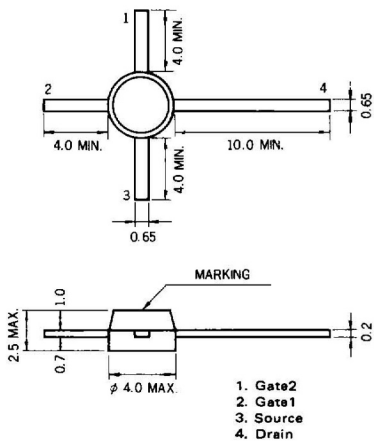
# 3SK88 Datasheet



## MOS FIELD EFFECT TRANSISTOR 3SK88

### RF AMP. FOR UHF TV TUNER N-CHANNEL SILICON DUAL-GATE MOS FIELD-EFFECT TRANSISTOR DISK MOLD

#### PACKAGE DIMENSIONS (Unit : mm)



#### FEATURES

- Suitable for use as RF amplifier in UHF TV tuner.
- Low  $C_{rss}$  : 0.02 pF TYP.
- High  $G_{ps}$  : 16 dB TYP.
- Low NF : 3.8 dB TYP.

#### ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

Drain to Source Voltage	$V_{DSX}$	20	V
Gate1 to Source Voltage	$V_{G1S}$	$\pm 10$	V
Gate2 to Source Voltage	$V_{G2S}$	$\pm 10$	V
Drain Current	$I_D$	25	mA
Total Power Dissipation	$P_T$	200	mW
Channel Temperature	$T_{ch}$	125	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-65 to +125	$^\circ\text{C}$

#### ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

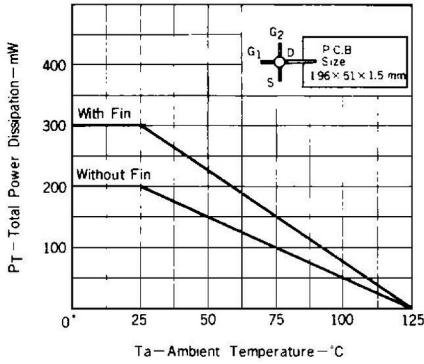
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	$BV_{DSX}$	20			V	$V_{G1S} = V_{G2S} = -2\text{ V}$ , $I_D = 10\ \mu\text{A}$
Drain Current	$I_{DSS}$	0.01		6	mA	$V_{DS} = 10\text{ V}$ , $V_{G2S} = 4\text{ V}$ , $V_{G1S} = 0$
Gate1 to Source Cutoff Voltage	$V_{G1S(off)}$			-2.0	V	$V_{DS} = 10\text{ V}$ , $V_{G2S} = 4\text{ V}$ , $I_D = 10\ \mu\text{A}$
Gate2 to Source Cutoff Voltage	$V_{G2S(off)}$			-0.7	V	$V_{DS} = 10\text{ V}$ , $V_{G1S} = 4\text{ V}$ , $I_D = 10\ \mu\text{A}$
Gate1 Reverse Current	$I_{G1SS}$			20	nA	$V_{DS} = 0$ , $V_{G1S} = \pm 10\text{ V}$ , $V_{G2S} = 0$
Gate2 Reverse Current	$I_{G2SS}$			20	nA	$V_{DS} = 0$ , $V_{G2S} = \pm 10\text{ V}$ , $V_{G1S} = 0$
Forward Transfer Admittance	$ Y_{fs} $	14	17		mS	$V_{DS} = 10\text{ V}$ , $V_{G2S} = 4\text{ V}$ , $I_D = 10\text{ mA}$ , $f = 1\text{ kHz}$
Input Capacitance	$C_{iss}$	1.5	2.0	2.5	pF	$V_{DS} = 10\text{ V}$ , $V_{G2S} = 4\text{ V}$ , $I_D = 10\text{ mA}$ $f = 1\text{ MHz}$
Output Capacitance	$C_{oss}$	0.5	1.0	1.5	pF	
Reverse Transfer Capacitance	$C_{rss}$		0.02	0.03	pF	$V_{DS} = 10\text{ V}$ , $V_{G2S} = 4\text{ V}$ , $I_D = 10\text{ mA}$ $f = 900\text{ MHz}$
Power Gain	$G_{ps}^*$	14	16	18	dB	
Noise Figure	NF*		3.8	5.5	dB	

