

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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P-CHANNEL MOSFET
FOR SWITCHING

The 2SJ210, P-channel vertical type MOSFET, is a switching device which can be driven directly by the output of ICs having a 5 V power source.

The 2SJ210 has excellent switching characteristics and is suitable as a high-speed switching device in digital circuits.

FEATURES

- Directly driven by the output of ICs having a 5 V power source.
- Not necessary to consider driving current because of its high input impedance.
- Possible to reduce the number of parts by omitting the bias resistor.

ORDERING INFORMATION

PART NUMBER	PACKAGE
2SJ210	SC-59 (Mini Mold)

Marking: H16

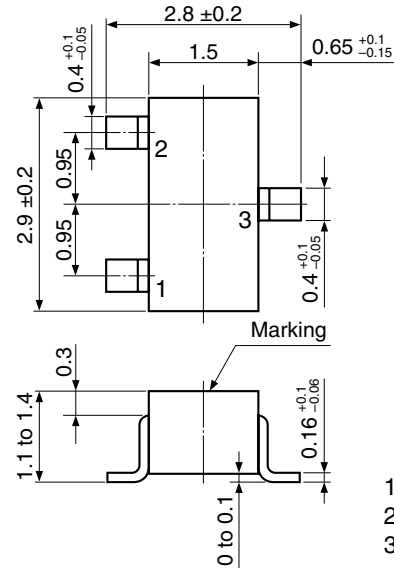
ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Drain to Source Voltage (V _{GS} = 0 V)	V _{DSS}	-60	V
Gate to Source Voltage (V _{DS} = 0 V)	V _{GSS}	±20	V
Drain Current (DC)	I _{D(DC)}	±200	mA
Drain Current (pulse) ^{Note}	I _{D(pulse)}	±400	mA
Total Power Dissipation	P _T	200	mW
Channel Temperature	T _{ch}	150	°C
Storage Temperature	T _{stg}	-55 to +150	°C

Note PW ≤ 10 ms, Duty Cycle ≤ 50%

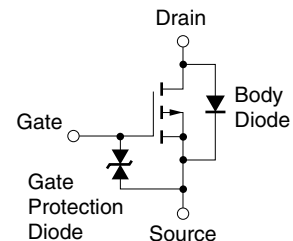
Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

PACKAGE DRAWING (Unit: mm)



1. Source
2. Gate
3. Drain

EQUIVALENT CIRCUIT



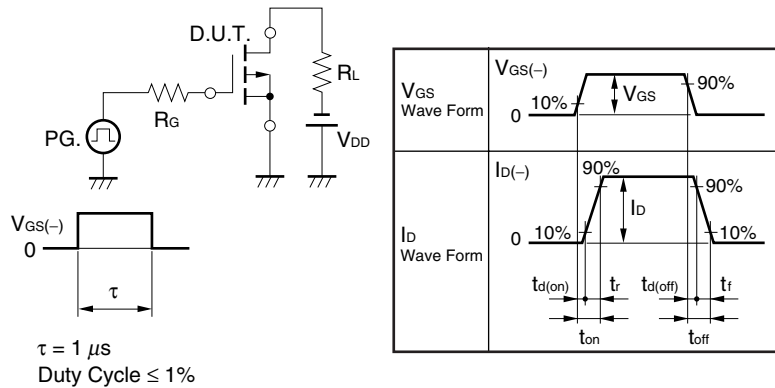
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

