

## 3SK317

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

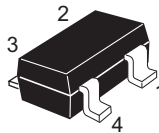
REJ03G1247-0200  
(Previous: ADE-208-778)  
Rev.2.00  
Aug. 10, 2005

#### Features

- Low noise characteristics;  
(NF = 1.0 dB typ. at f = 200 MHz)
- High power gain characteristics;  
(PG = 27.6 dB typ. at f = 200 MHz)

#### Outline

RENESAS Package code: PTSP0004ZA-A  
(Package name: CMPAK-4)



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

Note: Marking is "ZR-".

## Absolute Maximum Ratings

(Ta = 25°C)

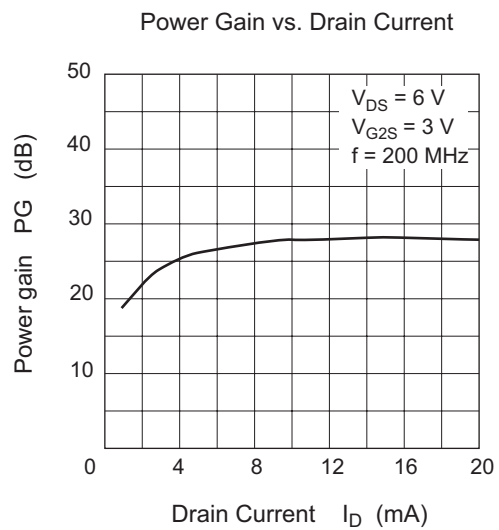
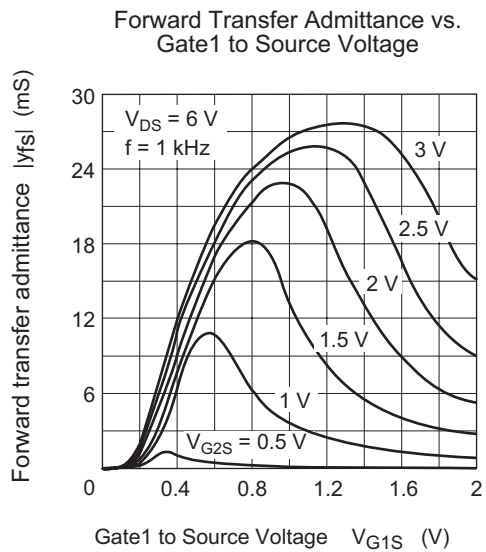
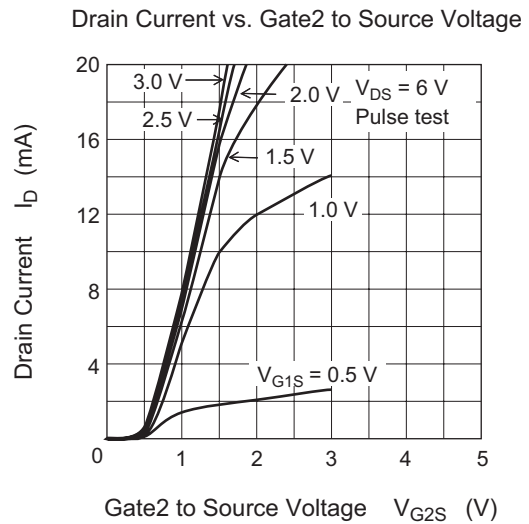
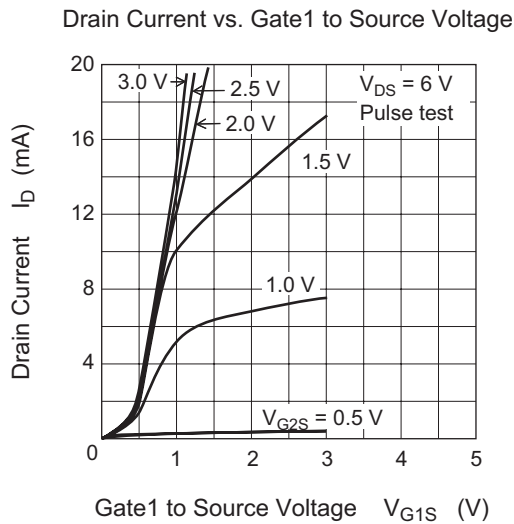
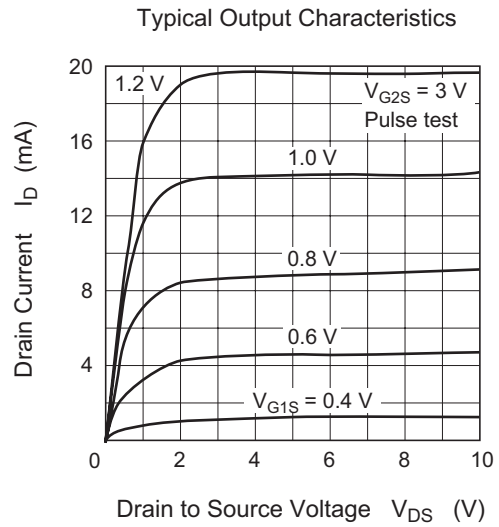
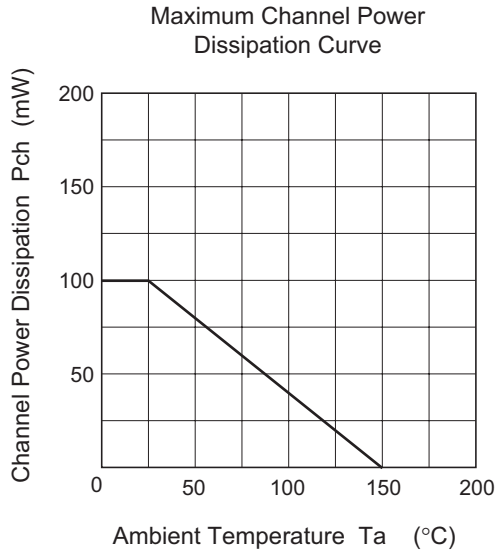
Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DS</sub>	14	V
Gate1 to source voltage	V <sub>G1S</sub>	±8	V
Gate2 to source voltage	V <sub>G2S</sub>	±8	V
Drain current	I <sub>D</sub>	25	mA
Channel power dissipation	P <sub>ch</sub>	100	mW
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

