

RJK0211DPA

Silicon N Channel Power MOS FET Power Switching

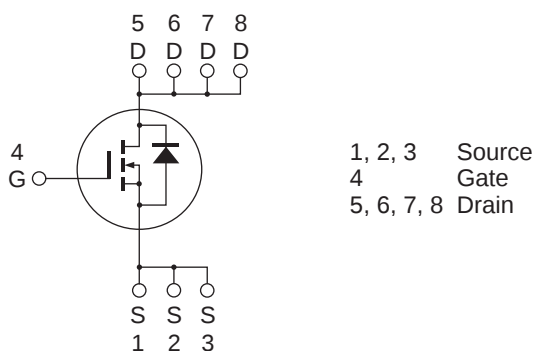
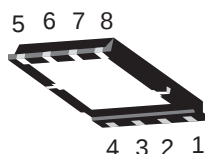
REJ03G1949-0021
Rev.0.21
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Features

- Very high speed switching
- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance
 $R_{DS(on)} = 6.8 \text{ m}\Omega$ typ. (at $V_{GS} = 10 \text{ V}$)
- Pb-free
- Halogen-free

Outline

RENESAS Package code: PWSN0008DC-A
(Package name: WPAK(2))



Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	25	V
Gate to source voltage	V_{GSS}	+16, -12	V
Drain current	I_D	30	A
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	120	A
Body-drain diode reverse drain current	I_{DR}	30	A
Avalanche current	I_{AP} ^{Note 2}	19	A
Avalanche energy	E_{AR} ^{Note 2}	45	mJ
Channel dissipation	P_{ch} ^{Note 3}	30	W
Channel to case thermal resistance	θ_{ch-c} ^{Note 3}	4.17	$^\circ\text{C/W}$
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 $T_{ch} = 25^\circ\text{C}$, $R_g \geq 50 \Omega$
3. $T_c = 25^\circ\text{C}$

Electrical Characteristics

(Ta = 25°C)

