

MOS FIELD EFFECT TRANSISTOR

3SK246

RF AMPLIFIER FOR FM TUNER AND VHF TV TUNER

N-CHANNEL Si DUAL GATE MOS FIELD-EFFECT TRANSISTOR

4 PINS SUPER MINI MOLD

FEATURES

- The Characteristic of Cross-Modulation is good.
CM = 92 dB μ TYP. @ f = 200 MHz, G_R = -30 dB
- Low Noise Figure : NF1 = 1.5 dB TYP. (f = 200 MHz)
NF2 = 1.0 dB TYP. (f = 55 MHz)
- High Power Gain : G_{PS} = 21.0 dB TYP. (f = 200 MHz)
- Low Reverse Transfer Capacitance C_{rss} = 0.02 pF TYP.
- Suitable for use as RF amplifier in FM tuner and VHF TV tuner.
- Automatically Mounting: Embossed Type Taping
- Small Package : 4 Pins Super Mini Mold

ABSOLUTE MAXIMUM RATINGS (T_A = 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

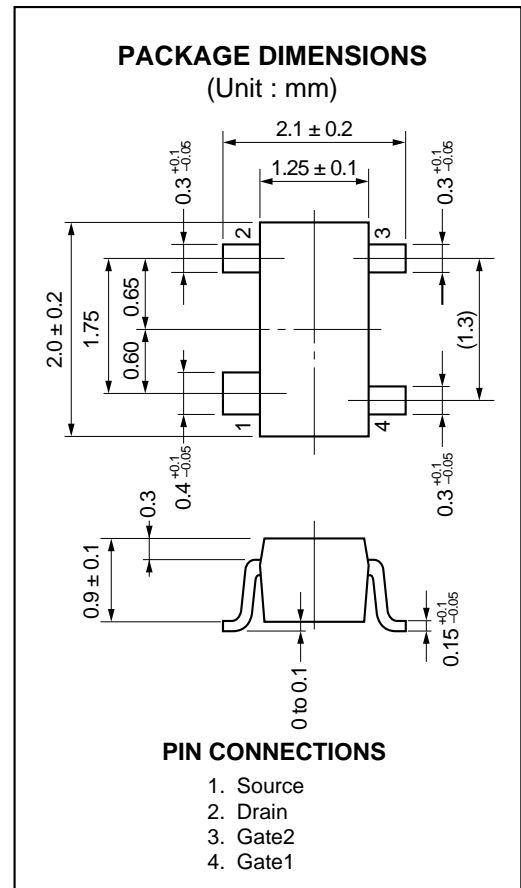
*1: R_L \geq 10 k Ω

*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 or fields.



