

MOS FIELD EFFECT TRANSISTOR

3SK245

RF AMP. FOR UHF TV TUNER

N-CHANNEL SILICON DUAL GATE MOS FIELD-EFFECT TRANSISTOR

4 PINS MINI MOLD

FEATURES

- High Power Gain : $G_{PS} = 23.0$ dB TYP. (@ = 900 MHz)
- Low Noise Figure : $NF = 2.4$ dB TYP. (@ = 900 MHz)
- Suitable for use as RF amplifier in UHF TV tuner.
- Automatically Mounting: Embossed Type Taping
- Small Package : 4 Pins Super Mini Mold

ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

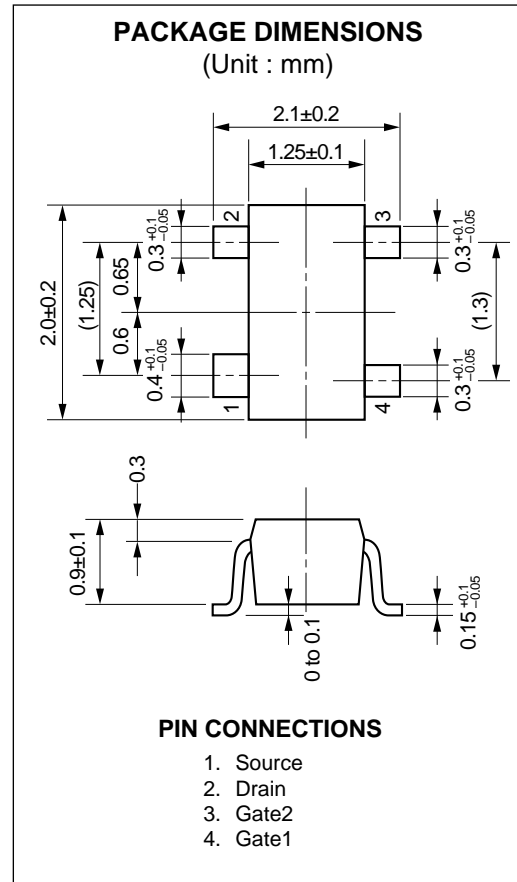
Drain to Source Voltage	V_{DSX}	18	V
Gate1 to Source Voltage	V_{G1S}	$\pm 8(\pm 10)^{*1}$	V
Gate2 to Source Voltage	V_{G2S}	$\pm 8(\pm 10)^{*1}$	V
Gate1 to Drain Voltage	V_{G1D}	18	V
Gate2 to Drain Voltage	V_{G2D}	18	V
Drain Current	I_D	25	mA
Total Power Dissipation	P_D	$130^{*2}/250^{*3}$	mW
Channel Temperature	T_{ch}	125	°C
Storage Temperature	T_{stg}	-55 to +125	°C

*1: $R_L \geq 10$ k Ω

*2: Free air

*3: 15 mm \times 15 mm \times 1.2 mm board by epoxy glass**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 (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	BV _{DSX}	18			V	V _{G1S} = V _{G2S} = -2 V, I _D = 10 μA
Drain Current	I _{DSX}	0.4		8.0	mA	V _{DS} = 10 V, V _{G2S} = 4 V, V _{G1S} = 0.5 V
Gate1 to Source Cutoff Voltage	V _{G1S(off)}			-2.0	V	V _{DS} = 10 V, V _{G2S} = 4 V, I _D = 10 μA
Gate2 to Source Cutoff Voltage	V _{G2SS(off)}			-0.7	V	V _{DS} = 10 V, V _{G1S} = 4 V, I _D = 10 μA
Gate1 Reverse Current	I _{G1SS}			±20	nA	V _{DS} = V _{G2S} = 0, V _{G1S} = ±8 V
Gate2 Reverse Current	I _{G2SS}			±20	nA	V _{DS} = V _{G1S} = 0, V _{G2S} = ±8 V
Forward Transfer Admittance	y _{fs}	25.0	29.0	35.0	mS	V _{DS} = 10 V, V _{G2S} = 4 V, I _D = 10 mA f = 1 kHz
Input Capacitance	C _{iss}	1.5	2.5	3.5	pF	V _{DS} = 10 V, V _{G2S} = 4 V, I _D = 10 mA f = 1 MHz
Output Capacitance	C _{oss}	0.6	1.1	1.6	pF	
Reverse Transfer Capacitance	C _{rss}		0.02	0.03	pF	
Power Gain	G _{ps}	20.0	23.0		dB	V _{DS} = 10 V, V _{G2S} = 4 V, I _D = 10 mA
Noise Figure	NF		2.4	3.5	dB	f = 900 MHz

