

HAT2205C

Silicon N Channel MOS FET
Power Switching

R07DS1181EJ0500
(Previous: REJ03G1237-0400)
Rev.5.00
Mar 19, 2014

Features

- Low on-resistance
 $R_{DS(on)} = 38\text{ m}\Omega$ typ. (at $V_{GS} = 4.5\text{ V}$)
- Low drive current.
- High density mounting
- 1.8 V gate drive devices.

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}	12	V
Gate to source voltage	V_{GSS}	± 8	V
Drain current	I_D	3	A
Drain peak current	$I_{D(pulse)}$ ^{Note 1}	12	A
Body - Drain diode reverse drain current	I_{DR}	3	A
Channel dissipation	P_{ch} ^{Note 2}	850	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 × 1.6 mm)

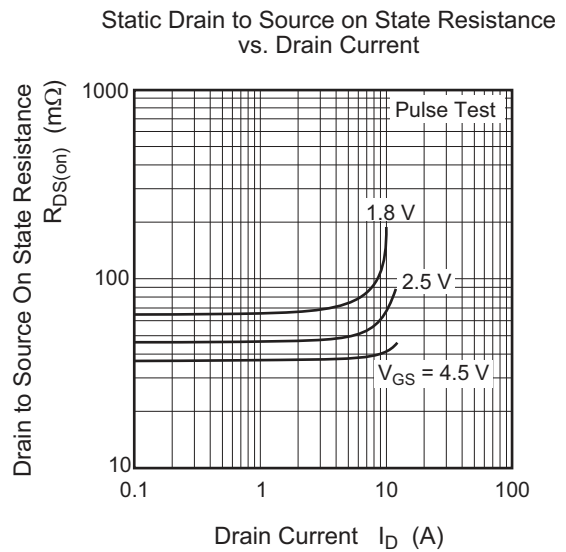
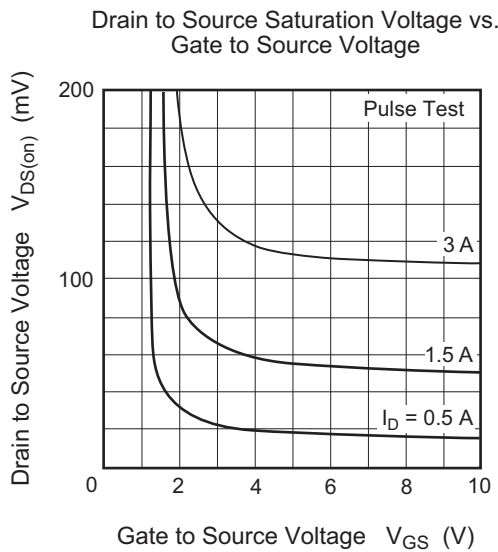
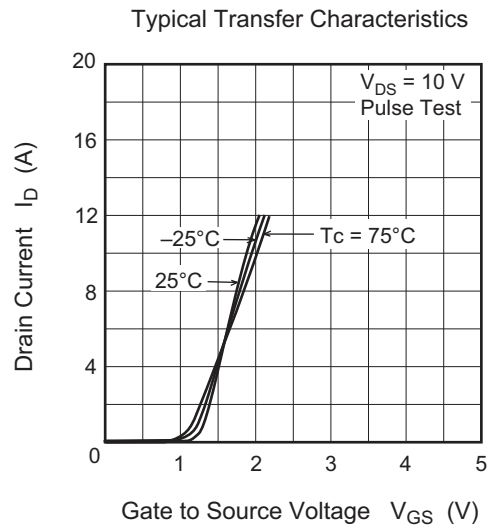
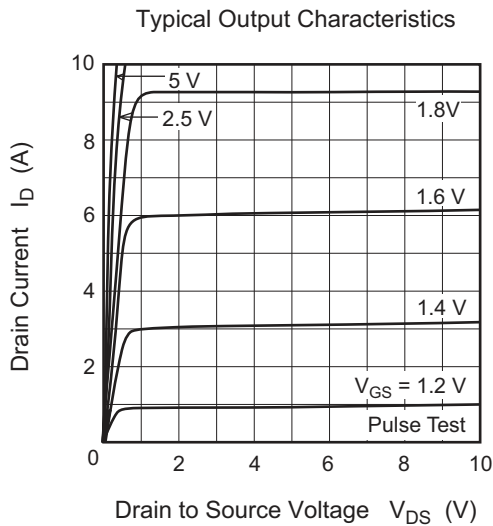
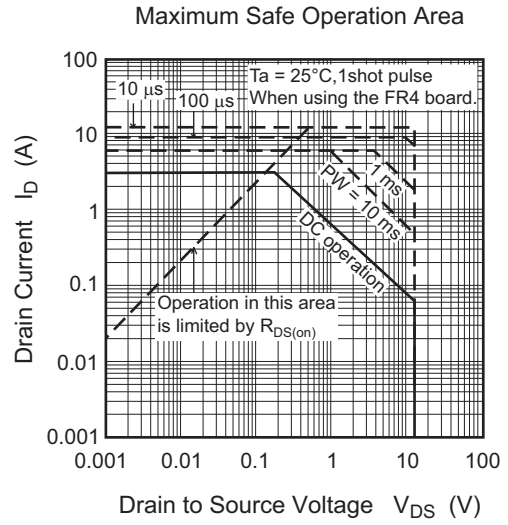
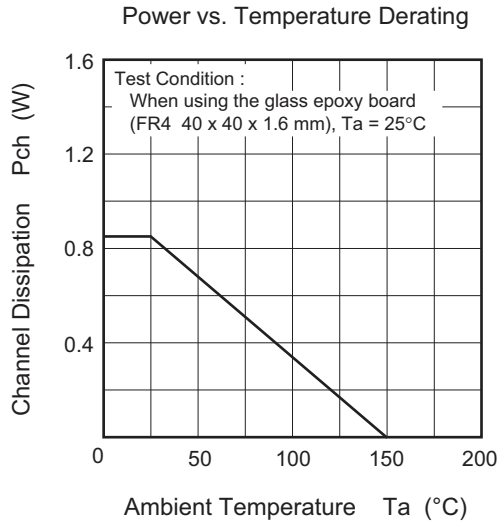
Electrical Characteristics

