

To all our customers

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

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# 2SK1337

Silicon N-Channel MOS FET

**RENESAS**

ADE-208-1274 (Z)

1st. Edition

Mar. 2001

## Application

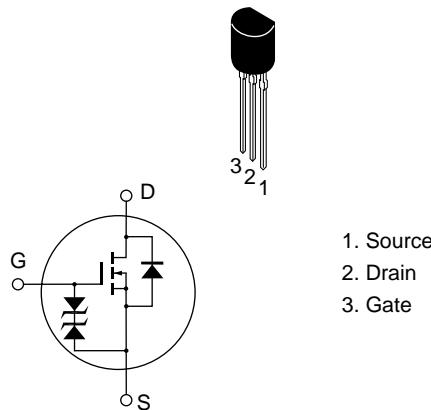
High speed power switching

## Features

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

## Outline

TO-92



## Absolute Maximum Ratings (Ta = 25°C)

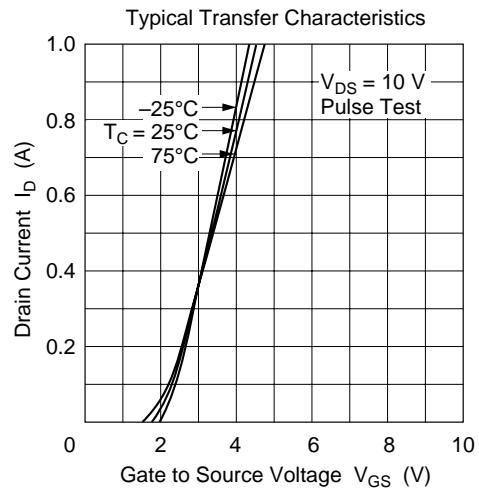
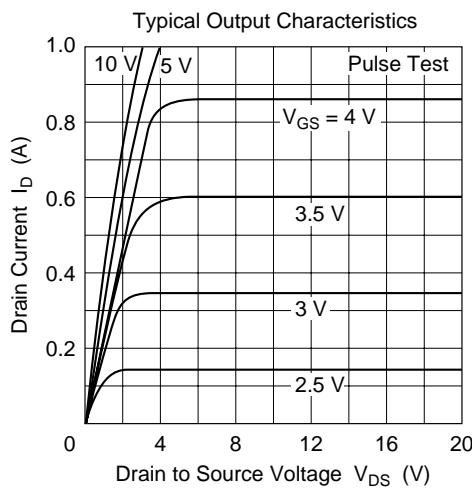
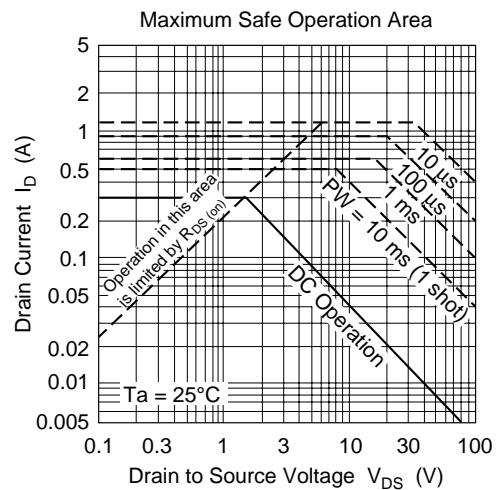
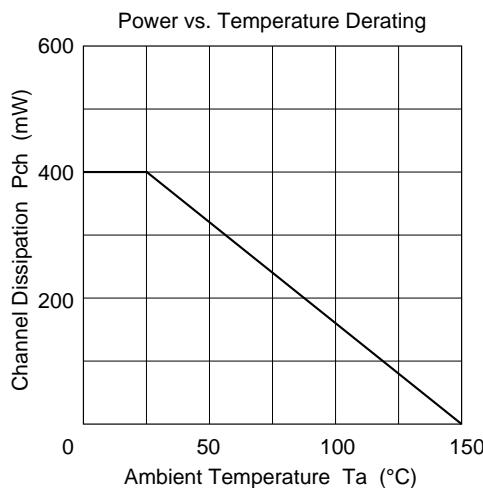
Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	100	V
Gate to source voltage	V <sub>GSS</sub>	±20	V
Drain current	I <sub>D</sub>	0.3	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	1.2	A
Body to drain diode reverse drain current	I <sub>DR</sub>	0.3	A
Channel dissipation	Pch	400	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

