

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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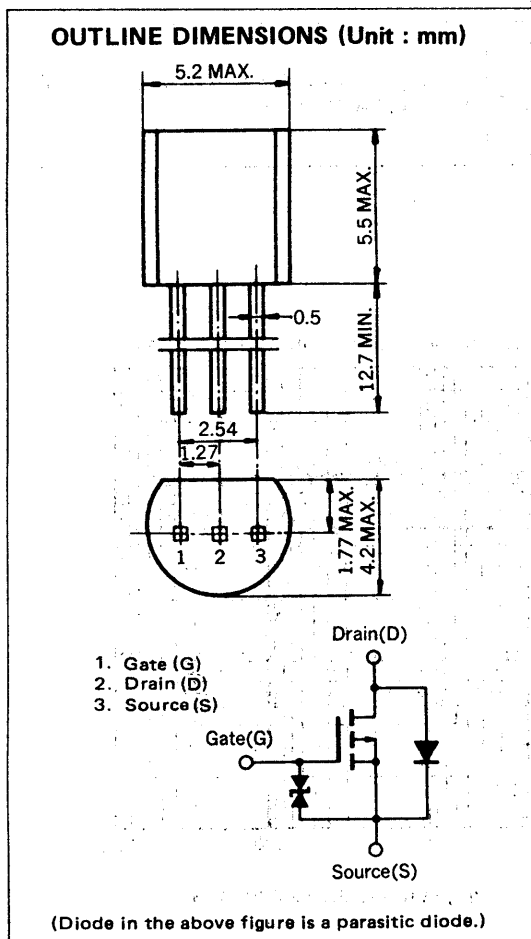
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Phase-out/Discontinued

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P-CHANNEL MOS FET
 FOR SWITCHING



The 2SJ198 is a p-channel vertical type MOS FET switching device which can be directly driven from an IC operating with a 5 V single power supply. The device featuring low ON-state resistance is of the voltage drive type and thus is ideal for driving actuators such as motors, solenoids, and relays.

FEATURES

- Low ON-state resistance
 $R_{DS(on)} = 2.5 \Omega \text{ MAX. at } V_{GS} = -4 \text{ V, } I_D = -0.5 \text{ A}$
 $R_{DS(on)} = 2.0 \Omega \text{ MAX. at } V_{GS} = -10 \text{ V, } I_D = -0.5 \text{ A}$
- Voltage drive at logic level ($V_{GS} = -4 \text{ V}$) is possible.
- Bidirectional zener diode for protection is incorporated in between the Gate and the Source.
- Inductive loads can be driven without protective circuit thanks to the improved breakdown voltage between the Drain and Source.
- Complementary to 2SK1484

