

To our customers,

Old Company Name in Catalogs and Other Documents

On April 1st, 2010, NEC Electronics Corporation merged with Renesas Technology Corporation, and Renesas Electronics Corporation took over all the business of both companies. Therefore, although the old company name remains in this document, it is a valid Renesas Electronics document. We appreciate your understanding.

Renesas Electronics website: <http://www.renesas.com>

April 1st, 2010
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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Phase-out/Discontinued

2SK49

DESCRIPTION The 2SK49 is designed for use in FM tuner of a portable RADIO RECIVER.

FEATURES

- High Forward Transfer Admittance. $|Y_{fs}|_2$ ($V_{DS}=5.0$ V, $V_{GS}=0$) : 5.5 mS TYP.
- Low Feedback Capacitance. C_{rss} ($V_{DS}=5.0$ V, $V_{GS}=0$) : 0.07 pF TYP.

ABSOLUTE MAXIMUM RATINGS

Maximum Temperatures

Storage Temperature -55 to +125 °C

Junction Temperature +80 °C Maximum

Maximum Power Dissipation ($T_a=25$ °C)

Total Power Dissipation 72 mW

Maximum Voltages and Currents ($T_a=25$ °C)

V_{GDO} Gate to Drain Voltage -20 V

V_{GSO} Gate to Source Voltage -1.0 V

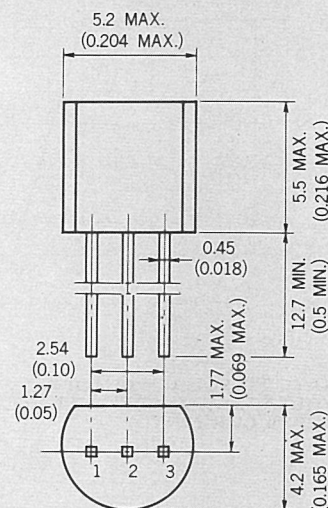
V_{DSX} Drain to Source Voltage 20 V

I_D Drain Current 10 mA

I_G Gate Current 10 mA

PACKAGE DIMENSIONS

in millimeters (inches)



1. GATE EIAJ : SC-43A
2. SOURCE JEDEC : TO-92
3. DRAIN IEC : PA33

ELECTRICAL CHARACTERISTICS ($T_a=25$ °C)

SYMBOL	CHARACTERISTIC	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
I_{DSS}	Zero-Gate Voltage Drain Current	0.5	2.0	6.0	mA	$V_{DS}=5.0$ V, $V_{GS}=0$
$ Y_{fs} _1$	Forward Transfer Admittance	1.9	2.8		mS	$V_{DS}=5.0$ V, $I_D=0.5$ mA, $f=1.0$ kHz
$ Y_{fs} _2$	Forward Transfer Admittance	1.9	5.5		mS	$V_{DS}=5.0$ V, $V_{GS}=0$, $f=1.0$ kHz
C_{iss}	Input Capacitance		5.0	6.5	pF	$V_{DS}=5.0$ V, $V_{GS}=0$, $f=1.0$ MHz
C_{rss}	Feedback Capacitance		0.07	0.25	pF	$V_{DS}=5.0$ V, $V_{GS}=0$, $f=1.0$ MHz
C_{oss}	Output Capacitance		3.8	4.5	pF	$V_{DS}=5.0$ V, $V_{GS}=0$, $f=1.0$ MHz
G_{ps}	Power Gain	9.0	18		dB	$V_{DS}=5.0$ V, $V_{GS}=0$, Z_{in} , $Z_{out}=50$ Ω , $f=100$ MHz, See test circuit
NF	Noise Figure		3.5	6.0	dB	$V_{DS}=5.0$ V, $V_{GS}=0$, Z_{in} , $Z_{out}=50$ Ω , $f=100$ MHz, See test circuit
I_{GSS}	Gate Cutoff Current			-50	nA	$V_{GS}=-0.5$ V, $V_{DS}=0$
$V_{GS(off)}$	Gate to Source Cutoff Voltage	-0.8	-2.5		V	$V_{DS}=5.0$ V, $I_D=10$ μ A

Classification of I_{DSS}

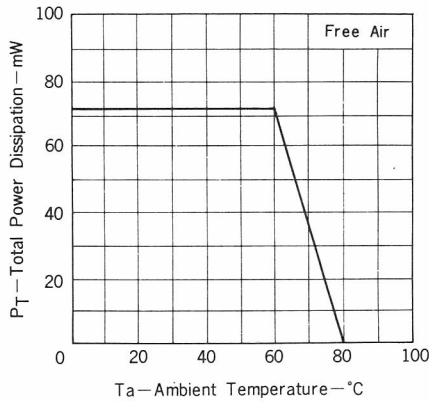
Rank	E	F	H
$I_{DSS}(mA)$	0.5 - 1.5	1.0 - 3.0	2.0 - 6.0

