

To our customers,

Old Company Name in Catalogs and Other Documents

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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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JUNCTION FIELD EFFECT TRANSISTOR

2SK3653

N-CHANNEL SILICON JUNCTION FIELD EFFECT TRANSISTOR FOR IMPEDANCE CONVERTER OF ECM

DESCRIPTION

The 2SK3653 is suitable for converter of ECM.

FEATURES

- Compact package
- High forward transfer admittance
1000 μS TYP. ($I_{\text{DSS}} = 100 \mu\text{A}$)
1600 μS TYP. ($I_{\text{DSS}} = 200 \mu\text{A}$)
- Includes diode and high resistance at G - S

ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK3653	3pinXSOF (0814)

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

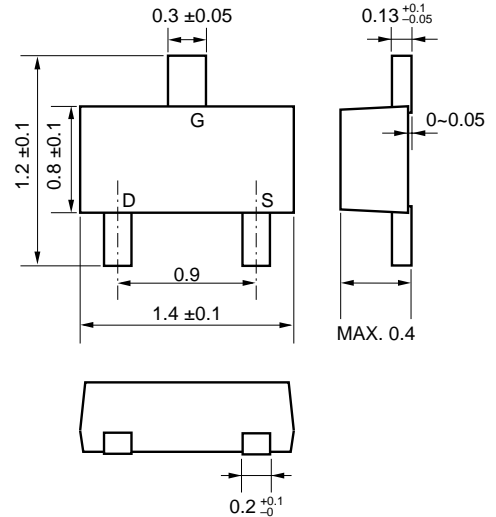
Drain to Source Voltage ^{Note1}	V_{DSX}	20	V
Gate to Drain Voltage	V_{GDO}	-20	V
Drain Current	I_{D}	10	mA
Gate Current	I_{G}	10	mA
Total Power Dissipation ^{Note2}	P_{T}	80	mW
Junction Temperature	T_{j}	125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

Notes 1. $V_{\text{GS}} = -1.0 \text{ V}$

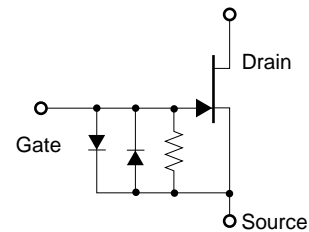
2. Mounted on ceramic substrate of $3.0 \text{ cm}^2 \times 0.64 \text{ mm}$

Remark Please take care of ESD (Electro Static Discharge) when you handle the device in this document.

PACKAGE DRAWING (Unit: mm)



EQUIVALENT CIRCUIT



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Not all devices/types available in every country. Please check with local NEC representative for availability and additional information.

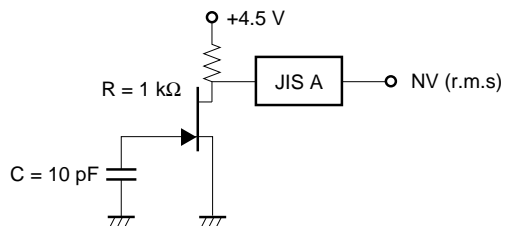
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Cut-off Current	I _{DSS1}	V _{DS} = 2.0 V, V _{GS} = 0 V	38		570	μA
Zero Gate Voltage Drain Cut-off Current	I _{DSS2}	V _{DS} = 5.0 V, V _{GS} = 0 V	40		600	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 5.0 V, I _D = 1.0 μA	-0.1		-1.0	V
Forward Transfer Admittance	y _{fs1}	V _{DS} = 5.0 V, I _D = 30 μA, f = 1.0 kHz	350			μS
Forward Transfer Admittance	y _{fs2}	V _{DS} = 5.0 V, V _{GS} = 0 V, f = 1.0 kHz	350			μS
Input Capacitance	C _{iss}	V _{DS} = 5.0 V, V _{GS} = 0 V, f = 1.0 MHz		7.0	8.0	pF
Noise Voltage	NV	See Test Circuit		1.8	3.0	μV

