

To our customers,

Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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

FEATURES

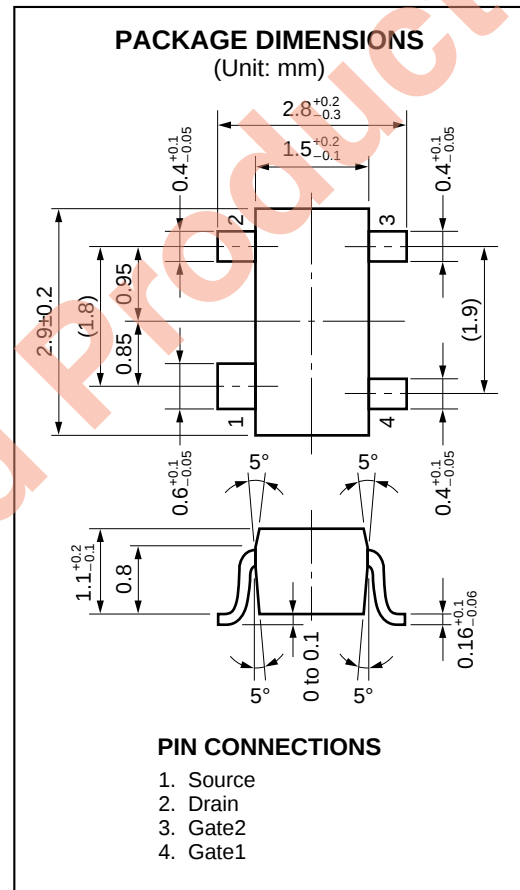
- Low V_{DD} Use : ($V_{DS} = 3.5$ V)
- Driving Battery
- Low Noise Figure : $NF = 1.8$ dB TYP. ($f = 900$ MHz)
- High Power Gain : $G_{PS} = 18.0$ dB TYP. ($f = 900$ MHz)
- Suitable for use as RF amplifier in UHF TV tuner.
- Automatically Mounting : Embossed Type Taping
- Package : 4 Pins Mini Mold

