

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
for new design

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P-CHANNEL MOSFET
FOR SWITCHING

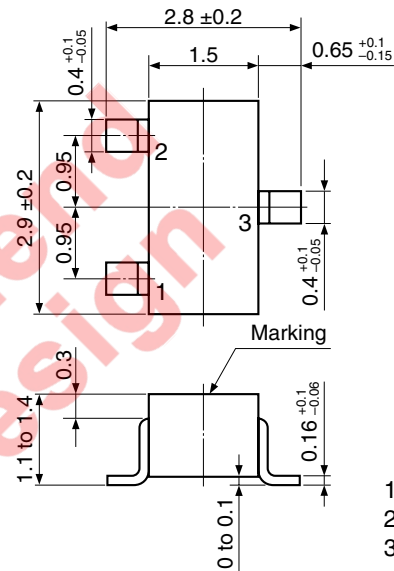
The 2SJ211, P-channel vertical type MOSFET, is a switching device which can be driven directly by the output of ICs having a 5 V power source.

The 2SJ211 has low on-state resistance and excellent switching characteristics, it is suitable for driving actuators such as motors, relays, and solenoids.

FEATURES

- Directly driven by ICs having a 5 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.

PACKAGE DRAWING (Unit: mm)



1. Source
2. Gate
3. Drain

ORDERING INFORMATION

| PART NUMBER | PACKAGE |
|-------------|-------------------|
| 2SJ211 | SC-59 (Mini Mold) |

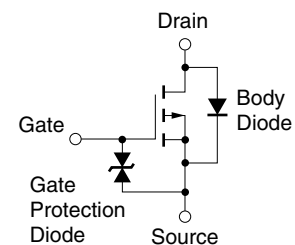
Marking: H18

ABSOLUTE MAXIMUM RATINGS (TA = 25°C)

| | | | |
|---------------------------------------|-----------------------|-------------|----|
| Drain to Source Voltage (VGS = 0 V) | V _{DSS} | -100 | V |
| Gate to Source Voltage (VDS = 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%

EQUIVALENT CIRCUIT



<R>

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.

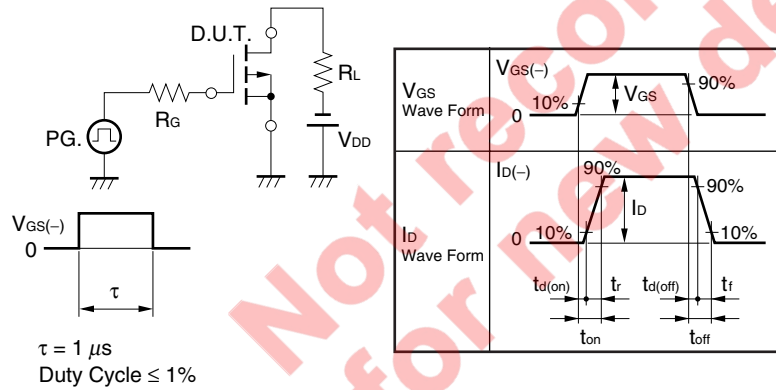
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ELECTRICAL CHARACTERISTICS (Ta = 25°C)

