

To all our customers

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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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# 2SK1342

Silicon N-Channel MOS FET

**RENESAS**

ADE-208-1279 (Z)

1st. Edition

Mar. 2001

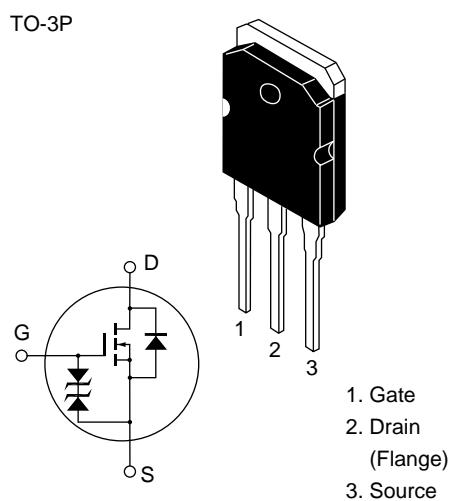
## Application

High speed power switching

## Features

- Low on-resistance
- High speed switching
- Low drive current
- No secondary breakdown
- Suitable for switching regulator and DC-DC converter

## Outline



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

Item	Symbol	Ratings	Unit
Drain to source voltage	V <sub>DSS</sub>	900	V
Gate to source voltage	V <sub>GSS</sub>	±30	V
Drain current	I <sub>D</sub>	8	A
Drain peak current	I <sub>D(pulse)</sub> <sup>*1</sup>	20	A
Body to drain diode reverse drain current	I <sub>DR</sub>	8	A
Channel dissipation	Pch <sup>*2</sup>	100	W
Channel temperature	T <sub>ch</sub>	150	°C
Storage temperature	T <sub>stg</sub>	−55 to +150	°C

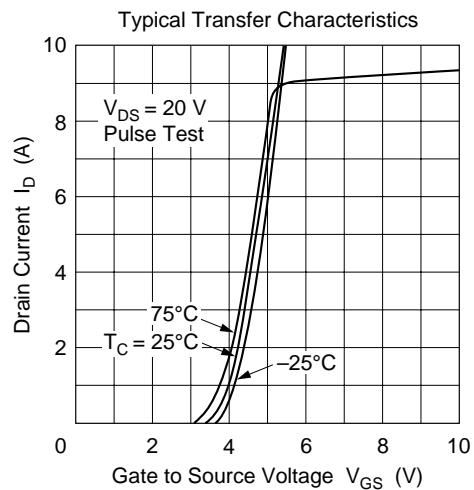
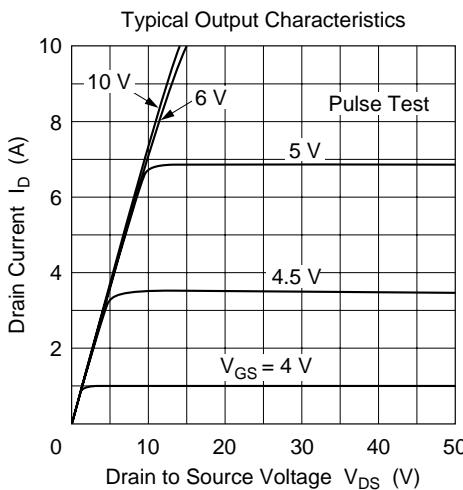
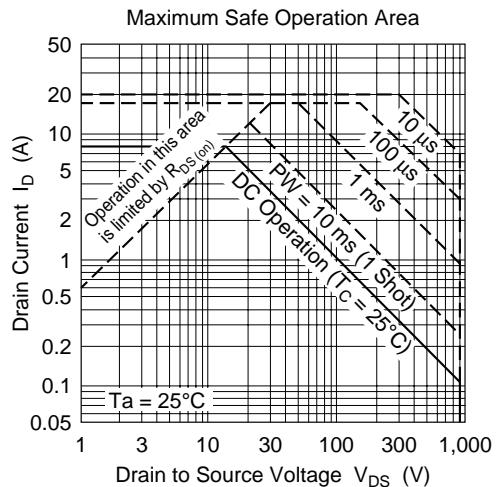
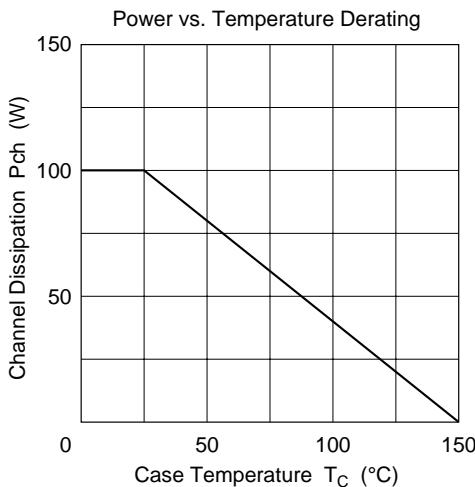
Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%

