

To our customers,

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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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Not recommended
for new design

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3SK300

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

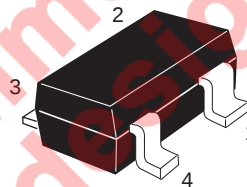
REJ03G0818-0300
(Previous ADE-208-449A)
Rev.3.00
Aug.10.2005

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

RENESAS Package code: PLSP0004ZA-A
(Package name: MPAK-4)



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

Note: Marking is "ZR—"

Absolute Maximum Ratings

(Ta = 25°C)

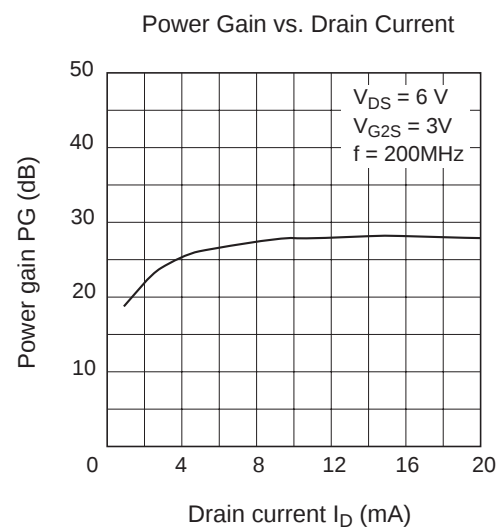
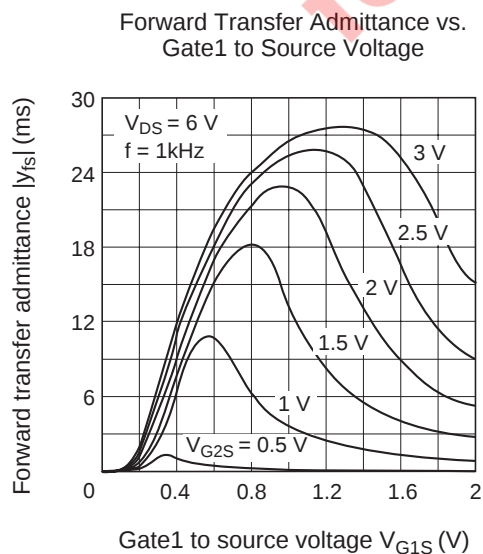
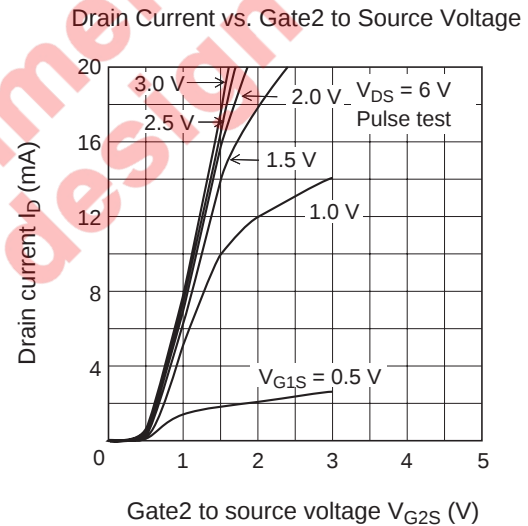
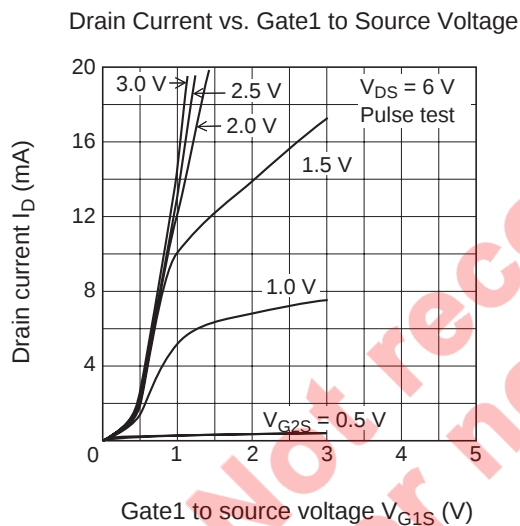
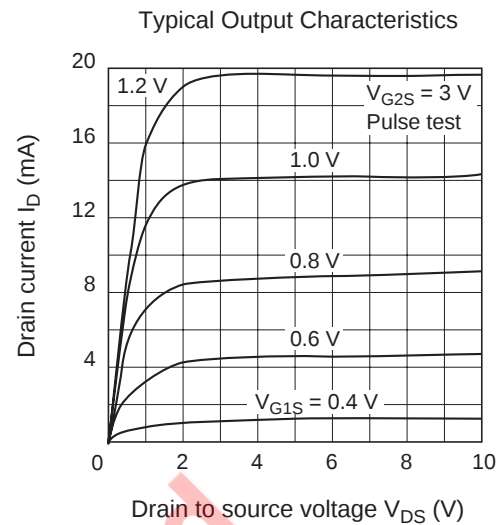
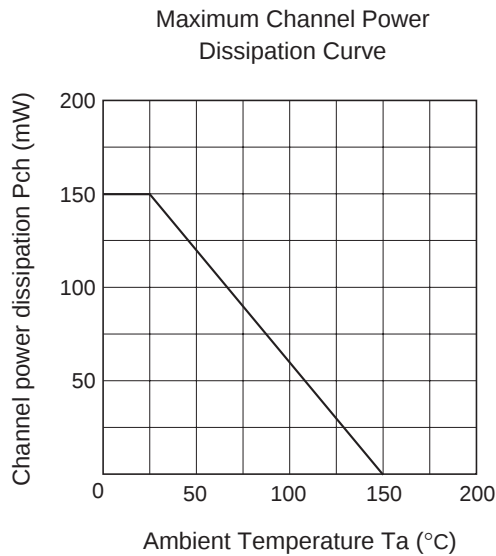
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	14	V
Gate 1 to source voltage	V_{G1S}	± 8	V
Gate 2 to source voltage	V_{G2S}	± 8	V
Drain current	I_D	25	mA
Channel power dissipation	Pch	150	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

