

# HAT2240C

Silicon N Channel MOS FET  
Power Switching

R07DS1184EJ0500  
(Previous: REJ03G1241-0400)  
Rev.5.00  
Mar 19, 2014

## Features

- Low on-resistance  
 $R_{DS(on)} = 75 \text{ m}\Omega$  typ.(at  $V_{GS} = 4.5 \text{ V}$ )
- Low drive current
- High density mounting
- 2.5 V gate drive device

## 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	$V_{DSS}$	60	V
Gate to source voltage	$V_{GSS}$	$\pm 12$	V
Drain current	$I_D$	2.5	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	10	A
Body - drain diode reverse drain current	$I_{DR}$	2.5	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	900	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 x 40 x 1.6mm)

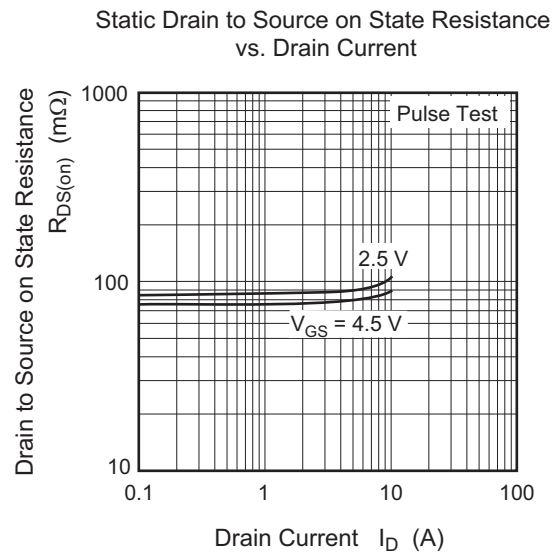
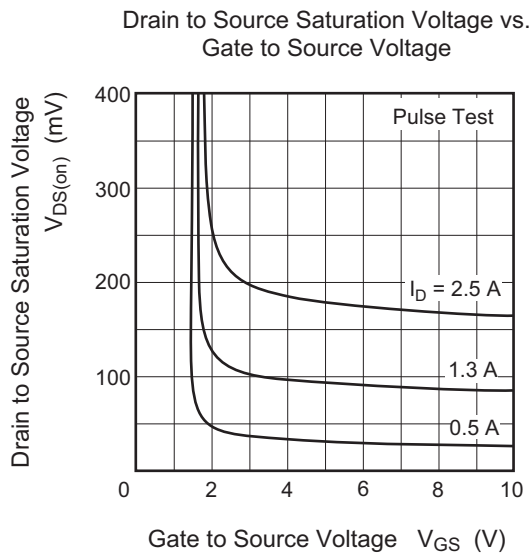
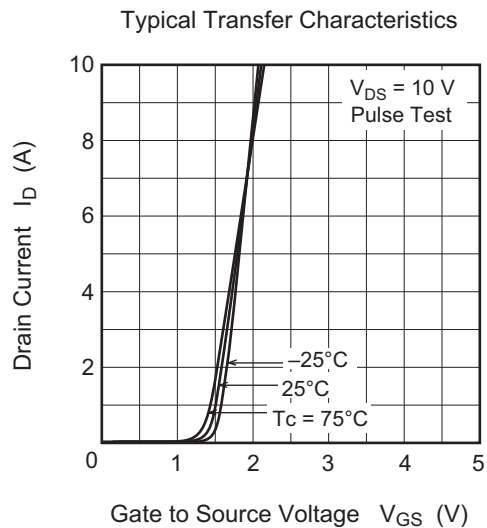
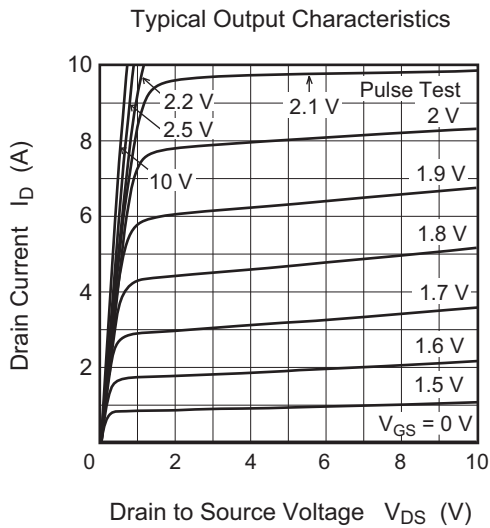
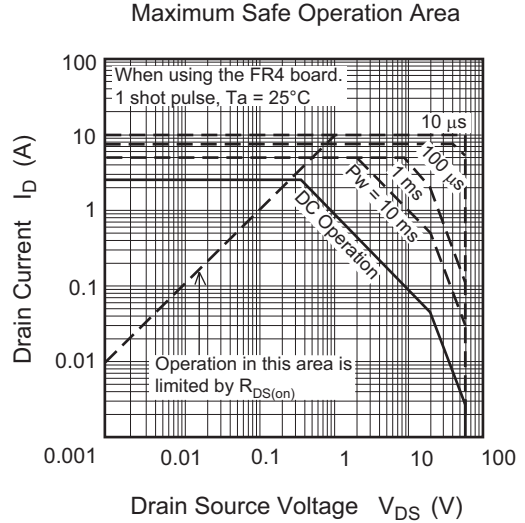
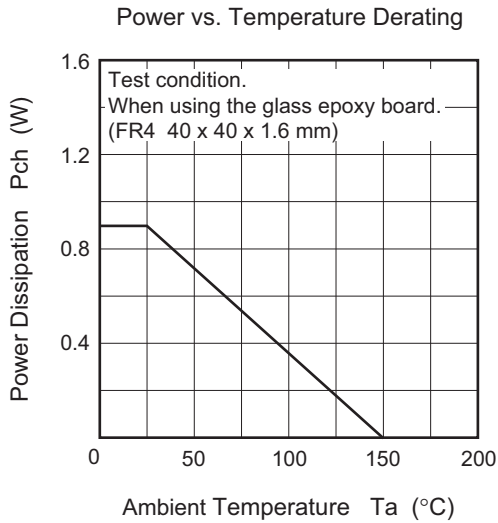
## Electrical Characteristics