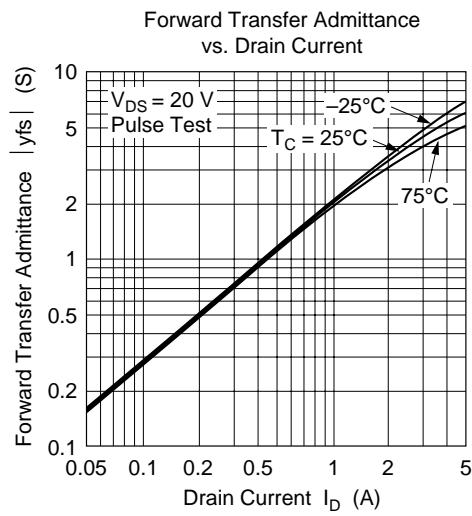
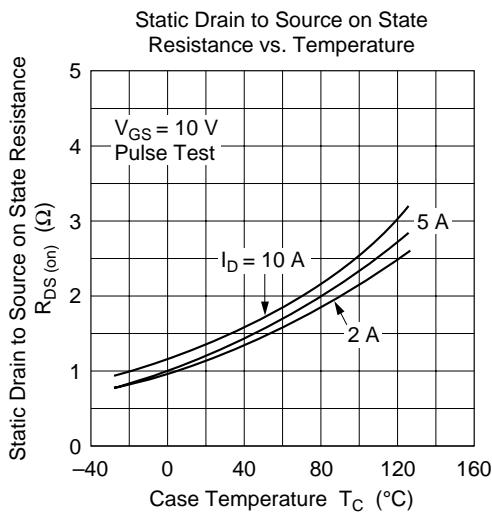
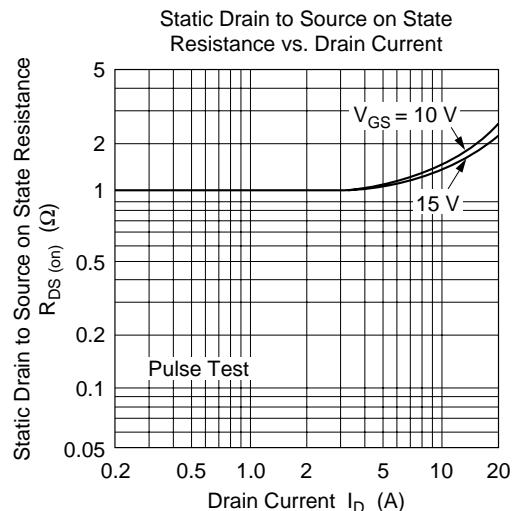
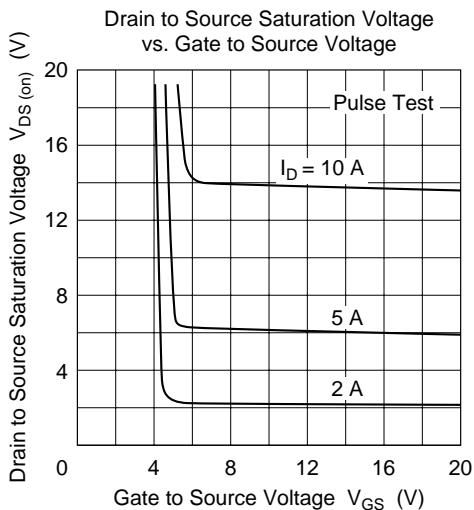
2. Value at T<sub>c</sub> = 25°C