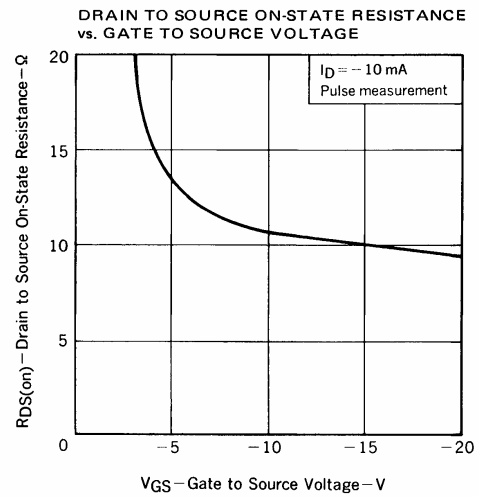
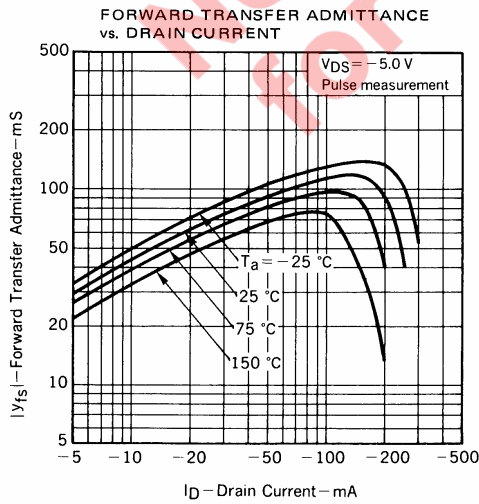
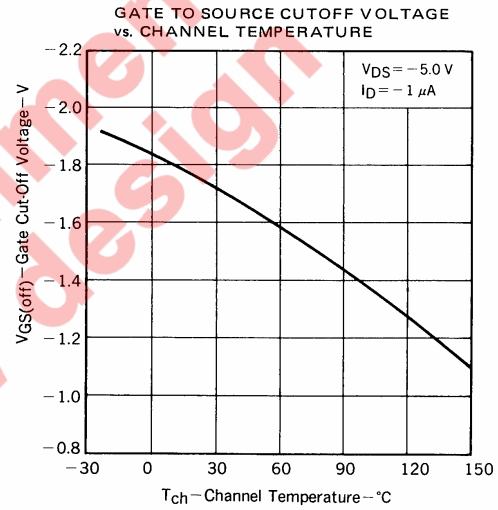
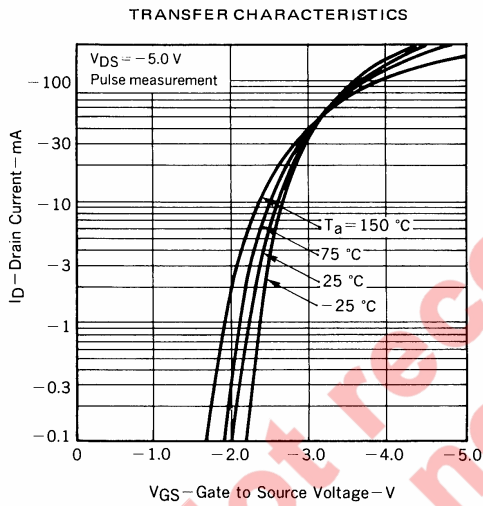
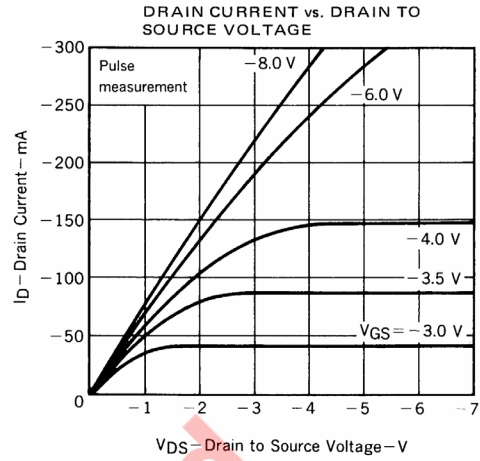
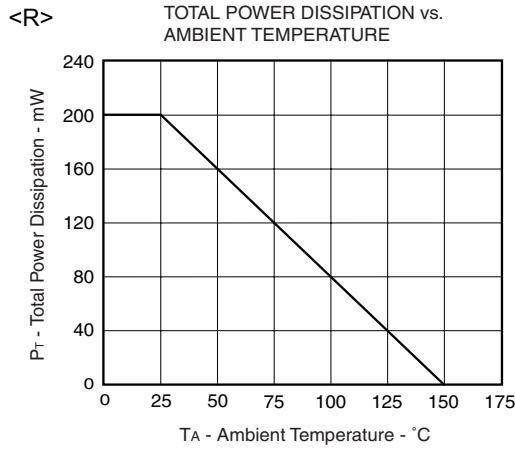
| CHARACTERISTICS | SYMBOL | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---|---------------|-----------------------------------|------|------|-----------|----------|
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -100V, V_{GS} = 0V$ | | | -1.0 | μA |
| Gate Leakage Current | I_{GSS} | $V_{GS} = \mp 20V, V_{DS} = 0V$ | | | ∓ 1.0 | μA |
| Gate Cut-off Voltage | $V_{GS(off)}$ | $V_{DS} = -5.0V, I_D = -1.0\mu A$ | -1.4 | -1.8 | -2.4 | V |
| Forward Transfer Admittance Note | $ y_{fs} $ | $V_{DS} = -5.0V, I_D = -10mA$ | 20 | 45 | | mS |
| Drain to Source On-state Resistance Note | $R_{DS(on)1}$ | $V_{GS} = -4.0V, I_D = -10mA$ | | 15 | 30 | Ω |
| | $R_{DS(on)2}$ | $V_{GS} = -10V, I_D = -10mA$ | | 11 | 20 | Ω |
| Input Capacitance | C_{iss} | $V_{DS} = -5.0V$ | | 27 | | pF |
| Output Capacitance | C_{oss} | $V_{GS} = 0V$ | | 16 | | pF |
| Reverse Transfer Capacitance | C_{rss} | $f = 1MHz$ | | 2 | | pF |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{GS} = -4.0V, R_G = 10\Omega$ | | 110 | | ns |
| Rise Time | t_r | $V_{DD} = -5.0V$ | | 150 | | ns |
| Turn-off Delay Time | $t_{d(off)}$ | $I_D = -10mA$ | | 160 | | ns |
| Fall Time | t_f | | | 150 | | ns |

