

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

#### FEATURES

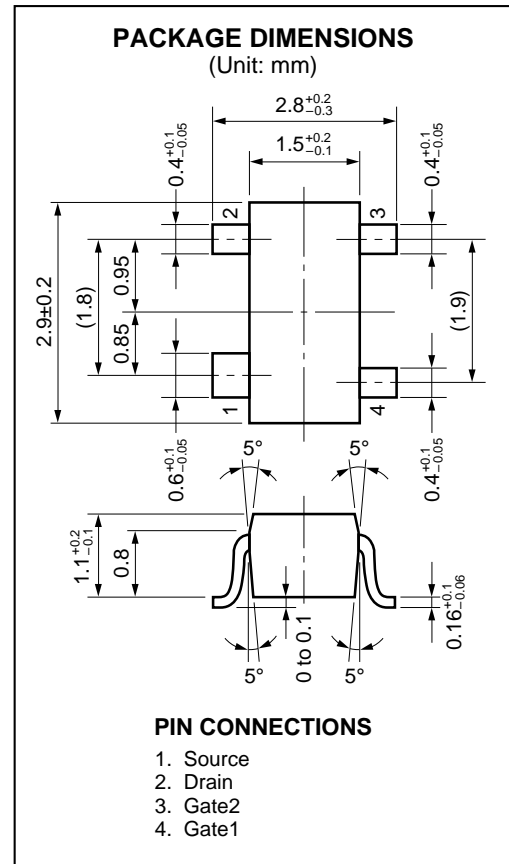
- Low  $V_{DD}$  Use : ( $V_{DS} = 3.5$  V)
- Driving Battery
- Low Noise Figure :  $NF = 1.8$  dB TYP. ( $f = 900$  MHz)
- High Power Gain :  $G_{PS} = 18.0$  dB TYP. ( $f = 900$  MHz)
- Suitable for use as RF amplifier in UHF TV tuner.
- Automatically Mounting : Embossed Type Taping
- Package : 4 Pins Mini Mold

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

Drain to Source Voltage	$V_{DSX}$	18	V
Gate1 to Source Voltage	$V_{G1S}$	$\pm 8^{*1}$	V
Gate2 to Source Voltage	$V_{G2S}$	$\pm 8^{*1}$	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	$P_D$	$200^{*2}$	mW
Channel Temperature	$T_{ch}$	125	°C
Storage Temperature	$T_{stg}$	-55 to +125	°C

\*1:  $R_L \geq 10$  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 (T<sub>A</sub> = 25 °C)**