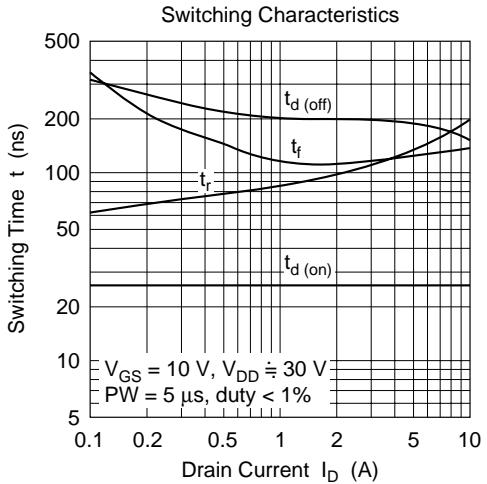
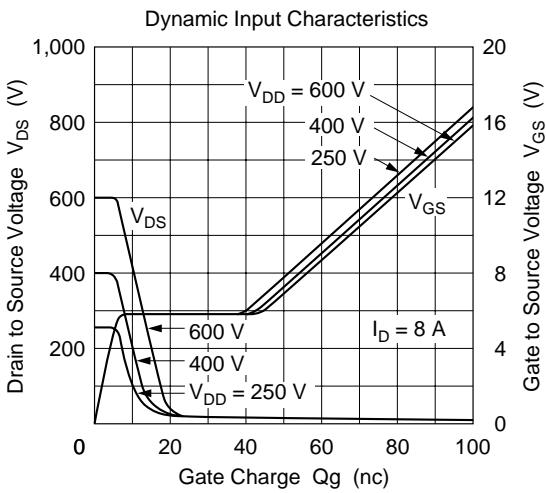
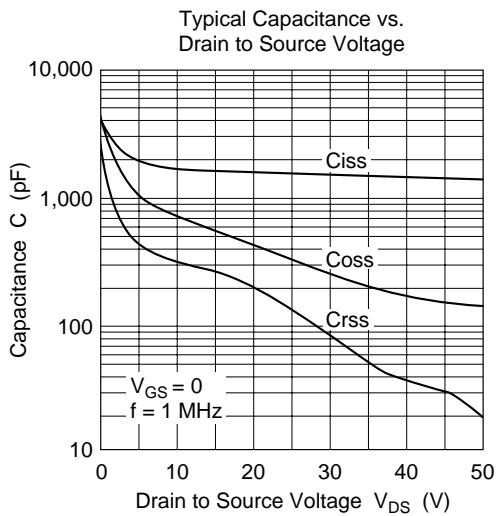
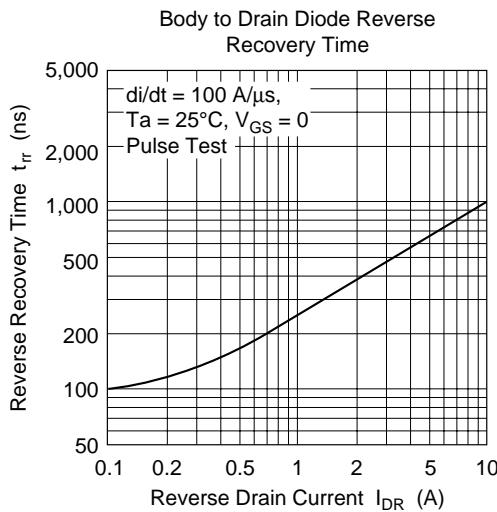
## Electrical Characteristics (Ta = 25°C)

