

MOS FIELD EFFECT TRANSISTOR

3SK206

RF AMP. FOR UHF TV TUNER

N-CHANNEL GaAs DUAL GATE MES FIELD-EFFECT TRANSISTOR

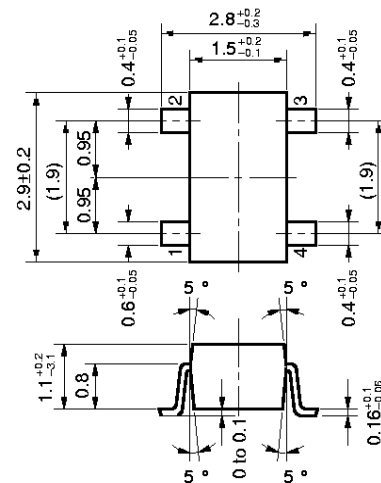
4PIN MINI MOLD

FEATURES

- Suitable for use as RF amplifier in UHF TV tuner.
- Low C_{rss} : 0.02 pF TYP.
- High G_{PS} : 20 dB TYP.
- Low NF: 1.1 dB TYP.

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

Drain to Source Voltage	V_{DSX}	10	V
Gate1 to Source Voltage	V_{G1S}	-4.5	V
Gate2 to Source Voltage	V_{G2S}	-4.5	V
Drain Current	I_D	80	mA
Total Power Dissipation	P_T	200	mW
Channel Temperature	T_{ch}	125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

