

To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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3SK300

Silicon N Channel Dual Gate MOS FET UHF / VHF RF Amplifier

RENESAS

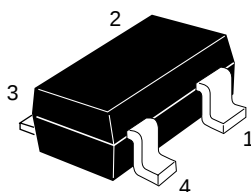
ADE-208-449A (Z)
2nd. Edition
Mar. 2001

Features

- Low noise figure
NF = 1.0 dB typ. at $f = 200$ MHz
- High gain
PG = 27.6 dB typ. at $f = 200$ MHz

Outline

MPAK-4



1. Source
2. Gate1
3. Gate2
4. Drain

Note: Marking is "ZR-"

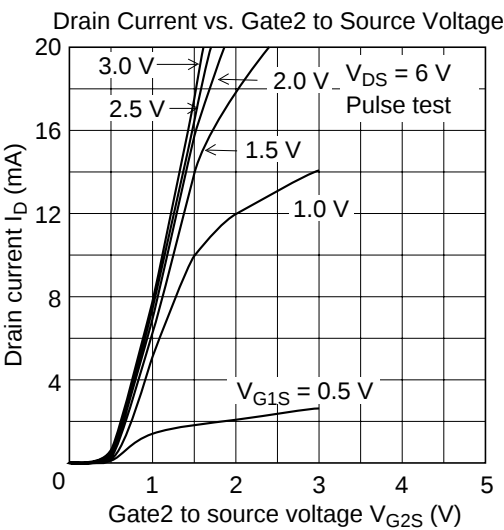
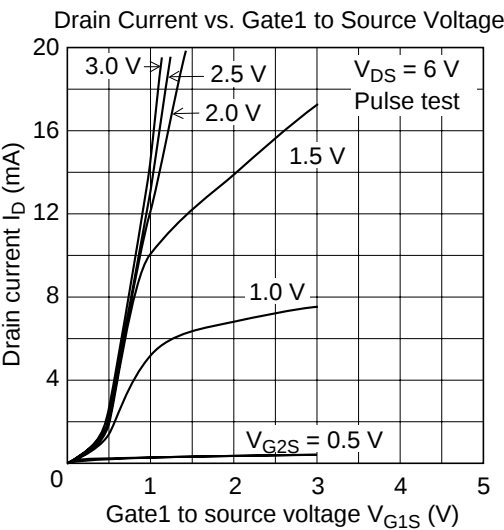
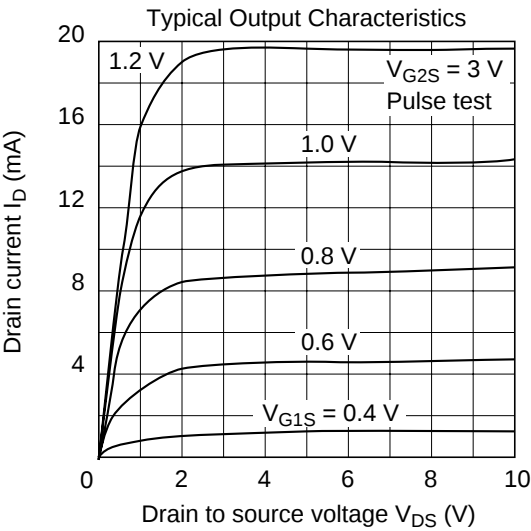
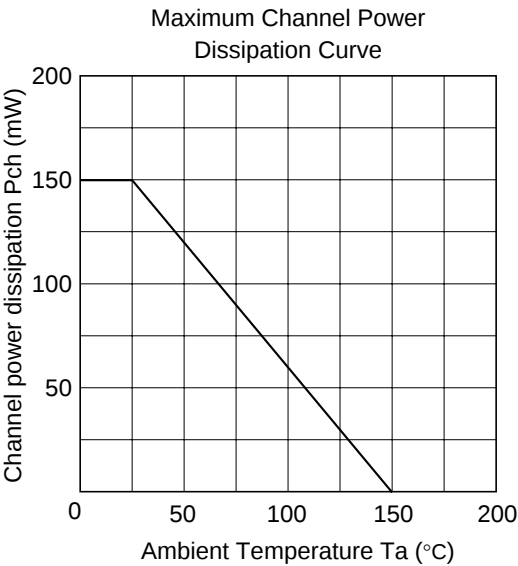
Absolute Maximum Ratings (Ta = 25°C)