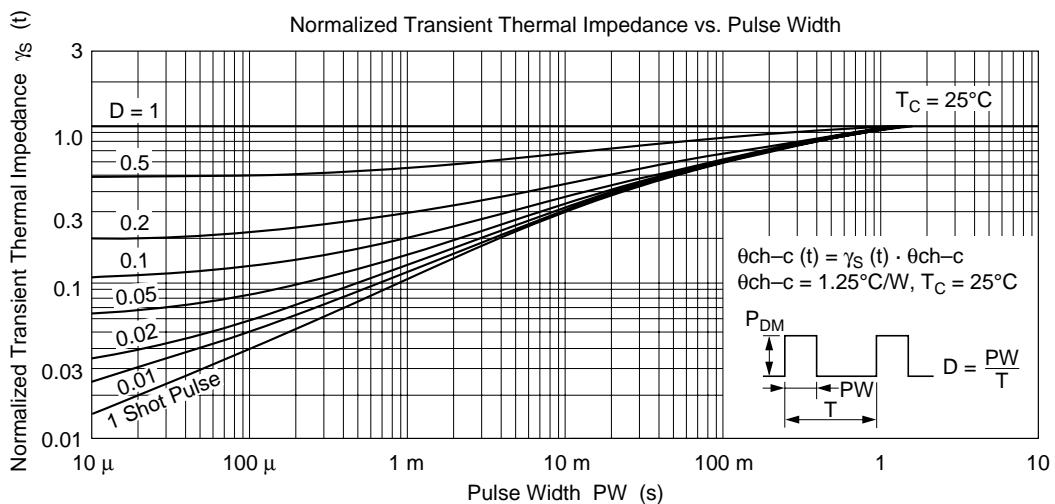
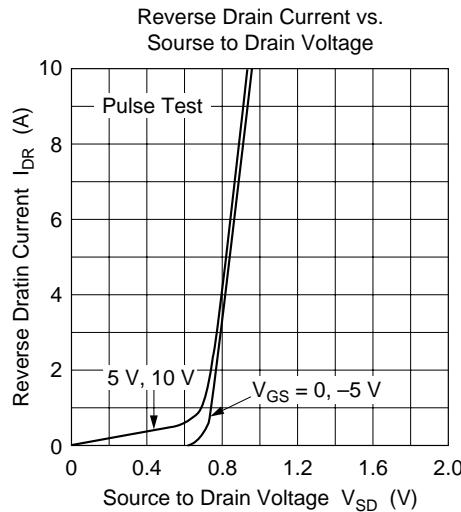
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	900	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Gate to source breakdown voltage	V <sub>(BR)GSS</sub>	±30	—	—	V	I <sub>G</sub> = ±100 μA, V <sub>DS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±10	μA	V <sub>GS</sub> = ±25 V, V <sub>DS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	250	μA	V <sub>DS</sub> = 720 V, V <sub>GS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	2.0	—	3.0	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>	—	1.2	1.6	Ω	I <sub>D</sub> = 4 A, V <sub>GS</sub> = 10 V * <sup>1</sup>
Forward transfer admittance	y <sub>fs</sub>	3.5	5.5	—	S	I <sub>D</sub> = 4 A, V <sub>DS</sub> = 20 V * <sup>1</sup>
Input capacitance	C <sub>iss</sub>	—	1730	—	pF	V <sub>DS</sub> = 10 V, V <sub>GS</sub> = 0,
Output capacitance	C <sub>oss</sub>	—	700	—	pF	f = 1 MHz
Reverse transfer capacitance	C <sub>rss</sub>	—	310	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	25	—	ns	I <sub>D</sub> = 4 A, V <sub>GS</sub> = 10 V,
Rise time	t <sub>r</sub>	—	135	—	ns	R <sub>L</sub> = 7.5 Ω
Turn-off delay time	t <sub>d(off)</sub>	—	185	—	ns	
Fall time	t <sub>f</sub>	—	130	—	ns	
Body to drain diode forward voltage	V <sub>DF</sub>	—	0.9	—	V	I <sub>F</sub> = 8 A, V <sub>GS</sub> = 0
Body to drain diode reverse recovery time	t <sub>rr</sub>	—	900	—	ns	I <sub>F</sub> = 8 A, V <sub>GS</sub> = 0, di <sub>F</sub> /dt = 100 A/μs

