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# 2SK168

Silicon N-Channel Junction FET

# HITACHI

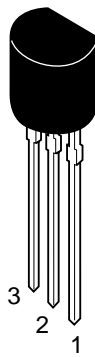
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## Application

VHF Amplifier, Mixer, Local oscillator

## Outline

TO-92 (2)



- 1. Gate
- 2. Source
- 3. Drain

Absolute Maximum Ratings (Ta = 25°C)

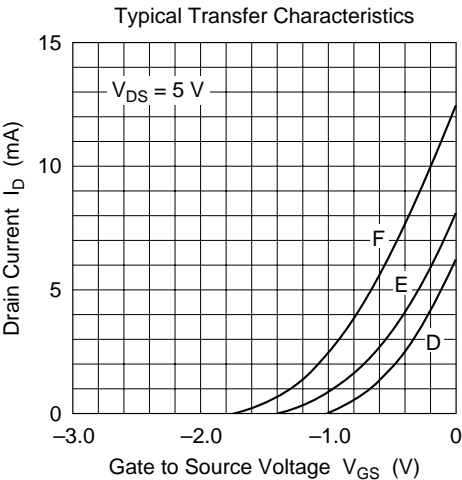
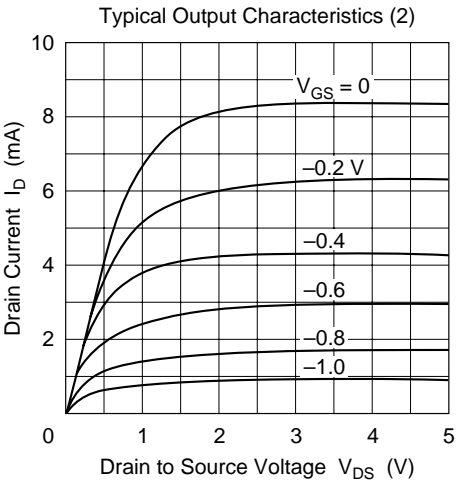
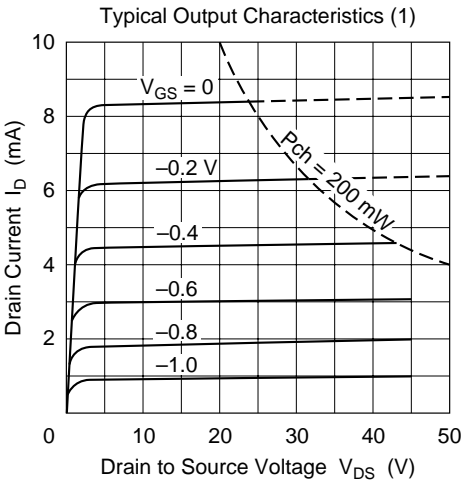
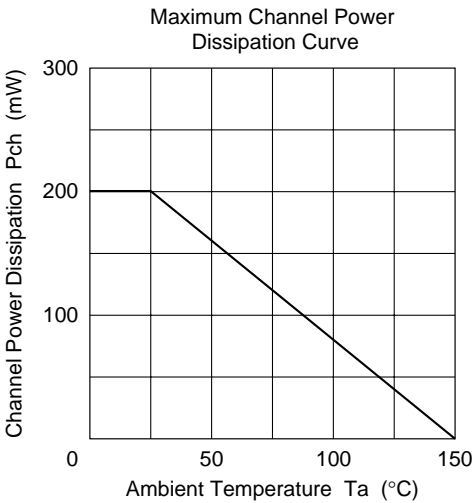
Item	Symbol	Ratings	Unit
Gate to drain voltage	$V_{GDO}$	-30	V
Gate to source voltage	$V_{GSS}$	-1	V
Gate current	$I_G$	10	mA
Drain current	$I_D$	20	mA
Channel power dissipation	Pch	200	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