Electrical Characteristics

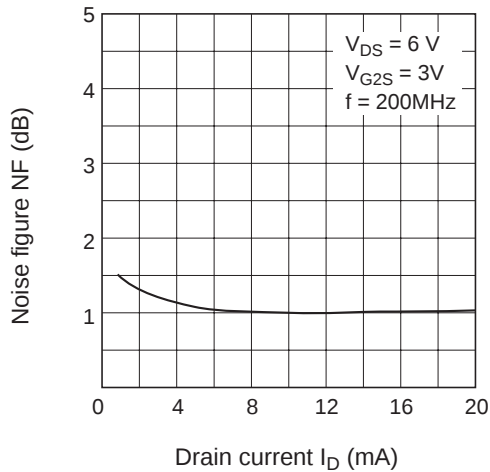
(Ta = 25°C)

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	$V_{DS} = 6 V$, $V_{G2S} = 3 V$, $I_D = 10 mA$, $f = 1 MHz$
Output capacitance	C_{oss}	0.8	1.1	1.4	pF	
Reverse transfer capacitance	C_{rss}	—	0.021	0.04	pF	
Power gain	PG	24	27.6	—	dB	$V_{DS} = 6 V$, $V_{G2S} = 3 V$, $I_D = 10 mA$, $f = 200 MHz$
Noise figure	NF	—	1.0	1.5	dB	$V_{DS} = 6 V$, $V_{G2S} = 3 V$, $I_D = 10 mA$, $f = 900 MHz$
Power gain	PG	12	15.6	—	dB	
Noise figure	NF	—	3.0	4.0	dB	$V_{DS} = 6 V$, $V_{G2S} = 3 V$, $I_D = 10 mA$, $f = 60 MHz$
Noise figure	NF	—	2.7	3.5	dB	

