

MOS FIELD EFFECT TRANSISTOR

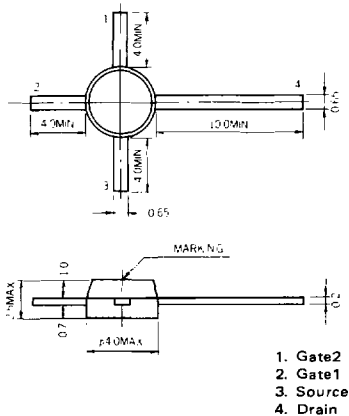
3SK74

RF AMPLIFIER & MIXER FOR VHF TV

N-CHANNEL SILICON DUAL-GATE MOS FIELD-EFFECT TRANSISTOR

"DISKMOLD"

PACKAGE DIMENSIONS (Unit : mm)



FEATURES

- Suitable for Use as RF Amplifier & Mixer in VHF TV Tuner.
- Low C_{rss} : 0.03pF TYP.
- High PG : 22dB TYP.
- Low NF : 2.0dB TYP.

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

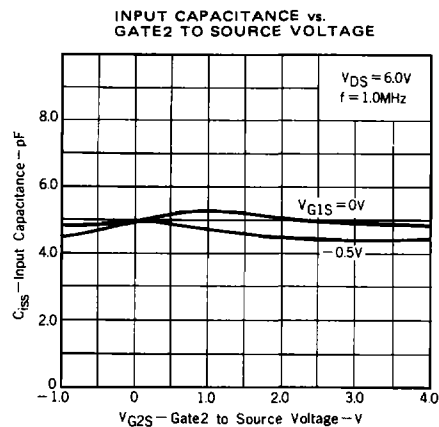
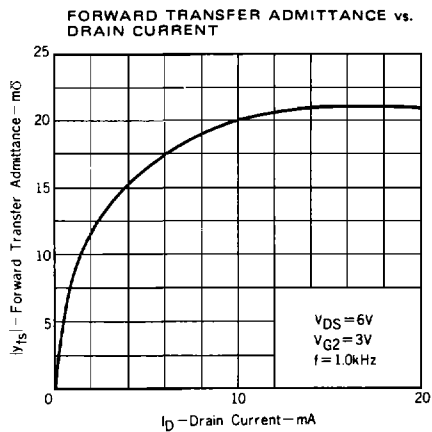
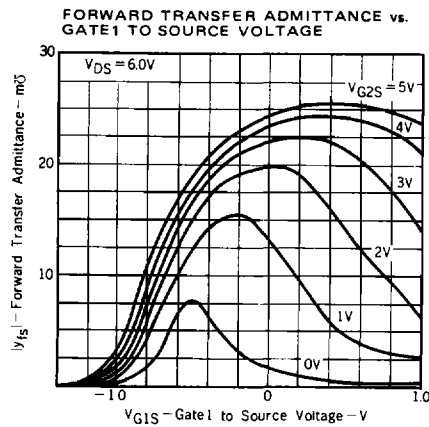
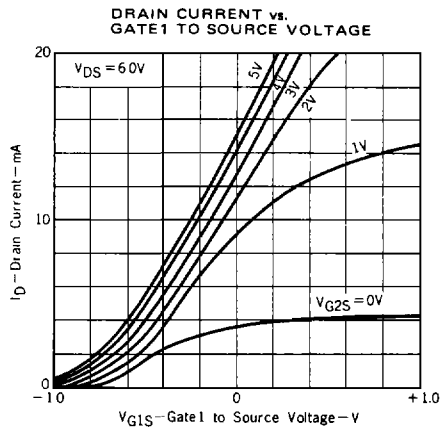
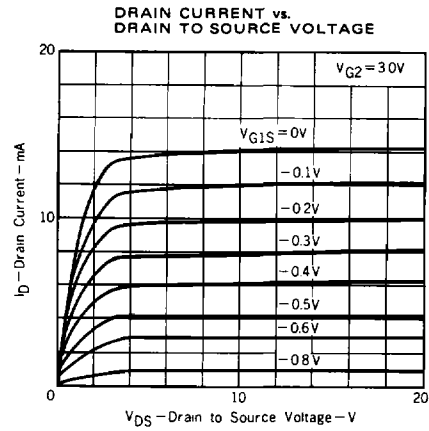
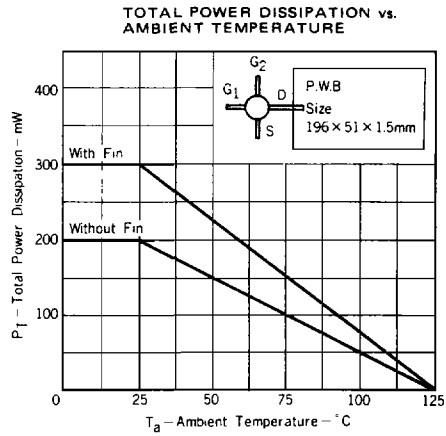
Drain to Source Voltage	V_{DSX}	20	V
Gate1 to Source Voltage	V_{G1S}	± 10	V
Gate2 to Source Voltage	V_{G2S}	± 10	V
Drain Current	I_D	25	mA
Total Power Dissipation	P_T	200	mW
Channel Temperature	T_{ch}	125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-65 to +125	$^\circ\text{C}$

