

To all our customers

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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

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Keep safety first in your circuit designs!

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Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SK360 Series

Silicon N-Channel MOS FET

Application

VHF amplifier

Features

- Capable of high density mount
- High gain, low noise
- Capable of IF amplifier

Table 1 Ordering Information

Tyoe No.	Package
2SK359	TO-92
2SK360	MPAK
2SK439	SPAK

Table 2 Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSX}^*	20	V
Gate to source voltage	V_{GSS}	±5	V
Drain current	I_D	30	mA
Gate current	I_G	±1	mA
Channel dissipation	2SK359	400	mW
	2SK360	150	
	2SK439	300	
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

*: $V_{GS} = -4\text{ V}$

Table 3 Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSX}$	20	—	—	V	$I_D = 100\text{ }\mu\text{A}$, $V_{GS} = -4\text{ V}$
Gate leakage current	I_{GSS}	—	—	±20	nA	$V_{GS} = \pm 5\text{ V}$, $V_{DS} = 0$
Drain current	I_{DSS}	4	—	12	mA	$V_{DS} = 10\text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0	—	−2.0	V	$V_{DS} = 10\text{ V}$, $I_D = 10\text{ }\mu\text{A}$
Forward transfer admittance	$ y_{fs} $	8	14	—	mS	$V_{DS} = 10\text{ V}$, $V_{GS} = 0$, $f = 1\text{ kHz}$

2SK360 Series

Electrical Characteristics (Ta = 25°C) (cont)

Item		Symbol	Min	Typ	Max	Unit	Test conditions
Input capacitance		Ciss	—	2.5	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Output capacitance	2SK359	Coss	—	1.6	—	pF	V _{DS} = 10 V, V _{GS} = 0,
	2SK360						f = 1 MHz
	2SK439			1.8			V _{DS} = 5 V, V _{GS} = 0, f = 1 MHz
Reverse transfer capacitance		Crss	—	0.03	—	pF	V _{DS} = 10 V, V _{GS} = 0, f = 1 MHz
Power gain		PG	—	30	—	dB	V _{DS} = 10 V, V _{GS} = 0,
Noise figure		NF	—	2.0	—	dB	f = 100 MHz

2SK360 representing the characteristics curves hereafter.

For the detail of characteristics of other parts, please consult our sales office near you.