$I_{DSS}$  Classification L: 0.01 – 2 mA K: 1 – 6 mA

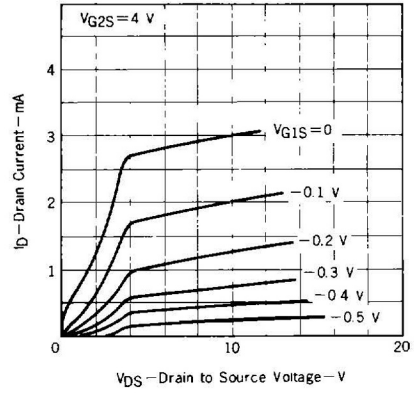
\*See Test Circuit

TYPICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

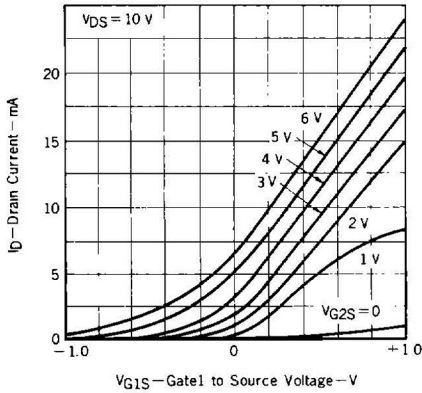
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



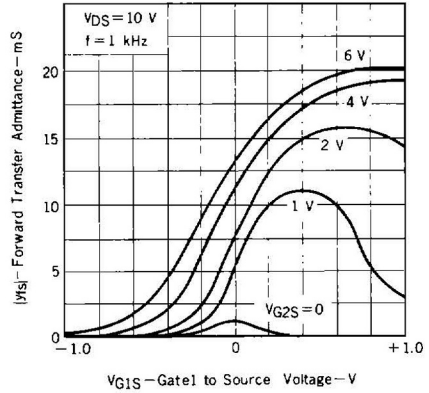
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



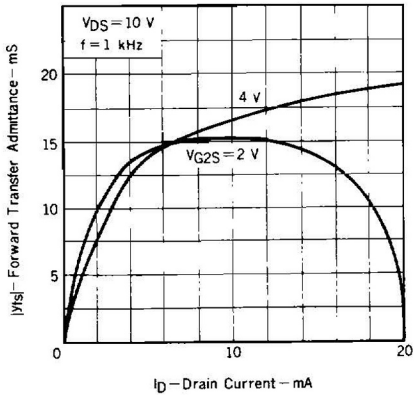
DRAIN CURRENT vs. GATE1 TO SOURCE VOLTAGE



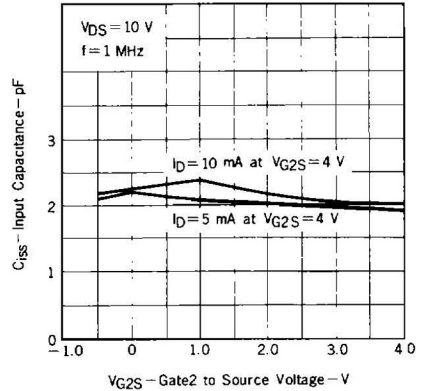
FORWARD TRANSFER ADMITTANCE vs. GATE1 TO SOURCE VOLTAGE



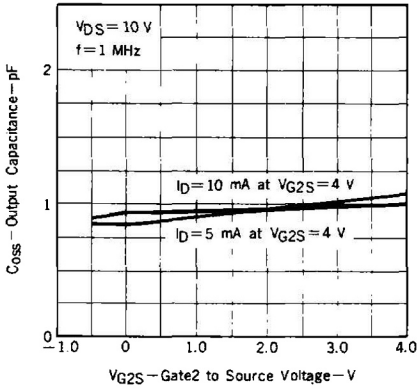
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



