

# 3SK300

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

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

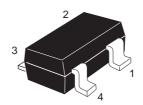
### **Features**

• 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**

 $(Ta = 25^{\circ}C)$ 

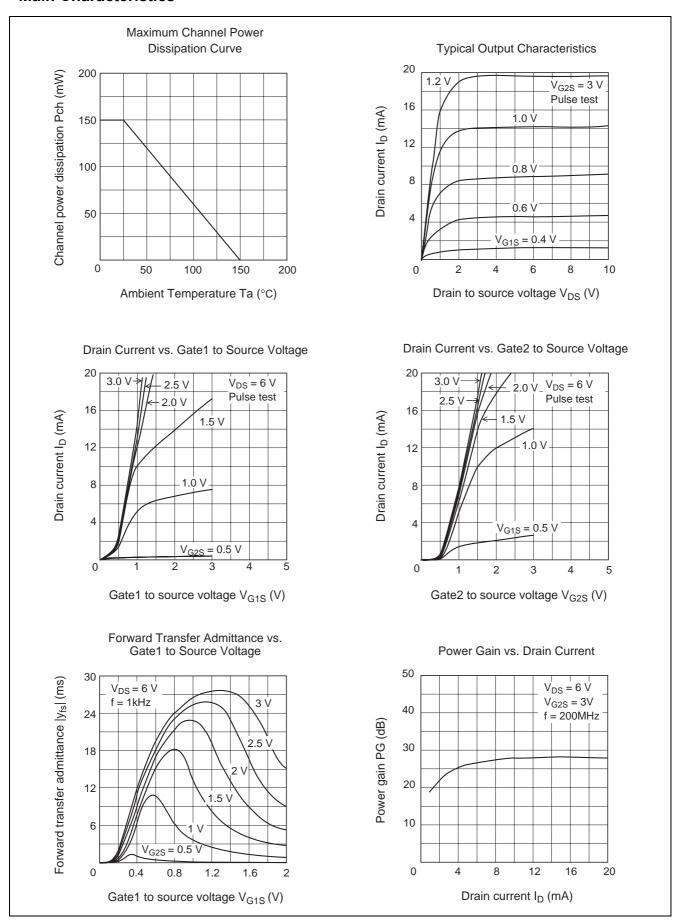
Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DS}$	14	V
Gate 1 to source voltage	$V_{G1S}$	±8	V
Gate 2 to source voltage	V <sub>G2S</sub>	±8	V
Drain current	I <sub>D</sub>	25	mA
Channel power dissipation	Pch	150	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

