
3SK228

GaAs Dual Gate MES FET

HITACHI

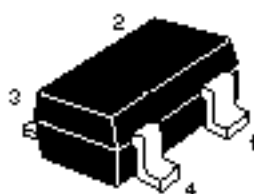
ADE-208-280
1st. Edition

Application

UHF TV tuner RF Amplifier

Outline

MPAK-4



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

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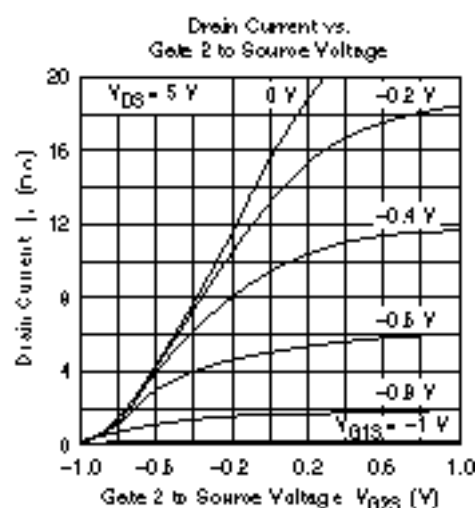
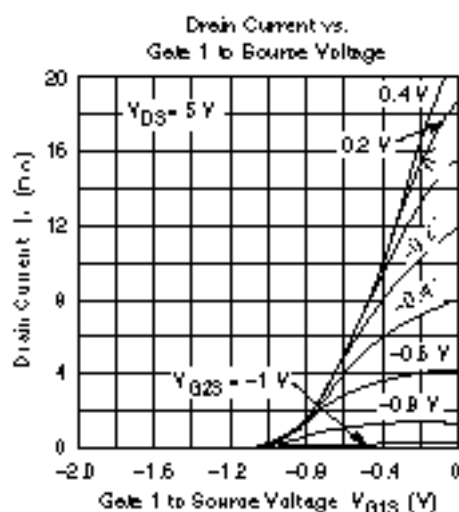
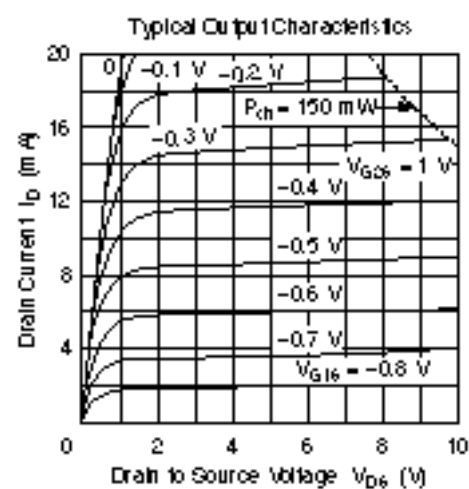
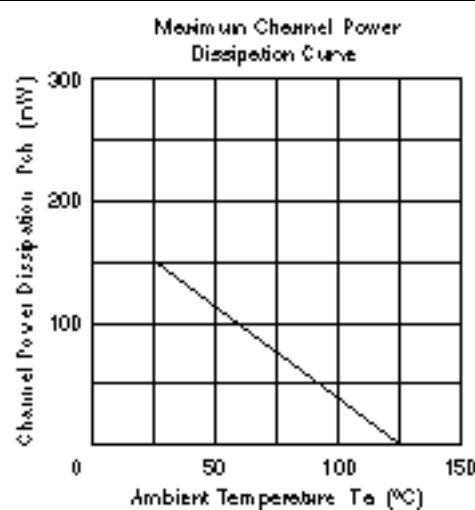
Absolute Maximum Ratings (Ta = 25°C)

