To all our customers

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Renesas Technology Home Page: http://www.renesas.com

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

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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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2SK3288

Silicon N Channel MOS FET
High Speed Switching

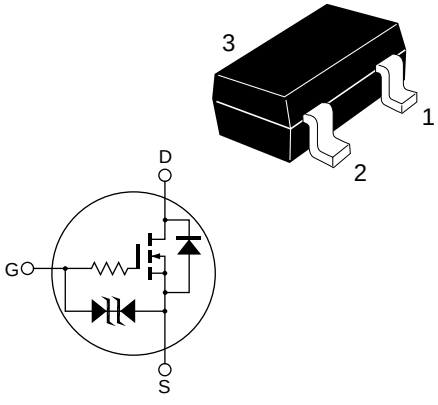
ADE-208-803 (Z)
1st.Edition.
June 1999

Features

- Low on-resistance
  R_{DS} = 2.7 Ω typ. (V_{GS} = 10 V , I_D = 50 mA)
  R_{DS} = 4.7 Ω typ. (V_{GS} = 4 V , I_D = 20 mA)
- 4 V gate drive device.
- Small package (MPAK)

Outline

MPAK



1. Source
2. Gate
3. 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	100	mA
Drain peak current	$I_{D(pulse)}$ Note1	400	mA
Body-drain diode reverse drain current	I_{DR}	100	mA
Channel dissipation	Pch Note 2	400	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Note: 1. PW ≤ 10 µs, duty cycle ≤ 1%
2. Value on the alumina ceramic board (12.5 x 20 x 0.7 mm)

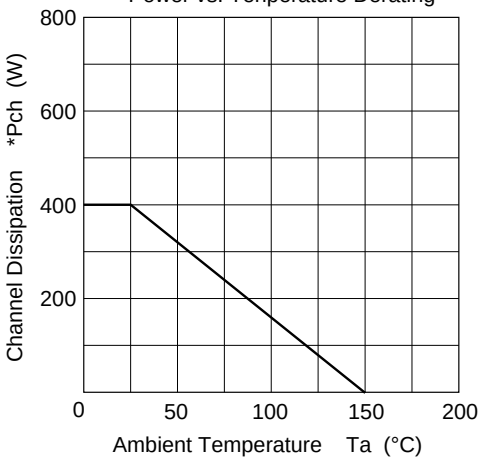
Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	I_D = 100 µA, 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}	—	—	±5	µA	V_{GS} = ±16 V, V_{DS} = 0
Zero gate voltege drain current	I_{DSS}	—	—	1	µA	V_{DS} = 30 V, V_{GS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	1.3	—	2.3	V	I_D = 10µA, V_{DS} = 5 V
Static drain to source on state resistance	$R_{DS(on)}$	—	2.7	3.5	Ω	I_D = 50 mA,V_{GS} = 10 V Note 3
	$R_{DS(on)}$	—	4.7	7.0	Ω	I_D = 20 mA,V_{GS} = 4 V Note 3
Forward transfer admittance	$\|y_{fs}\|$	55	85	—	mS	I_D = 50 mA, V_{DS} = 10 V Note 3
Input capacitance	Ciss	—	3	—	pF	V_{DS} = 10 V
Output capacitance	Coss	—	8	—	pF	V_{GS} = 0
Reverse transfer capacitance	Crss	—	1	—	pF	f = 1 MHz
Turn-on delay time	$t_{d(on)}$	—	100	—	ns	I_D = 50 mA, V_{GS} = 10 V
Rise time	t_r	—	300	—	ns	R_L = 200 Ω
Turn-off delay time	$t_{d(off)}$	—	1100	—	ns	
Fall time	t_f	—	900	—	ns	