I_{DSS} Test Conditions : $V_{DS}=5.0$ V, $V_{GS}=0$

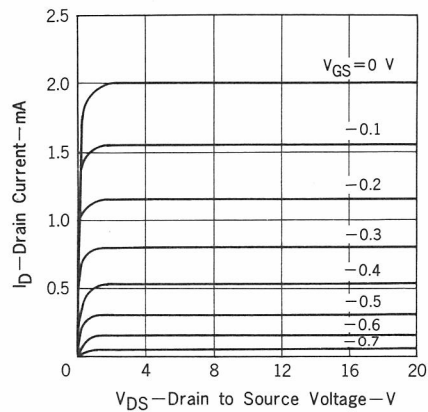
Phase-out/Discontinued

TYPICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$ unless otherwise noted)

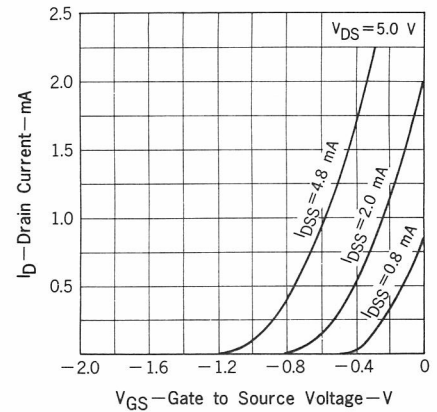
TOTAL POWER DISSIPATION
vs. AMBIENT TEMPERATURE



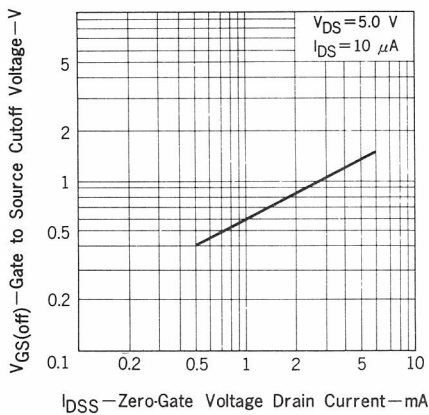
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



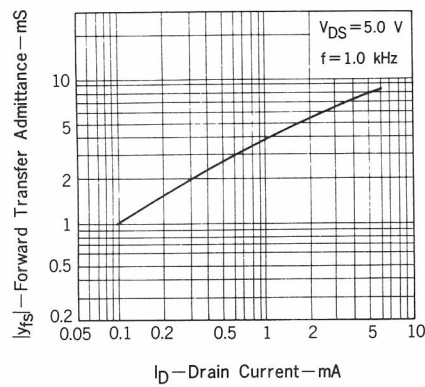
DRAIN CURRENT vs.
GATE TO SOURCE VOLTAGE



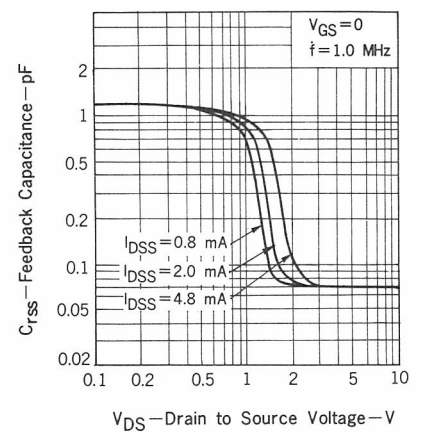
GATE TO SOURCE CUTOFF
VOLTAGE vs. ZERO-GATE VOLTAGE
DRAIN CURRENT



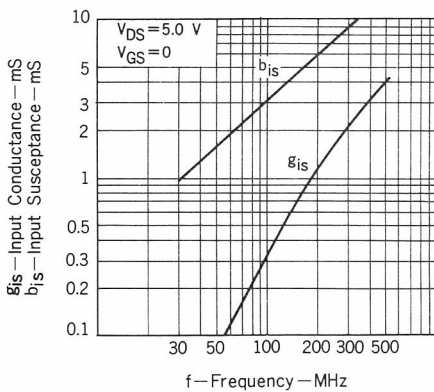
FORWARD TRANSFER ADMITTANCE
vs. DRAIN CURRENT