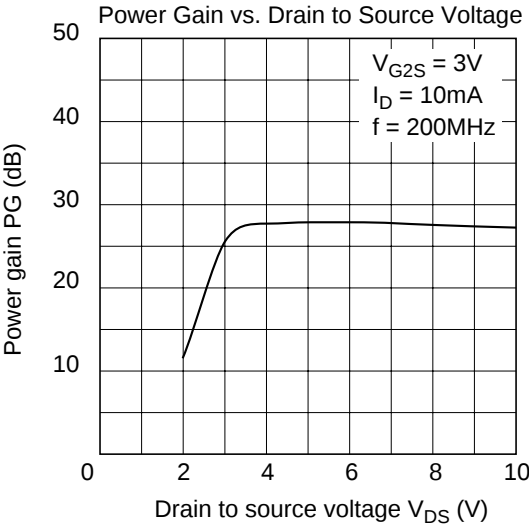
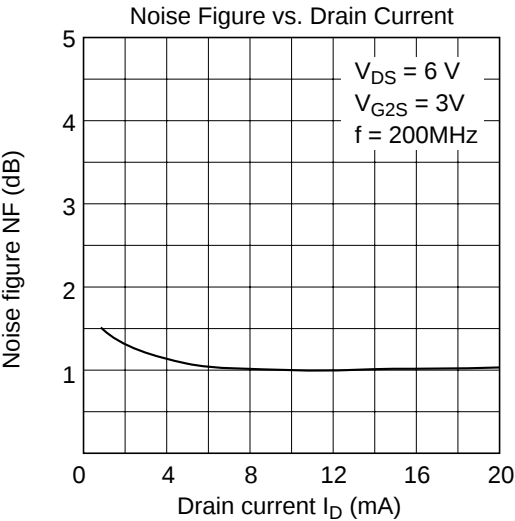
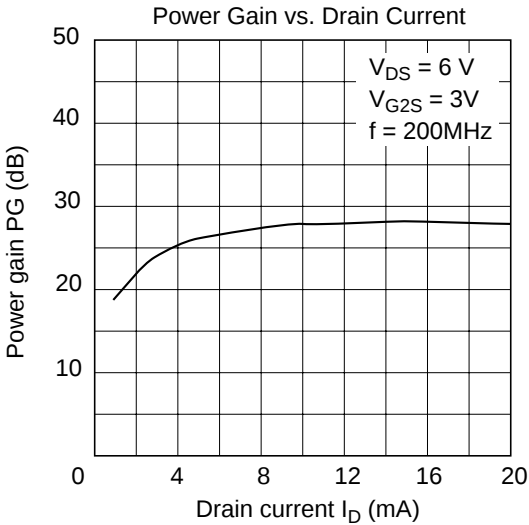
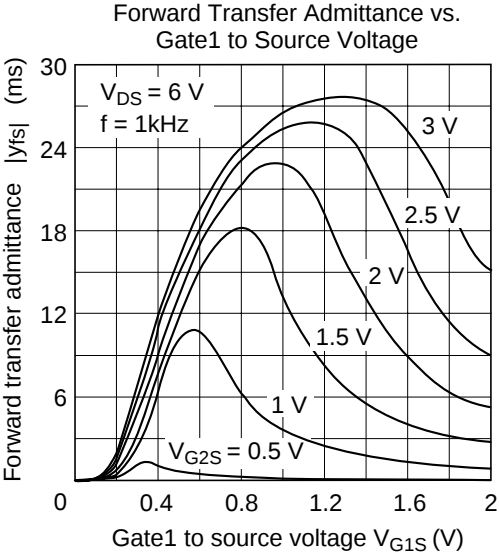
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	14	V
Gate 1 to source voltage	V_{G1S}	± 8	V
Gate 2 to source voltage	V_{G2S}	± 8	V
Drain current	I_D	25	mA
Channel power dissipation	Pch	150	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