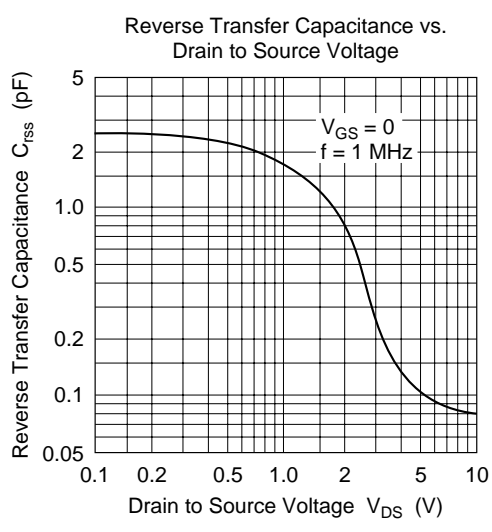
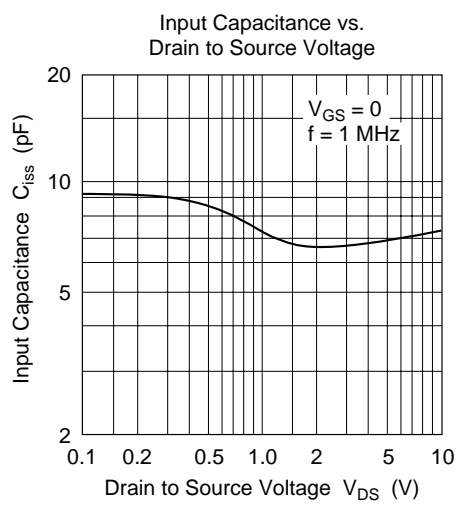
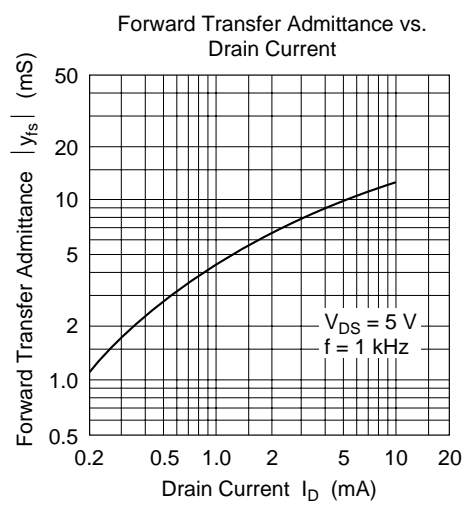
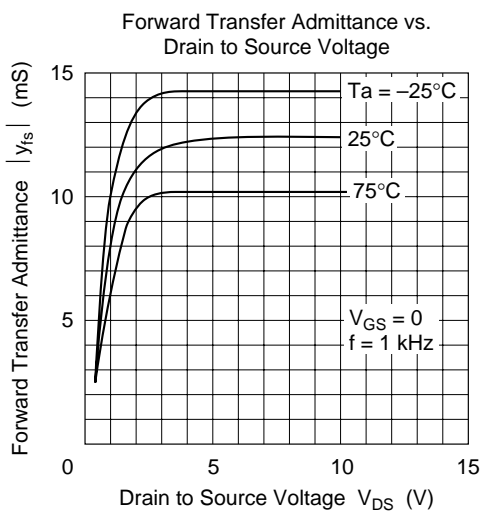
Electrical Characteristics (Ta = 25°C)