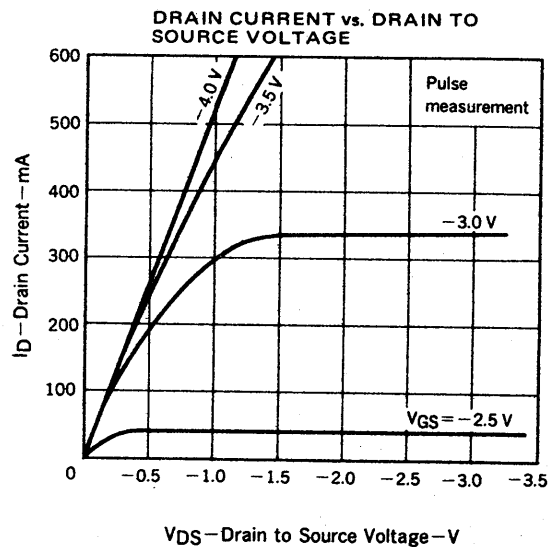
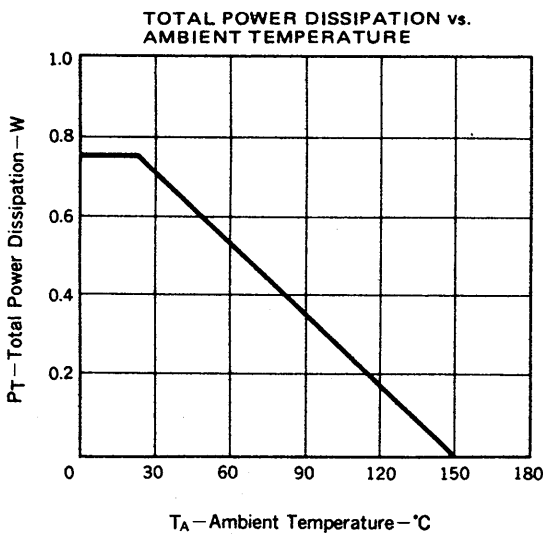
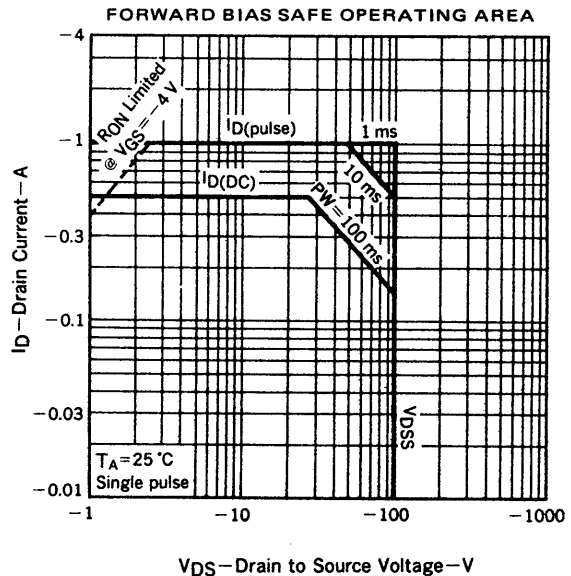
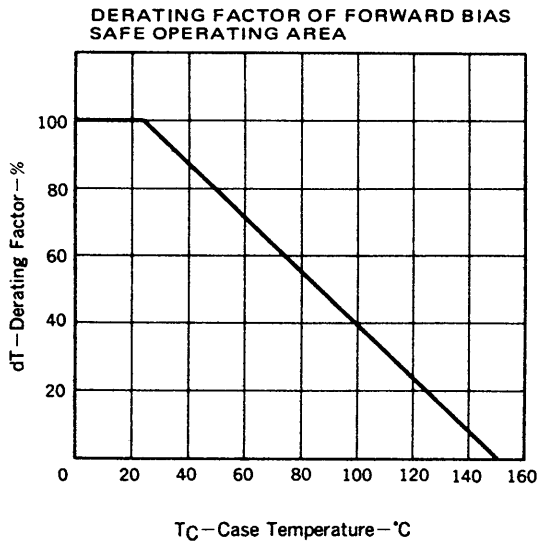
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