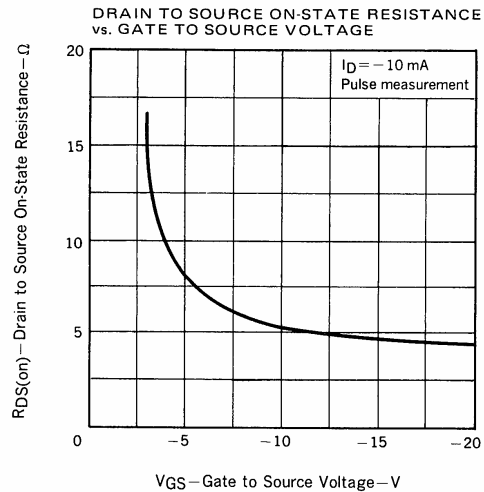
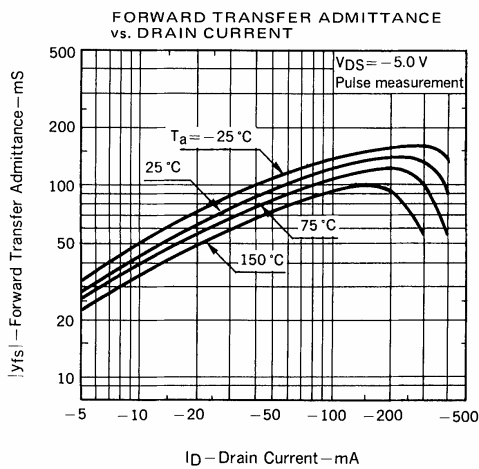
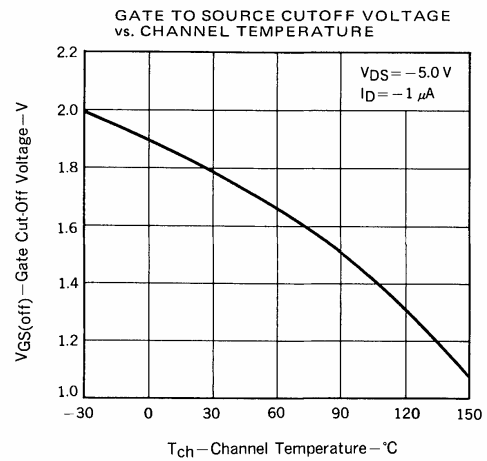
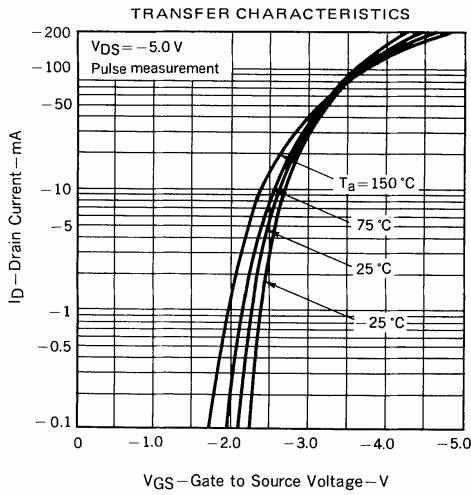
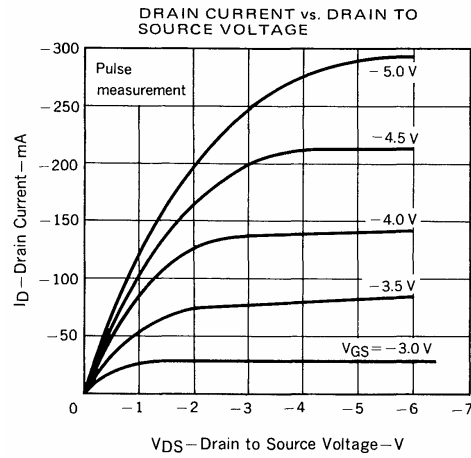
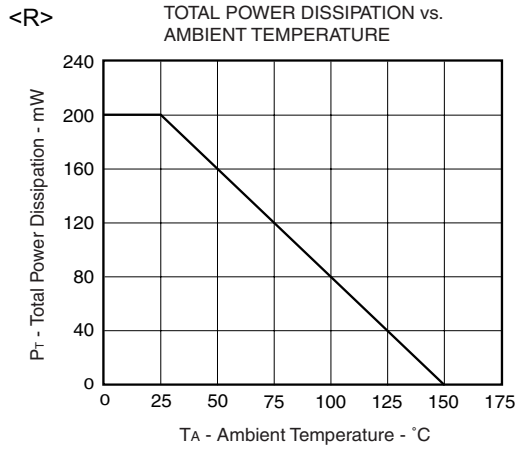
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60\text{ V}, V_{GS} = 0\text{ V}$			-1.0	μA
Gate Leakage Current	I_{GSS}	$V_{GS} = \pm 20\text{ V}, V_{DS} = 0\text{ V}$			∓ 1.0	μA
Gate Cut-off Voltage	$V_{GS(off)}$	$V_{DS} = -5.0\text{ V}, I_D = -1.0\ \mu\text{A}$	-1.4	-1.8	-2.4	V
Forward Transfer Admittance Note	$ y_{fs} $	$V_{DS} = -5.0\text{ V}, I_D = -10\text{ mA}$	20	45		mS
Drain to Source On-state Resistance Note	$R_{DS(on)1}$	$V_{GS} = -4.0\text{ V}, I_D = -10\text{ mA}$		10	15	Ω
	$R_{DS(on)2}$	$V_{GS} = -10\text{ V}, I_D = -10\text{ mA}$		6	10	Ω
Input Capacitance	C_{iss}	$V_{DS} = -5.0\text{ V}$		27		pF
Output Capacitance	C_{oss}	$V_{GS} = 0\text{ V}$		21		pF
Reverse Transfer Capacitance	C_{rss}	$f = 1\text{ MHz}$		3		pF
Turn-on Delay Time	$t_{d(on)}$	$V_{GS} = -4.0\text{ V}, R_G = 10\ \Omega$		120		ns
Rise Time	t_r	$V_{DD} = -5.0\text{ V}$		190		ns
Turn-off Delay Time	$t_{d(off)}$	$I_D = -10\text{ mA}$		150		ns
Fall Time	t_f			180		ns

