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# 2SK522

Silicon N-Channel Junction FET

# HITACHI

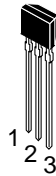
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## Application

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	$V_{\text{GDO}}$	-30	V
Gate current	$I_{\text{G}}$	10	mA
Drain current	$I_{\text{D}}$	20	mA
Channel power dissipation	Pch	200	mW
Channel temperature	Tch	150	$^\circ\text{C}$
Storage temperature	Tstg	-55 to +150	$^\circ\text{C}$

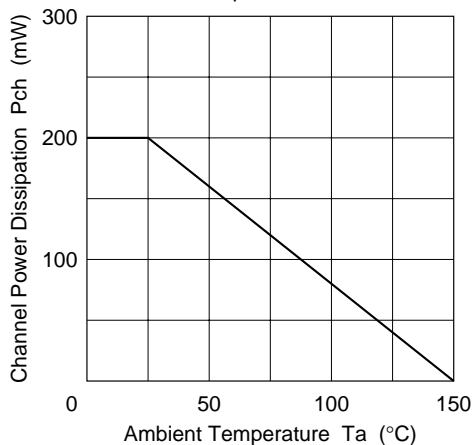
**Electrical Characteristics** ( $T_a = 25^\circ\text{C}$ )

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	$I_{\text{GSS}}$	—	—	-10	nA	$V_{\text{GS}} = -0.5 \text{ V}$ , $V_{\text{DS}} = 0$
Drain current	$I_{\text{DSS}}^{*1}$	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	

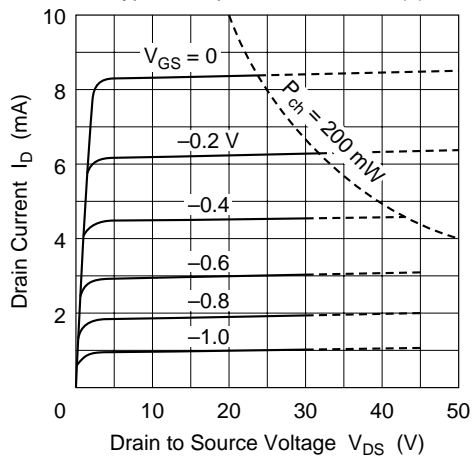
Note: 1. The 2SK522 is grouped by  $I_{\text{DSS}}$  as follows.

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

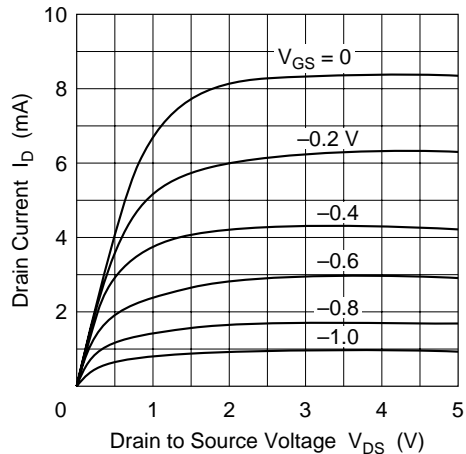
Maximum Channel Power Dissipation Curve



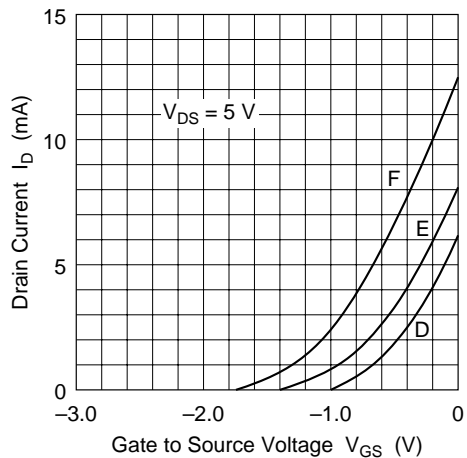
Typical Output Characteristics (1)

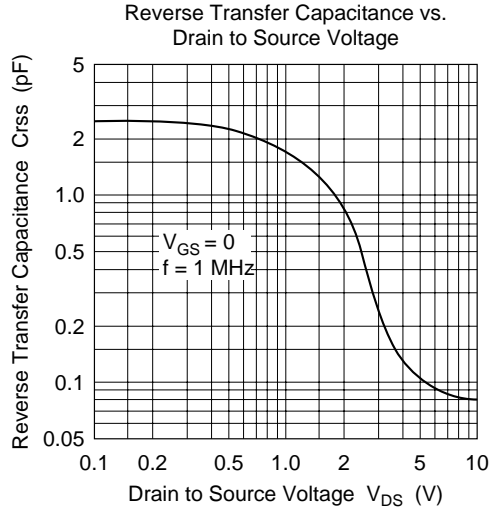
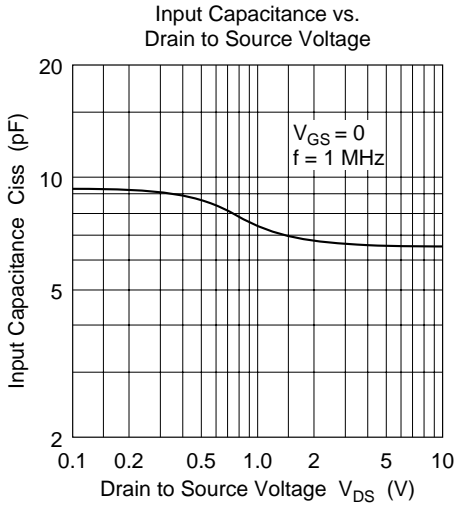
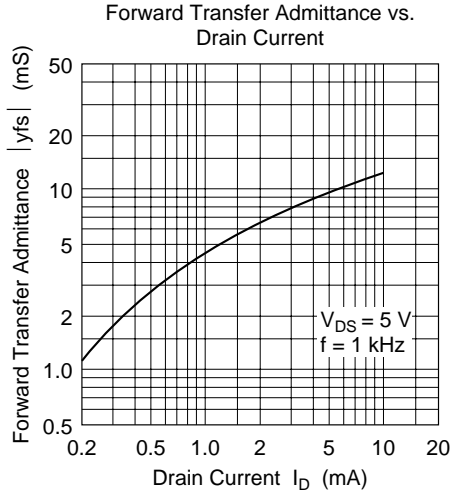
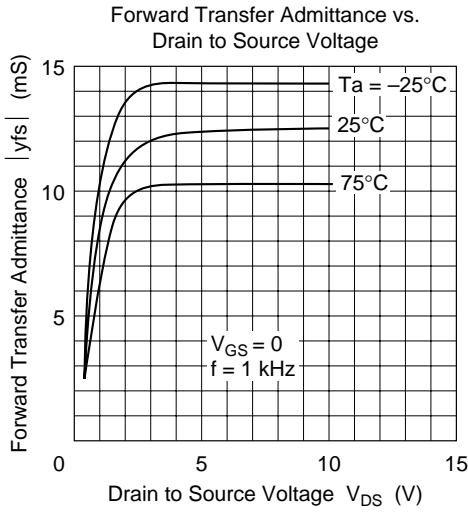