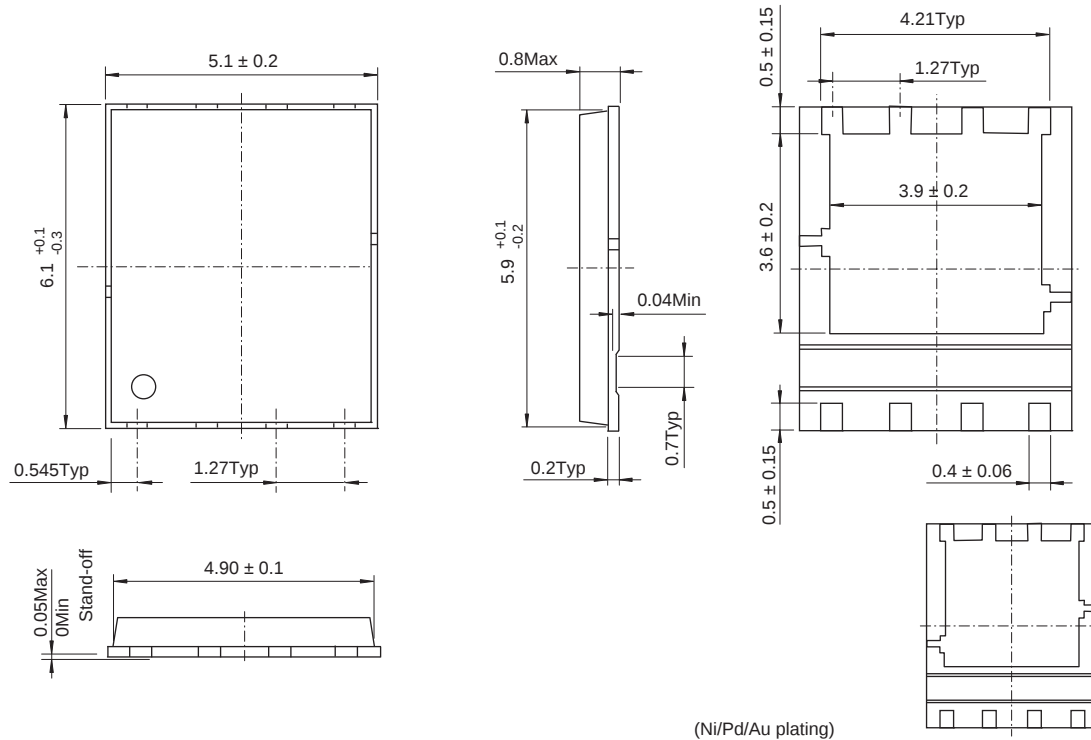
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	25	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 0.1	μA	$V_{GS} = +16, -12 \text{ V}$, $V_{DS} = 0$
Zero gate voltage drain current	I_{DSS}	—	—	1	μA	$V_{DS} = 20 \text{ V}$, $V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	1.2	—	2.5	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	6.8	8.2	$\text{m}\Omega$	$I_D = 15 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
	$R_{DS(on)}$	—	8.7	11.3	$\text{m}\Omega$	$I_D = 15 \text{ A}$, $V_{GS} = 4.5 \text{ V}$ ^{Note4}
Forward transfer admittance	$ y_{fs} $	—	50	—	S	$I_D = 15 \text{ A}$, $V_{DS} = 5 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	1380	1930	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	C_{oss}	—	470	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	19	—	pF	$f = 1 \text{ MHz}$
Gate Resistance	R_g	—	1.3	2.3	Ω	
Total gate charge	Q_g	—	7.5	—	nC	$V_{DD} = 10 \text{ V}$
Gate to source charge	Q_{gs}	—	3.9	—	nC	$V_{GS} = 4.5 \text{ V}$
Gate to drain charge	Q_{gd}	—	0.9	—	nC	$I_D = 30 \text{ A}$
Turn-on delay time	$t_{d(on)}$	—	TBD	—	ns	$V_{GS} = 10 \text{ V}$, $I_D = 15 \text{ A}$
Rise time	t_r	—	TBD	—	ns	$V_{DD} \cong 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	TBD	—	ns	$R_L = 0.67 \Omega$
Fall time	t_f	—	TBD	—	ns	$R_g = 4.7 \Omega$
Body-drain diode forward voltage	V_{DF}	—	0.83	1.08	V	$I_F = 30 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-drain diode reverse recovery time	t_{rr}	—	TBD	—	ns	$I_F = 30 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$

Notes: 4. Pulse test

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
WPAK(2)	—	PWSN0008DC-A	WPAK(2)V	0.07g

Unit: mm



Notice: The reverse pattern of die-pad support lead described above exists.

Ordering Information

Part No.	Quantity	Shipping Container
RJK0211DPA-00-J53	3000 pcs	Taping

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Renesas Electronics America Inc.
2880 Scott Boulevard Santa Clara, CA 95050-2554, U.S.A.
Tel: +1-408-588-6000, Fax: +1-408-588-6130

Renesas Electronics Canada Limited
1101 Nicholson Road, Newmarket, Ontario L3Y 9C3, Canada
Tel: +1-905-898-5441, Fax: +1-905-898-3220

Renesas Electronics Europe Limited
Dukes Meadow, Millboard Road, Bourne End, Buckinghamshire, SL8 5FH, U.K.
Tel: +44-1628-585-100, Fax: +44-1628-585-900

Renesas Electronics Europe GmbH
Arcadiastrasse 10, 40472 Düsseldorf, Germany
Tel: +49-211-65030, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
7th Floor, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100083, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

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

Renesas Electronics Hong Kong Limited
Unit 1601-1613, 16/F., Tower 2, Grand Century Place, 193 Prince Edward Road West, Mongkok, Kowloon, Hong Kong
Tel: +852-2886-9318, Fax: +852-2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.
7F, No. 363 Fu Shing North Road Taipei, Taiwan
Tel: +886-2-8175-9600, Fax: +886-2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
1 HarbourFront Avenue, #06-10, Keppel Bay Tower, Singapore 098632
Tel: +65-6213-0200, Fax: +65-6278-8001

Renesas Electronics 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: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.
11F., Samik Laviel' or Bldg., 720-2 Yeoksam-Dong, Kangnam-Ku, Seoul 135-080, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141