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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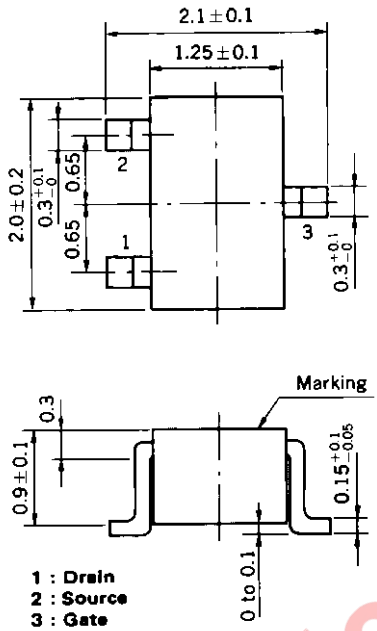
RENESAS

JUNCTION FIELD EFFECT TRANSISTOR

2SK852

AUDIO FREQUENCY AMPLIFIER
N-CHANNEL SILICON JUNCTION FIELD EFFECT TRANSISTOR

PACKAGE DIMENSIONS
in millimeters



FEATURES

- High Voltage V_{GDO} > −50 V
- High $|y_{fs}|$ $|y_{fs}|$ = 12 mS TYP.

ABSOLUTE MAXIMUM RATINGS

Maximum Voltages and Currents (T_a = 25 °C)

Gate to Drain Voltage	V_{GDO}	−50	V
Gate to Source Voltage	V_{GSO}	−50	V
Drain to Source Voltage (V_{GS} = −2.0 V)	V_{DSX}	50	V
Drain Current (DC)	I_D	20	mA
Gate Current (DC)		10	mA

Maximum Power Dissipation

Total Power Dissipation at 25 °C Ambient Temperature	P_T	150	mW

Maximum Temperatures

Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	−55 to +150	°C

ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

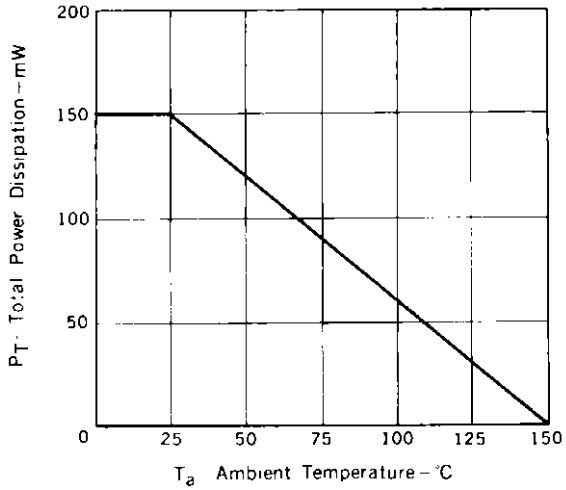
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Gate Cutoff Current	I_{GSS}			−5	nA	V_{GS} = −20 V, V_{DS} = 0
Zero-Gate Voltage Drain Current	I_{DSS}	0.5	2.5	12	mA	V_{DS} = 10 V, V_{GS} = 0
Gate to Source Cutoff Voltage	$V_{GS(off)}$	−0.13	−0.5	−1.5	V	V_{DS} = 10 V, I_D = 10 μA
Forward Transfer Admittance	$\|y_{fs}\|_1$	4.0	5.2		mS	V_{DS} = 10 V, I_D = 0.5 mA, f = 1.0 kHz
Forward Transfer Admittance	$\|y_{fs}\|_2$	4.0	12		mS	V_{DS} = 10 V, V_{GS} = 0, f = 1.0 kHz
Input Capacitance	C_{iss}		13		pF	V_{DS} = 10 V, V_{GS} = 0, f = 1.0 MHz
Feedback Capacitance	C_{rss}		2.6		pF	V_{DS} = 10 V, V_{GS} = 0, f = 1.0 MHz

I_{DSS} Classification

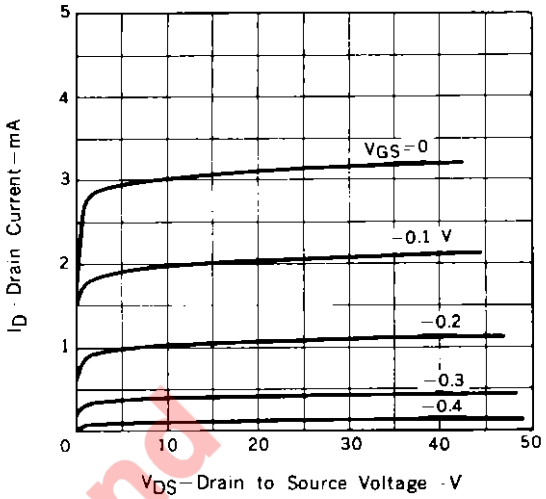
Marking	X1	X2	X3	X4
I_{DSS}(mA)	0.5 to 1.5	1.0 to 3.0	2.0 to 6.0	4.0 to 12

