

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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# 2SK3380

## Silicon N Channel MOS FET High Speed Switching

**RENESAS**

ADE-208-806 (Z)

1st.Edition.

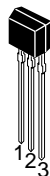
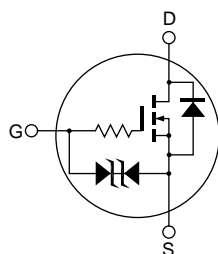
June 1999

### Features

- Low on-resistance  
 $R_{DS} = 1.26 \Omega$  typ. ( $V_{GS} = 10 \text{ V}$ ,  $I_D = 150 \text{ mA}$ )  
 $R_{DS} = 2.8 \Omega$  typ. ( $V_{GS} = 4 \text{ V}$ ,  $I_D = 50 \text{ mA}$ )
- 4 V gate drive device.

### Outline

SPAK



1. Source
2. Drain
3. Gate

## 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	$I_D$	300	mA
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	1.2	A
Body-drain diode reverse drain current	$I_{DR}$	300	mA
Channel dissipation	Pch	300	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	−55 to +150	°C

Note: 1.  $PW \leq 10 \mu s$ , duty cycle  $\leq 1\%$

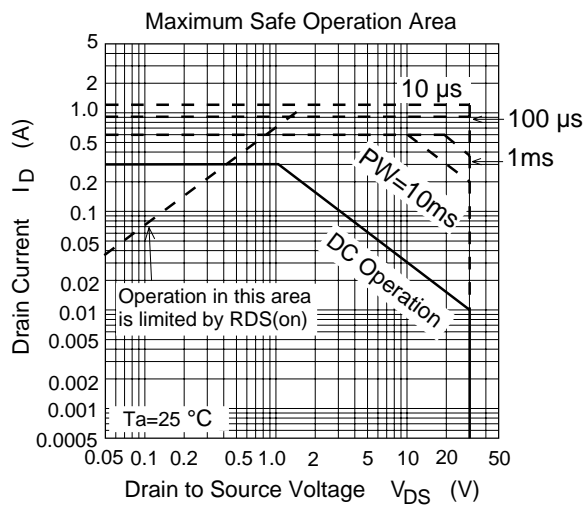
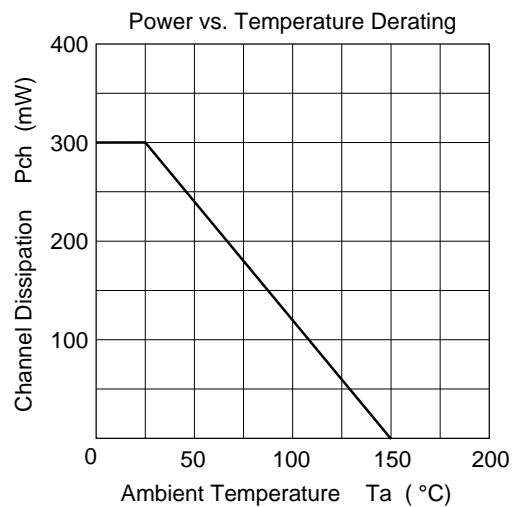
## Electrical Characteristics (Ta = 25°C)

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	$V_{GS} = \pm 16 V$ , $V_{DS} = 0$
Zero gate voltage 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	$I_D = 10 \mu A$ , $V_{DS} = 5 V$
Static drain to source on state resistance	$R_{DS(on)}$	—	1.26	1.44	Ω	$I_D = 150 mA$ , $V_{GS} = 10 V$ <sup>Note 2</sup>
	$R_{DS(on)}$	—	2.8	3.44	Ω	$I_D = 50 mA$ , $V_{GS} = 4 V$ <sup>Note 2</sup>
Forward transfer admittance	$ y_{fs} $	145	220	—	mS	$I_D = 150 mA$ , $V_{DS} = 10 V$ <sup>Note 2</sup>
Input capacitance	Ciss	—	6	—	pF	$V_{DS} = 10 V$
Output capacitance	Coss	—	18	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	Crss	—	2	—	pF	$f = 1 MHz$
Turn-on delay time	$t_{d(on)}$	—	200	—	ns	$I_D = 150 mA$ , $V_{GS} = 10 V$
Rise time	$t_r$	—	600	—	ns	$R_L = 66.6 \Omega$
Turn-off delay time	$t_{d(off)}$	—	1100	—	ns	
Fall time	$t_f$	—	1100	—	ns	

Note: 2. Pulse test

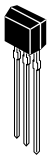
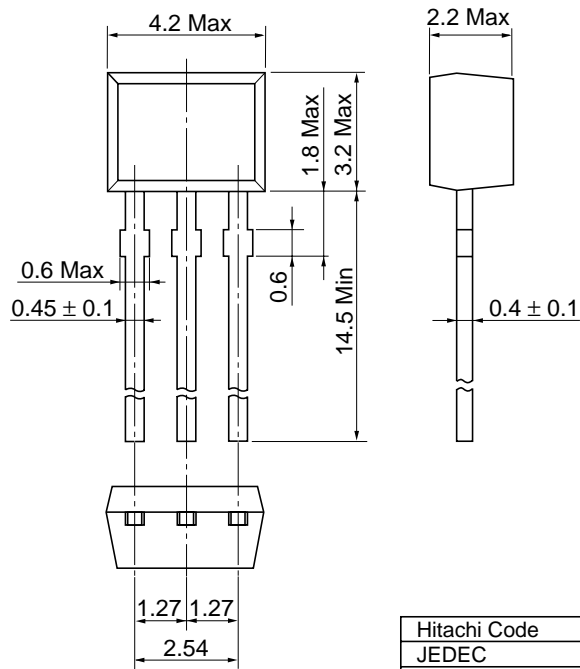
See characteristics curves of 2SK3288

## Main Characteristics



Package Dimensions

As of January, 2001  
Unit: mm



Hitachi Code	SPAK
JEDEC	—
EIAJ	—
Mass (reference value)	0.10 g

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