

# 3SK317

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

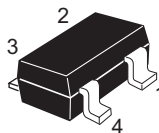
REJ03G1247-0200  
(Previous: ADE-208-778)  
Rev.2.00  
Aug. 10, 2005

## 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)

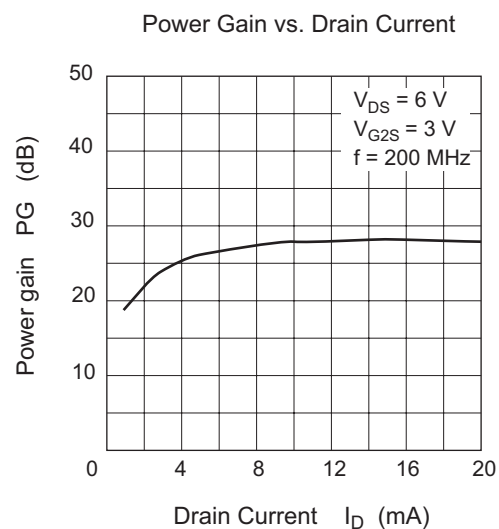
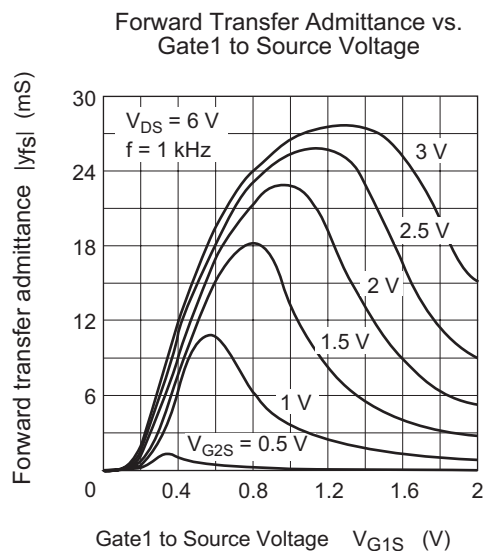
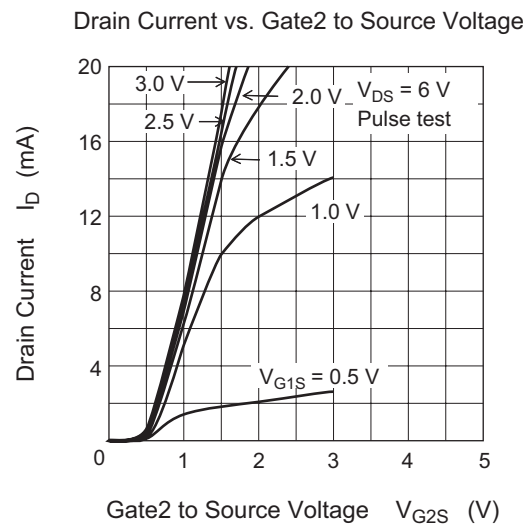
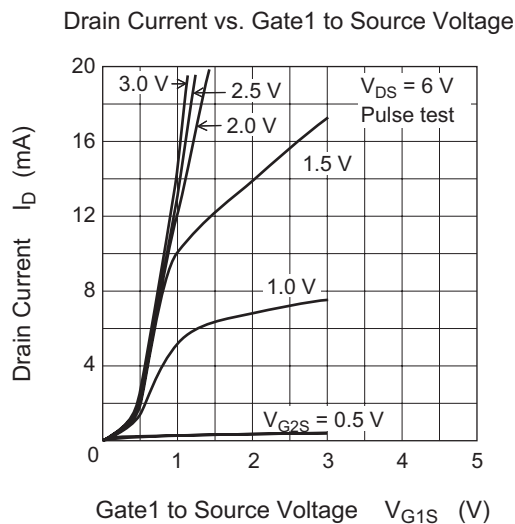
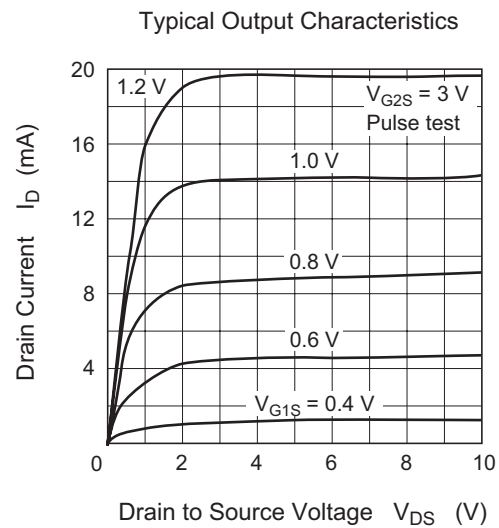
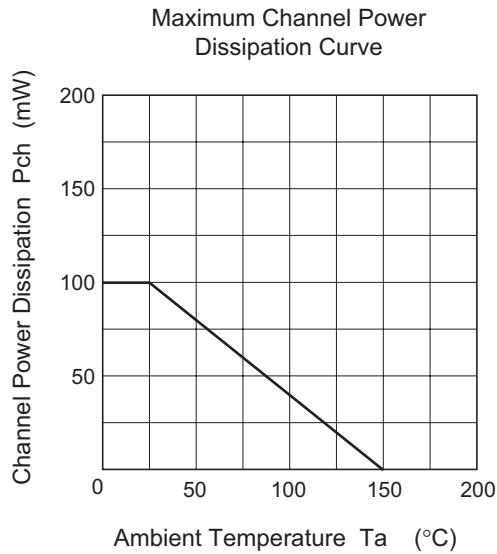
Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DS}$	14	V
Gate1 to source voltage	$V_{G1S}$	$\pm 8$	V
Gate2 to source voltage	$V_{G2S}$	$\pm 8$	V
Drain current	$I_D$	25	mA
Channel power dissipation	Pch	100	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