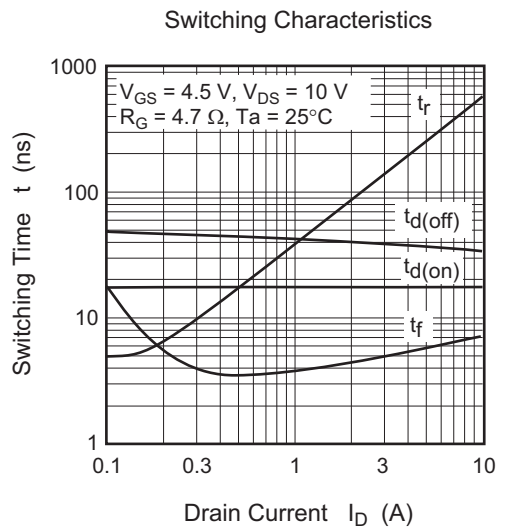
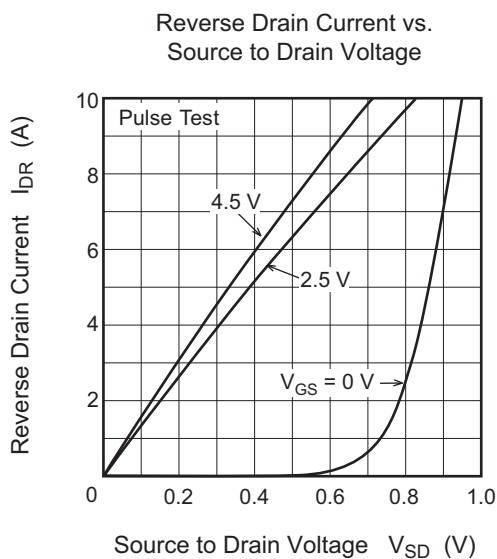
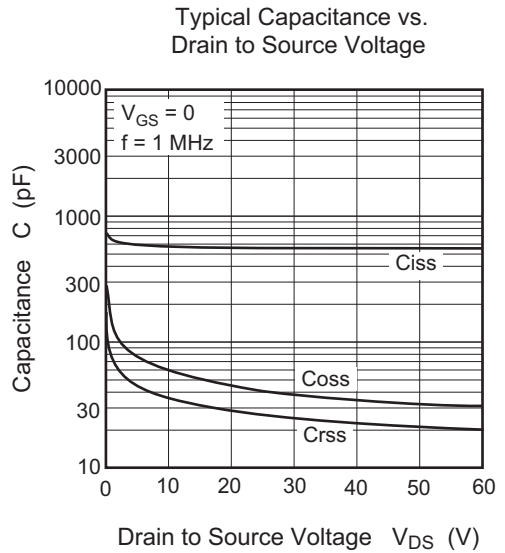
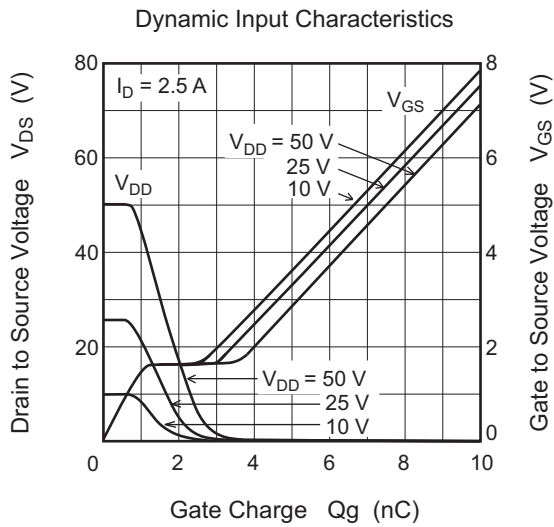
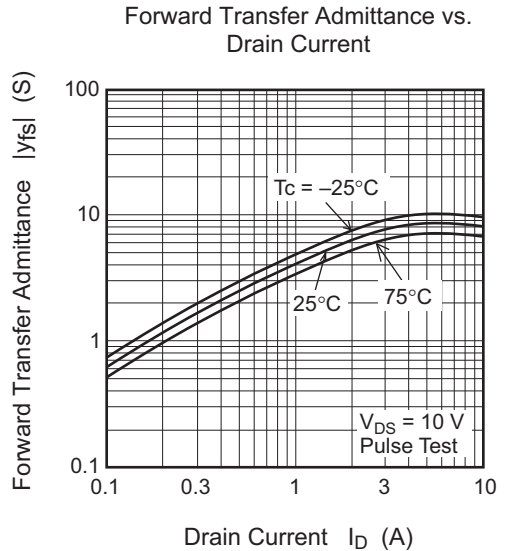
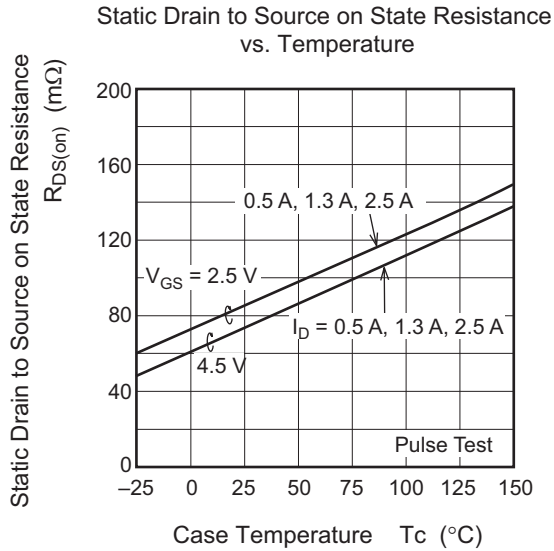
(Ta = 25°C)