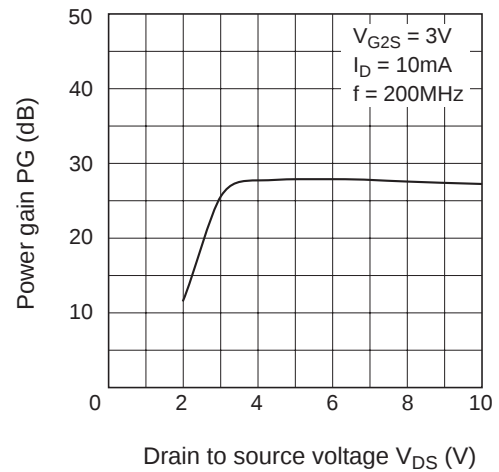
Main Characteristics



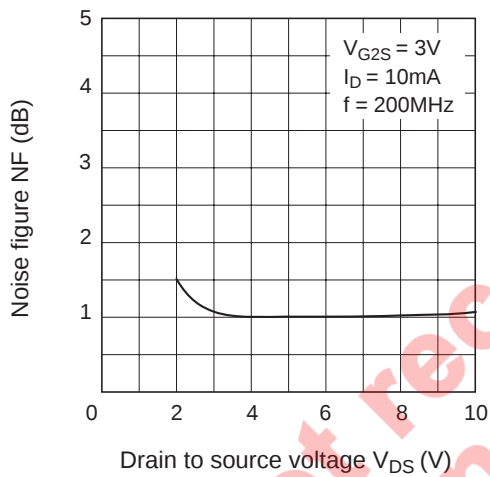
Noise Figure vs. Drain Current



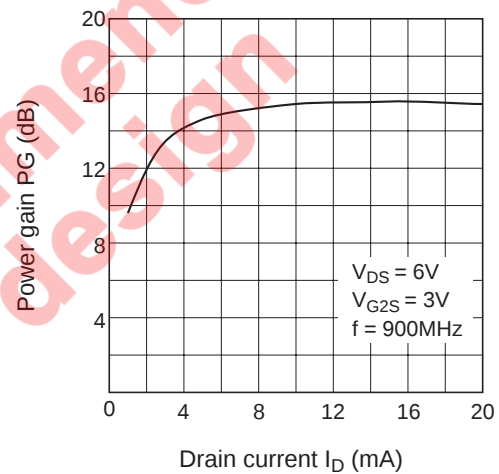
Power Gain vs. Drain to Source Voltage



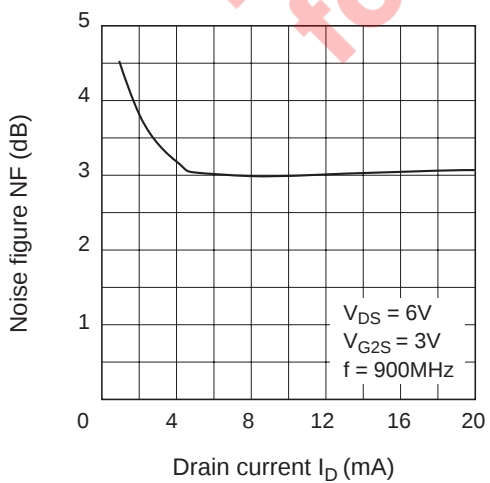
Noise Figure vs. Drain to Source Voltage



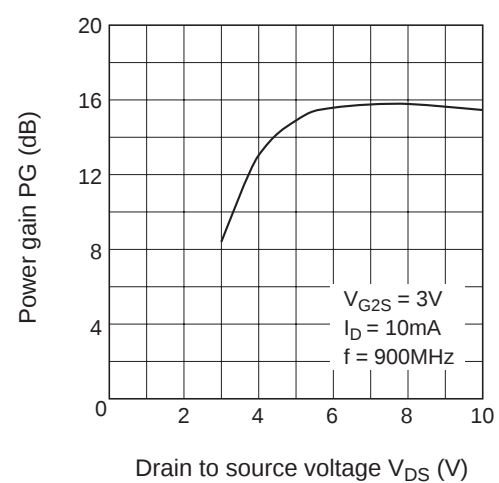
Power Gain vs. Drain Current



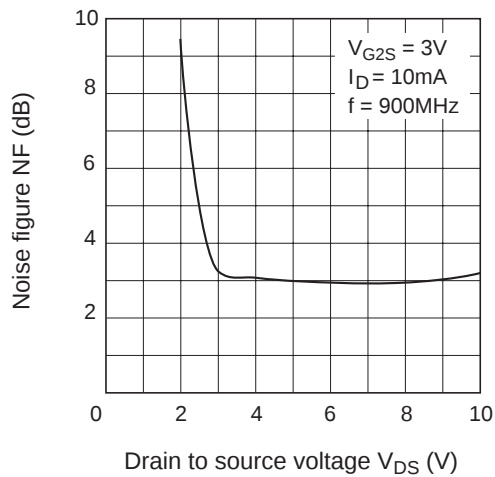
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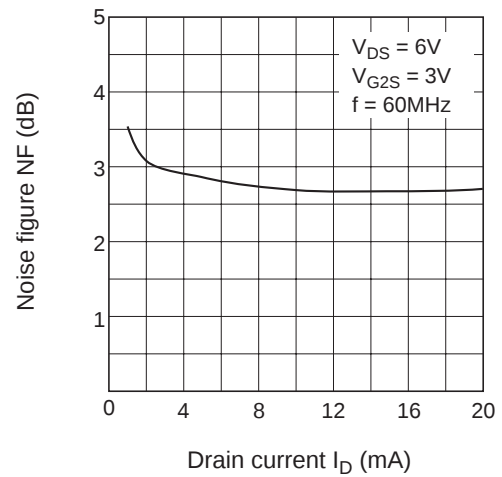
Power Gain vs. Drain to Source Voltage



