

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

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 TV TUNER
N-CHANNEL Si DUAL GATE MOS FIELD-EFFECT TRANSISTOR
4 PINS SUPER MINI MOLD

FEATURES

- Ultra Low Noise Figure: $NF = 2.2 \text{ dB TYP. (} f = 900 \text{ MHz)}$
- High Power Gain : $G_{PS} = 17 \text{ dB TYP. (} f = 900 \text{ MHz)}$
- Low Reverse Transfer Capacitance $C_{rss} = 0.015 \text{ pF TYP.}$
- Suitable for use as RF amplifier in UHF TV tuner.
- Automatically Mounting: Embossed Type Taping
- Small Package : 4 Pins Super Mini Mold

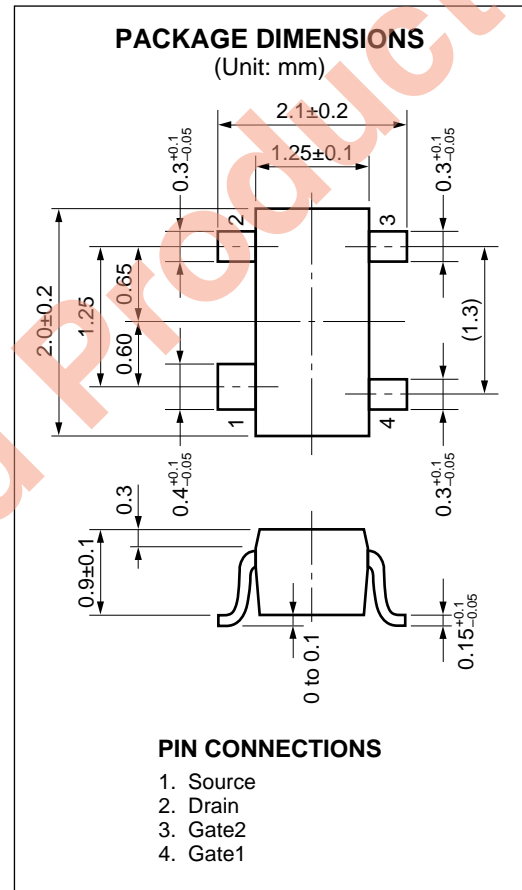
ABSOLUTE MAXIMUM RATINGS (TA = 25 °C)

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 ≥ 10 kΩ

*2: Free air

*3: 15 mm × 15 mm × 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)

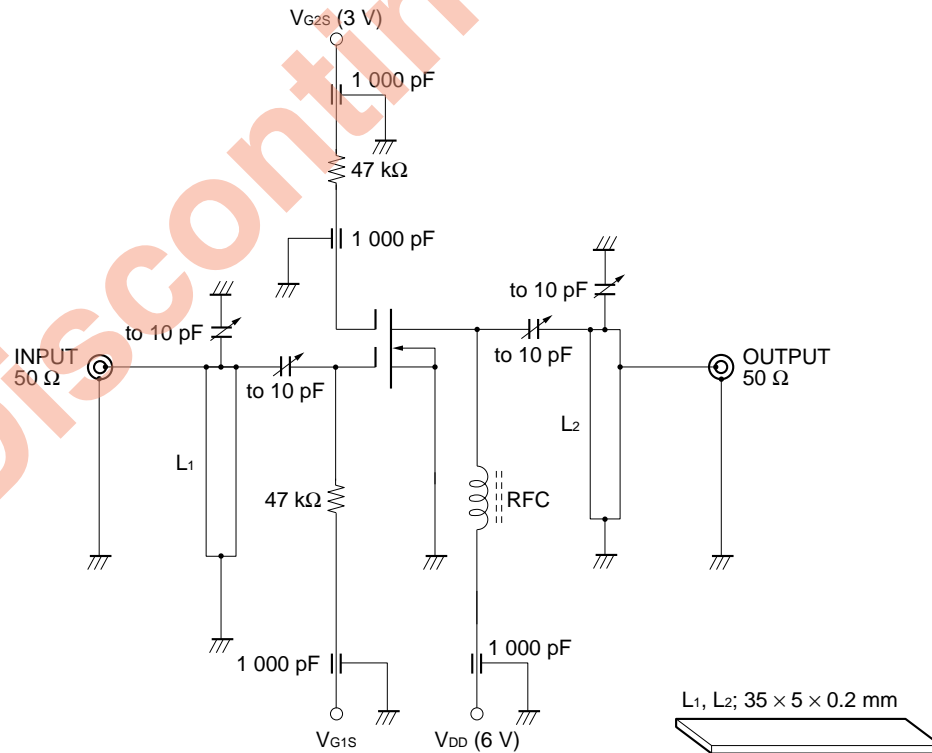
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain to Source Breakdown Voltage	BV _{DSX}	18			V	V _{G1S} = V _{G2S} = -2 V, I _D = 10 μA
Drain Current	I _{DSX}	0.5		15	mA	V _{DS} = 6 V, V _{G2S} = 3 V, V _{G1S} = 0.5 V
Gate1 to Source Cutoff Voltage	V _{G1S(off)}	-1.5		+0.5	V	V _{DS} = 6 V, V _{G2S} = 3 V, I _D = 10 μA
Gate2 to Source Cutoff Voltage	V _{G2S(off)}	-1.0		+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}	18.0	22.0		mS	V _{DS} = 5 V, V _{G2S} = 4 V, I _D = 10 mA f = 1 kHz
Input Capacitance	C _{iss}	1.2	1.7	2.2	pF	V _{DS} = 6 V, V _{G2S} = 3 V, I _D = 10 mA f = 1 MHz
Output Capacitance	C _{oss}	0.6	0.9	1.2	pF	
Reverse Transfer Capacitance	C _{rss}		0.015	0.025	pF	
Power Gain	G _{ps}	15.0	17.0		dB	V _{DS} = 6 V, V _{G2S} = 3 V, I _D = 10 mA
Noise Figure	NF		2.2	3.2	dB	f = 900 MHz