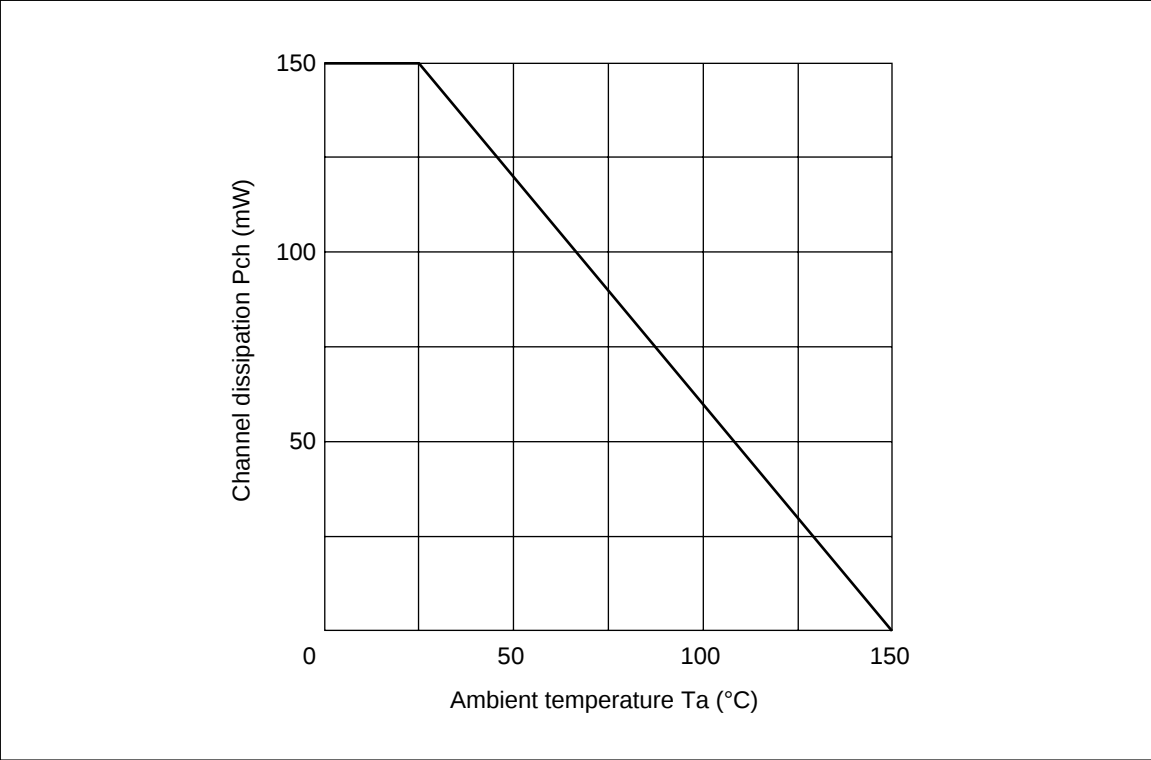


Figure 1 Maximum Channel Dissipation Curve

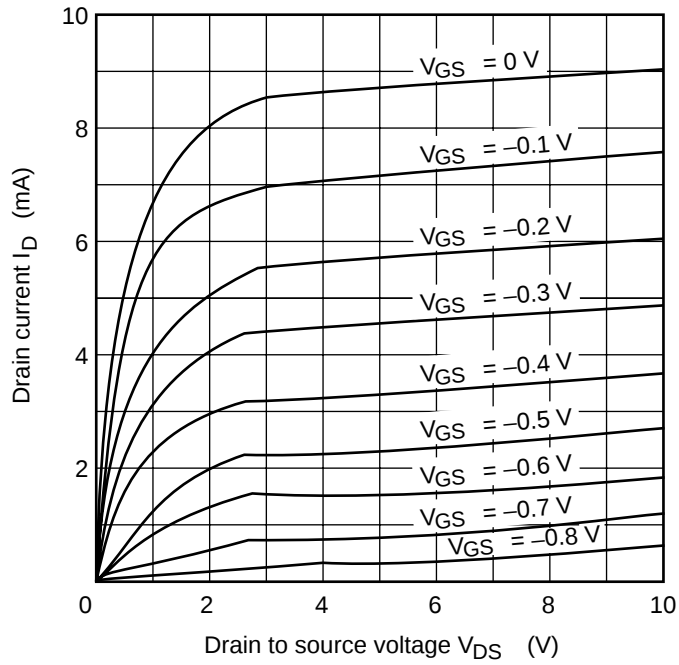


Figure 2 Typical Output Characteristics

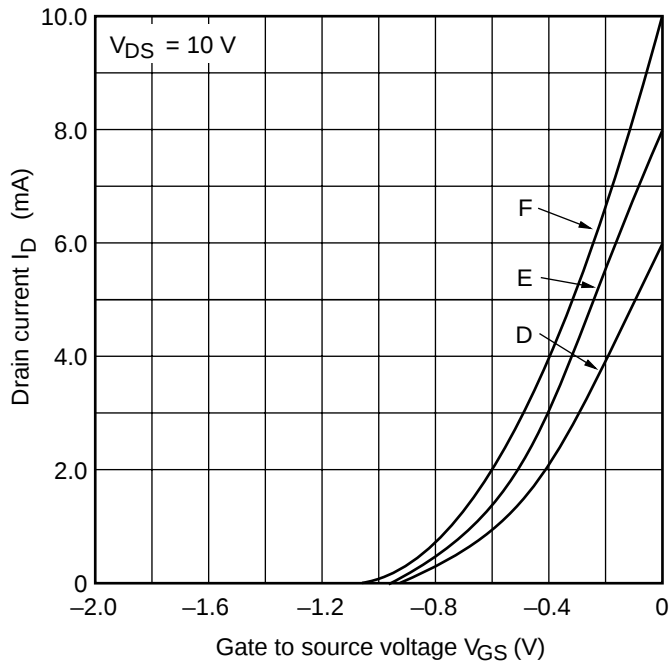


Figure 3 Typical Transfer Characteristics

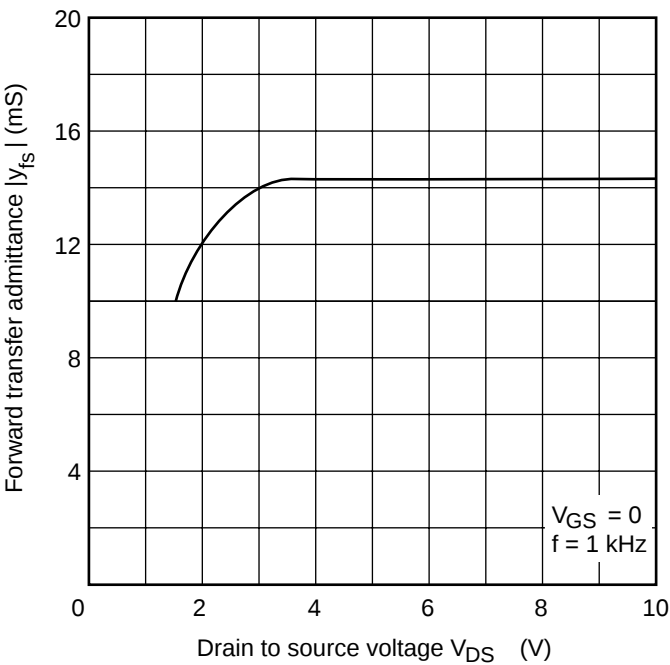


