3SK300

Silicon N Channel Dual Gate MOS FET
UHF / VHF RF amplifier

HITACHI

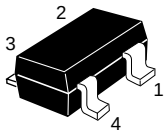
ADE-208-449(Z)
1st. Edition
April 1996

Features

- Low noise figure NF = 1.0dB typ. at f = 200MHz
- High gain PG = 27.6dB typ. at f = 200MHz

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	VDS	14	V
Gate1 to source voltage	VG1S	±8	V
Gate2 to source voltage	VG2S	±8	V
Drain current	ID	25	mA
Channel power dissipation	Pch	150	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)DSX	14	—	—	V	ID = 200µA, VG1S = -3V, VG2S = -3V
Gate1 to source breakdown voltage	V(BR)G1SS	±8	—	—	V	IG1 = ±10µA, VDS = VG2S = 0
Gate2 to source breakdown voltage	V(BR)G2SS	±8	—	—	V	IG2 = ±10µA, VDS = VG1S = 0
Gate1 cutoff current	IG1SS	—	—	±100	nA	VG1S = ±6V, VDS = VG2S = 0
Gate2 cutoff current	IG2SS	—	—	±100	nA	VG2S = ±6V, VDS = VG1S = 0
Drain current	IDS(op)	4	8	14	mA	VDS = 6V, VG1S = 0.75V, VG2S = 3V
Gate1 to source cutoff voltage	VG1S(off)	0	+0.2	+1.0	V	VDS = 10V, VG2S = 3V, ID = 100µA
Gate2 to source cutoff voltage	VG2S(off)	0	+0.3	+1.0	V	VDS = 10V, VG1S = 3V,
						ID = 100µA
Forward transfer admittance	|yfs|	20	25	—	mS	VDS = 6V, VG2S = 3V, ID = 10mA, f = 1kHz
Input capacitance	Ciss	2.4	3.1	3.5	pF	VDS = 6V,
Output capacitance	Coss	0.8	1.1	1.4	pF	VG2S = 3V, ID = 10mA
Reverse transfer capacitance	Crss	—	0.021	0.04	pF	f = 1MHz
Power gain	PG	24	27.6	—	dB	VDS = 6V, VG2S = 3V,
Noise figure	NF	—	1.0	1.5	dB	ID = 10mA, f = 200MHz
Power gain	PG	12	15.6	—	dB	VDS = 6V, VG2S = 3V,
Noise figure	NF	—	3.0	4.0	dB	ID = 10mA, f = 900MHz
Noise figure	NF	—	2.7	3.5	dB	VDS = 6V, VG2S = 3V, ID = 10mA, f = 60MHz
Note: Marking is “ZR-”.						

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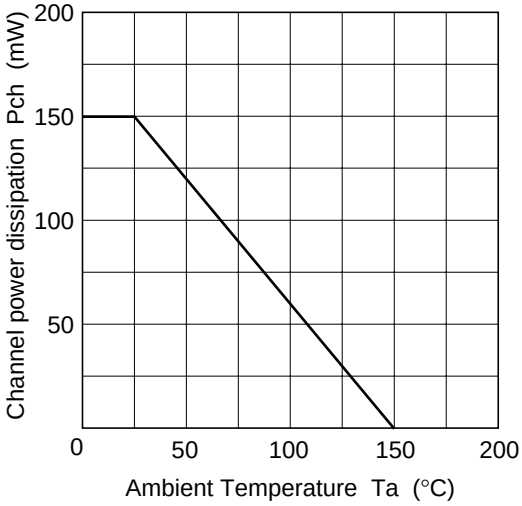
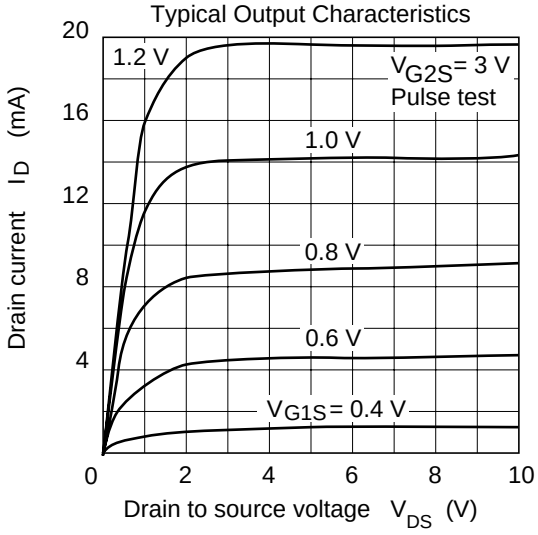
Main Characteristics