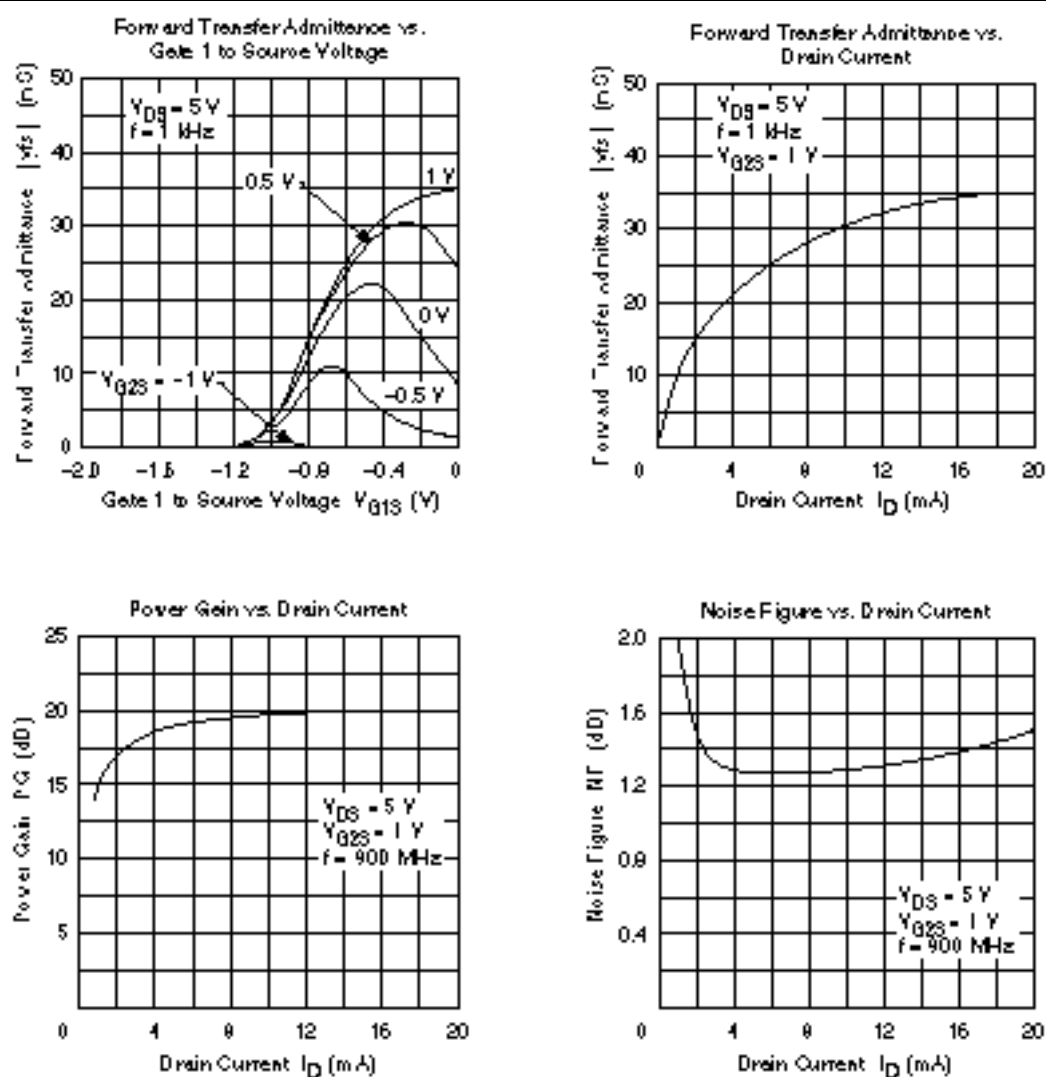
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	12	V
Gate 1 to source voltage	V_{G1S}	−6	V
Gate 2 to source voltage	V_{G2S}	−6	V
Drain current	I_D	50	mA
Channel power dissipation	Pch	150	mW
Channel temperature	Tch	125	°C
Storage temperature	Tstg	−55 to +125	°C

