

MOS FIELD EFFECT TRANSISTOR

3SK253

RF AMPLIFIER FOR UHF TUNER N-CHANNEL SI DUAL GATE MOS FIELD-EFFECT TRANSISTOR 4 PINS MINI MOLD

FEATURES

• Low Vdd Use : (Vds = 3.5 V)

Driving Battery

Low Noise Figure: NF = 1.8 dB TYP. (f = 900 MHz)
High Power Gain: GPs = 18.0 dB TYP. (f = 900 MHz)

• Suitable for use as RF amplifier in UHF TV tuner.

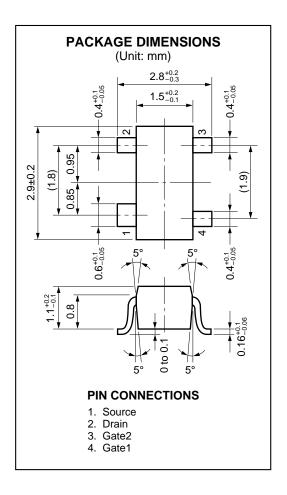
• Automatically Mounting : Embossed Type Taping

• Package : 4 Pins Mini Mold

ABSOLUTE MAXIMUM RATINGS ($T_A = 25$ °C)

Drain to Source Voltage	VDSX	18	V
Gate1 to Source Voltage	V _{G1S}	±8*1	V
Gate2 to Source Voltage	V _{G2} S	±8*1	V
Gate1 to Drain Voltage	V_{G1D}	18	V
Gate2 to Drain Voltage	V_{G2D}	18	V
Drain Current	ΙD	25	mΑ
Total Power Dissipation	Po	200* 2	mW
Channel Temperature	Tch	125	°C
Storage Temperature	Tstg	-55 to +125	°C

*1: $RL \ge 10 \text{ k}\Omega$ *2: Free air



PRECAUTION:

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



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

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS	
Drain to Source Breakdown Voltage	BV _{DSX}	18			٧	$V_{G1S} = V_{G2S} = -2 \text{ V}, \text{ ID} = 10 \mu\text{A}$	
Drain Current	IDSX	0.5		7.0	mA	VDS = 3.5 V, VG2S = 3 V, VG1S = 0.75 V	
Gate1 to Source Cutoff Voltage	VG1S(off)	-1.0	0	+1.0	٧	$V_{DS} = 3.5 \text{ V}, V_{G2S} = 3 \text{ V}, I_{D} = 10 \mu A$	
Gate2 to Source Cutoff Voltage	V _{G2S(off)}	0	0.5	1.0	V	$V_{DS} = 3.5 \text{ V}, V_{G1S} = 3 \text{ V}, I_{D} = 10 \mu A$	
Gate1 Reverse Current	I _{G1SS}			±20	nA	VDS = 0, VG2S = 0, VG1S = ±6 V	
Gate2 Reverse Current	I _{G2} ss			±20	nA	VDS = 0, VG1S = 0, VG2S = ±6 V	
Forward Transfer Admittance	yfs	14	19	24	mS	$V_{DS} = 3.5 \text{ V}, V_{G2S} = 3 \text{ V}, I_{D} = 7 \text{ mA}$ $f = 1 \text{ kHz}$	
Input Capacitance	Ciss	1.5	2.0	2.5	pF	V _{DS} = 3.5 V, V _{G2S} = 3 V, I _D = 7 mA f = 1 MHz	
Output Capacitance	Coss	0.5	1.0	1.5	pF		
Reverse Transfer Capacitance	Crss		0.01	0.03	pF		
Power Gain	Gps	15	18	21	dB	VDS = 3.5 V, VG2S = 3 V, ID = 7 mA	
Noise Figure	NF		1.8	3.0	dB	f = 900 MHz	

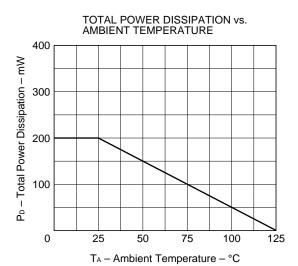
IDSX Classification

Rank	U1G/UAG*		
Marking	U1G		
IDSX (mA)	0.5 to 7.0		

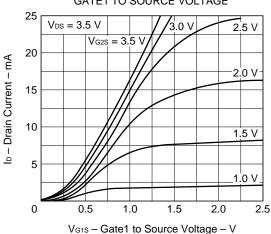
^{*} Old specification / New specification

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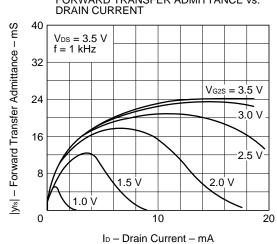
TYPICAL CHARACTERISTICS (TA = 25 °C)



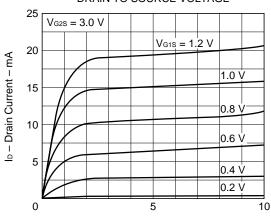
DRAIN CURRENT vs. GATE1 TO SOURCE VOLTAGE



FORWARD TRANSFER ADMITTANCE vs.

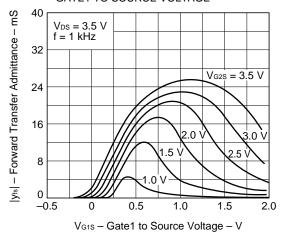


DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

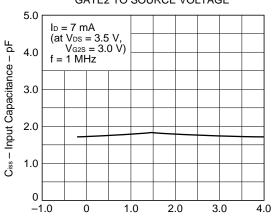


V_{DS} - Drain to Source Voltage - V

FORWARD TRANSFER ADMITTANCE vs. GATE1 TO SOURCE VOLTAGE

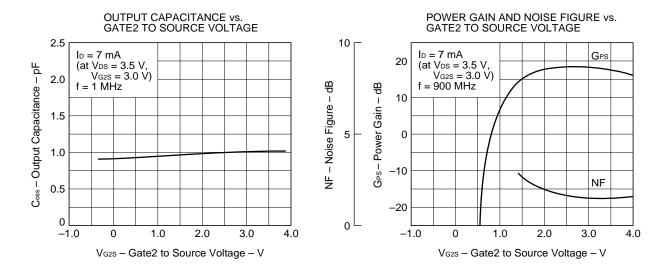


INPUT CAPACITANCE vs. GATE2 TO SOURCE VOLTAGE

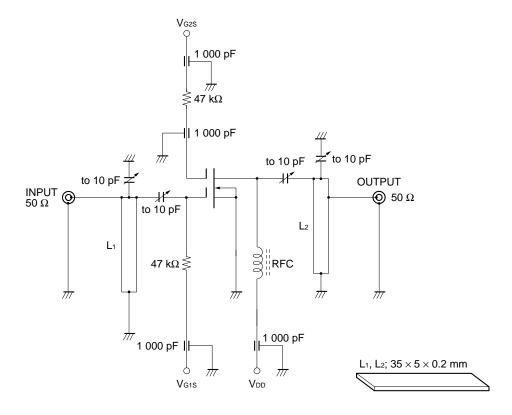


V_{G2S} - Gate2 to Source Voltage - V





GPS AND NF TEST CIRCUIT AT f = 900 MHz



[MEMO]

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Anti-radioactive design is not implemented in this product.