

3SK237

Silicon N-Channel Dual Gate MOSFET

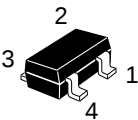
Application

UHF/VHF RF amplifier

Features

- High gain and low niose
- Capable of low voltage operation

CMPAK-4



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

Table 1 Absolute Maximum Ratings (Ta = 25°C)

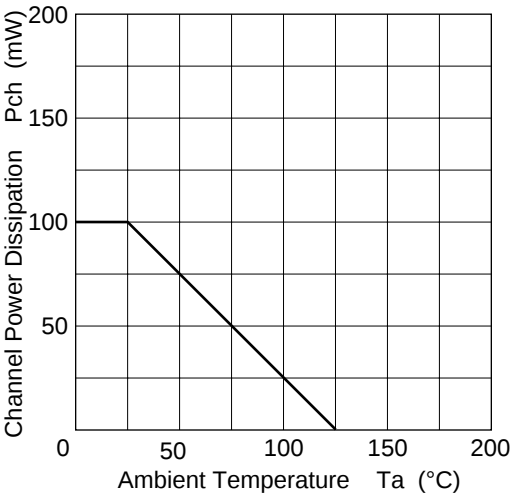
Item	Symbol	Ratings	Unit
Drain to source voltage	V _{DS}	12	V
Gate1 to source voltage	V _{G1S}	±10	V
Gate2 to source voltage	V _{G2S}	±10	V
Drain current	I _D	35	mA
Channel power dissipation	P _{ch}	100	mW
Channel temperature	T _{ch}	125	°C
Storage temperature	T _{stg}	–55 to +125	°C

Marking is “XY”.

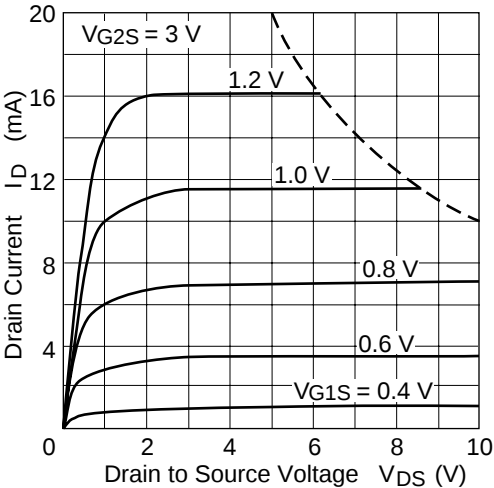
3SK237**Table 2 Electrical Characteristics** (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSX}$	12	—	—	V	$I_D = 200\ \mu A$, $V_{G1S} = -5\ V$, $V_{G2S} = -5\ V$
Gate1 to source breakdown voltage	$V_{(BR)G1SS}$	± 10	—	—	V	$I_{G1} = \pm 10\ \mu A$, $V_{G2S} = V_{DS} = 0$
Gate2 to source breakdown voltage	$V_{(BR)G2SS}$	± 10	—	—	V	$I_{G2} = \pm 10\ \mu A$, $V_{G1S} = V_{DS} = 0$
Gate1 leakage current	I_{G1SS}	—	—	± 100	nA	$V_{G1S} = \pm 8\ V$, $V_{G2S} = V_{DS} = 0$
Gate2 leakage current	I_{G2SS}	—	—	± 100	nA	$V_{G2S} = \pm 8\ V$, $V_{G1S} = V_{DS} = 0$
Drain current	I_{DSS}	0	—	1	mA	$V_{DS} = 6\ V$, $V_{G1S} = 0$, $V_{G2S} = 3\ V$
Gate1 to source cutoff voltage	$V_{G1S(off)}$	-0.1	—	+1.0	V	$V_{DS} = 10\ V$, $V_{G2S} = 3\ V$, $I_D = 100\ \mu A$
Gate2 to source cutoff voltage	$V_{G2S(off)}$	-0.1	—	+1.0	V	$V_{DS} = 10\ V$, $V_{G1S} = 3\ V$, $I_D = 100\ \mu A$
Forward transfer admittance	$ y_{fs} $	17	22.6	—	mS	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$, $I_D = 10\ mA$, $f = 1\ kHz$
Input capacitance	C_{iss}	2.4	3.4	4.4	pF	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$, $I_D = 10\ mA$, $f = 1\ MHz$
Output capacitance	C_{oss}	0.7	1.25	2.0	pF	
Reverse transfer capacitance	C_{rss}	—	0.021	0.05	pF	
Power gain	PG	24	27.2	—	dB	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$, $I_D = 10\ mA$, $f = 200\ MHz$
Noise figure	NF	—	1.54	2.5	dB	
Power gain	PG	10	14.1	—	dB	$V_{DS} = 6\ V$, $V_{G2S} = 3\ V$, $I_D = 10\ mA$, $f = 900\ MHz$
Noise figure	NF	—	4.15	6	dB	

