

HAT1096C

Silicon P Channel MOS FET
Power Switching

R07DS1175EJ0500
(Previous: REJ03G1233-0400)
Rev.5.00
Mar 19, 2014

Features

- Low on-resistance
 $R_{DS(on)} = 225 \text{ m}\Omega$ typ. (at $V_{GS} = -4.5 \text{ V}$)
- Low drive current.
- 2.5 V gate drive devices.
- High density mounting

Outline

RENESAS Package code: PWSF0006JA-A
(Package name: CMFPAK-6)

1. Source
2. Drain
3. Drain
4. Drain
5. Drain
6. Gate

Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Drain to Source voltage	V_{DSS}	-20	V
Gate to Source voltage	V_{GSS}	± 12	V
Drain current	I_D	-1	A
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	-4	A
Body - Drain diode reverse drain current	I_{DR}	-1	A
Channel dissipation	P_{ch} ^{Note 2}	790	mW
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. When using the glass epoxy board. (FR4 40 × 40 × 1.6mm), $T_a = 25^\circ\text{C}$

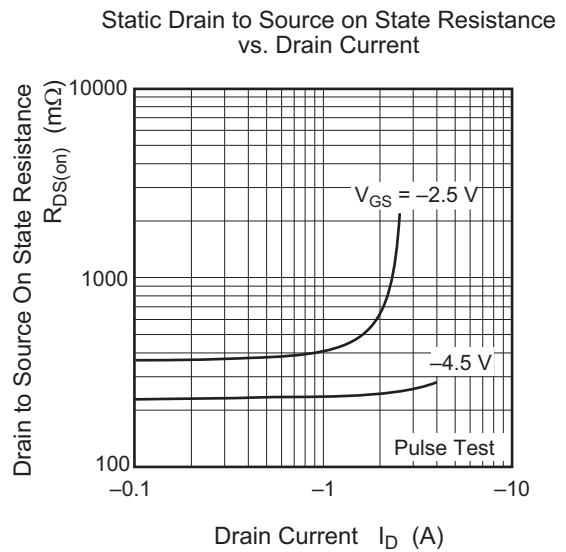
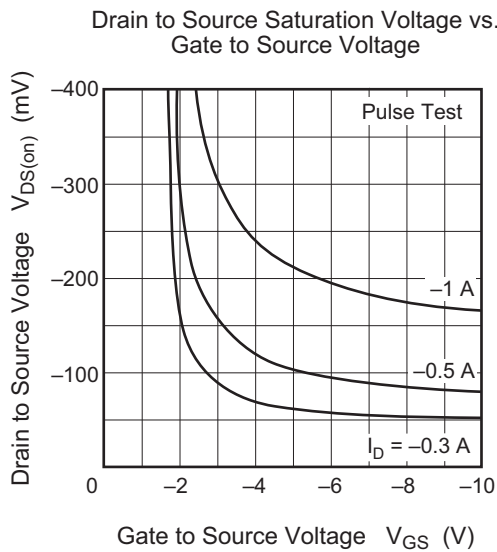
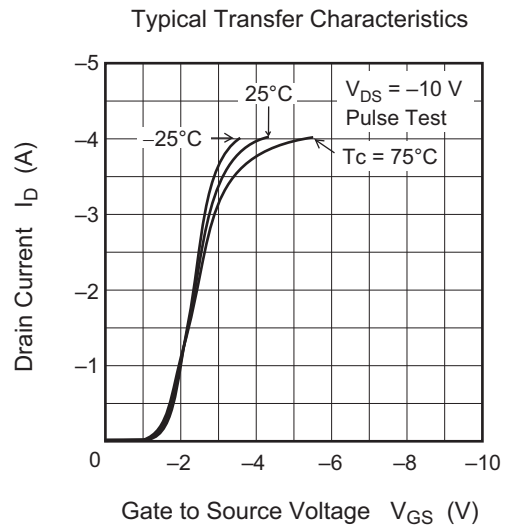
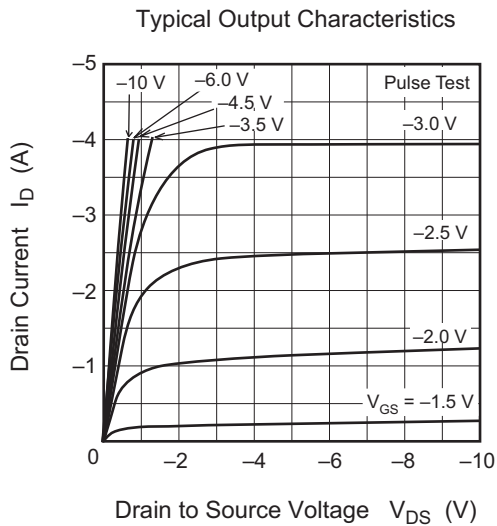
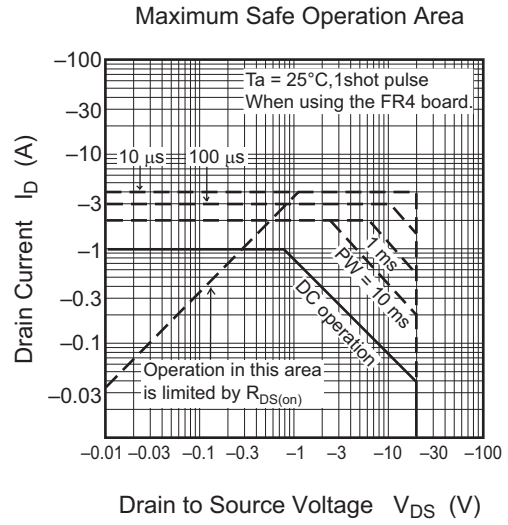
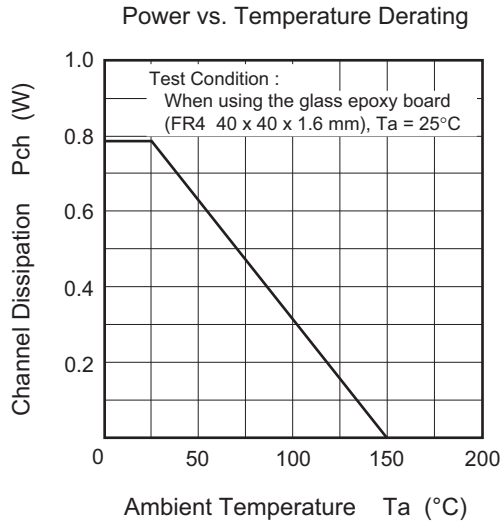
Electrical Characteristics