## Electrical Characteristics

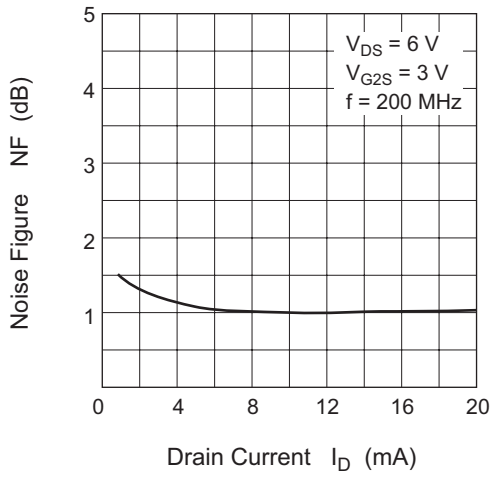
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	14	—	—	V	I <sub>D</sub> = 200 μA, V <sub>G1S</sub> = V <sub>G2S</sub> = -3 V
Gate1 to source breakdown voltage	V <sub>(BR)G1SS</sub>	±8	—	—	V	I <sub>G1</sub> = ±10 μA, V <sub>G2S</sub> = V <sub>DS</sub> = 0
Gate2 to source breakdown voltage	V <sub>(BR)G2SS</sub>	±8	—	—	V	I <sub>G2</sub> = ±10 μA, V <sub>G1S</sub> = V <sub>DS</sub> = 0
Gate1 to source cutoff current	I <sub>G1SS</sub>	—	—	±100	nA	V <sub>G1S</sub> = ±6 V, V <sub>G2S</sub> = V <sub>DS</sub> = 0
Gate2 to source cutoff current	I <sub>G2SS</sub>	—	—	±100	nA	V <sub>G2S</sub> = ±6 V, V <sub>G1S</sub> = V <sub>DS</sub> = 0
Gate1 to source cutoff voltage	V <sub>G1S(off)</sub>	0	0.2	1	V	V <sub>DS</sub> = 10 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 100 μA
Gate2 to source cutoff voltage	V <sub>G2S(off)</sub>	0	0.3	1	V	V <sub>DS</sub> = 10 V, V <sub>G1S</sub> = 3 V, I <sub>D</sub> = 100 μA
Drain current	I <sub>DS(op)</sub>	4	8	14	mA	V <sub>DS</sub> = 6 V, V <sub>G1S</sub> = 0.75 V, V <sub>G2S</sub> = 3 V
Forward transfer admittance	y <sub>fs</sub>	20	25	—	mS	V <sub>DS</sub> = 6 V, V <sub>G2S</sub> = 3 V I <sub>D</sub> = 10 mA, f = 1 kHz
Input capacitance	C <sub>iss</sub>	2.4	3.1	3.5	pF	V <sub>DS</sub> = 6 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 10 mA, f = 1 MHz
Output capacitance	C <sub>oss</sub>	0.8	1.1	1.4	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	0.021	0.04	pF	
Power gain	PG	24	27.6	—	dB	V <sub>DS</sub> = 6 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 10 mA, f = 200 MHz
Noise figure	NF	—	1.0	1.5	dB	
Power gain	PG	12	15.6	—	dB	V <sub>DS</sub> = 6 V, V <sub>G2S</sub> = 3 V, I <sub>D</sub> = 10 mA, f = 900 MHz
Noise figure	NF	—	3	4	dB	
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