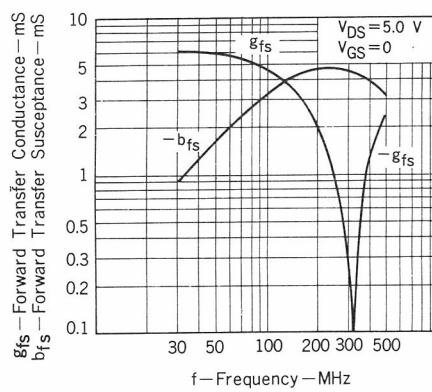
FEEDBACK CAPACITANCE vs.
DRAIN TO SOURCE VOLTAGE



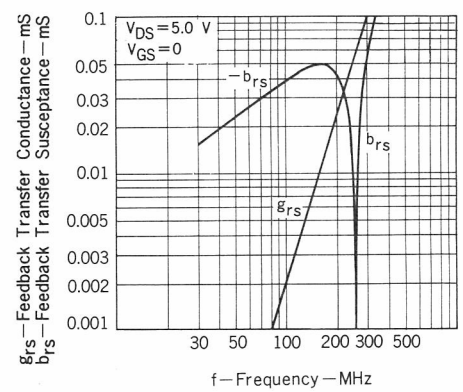
INPUT ADMITTANCE
vs. FREQUENCY



FORWARD TRANSFER ADMITTANCE
vs. FREQUENCY

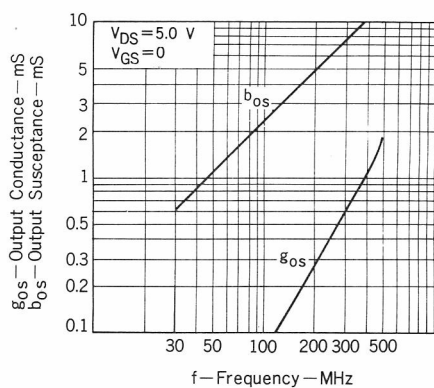


FEEDBACK TRANSFER ADMITTANCE
vs. FREQUENCY

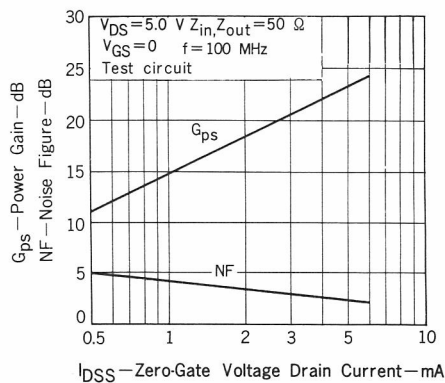


Phase-out/Discontinued

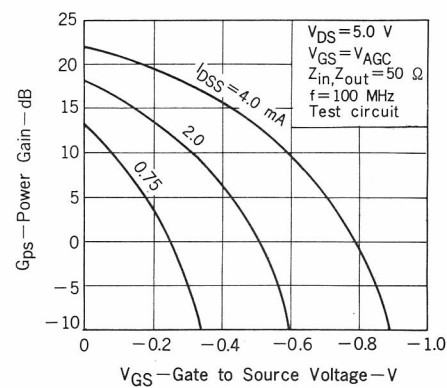
OUTPUT ADMITTANCE
vs. FREQUENCY



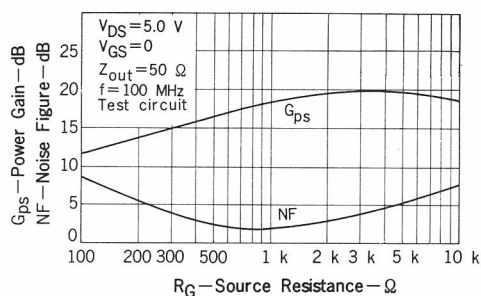
POWER GAIN AND NOISE FIGURE
vs. ZERO-GATE VOLTAGE DRAIN
CURRENT



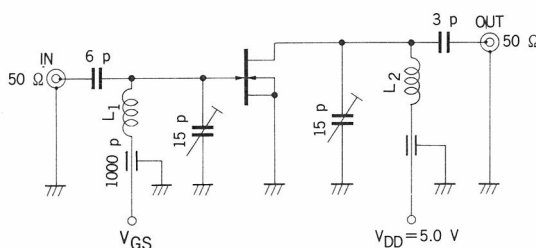
POWER GAIN vs.
GATE TO SOURCE VOLTAGE



POWER GAIN AND NOISE FIGURE
vs. SOURCE RESISTANCE



NOISE FIGURE and POWER GAIN
TEST CIRCUIT ($f = 100 \text{ MHz}$)



Phase-out/Discontinued**Nippon Electric Co., Ltd.****INTERNATIONAL ELECTRON DEVICES DIV.**

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