Note: 3. Pulse test
4. Marking is EN

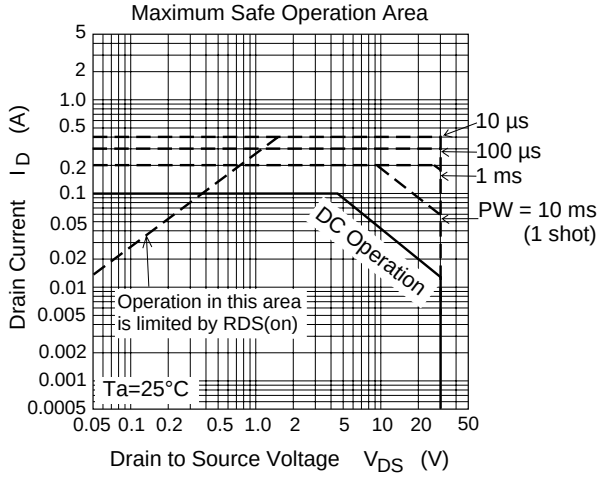
Main Characteristics

Power vs. Tenperature Derating



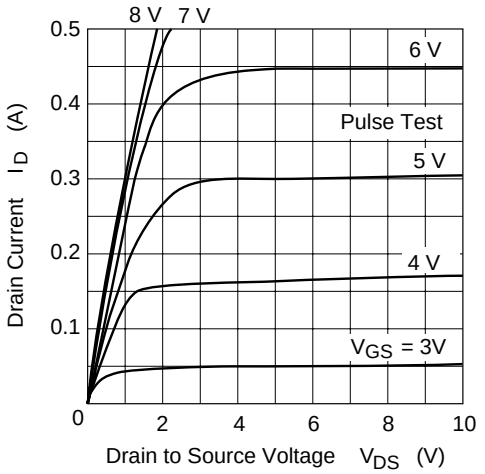
*Value on the alumina ceramic boad. (12.5x20x0.7mm)

Maximum Safe Operation Area

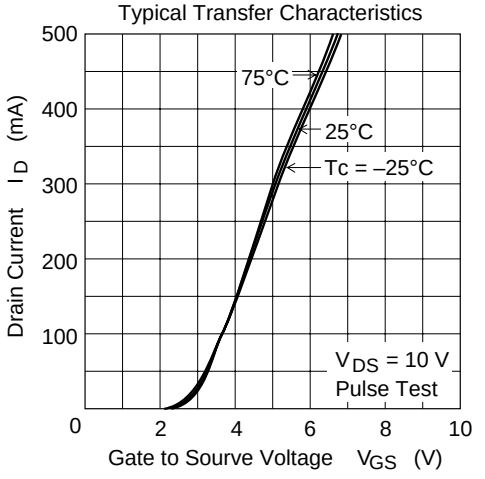


Value on the alumina ceramic boad. (12.5x20x0.7mm)