I_{DSX} Classification

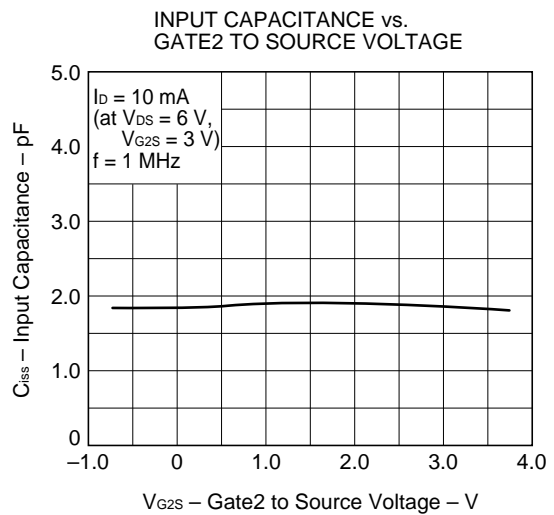
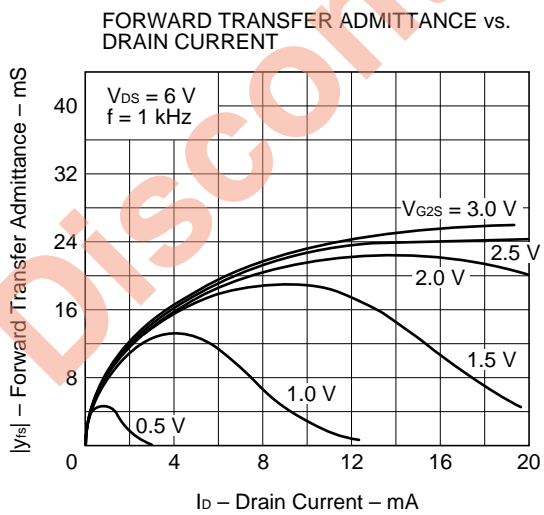
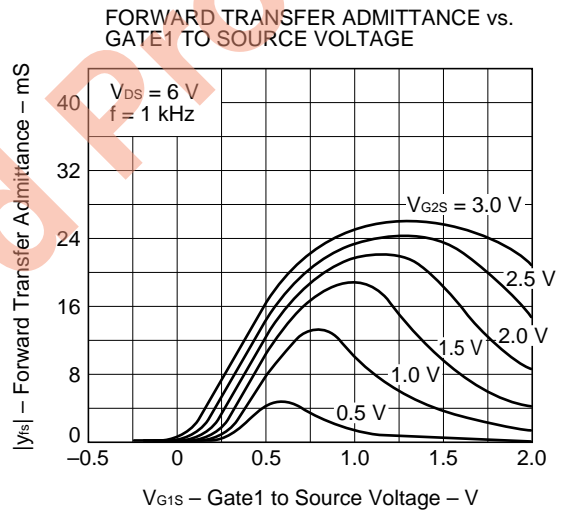
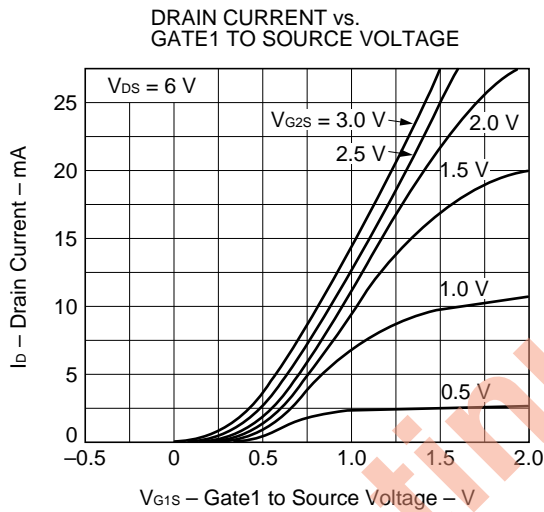
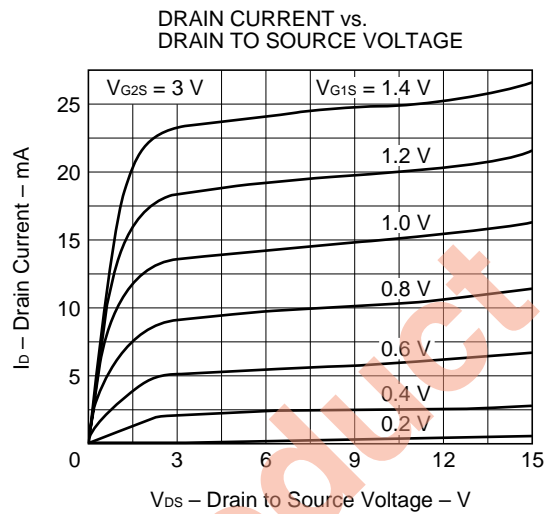
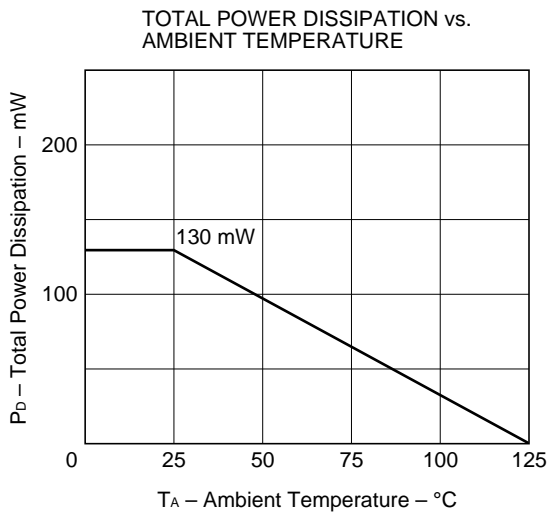
Rank	U94/UID*	U95/UIE*
Marking	U94	U95
I _{DSX} (mA)	0.5 to 7.0	5.0 to 15.0

