
2SK168

Silicon N-Channel Junction FET

HITACHI

Application

VHF Amplifier, Mixer, Local oscillator

Outline

TO-92 (2)



1. Gate
2. Source
3. Drain

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Gate to drain voltage	V_{GDO}	-30	V
Gate to source voltage	V_{GSS}	-1	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

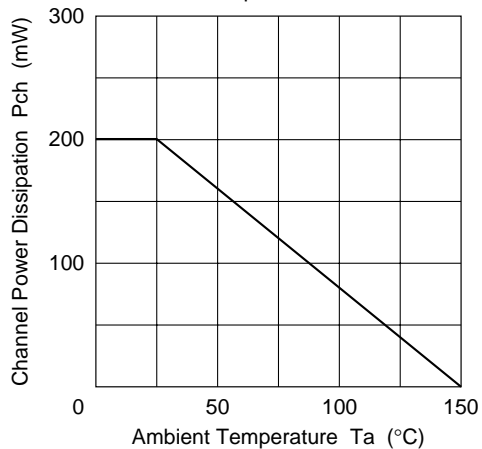
Electrical Characteristics (Ta = 25°C)

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	$V_{GS(off)}$	—	—	-3.0	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	$V_{DS} = 5 V, V_{GS} = 0, f = 1 \text{ MHz}$
Power gain	PG	—	27	—	dB	$V_{DS} = 5 V, V_{GS} = 0, f = 100 \text{ MHz}$
Noise figure	NF	—	1.7	—	dB	$V_{DS} = 5 V, V_{GS} = 0, f = 100 \text{ MHz}$

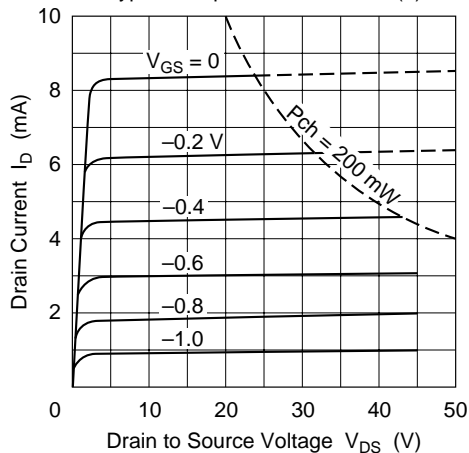
Note: 1. The 2SK168 is grouped by I_{DSS} as follows.

D	E	F
4 to 8	6 to 12	10 to 20

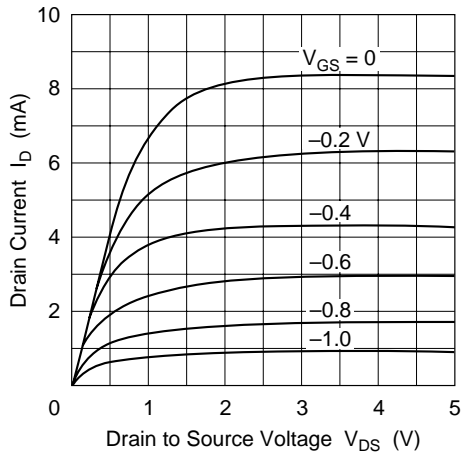
Maximum Channel Power Dissipation Curve



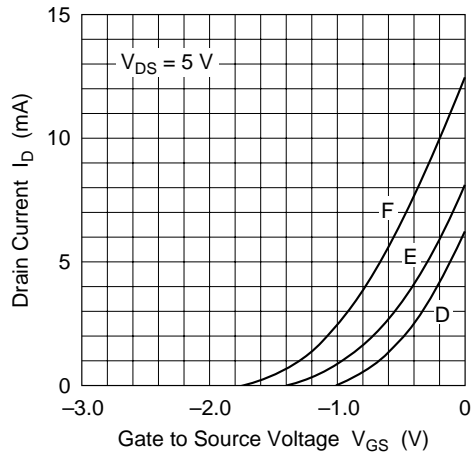
Typical Output Characteristics (1)