PACKAGE DIMENSIONS
in millimeters

1. Source
2. Drain
3. Gate 2
4. Gate 1

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

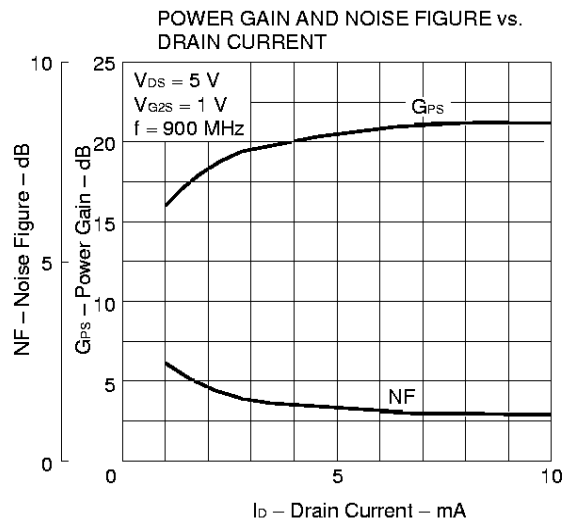
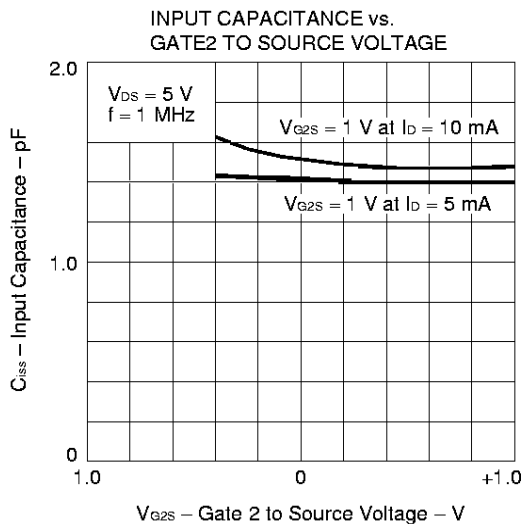
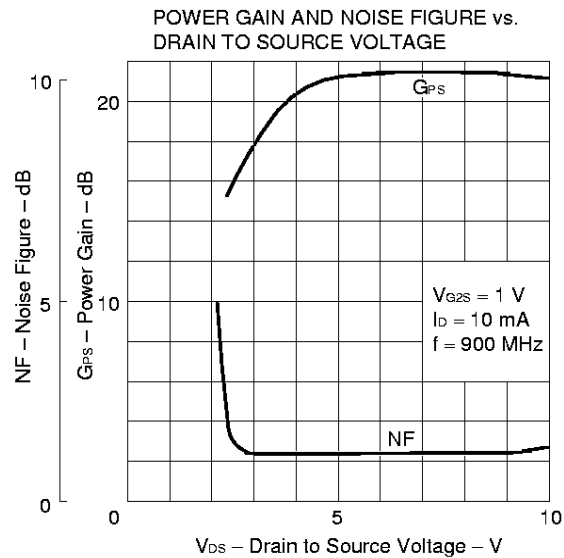
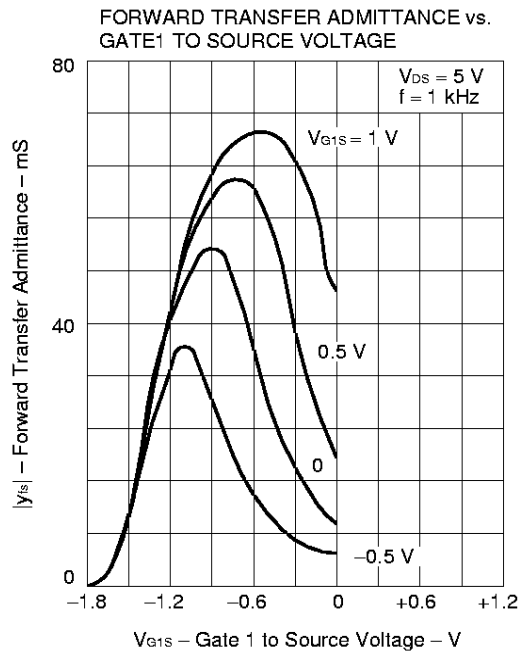
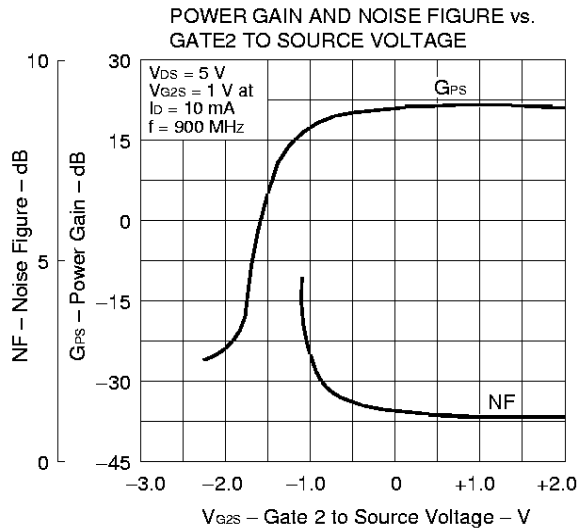
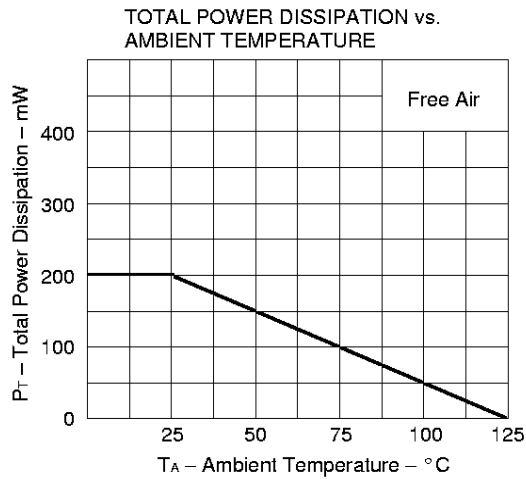
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	BV_{DSX}	10			V	$V_{G1S} = -4\text{ V}$, $V_{G2S} = 0$, $I_D = 20\text{ }\mu\text{A}$
Drain Current	I_{DSS}	10		80	mA	$V_{DS} = 5\text{ V}$, $V_{G1S} = 0$, $V_{G2S} = 0$
Gate1 to Source Cutoff Voltage	$V_{G1S(off)}$			-3.5	V	$V_{DS} = 5\text{ V}$, $V_{G2S} = 0$, $I_D = 100\text{ }\mu\text{A}$
Gate2 to Source Cutoff Voltage	$V_{G2S(off)}$			-3.5	V	$V_{DS} = 5\text{ V}$, $V_{G1S} = 0$, $I_D = 100\text{ }\mu\text{A}$
Gate1 Reverse Current	I_{G1SS}			10	μA	$V_{DS} = 0$, $V_{G1S} = -4\text{ V}$, $V_{G2S} = 0$
Gate2 Reverse Current	I_{G2SS}			10	μA	$V_{DS} = 0$, $V_{G2S} = -4\text{ V}$, $V_{G1S} = 0$
Forward Transfer Admittance	$ y_{fs} $	25	35		mS	$V_{DS} = 5\text{ V}$, $V_{G2S} = 1\text{ V}$, $I_D = 10\text{ mA}$, $f = 1.0\text{ kHz}$
Input Capacitance	C_{iss}	1.0	1.5	2.0	pF	$V_{DS} = 5\text{ V}$, $V_{G2S} = 1\text{ V}$, $I_D = 10\text{ mA}$, $f = 1.0\text{ MHz}$
Reverse Transfer Capacitance	C_{rss}		0.02	0.035	pF	$f = 1.0\text{ MHz}$
Power Gain	G_{PS}	16.0	20.0		dB	$V_{DS} = 5\text{ V}$, $V_{G2S} = 1\text{ V}$, $I_D = 10\text{ mA}$, $f = 900\text{ MHz}$
Noise Figure	NF		1.1	2.5	dB	$f = 900\text{ MHz}$