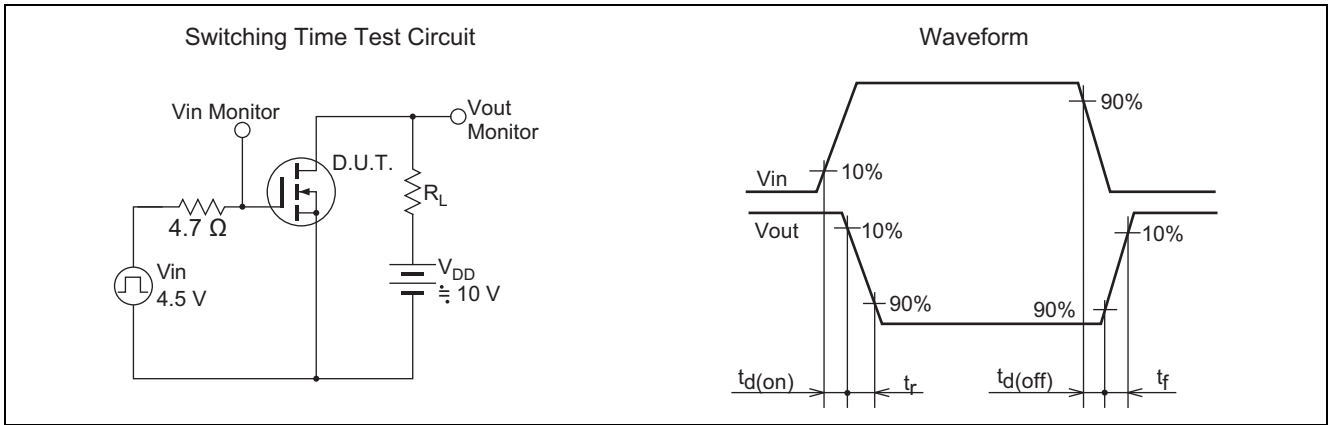
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	$\pm 12$				$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 10 \text{ V}, V_{DS} = 0$
Drain to source leak current	$I_{DSS}$	—	—	1	$\mu\text{A}$	$V_{DS} = 60 \text{ V}, V_{GS} = 0$
Gate to source cutoff voltage	$V_{GS(off)}$	0.4	—	1.4	V	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$
Drain to source on state resistance	$R_{DS(on)}$	—	75	98	m $\Omega$	$I_D = 1.3 \text{ A}, V_{GS} = 4.5 \text{ V}^{\text{Note3}}$
	$R_{DS(on)}$	—	85	119	m $\Omega$	$I_D = 1.3 \text{ A}, V_{GS} = 2.5 \text{ V}^{\text{Note3}}$
Forward transfer admittance	$ y_{fs} $	3.3	5	—	S	$I_D = 1.3 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note3}}$
Input capacitance	$C_{iss}$	—	590	—	pF	$V_{DS} = 10 \text{ V}, V_{GS} = 0,$ $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	60	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	35	—	pF	
Total gate charge	$Q_g$	—	6	—	nC	$V_{DD} = 10 \text{ V}, V_{GS} = 4.5 \text{ V}$ $I_D = 2.5 \text{ A}$
Gate to source charge	$Q_{gs}$	—	1.2	—	nC	
Gate to drain charge	$Q_{gd}$	—	1.4	—	nC	
Turn - on delay time	$t_{d(on)}$	—	17	—	ns	$I_D = 1.3 \text{ A}$ $V_{GS} = 4.5 \text{ V}, V_{DD} = 10 \text{ V}$ $R_L = 7.7 \Omega, R_g = 4.7 \Omega$
Rise time	$t_r$	—	50	—	ns	
Turn - off delay time	$t_{d(off)}$	—	41	—	ns	
Fall time	$t_f$	—	4	—	ns	
Body - drain diode forward voltage	$V_{DF}$	—	0.8	1.1	V	$I_F = 2.5 \text{ A}, V_{GS} = 0^{\text{Note3}}$

