

3SK235

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

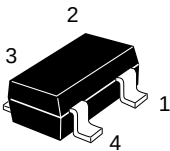
Features

- Low voltage operation.
- High gain, low noise.

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

Item	Symbol	Rating	Unit
Drain to source voltage	V_{DS}	12	V
Gate 1 to source voltage	V_{G1S}	± 10	V
Gate 2 to source voltage	V_{G2S}	± 10	V
Drain current	I_D	35	mA
Channel power dissipation	Pch	150	mW
Channel temperature	Tch	125	°C
Storage temperature	Tstg	-55 to +125	°C

MPAK-4



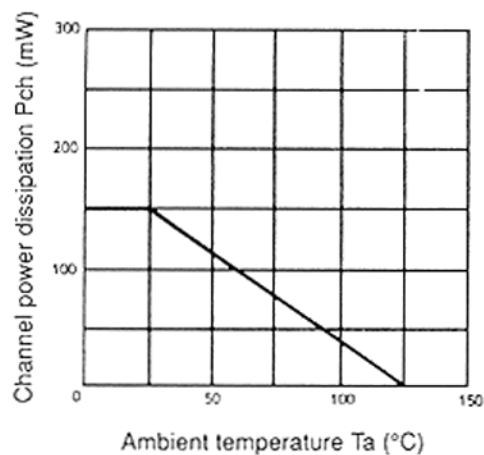
- 1. Source
- 2. Gate 1
- 3. Gate 2
- 4. Drain

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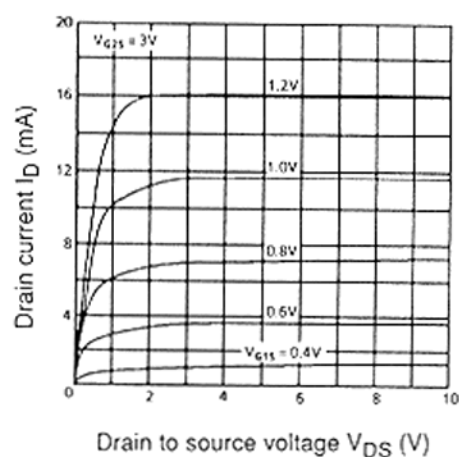
Table 2 Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test condition
Drain to source breakdown voltage	$V_{(BR)DSX}$	12	—	—	V	$I_D = 200 \mu A$, $V_{G1S} = -5 V$, $V_{G2S} = -5 V$
Gate 1 to source breakdown voltage	$V_{(BR)G1SS}$	± 10	—	—	V	$I_{G1} = \pm 10 \mu A$, $V_{G2S} = V_{DS} = 0$
Gate 2 to source breakdown voltage	$V_{(BR)G2SS}$	± 10	—	—	V	$I_{G2} = \pm 10 \mu A$, $V_{G1S} = V_{DS} = 0$
Gate 1 cutoff current	I_{G1SS}	—	—	± 100	nA	$V_{G1S} = \pm 8 V$, $V_{G2S} = V_{DS} = 0$
Gate 2 cutoff current	I_{G2SS}	—	—	± 100	nA	$V_{G2S} = \pm 8 V$, $V_{G1S} = V_{DS} = 0$
Drain current	I_{DSS}	0	—	1	mA	$V_{DS} = 6 V$, $V_{G1S} = 0$, $V_{G2S} = 3 V$
Gate 1 to source cutoff voltage	$V_{G1S(off)}$	-0.1	—	+1.0	V	$V_{DS} = 10 V$, $V_{G2S} = 3 V$, $I_D = 100 \mu A$
Gate 2 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	

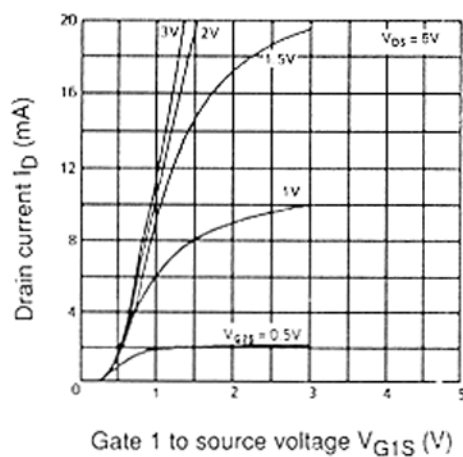
Maximum channel power dissipation curve



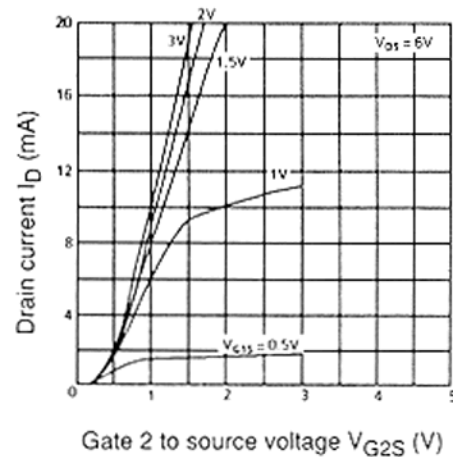
Typical output characteristics



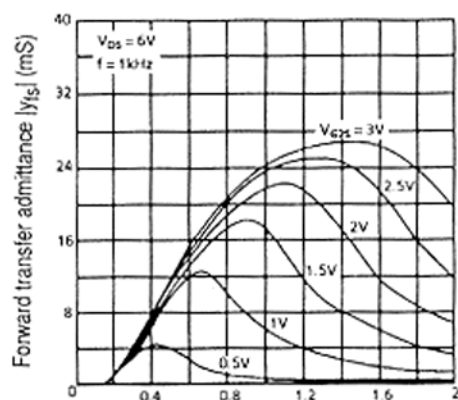
Drain current vs. gate 1 to source voltage



Drain current vs. gate 2 to source voltage

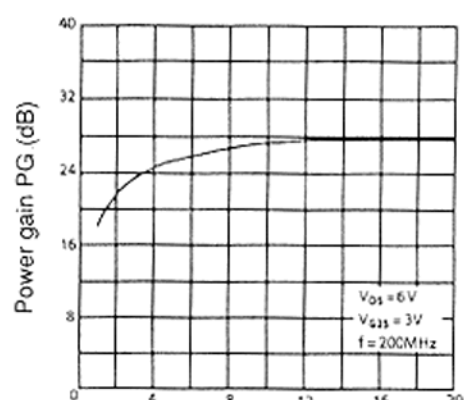


Forward transfer admittance
vs. gate 1 to source voltage



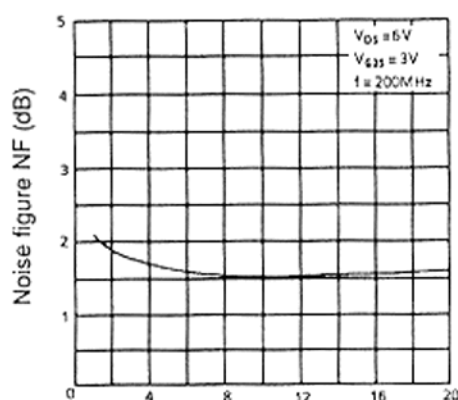
Gate 1 to source voltage V_{G1S} (V)

Power gain vs. drain current



Drain current I_D (mA)

Noise figure vs. drain current



Drain current I_D (mA)