
2SK522

Silicon N-Channel Junction FET

HITACHI

Application

VHF amplifier, Mixer, local oscillator

Outline

SPAK



1. Gate
2. Source
3. Drain

2SK522

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Gate to drain voltage	V_{GDO}	-30	V
Gate current	I_G	10	mA
Drain current	I_D	20	mA
Channel power dissipation	Pch	200	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

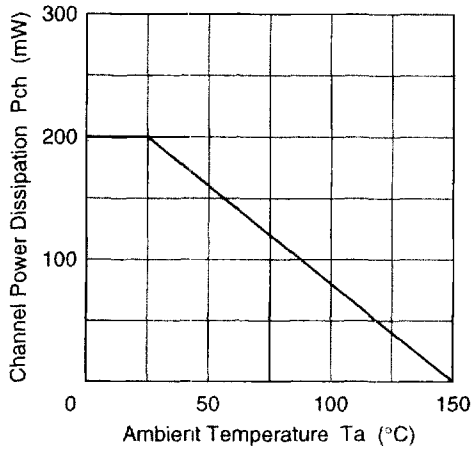
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Gate to drain breakdown voltage	$V_{(BR)GDO}$	-30	—	—	V	$I_G = -100 \mu A, I_S = 0$
Gate cutoff current	I_{GSS}	—	—	-10	nA	$V_{GS} = -0.5 V, V_{DS} = 0$
Drain current	I_{DSS}^{*1}	4	—	20	mA	$V_{DS} = 5 V, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	—	—	-3	V	$V_{DS} = 5 V, I_D = 10 \mu A$
Forward transfer admittance	$ y_{fs} $	8	10	—	mS	$V_{DS} = 5 V, V_{GS} = 0, f = 1 \text{ kHz}$
Input capacitance	Ciss	—	6.8	—	pF	$V_{DS} = 5 V, V_{GS} = 0, f = 1 \text{ MHz}$
Reverse transfer capacitance	Crss	—	0.1	—	pF	
Power gain	PG	20	27	—	dB	$V_{DS} = 5 V, V_{GS} = 0, f = 100 \text{ MHz}$
Noise figure	NF	—	1.7	2.5	dB	

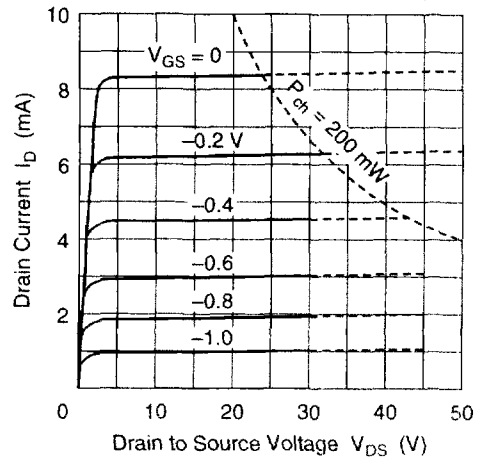
Note: 1. The 2SK522 is grouped by I_{DSS} as follows.

Drain	D	E	F
I_{DSS}	4 to 8	6 to 10	10 to 20

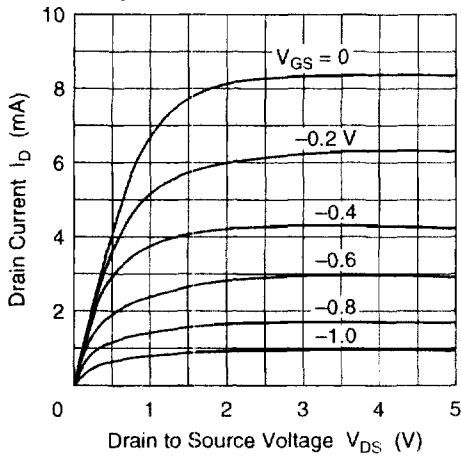
Maximum Channel Power Dissipation Curve



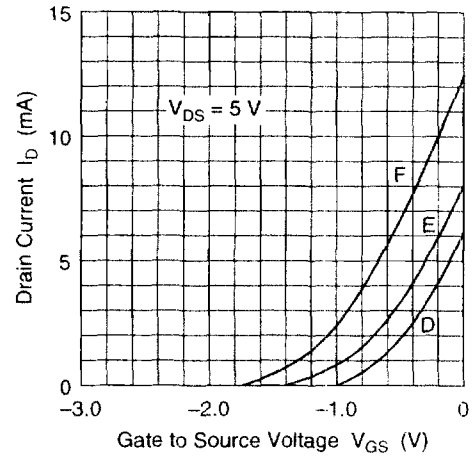
Typical Output Characteristics (1)



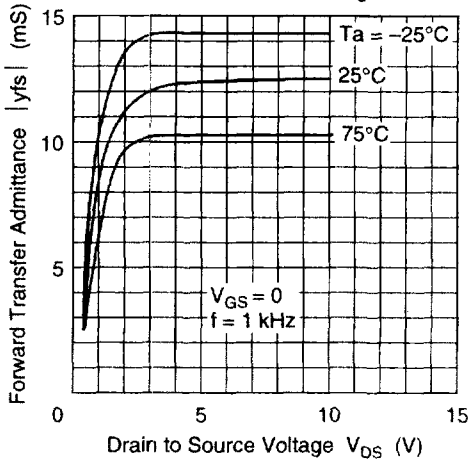
Typical Output Characteristics (2)