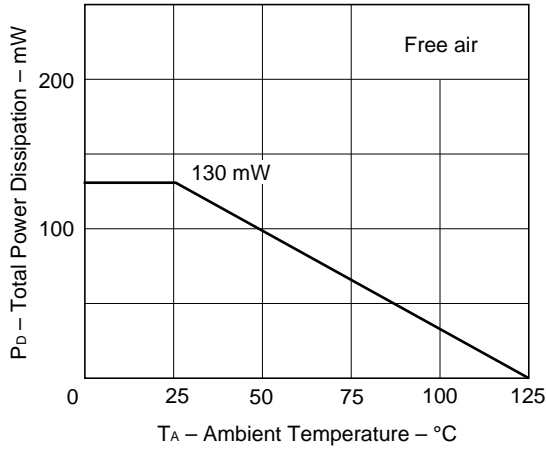
I_{DSX} Classification

Rank	U55/UEE*	U56/UEF*
Marking	U55	U56
I _{DSX} (mA)	0.4 to 5.0	3.0 to 8.0

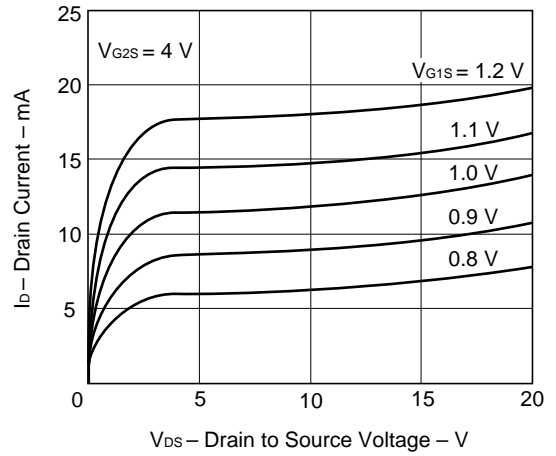
* Old Specification / New Specification

TYPICAL CHARACTERISTICS (T_A = 25 °C)

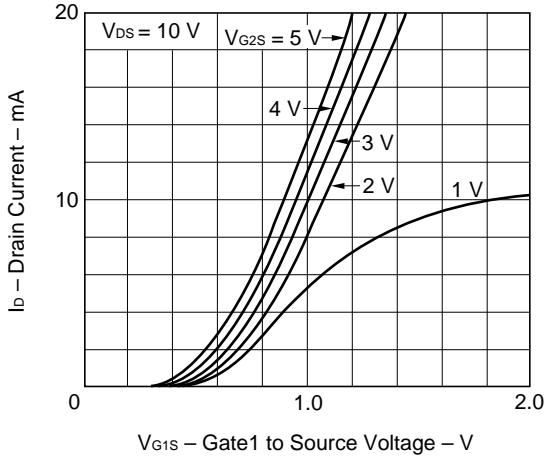
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



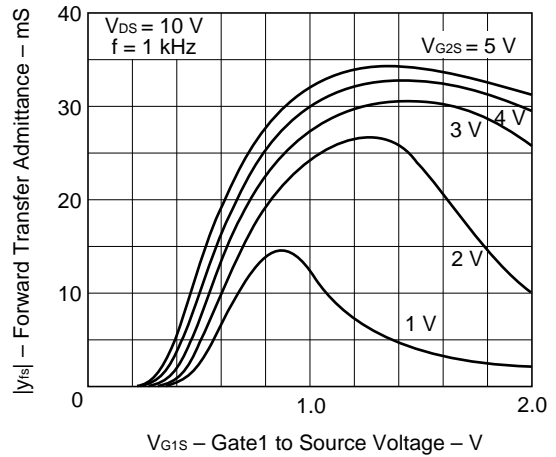
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



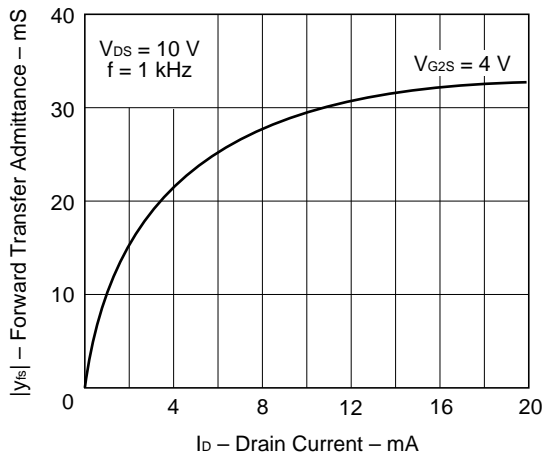
DRAIN CURRENT vs. GATE1 TO SOURCE VOLTAGE



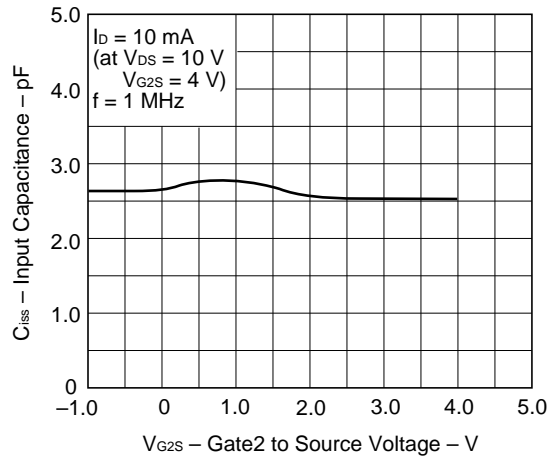
FORWARD TRANSFER ADMITTANCE vs. GATE1 TO SOURCE VOLTAGE