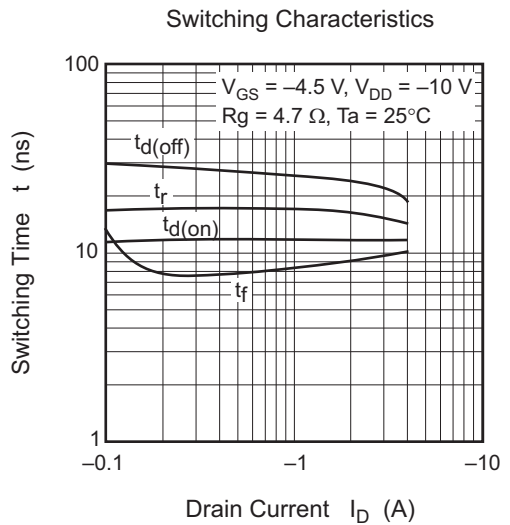
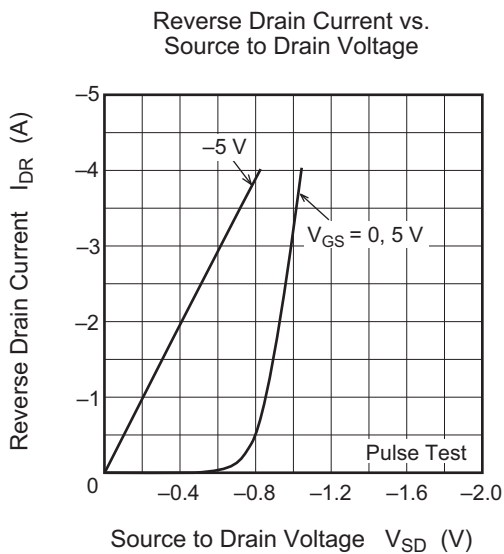
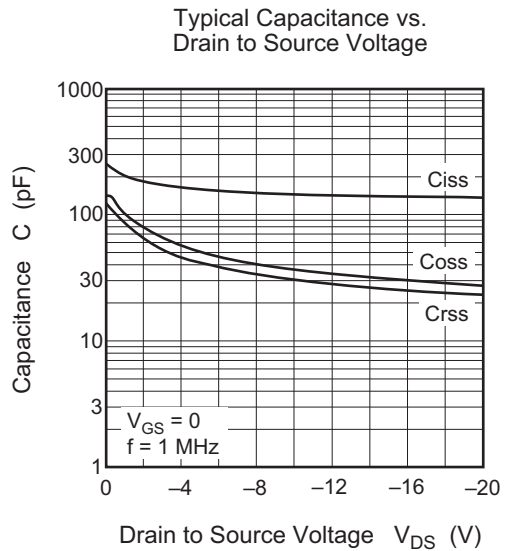
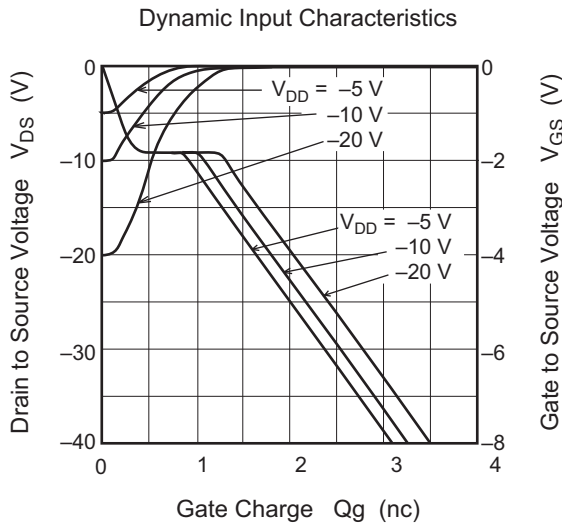
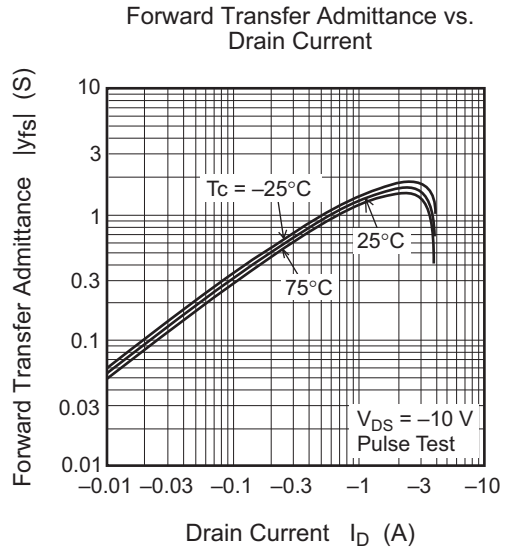
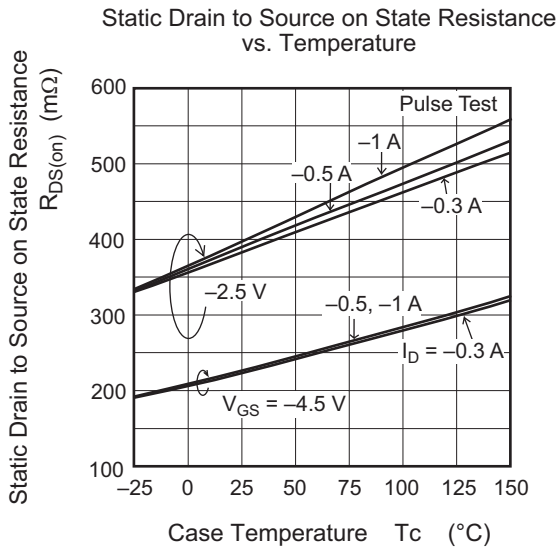
(Ta = 25°C)