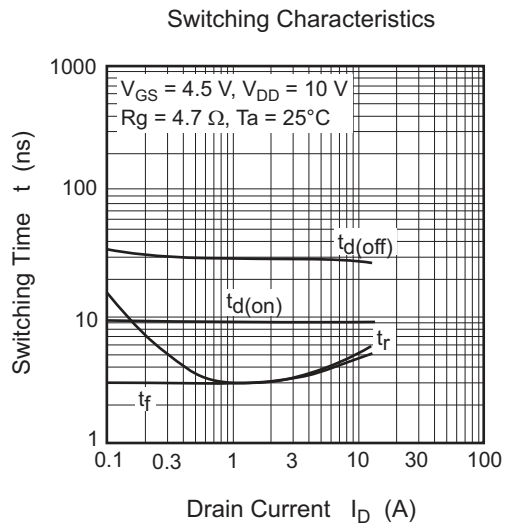
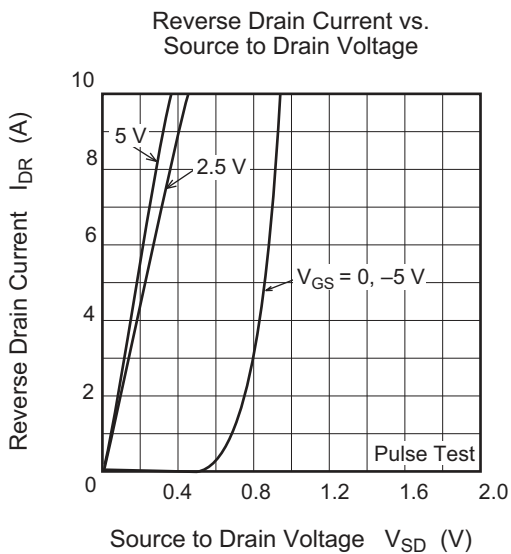
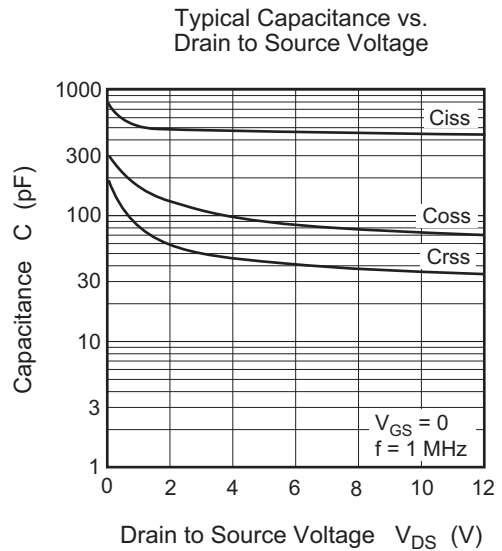
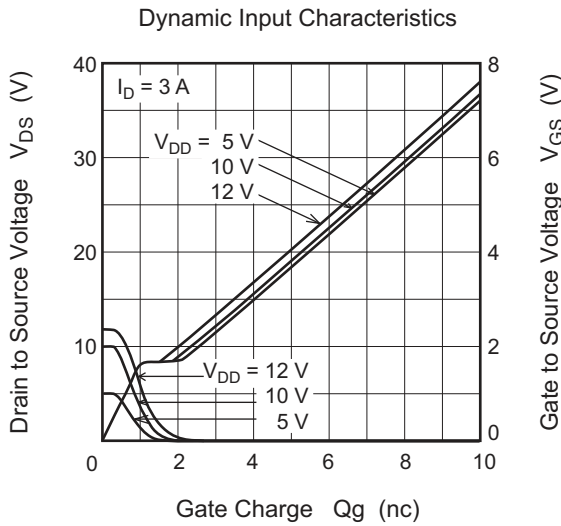
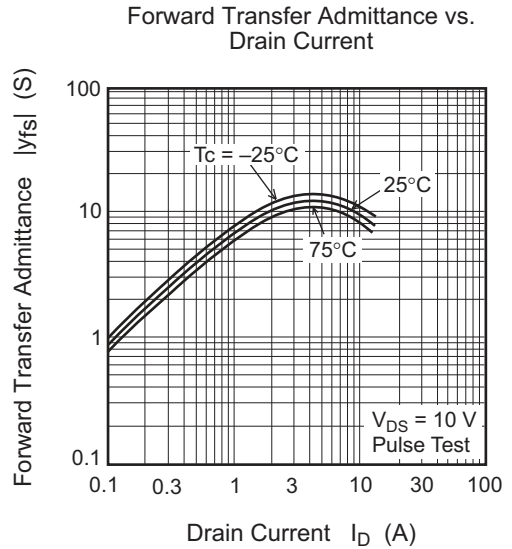
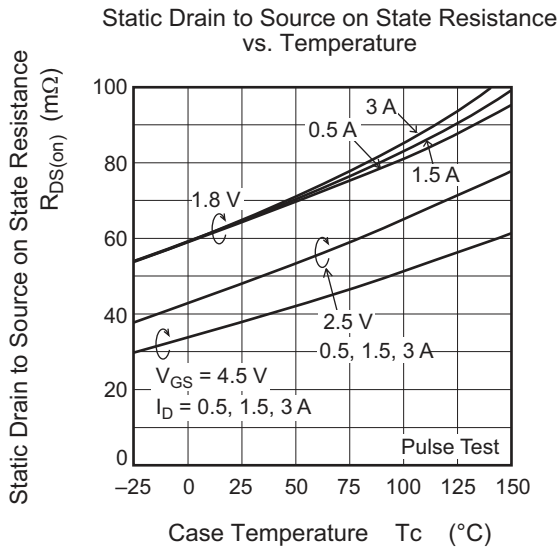
(Ta = 25°C)

