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

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Keep safety first in your circuit designs!

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2SJ317

Silicon P-Channel MOS FET

RENESAS

ADE-208-1191 (Z)
1st. Edition
Mar. 2001

Application

High speed power switching

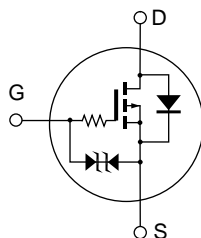
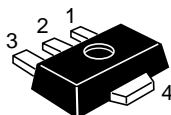
Low voltage operation

Features

- Very low on-resistance
- High speed switching
- Suitable for camera or VTR motor drive circuit, power switch, solenoid drive and etc.

Outline

UPAK



1. Gate
2. Drain
3. Source
4. Drain

Absolute Maximum Ratings (Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	-12	V
Gate to source voltage	V_{GSS}	-7	V
Drain current	I_D	±2	A
Drain peak current	$I_{D(pulse)}^{*1}$	±4	A
Body to drain diode reverse drain current	I_{DR}	2	A
Channel dissipation	P_{ch}^{*2}	1	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 100 \mu s$, duty cycle $\leq 10\%$

2. Value on the alumina ceramic board (12.5×20×0.7 mm).

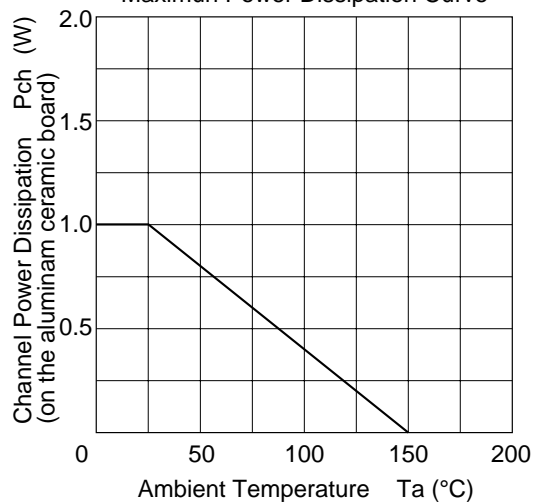
3. Marking is "NY".

Electrical Characteristics (Ta = 25°C)

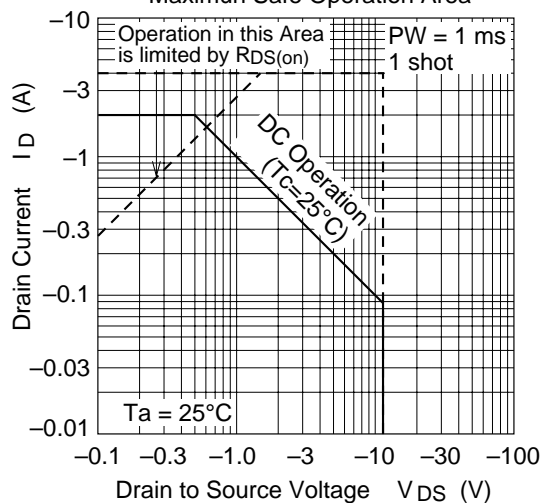
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	-12	—	—	V	$I_D = -1 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±7	—	—	V	$I_G = \pm 10 \mu A$, $V_{DS} = 0$
Gate to source cutoff current	I_{GSS}	—	—	±5	μA	$V_{GS} = \pm 6.5 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	-1	μA	$V_{DS} = -8 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	-0.4	—	-1.4	V	$I_D = -100 \mu A$, $V_{DS} = -5 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)1}$	—	0.4	0.7	Ω	$I_D = -0.5 \text{ A}^{*1}$, $V_{GS} = -2.2 \text{ V}$
	$R_{DS(on)2}$	—	0.28	0.35	Ω	$I_D = -1 \text{ A}^{*1}$, $V_{GS} = -4 \text{ V}$
Forward transfer admittance	$ y_{fs} $	1.0	2.3	—	S	$I_D = -1 \text{ A}^{*1}$, $V_{DS} = -5 \text{ V}$
Input capacitance	C_{iss}	—	63	—	pF	$V_{DS} = -5 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	180	—	pF	
Reverse transfer capacitance	C_{rss}	—	23	—	pF	
Turn-on time	t_{on}	—	500	—	ns	$I_D = -0.2 \text{ A}^{*1}$, $V_{in} = -4 \text{ V}$, $R_L = 51 \Omega$
Turn-off time	t_{off}	—	2860	—	ns	