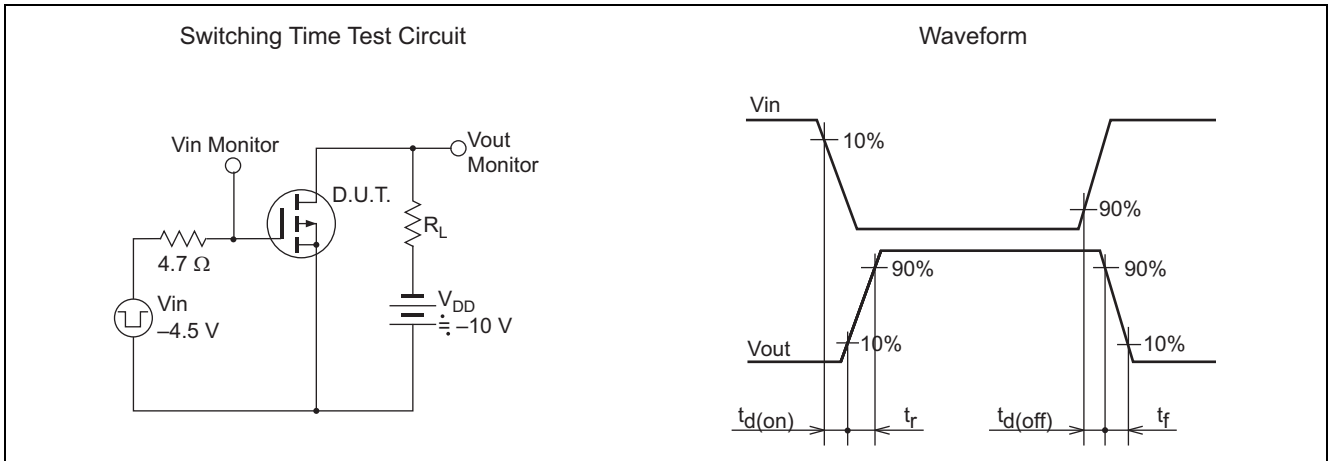
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	-20	—	—	V	$I_D = -10 \text{ mA}, V_{GS} = 0$
Gate to Source breakdown voltage	$V_{(BR)GSS}$	± 12	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to Source leakage current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 10 \text{ V}, V_{DS} = 0$
Drain to Source leakage current	I_{DSS}	—	—	-1	μA	$V_{DS} = -20 \text{ V}, V_{GS} = 0$
Gate to Source cutoff voltage	$V_{GS(th)}$	-0.4	—	-1.4	V	$I_D = -1 \text{ mA}, V_{DS} = -10 \text{ V}$ ^{Note3}
Drain to Source on state resistance	$R_{DS(on)}$	—	225	293	m Ω	$I_D = -0.5 \text{ mA}, V_{GS} = -4.5 \text{ V}$ ^{Note3}
	$R_{DS(on)}$	—	380	530	m Ω	$I_D = -0.5 \text{ mA}, V_{GS} = -2.5 \text{ V}$ ^{Note3}
Forward transfer admittance	$ y_{fs} $	0.6	0.9	—	S	$I_D = -0.5 \text{ mA}, V_{DS} = -10 \text{ V}$ ^{Note3}
Input capacitance	C_{iss}	—	155	—	pF	$V_{DS} = -10 \text{ V}, V_{GS} = 0,$ $f = 1 \text{ MHz}$
Output capacitance	C_{oss}	—	40	—	pF	
Reverse transfer capacitance	C_{rss}	—	30	—	pF	
Total gate charge	Q_g	—	2	—	nC	$V_{DS} = -10 \text{ V}, V_{GS} = -4.5 \text{ V},$ $I_D = -1 \text{ A}$
Gate to Source charge	Q_{gs}	—	0.4	—	nC	
Gate to Drain charge	Q_{gd}	—	0.6	—	nC	
Turn - on delay time	$t_{d(on)}$	—	12	—	ns	$V_{DS} = -10 \text{ V}, V_{GS} = -4.5 \text{ V},$ $I_D = -0.5 \text{ A}, R_L = 20 \Omega,$ $R_g = 4.7 \Omega$
Rise time	t_r	—	18	—	ns	
Turn - off delay time	$t_{d(off)}$	—	28	—	ns	
Fall time	t_f	—	8	—	ns	
Body - Drain diode forward voltage	V_{DF}	—	-0.85	-1.1	V	$I_F = -1 \text{ A}, V_{GS} = 0$