Figure 4 Forward Transfer Admittance vs. Drain to Source Voltage

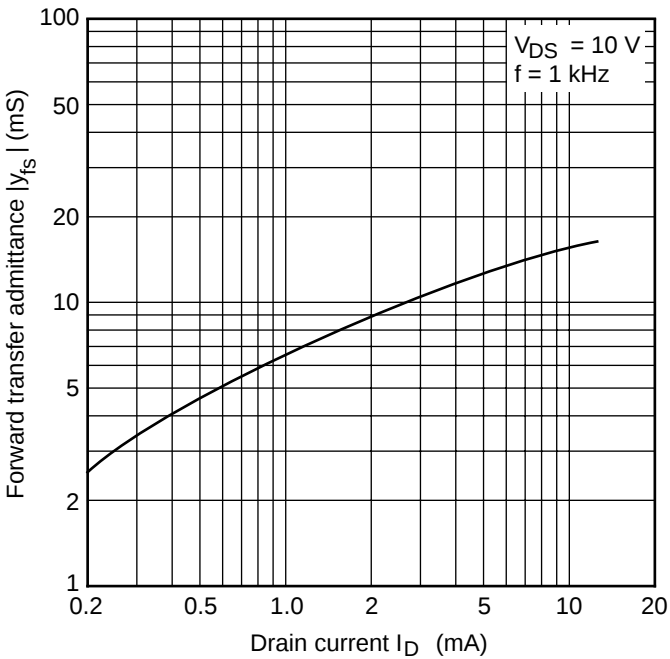


Figure 5 Forward Transfer Admittance vs. Drain Current

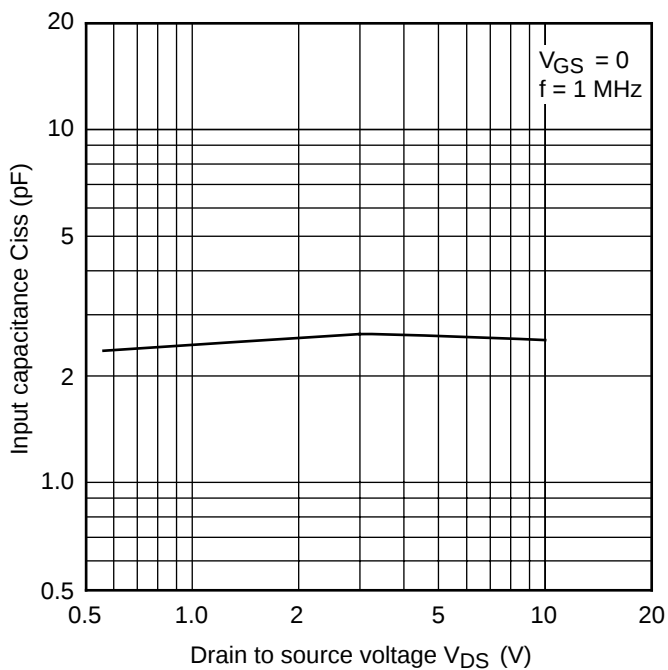


Figure 6 Input Capacitance vs. Drain to Source Voltage