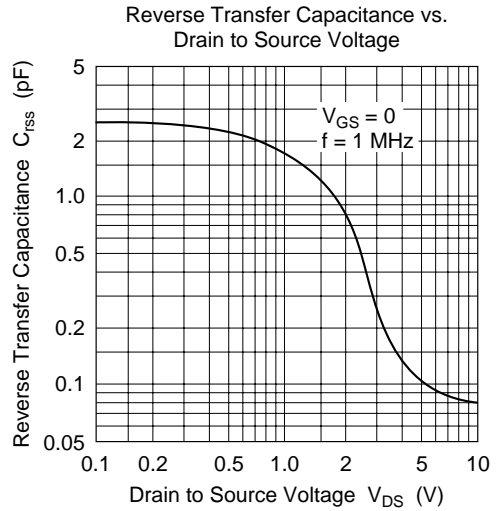
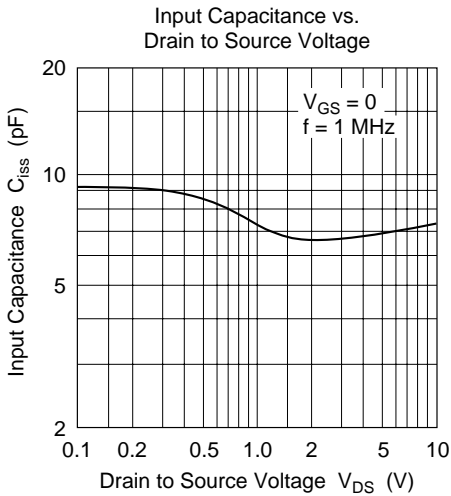
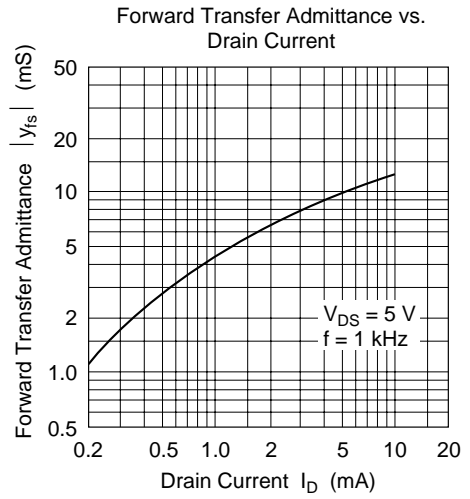
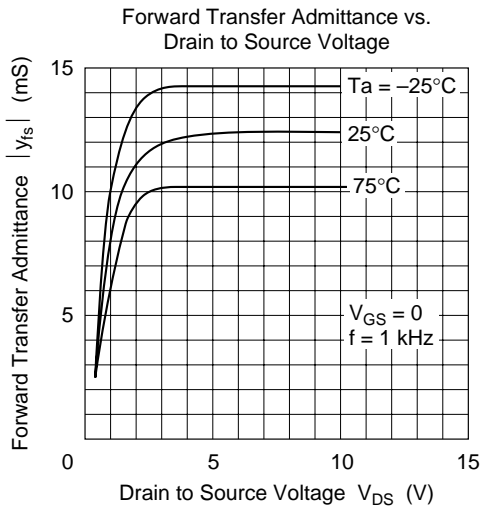