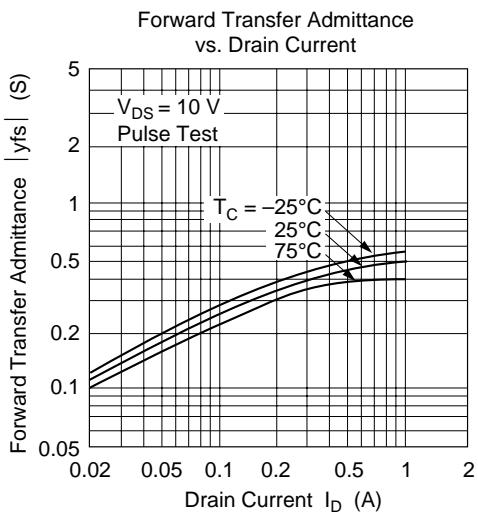
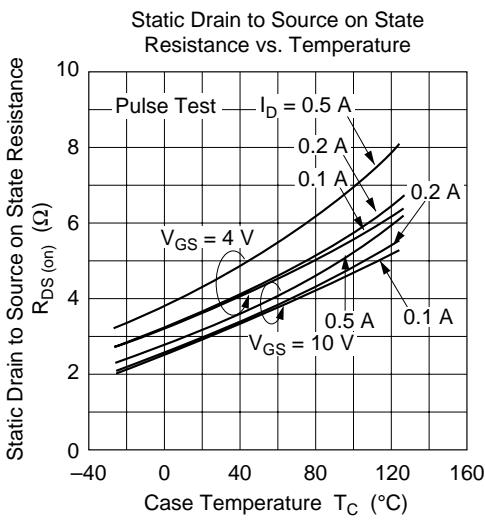
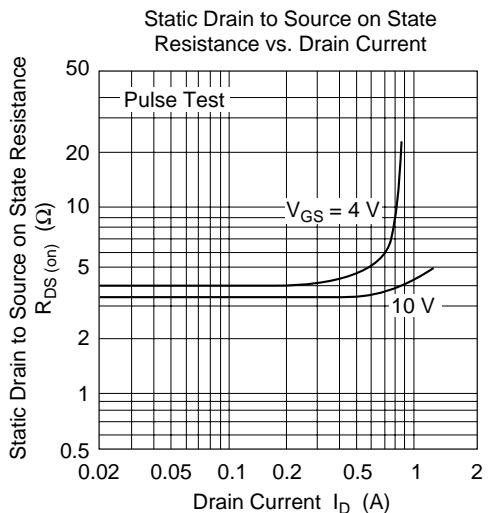
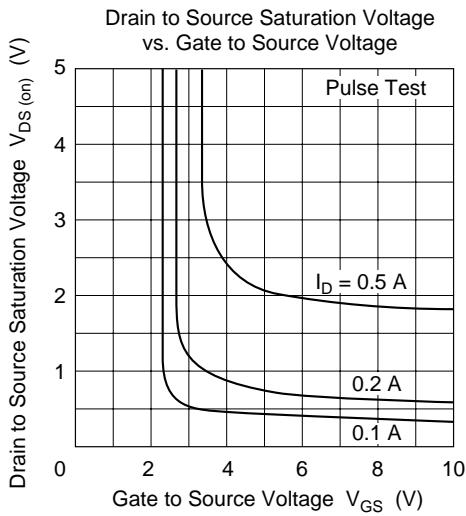
Note: 1. PW ≤ 10 µs, duty cycle ≤ 1%

