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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RENESAS

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.

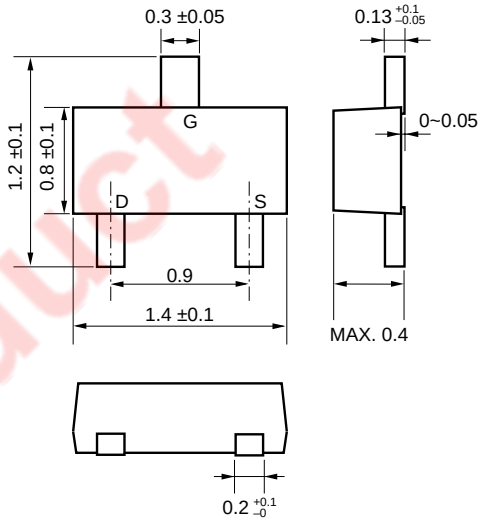
FEATURES

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

ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK3653	3pinXSOF (0814)

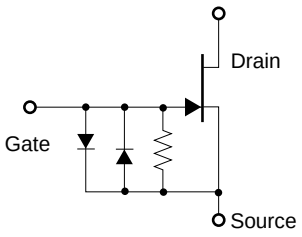
PACKAGE DRAWING (Unit: mm)



ABSOLUTE MAXIMUM RATINGS (T_A = 25°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	°C
Storage Temperature	T_{stg}	–55 to +125	°C

EQUIVALENT CIRCUIT



Notes 1. V_{GS} = –1.0 V

2. Mounted on ceramic substrate of 3.0 cm^2 x 0.64 mm

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

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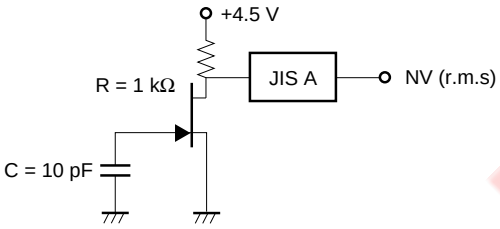
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

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	$\lvert y_{fs1} \rvert$	V_{DS} = 5.0 V, I_D = 30 μA, f = 1.0 kHz	350			μS
Forward Transfer Admittance	$\lvert y_{fs2} \rvert$	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

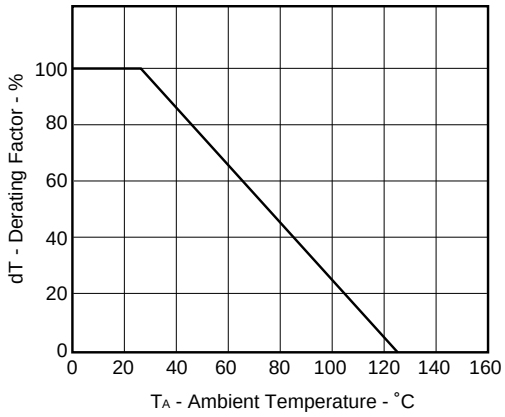
MARKING	J2	J3	J4	J5	J6	J7
I_{DSS1} (μA) V_{DS} = 2.0 V	38 to 65	56 to 105	85 to 170	140 to 280	185 to 425	280 to 570

NOISE VOLTAGE TEST CIRCUIT

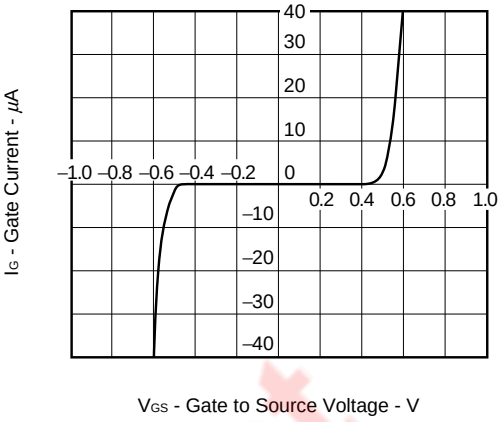


TYPICAL CHARACTERISTICS (T_A = 25°C)

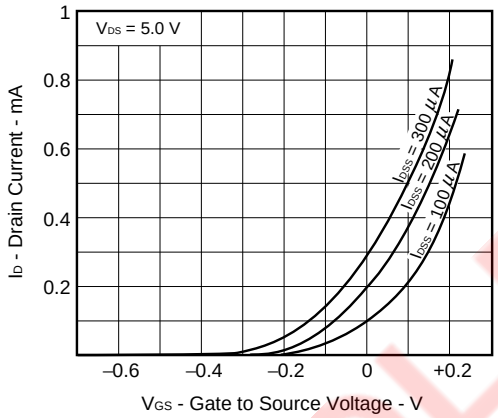
DERATING FACTOR OF POWER DISSIPATION



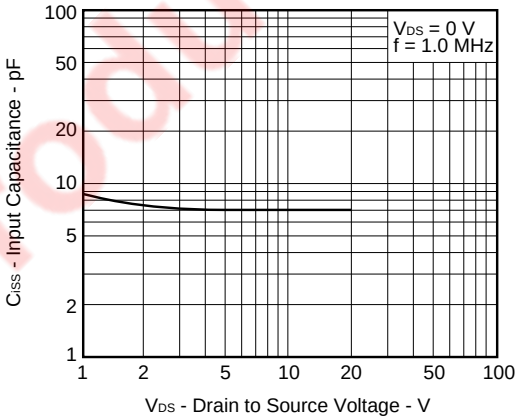
GATE TO SOURCE CURRENT vs. GATE TO SOURCE VOLTAGE



