

To all our customers

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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.

Remember to give due consideration to safety when making your circuit designs, with appropriate measures such as (i) placement of substitutive, auxiliary circuits, (ii) use of nonflammable material or (iii) prevention against any malfunction or mishap.

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2SK2247

Silicon N-Channel MOS FET

RENESAS

ADE-208-1353 (Z)
1st. Edition
Mar. 2001

Application

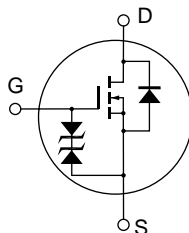
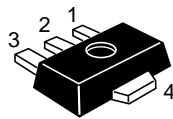
High speed power switching

Features

- Low on-resistance
- High speed switching
- Low drive current
- 4 V gate drive device can be driven from 5 V source.
- Suitable for DC-DC converter, motor drive, power switch, solenoid drive

Outline

UPAK



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

Absolute Maximum Ratings (Ta = 25°C)

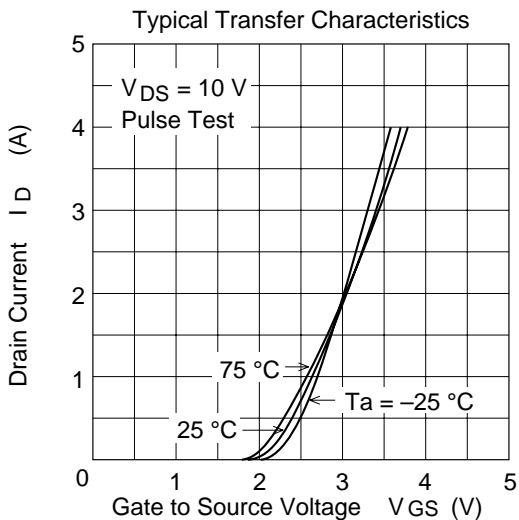
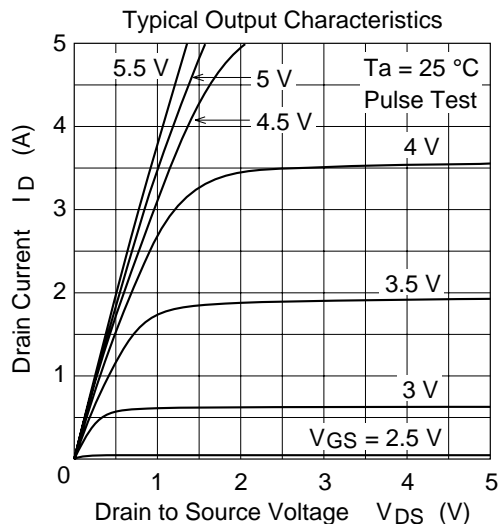
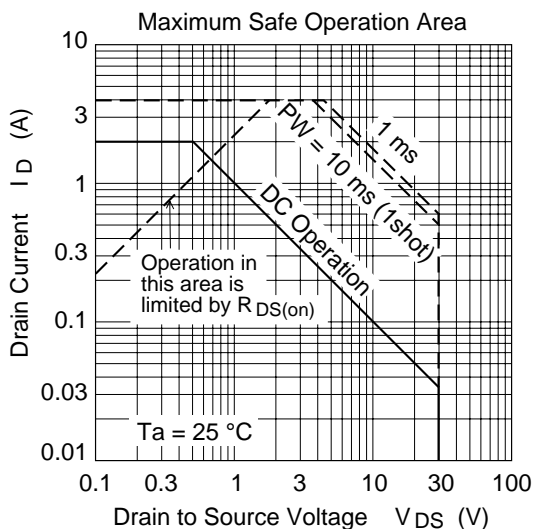
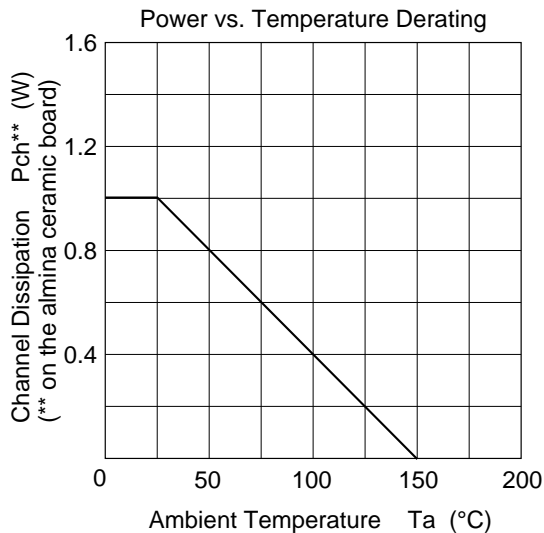
Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	30	V
Gate to source voltage	V_{GSS}	±20	V
Drain current	I_D	2	A
Drain peak current	$I_{D(pulse)}^{*1}$	4	A
Body to drain diode reverse drain current	I_{DR}	2	A
Channel dissipation	Pch*2	1	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