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 Ω

***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.

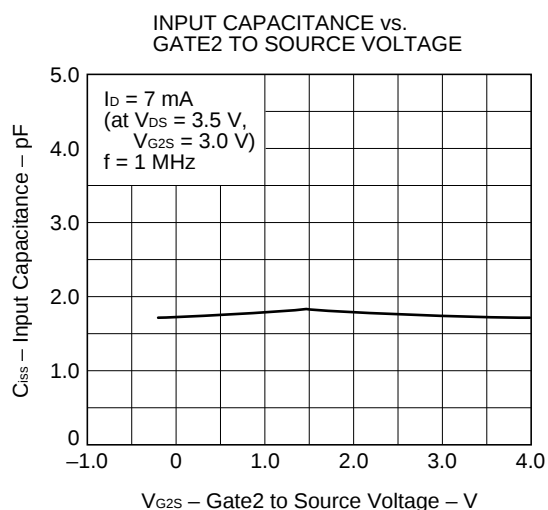
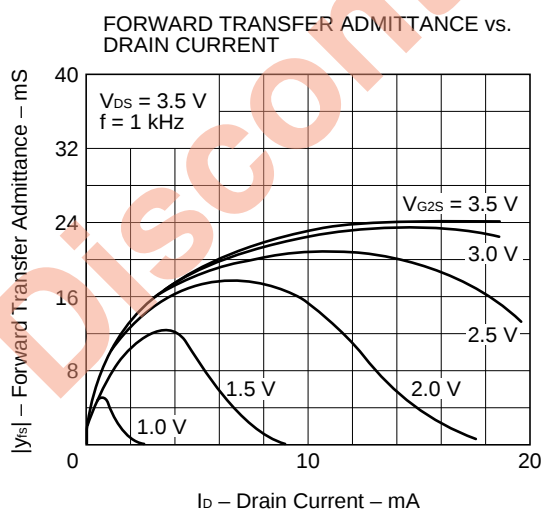
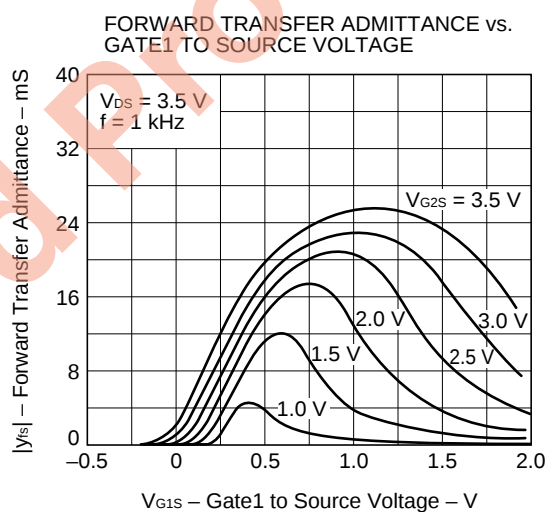
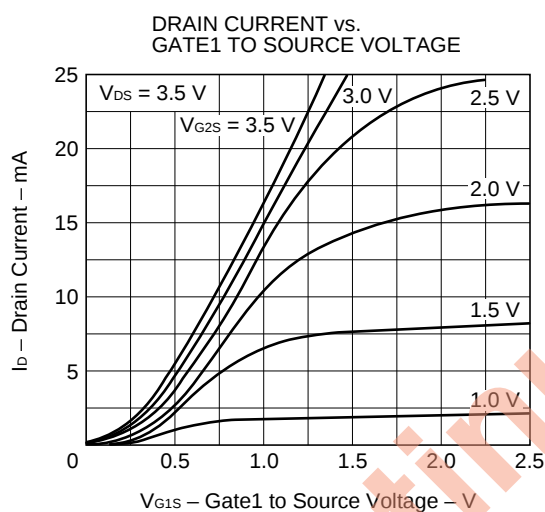
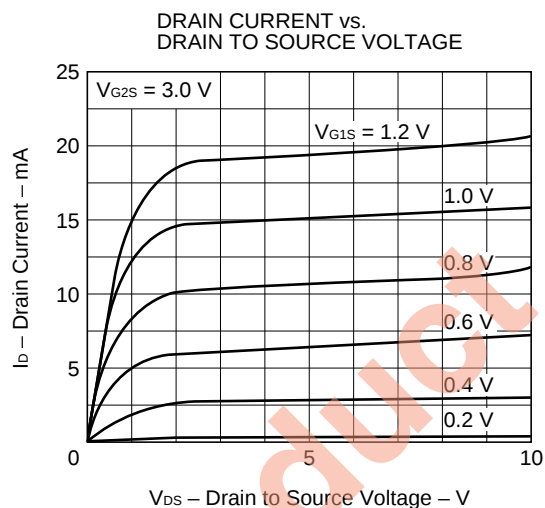
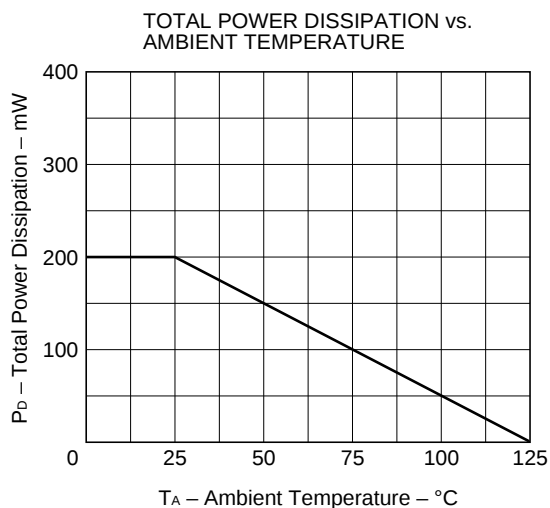
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