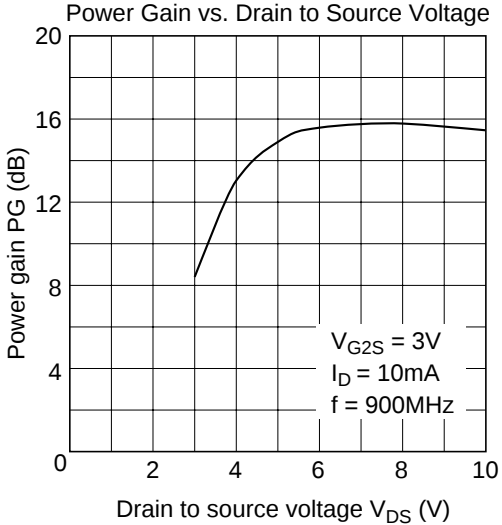
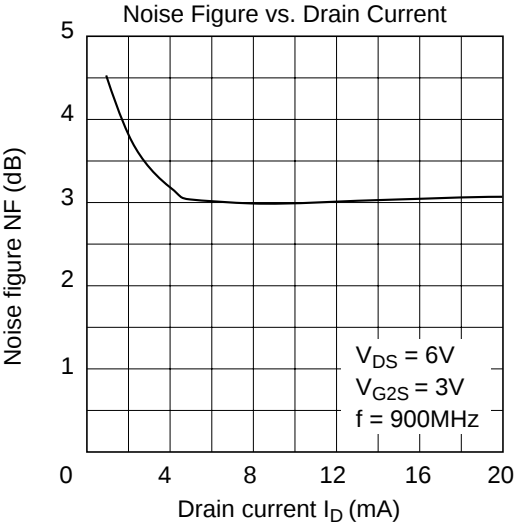
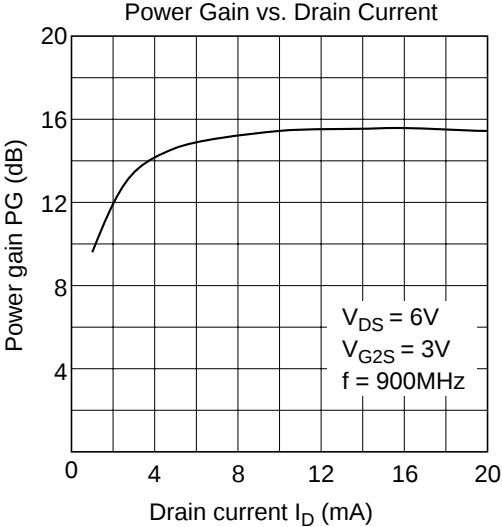
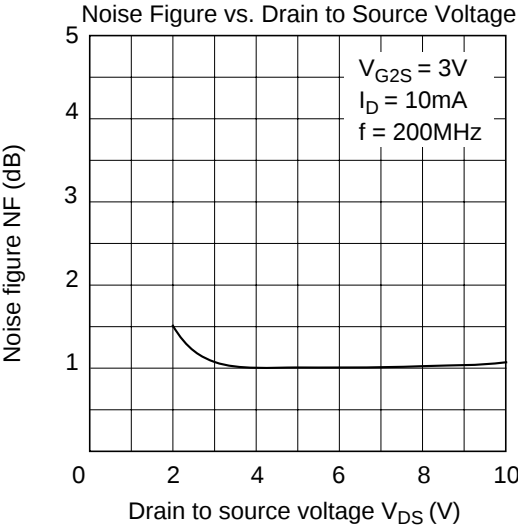
Electrical Characteristics (Ta = 25°C)

