

To our customers,

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## Old Company Name in Catalogs and Other Documents

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Renesas Electronics website: <http://www.renesas.com>

April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

Issued by: Renesas Electronics Corporation (<http://www.renesas.com>)

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# 2SK3000

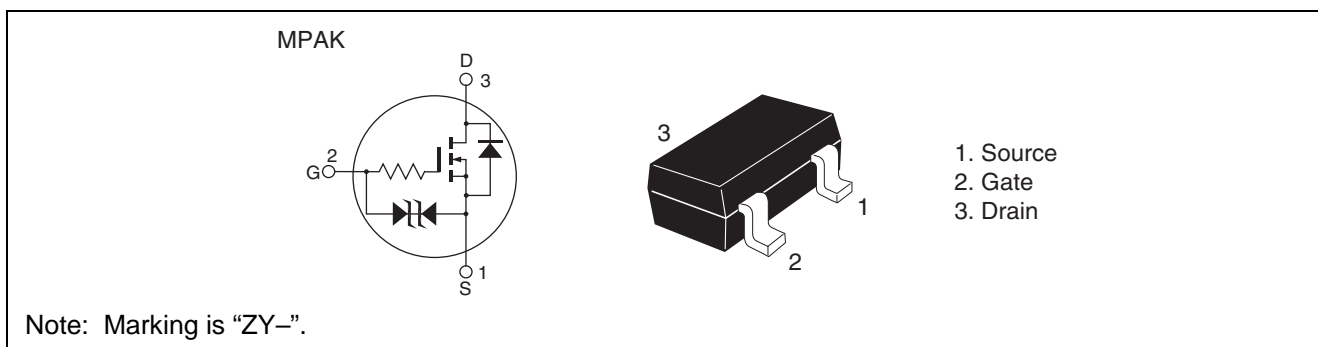
## Silicon N Channel MOS FET Low Frequency Power Switching

REJ03G0379-0300Z  
(Previous ADE-208-585A (Z))  
Rev.3.00  
Jun.15.2004

### Features

- Low on-resistance  
 $R_{DS(on)} = 0.16 \Omega$  typ. ( $V_{GS} = 10 \text{ V}$ ,  $I_D = 450 \text{ mA}$ )
- 4 V gate drive devices.
- Small package (MPAK)
- Expansive drain to source surge power capability

### Outline



### Absolute Maximum Ratings

( $T_a = 25^\circ\text{C}$ )

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	40	V
Gate to source voltage	$V_{GSS}$	$\pm 10$	V
Drain current	$I_D$	1.0	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	4.0	A
Reverse drain current	$I_{DR}$	1.0	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	400	mW
Channel temperature	$T_{ch}$	150	$^\circ\text{C}$
Storage temperature	$T_{stg}$	-55 to +150	$^\circ\text{C}$

Notes: 1.  $PW \leq 10 \mu\text{s}$ , duty cycle  $\leq 1\%$

2. When using the glass epoxy board (10 mm x 10 mm x 1 mm<sup>t</sup>)

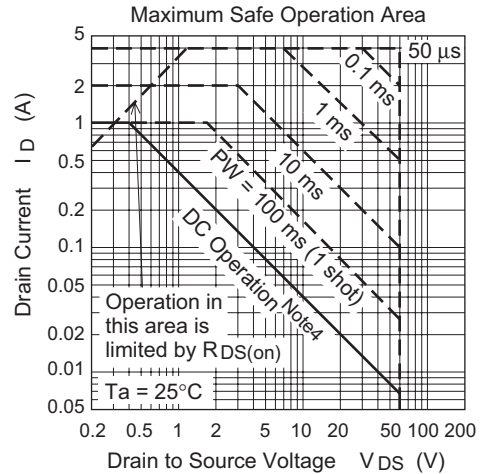
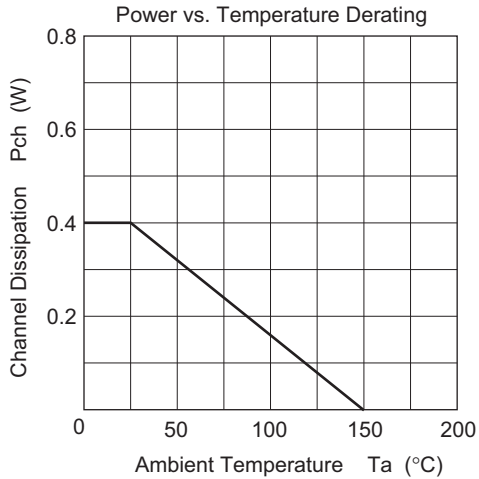
## Electrical Characteristics

(Ta = 25°C)

