

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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Not recommended
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MOS FIELD EFFECT TRANSISTOR
2SJ205

**P-CHANNEL MOS FET
 FOR SWITCHING**

DESCRIPTION

The 2SJ205, P-channel vertical type MOS FET, is a switching device which can be driven by 3 V power supply.

As the MOS FET is driven by low voltage and does not require consideration of driving current, it is suitable for appliances including VCR cameras and headphone stereos which need power saving.

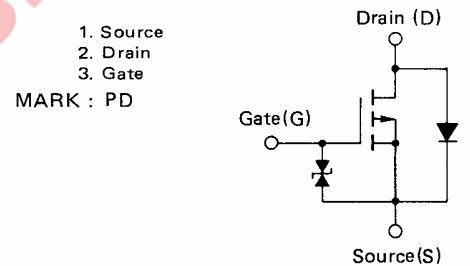
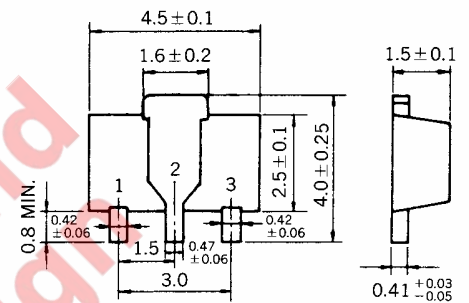
FEATURES

- Directly driven by ICs having a 3 V power supply.
- Not necessary to consider driving current because of its high input impedance.
- Possible to reduce the number of parts by omitting the bias resistor.
- Has low on-state resistance

$$R_{DS(on)} = 5.0 \Omega \text{ MAX. } V_{GS} = -2.5 \text{ V, } I_D = -10 \text{ mA}$$

$$R_{bS(on)} = 3.0 \Omega \text{ MAX. } V_{GS} = -4 \text{ V, } I_D = -0.3 \text{ A}$$

PACKAGE DRAWING (Unit: mm)



(Diode in the figure is the parasitic diode.)

<R> ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

Drain to Source Voltage (VGS = 0 V)	V _{DSS}	-16	V
Gate to Source Voltage (VDS = 0 V)	V _{GSS}	±16	V
Drain Current (DC)	I _{D(DC)}	±500	mA
Drain Current (pulse) ^{Note 1}	I _{D(pulse)}	±1.0	A
Total Power Dissipation ^{Note 2}	P _T	2.0	W
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Notes 1. PW ≤ 10 ms, Duty Cycle ≤ 50%