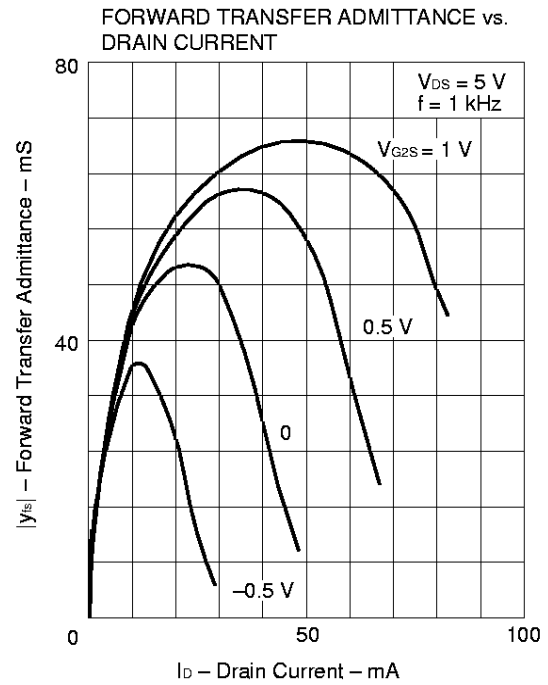
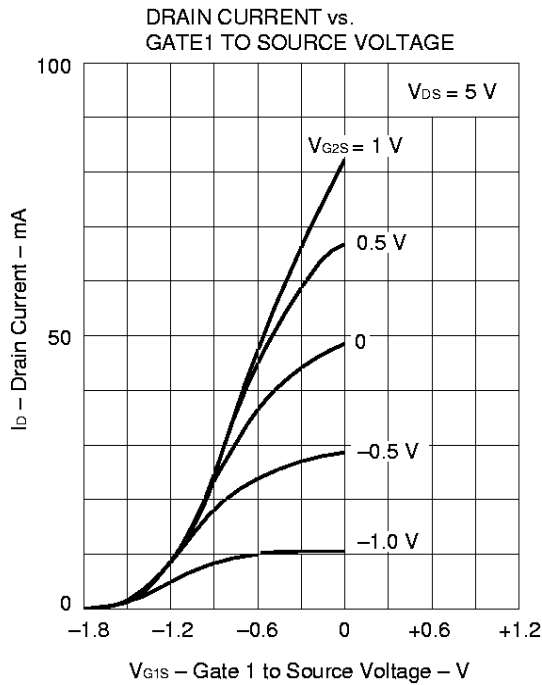
 I_{DSS} Classification (Unit: mA)

Class	U76	U77	U78	U79
Marking	U76	U77	U78	U79
I_{DSS}	10 to 25	20 to 35	30 to 50	45 to 80

PRECAUTION: Avoid high static voltages or electric fields so that this device would not suffer from any damage due to those voltage or fields.

