

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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# RJK6025DPE

Silicon N Channel MOS FET  
High Speed Power Switching

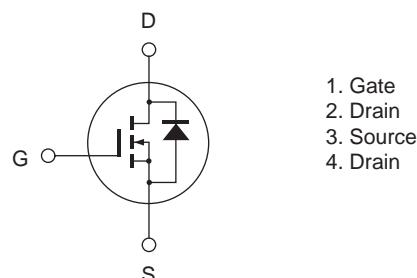
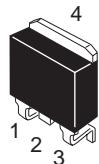
REJ03G1870-0100  
Rev.1.00  
Dec 08, 2009

## Features

- Low on-resistance  
 $R_{DS(on)} = 13 \Omega$  typ. (at  $I_D = 0.4$  A,  $V_{GS} = 10$  V,  $T_a = 25^\circ\text{C}$ )
- Low leakage current
- High speed switching

## Outline

RENESAS Package code: PRSS0004AE-B  
(Package name: LDPAK(S)-(1) )



## Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	600	V
Gate to source voltage	$V_{GSS}$	$\pm 30$	V
Drain current	$I_D$	0.8	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	1.2	A
Body-drain diode reverse drain current	$I_{DR}$	0.8	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ <sup>Note1</sup>	1.2	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	25	W
Channel to case thermal impedance	$\theta_{ch-c}$	5	$^\circ\text{C}/\text{W}$
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. Value at  $T_c = 25^\circ\text{C}$

## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	V <sub>(BR)DSS</sub>	600	—	—	V	I <sub>D</sub> = 10 mA, V <sub>GS</sub> = 0
Zero gate voltage drain current	I <sub>DSS</sub>	—	—	1	μA	V <sub>DS</sub> = 600 V, V <sub>GS</sub> = 0
Gate to source leak current	I <sub>GSS</sub>	—	—	±0.1	μA	V <sub>GS</sub> = ±30 V, V <sub>DS</sub> = 0
Gate to source cutoff voltage	V <sub>GS(off)</sub>	3	—	5	V	V <sub>DS</sub> = 10 V, I <sub>D</sub> = 1 mA
Static drain to source on state resistance	R <sub>DS(on)</sub>	—	13.0	17.5	Ω	I <sub>D</sub> = 0.4 A, V <sub>GS</sub> = 10 V <sup>Note3</sup>
Input capacitance	C <sub>iss</sub>	—	71.5	—	pF	V <sub>DS</sub> = 25 V V <sub>GS</sub> = 0 f = 1 MHz
Output capacitance	C <sub>oss</sub>	—	10.5	—	pF	
Reverse transfer capacitance	C <sub>rss</sub>	—	1.5	—	pF	
Turn-on delay time	t <sub>d(on)</sub>	—	31	—	ns	I <sub>D</sub> = 0.4 A V <sub>GS</sub> = 10 V R <sub>L</sub> = 750 Ω R <sub>g</sub> = 10 Ω
Rise time	t <sub>r</sub>	—	15	—	ns	
Turn-off delay time	t <sub>d(off)</sub>	—	44	—	ns	
Fall time	t <sub>f</sub>	—	44	—	ns	
Total gate charge	Q <sub>g</sub>	—	5.0	—	nC	V <sub>DD</sub> = 480 V V <sub>GS</sub> = 10 V I <sub>D</sub> = 0.8 A
Gate to source charge	Q <sub>gs</sub>	—	0.7	—	nC	
Gate to drain charge	Q <sub>gd</sub>	—	3.3	—	nC	
Body-drain diode forward voltage	V <sub>DF</sub>	—	0.86	1.45	V	I <sub>F</sub> = 0.8 A, V <sub>GS</sub> = 0 <sup>Note3</sup>
Body-drain diode reverse recovery time	t <sub>rr</sub>	—	157	—	ns	I <sub>F</sub> = 0.8 A, V <sub>GS</sub> = 0 di <sub>F</sub> /dt = 100 A/μs

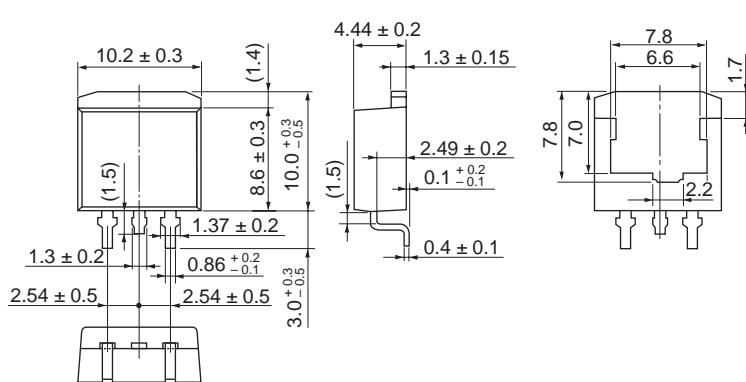
Notes: 3. Pulse test

4. This device is sensitive to electrostatic discharge.

It is recommended to adopt appropriate cautions when handling this product.

## Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]	Unit: mm
LDPAK(S)-(1)	SC-83	PRSS0004AE-B	LDPAK(S)-(1) / LDPAK(S)-(1)V	1.30g	



## Ordering Information

Part No.	Quantity	Shipping Container
RJK6025DPE-00-J3	1000 pcs	Taping

## Renesas Technology Corp. Sales Strategic Planning Div. Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan

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