## Electrical Characteristics

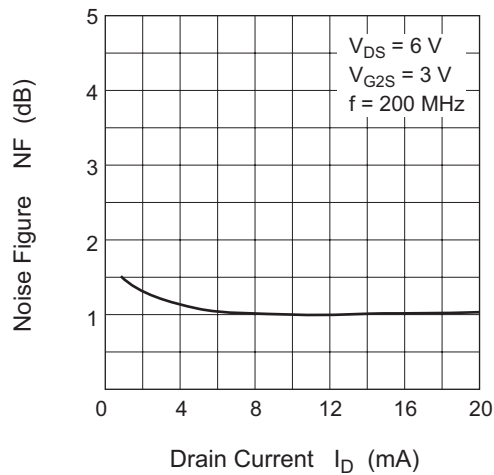
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	14	—	—	V	$I_D = 200 \mu A$ , $V_{G1S} = V_{G2S} = -3 V$
Gate1 to source breakdown voltage	$V_{(BR)G1SS}$	$\pm 8$	—	—	V	$I_{G1} = \pm 10 \mu A$ , $V_{G2S} = V_{DS} = 0$
Gate2 to source breakdown voltage	$V_{(BR)G2SS}$	$\pm 8$	—	—	V	$I_{G2} = \pm 10 \mu A$ , $V_{G1S} = V_{DS} = 0$
Gate1 to source cutoff current	$I_{G1SS}$	—	—	$\pm 100$	nA	$V_{G1S} = \pm 6 V$ , $V_{G2S} = V_{DS} = 0$
Gate2 to source cutoff current	$I_{G2SS}$	—	—	$\pm 100$	nA	$V_{G2S} = \pm 6 V$ , $V_{G1S} = V_{DS} = 0$
Gate1 to source cutoff voltage	$V_{G1S(off)}$	0	0.2	1	V	$V_{DS} = 10 V$ , $V_{G2S} = 3 V$ , $I_D = 100 \mu A$
Gate2 to source cutoff voltage	$V_{G2S(off)}$	0	0.3	1	V	$V_{DS} = 10 V$ , $V_{G1S} = 3 V$ , $I_D = 100 \mu A$
Drain current	$I_{D(op)}$	4	8	14	mA	$V_{DS} = 6 V$ , $V_{G1S} = 0.75 V$ , $V_{G2S} = 3 V$
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	Ciss	2.4	3.1	3.5	pF	$V_{DS} = 6 V$ , $V_{G2S} = 3 V$ , $I_D = 10 mA$ , $f = 1 MHz$
Output capacitance	Coss	0.8	1.1	1.4	pF	
Reverse transfer capacitance	Crss	—	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	
Power gain	PG	12	15.6	—	dB	$V_{DS} = 6 V$ , $V_{G2S} = 3 V$ , $I_D = 10 mA$ , $f = 900 MHz$
Noise figure	NF	—	3	4	dB	
Noise figure	NF	—	2.7	3.5	dB	$V_{DS} = 6 V$ , $V_{G2S} = 3 V$ $I_D = 10 mA$ , $f = 60 MHz$