- Notes 1. PW 100 μs, duty cycle 10 %
 2. When using the alumina ceramic board (12.5 × 20 × 0.7mm)
 3. Marking is "QY"

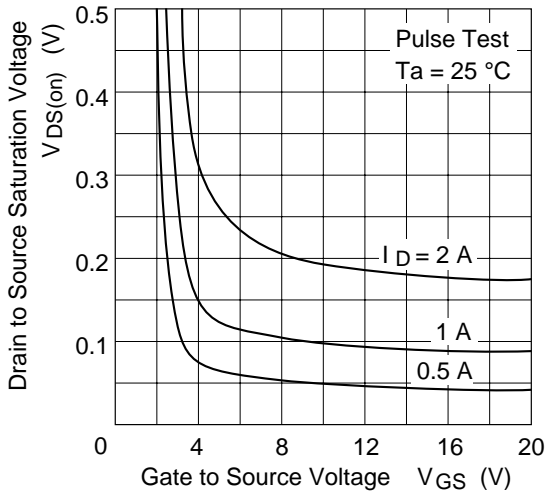
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 1 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 10 \text{ } \mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	±5	μA	$V_{GS} = \pm 16 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 24 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.0	1.5	2.0	V	$I_D = 100 \text{ } \mu\text{A}$, $V_{DS} = 10 \text{ V}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.3	0.45		$I_D = 1 \text{ A}$ $V_{GS} = 4 \text{ V}^{*1}$
		—	0.22	0.35		$I_D = 1 \text{ A}$ $V_{GS} = 10 \text{ V}^{*1}$
Forward transfer admittance	$ y_{fs} $	1.5	1.9	—	S	$I_D = 1 \text{ A}$ $V_{DS} = 10 \text{ V}^{*1}$
Input capacitance	C_{iss}	—	177	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	C_{oss}	—	116	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	43	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	8	—	ns	$I_D = 1 \text{ A}$
Rise time	t_r	—	14	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	37	—	ns	$R_L = 30$
Fall time	t_f	—	33	—	ns	PW = 2 μs

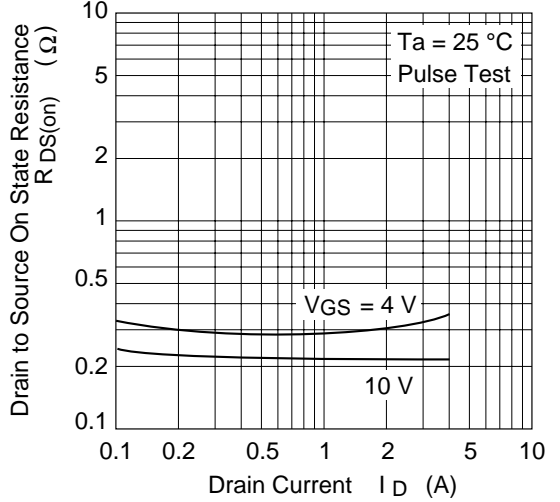
Note 1. Pulse Test



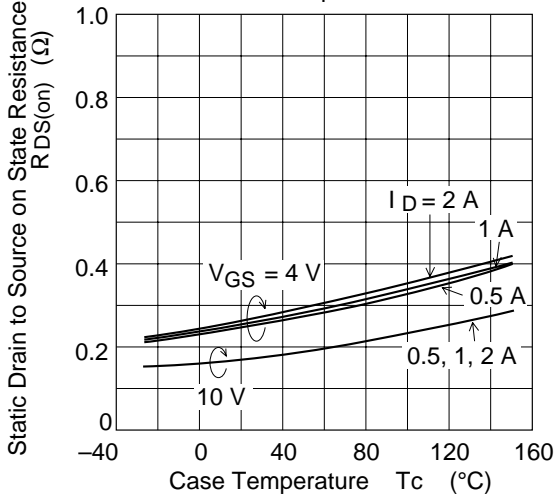
Drain to Source Saturation Voltage vs. Gate to Source Voltage



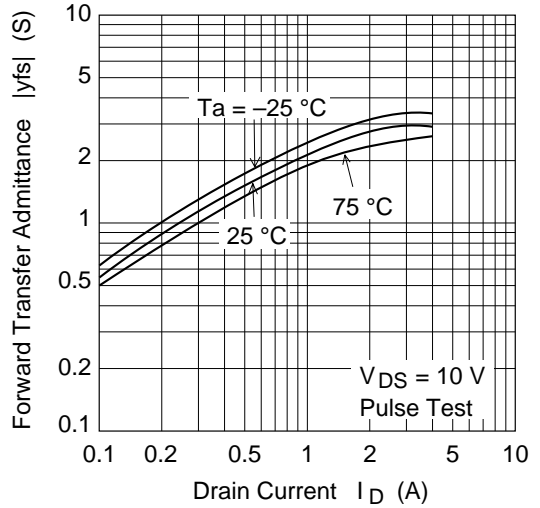
Static Drain to Source State Resistance vs. Drain Current