2. When using ceramic board of 16 cm² × 0.7 mm

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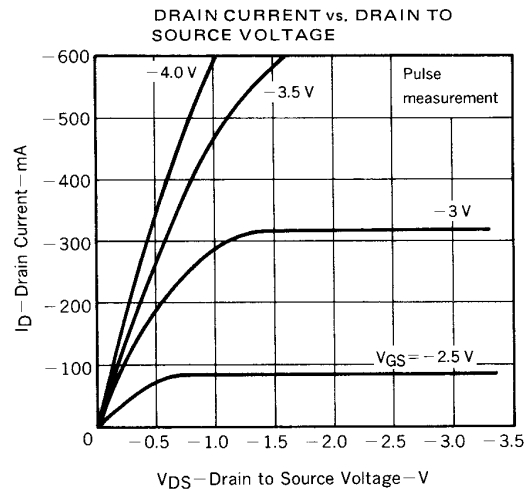
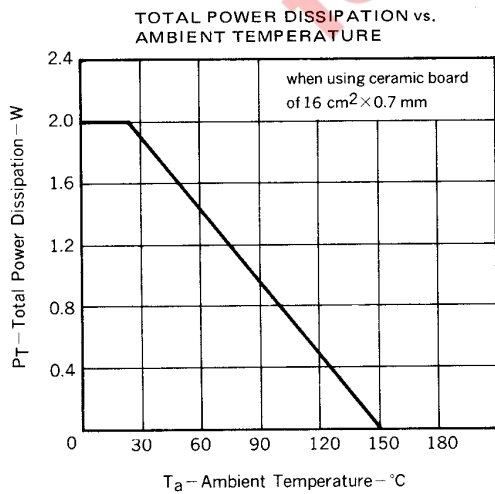
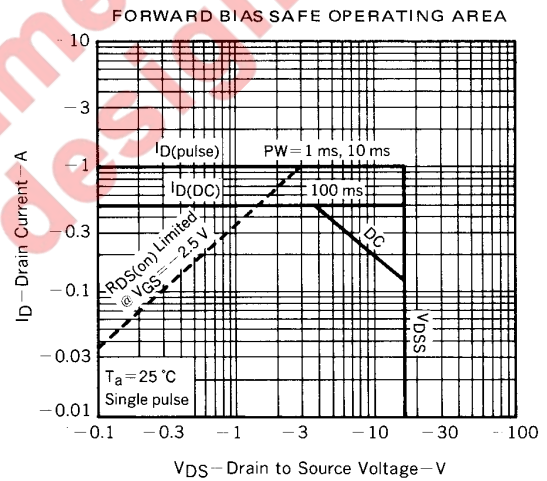
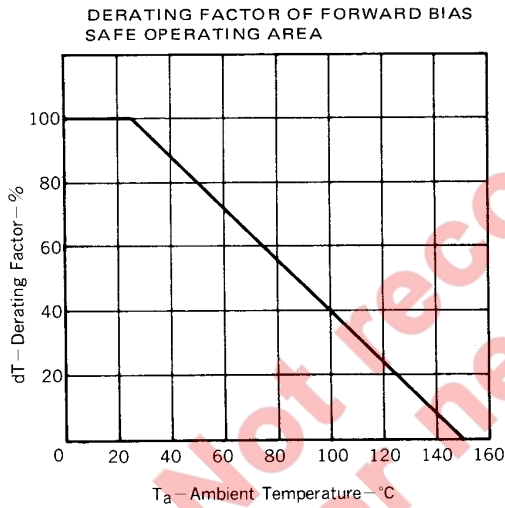
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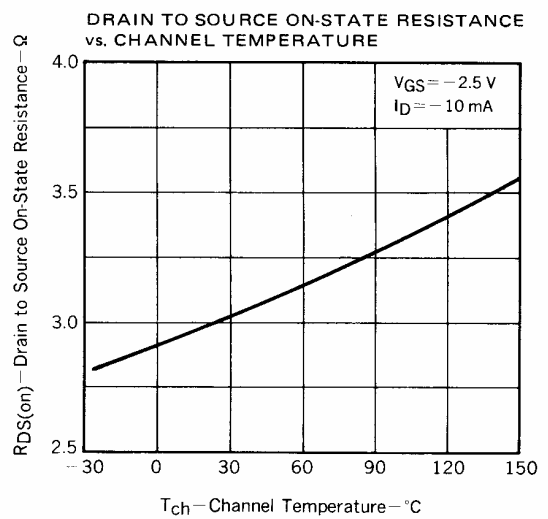
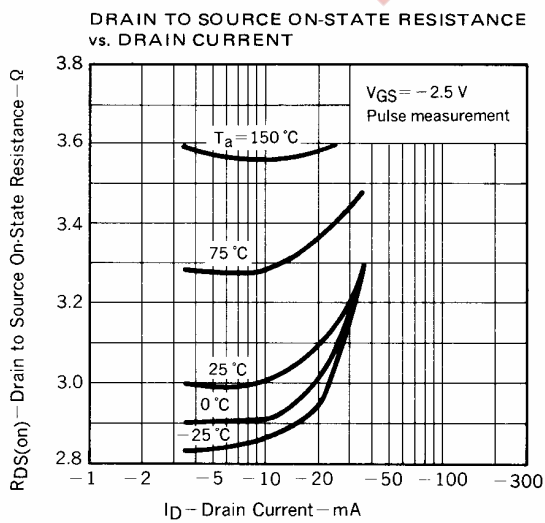
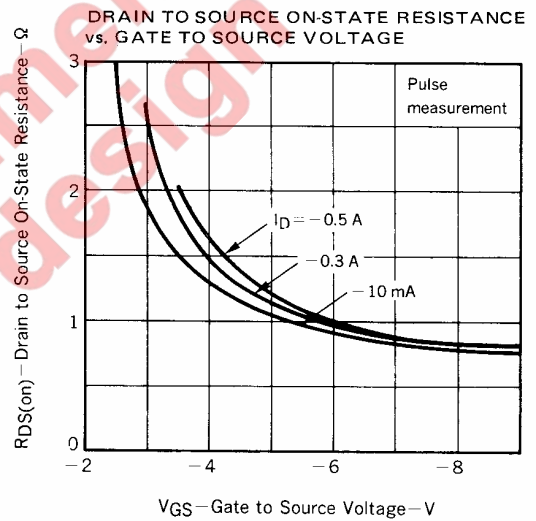
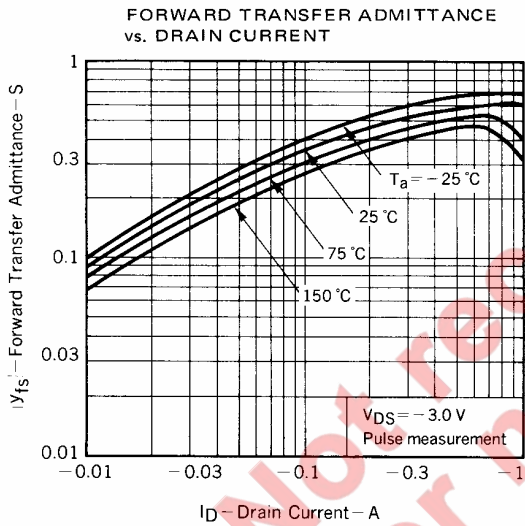
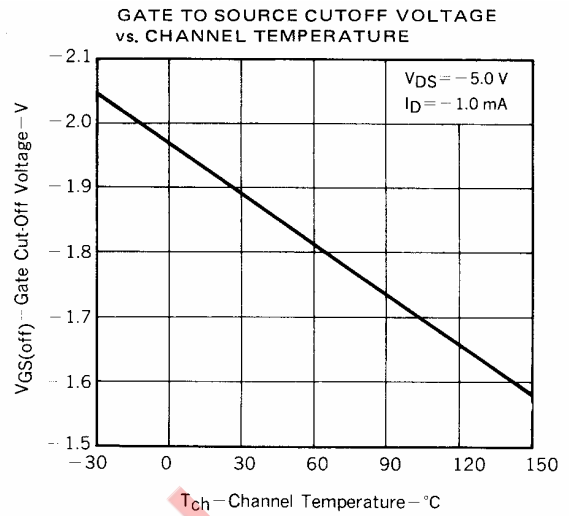
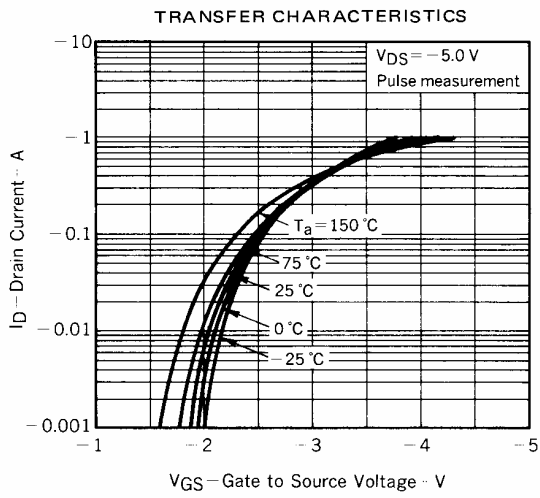
ELECTRICAL CHARACTERISTICS (T_a = 25 °C)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Drain Cut-off Current	I _{DSS}			-1.0	μA	V _{DS} = -16 V, V _{GS} = 0