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

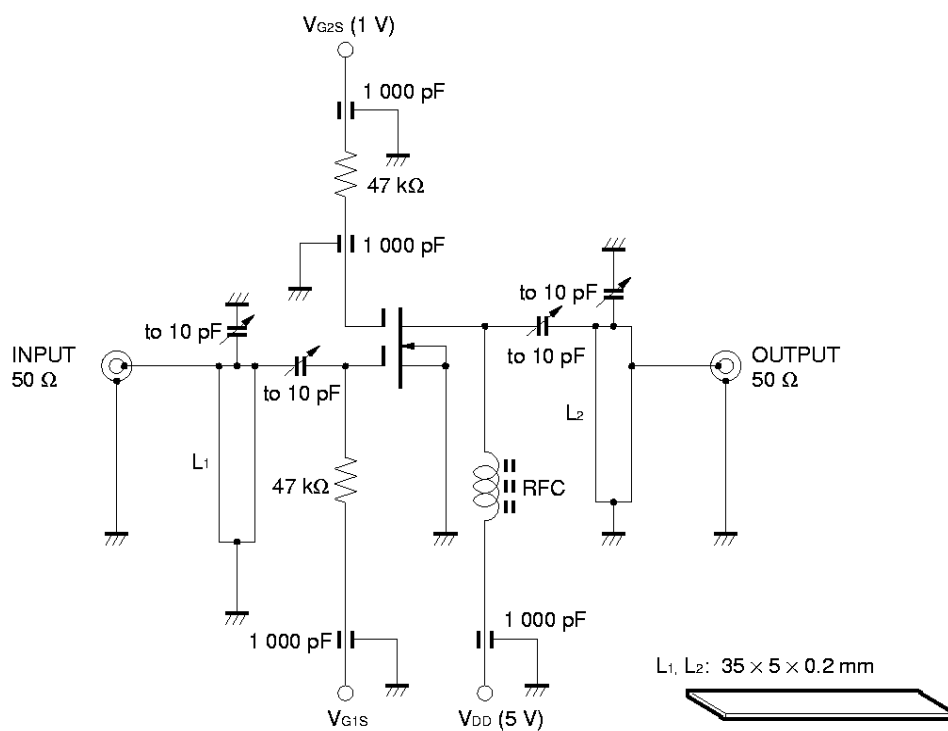




S-PARAMETER ($V_{DS} = 5\text{ V}$, $V_{G2S} = 1\text{ V}$, $I_D = 10\text{ mA}$)

FREQUENCY (MHz)	S_{11}		S_{21}		S_{12}		S_{22}	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100.00	1.003	-4.9	3.938	175.0	0.004	41.9	0.963	-1.5
200.00	0.984	-11.9	4.009	164.1	0.001	-173.5	0.958	-4.2
300.00	0.985	-14.9	3.859	158.5	0.006	71.7	0.972	-4.8
400.00	0.964	-21.8	3.766	151.3	0.005	93.9	0.972	-8.2
500.00	0.928	-24.6	3.699	149.1	0.005	74.5	0.965	-8.6
600.00	0.928	-31.9	3.886	138.8	0.008	84.2	0.983	-13.1
700.00	0.869	-33.5	3.612	132.3	0.003	65.8	0.961	-12.1
800.00	0.889	-39.8	3.643	126.1	0.004	98.0	0.995	-16.2
900.00	0.832	-42.9	3.553	121.5	0.004	102.4	0.981	-17.0
1000.00	0.847	-47.1	3.817	115.2	0.003	-173.4	1.039	-20.8
1100.00	0.795	-49.8	3.681	106.1	0.010	-155.7	0.999	-22.3
1200.00	0.833	-51.4	3.747	100.4	0.021	-147.3	1.107	-25.1

900 MHz G_{PS} AND NF TEST CIRCUIT



V_{DS} = 5 V, V_{G2S} = 1 V, I_D = 10 mA

[MEMO]

[MEMO]

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Anti-radioactive design is not implemented in this product.