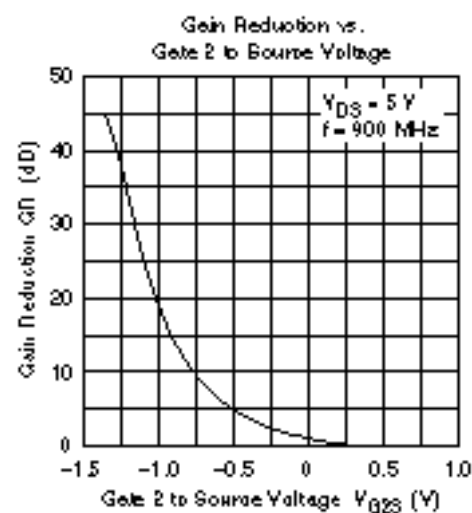
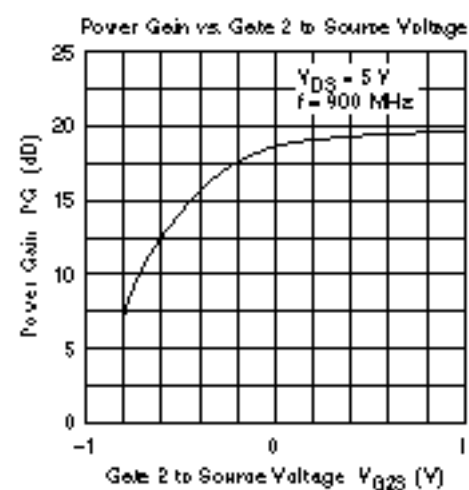
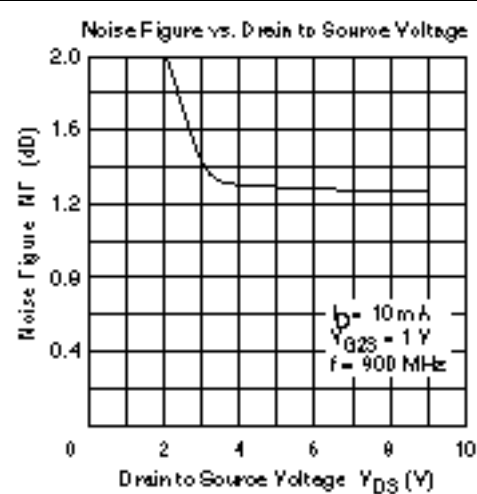
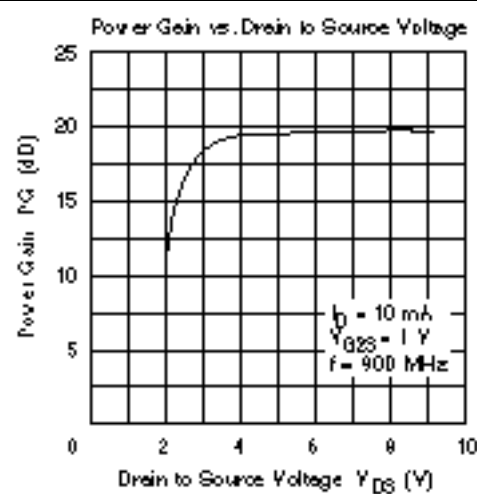
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source cutoff current	I_{DSX}	—	—	50	μA	$V_{DS} = 12\text{ V}$, $V_{G1S} = -3\text{ V}$, $V_{G2S} = 0$
Gate 1 to source breakdown voltage	$V_{(BR)G1SS}$	−6	—	—	V	$I_{G1} = -10\text{ μA}$, $V_{G2S} = V_{DS} = 0$
Gate 2 to source breakdown voltage	$V_{(BR)G2SS}$	−6	—	—	V	$I_{G2} = -10\text{ μA}$, $V_{G1S} = V_{DS} = 0$
Gate 1 cutoff current	I_{G1SS}	—	—	−5	μA	$V_{G1S} = -5\text{ V}$, $V_{G2S} = V_{DS} = 0$
Gate 2 cutoff current	I_{G2SS}	—	—	−5	μA	$V_{G2S} = -5\text{ V}$, $V_{G1S} = V_{DS} = 0$
Drain current	I_{DSS}	10	17	32	mA	$V_{DS} = 5\text{ V}$, $V_{G1S} = V_{G2S} = 0$
Gate 1 to source cutoff voltage	$V_{G1S(off)}$	—	−1.1	−1.5	V	$V_{DS} = 5\text{ V}$, $V_{G2S} = 0$, $I_D = 100\text{ μA}$
Gate 2 to source cutoff voltage	$V_{G2S(off)}$	—	−1.1	−1.5	V	$V_{DS} = 5\text{ V}$, $V_{G1S} = 0$, $I_D = 100\text{ μA}$
Forward transfer admittance	$ y_{fs} $	20	34	—	mS	$V_{DS} = 5\text{ V}$, $V_{G2S} = 1\text{ V}$, $I_D = 10\text{ mA}$, $f = 1\text{ kHz}$
Input capacitance	Ciss	—	0.58	1.0	pF	$V_{DS} = 5\text{ V}$, $V_{G1S} = V_{G2S} = -3\text{ V}$, $f = 1\text{ MHz}$
Output capacitance	Coss	—	0.36	0.6	pF	
Reverse transfer capacitance	Crss	—	0.028	0.05	pF	
Power gain	PG	17	19.6	—	dB	$V_{DS} = 5\text{ V}$, $V_{G2S} = 1\text{ V}$, $I_D = 10\text{ mA}$, $f = 900\text{ MHz}$
Noise figure	NF	—	1.3	2.0	dB	