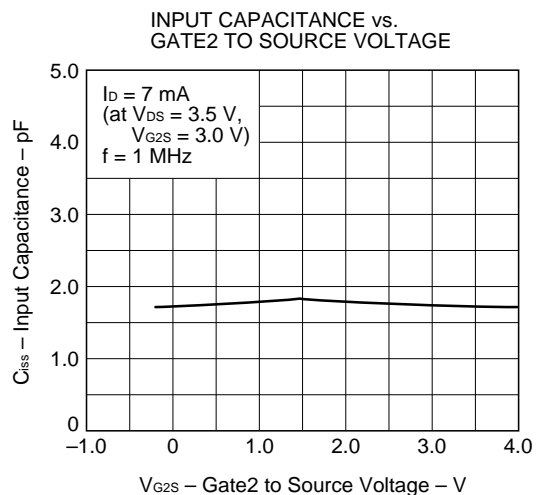
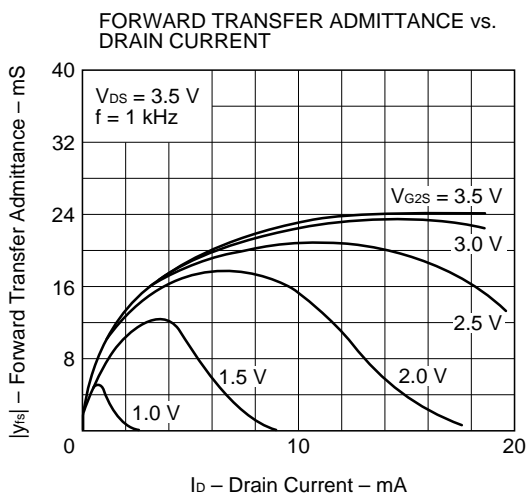
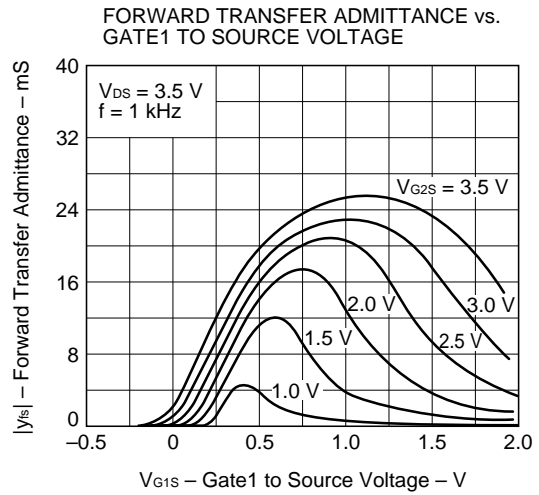
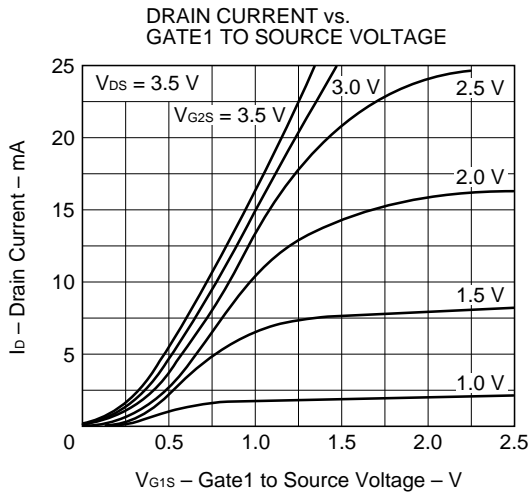
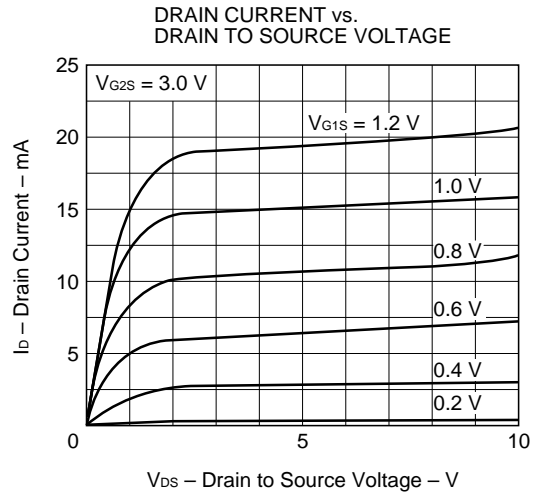
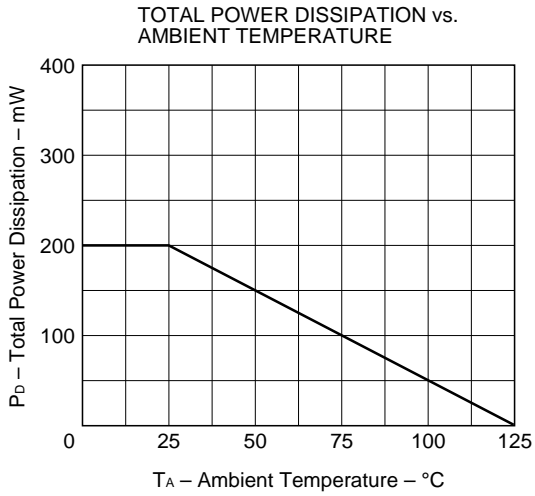
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	BV <sub>DSX</sub>	18			V	V <sub>G1S</sub> = V <sub>G2S</sub> = -2 V, I <sub>D</sub> = 10 μA
Drain Current	I <sub>DSX</sub>	0.5		7.0	mA	V <sub>DS</sub> = 3.5 V, V <sub>G2S</sub> = 3 V, V <sub>G1S</sub> = 0.75 V
Gate1 to Source Cutoff Voltage	V <sub>G1S(off)</sub>	-1.0	0	+1.0	V	V <sub>DS</sub> = 3.5 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 10 μA
Gate2 to Source Cutoff Voltage	V <sub>G2S(off)</sub>	0	0.5	1.0	V	V <sub>DS</sub> = 3.5 V, V <sub>G1S</sub> = 3 V, I <sub>D</sub> = 10 μA
Gate1 Reverse Current	I <sub>G1SS</sub>			±20	nA	V <sub>DS</sub> = 0, V <sub>G2S</sub> = 0, V <sub>G1S</sub> = ±6 V
Gate2 Reverse Current	I <sub>G2SS</sub>			±20	nA	V <sub>DS</sub> = 0, V <sub>G1S</sub> = 0, V <sub>G2S</sub> = ±6 V
Forward Transfer Admittance	y <sub>fs</sub>	14	19	24	mS	V <sub>DS</sub> = 3.5 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 7 mA f = 1 kHz
Input Capacitance	C <sub>iss</sub>	1.5	2.0	2.5	pF	V <sub>DS</sub> = 3.5 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 7 mA f = 1 MHz
Output Capacitance	C <sub>oss</sub>	0.5	1.0	1.5	pF	
Reverse Transfer Capacitance	C <sub>rss</sub>		0.01	0.03	pF	
Power Gain	G <sub>ps</sub>	15	18	21	dB	V <sub>DS</sub> = 3.5 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 7 mA
Noise Figure	NF		1.8	3.0	dB	f = 900 MHz

