
2SK522

Silicon N-Channel Junction FET

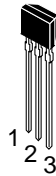
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Application

VHF amplifier, Mixer, local oscillator

Outline

SPAK



1. Gate
2. Source
3. Drain

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

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	$^\circ\text{C}$
Storage temperature	Tstg	-55 to +150	$^\circ\text{C}$

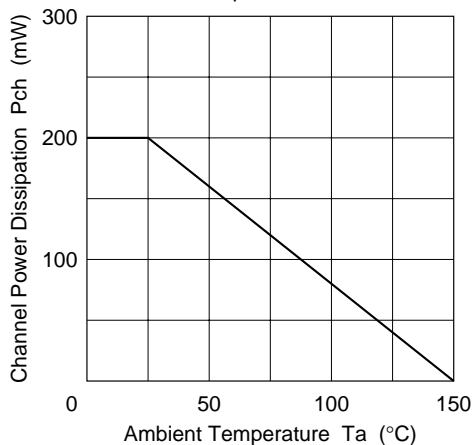
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

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

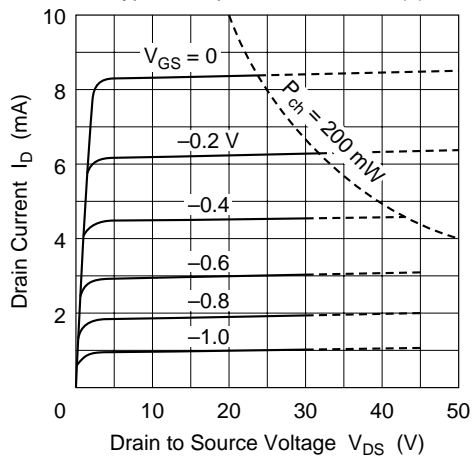
Note: 1. The 2SK522 is grouped by I_{DSS} as follows.

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

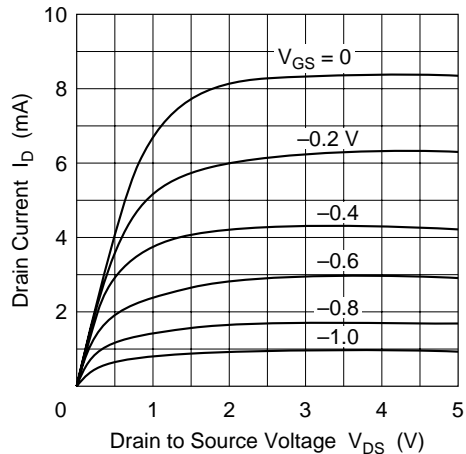
Maximum Channel Power Dissipation Curve



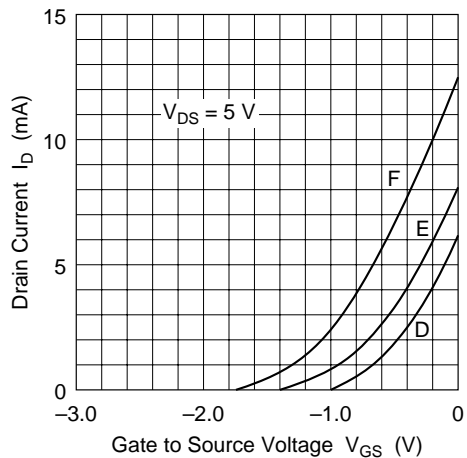
Typical Output Characteristics (1)

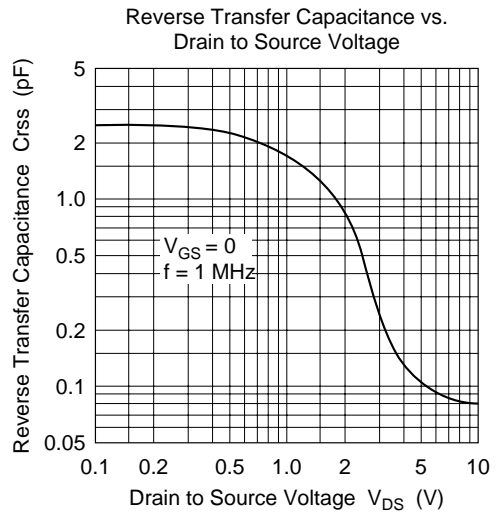
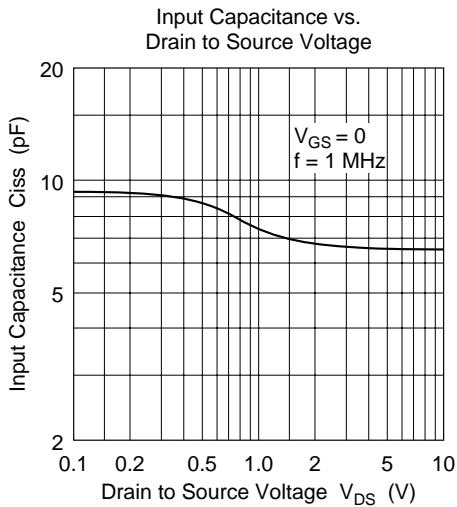
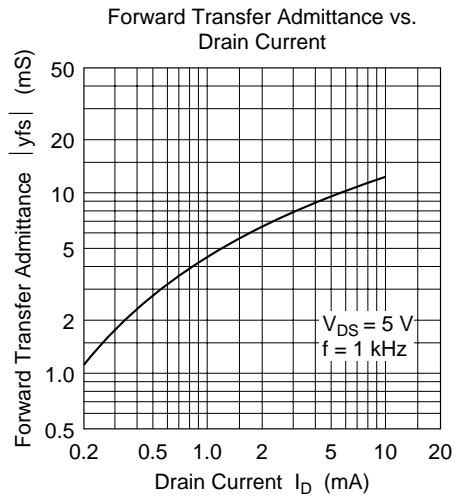
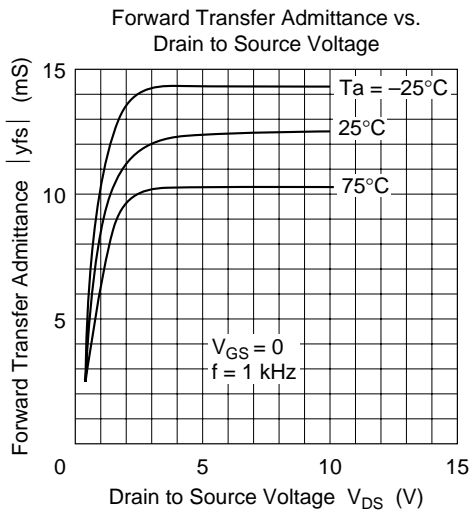