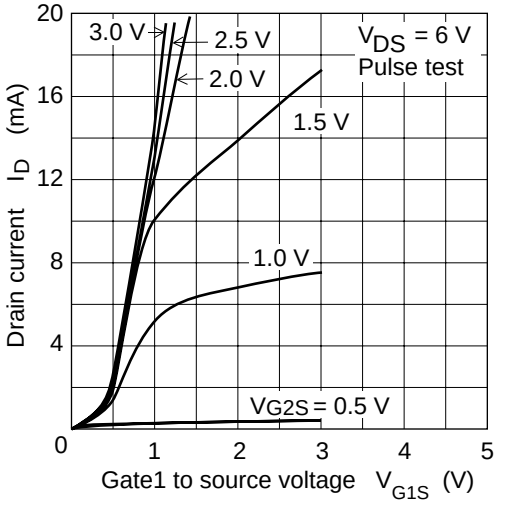
Maximum Channel Power Dissipation Curve



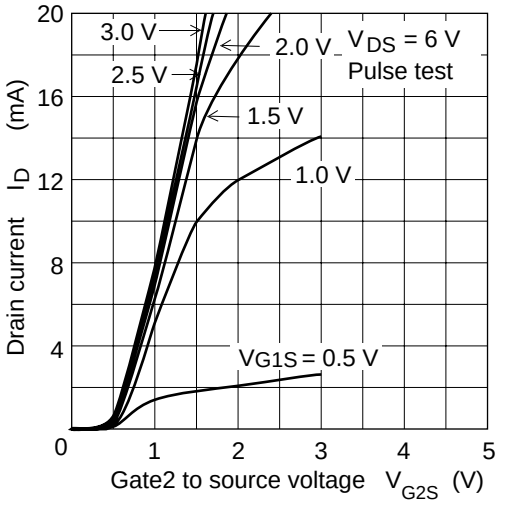
Typical Output Characteristics



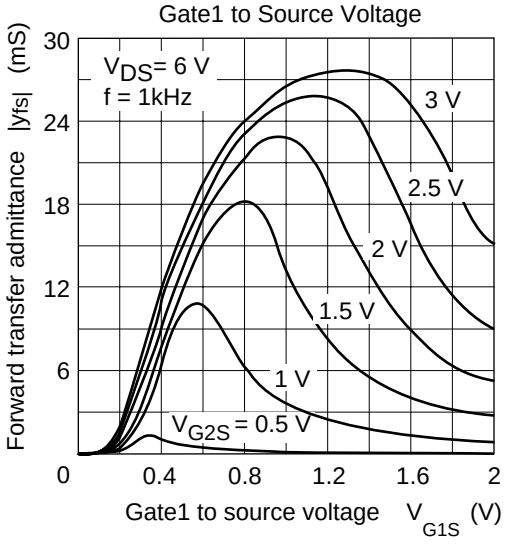
Drain Current vs. Gate1 to Source Voltage



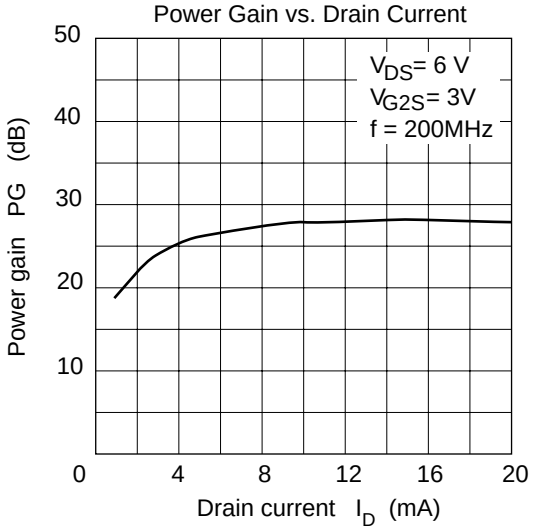
Drain Current vs. Gate2 to Source Voltage