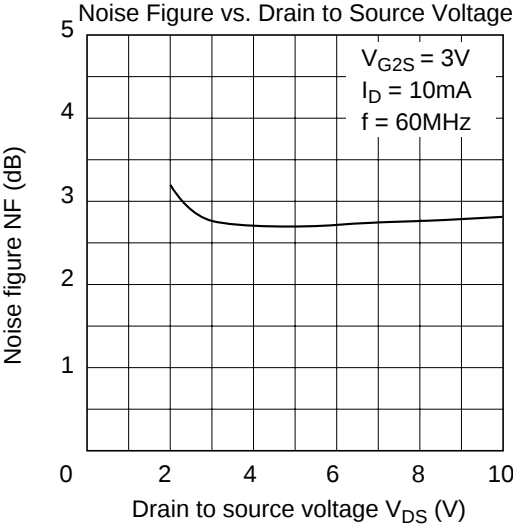
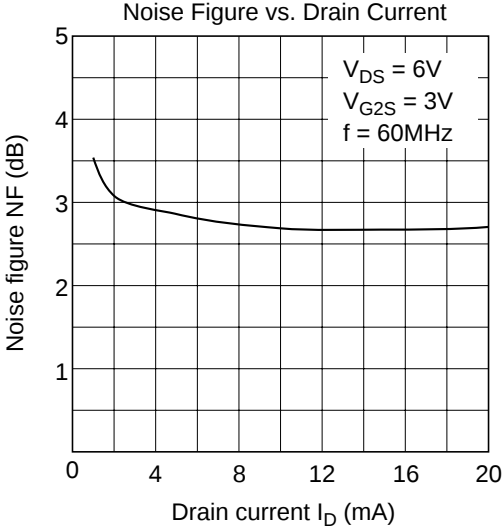
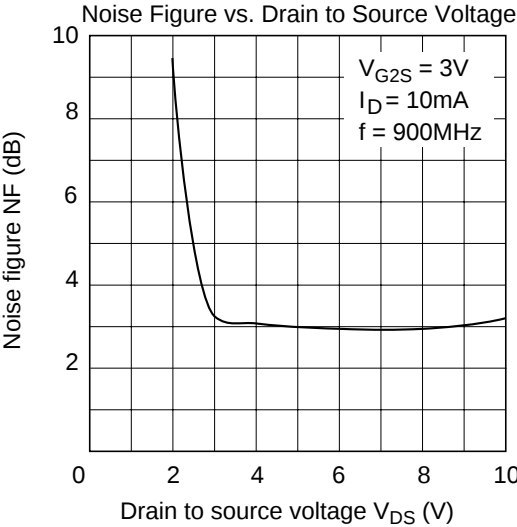
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSX}$	14	—	—	V	$I_D = 200\ \mu A$, $V_{G1S} = -3\ V$, $V_{G2S} = -3\ V$
Gate 1 to source breakdown voltage	$V_{(BR)G1SS}$	± 8	—	—	V	$I_{G1} = \pm 10\ \mu A$, $V_{DS} = V_{G2S} = 0$
Gate 2 to source breakdown voltage	$V_{(BR)G2SS}$	± 8	—	—	V	$I_{G2} = \pm 10\ \mu A$, $V_{DS} = V_{G1S} = 0$
Gate 1 cutoff current	I_{G1SS}	—	—	± 100	nA	$V_{G1S} = \pm 6\ V$, $V_{DS} = V_{G2S} = 0$
Gate 2 cutoff current	I_{G2SS}	—	—	± 100	nA	$V_{G2S} = \pm 6\ V$, $V_{DS} = V_{G1S} = 0$
Drain current	$I_{DS(op)}$	4	8	14	mA	$V_{DS} = 6\ V$, $V_{G1S} = 0.75\ V$, $V_{G2S} = 3\ V$
Gate 1 to source cutoff voltage	$V_{G1S(off)}$	0	+0.2	+1.0	V	$V_{DS} = 10\ V$, $V_{G2S} = 3\ V$, $I_D = 100\ \mu A$
Gate 2 to source cutoff voltage	$V_{G2S(off)}$	0	+0.3	+1.0	V	$V_{DS} = 10\ V$, $V_{G1S} = 3\ V$, $I_D = 100\ \mu A$
Forward transfer admittance	$ y_{fs} $	20	25	—	ms	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$, $I_D = 10\ mA$, $f = 1\ kHz$
Input capacitance	C_{iss}	2.4	3.1	3.5	pF	$V_{DS} = 6\ V$,
Output capacitance	C_{oss}	0.8	1.1	1.4	pF	$V_{G2S} = 3\ V$, $I_D = 10\ mA$
Reverse transfer capacitance	C_{rss}	—	0.021	0.04	pF	$f = 1\ MHz$
Power gain	PG	24	27.6	—	dB	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$,
Noise figure	NF	—	1.0	1.5	dB	$I_D = 10\ mA$, $f = 200\ MHz$
Power gain	PG	12	15.6	—	dB	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$,
Noise figure	NF	—	3.0	4.0	dB	$I_D = 10\ mA$, $f = 900\ MHz$
Noise figure	NF	—	2.7	3.5	dB	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$, $I_D = 10\ mA$, $f = 60\ MHz$

Main Characteristics



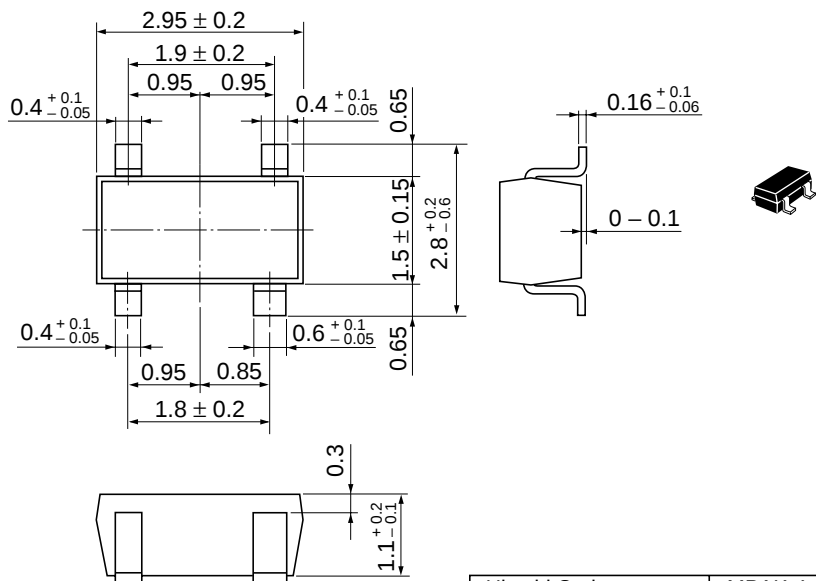






Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	MPAK-4
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.013 g

Cautions

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