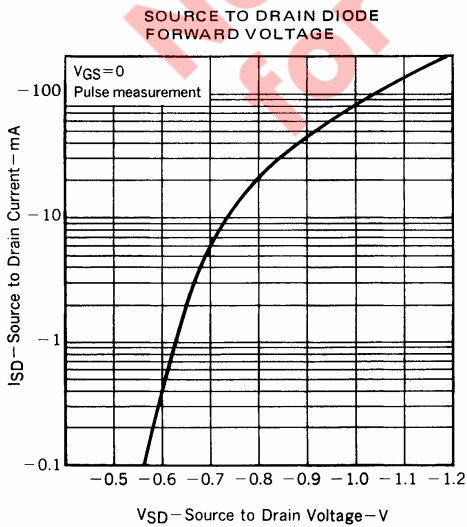
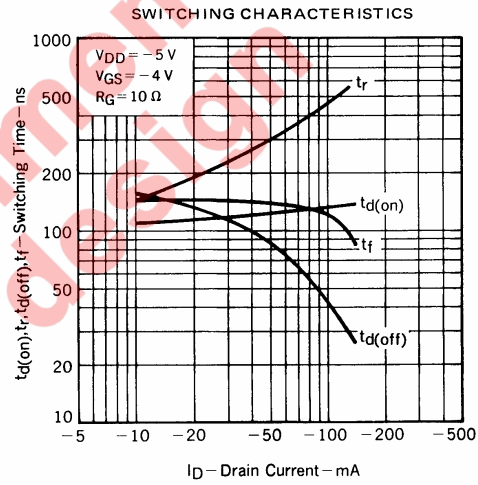
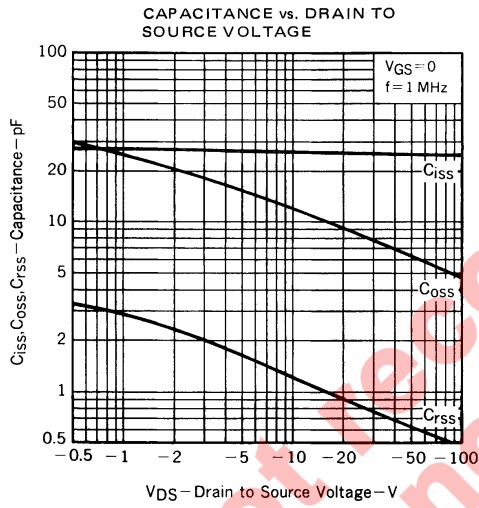
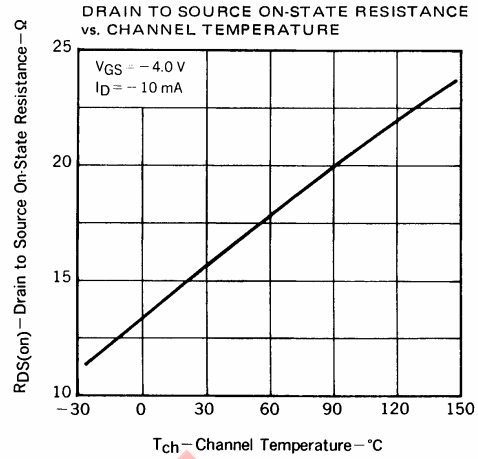
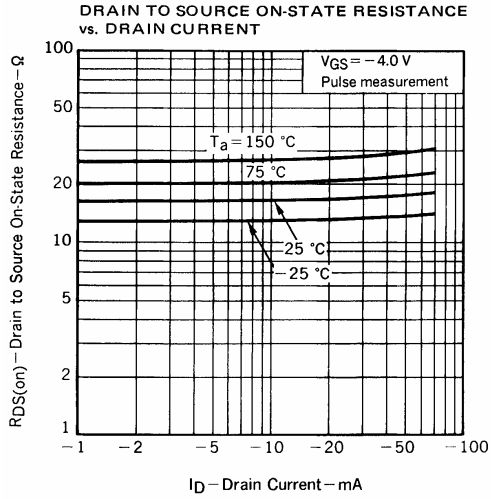
<R> **Note** Pulsed

TEST CIRCUIT SWITCHING TIME



TYPICAL CHARACTERISTICS (T_A = 25°C)





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