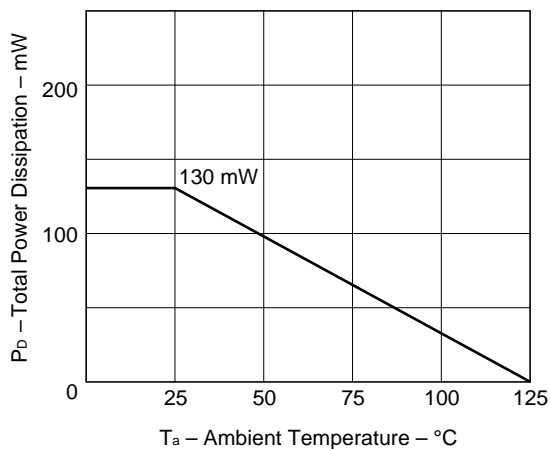
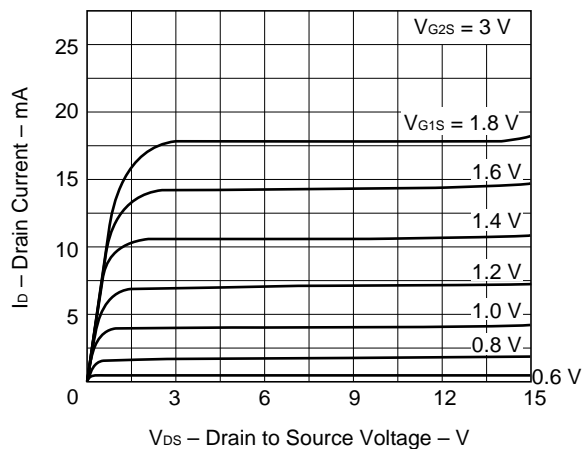
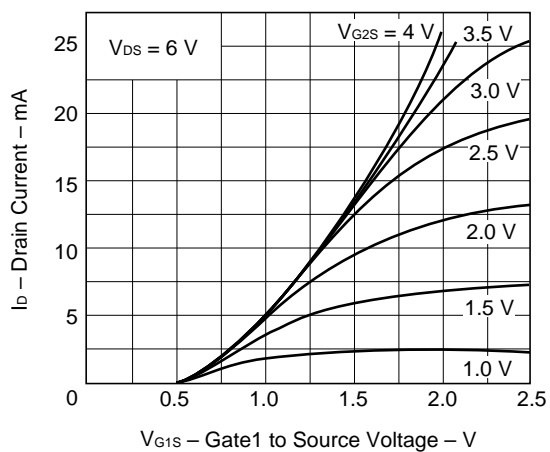
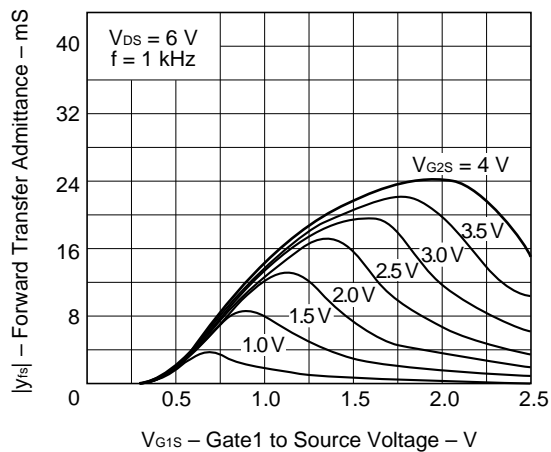
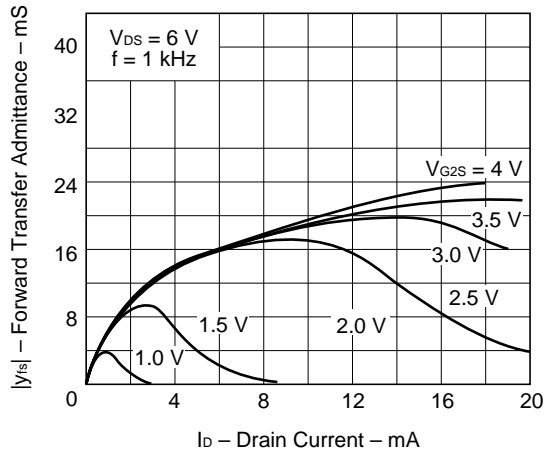
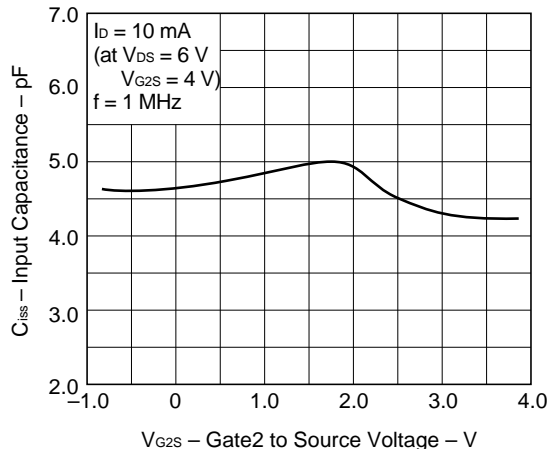
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