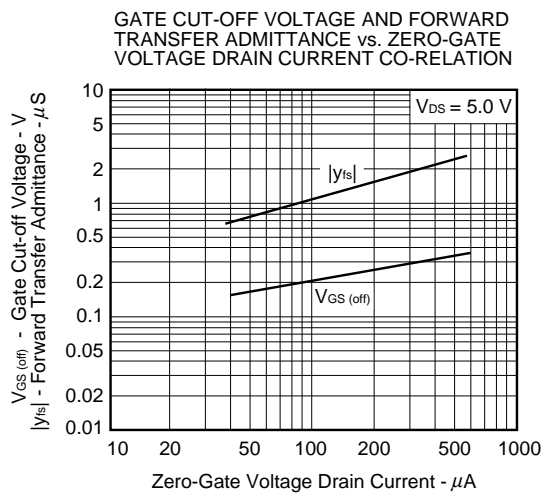
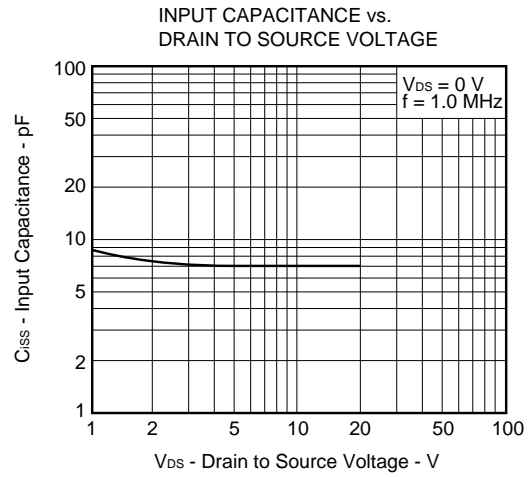
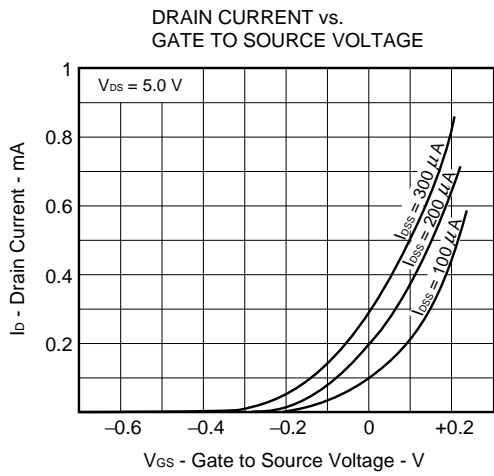
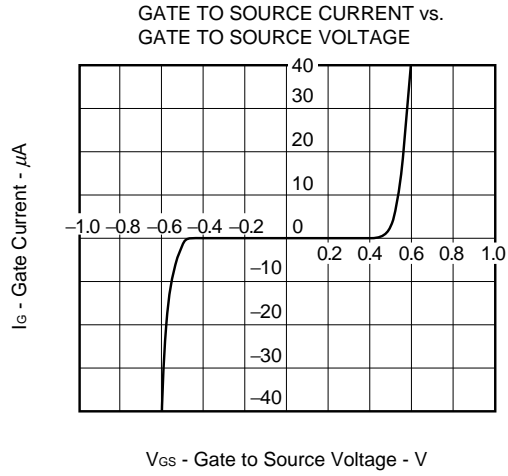
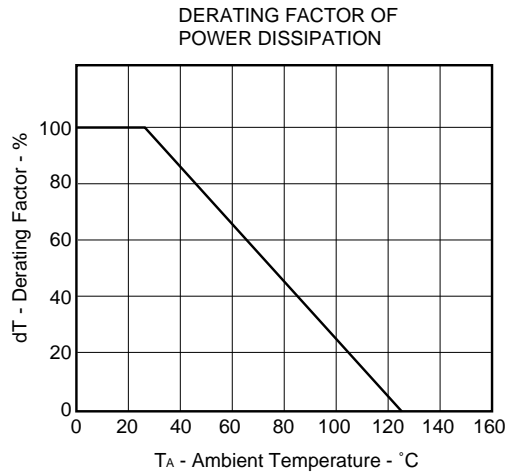
I_{DSS} RANK

MARKING	J2	J3	J4	J5	J6	J7
I _{DSS1} (μA) V _{DS} = 2.0 V	38 to 65	56 to 105	85 to 170	140 to 280	185 to 425	280 to 570