Note: 1. Pulse test

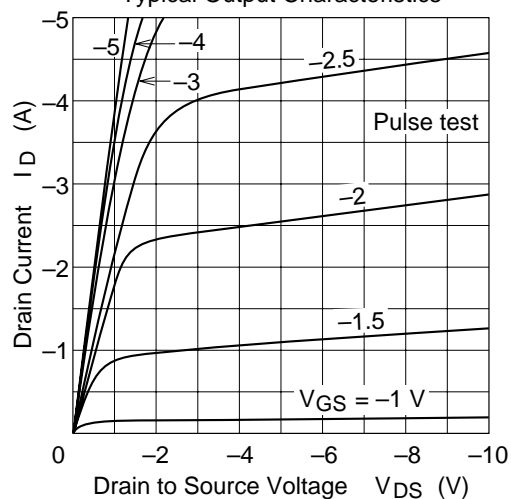
Maximum Power Dissipation Curve



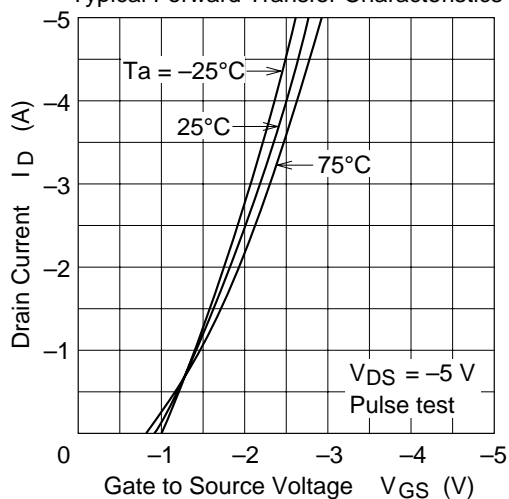
Maximum Safe Operation Area



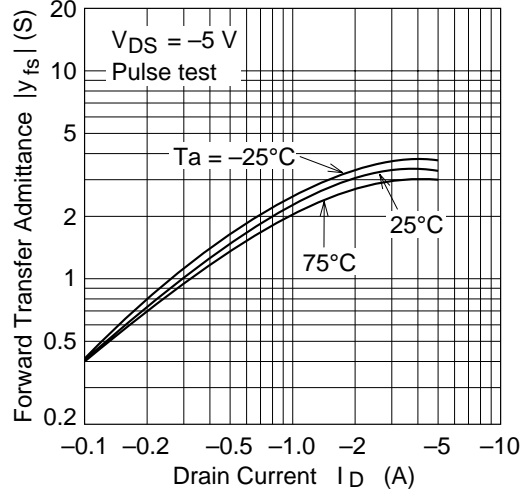
Typical Output Characteristics



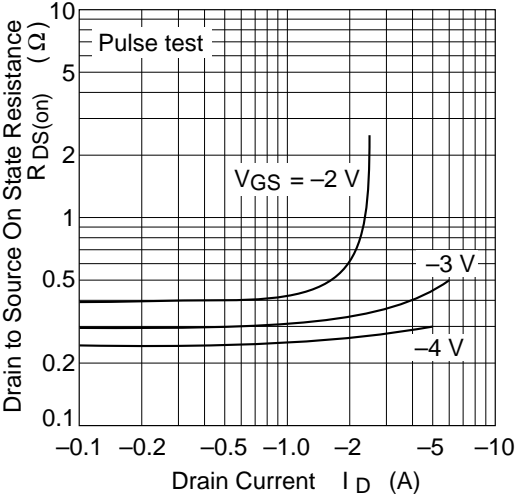
Typical Forward Transfer Characteristics