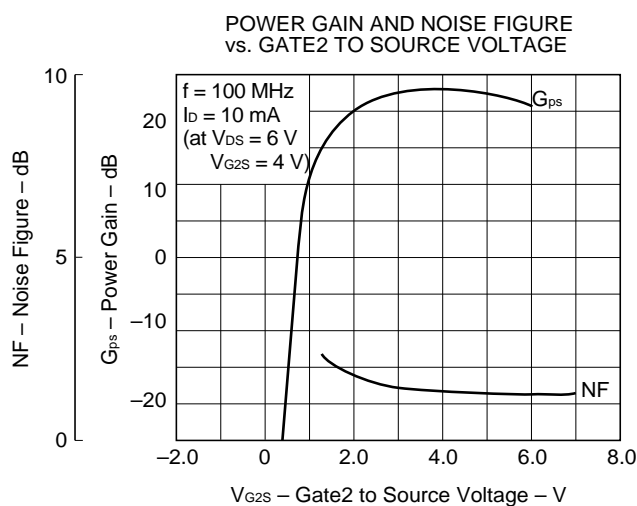
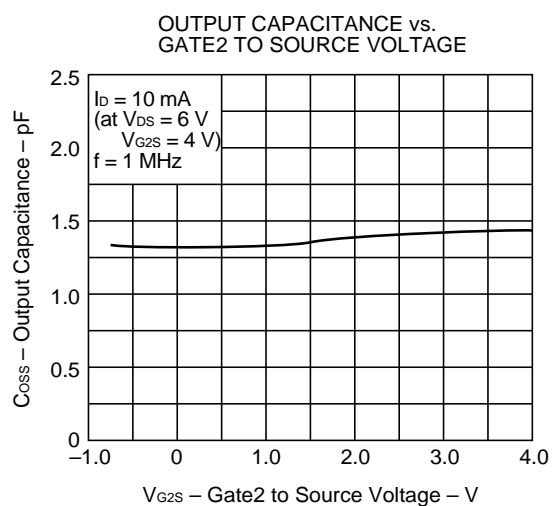
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	BV _{DSX}	18			V	V _{G1S} = V _{G2S} = -2 V, I _D = 10 μA
Drain Current	I _{DSX}	0.01		8.0	mA	V _{DS} = 5 V, V _{G2S} = 3 V, V _{G1S} = 0.75 V
Gate1 to Source Cutoff Voltage	V _{G1S(off)}	0		+1.0	V	V _{DS} = 6 V, V _{G2S} = 3 V, I _D = 10 μA
Gate2 to Source Cutoff Voltage	V _{G2S(off)}	0		+1.0	V	V _{DS} = 6 V, V _{G1S} = 3 V, I _D = 10 μA
Gate1 Reverse Current	I _{G1SS}			±20	nA	V _{DS} = 0, V _{G2S} = 0, V _{G1S} = ±8 V
Gate2 Reverse Current	I _{G2SS}			±20	nA	V _{DS} = 0, V _{G1S} = 0, V _{G2S} = ±8 V
Forward Transfer Admittance	y _{fs}	15	19.5		mS	V _{DS} = 5 V, V _{G2S} = 4 V, I _D = 10 mA f = 1 kHz
Input Capacitance	C _{iss}	3.6	4.3	5.0	pF	V _{DS} = 6 V, V _{G2S} = 3 V, I _D = 10 mA f = 1 MHz
Output Capacitance	C _{oss}	1.0	1.5	2.0	pF	
Reverse Transfer Capacitance	C _{rss}		0.02	0.03	pF	
Power Gain	G _{ps}	19.0	21.0		dB	V _{DS} = 6 V, V _{G2S} = 4 V, I _D = 10 mA f = 200 MHz
Noise Figure 1	NF1		1.5	2.4	dB	V _{DS} = 6 V, V _{G2S} = 4 V, I _D = 10 mA f = 55 MHz
Noise Figure 2	NF2		1.0	2.0	dB	