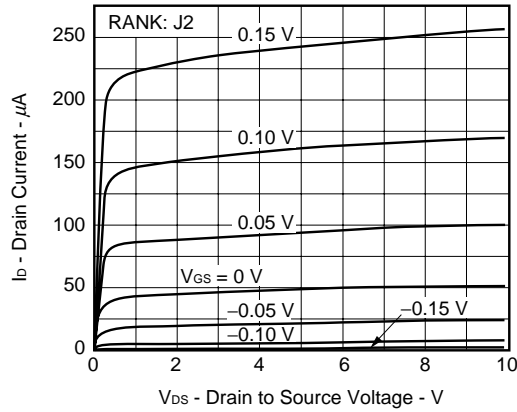
NOISE VOLTAGE TEST CIRCUIT



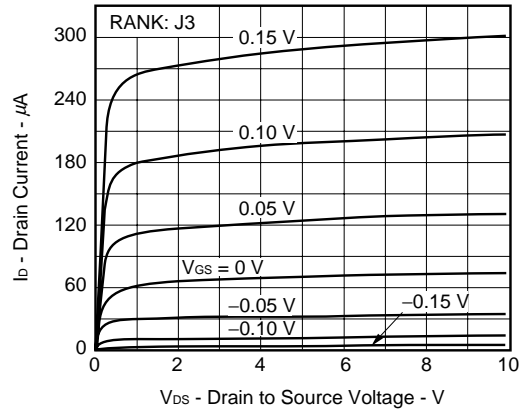
TYPICAL CHARACTERISTICS (T_A = 25°C)



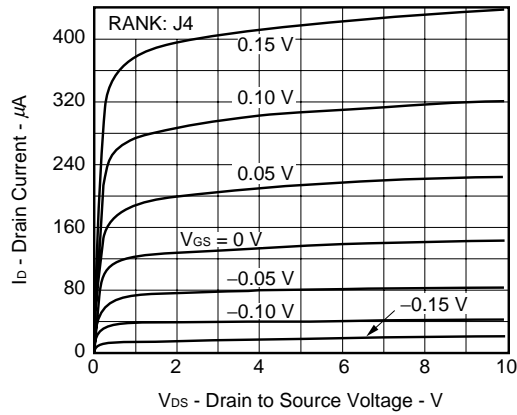
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



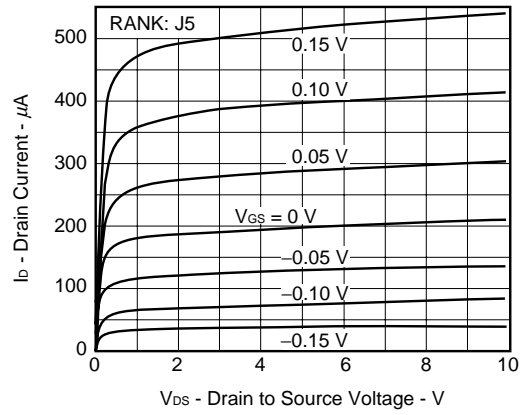
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



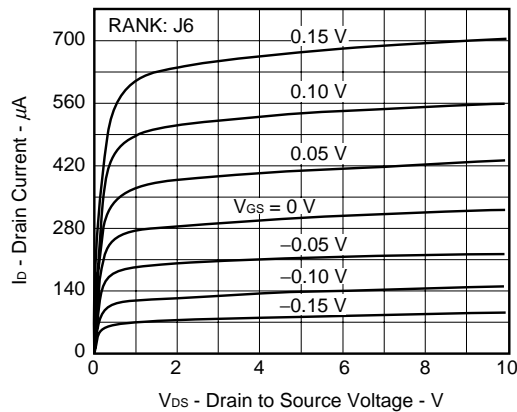
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



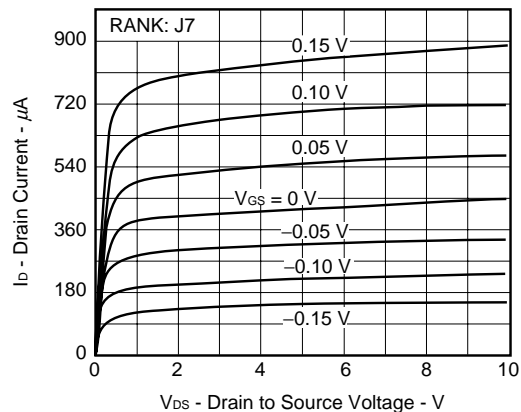
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



[MEMO]

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