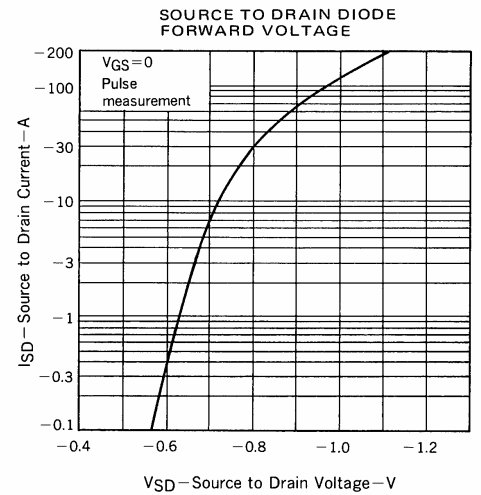
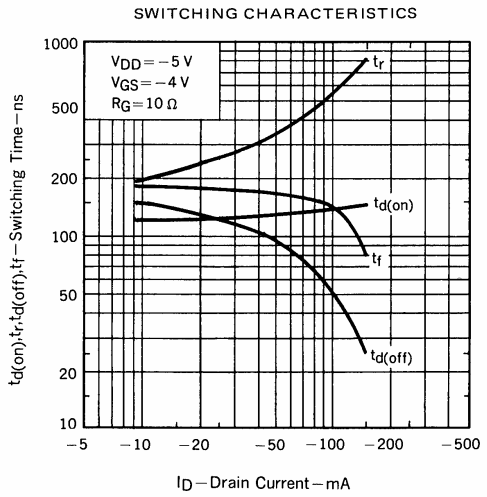
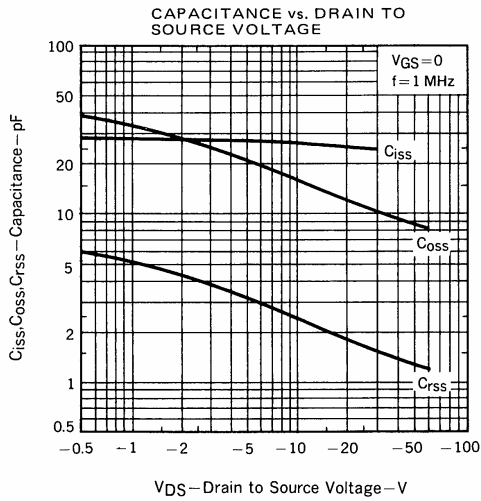
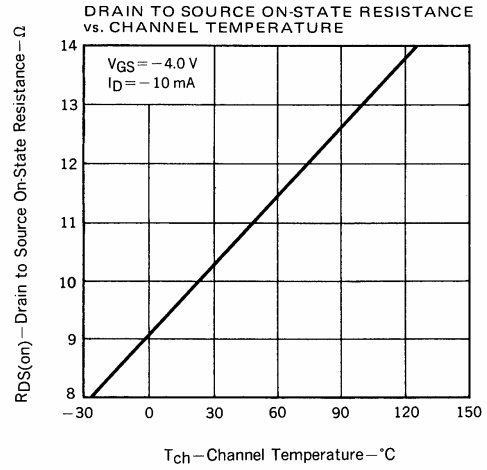
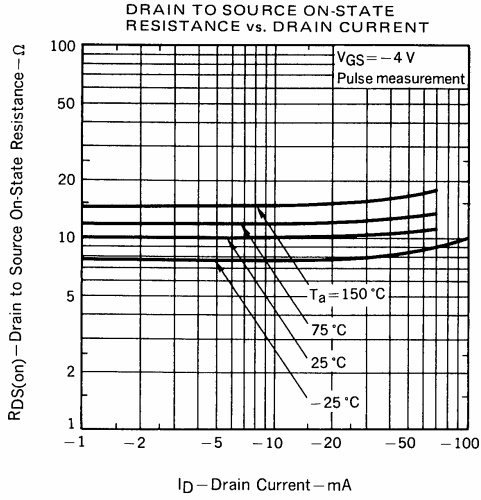
<R> **Note** Pulsed

TEST CIRCUIT SWITCHING TIME



TYPICAL CHARACTERISTICS (TA = 25°C)





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