# 3SK317

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

# **HITACHI**

ADE-208-778 (Z) 1st. Edition Mar. 1999

### **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**

CMPAK-4



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

Note: Marking is "ZR-".



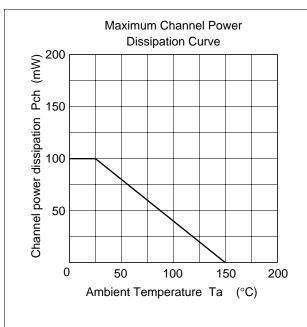
# <u>3SK317</u>

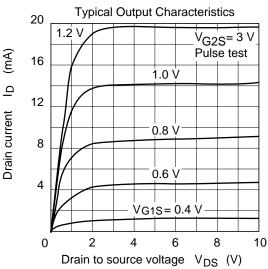
## **Absolute Maximum Ratings** ( $Ta = 25^{\circ}C$ )

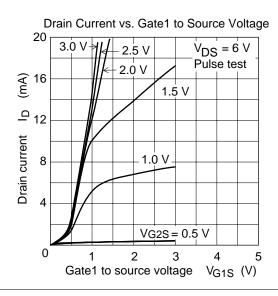
Item	Symbol	Ratings	Unit		
Drain to source voltage	V <sub>DS</sub>	14	V		
Gate1 to source voltage	$V_{\sf G1S}$	±8	V		
Gate2 to source voltage	$V_{G2S}$	±8	V		
Drain current	I <sub>D</sub>	25	mA		
Channel power dissipation	Pch	100	mW		
Channel temperature	Tch	150	°C		
Storage temperature	Tstg	-55 to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

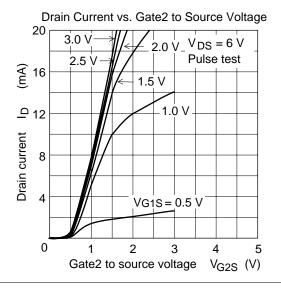
### **Electrical Characteristics** (Ta = 25°C)

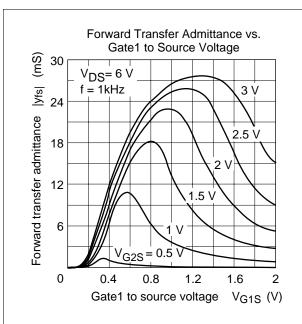
Item	Symbol	Min	Тур	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	14	_	_	V	$I_D = 200 \mu A$ $V_{G1S} = V_{G2S} = -3 V$
Gate1 to source breakdown voltage	$V_{(BR)G1SS}$	±8	_	_	V	$I_{G1} = \pm 10 \mu A$ $V_{G2S} = V_{DS} = 0$
Gate2 to source breakdown voltage	$V_{(BR)G2SS}$	±8	_	_	V	$I_{G2} = \pm 10 \mu A$ $V_{G1S} = V_{DS} = 0$
Gate1 to source cutoff current	I <sub>G1SS</sub>	_	_	±100	nA	$V_{G1S} = \pm 6 V$ $V_{G2S} = V_{DS} = 0$
Gate2 to source cutoff current	I <sub>G2SS</sub>	_	_	±100	nA	$V_{G2S} = \pm 6 V$ $V_{G1S} = V_{DS} = 0$
Gate1 to source cutoff voltage	$V_{\text{G1S(off)}}$	0	0.2	1	V	$V_{DS} = 10 \text{ V}, V_{G2S} = 3 \text{ V}$ $I_{D} = 100 \mu\text{A}$
Gate2 to source cutoff voltage	$V_{\text{G2S(off)}}$	0	0.3	1	V	$V_{DS} = 10 \text{ V}, V_{G1S} = 3 \text{ V}$ $I_D = 100 \mu A$
Drain current	I <sub>DS(op)</sub>	4	8	14	mA	$V_{DS} = 6 \text{ V}, V_{G1S} = 0.75 \text{ V}$ $V_{G2S} = 3 \text{ V}$
Forward transfer admittance	y <sub>fs</sub>	20	25	_	mS	$V_{DS} = 6 \text{ V}, V_{G2S} = 3 \text{ V}$ $I_{D} = 10 \text{ mA}, f = 1 \text{ kHz}$
Input capacitance	C <sub>iss</sub>	2.4	3.1	3.5	pF	$V_{DS} = 6 \text{ V}, V_{G2S} = 3 \text{ V}$
Output capacitance	C <sub>oss</sub>	0.8	1.1	1.4	pF	$I_{D} = 10 \text{ mA}, f = 1 \text{ MHz}$
Reverse transfer capacitance	C <sub>rss</sub>	_	0.021	0.04	pF	<del></del>
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	$V_{DS} = 6 \text{ V}, V_{G2S} = 3 \text{ V}$
Noise figure	NF	_	3	4	dB	I <sub>D</sub> = 10 mA , f = 900 MHz
Noise figure	NF	_	2.7	3.5	dB	$V_{DS} = 6 \text{ V}, V_{G2S} = 3 \text{ V}$ $I_{D} = 10 \text{ mA}, f = 60 \text{ MHz}$

