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Renesas Technology Corp.
Customer Support Dept.
April 1, 2003

Cautions

Keep safety first in your circuit designs!

1. Renesas Technology Corporation puts the maximum effort into making semiconductor products better and more reliable, but there is always the possibility that trouble may occur with them. Trouble with semiconductors may lead to personal injury, fire or property damage.

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2SJ386

Silicon P-Channel MOS FET

RENESAS

ADE-208-1195 (Z)

1st. Edition

Mar. 2001

Application

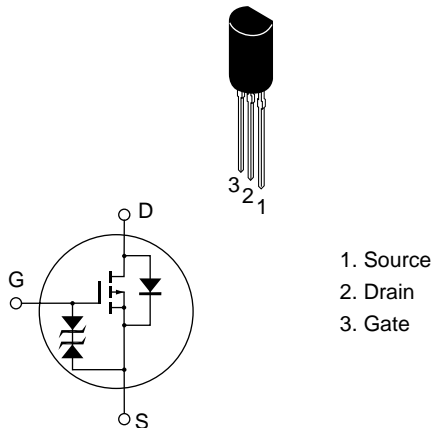
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source
- Suitable for Switching regulator, DC - DC converter

Outline

TO-92 Mod



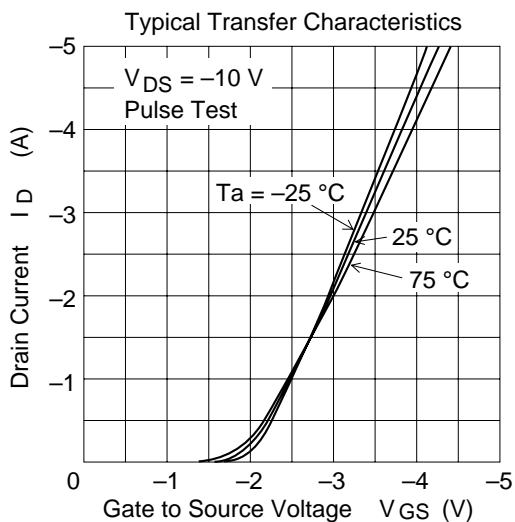
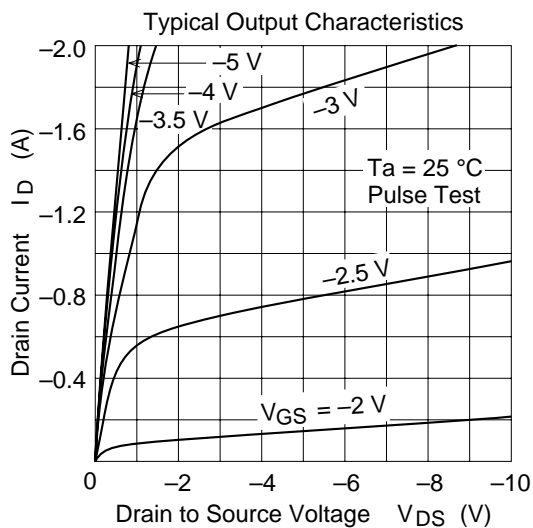
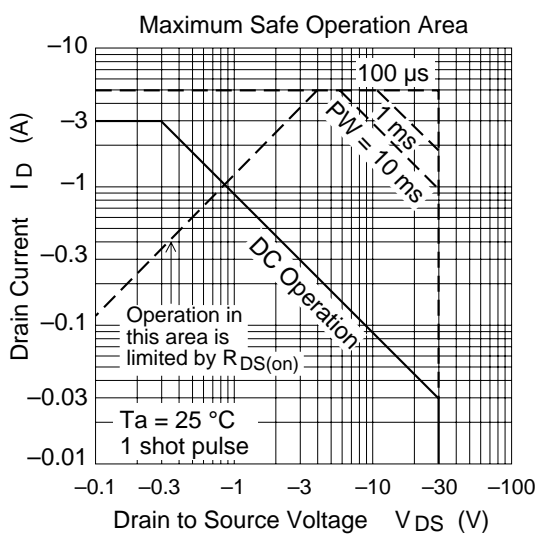
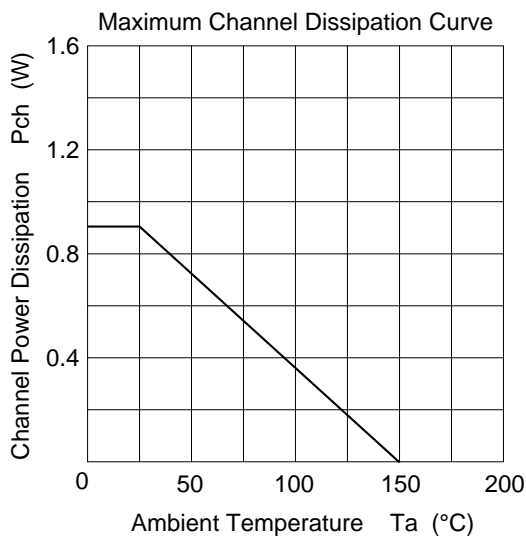
Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	-3	A
Drain peak current	$I_{D(pulse)}^{*1}$	-5	A
Body to drain diode reverse drain current	I_{DR}	-3	A
Channel dissipation	Pch	0.9	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