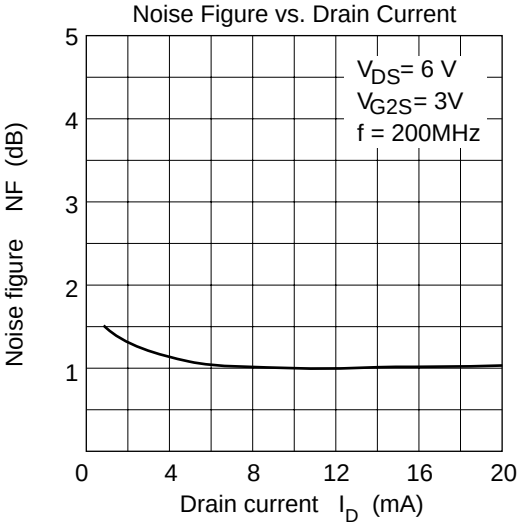
Forward Transfer Admittance vs. Gate1 to Source Voltage



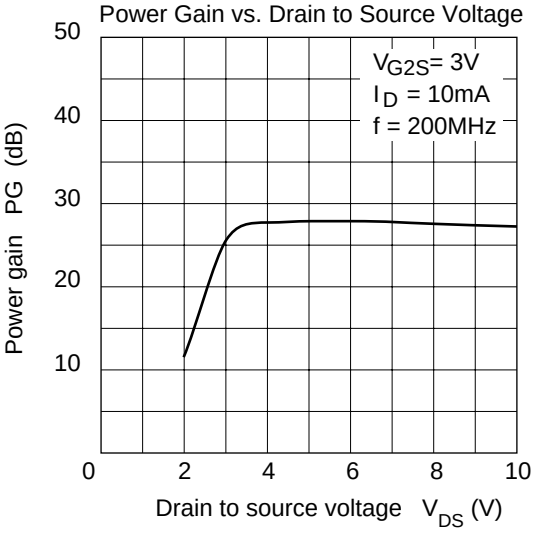
Power Gain vs. Drain Current



Noise Figure vs. Drain Current



Power Gain vs. Drain to Source Voltage



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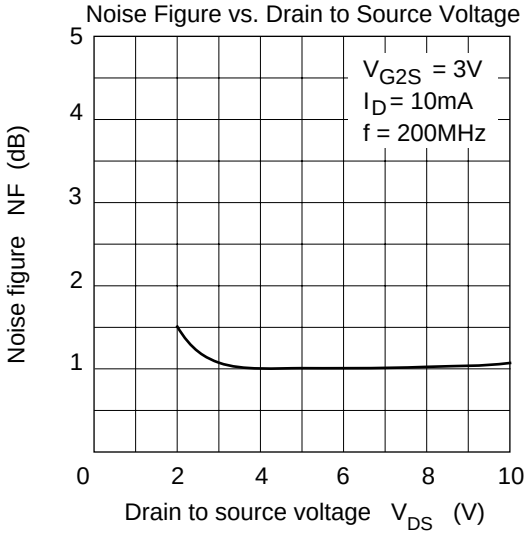
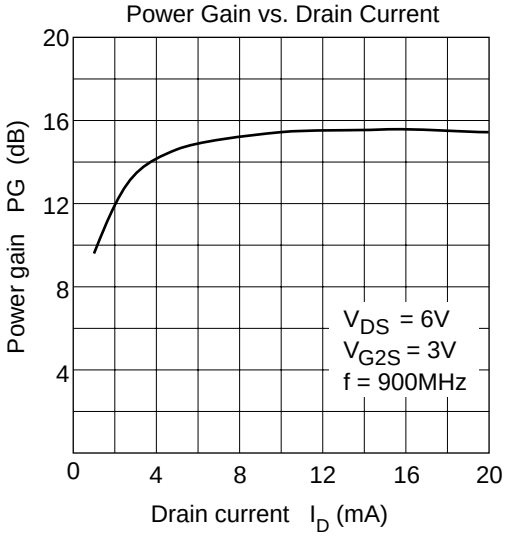
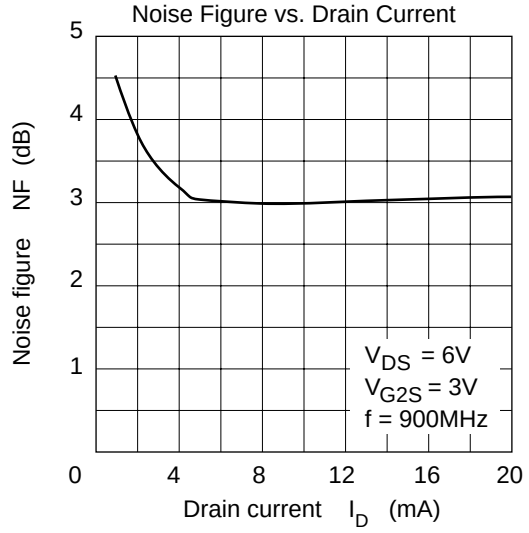