Note: Marking is “XR—”.

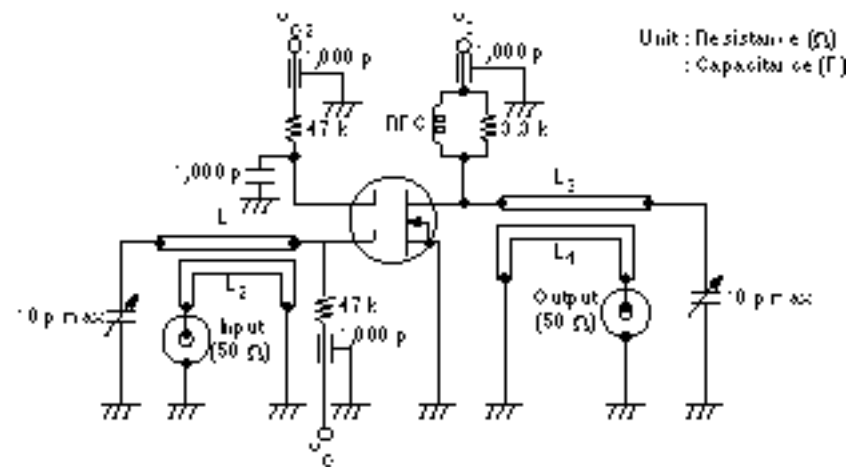




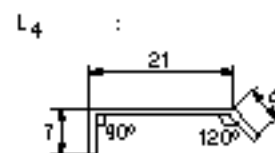
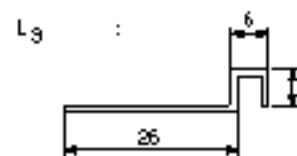
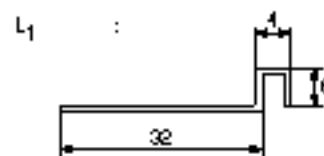


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Power Gain, Noise Figure Test Circuit



L to L₄ : ϕ mm Copper Wire



Unit : mm

RF C : 3 turn, 6 mm inside dia. ϕ 1 mm Enamelled Copper Wire

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