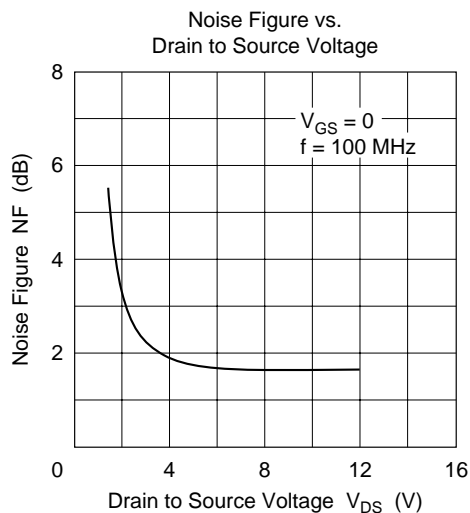
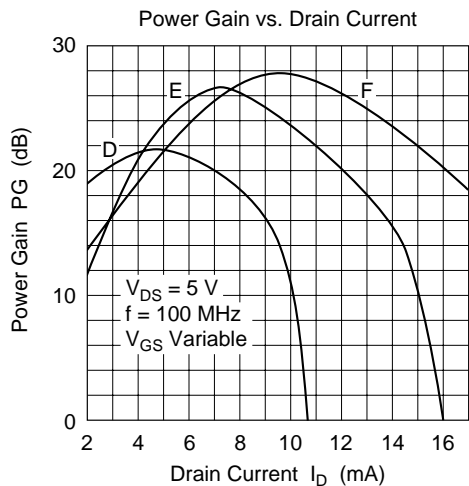
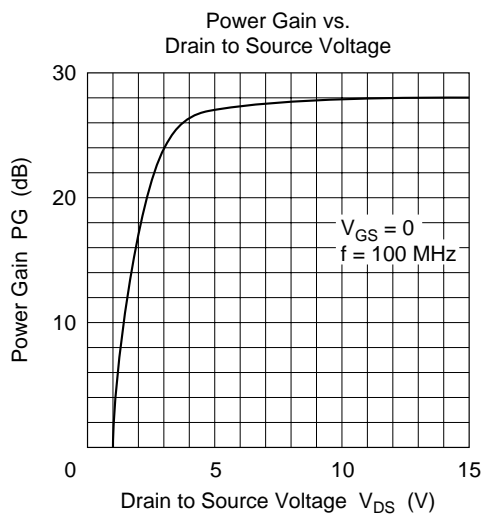
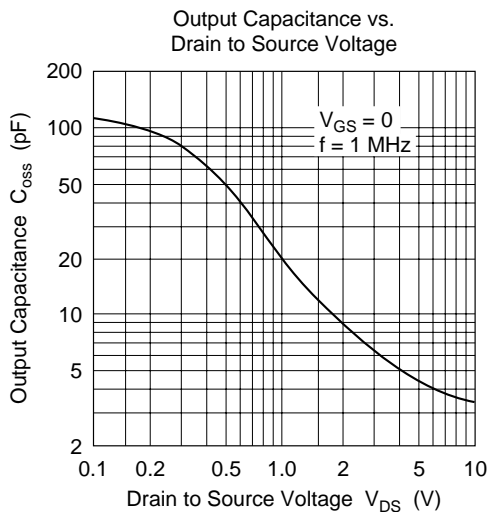
Typical Output Characteristics (2)



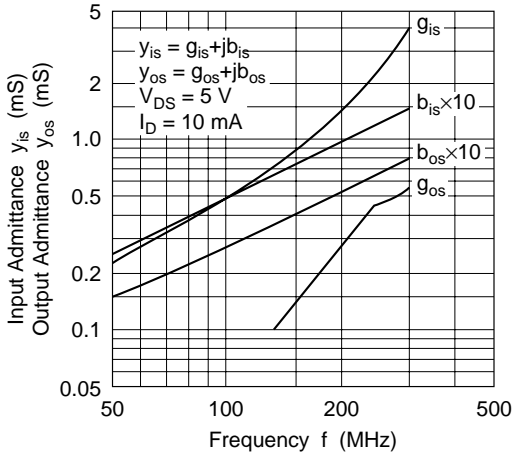
Typical Transfer Characteristics



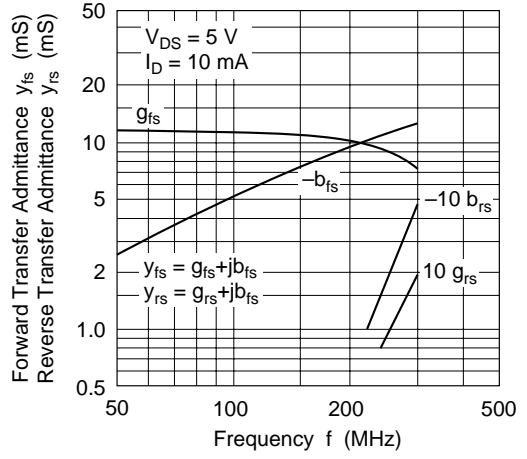




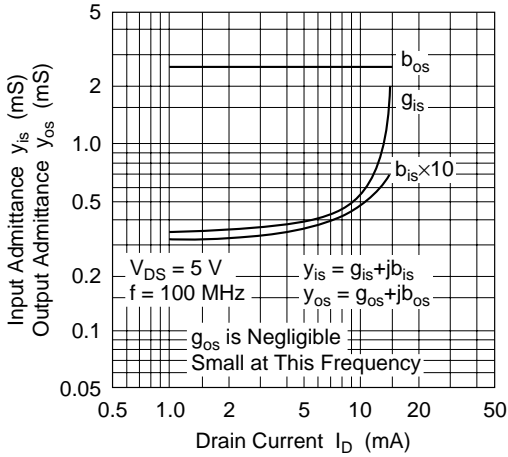
Input and Output Admittance vs. Frequency