TYPICAL CHARACTERISTICS (T_a = 25 °C)

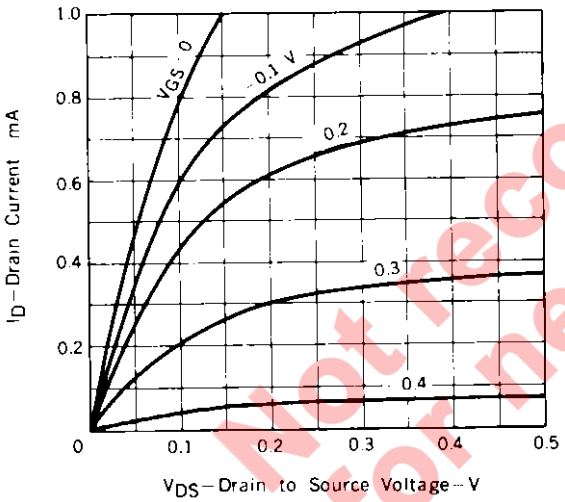
TOTAL POWER DISSIPATION vs.
AMBIENT TEMPERATURE



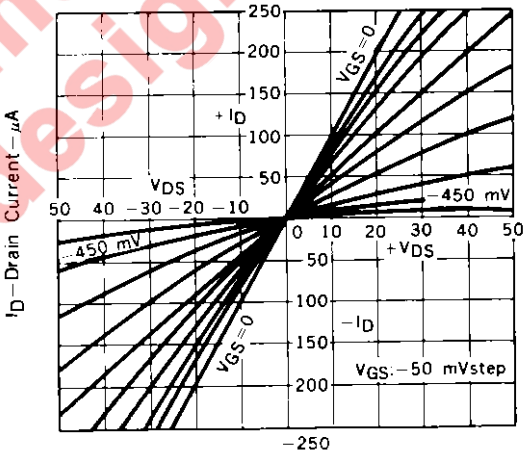
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



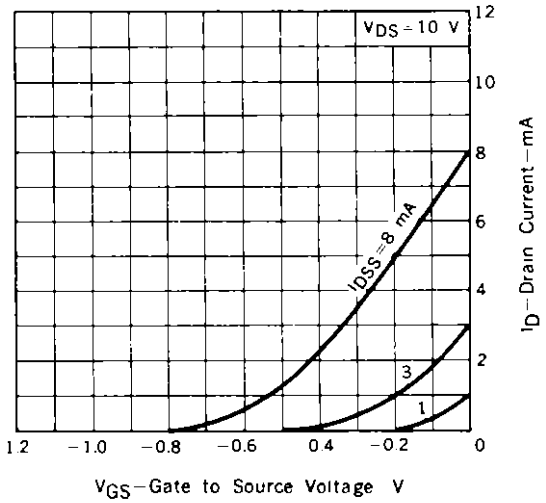
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



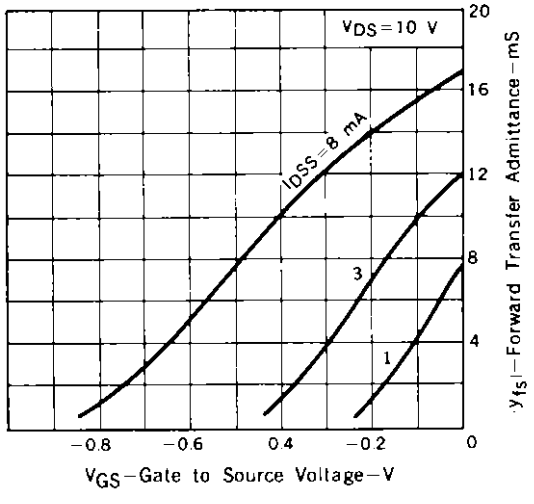
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



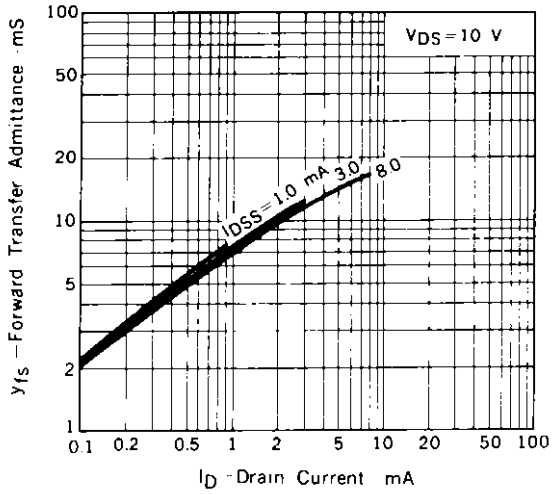
DRAIN CURRENT vs.
GATE TO SOURCE VOLTAGE