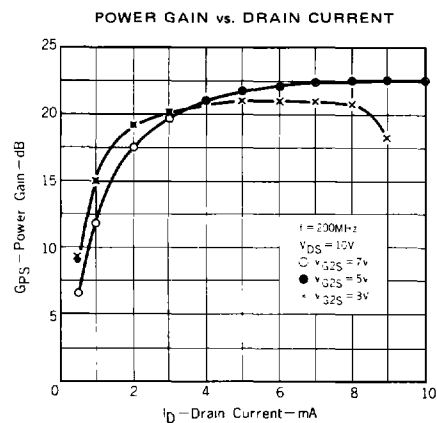
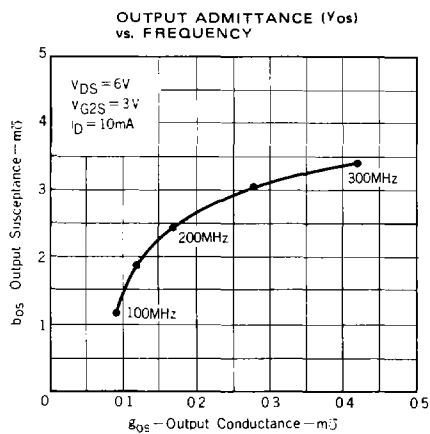
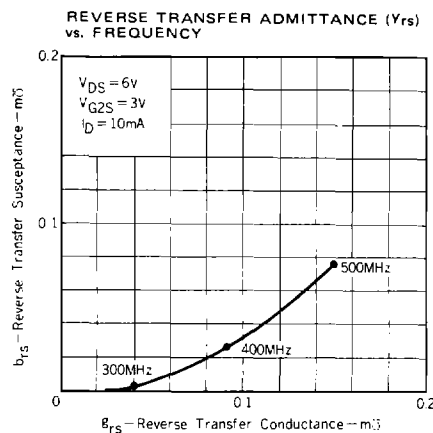
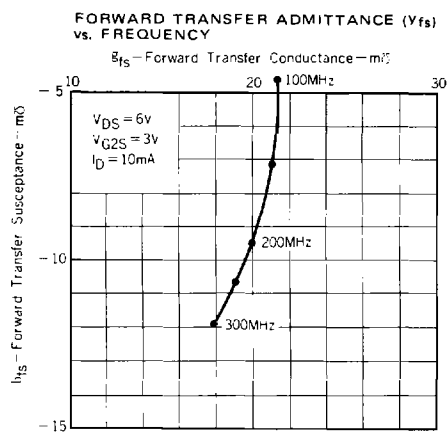
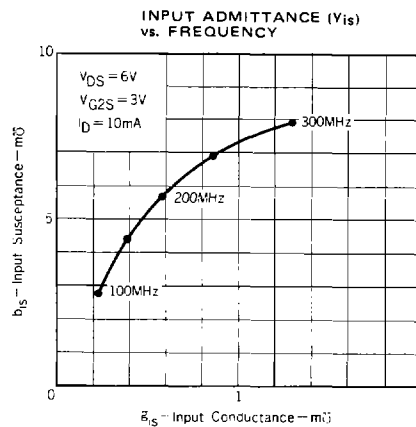
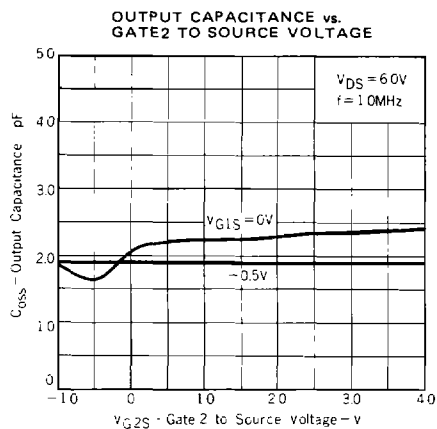
ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)