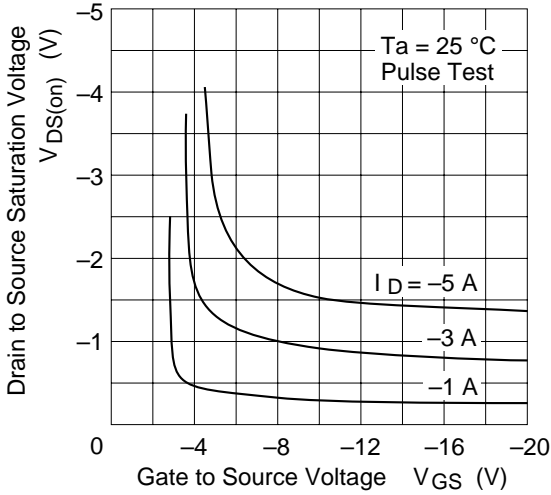
Note: 1. PW ≤ 10 μs, duty cycle ≤ 1 %

Electrical Characteristics (Ta = 25°C)

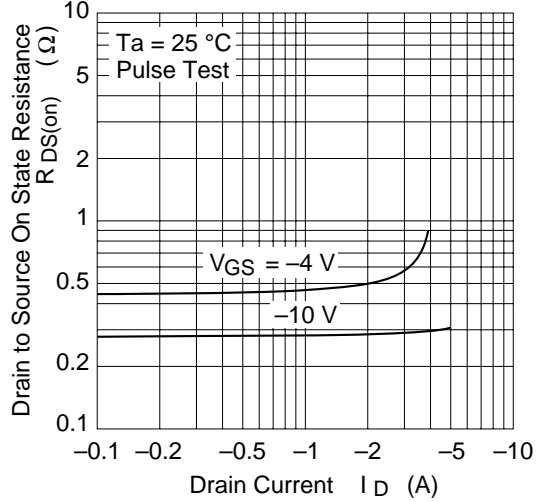
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10$ mA, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = ±100$ μA, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±10	μA	$V_{GS} = ±16$ V, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-10	μA	$V_{DS} = -24$ V, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.5	V	$I_D = -1$ mA, $V_{DS} = -10$ V
Static drain to source on state resistance	$R_{DS(on)}$	—	0.3	0.4	Ω	$I_D = -2$ A $V_{GS} = -10$ V*1
		—	0.55	0.8	Ω	$I_D = -2$ A $V_{GS} = -4$ V*1
Forward transfer admittance	$ y_{fs} $	1.0	1.7	—	S	$I_D = -1$ A $V_{DS} = -10$ V*1
Input capacitance	Ciss	—	177	—	pF	$V_{DS} = -10$ V
Output capacitance	Coss	—	120	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	59	—	pF	f = 1 MHz
Turn-on delay time	$t_{d(on)}$	—	8	—	ns	$I_D = -2$ A
Rise time	t_r	—	28	—	ns	$V_{GS} = -10$ V
Turn-off delay time	$t_{d(off)}$	—	45	—	ns	$R_L = 15$ Ω
Fall time	t_f	—	60	—	ns	