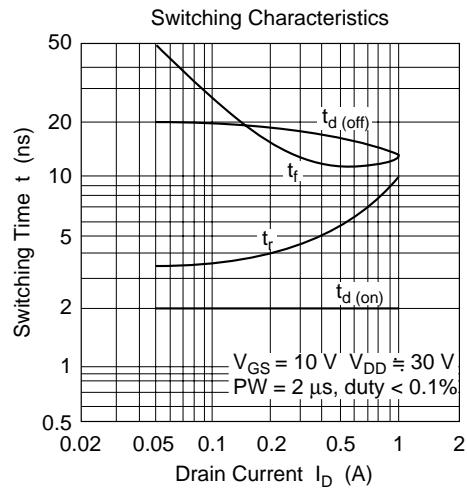
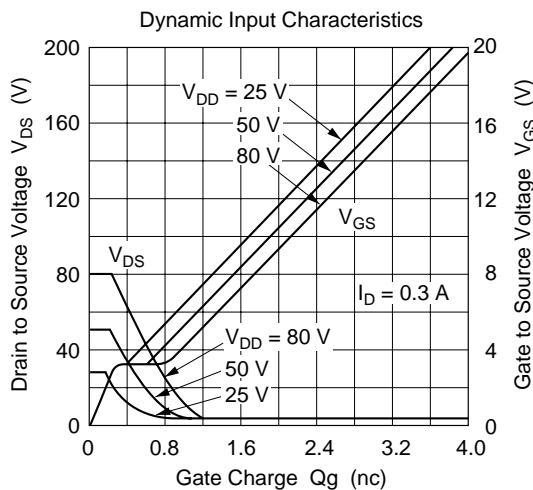
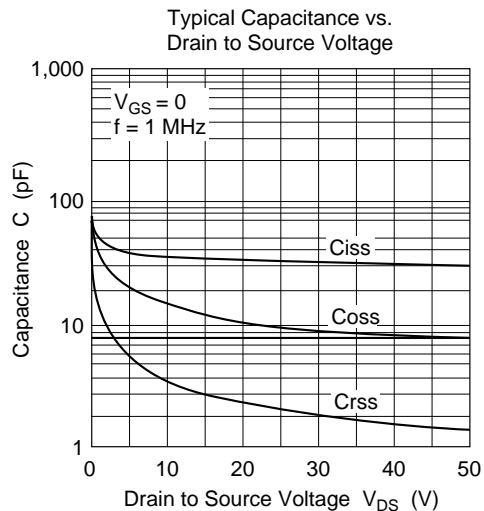
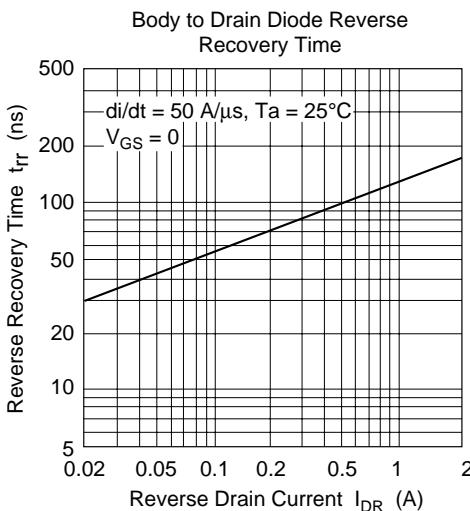
## Electrical Characteristics (Ta = 25°C)