Gate Leakage Current	I _{GS}			±5	μA	V _{GS} = ±16 V, V _{DS} = 0
Gate Cut-off Voltage	V _{GS(off)}	-1.4	-1.9	-2.4	V	V _{DS} = -5 V, I _D = -10 μA
Forward Transfer Admittance	Y _{fs}	0.4	0.5		S	V _{DS} = -3 V, I _D = -0.3 A
Drain to Source On-State Resistance	R _{DS(on)1}		3.0	5.0	Ω	V _{GS} = -2.5 V, I _D = -10 mA
Drain to Source On-State Resistance	R _{DS(on)2}		1.5	3.0	Ω	V _{GS} = -4 V, I _D = -0.3 A
Input Capacitance	C _{iss}		105		pF	V _{DS} = -3.0 V, V _{GS} = 0, f = 1 MHz
Output Capacitance	C _{oss}		90		pF	
Feedback Capacitance	C _{rss}		15		pF	
Turn-On Delay Time	t _{d(on)}		185		ns	V _{GS(on)} = -3 V, R _G = 10 Ω, V _{DD} = -3 V, I _D = -0.3 A
Rise Time	t _r		900		ns	
Turn-Off Delay Time	t _{d(off)}		40		ns	
Fall Time	t _f		135		ns	