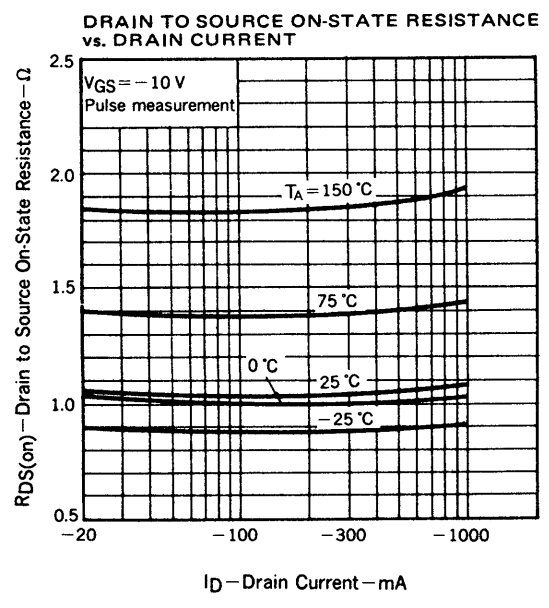
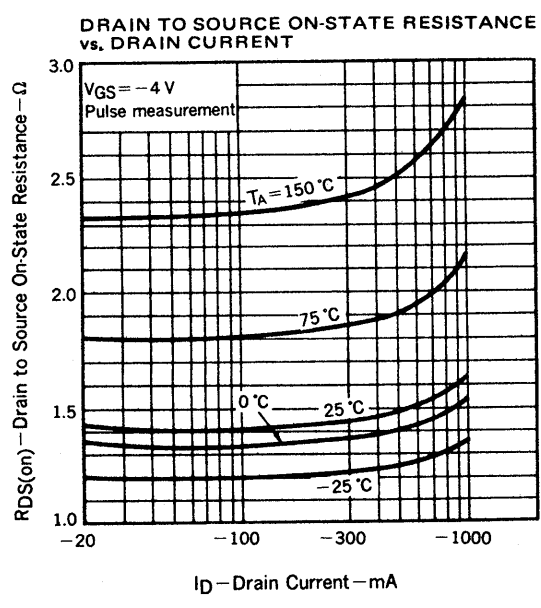
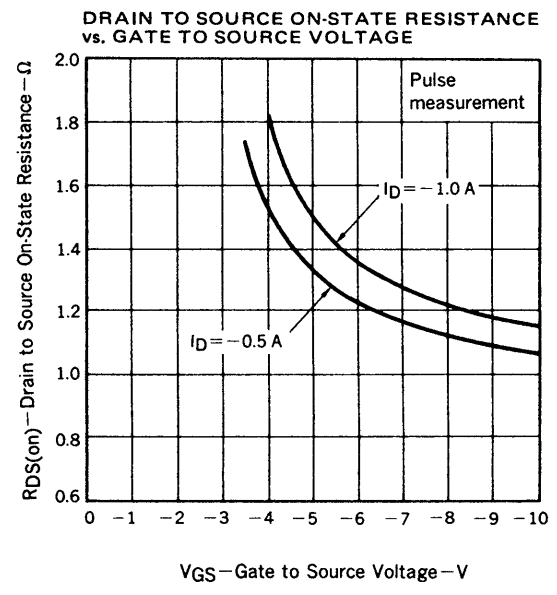
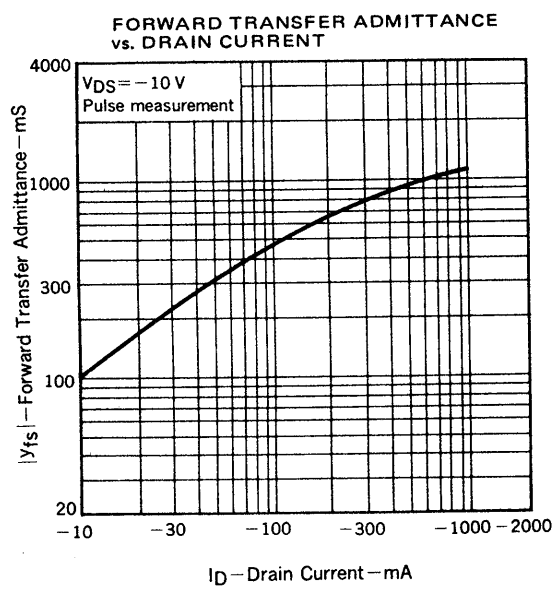
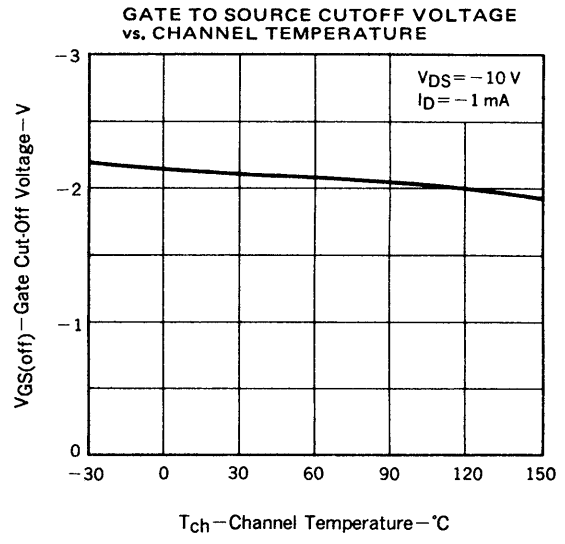
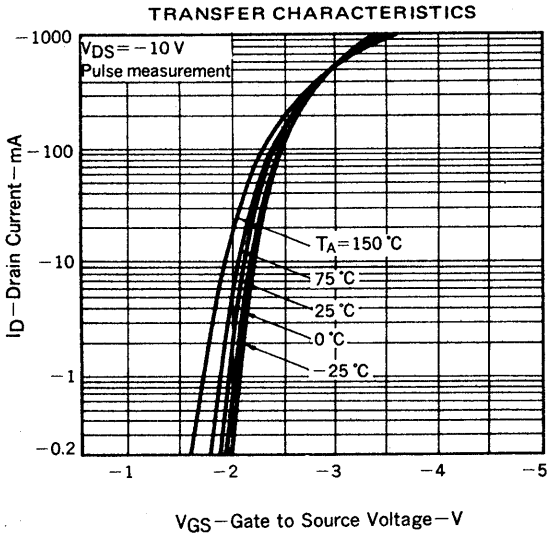
CHARACTERISTIC	SYMBOL	RATINGS	UNIT	TEST CONDITIONS
Drain to Source Voltage	V_{DSS}	-100	V	$V_{GS} = 0$
Gate to Source Voltage	V_{GSS}	± 20	V	$V_{DS} = 0$
Drain Current (DC)	$I_D(\text{DC})$	± 0.5	A	
Drain Current (pulse)	$I_D(\text{pulse})$	± 1.0	A	$PW \leq 10 \text{ ms, Duty Cycle} \leq 50 \%$
Total Power Dissipation	P_T	750	mW	
Channel Temperature	T_{ch}	150	$^\circ\text{C}$	
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$	