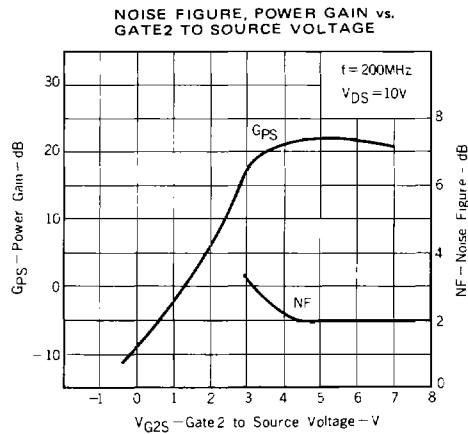
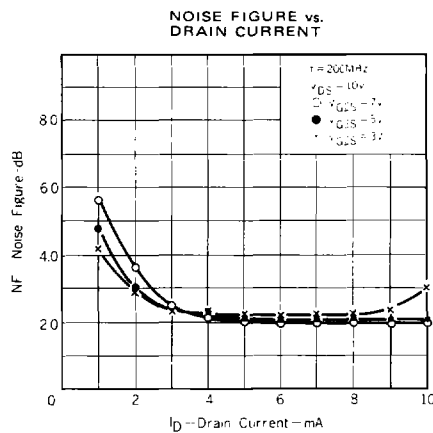
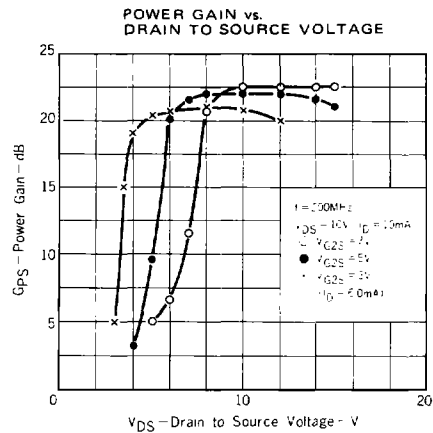
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	BV_{DSX}	20			V	$V_{G1S} = -3.0\text{V}$, $V_{G2S} = 3.0\text{V}$, $I_D = 500\text{nA}$
Drain Current	I_{DSS}	7.0		25	mA	$V_{DS} = 6.0\text{V}$, $V_{G1S} = 0$, $V_{G2S} = 3.0\text{V}$
Gate1 to Source Cutoff Voltage	$V_{G1S(off)}$			-3.0	V	$V_{DS} = 6.0\text{V}$, $V_{G2S} = 0$, $I_D = 5.0\mu\text{A}$
Gate2 to Source Cutoff Voltage	$V_{G2S(off)}$			-3.0	V	$V_{DS} = 6.0\text{V}$, $V_{G1S} = 0$, $I_D = 5.0\mu\text{A}$
Gate1 Reverse Current	I_{G1SS}			± 0.1	μA	$V_{DS} = 0$, $V_{G1S} = \pm 10\text{V}$, $V_{G2S} = 0$
Gate2 Reverse Current	I_{G2SS}			± 0.1	μA	$V_{DS} = 0$, $V_{G1S} = 0$, $V_{G2S} = \pm 10\text{V}$
Forward Transfer Admittance	$ Y_{fs} $	17	20		mS	$V_{DS} = 6.0\text{V}$, $I_D = 10\text{mA}$, $V_{G2S} = 3.0\text{V}$, $f = 1\text{kHz}$
Input Capacitance	C_{iSS}		4.8	6.0	pF	$V_{DS} = 6.0\text{V}$, $I_D = 10\text{mA}$, $V_{G2S} = 3.0\text{V}$, $f = 1\text{MHz}$
Output Capacitance	C_{OSS}		2.5	3.5	pF	
Reverse Transfer Capacitance	C_{rss}		0.03	0.05	pF	
Power Gain	G_{ps}	20	22		dB	$V_{DS} = 10\text{V}$, $I_D = 10\text{mA}$, $f = 200\text{MHz}$, $V_{G2} = 5.0\text{V}$
Noise Figure	NF		2.0	3.0	dB	

I_{DSS} Classification M : 7.0 ~ 13mA L : 11 ~ 19mA K : 17 ~ 25mA

* See Test Circuit

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





200MHz Power Gain & Noise Figure Test Circuit