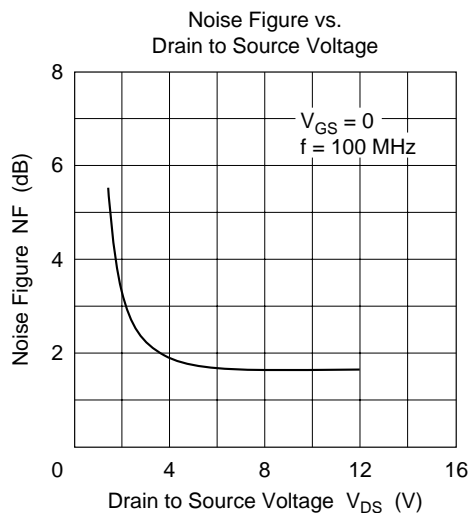
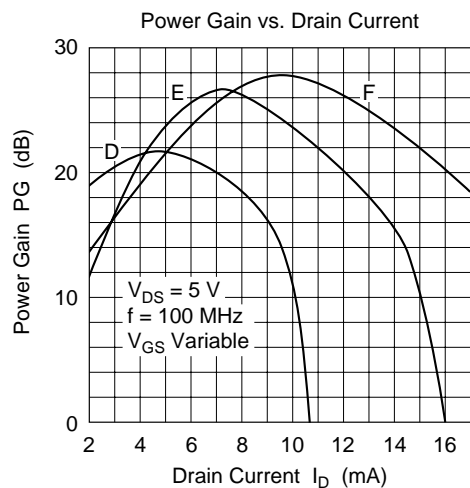
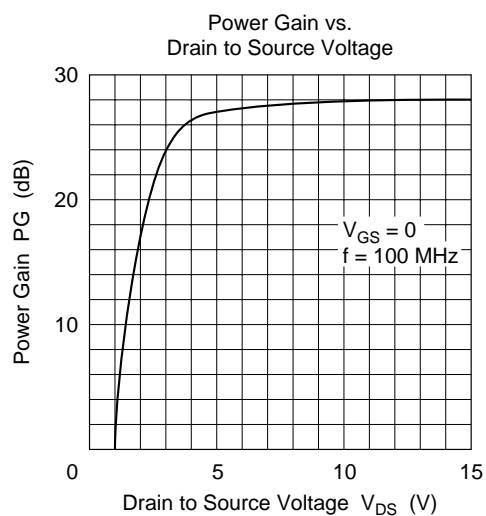
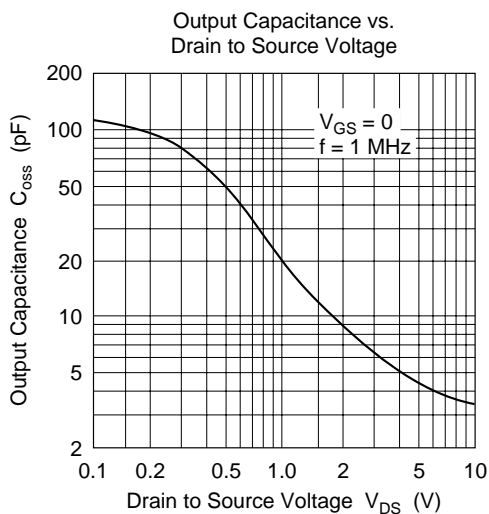
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Gate to drain breakdown voltage	$V_{(BR)GDO}$	-30	—	—	V	$I_G = -100\text{ }\mu\text{A}$ , $I_S = 0$
Gate cutoff current	$I_{GSS}$	—	—	-10	nA	$V_{GS} = -0.5\text{ V}$ , $V_{DS} = 0$
Drain current	$I_{DSS}^{*1}$	4	—	20	mA	$V_{DS} = 5\text{ V}$ , $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	—	—	-3.0	V	$V_{DS} = 5\text{ V}$ , $I_D = 10\text{ }\mu\text{A}$
Forward transfer admittance	$ y_{fs} $	8	10	—	mS	$V_{DS} = 5\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ kHz}$
Input capacitance	Ciss	—	6.8	—	pF	$V_{DS} = 5\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ MHz}$
Reverse transfer capacitance	Crss	—	0.1	—	pF	$V_{DS} = 5\text{ V}$ , $V_{GS} = 0$ , $f = 1\text{ MHz}$
Power gain	PG	—	27	—	dB	$V_{DS} = 5\text{ V}$ , $V_{GS} = 0$ , $f = 100\text{ MHz}$
Noise figure	NF	—	1.7	—	dB	$V_{DS} = 5\text{ V}$ , $V_{GS} = 0$ , $f = 100\text{ MHz}$