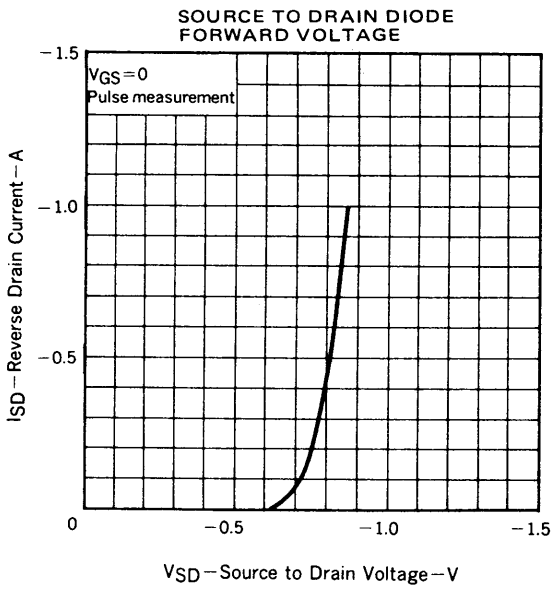
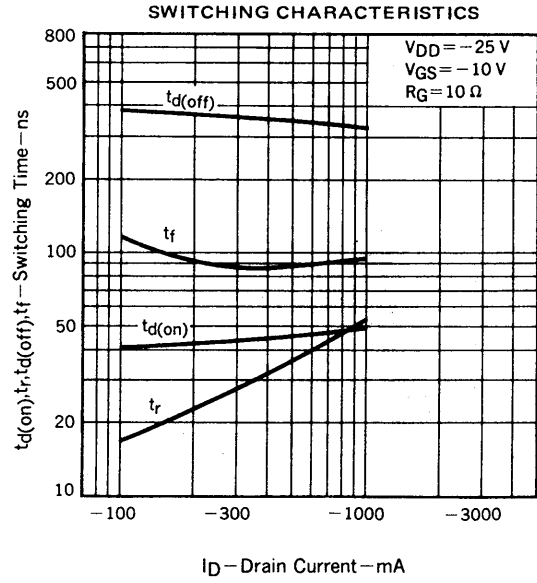
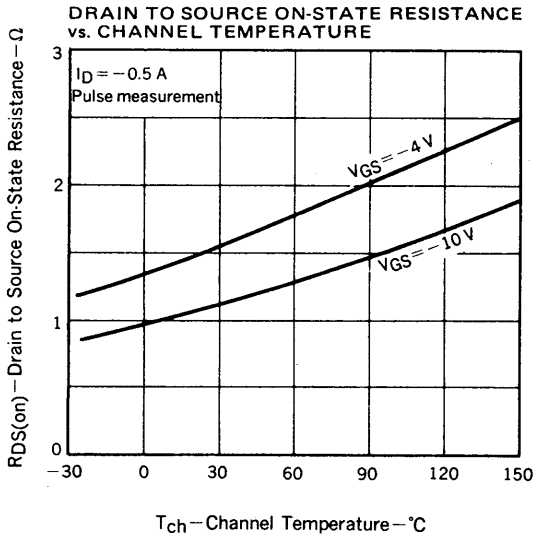
ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
Drain Cut-off Current	I _{DSS}			-10	μA	V _{DS} = -100 V, V _{GS} = 0
Gate Leakage Current	I _{GSS}			±10	μA	V _{GS} = ±20 V, V _{DS} = 0
Gate Cut-off Voltage	V _{GS(off)}	-1.0	-2.1	-3.0	V	V _{DS} = -10 V, I _D = -1 mA
Forward Transfer Admittance	y _{fs}	0.4	0.9		S	V _{DS} = -10 V, I _D = -0.5 A
Drain to Source On-State Resistance	R _{DS(on)1}		1.5	2.5	Ω	V _{GS} = -4.0 V, I _D = -0.5 A
Drain to Source On-State Resistance	R _{DS(on)2}		1.1	2.0	Ω	V _{GS} = -10 V, I _D = -0.5 A
Input Capacitance	C _{iss}		220		pF	V _{DS} = -10 V, V _{GS} = 0, f = 1 MHz
Output Capacitance	C _{oss}		85		pF	
Feedback Capacitance	C _{rss}		8		pF	
Turn-On Delay Time	t _{d(on)}		45		ns	V _{GS(on)} = -10 V, R _G = 10 Ω, V _{DD} = -25 V, I _D = -0.5 A, R _L = 50 Ω
Rise Time	t _r		36		ns	
Turn-Off Delay Time	t _{d(off)}		360		ns	
Fall Time	t _f		90		ns	