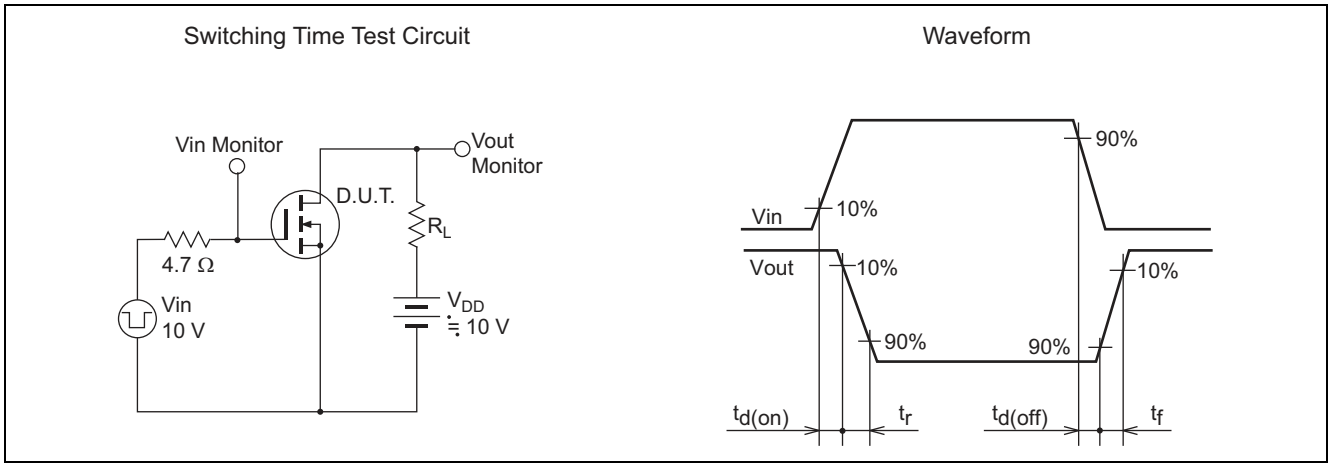
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	12	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to Source breakdown voltage	$V_{(BR)GSS}$	± 8	—	—	V	$I_G = \pm 10 \text{ }\mu\text{A}$, $V_{DS} = 0$
Gate to Source leakage current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 6.4 \text{ V}$, $V_{DS} = 0$
Drain to Source leakage current	I_{DSS}	—	—	1	μA	$V_{DS} = 12 \text{ V}$, $V_{GS} = 0$
Gate to Source cutoff voltage	$V_{GS(th)}$	0.3	—	1.2	V	$V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$
Drain to Source on state resistance	$R_{DS(on)}$	—	38	50	m Ω	$V_{GS} = 4.5 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3}
	$R_{DS(on)}$	—	48	67	m Ω	$V_{GS} = 2.5 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3}
	$R_{DS(on)}$	—	65	97	m Ω	$V_{GS} = 1.8 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3}
Forward transfer admittance	$ y_{fs} $	6	9	—	S	$V_{DS} = 10 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3}
Input capacitance	C_{iss}	—	430	—	pF	$V_{GS} = 0$, $f = 1 \text{ MHz}$, $V_{DS} = 10 \text{ V}$
Output capacitance	C_{oss}	—	72	—	pF	
Reverse transfer capacitance	C_{rss}	—	35	—	pF	
Total gate charge	Q_g	—	6	—	nC	$V_{GS} = 4.5 \text{ V}$, $V_{DS} = 10 \text{ V}$, $I_D = 3 \text{ A}$
Gate to Source charge	Q_{gs}	—	0.9	—	nC	
Gate to Drain charge	Q_{gd}	—	0.9	—	nC	
Turn - on delay time	$t_{d(on)}$	—	9	—	ns	$V_{GS} = 4.5 \text{ V}$, $I_D = 1.5 \text{ A}$, $V_{DD} = 10 \text{ V}$, $R_L = 6.7 \text{ }\Omega$, $R_g = 4.7 \text{ }\Omega$
Rise time	t_r	—	3	—	ns	
Turn - off delay time	$t_{d(off)}$	—	30	—	ns	
Fall time	t_f	—	3	—	ns	
Body - Drain diode forward voltage	V_{DF}	—	0.8	1.1	V	$I_F = 3 \text{ A}$, $V_{GS} = 0$ ^{Note3}