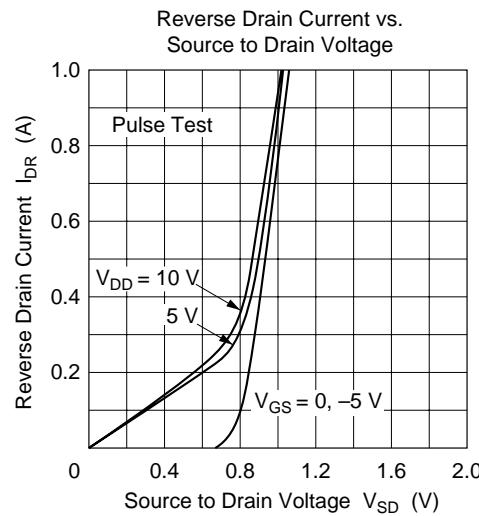
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	100	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±20	—	—	V	I <sub>G</sub> = ±100 µA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	µA	V <sub>GS</sub> = ±16 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	50	µA	V <sub>DS</sub> = 80 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	1.0	—	2.0	V	I <sub>D</sub> = 1 mA, V <sub>DS</sub> = 10 V
Static drain to source on state resistance	R <sub>DS(on)</sub>	—	3.5	4.5	Ω	I <sub>D</sub> = 0.2 A, V <sub>GS</sub> = 10 V <sup>*1</sup>
		—	4.0	6.5	Ω	I <sub>D</sub> = 0.2 A, V <sub>GS</sub> = 4 V <sup>*1</sup>
Forward transfer admittance	y <sub>fs</sub>	0.22	0.35	—	S	I <sub>D</sub> = 0.2 A, V <sub>DS</sub> = 10 V <sup>*1</sup>
Input capacitance	C <sub>iss</sub>	—	35	—	pF	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0,
Output capacitance	C <sub>oss</sub>	—	14	—	pF	f = 1 MHz
Reverse transfer capacitance	C <sub>rss</sub>	—	3.5	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	2	—	ns	I <sub>D</sub> = 0.2 A, V <sub>GS</sub> = 10 V,
Rise time	t <sub>r</sub>	—	4	—	ns	R <sub>L</sub> = 150 Ω
Turn-off delay time	t <sub>d(off)</sub>	—	17	—	ns	
Fall time	t <sub>f</sub>	—	15	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	0.9	—	V	I <sub>F</sub> = 0.3 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	80	—	ns	I <sub>F</sub> = 0.3 A, V <sub>GS</sub> = 0, di <sub>F</sub> /dt = 50 A/µs

Note: 1. Pulse test



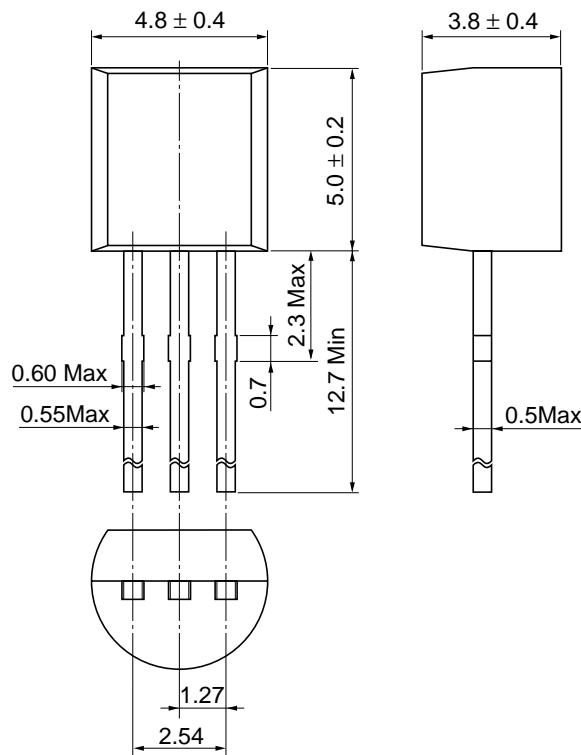






## Package Dimensions

As of January, 2001  
Unit: mm



Hitachi Code	TO-92 (1)
JEDEC	Conforms
EIAJ	Conforms
Mass (reference value)	0.25 g

## Cautions

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