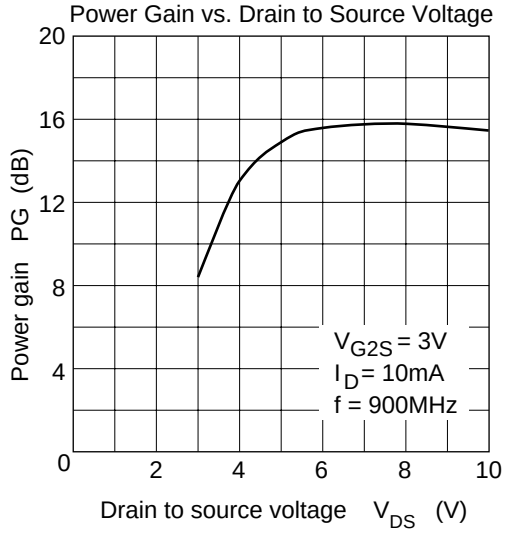
Power Gain vs. Drain Current



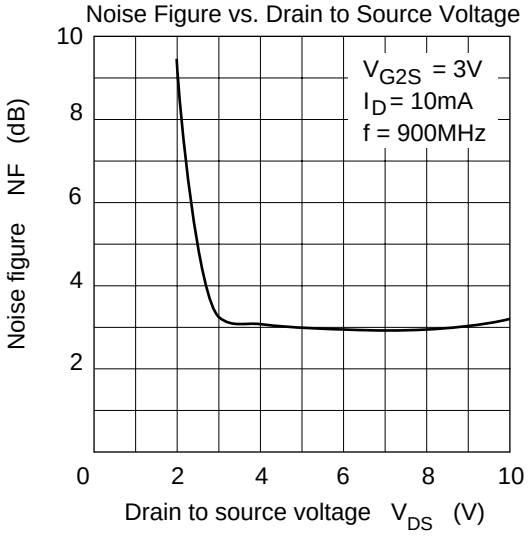
Noise Figure vs. Drain Current



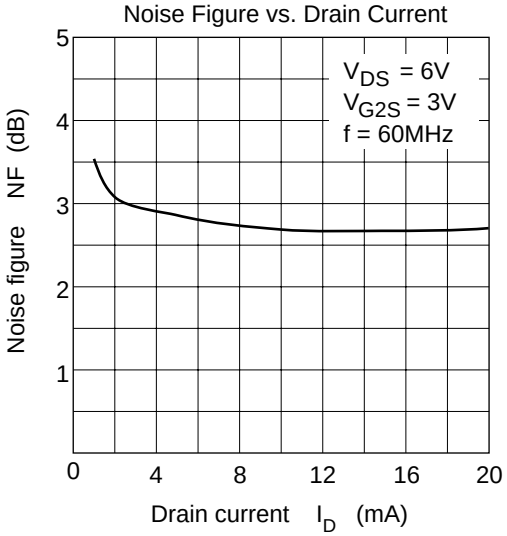
Power Gain vs. Drain to Source Voltage



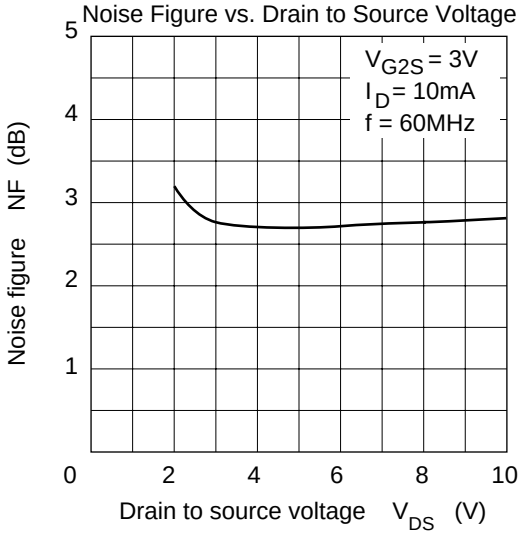