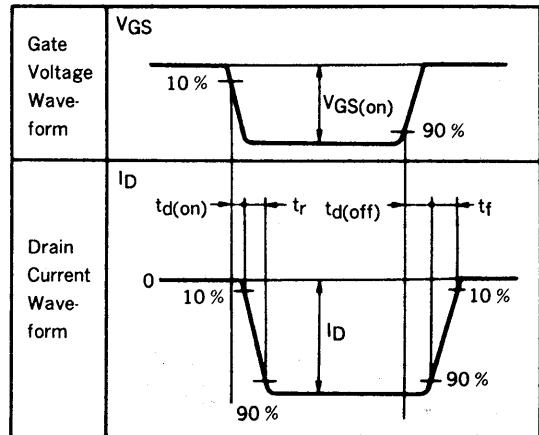
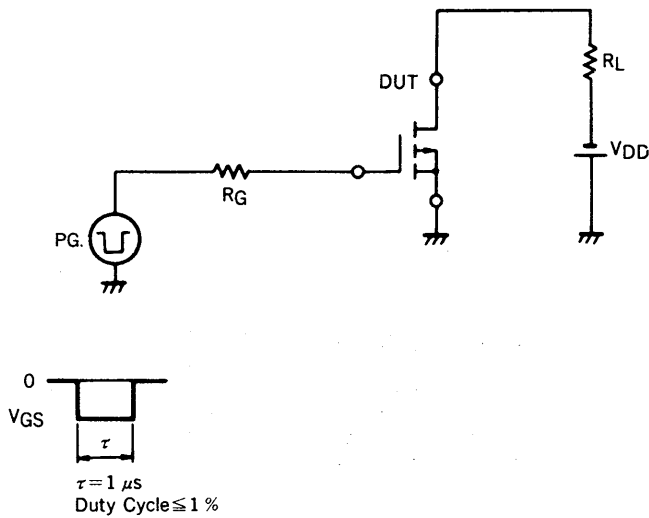
TYPICAL CHARACTERISTICS (T_A = 25 °C)







SWITCHING TIME MEASUREMENT CIRCUIT AND CONDITIONS



RECOMMENDED SOLDERING CONDITIONS

Solder this product under the following recommended conditions.

For soldering methods or soldering conditions other than those recommended in the table, please consult our NEC salespeople.

Insert type

Soldering method	Soldering conditions	Recommended condition code
Wave soldering	Solder bath temperature: 260 °C max. Soldering time: 10 sec max.	

[MEMO]

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Standard: Computers, office equipment, communications equipment, test and measurement equipment, audio and visual equipment, home electronic appliances, machine tools, personal electronic equipment and industrial robots

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)

Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

The quality grade of NEC devices is "Standard" unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact an NEC sales representative in advance.

Anti-radioactive design is not implemented in this product.