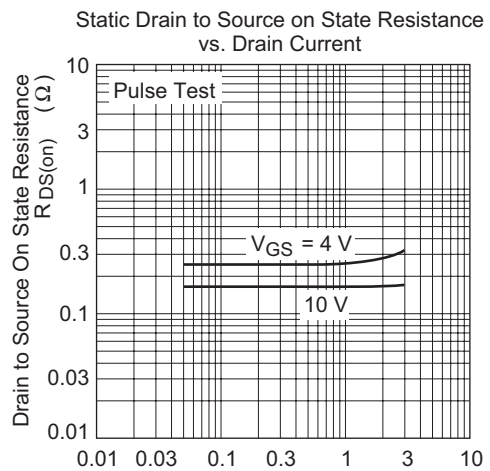
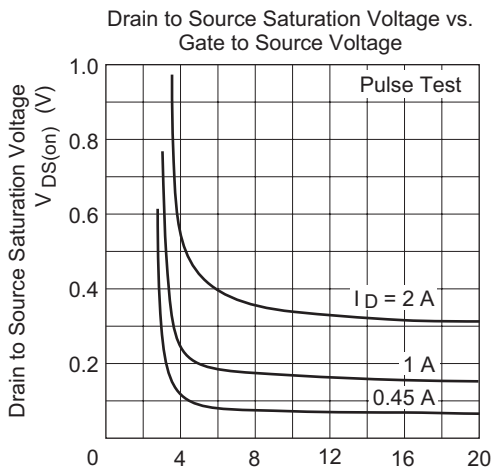
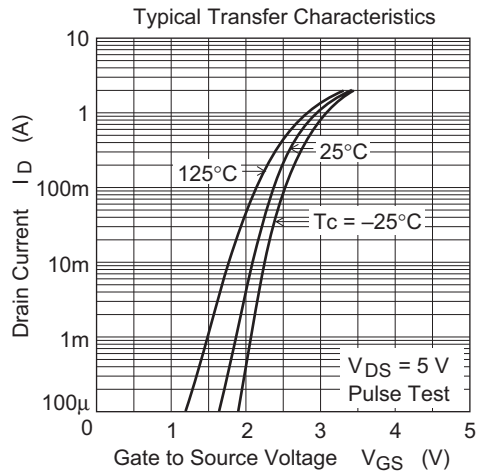
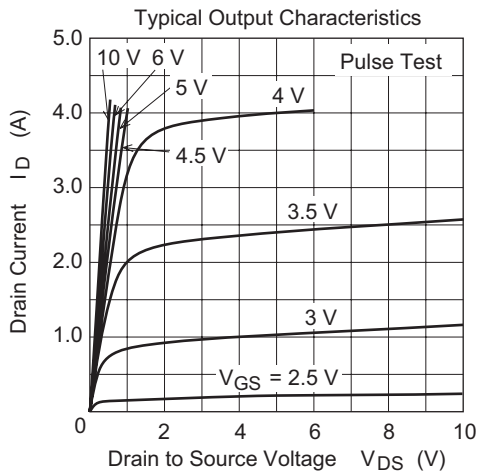
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	40	—	60	V	$I_D = 100 \mu A, V_{GS} = 0$
Drain to source voltage	$V_{DS(SUS)}$	40	—	—	V	$L = 100 \mu H, I_D = 3 A$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 10$	—	—	V	$I_G = \pm 100 \mu A, V_{DS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	1.0	$\mu A$	$V_{DS} = 40 V, V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 5$	$\mu A$	$V_{GS} = \pm 6.5 V, V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.1	—	2.1	V	$I_D = 10 \mu A, V_{DS} = 5 V$
Forward transfer admittance	$ y_{fs} $	0.5	1.2	—	S	$I_D = 450 mA, V_{DS} = 10 V$ <sup>Note3</sup>
Static drain to source on state resistance	$R_{DS(on)}$	—	0.24	0.5	$\Omega$	$I_D = 450 mA, V_{GS} = 4 V$ <sup>Note3</sup>
	$R_{DS(on)}$	—	0.16	0.3	$\Omega$	$I_D = 450 mA, V_{GS} = 10 V$ <sup>Note3</sup>
Input capacitance	$C_{iss}$	—	14.0	—	pF	$V_{DS} = 10 V$
Output capacitance	$C_{oss}$	—	68	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	3.0	—	pF	$f = 1 MHz$
Turn-on delay time	$t_{d(on)}$	—	0.12	—	$\mu s$	$V_{GS} = 4 V, I_D = 450 mA$
Rise time	$t_r$	—	0.6	—	$\mu s$	$R_L = 22 \Omega$
Turn-off delay time	$t_{d(off)}$	—	1.7	—	$\mu s$	
Fall time	$t_f$	—	1.4	—	$\mu s$	