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

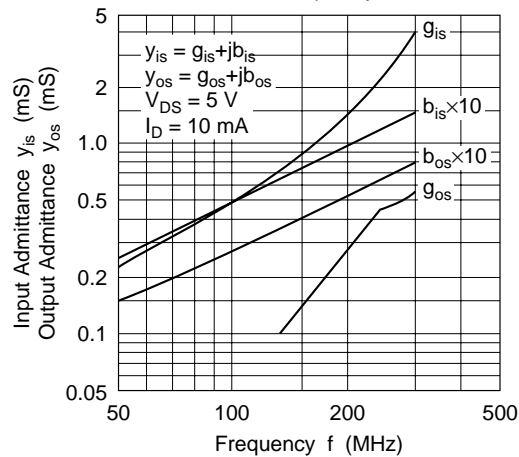
D	E	F
4 to 8	6 to 12	10 to 20



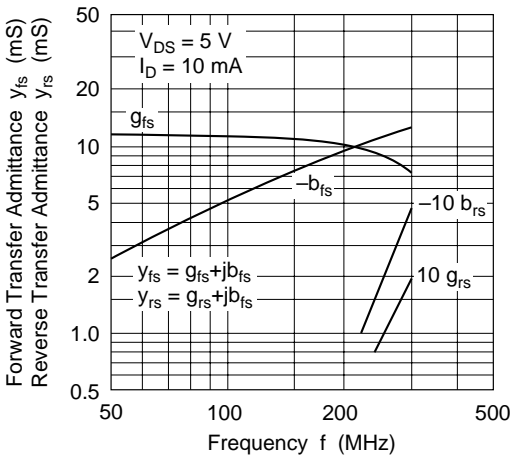




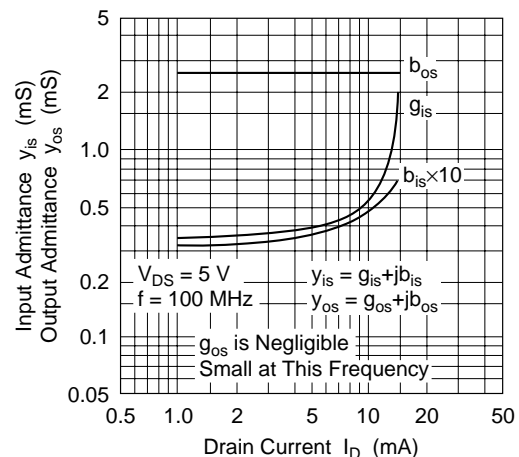
Input and Output Admittance vs. Frequency



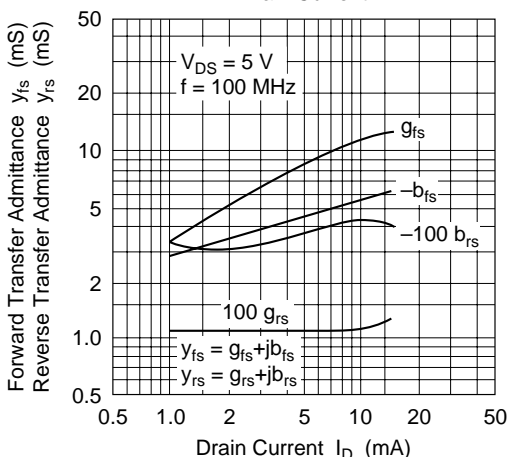
Transfer Admittance vs. Frequency



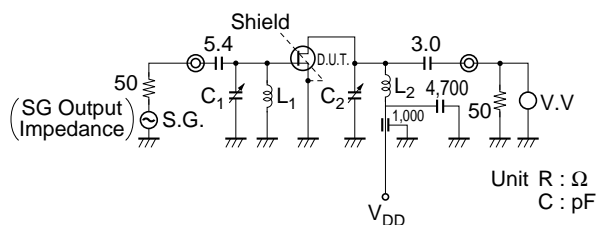
Input and Output Admittance vs. Drain Current



Transfer Admittance vs. Drain Current



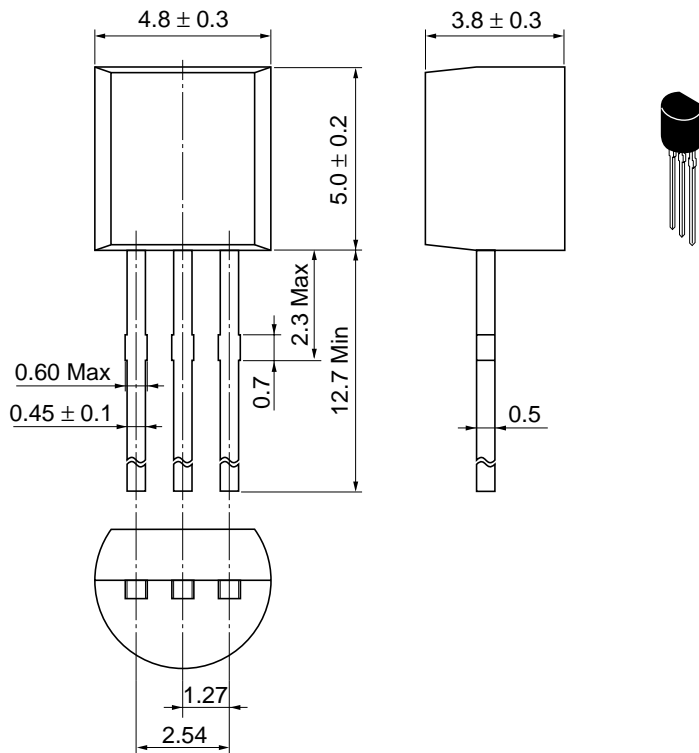
Power Gain and Noise Figure  
Test Circuit



$C_1, C_2$  : 0 to 30 pF Variable Air

$L_1$  : 3.5 T 1 mm $\phi$  Copper Ribbon, Tin plated 10 mm Inside dia.

$L_2$  : 4.5 T 1 mm $\phi$  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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