

To our customers,

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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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RJK2054DPC

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G1868-0100

Rev.1.00

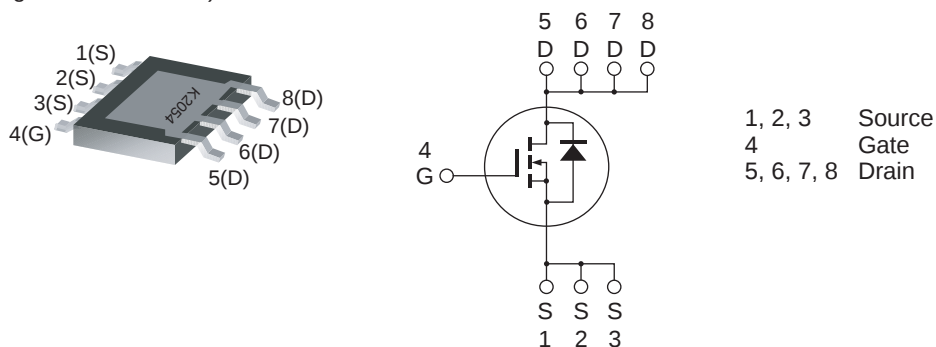
Dec 08, 2009

Features

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

Outline

RENESAS Package code: PTSP0008DC-A
(Package name: LFPK-i)



Absolute Maximum Ratings

($T_a = 25^\circ C$)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	200	V
Gate to source voltage	V_{GSS}	± 30	V
Drain current	I_D	17	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	34	A
Body-drain diode reverse drain current	I_{DR}	17	A
Body-drain diode reverse drain peak current	$I_{DR(pulse)}$ ^{Note1}	34	A
Avalanche current	I_{AP} ^{Note3}	10	A
Avalanche energy	E_{AR} ^{Note3}	6.6	mJ
Channel dissipation	P_{ch} ^{Note2}	30	W
Channel to case thermal impedance	θ_{ch-c}	4.17	$^\circ C/W$
Channel temperature	T_{ch}	150	$^\circ C$
Storage temperature	T_{stg}	-55 to +150	$^\circ C$

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

2. Value at $T_c = 25^\circ C$

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

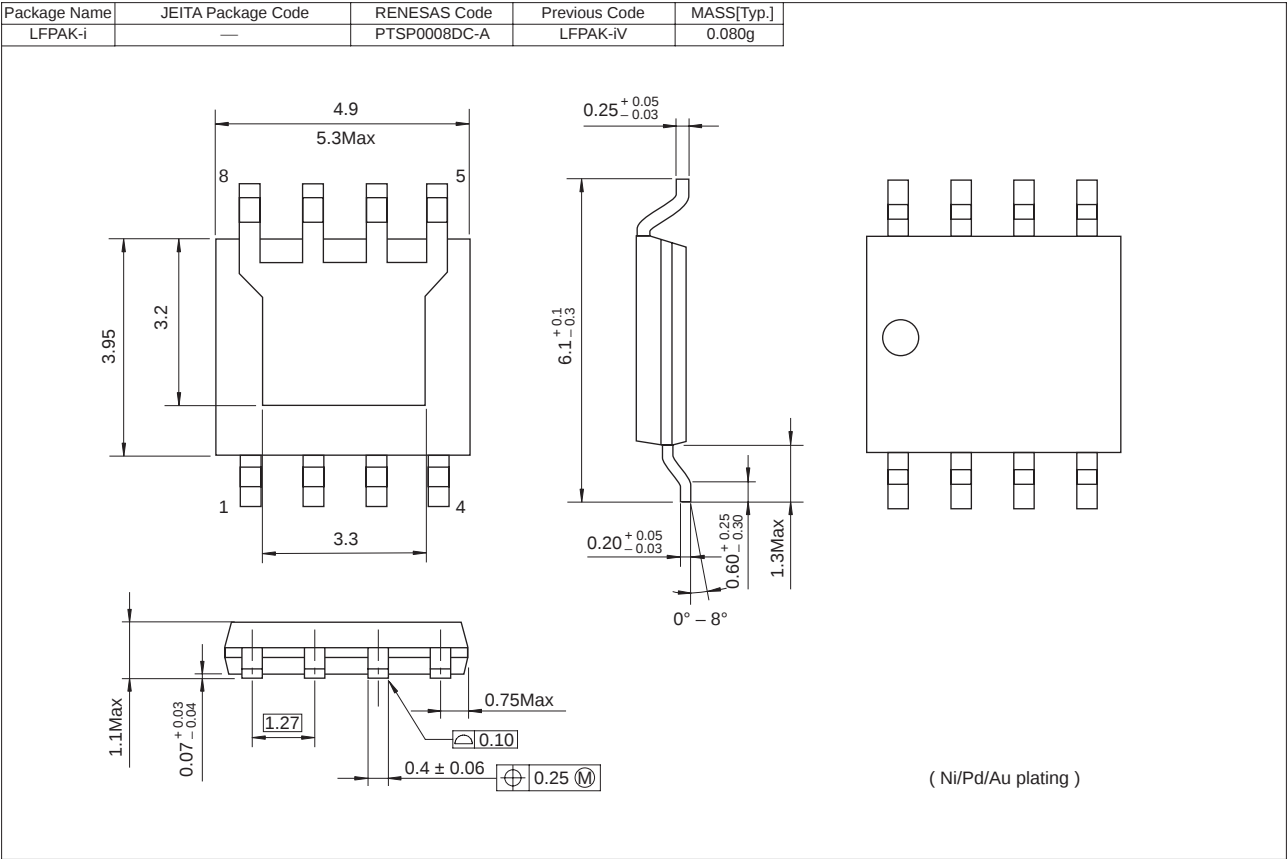
Electrical Characteristics

(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	μA	$V_{DS} = 200 \text{ V}$, $V_{GS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 1	μA	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0$
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	Ω	$I_D = 8.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	1700	—	pF	$V_{DS} = 25 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	180	—	pF	
Reverse transfer capacitance	C_{rss}	—	37	—	pF	
Turn-on delay time	$t_{d(on)}$	—	21	—	ns	$I_D = 8.5 \text{ A}$ $V_{GS} = 10 \text{ V}$ $R_L = 11.8 \Omega$ $R_g = 10 \Omega$
Rise time	t_r	—	13	—	ns	
Turn-off delay time	$t_{d(off)}$	—	40	—	ns	
Fall time	t_f	—	13	—	ns	
Total gate charge	Q_g	—	27.3	—	nC	$V_{DD} = 160 \text{ V}$ $V_{GS} = 10 \text{ V}$ $I_D = 17 \text{ A}$
Gate to source charge	Q_{gs}	—	8.6	—	nC	
Gate to drain charge	Q_{gd}	—	7.8	—	nC	
Body-drain diode forward voltage	V_{DF}	—	0.82	1.25	V	$I_F = 17 \text{ A}$, $V_{GS} = 0$ ^{Note4}
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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