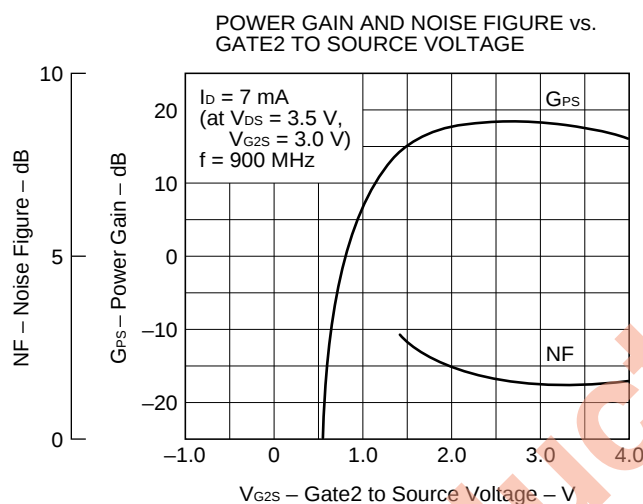
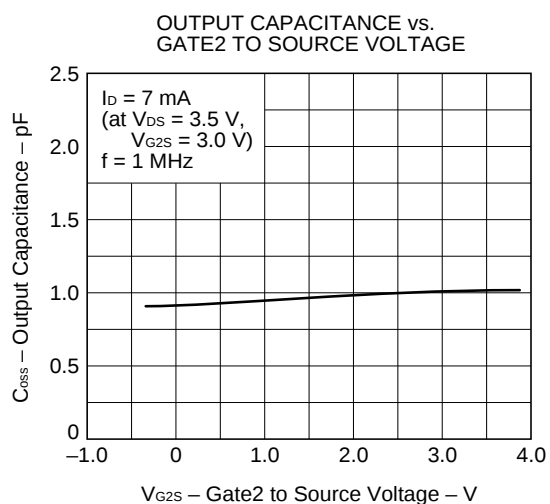
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	BV _{DSX}	18			V	V _{G1S} = V _{G2S} = -2 V, I _D = 10 μA
Drain Current	I _{DSX}	0.5		7.0	mA	V _{DS} = 3.5 V, V _{G2S} = 3 V, V _{G1S} = 0.75 V
Gate1 to Source Cutoff Voltage	V _{G1S(off)}	-1.0	0	+1.0	V	V _{DS}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

I_{DSX} Classification

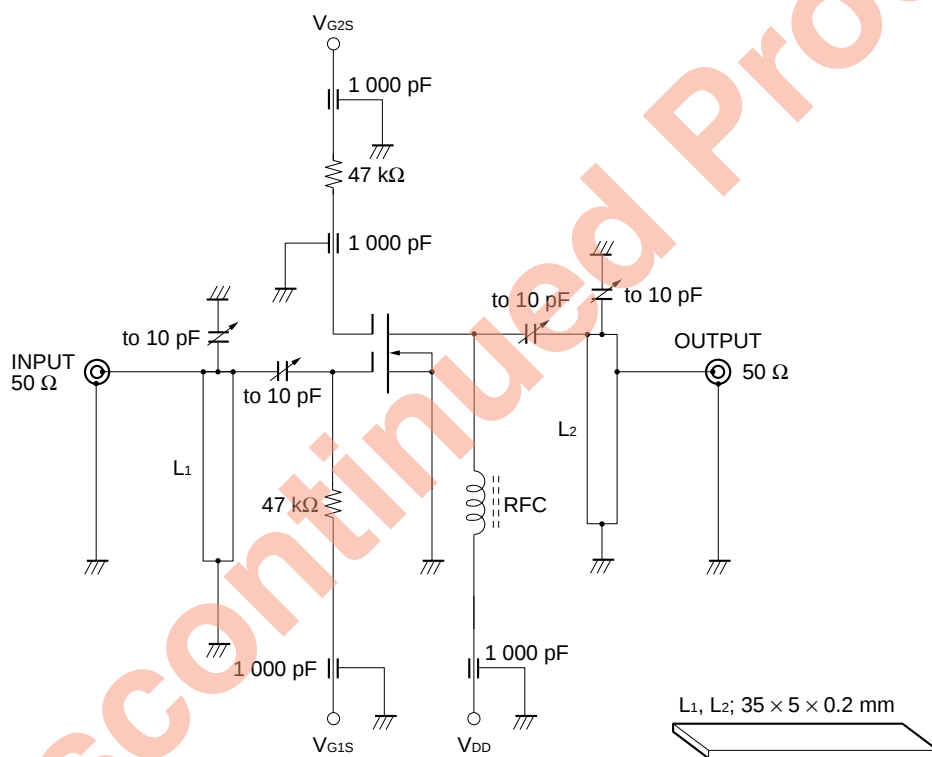
Rank	U1G/UAG*
Marking	U1G
I _{DSX} (mA)	0.5 to 7.0

* Old specification / New specification

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



GPS AND NF TEST CIRCUIT AT $f = 900$ MHz



[MEMO]

Discontinued Product

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NEC devices are classified into the following three quality grades:

“Standard”, “Special”, and “Specific”. The Specific quality grade applies only to devices developed based on a customer designated “quality assurance program” for a specific application. The recommended applications of a device depend on its quality grade, as indicated below. Customers must check the quality grade of each device before using it in a particular application.

Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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