**I<sub>DSX</sub> Classification**

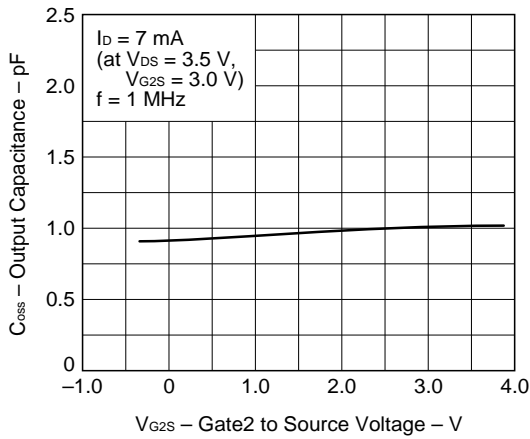
Rank	U1G/UAG*
Marking	U1G
I <sub>DSX</sub> (mA)	0.5 to 7.0

\* Old specification / New specification

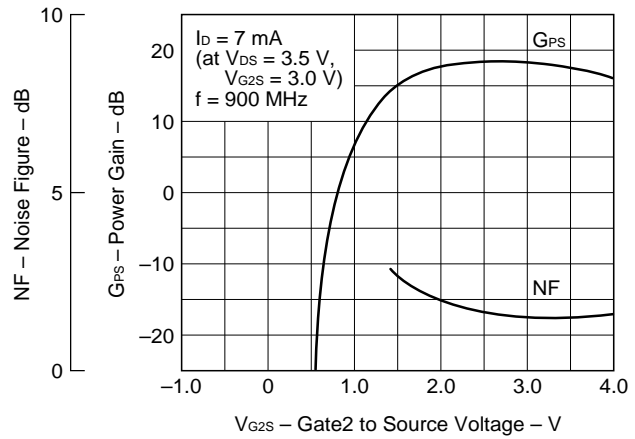
TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)



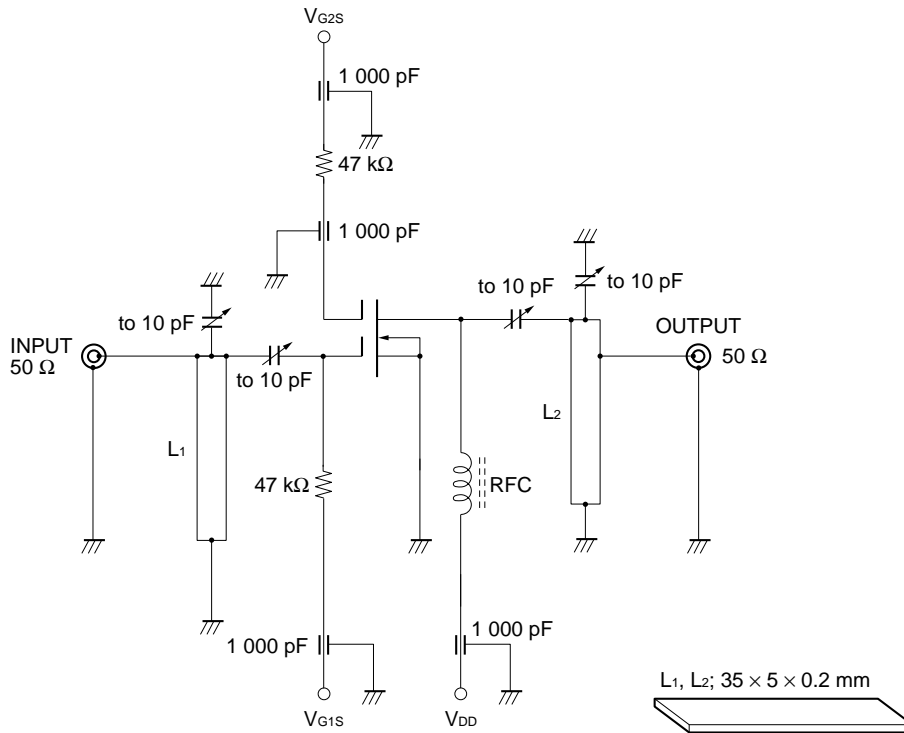
OUTPUT CAPACITANCE vs. GATE2 TO SOURCE VOLTAGE



POWER GAIN AND NOISE FIGURE vs. GATE2 TO SOURCE VOLTAGE



**G<sub>PS</sub> AND NF TEST CIRCUIT AT f = 900 MHz**



[MEMO]

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Anti-radioactive design is not implemented in this product.