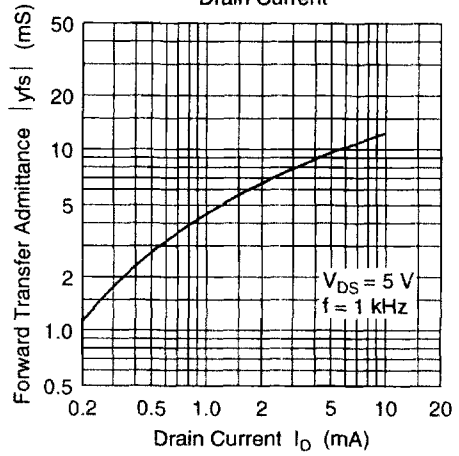
Typical Transfer Characteristics



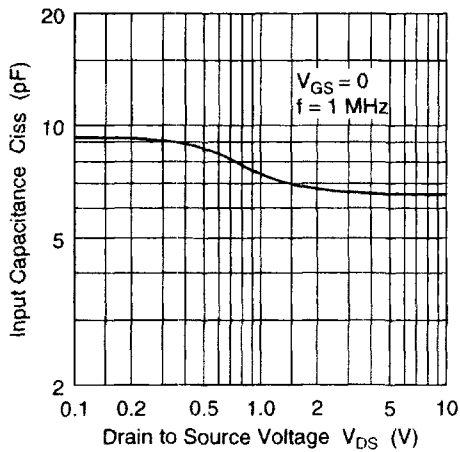
Forward Transfer Admittance vs. Drain to Source Voltage



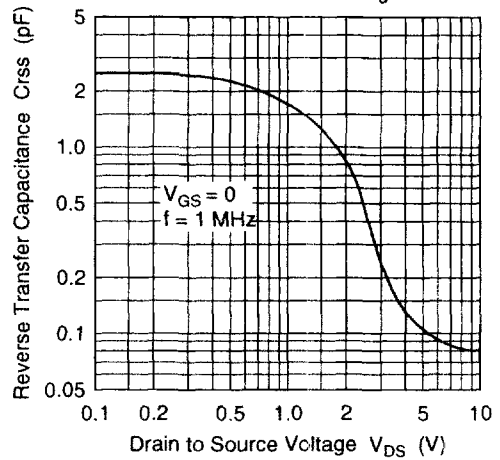
Forward Transfer Admittance vs. Drain Current



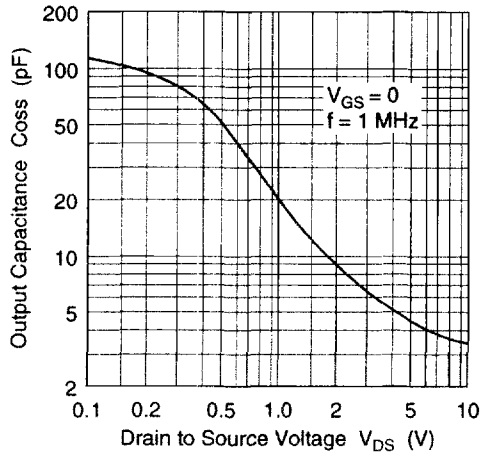
Input Capacitance vs. Drain to Source Voltage



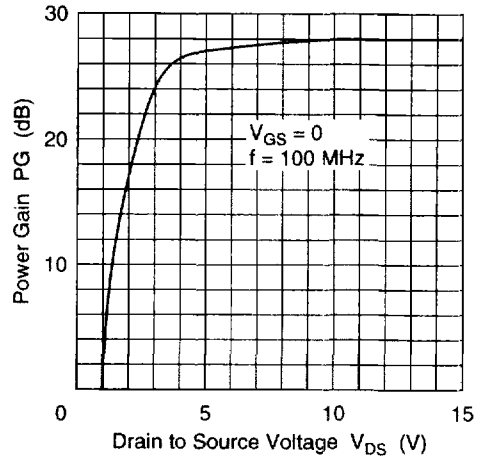
Reverse Transfer Capacitance vs. Drain to Source Voltage



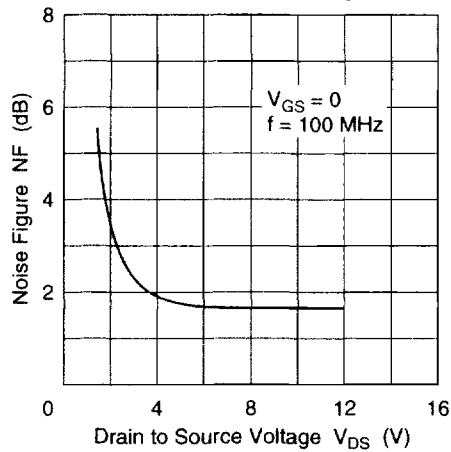
Output Capacitance vs.
Drain to Source Voltage



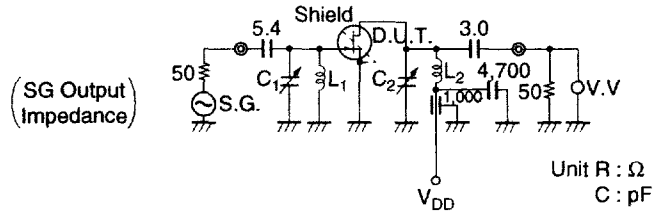
Power Gain vs.
Drain to Source Voltage



Noise Figure vs.
Drain to Source Voltage



Power Gain and Noise Figure
Test Circuit



C_1, C_2 : 0 to 30pF Max Variable Air
 L_1 : 3.5 T ϕ 1 mm ϕ Copper Ribbon, Tin plated 10 mm Inside dia.
 L_2 : 4.5 T ϕ 1 mm ϕ Copper Ribbon, Tin plated 10 mm Inside dia.