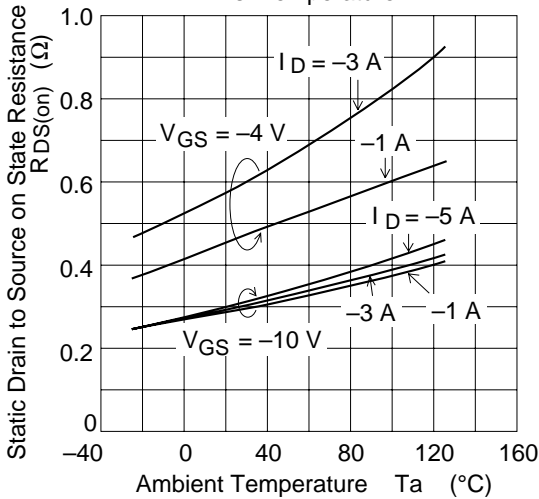
Drain to Source Saturation Voltage vs. Gate to Source Voltage



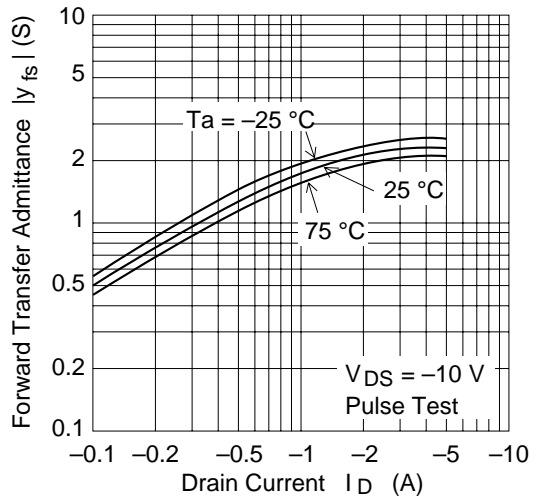
Static Drain to Source on State Resistance vs. Drain Current



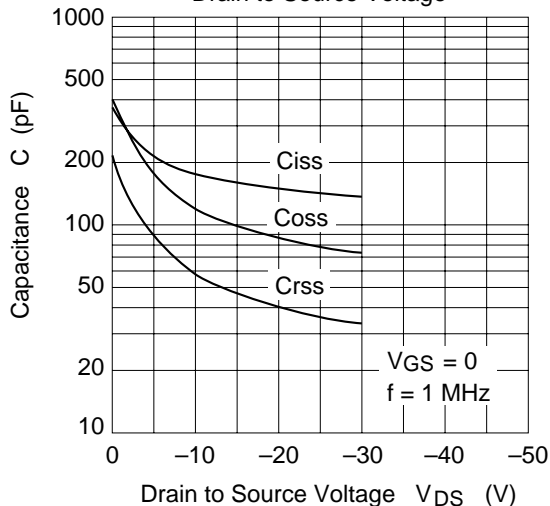
Static Drain to Source on State Resistance vs. Temperature



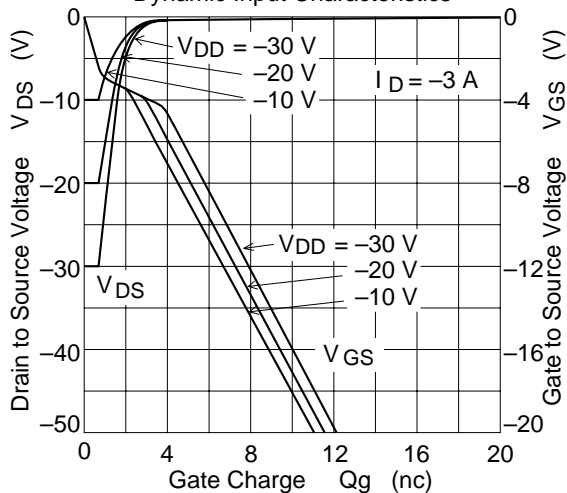
Forward Transfer Admittance vs. Drain Current



