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

April 1st, 2010
Renesas Electronics Corporation

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

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RJK5009DPP

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1606-0100

Rev.1.00

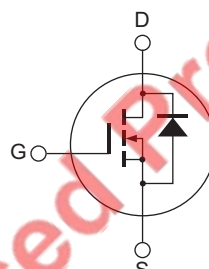
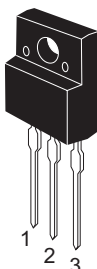
Dec 04, 2007

Features

- Low on-resistance
- Low leakage current
- High speed switching

Outline

RENESAS Package code: PRSS0003AB-A
(Package name: TO-220FN)



1. Gate
2. Drain
3. Source

Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DS}	500	V
Gate to source voltage	V_{GS}	± 30	V
Drain current	I_D ^{Note4}	20	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	60	A
Body-drain diode reverse drain current	I_{DR}	20	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ ^{Note1}	60	A
Avalanche current	I_{AP} ^{Note3}	4	A
Avalanche energy	E_{AR} ^{Note3}	0.88	mJ
Channel dissipation	P_{ch} ^{Note2}	40	W
Channel to case thermal impedance	θ_{ch-c}	3.125	°C/W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

- Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$
 2. Value at $T_c = 25^\circ C$
 3. $STch = 25^\circ C$, $T_{ch} \leq 150^\circ C$
 4. Limited by maximum safe operation area

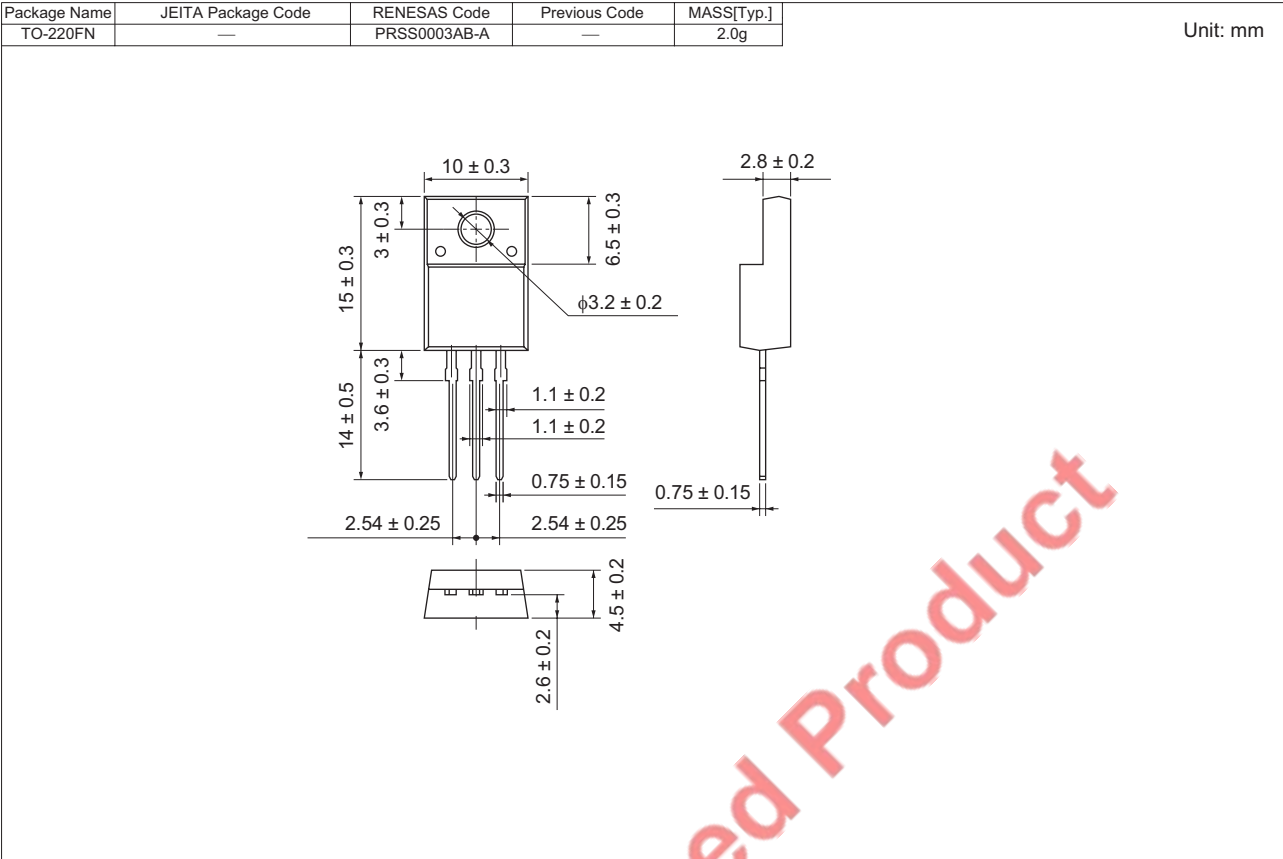
Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	500	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 500 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.260	0.325	Ω	$I_D = 10 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note5}
Input capacitance	C_{iss}	—	2100	—	pF	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	220	—	pF	
Reverse transfer capacitance	C_{rss}	—	27	—	pF	
Turn-on delay time	$t_{d(on)}$	—	35	—	ns	$I_D = 10 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 25 \Omega$ $R_g = 10 \Omega$
Rise time	t_r	—	33	—	ns	
Turn-off delay time	$t_{d(off)}$	—	97	—	ns	
Fall time	t_f	—	17	—	ns	$V_{DD} = 400 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 20 \text{ A}$
Total gate charge	Q_g	—	52	—	nC	
Gate to source charge	Q_{gs}	—	10.5	—	nC	
Gate to drain charge	Q_{gd}	—	22	—	nC	$I_F = 20 \text{ A}$, $V_{GS} = 0$ ^{Note5}
Body-drain diode forward voltage	V_{DF}	—	1.0	1.6	V	
Body-drain diode reverse recovery time	t_{rr}	—	320	—	ns	$I_F = 20 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 5. Pulse test

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
RJK5009DPP-00-T2	1050 pcs	Box (Tube)

Notes:

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Renesas Technology America, Inc.
450 Holger Way, San Jose, CA 95134-1368, U.S.A
Tel: <1> (408) 382-7500, Fax: <1> (408) 382-7501

Renesas Technology Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: <44> (1628) 585-100, Fax: <44> (1628) 585-900

Renesas Technology (Shanghai) Co., Ltd.
Unit 204, 205, AZIA Center, No.1233 Lujiazui Ring Rd, Pudong District, Shanghai, China 200120
Tel: <86> (21) 5877-1818, Fax: <86> (21) 6887-7858/7898

Renesas Technology Hong Kong Ltd.
7th Floor, North Tower, World Finance Centre, Harbour City, Canton Road, Tsimshatsui, Kowloon, Hong Kong
Tel: <852> 2265-6688, Fax: <852> 2377-3473

Renesas Technology Taiwan Co., Ltd.
10th Floor, No.99, Fushing North Road, Taipei, Taiwan
Tel: <886> (2) 2715-2888, Fax: <886> (2) 3518-3399

Renesas Technology Singapore Pte. Ltd.
1 Harbour Front Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: <65> 6213-0200, Fax: <65> 6278-8001

Renesas Technology Korea Co., Ltd.
Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

Renesas Technology Malaysia Sdn. Bhd
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510