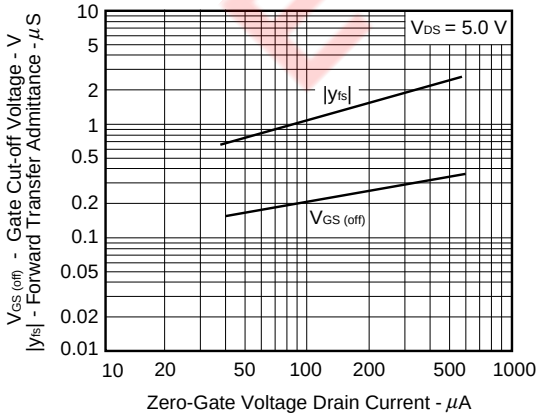
DRAIN CURRENT vs. GATE TO SOURCE VOLTAGE



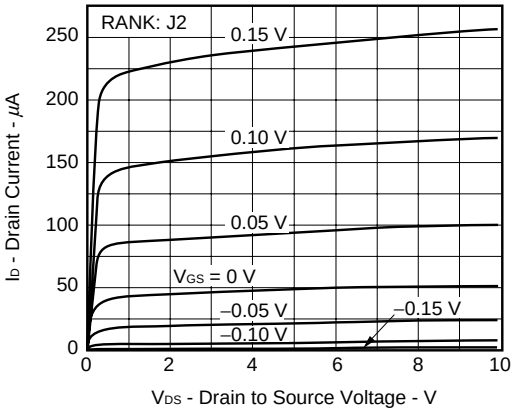
INPUT CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



GATE CUT-OFF VOLTAGE AND FORWARD TRANSFER ADMITTANCE vs. ZERO-GATE VOLTAGE DRAIN CURRENT CO-RELATION



DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



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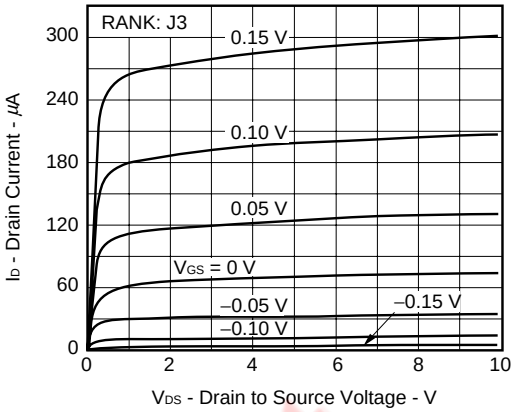

DRAIN CURRENT vs.
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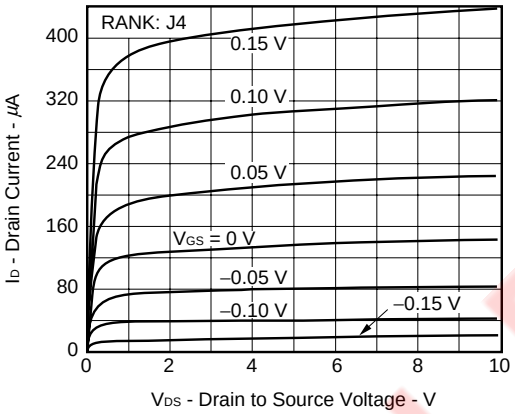
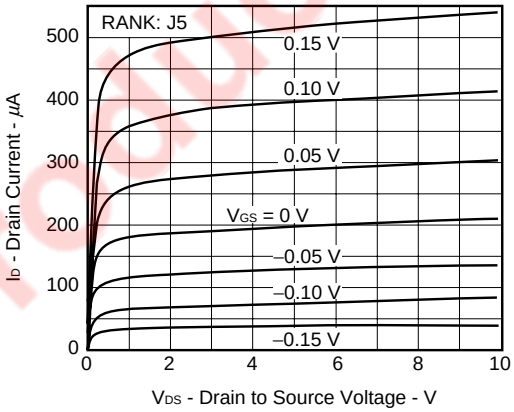


DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



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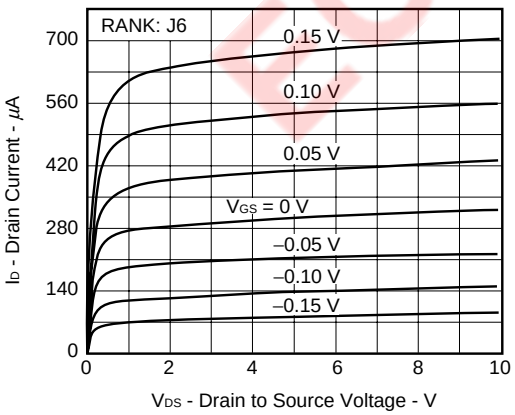
DRAIN TO SOURCE VOLTAGE



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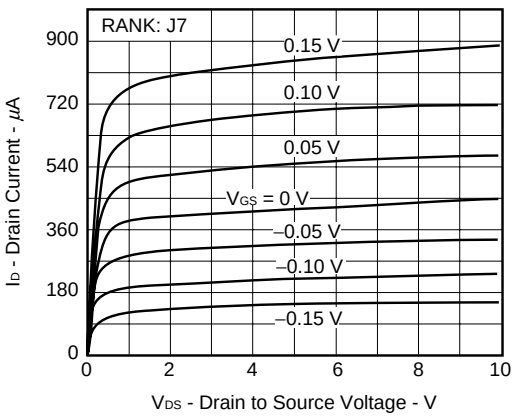
DRAIN TO SOURCE VOLTAGE



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