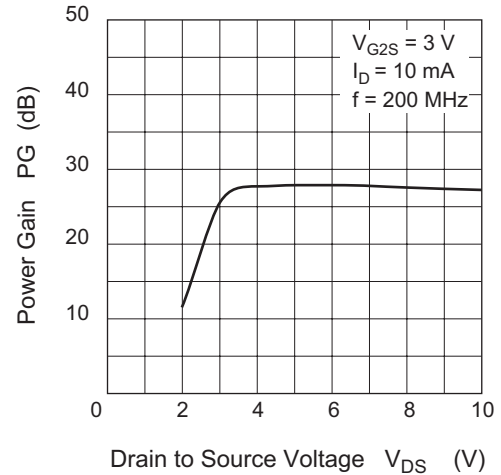
## Main Characteristics



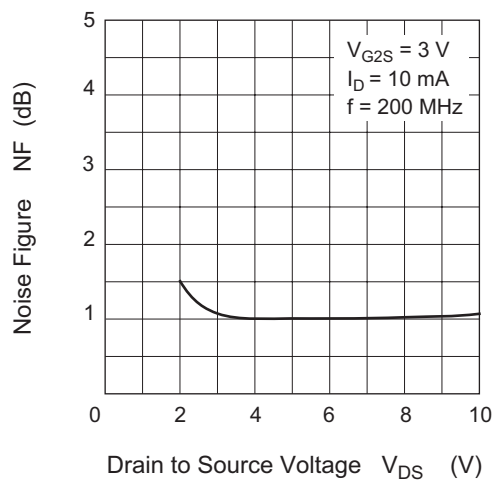
Noise Figure vs. Drain Current



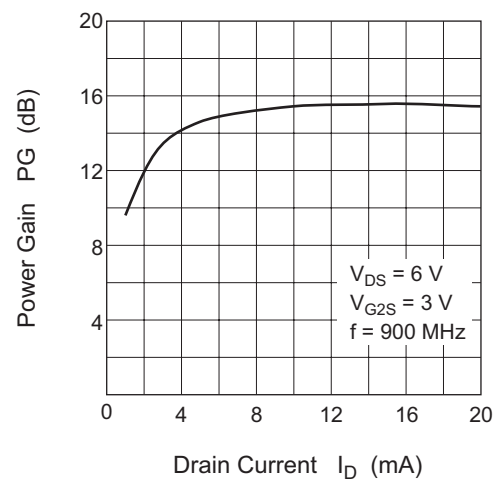
Power Gain vs. Drain to Source Voltage



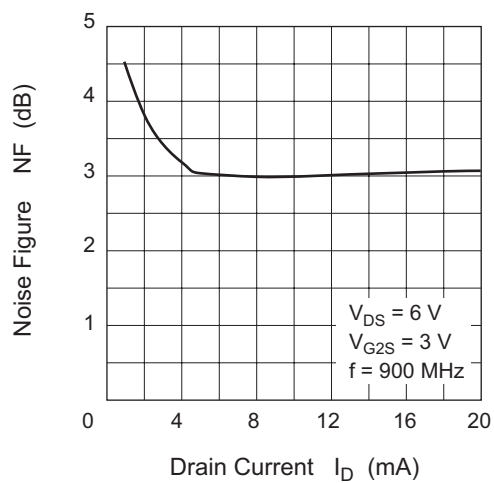
Noise Figure vs. Drain to Source Voltage