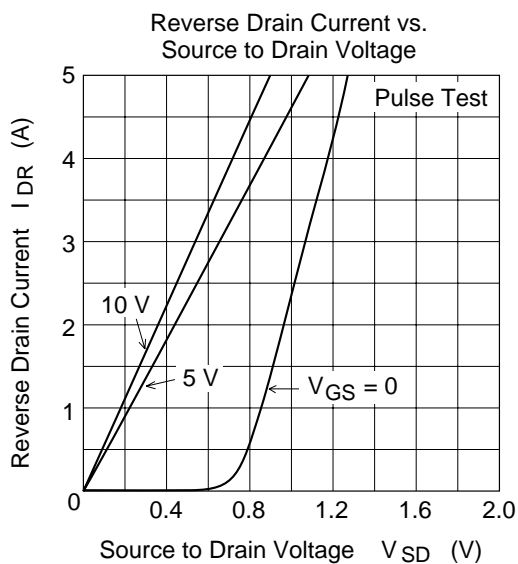
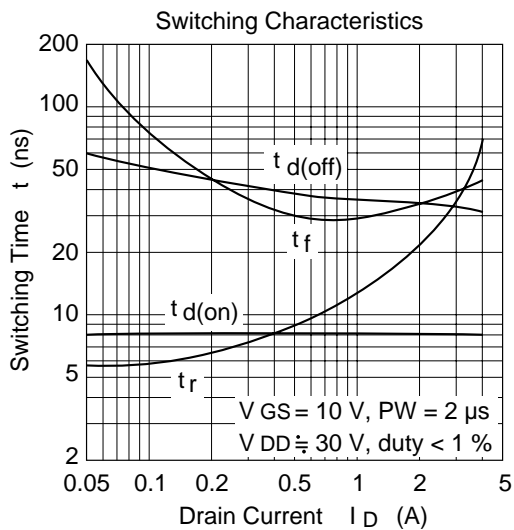
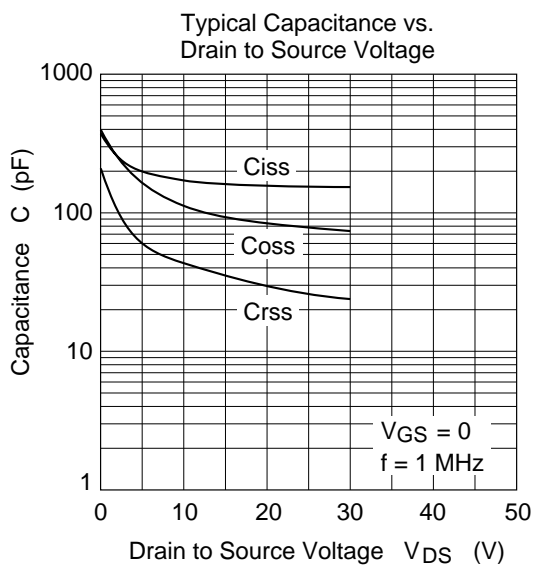


Static Drain to Source on State Resistance vs. Temperature



Forward Transfer Admittance vs. Drain Current

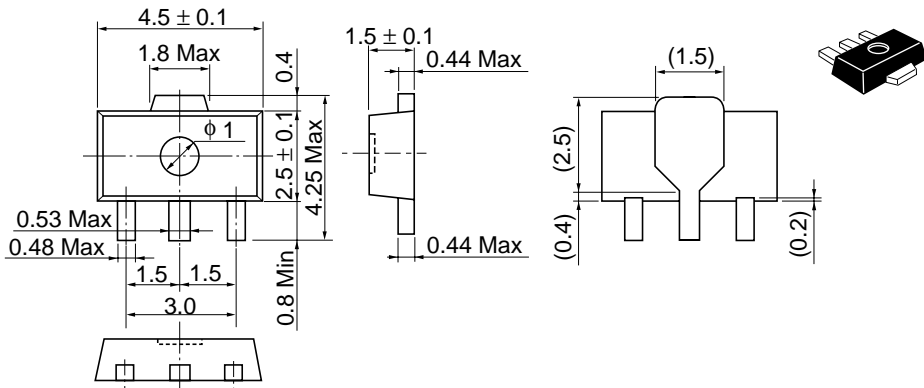




Package Dimensions

As of January, 2001

Unit: mm



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

Cautions

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