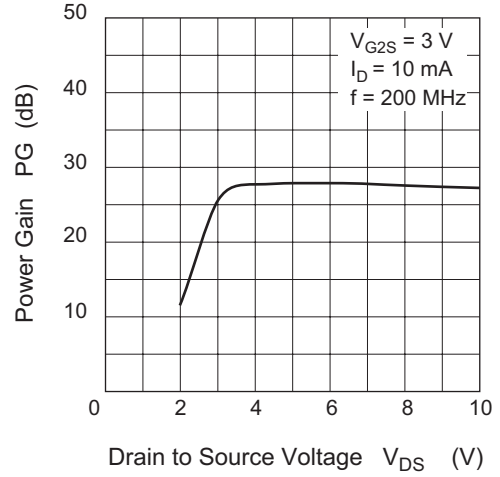
## Main Characteristics



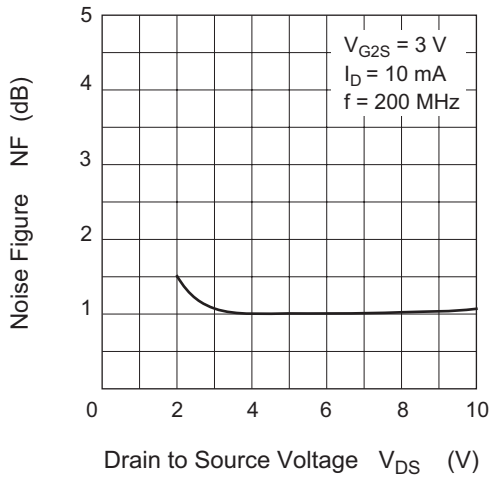
Noise Figure vs. Drain Current



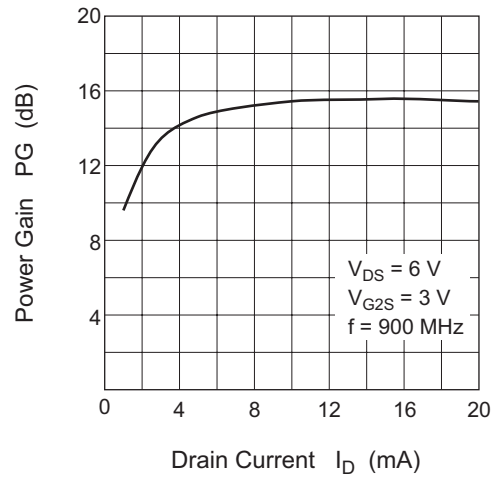
Power Gain vs. Drain to Source Voltage



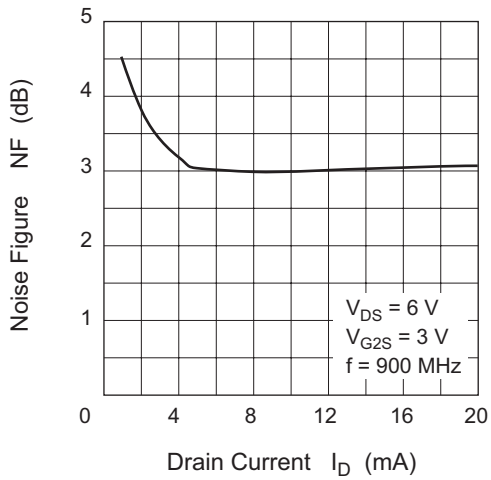
Noise Figure vs. Drain to Source Voltage