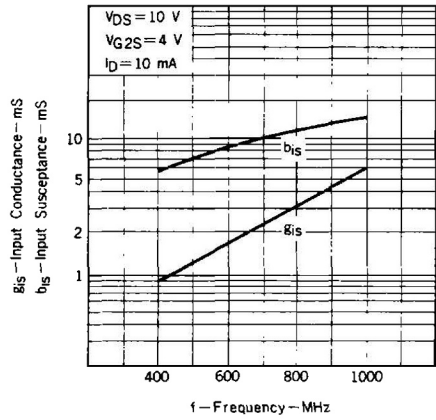
INPUT CAPACITANCE vs. GATE2 TO SOURCE VOLTAGE



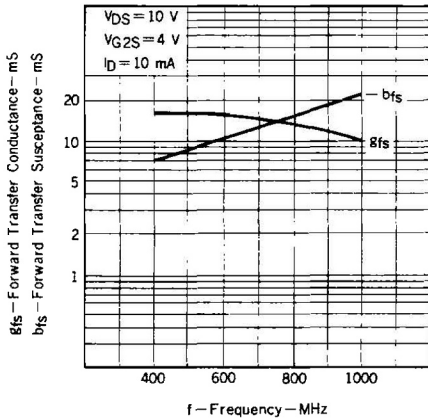
OUTPUT CAPACITANCE vs. GATE2 TO SOURCE VOLTAGE



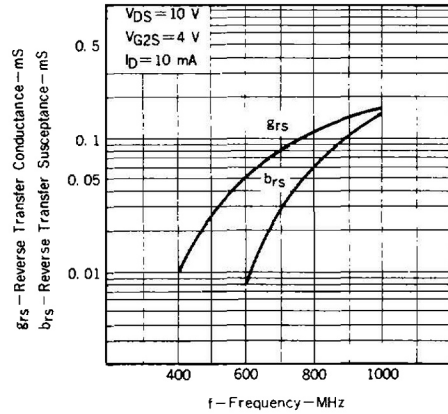
INPUT ADMITTANCE vs. FREQUENCY



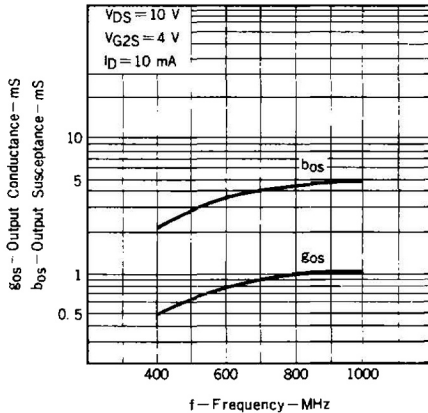
FORWARD TRANSFER ADMITTANCE vs. FREQUENCY



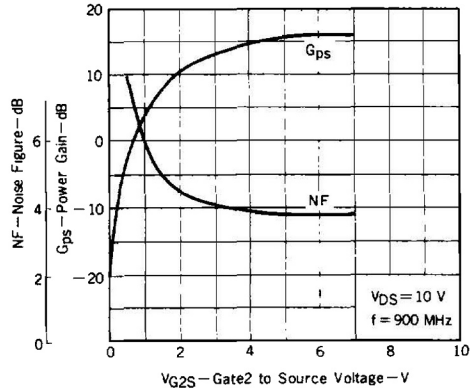
REVERSE TRANSFER ADMITTANCE vs. FREQUENCY



OUTPUT ADMITTANCE vs. FREQUENCY



POWER GAIN AND NOISE FIGURE vs. GATE2 TO SOURCE VOLTAGE



900 MHz  $G_{ps}$  AND NF TEST CIRCUIT