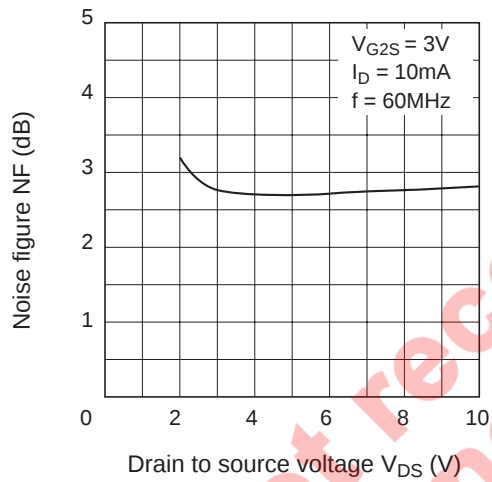
Noise Figure vs. Drain to Source Voltage



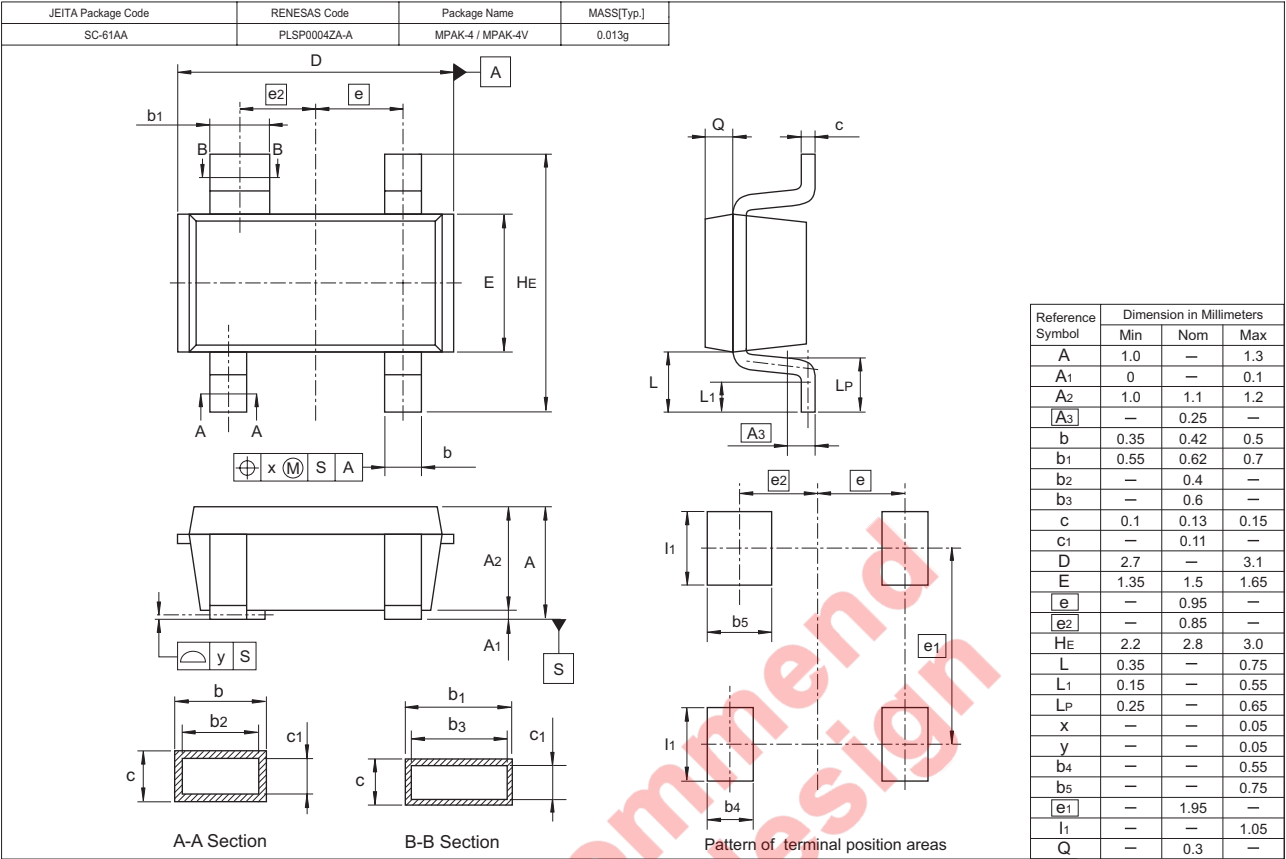
Noise Figure vs. Drain Current



Noise Figure vs. Drain to Source Voltage



Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
3SK300ZR-TL-E	3000	φ 178 mm Reel, 8 mm Emboss Taping

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