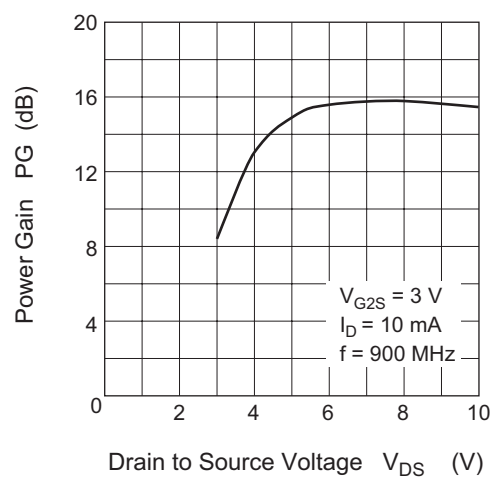
Power Gain vs. Drain Current



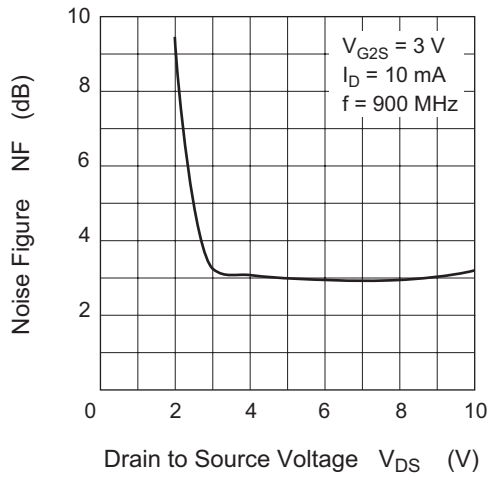
Noise Figure vs. Drain Current



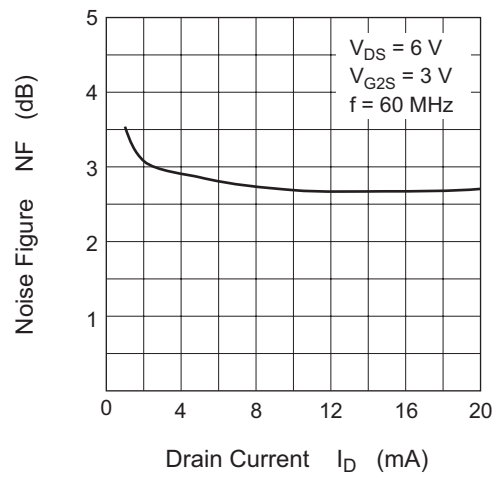
Power Gain vs. Drain to Source Voltage



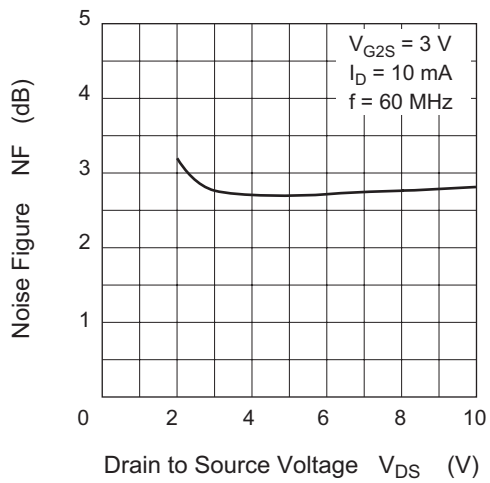
Noise Figure vs. Drain to Source Voltage