Notes: 3. Pulse test

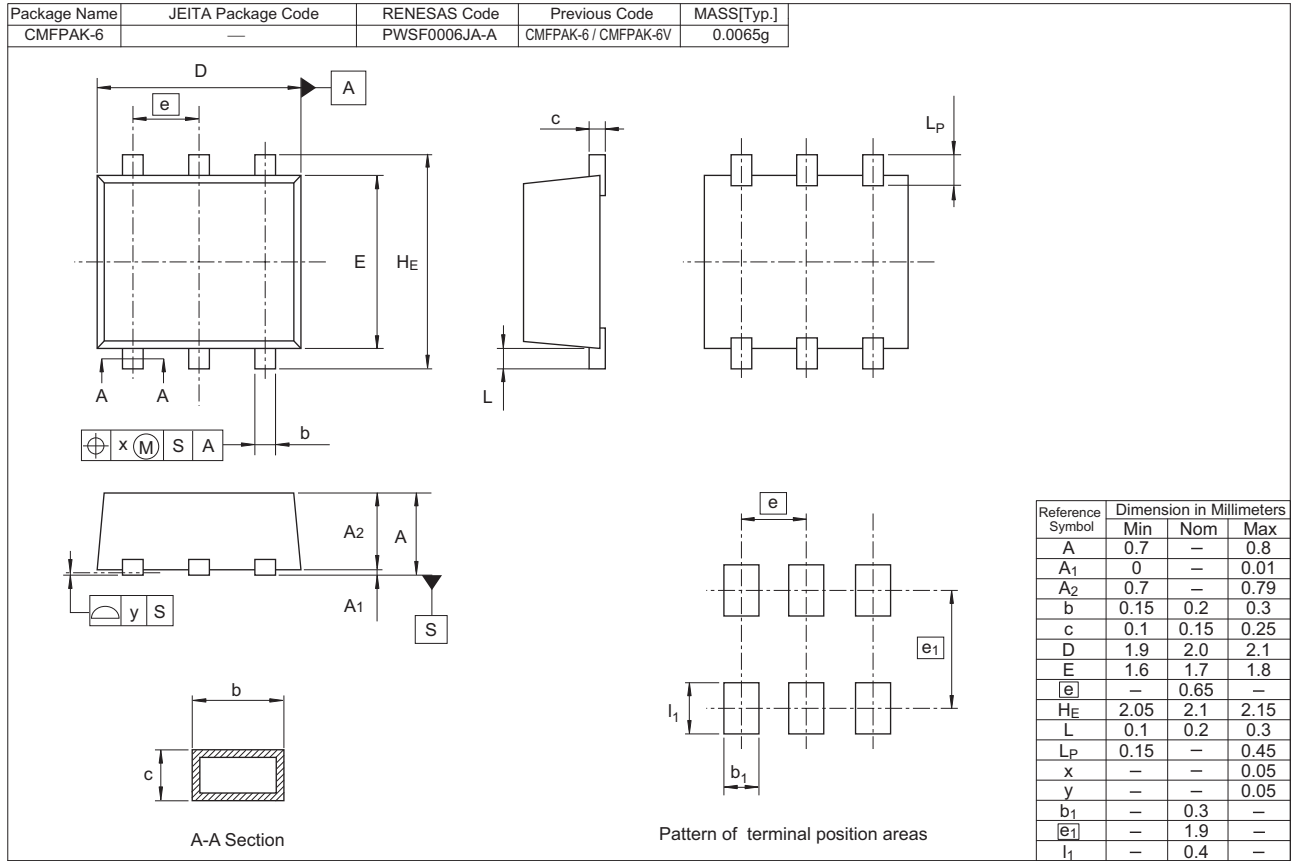
### Main Characteristics







### Package Dimensions



### Ordering Information

Orderable Part Number	Quantity	Shipping Container
HAT2240C-EL-E	3000 pcs	Taping

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