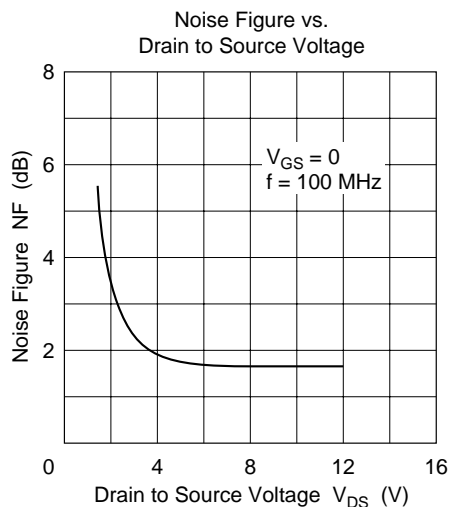
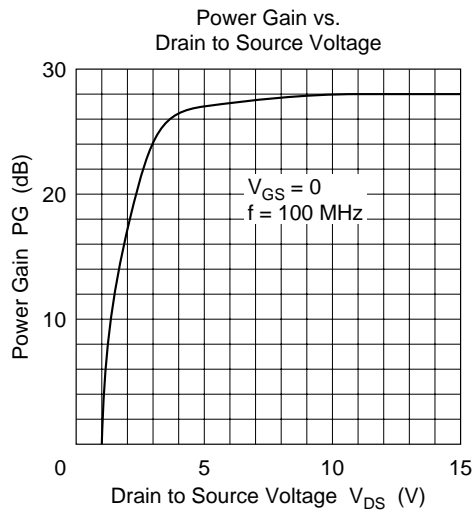
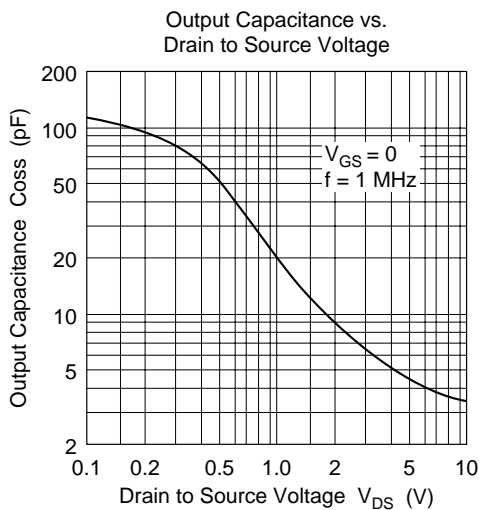
Typical Output Characteristics (2)



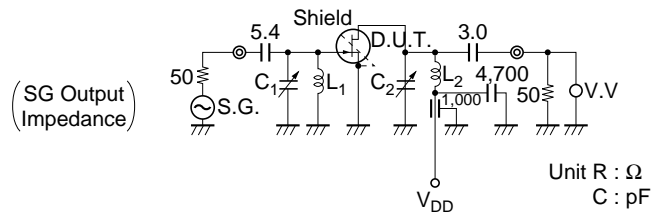
Typical Transfer Characteristics





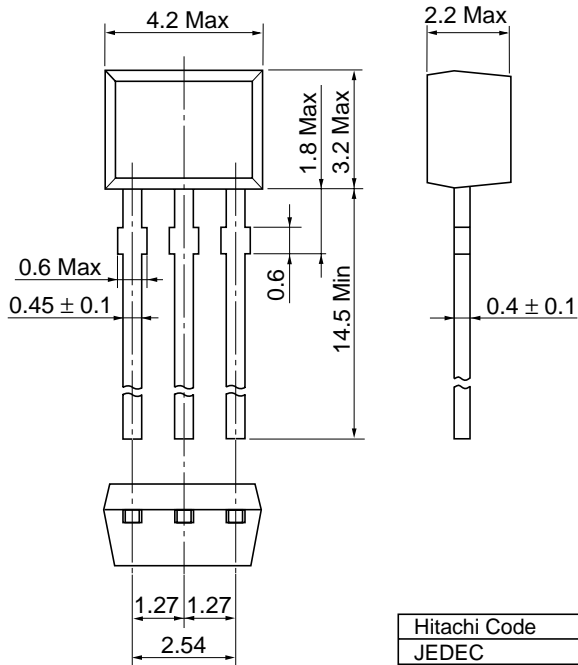


Power Gain and Noise Figure  
Test Circuit



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