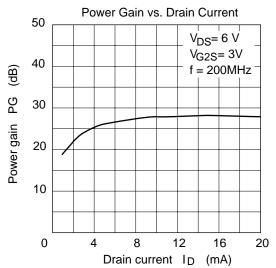


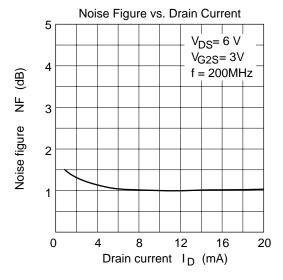


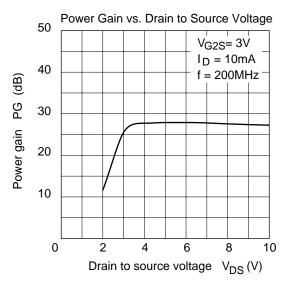


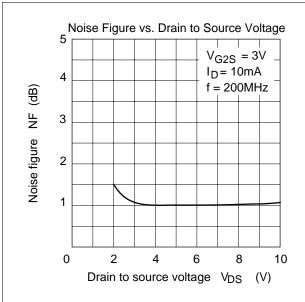


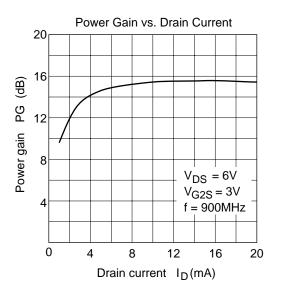


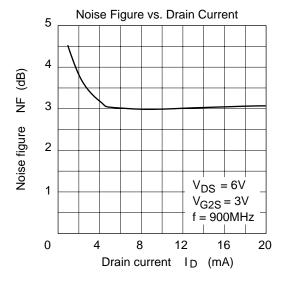


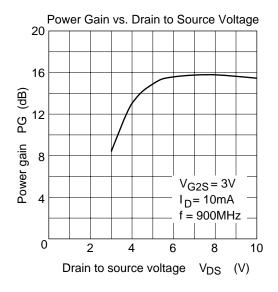


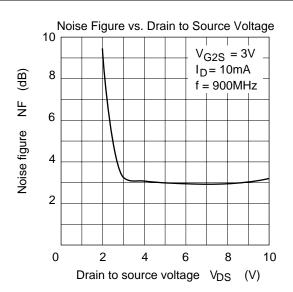


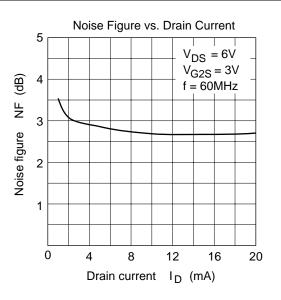


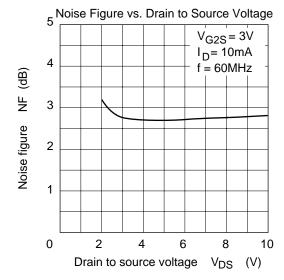






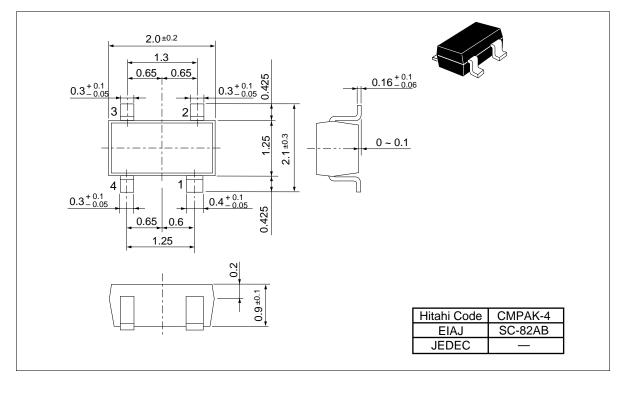






### **Package Dimensions**

Unit: mm



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