Note: 1. Pulse test

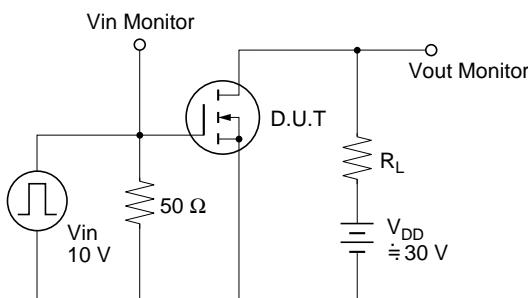




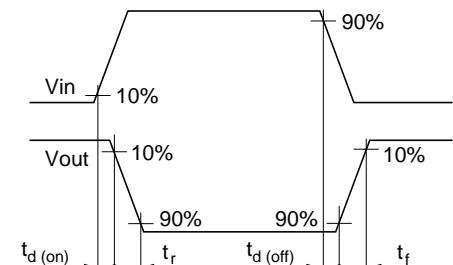




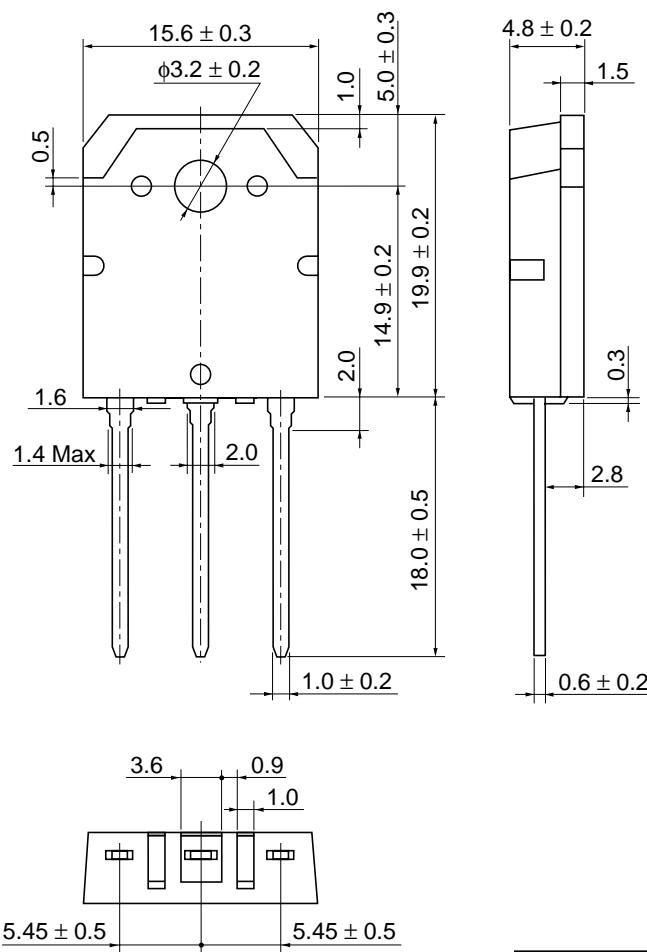
Switching Time Test Circuit



Waveforms

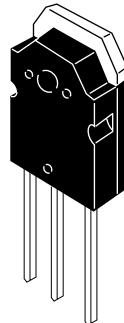


## Package Dimensions



As of January, 2001

Unit: mm



Hitachi Code	TO-3P
JEDEC	—
EIAJ	Conforms
Mass (reference value)	5.0 g

## Cautions

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