

# RJK2054DPC

Silicon N Channel MOS FET  
High Speed Power Switching

REJ03G1868-0100

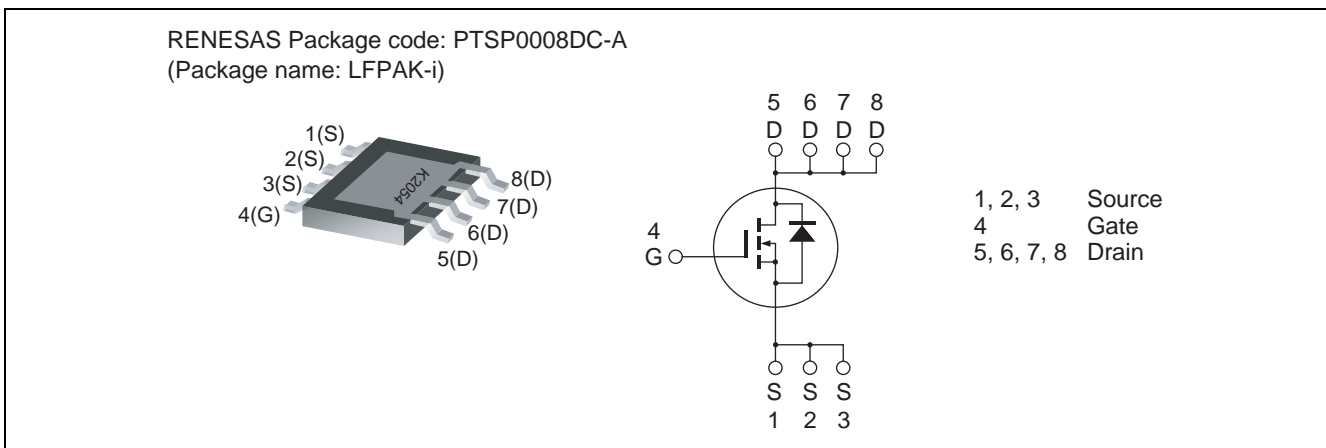
Rev.1.00

Dec 08, 2009

## Features

- Low on-resistance  
 $R_{DS(on)} = 0.075 \Omega$  typ. (at  $I_D = 8.5 \text{ A}$ ,  $V_{GS} = 10 \text{ V}$ ,  $T_a = 25^\circ\text{C}$ )
- Low drive current
- High density mounting

## Outline



## Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Drain to source voltage	$V_{DSS}$	200	V
Gate to source voltage	$V_{GSS}$	$\pm 30$	V
Drain current	$I_D$	17	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	34	A
Body-drain diode reverse drain current	$I_{DR}$	17	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ <sup>Note1</sup>	34	A
Avalanche current	$I_{AP}$ <sup>Note3</sup>	10	A
Avalanche energy	$E_{AR}$ <sup>Note3</sup>	6.6	mJ
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	30	W
Channel to case thermal impedance	$\theta_{ch-c}$	4.17	$^\circ\text{C}/\text{W}$
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  $T_c = 25^\circ\text{C}$