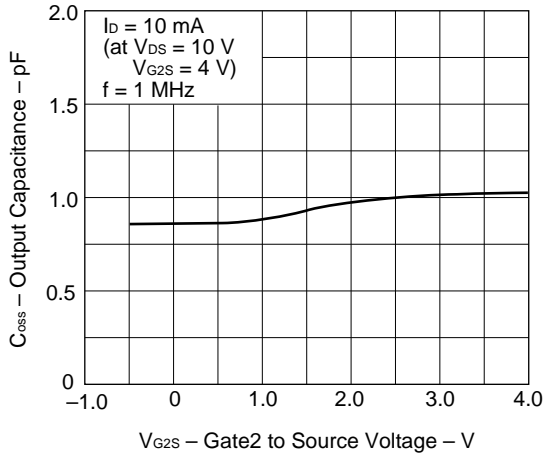
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



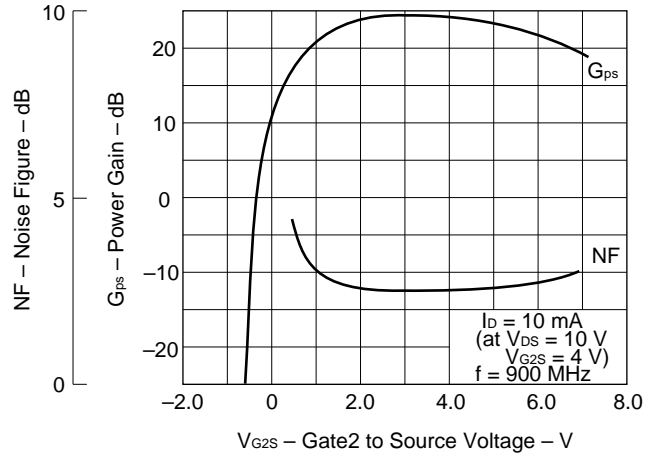
INPUT CAPACITANCE vs. GATE2 TO SOURCE VOLTAGE



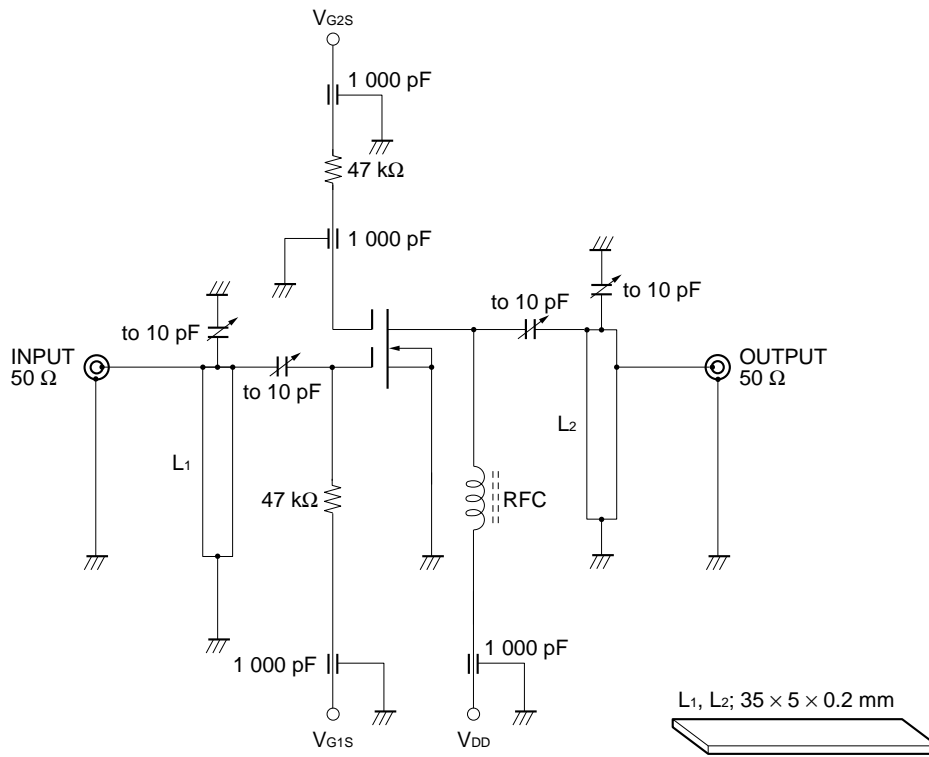
OUTPUT CAPACITANCE vs. GATE2 TO SOURCE VOLTAGE



POWER GAIN AND NOISE FIGURE vs. GATE2 TO SOURCE VOLTAGE



900 MHz G_{ps} AND NF TEST CIRCUIT



[MEMO]

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Anti-radioactive design is not implemented in this product.