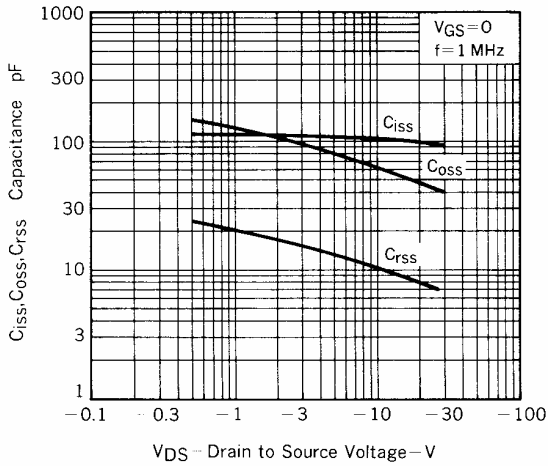
TYPICAL CHARACTERISTICS (T_a = 25 °C)

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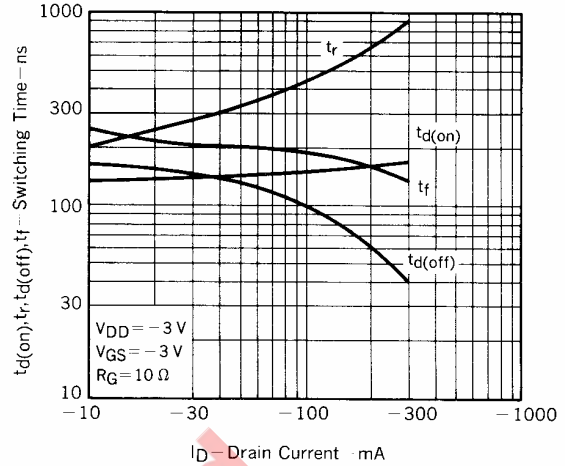




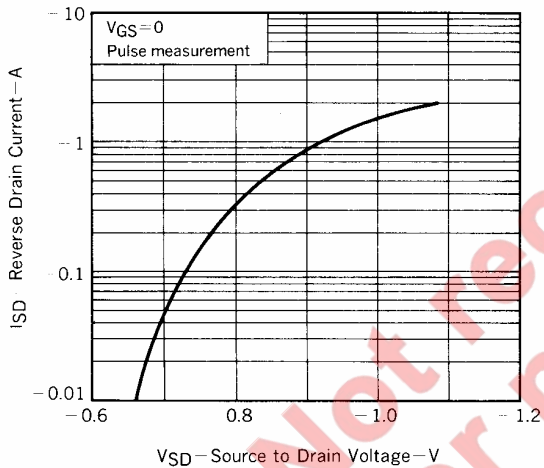
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



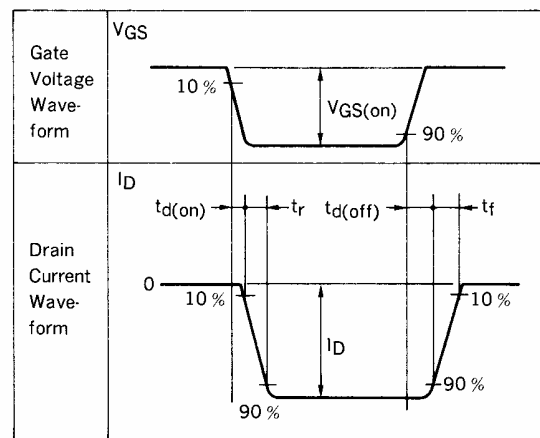
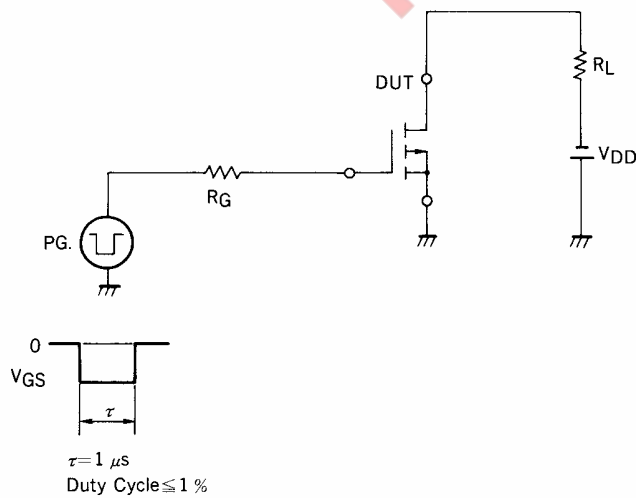
SWITCHING CHARACTERISTICS



SOURCE TO DRAIN DIODE FORWARD VOLTAGE



SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS



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