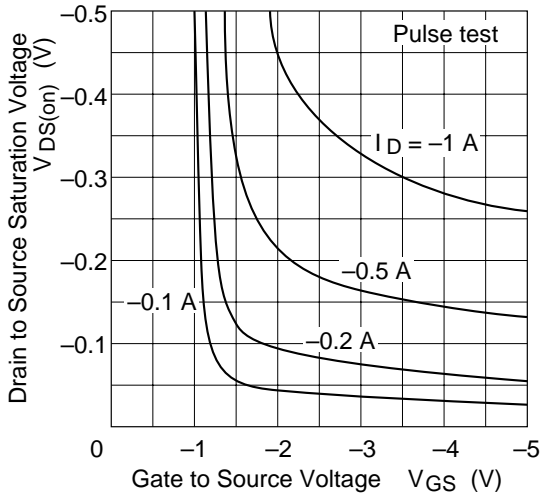
Forward Transfer Admittance vs.
Drain Current



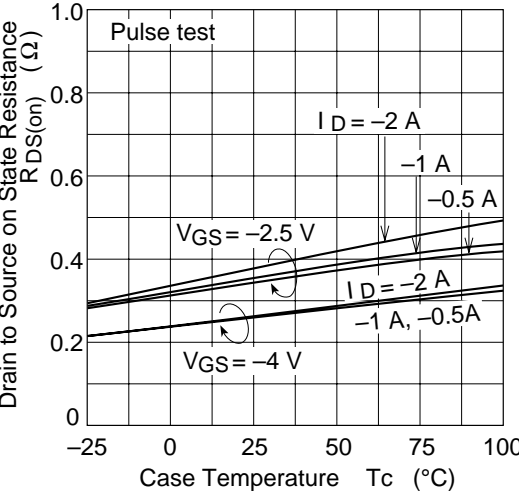
Drain to Source on State Resistance
vs. Drain Current



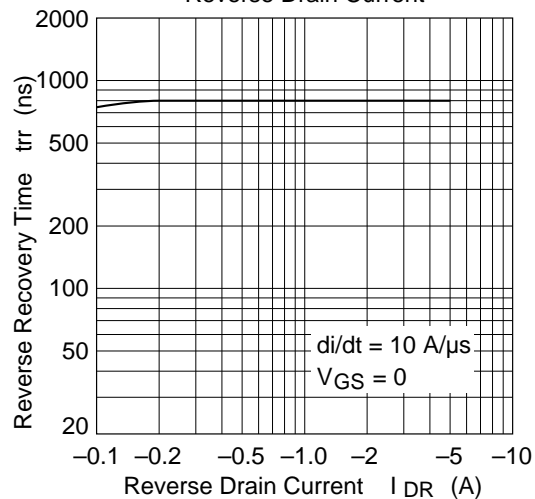
Drain to Source Saturation Voltage
vs. Gate to Source Voltage



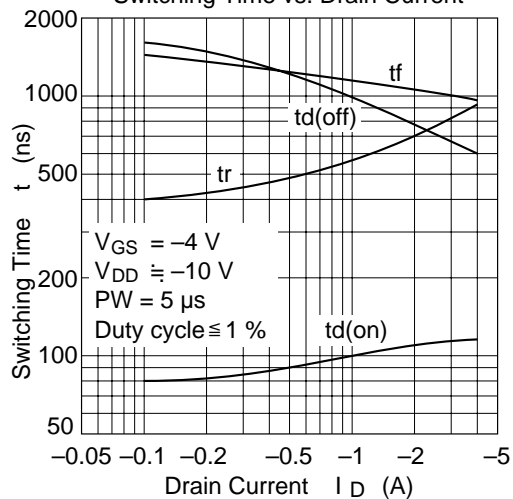
Drain to Source on State Resistance
vs. Case Temperature