I_{DSX} Classification

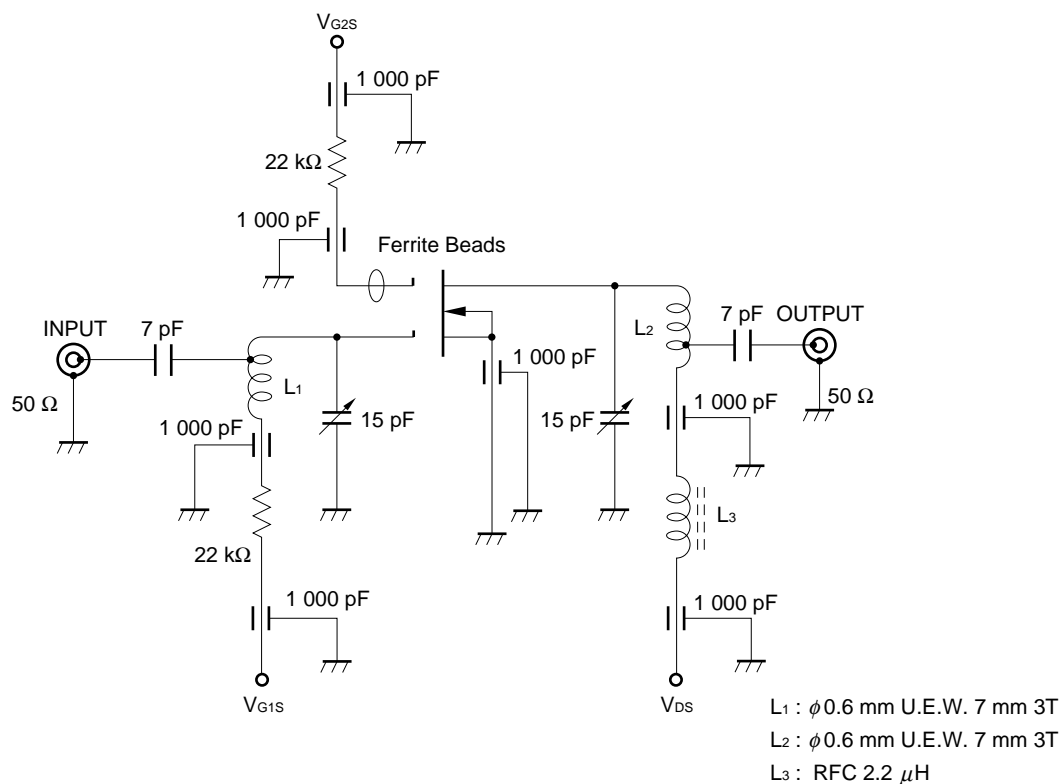
Rank	V21/VBA*	V22/VBB*
Marking	V21	V22
I _{DSX} (mA)	0.01 to 3.0	1.0 to 8.0

* Old Specification / New Specification

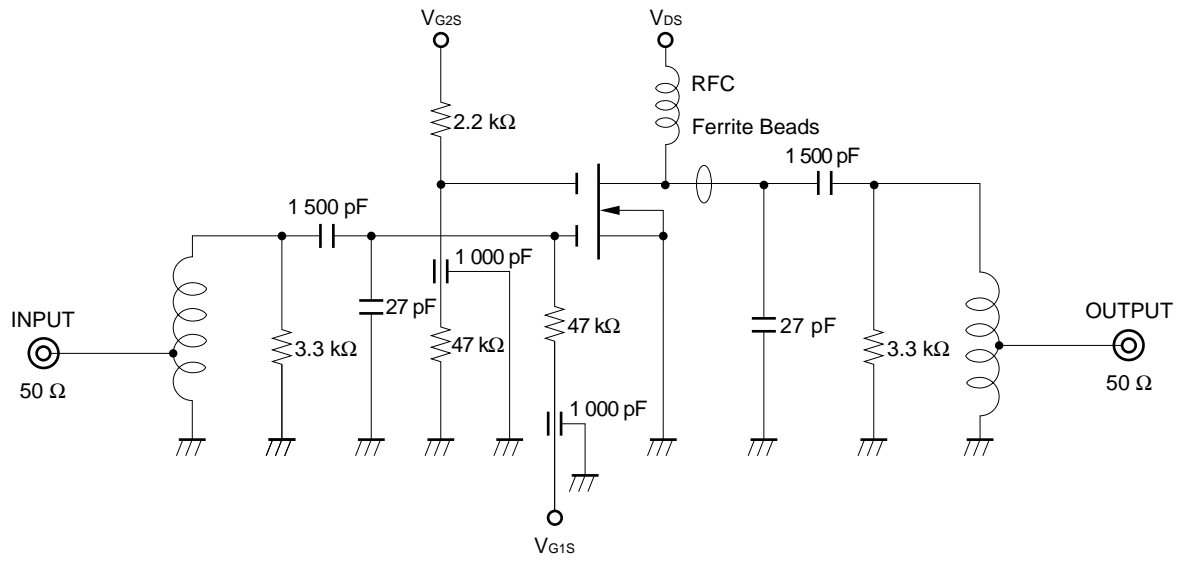
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATUREDRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGEDRAIN CURRENT vs.
GATE1 TO SOURCE VOLTAGEFORWARD TRANSFER ADMITTANCE vs.
GATE1 TO SOURCE VOLTAGEFORWARD TRANSFER ADMITTANCE vs.
DRAIN CURRENTINPUT CAPACITANCE vs.
GATE2 TO SOURCE VOLTAGE



G_{PS} AND NF TEST CIRCUIT AT f = 200 MHz



NF TEST CIRCUIT AT $f = 55 \text{ MHz}$



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Anti-radioactive design is not implemented in this product.