Notes: 3. Pulse test

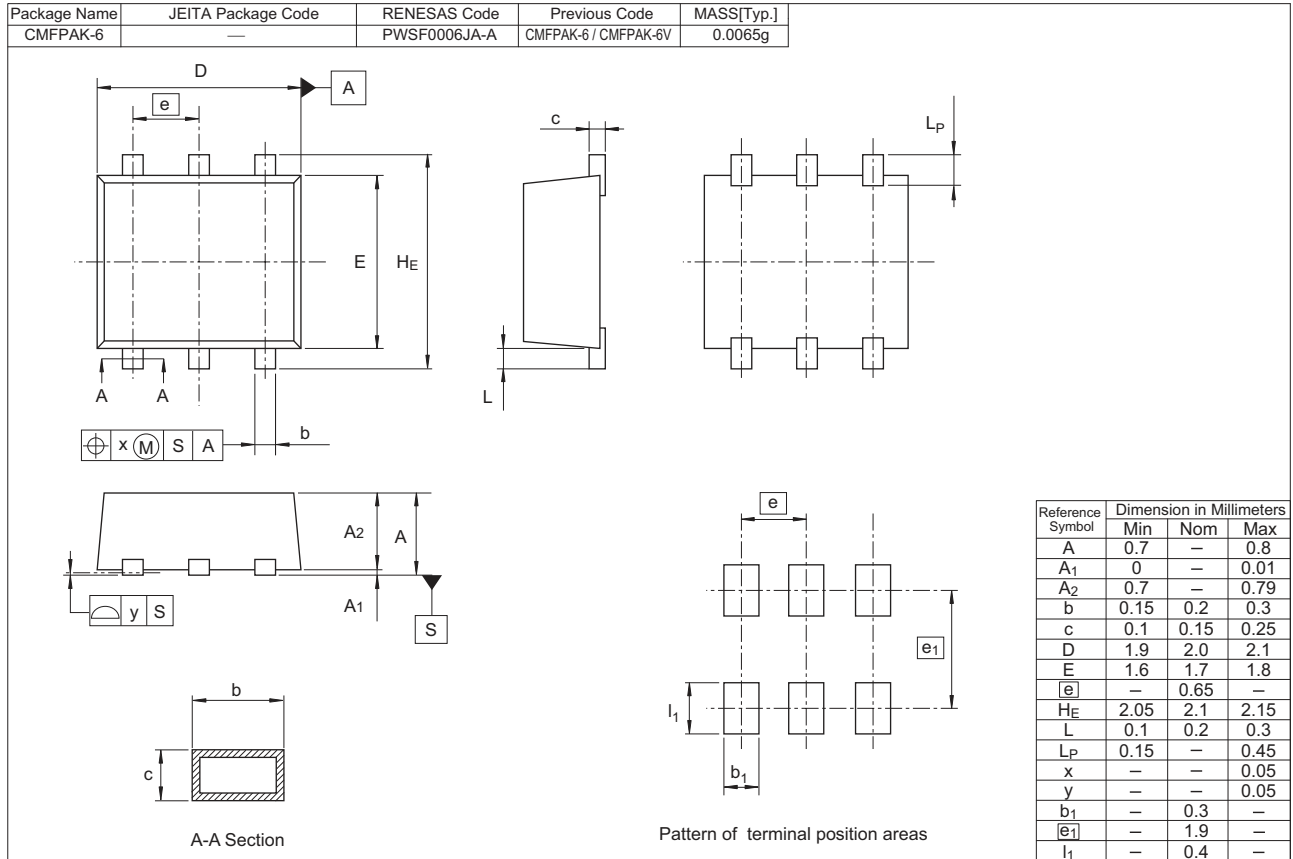
Main Characteristics







Package Dimensions



Ordering Information

Orderable Part Number	Quantity	Shipping Container
HAT2205C-EL-E	3000 pcs	Taping

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