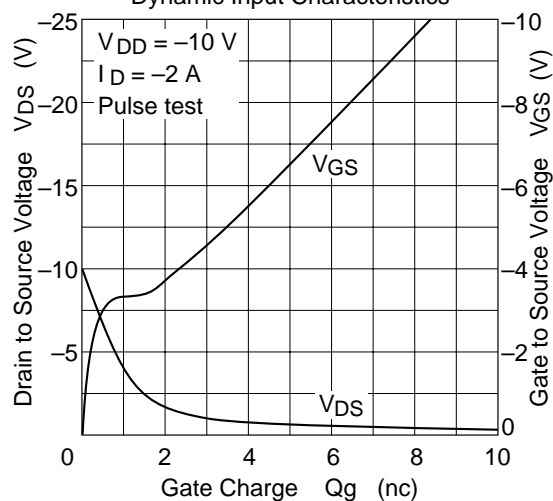
Reverse Recovery Time vs.
Reverse Drain Current



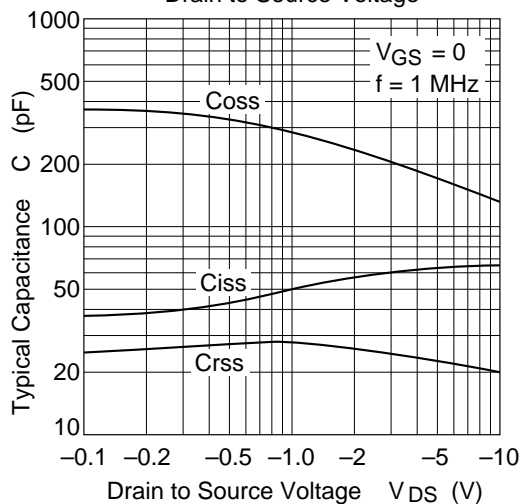
Switching Time vs. Drain Current

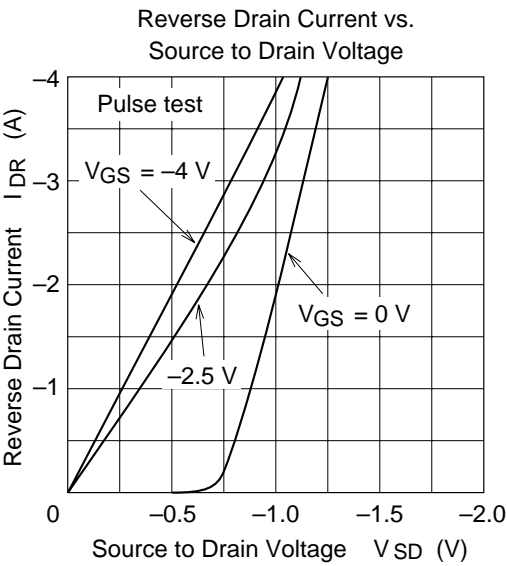


Dynamic Input Characteristics



Typical Capacitance vs.
Drain to Source Voltage

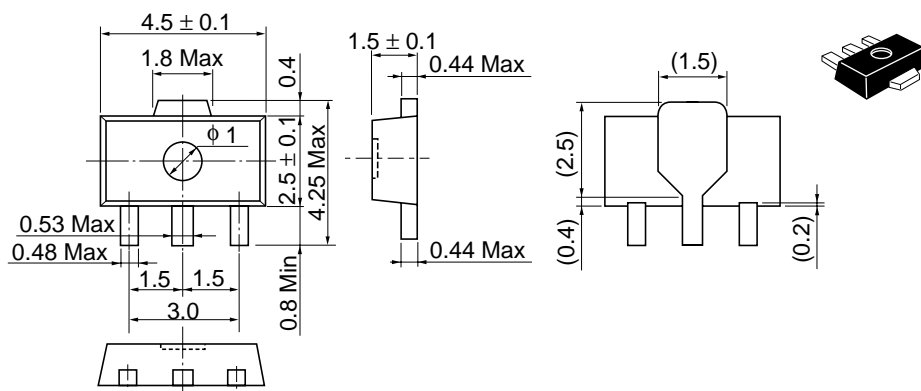




Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	UPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.050 g

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