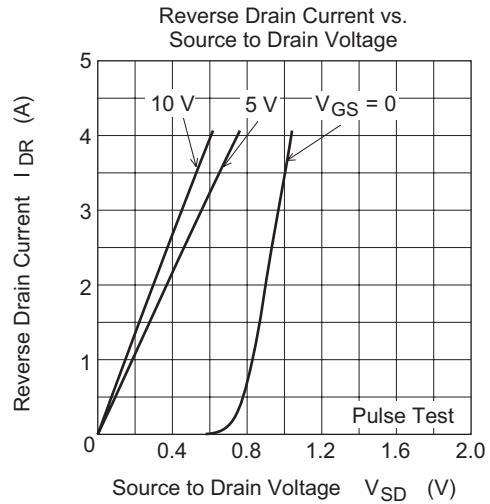
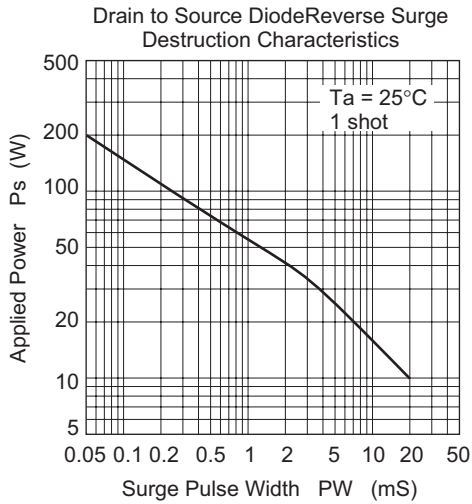
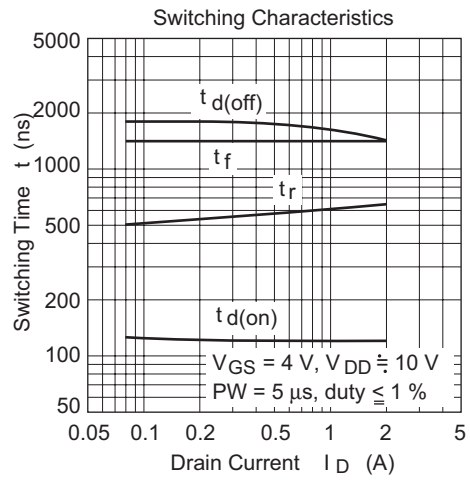
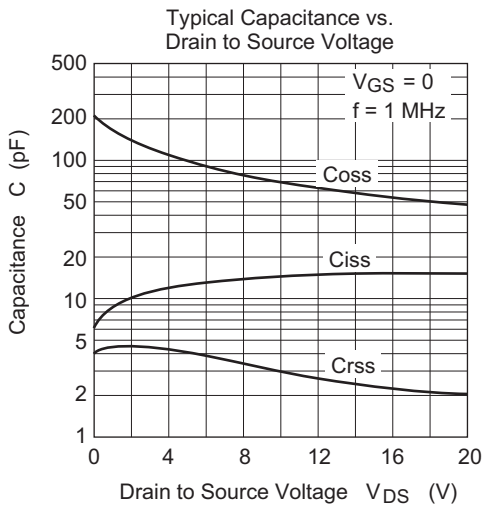
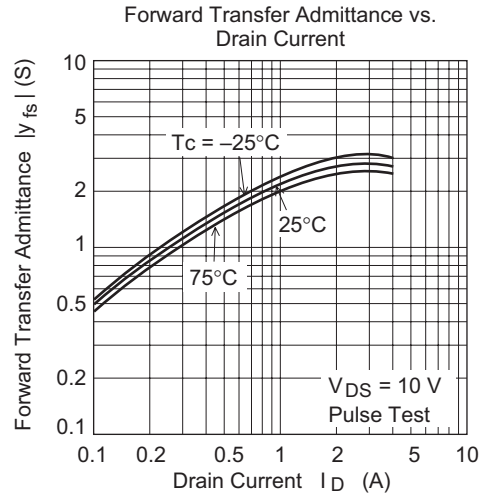
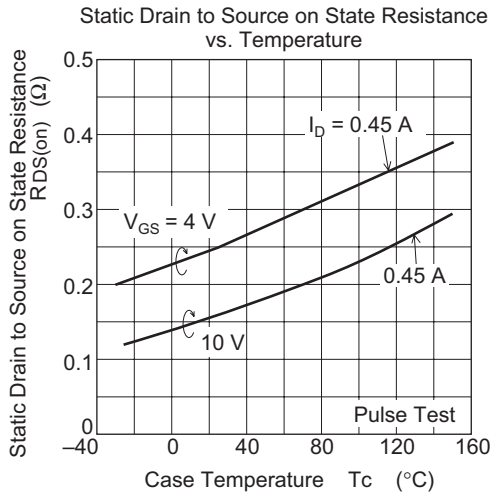
Notes: 3. Pulse test