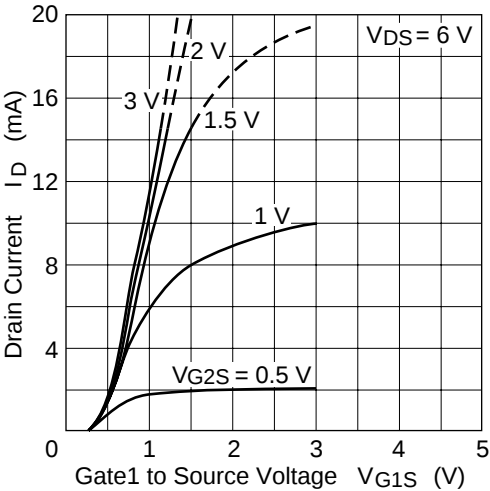
Maximum channel power dissipation curve



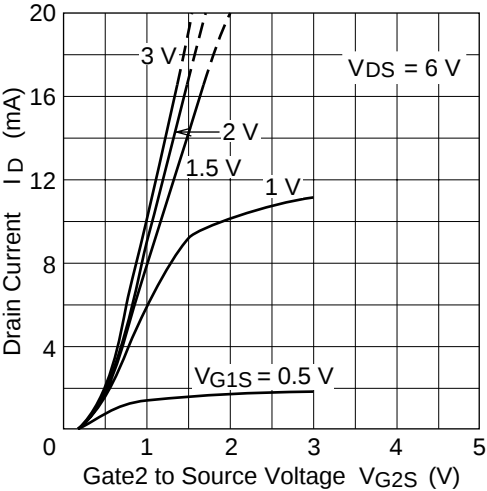
Typical output characteristics



Drain current vs. Gate1 to source voltage

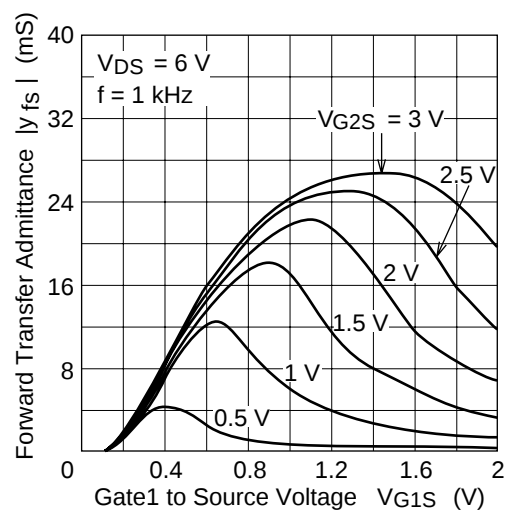


Drain current vs. Gate2 to source voltage

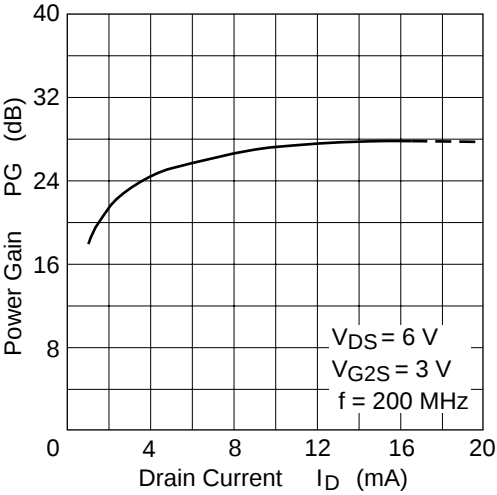


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Forward transfer admittance
vs. gate1 to source voltage



Power gain vs. drain current



Noise figure vs. drain current

