

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

2SK1109

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

DESCRIPTION

The 2SK1109 is suitable for converter of ECM.

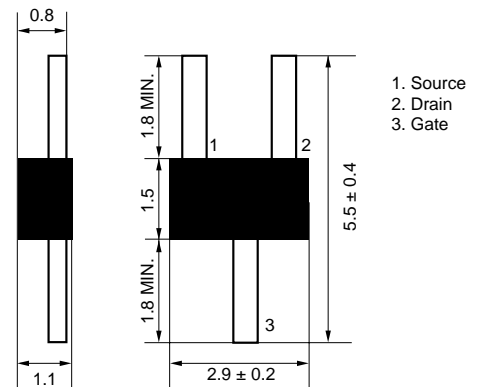
FEATURES

- 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
2SK1109	SC-59 (MM)

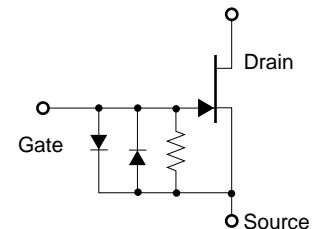
PACKAGE DRAWING (Unit: mm)



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

Drain to Source Voltage ^{Note}	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	P_{T}	80	mW
Junction Temperature	T_{j}	125	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +125	$^\circ\text{C}$

EQUIVALENT CIRCUIT



Note $V_{\text{GS}} = -1.0 \text{ V}$

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

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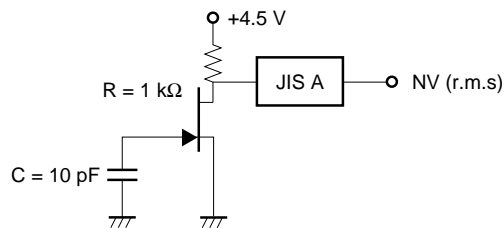
ELECTRICAL CHARACTERISTICS (T_A = 25°C)

CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Cut-off Current	I _{DSS}	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

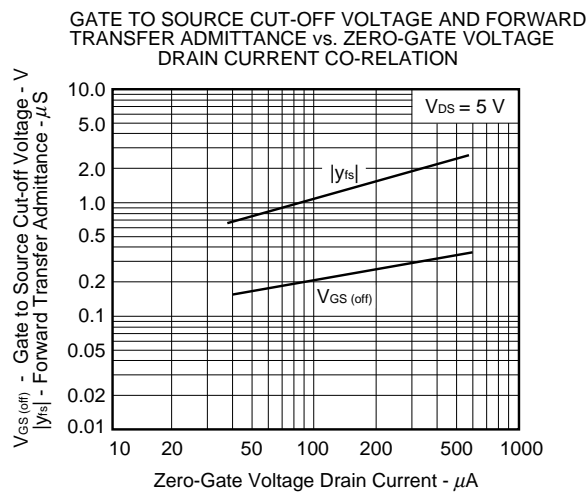
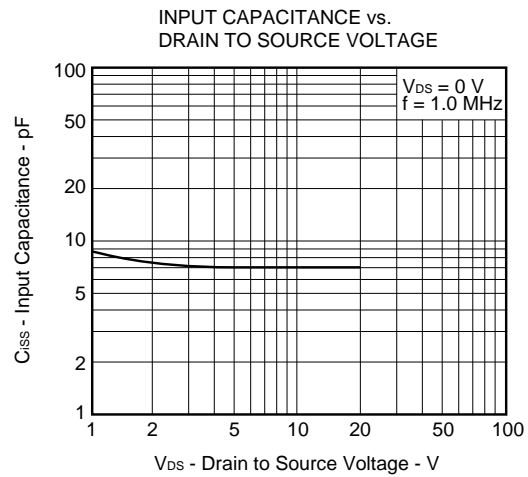
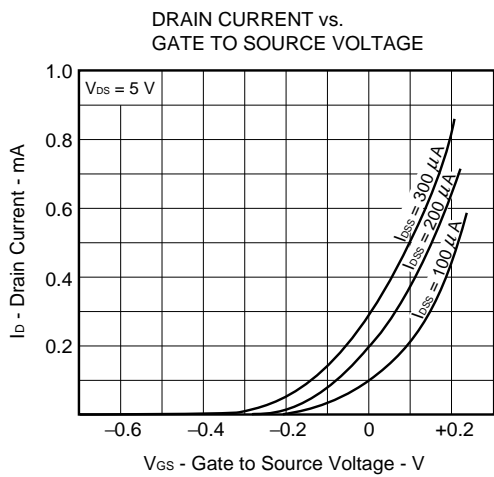
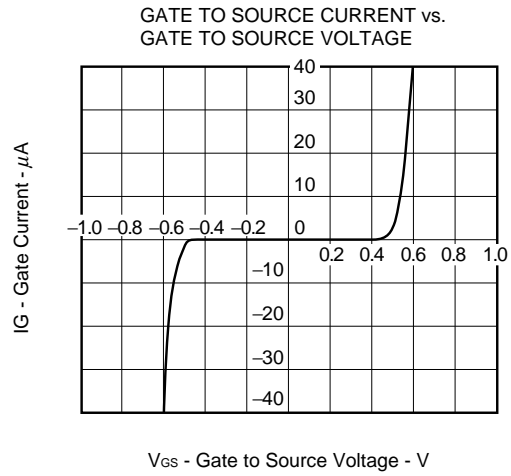
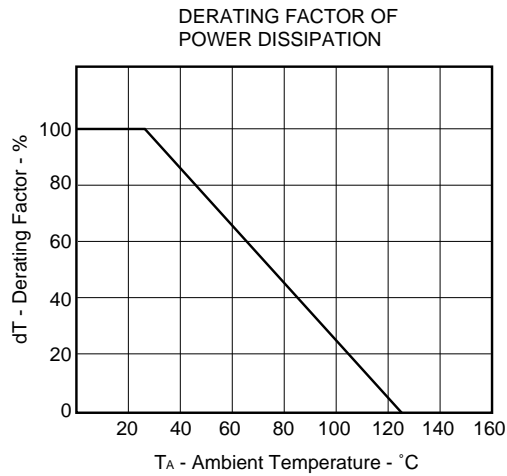
I_{DSS} RANK