Notes: 3. Pulse test

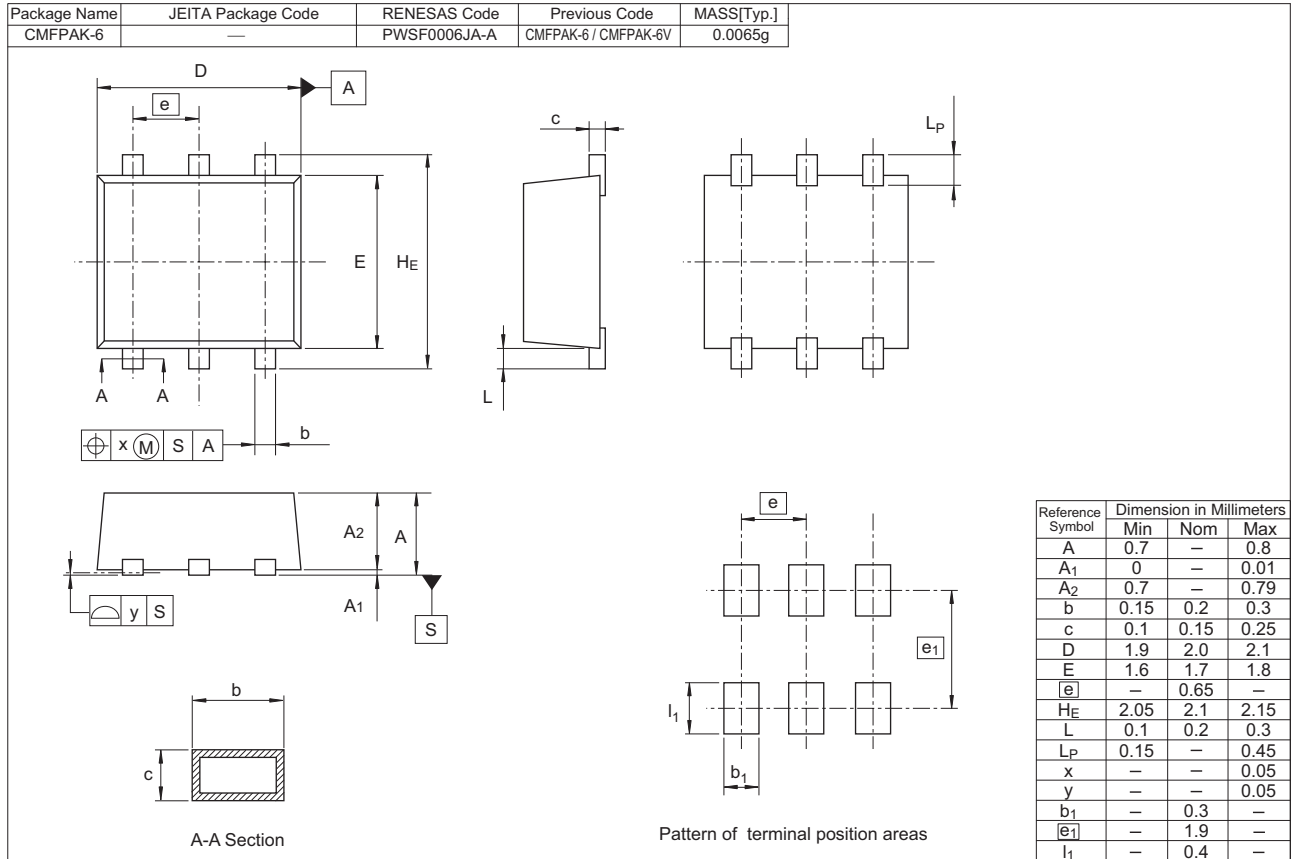
Main Characteristics







Package Dimensions



Ordering Information

Orderable Part Number	Quantity	Shipping Container
HAT1096C-EL-E	3000 pcs	Taping

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Renesas Electronics America Inc.
2801 Scott Boulevard Santa Clara, CA 95050-2549, U.S.A.
Tel: +1-408-586-6000, 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: +49-211-6503-0, Fax: +49-211-6503-1327

Renesas Electronics (China) Co., Ltd.
Room 1709, Quantum Plaza, No.27 ZhiChunLu Haidian District, Beijing 100191, P.R.China
Tel: +86-10-8235-1155, Fax: +86-10-8235-7679

Renesas Electronics (Shanghai) Co., Ltd.
Unit 301, Tower A, Central Towers, 555 Langao Road, Putuo District, Shanghai, P. R. China 200333
Tel: +86-21-2226-0888, Fax: +86-21-2226-0999

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: +852-2265-6688, Fax: +852 2886-9022/9044

Renesas Electronics Taiwan Co., Ltd.
13F, No. 363, Fu Shing North Road, Taipei 10543, Taiwan
Tel: +886-2-8175-9600, Fax: +886 2-8175-9670

Renesas Electronics Singapore Pte. Ltd.
80 Bendemeer Road, Unit #06-02 Hyflux Innovation Centre, Singapore 339949
Tel: +65-6213-0200, Fax: +65-6213-0300

Renesas Electronics Malaysia Sdn.Bhd.
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No. 18, Jin Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: +60-3-7955-9390, Fax: +60-3-7955-9510

Renesas Electronics Korea Co., Ltd.
12F., 234 Teheran-ro, Gangnam-Ku, Seoul, 135-920, Korea
Tel: +82-2-558-3737, Fax: +82-2-558-5141