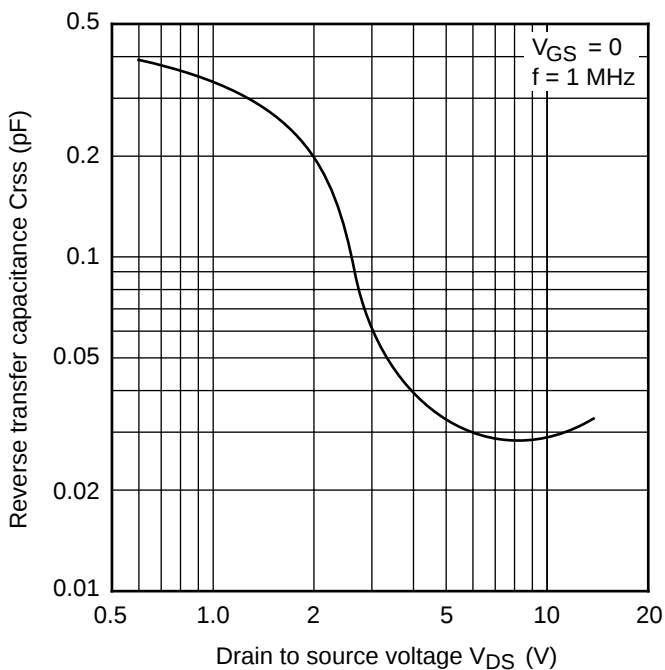


Figure 7 Reverse Transfer Capacitance vs. Drain to Source Voltage

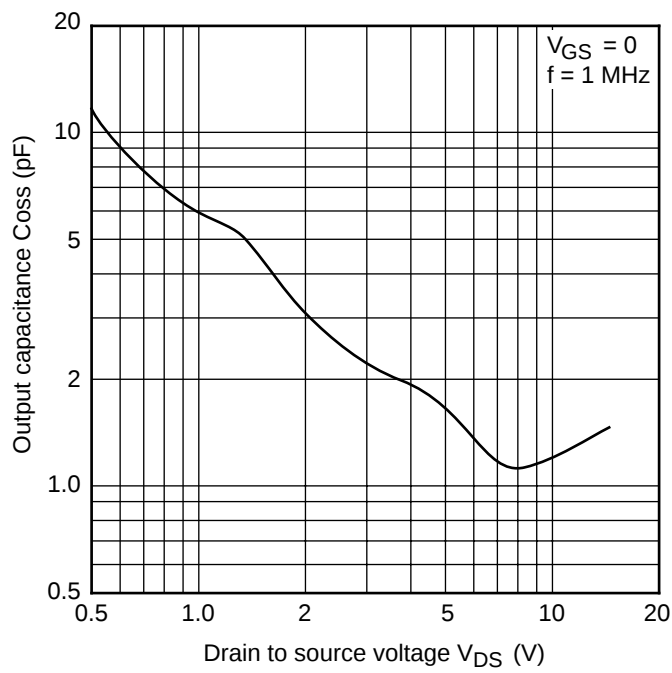


Figure 8 Output Capacitance vs. Drain to Source Voltage

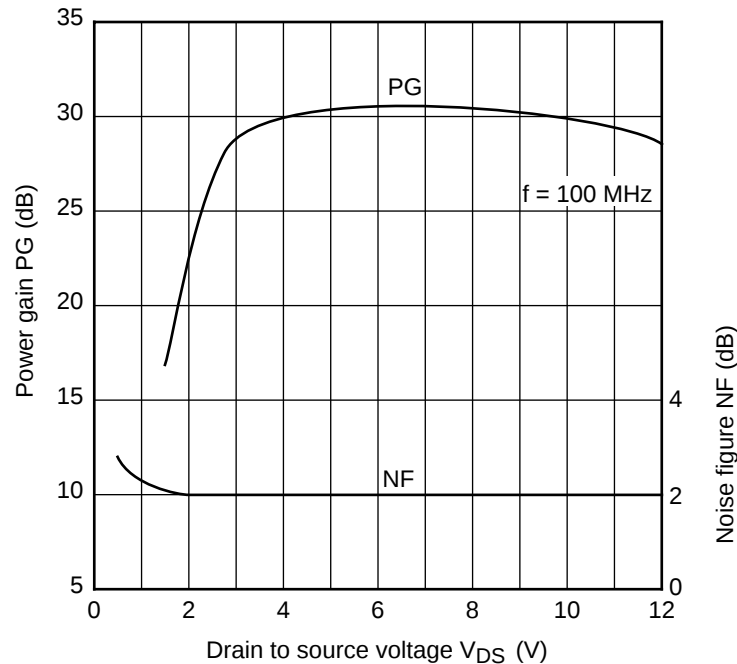


Figure 9 Power Gain, Noise Figure vs. Drain to Source Voltage