MARKING	J32	J33	J34	J35	J36	J37
I _{DSS} (μA)	40 to 70	60 to 110	90 to 180	150 to 300	200 to 450	300 to 600

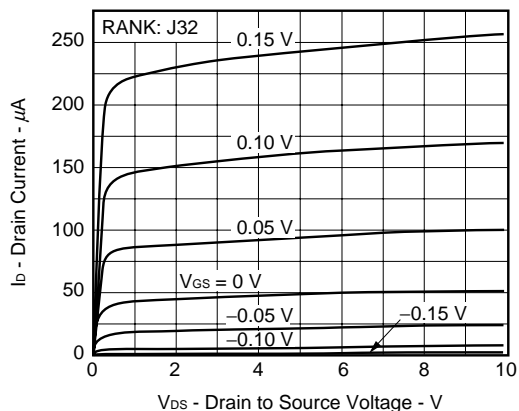
NOISE VOLTAGE TEST CIRCUIT



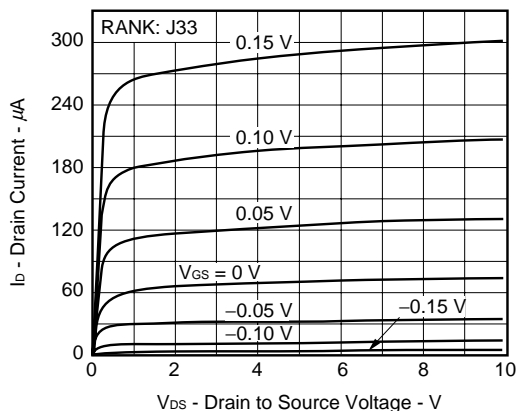
TYPICAL CHARACTERISTICS (T_A = 25°C)



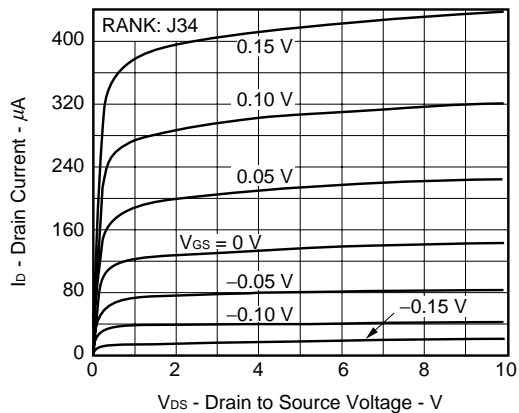
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



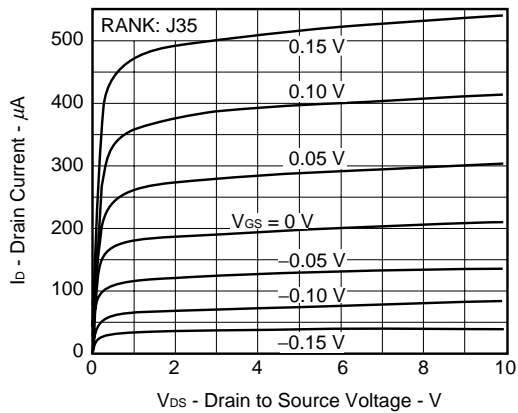
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



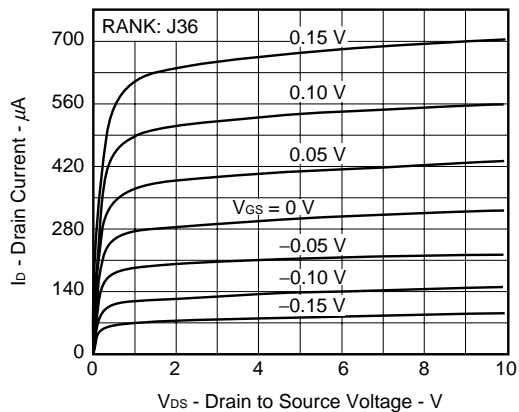
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



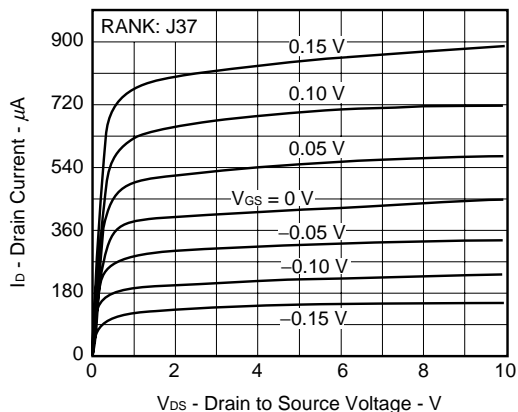
DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



DRAIN CURRENT vs.
DRAIN TO SOURCE VOLTAGE



[MEMO]

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"Special": Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

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