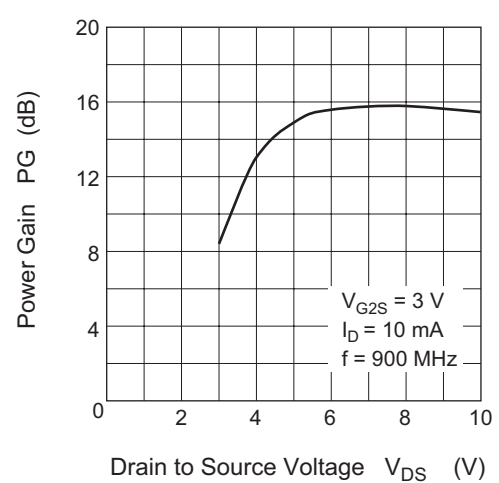
Power Gain vs. Drain Current



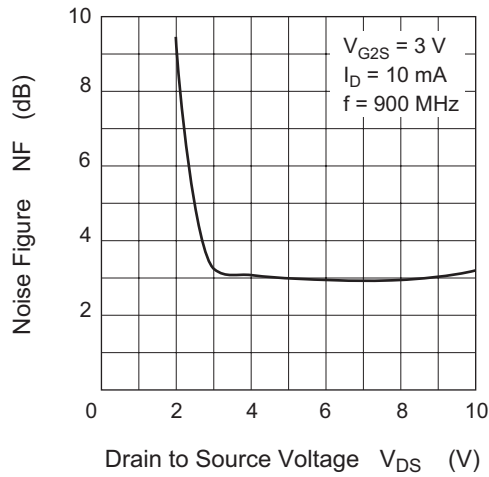
Noise Figure vs. Drain Current



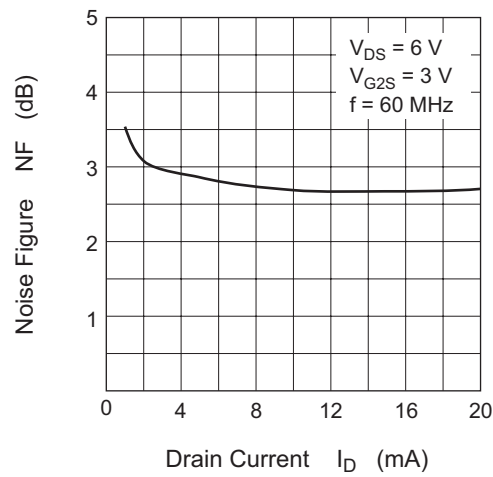
Power Gain vs. Drain to Source Voltage



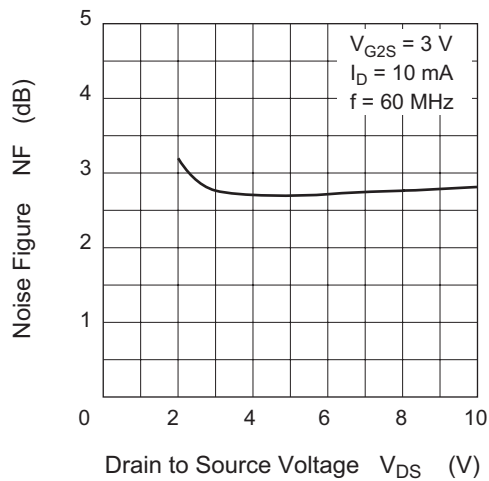
Noise Figure vs. Drain to Source Voltage