Noise Figure vs. Drain to Source Voltage



Noise Figure vs. Drain Current



Noise Figure vs. Drain to Source Voltage



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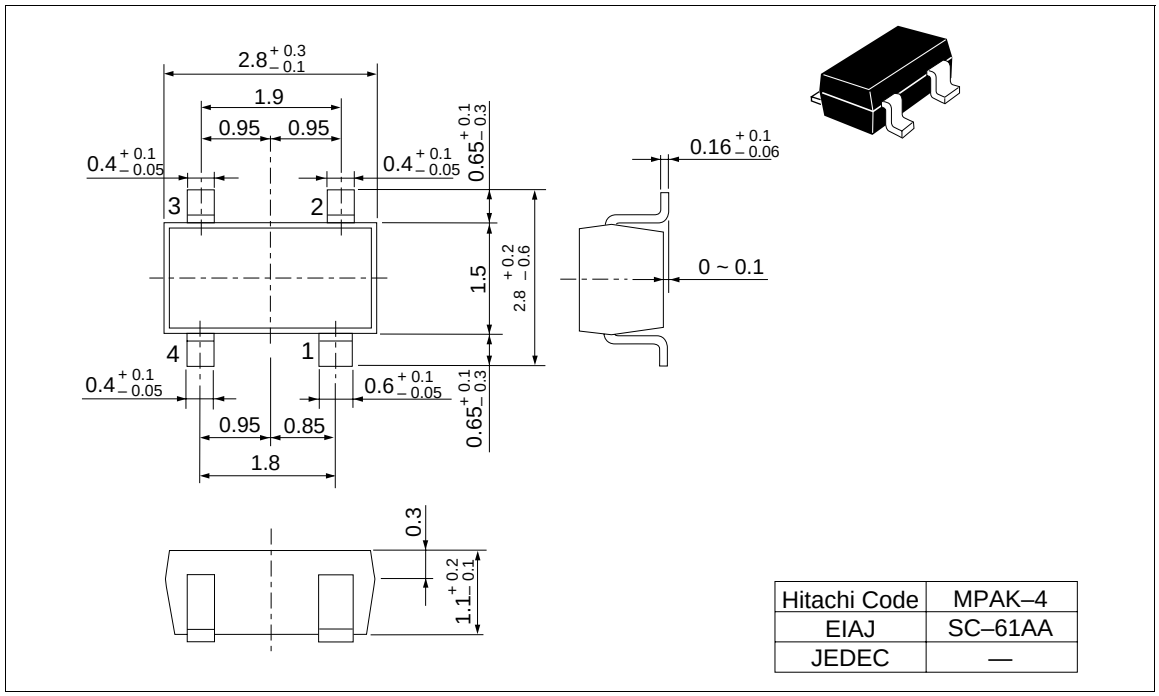
Package Dimentions

Unit: mm



Hitachi Code	MPAK–4
EIAJ	SC–61AA
JEDEC	—