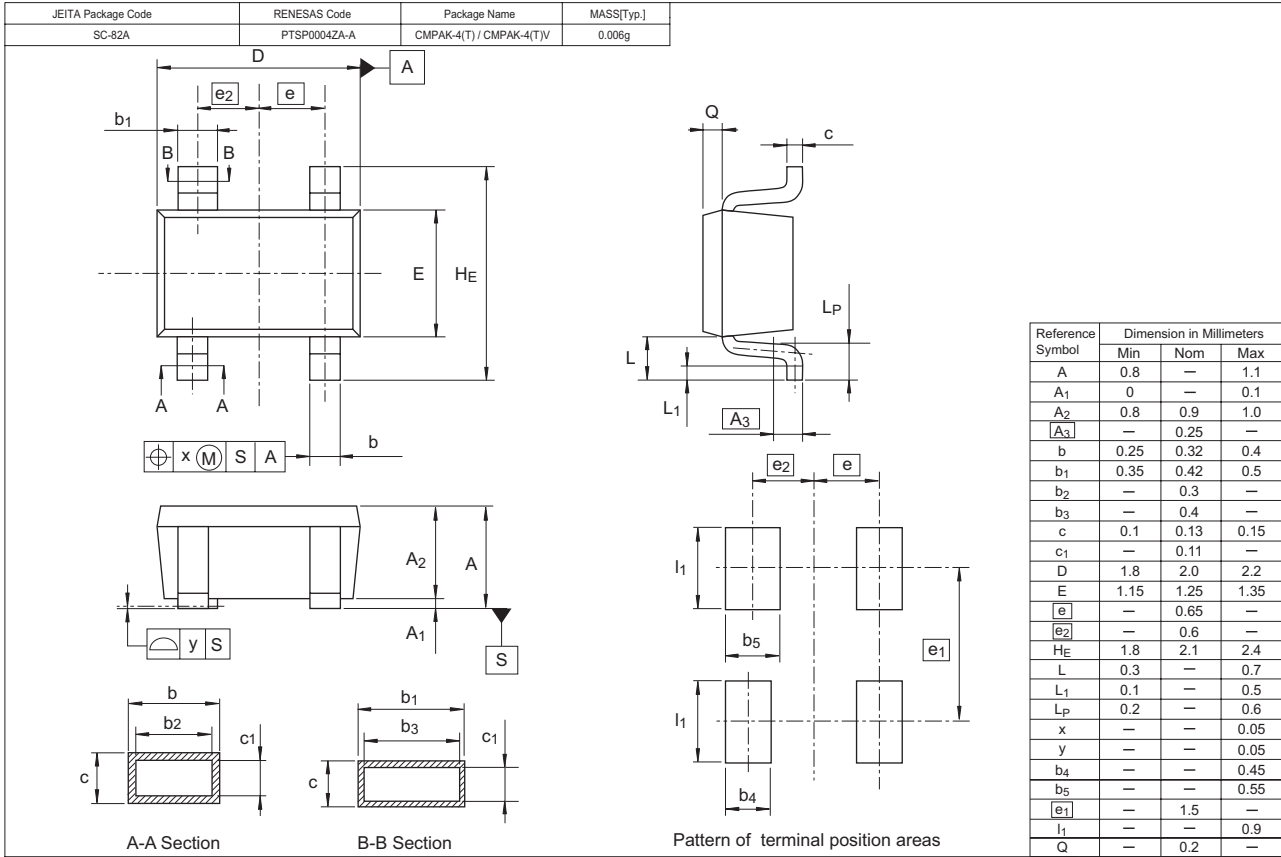
Noise Figure vs. Drain Current



Noise Figure vs. Drain to Source Voltage



### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
3SK317ZR-TL-E	3000	φ178 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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