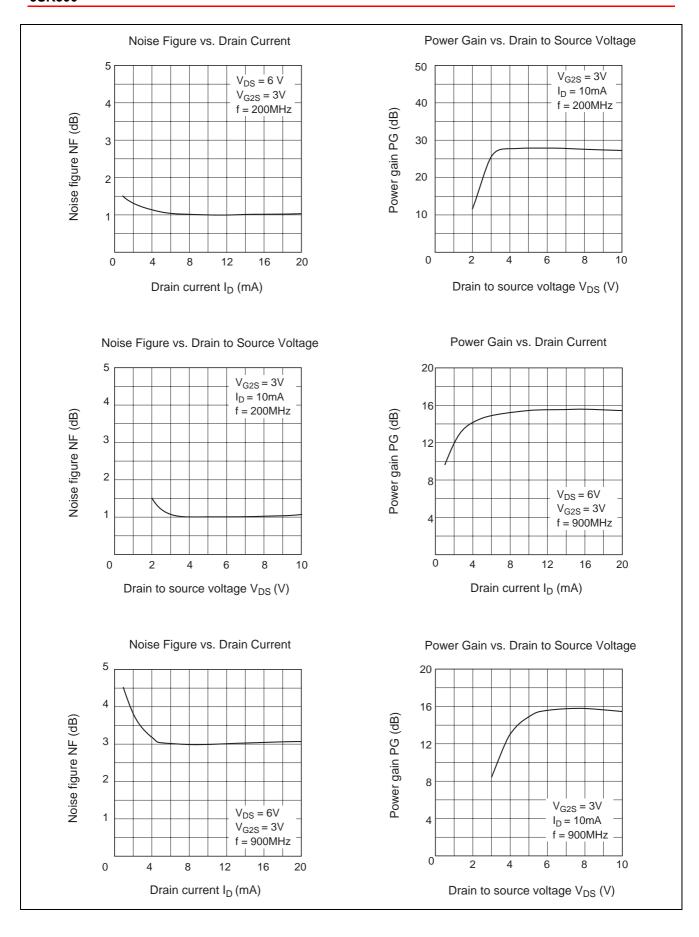
# **Electrical Characteristics**

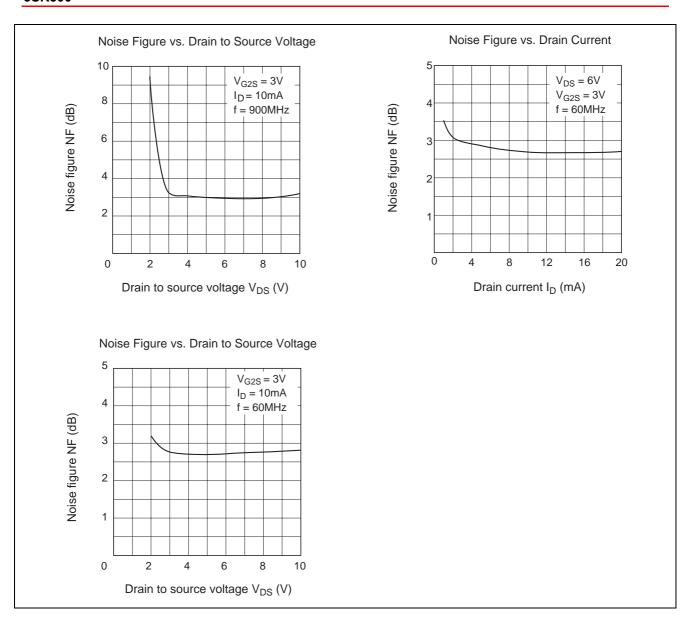
 $(Ta = 25^{\circ}C)$ 

Item	Symbol	Min	Тур	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	_		>	$I_{G2} = \pm 10 \mu A, V_{DS} = V_{G1S} = 0$
Gate 1 cutoff current	I <sub>G1SS</sub>	_	_	±100	nA	$V_{G1S} = \pm 6 \text{ V}, V_{DS} = V_{G2S} = 0$
Gate 2 cutoff current	I <sub>G2SS</sub>	_	_	±100	nA	$V_{G2S} = \pm 6 \text{ V}, V_{DS} = V_{G1S} = 0$
Drain current	I <sub>DS(op)</sub>	4	8	14	mA	$V_{DS} = 6 \text{ V}, V_{G1S} = 0.75 \text{ V},$
						$V_{G2S} = 3 V$
Gate 1 to source cutoff voltage	$V_{G1S(off)}$	0	+0.2	+1.0	V	$V_{DS} = 10 \text{ V}, V_{G2S} = 3 \text{ V},$
						I <sub>D</sub> = 100 μA
Gate 2 to source cutoff voltage	$V_{G2S(off)}$	0	+0.3	+1.0	V	$V_{DS} = 10 \text{ V}, V_{G1S} = 3 \text{ V},$
						I <sub>D</sub> = 100 μA
Forward transfer admittance	y <sub>fs</sub>	20	25	_	ms	$V_{DS} = 6 \text{ V}, V_{G2S} = 3 \text{ V},$
						I <sub>D</sub> = 10 mA, f = 1 kHz
Input capacitance	Ciss	2.4	3.1	3.5	pF	$V_{DS} = 6 \text{ V}, V_{G2S} = 3 \text{ V},$
Output capacitance	Coss	8.0	1.1	1.4	pF	I <sub>D</sub> = 10 mA, f = 1 MHz
Reverse transfer capacitance	Crss	_	0.021	0.04	pF	
Power gain	PG	24	27.6		dB	$V_{DS} = 6 \text{ V}, V_{G2S} = 3 \text{ V},$
Noise figure	NF	_	1.0	1.5	dB	I <sub>D</sub> = 10 mA, f = 200 MHz
Power gain	PG	12	15.6	_	dB	V <sub>DS</sub> = 6 V, V <sub>G2S</sub> = 3 V,
Noise figure	NF	_	3.0	4.0	dB	I <sub>D</sub> = 10 mA, f = 900 MHz
Noise figure	NF	_	2.7	3.5	dB	V <sub>DS</sub> = 6 V, V <sub>G2S</sub> = 3 V,
						I <sub>D</sub> = 10 mA, f = 60 MHz

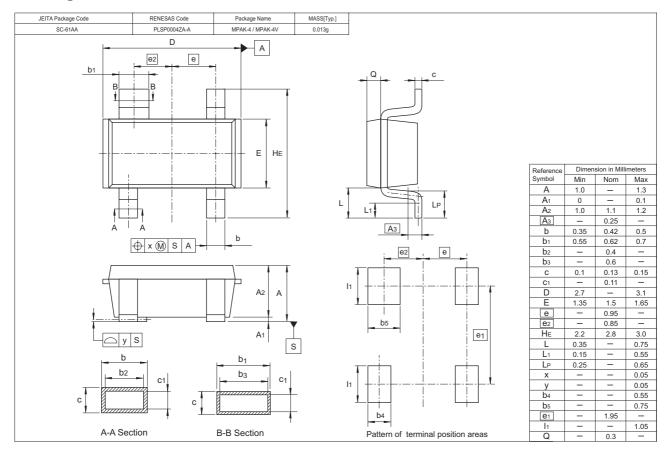
### **Main Characteristics**







# **Package Dimensions**



# **Ordering Information**

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

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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