3.  $ST_{ch} = 25^\circ\text{C}$ ,  $T_{ch} \leq 150^\circ\text{C}$

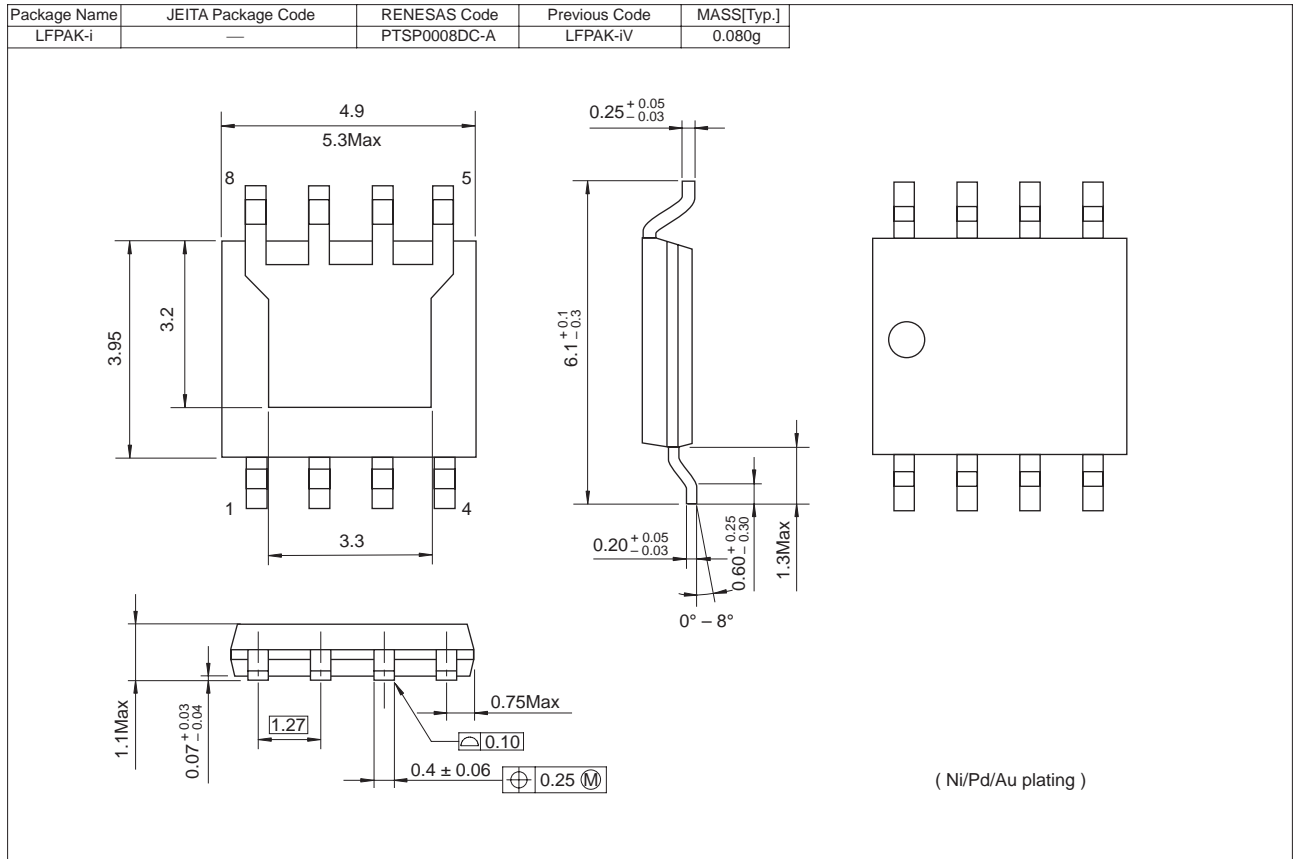
## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	200	—	—	V	$I_D = 10 \text{ mA}$ , $V_{GS} = 0$
Zero gate voltage drain current	$I_{DSS}$	—	—	1	$\mu\text{A}$	$V_{DS} = 200 \text{ V}$ , $V_{GS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 1$	$\mu\text{A}$	$V_{GS} = \pm 30 \text{ V}$ , $V_{DS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	2.5	—	4.5	V	$V_{DS} = 10 \text{ V}$ , $I_D = 1 \text{ mA}$
Static drain to source on state resistance	$R_{DS(on)}$	—	0.075	0.098	$\Omega$	$I_D = 8.5 \text{ A}$ , $V_{GS} = 10 \text{ V}$ <sup>Note4</sup>
Input capacitance	$C_{iss}$	—	1700	—	pF	$V_{DS} = 25 \text{ V}$
Output capacitance	$C_{oss}$	—	180	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	37	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	21	—	ns	$I_D = 8.5 \text{ A}$
Rise time	$t_r$	—	13	—	ns	$V_{GS} = 10 \text{ V}$
Turn-off delay time	$t_{d(off)}$	—	40	—	ns	$R_L = 11.8 \Omega$
Fall time	$t_f$	—	13	—	ns	$R_g = 10 \Omega$
Total gate charge	$Q_g$	—	27.3	—	nC	$V_{DD} = 160 \text{ V}$
Gate to source charge	$Q_{gs}$	—	8.6	—	nC	$V_{GS} = 10 \text{ V}$
Gate to drain charge	$Q_{gd}$	—	7.8	—	nC	$I_D = 17 \text{ A}$
Body-drain diode forward voltage	$V_{DF}$	—	0.82	1.25	V	$I_F = 17 \text{ A}$ , $V_{GS} = 0$ <sup>Note4</sup>
Body-drain diode reverse recovery time	$t_{rr}$	—	110	—		$I_F = 17 \text{ A}$ , $V_{GS} = 0$ $dt/dt = 100 \text{ A}/\mu\text{s}$

Notes: 4. Pulse test

### Package Dimensions



### Ordering Information

Part No.	Quantity	Shipping Container
RJK2054DPC-00-J0	2500 pcs	Taping

Notes:

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**Renesas Technology Singapore Pte. Ltd.**  
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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