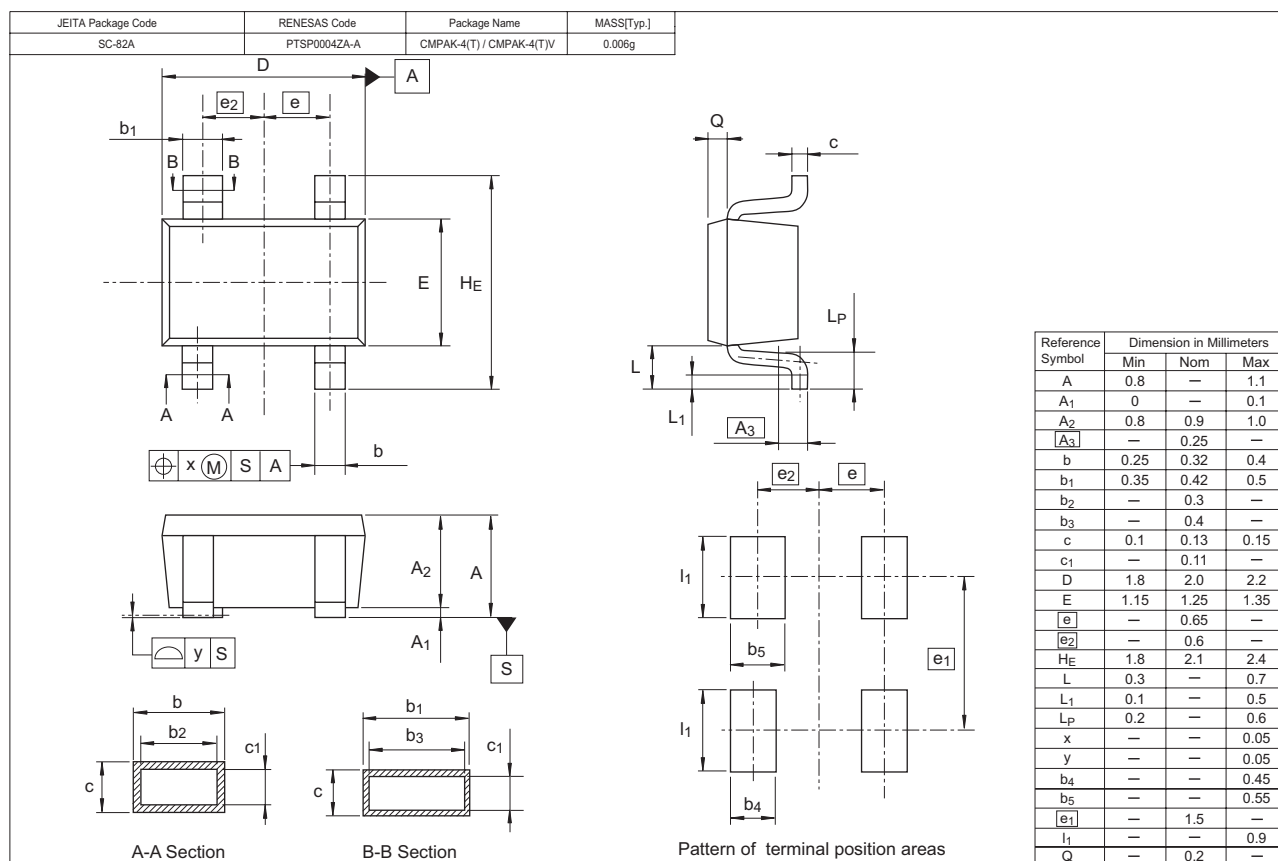
Noise Figure vs. Drain Current



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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