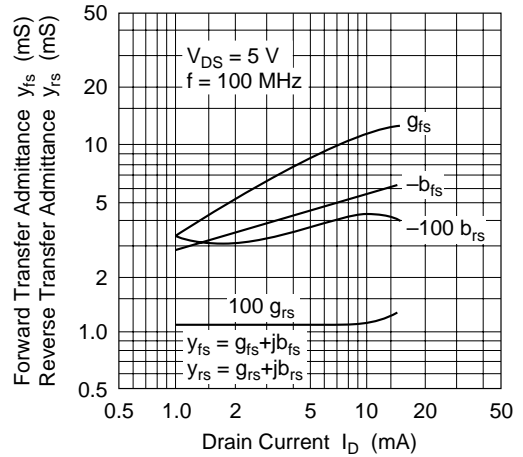
Transfer Admittance vs. Frequency



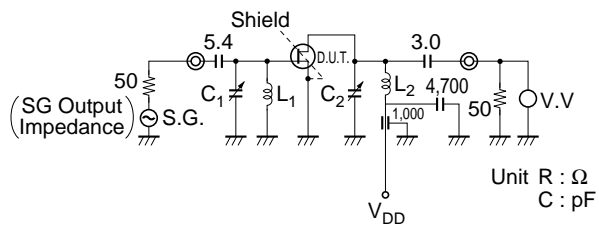
Input and Output Admittance vs. Drain Current



Transfer Admittance vs. Drain Current



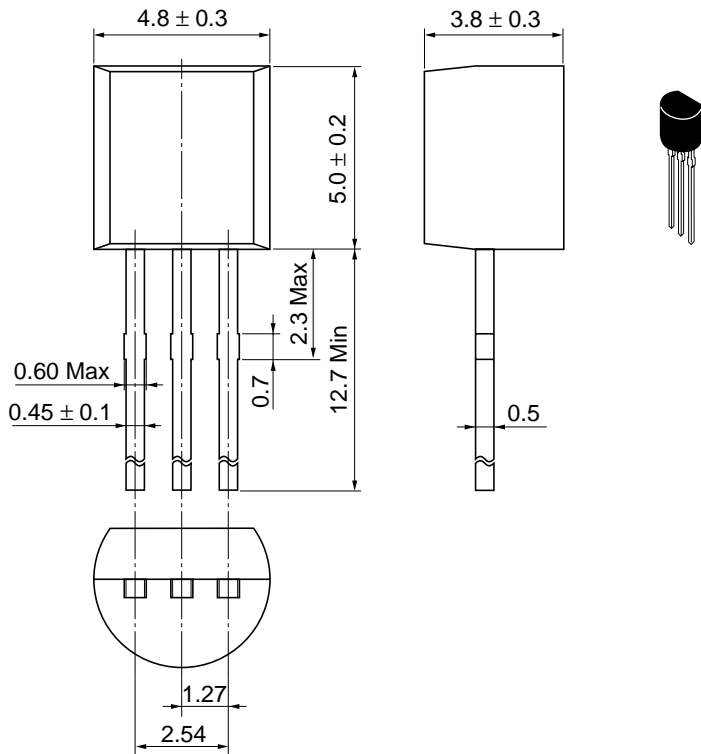
Power Gain and Noise Figure
Test Circuit



C_1, C_2 : 0 to 30 pF Variable Air

L_1 : 3.5 T 1 mm ϕ Copper Ribbon, Tin plated 10 mm Inside dia.

L_2 : 4.5 T 1 mm ϕ Copper Ribbon, Tin plated 10 mm Inside dia.



Hitachi Code	TO-92 (2)
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.25 g

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