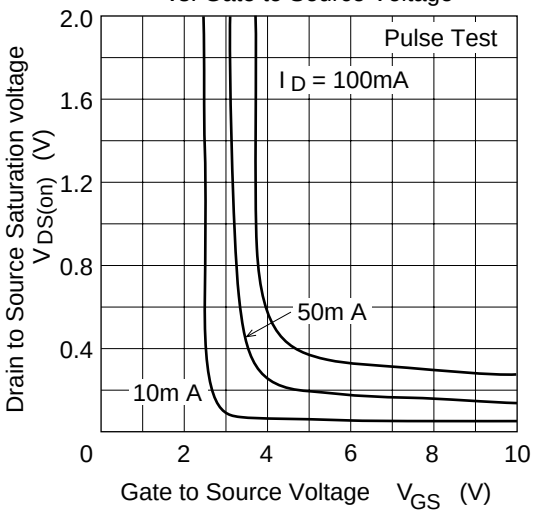
Typical Output Characteristics



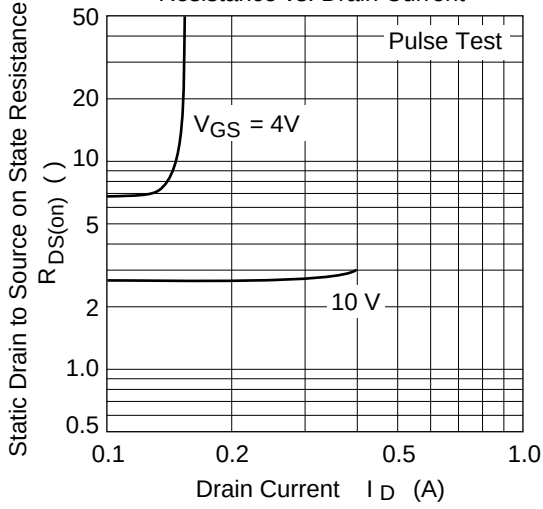
Typical Transfer Characteristics



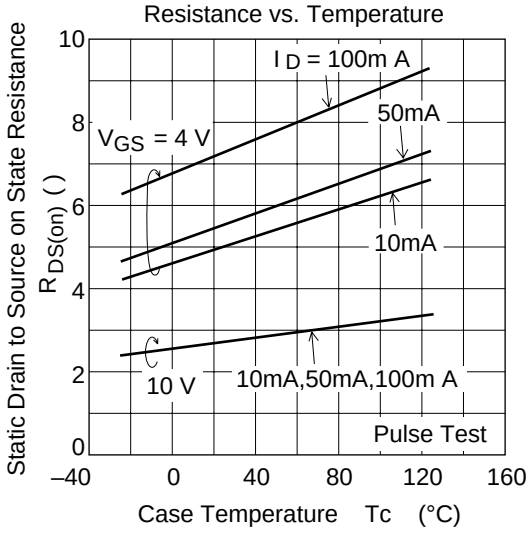
Drain to Source Saturation Voltage vs. Gate to Source Voltage



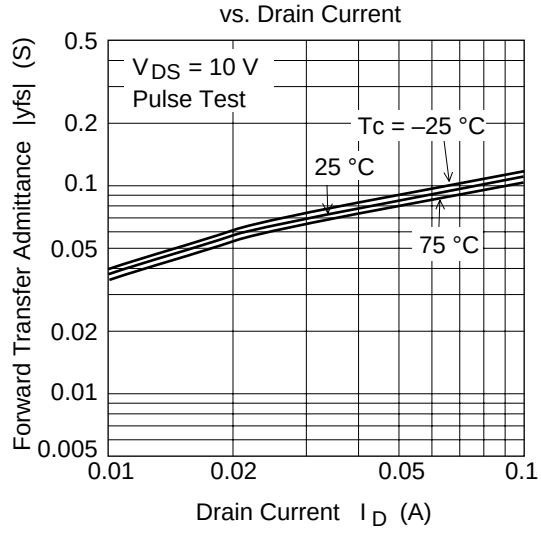
Static Drain to Source on State Resistance vs. Drain Current



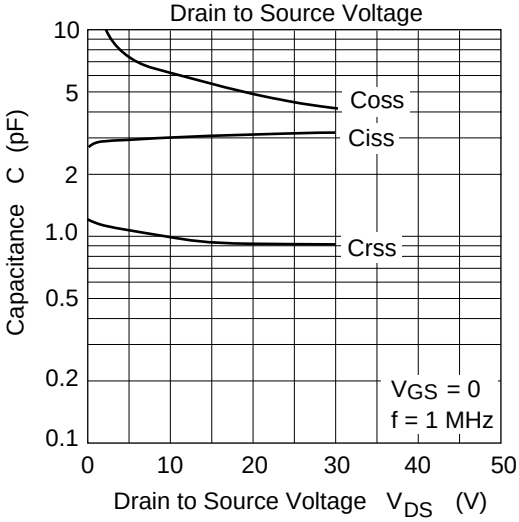
Static Drain to Source on State Resistance vs. Temperature