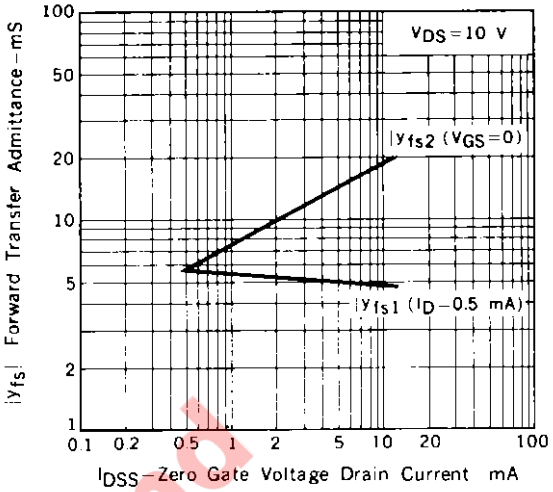
FORWARD TRANSFER ADMITTANCE (y_{fs}) vs.
GATE TO SOURCE VOLTAGE



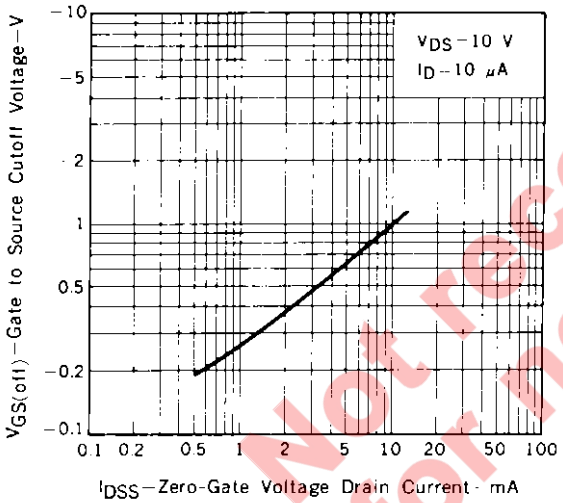
FORWARD TRANSFER ADMITTANCE
(y_{fs}) vs. DRAIN CURRENT



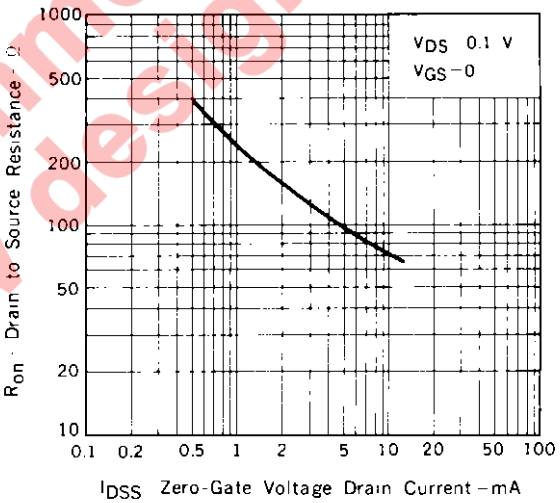
FORWARD TRANSFER ADMITTANCE
(y_{fs}) vs. ZERO-GATE
VOLTAGE CURRENT CO-RELATIONS



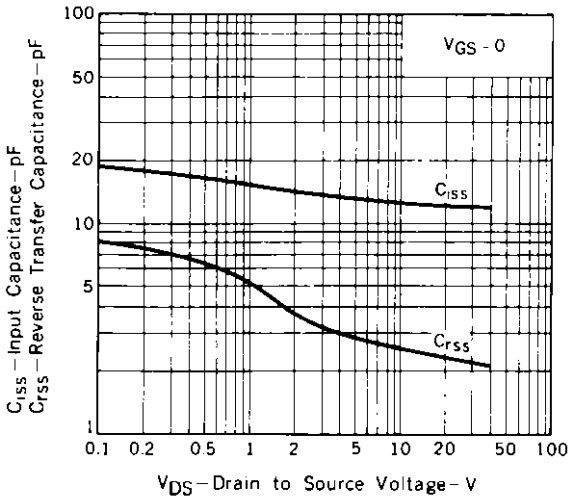
GATE TO SOURCE CUTOFF VOLTAGE
vs. ZERO-GATE VOLTAGE DRAIN CURRENT



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



INPUT AND REVERSE TRANSFER
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



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