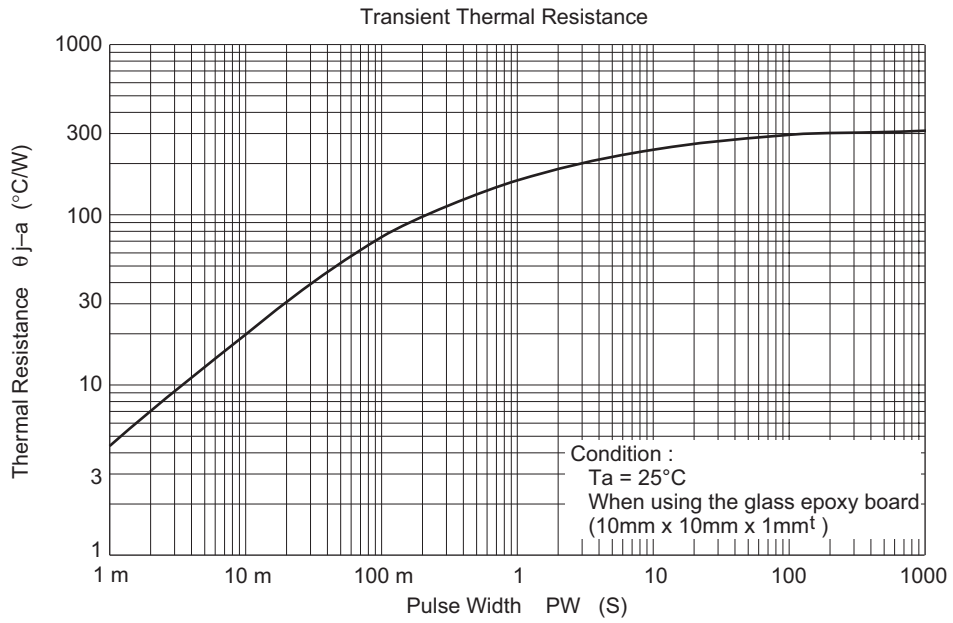
### Main Characteristics



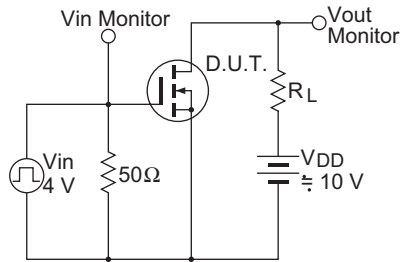
Note4 : When using the glass epoxy board (10mm x 10mm x 1mm<sup>t</sup>)



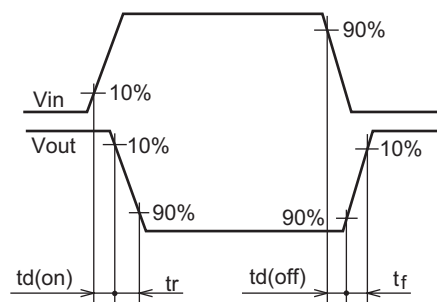




Switching Time Test Circuit

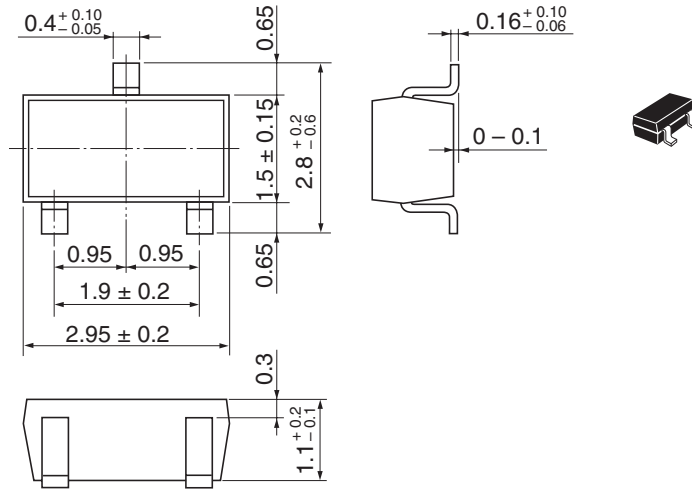


Switching Time Waveforms



Package Dimensions

As of January, 2003  
Unit: mm



Package Code	MPAK(T)
JEDEC	—
JEITA	Conforms
Mass (reference value)	0.011 g

Ordering Information

Part Name	Quantity	Shipping Container
2SK3000	3000 pcs	φ178 mm Reel Taping (TL)

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.



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