* Old Specification / New Specification

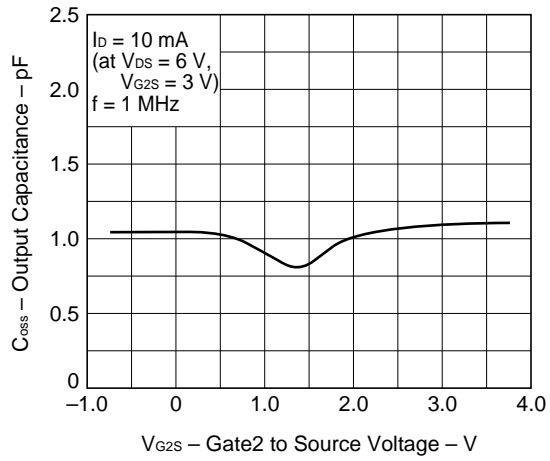
G_{PS} AND NF TEST CIRCUIT AT f = 900 MHz



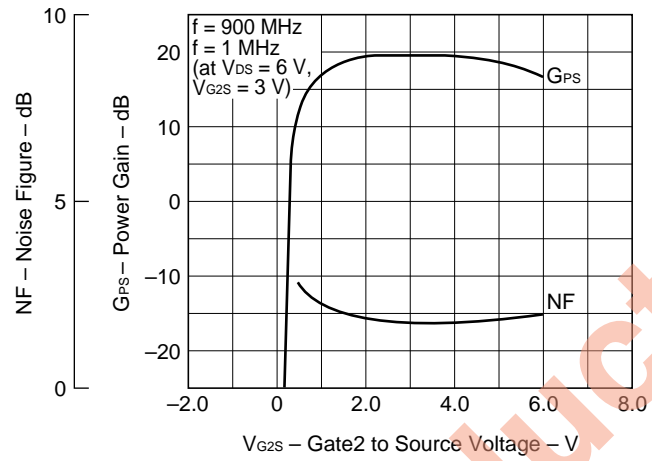
TYPICAL CHARACTERISTICS (T_A = 25 °C)



OUTPUT CAPACITANCE vs.
GATE2 TO SOURCE VOLTAGE



POWER GAIN AND NOISE FIGURE vs.
GATE2 TO SOURCE VOLTAGE



Discontinued Product

[MEMO]

Discontinued Product

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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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Anti-radioactive design is not implemented in this product.