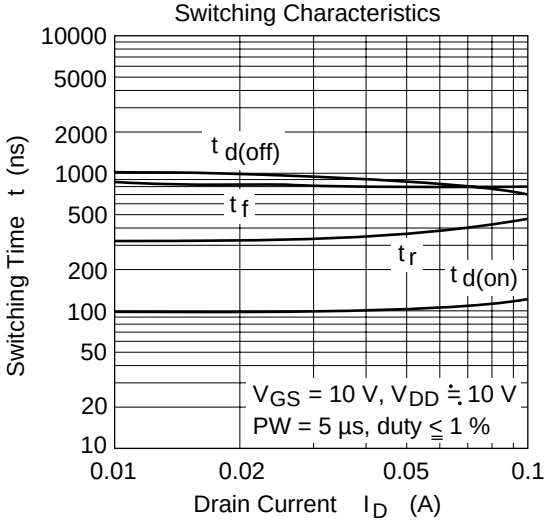
Forward Transfer Admittance vs. Drain Current



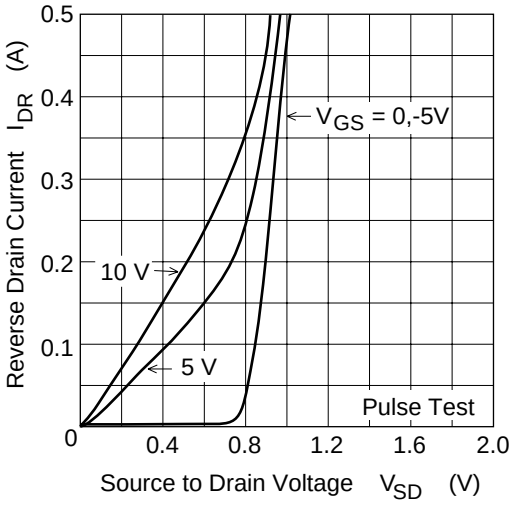
Typical Capacitance vs.
Drain to Source Voltage



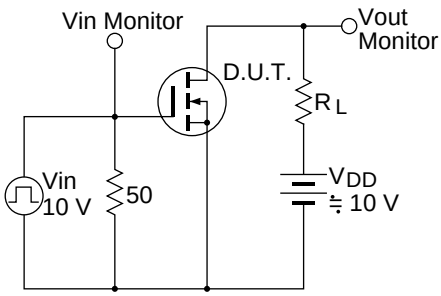
Switching Characteristics



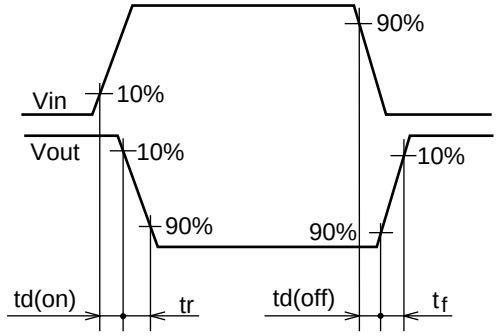
Reverse Drain Current vs.
Source to Drain Voltage



Switching Time Test Circuit



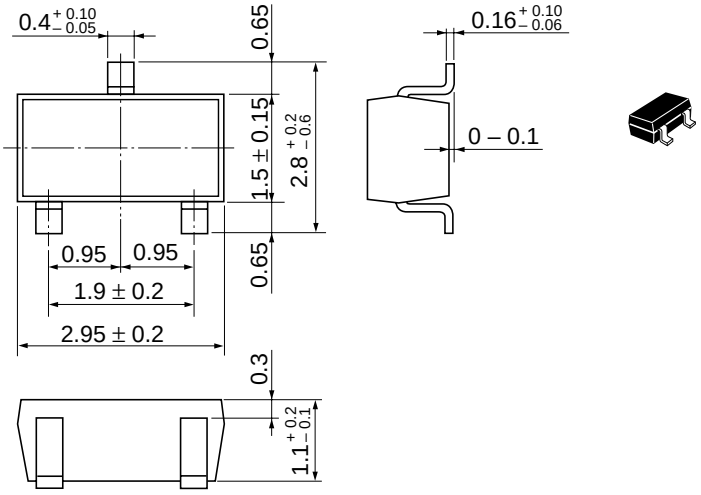
Waveforms



Package Dimensions

As of January, 2001

Unit: mm



Hitachi Code	MPAK
JEDEC	—
EIAJ	Conforms
Mass (reference value)	0.011 g

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