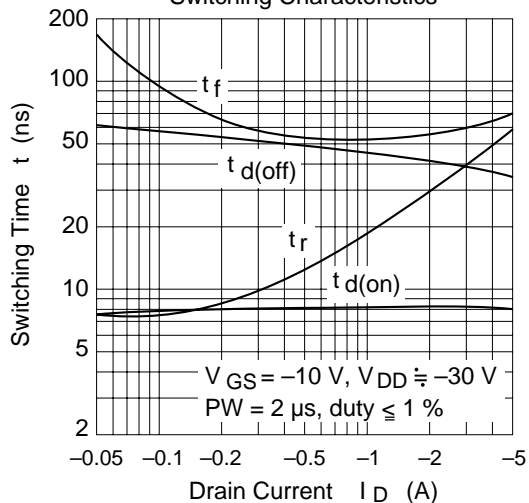
Typical Capacitance vs. Drain to Source Voltage



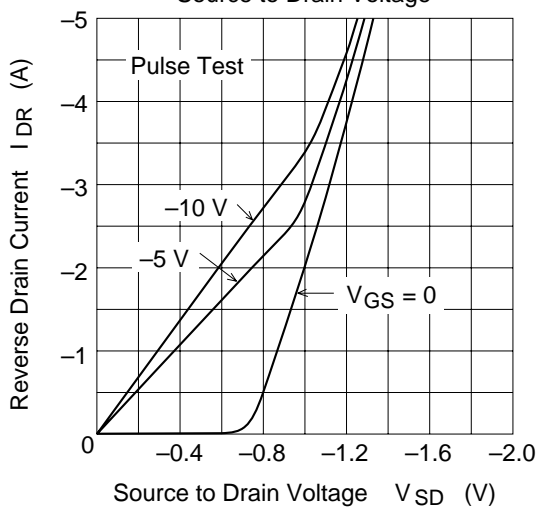
Dynamic Input Characteristics



Switching Characteristics

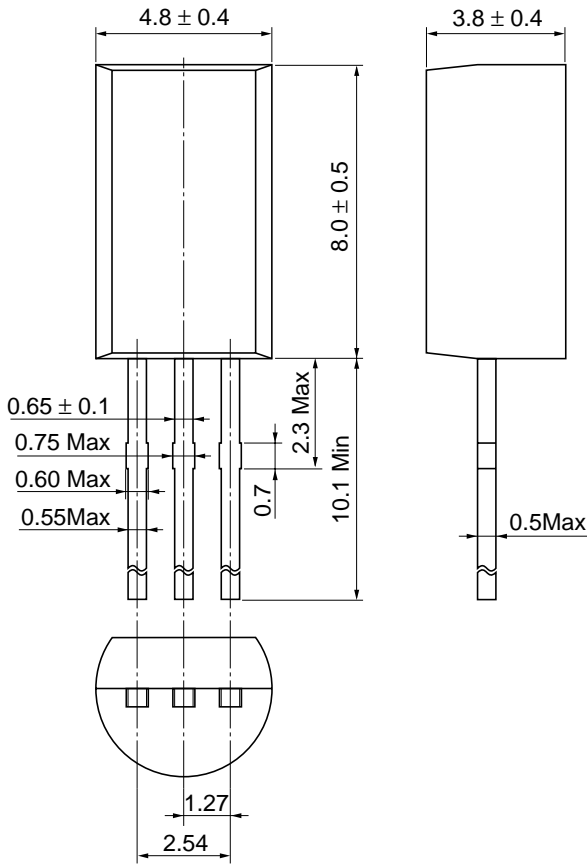


Reverse Drain Current vs. Source to Drain Voltage



Package Dimensions

As of January, 2001
Unit: mm



Hitachi Code	TO-92 Mod
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.35 g

Cautions

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