

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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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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# 2SK3290

## Silicon N Channel MOS FET High Speed Switching

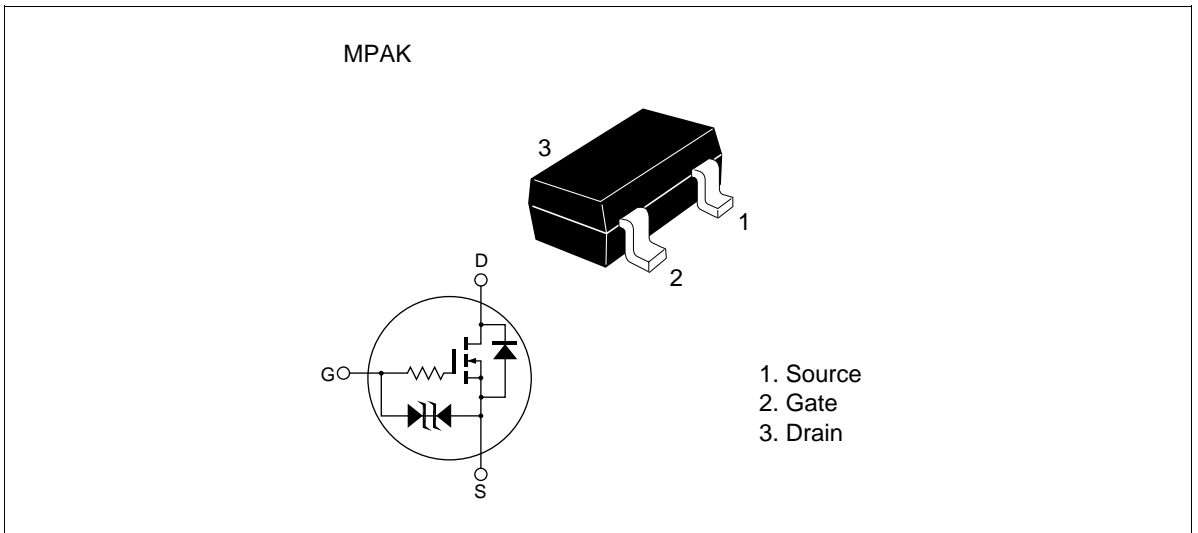
# RENESAS

ADE-208-744B(Z)  
Target Specification 3rd.Edition.  
December 1998

### Features

- Low on-resistance  
 $R_{DS} = 455\text{m}\Omega$  typ. (at  $V_{GS} = 10\text{V}$ ,  $I_D = 250\text{mA}$ )  
 $R_{DS} = 900\text{m}\Omega$  typ. (at  $V_{GS} = 4\text{V}$ ,  $I_D = 100\text{mA}$ )
- 4V gate drive device
- Small package (MPAK)

### Outline



## 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	$I_D$	500	mA
Drain peak current	$I_{D(pulse)}$ <sup>Note 1</sup>	2	A
Body-drain diode reverse drain current	$I_{DR}$	500	mA
Channel dissipation	Pch <sup>Note 2</sup>	400	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°C

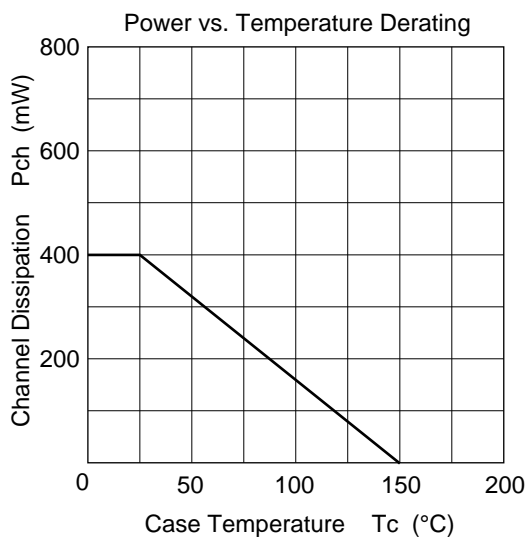
Note: 1.  $PW \leq 10\mu s$ , duty cycle  $\leq 1\%$   
 2. Value on the alumina ceramic board (12.5x20x0.7mm)

## Electrical Characteristics (Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	$I_D = 100\mu A, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	±20	—	—	V	$I_G = \pm 100\mu A, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	±5	μA	$V_{GS} = \pm 16V, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	1	μA	$V_{DS} = 30V, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.3	—	2.3	V	$I_D = 10\mu A, V_{DS} = 5V$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.455	0.525	Ω	$I_D = 250mA, V_{GS} = 10V$ <sup>Note 3</sup>
	$R_{DS(on)}$	—	0.9	1.25	Ω	$I_D = 100mA, V_{GS} = 4V$ <sup>Note 3</sup>
Forward transfer admittance	$ y_{fs} $	350	540	—	mS	$I_D = 250mA, V_{DS} = 10V$ <sup>Note 3</sup>
Input capacitance	Ciss	—	4	—	pF	$V_{DS} = 10V$
Output capacitance	Coss	—	30	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	2	—	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	—	240	—	ns	$I_D = 250mA, V_{GS} = 10V$
Rise time	$t_r$	—	1700	—	ns	$R_L = 40\Omega$
Turn-off delay time	$t_{d(off)}$	—	850	—	ns	
Fall time	$t_f$	—	1300	—	ns	

Note: 3. Pulse test  
 4. Marking is "BN"

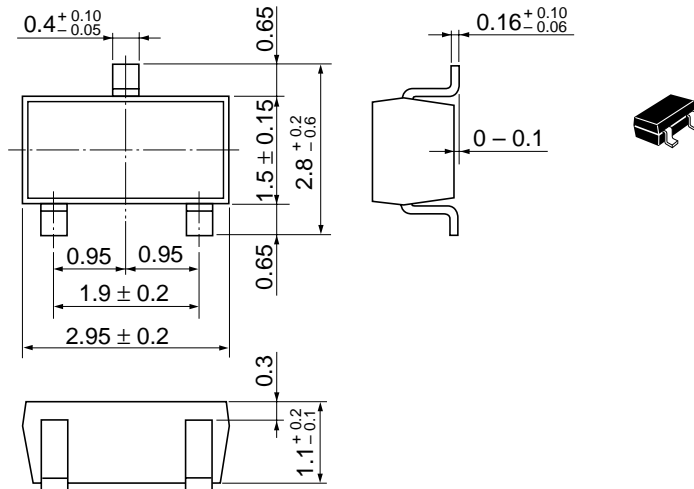
## Main Characteristics



Package Dimensions

As of January, 2001

Unit: mm



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

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