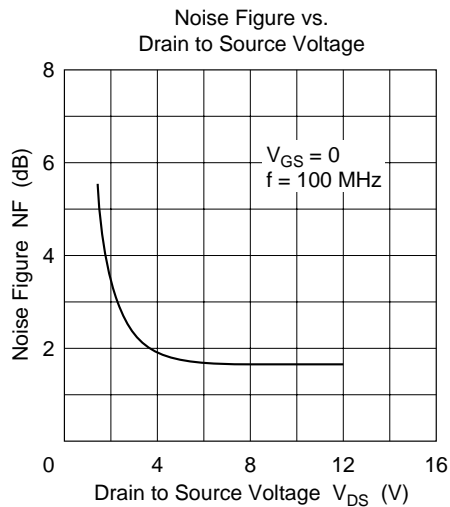
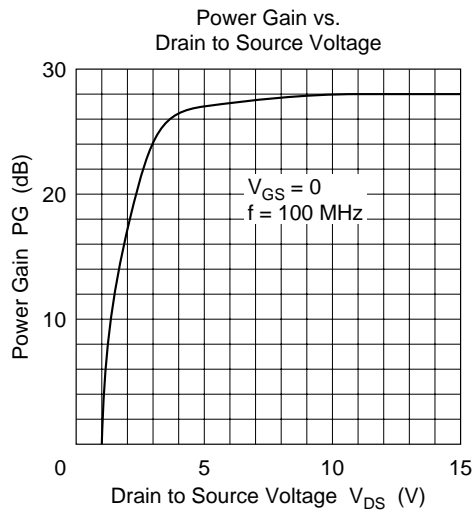
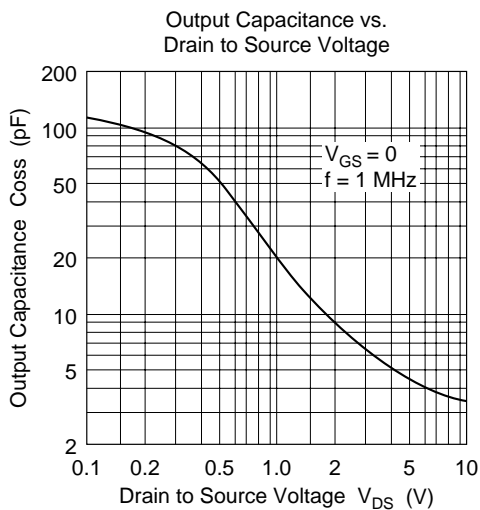
Typical Output Characteristics (2)



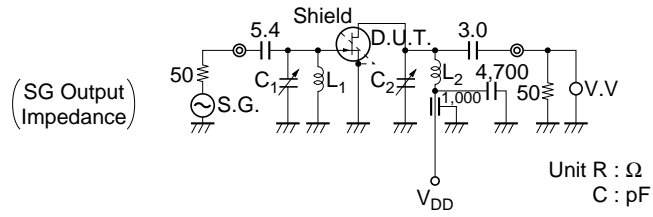
Typical Transfer Characteristics





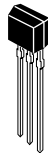
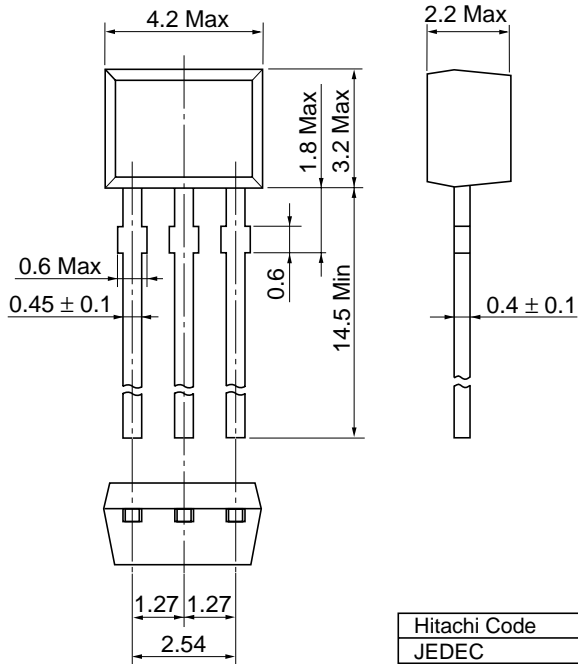


Power Gain and Noise Figure
Test Circuit



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

Unit: mm



Hitachi Code	SPAK
JEDEC	—
EIAJ	—
Weight (reference value)	0.10 g

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