

HAT2240C

Silicon N Channel MOS FET Power Switching

REJ03G1241-0400

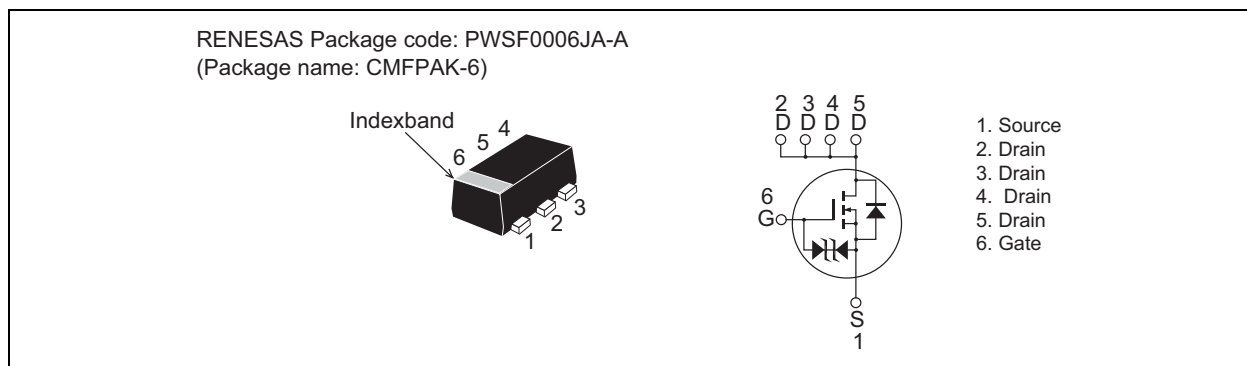
Rev.4.00

Apr 05, 2006

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



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	60	V
Gate to source voltage	V_{GSS}	±12	V
Drain current	I_D	2.5	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	10	A
Body - drain diode reverse drain current	I_{DR}	2.5	A
Channel dissipation	P_{ch} ^{Note2}	900	mW
Channel temperature	Tch	150	°C
Storage temperature	Tstg	-55 to +150	°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)

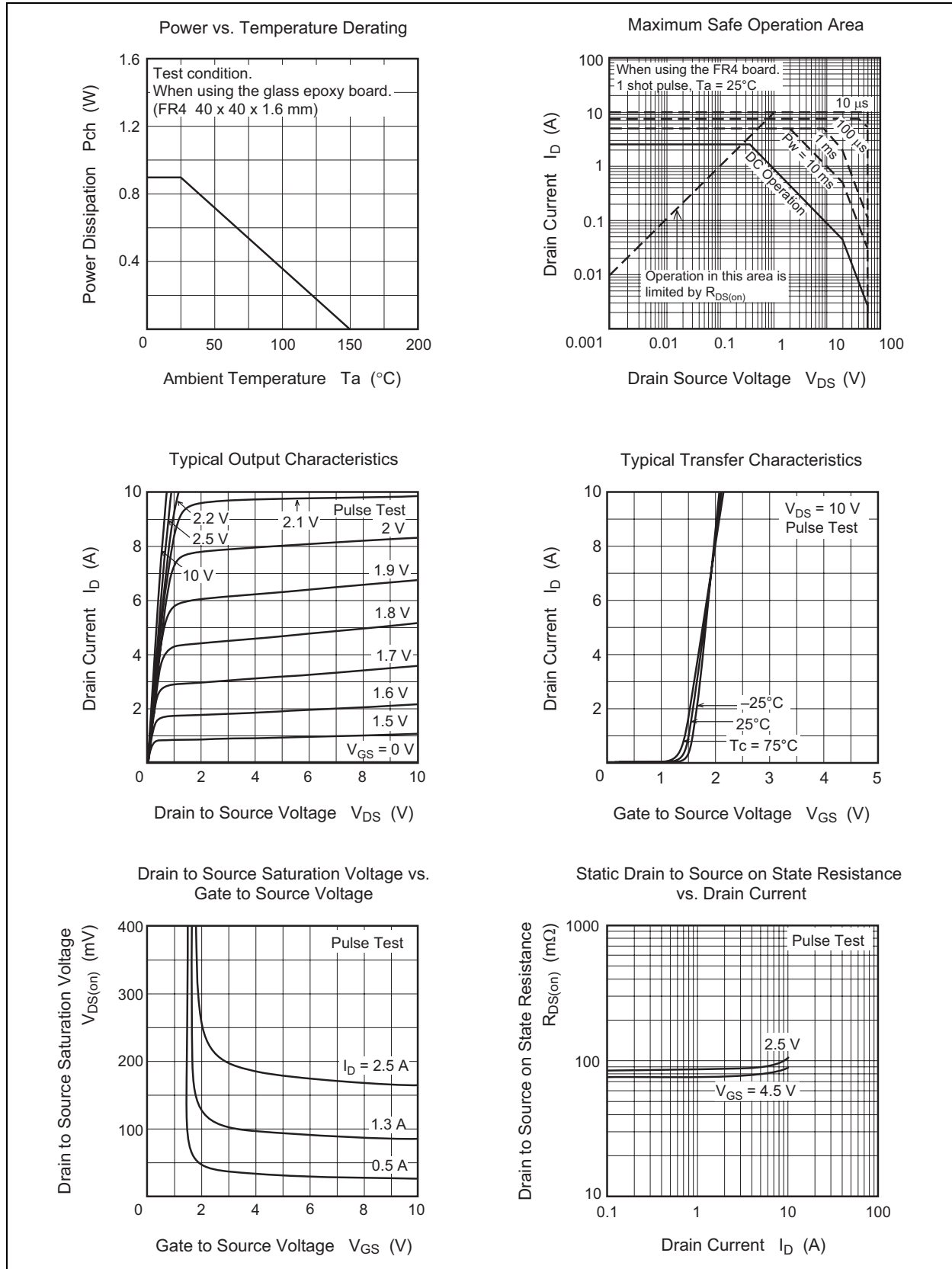
Electrical Characteristics

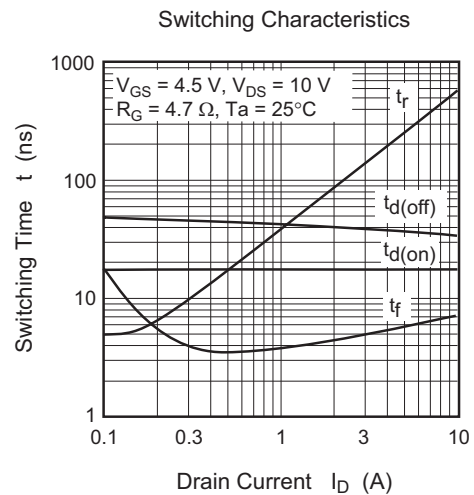
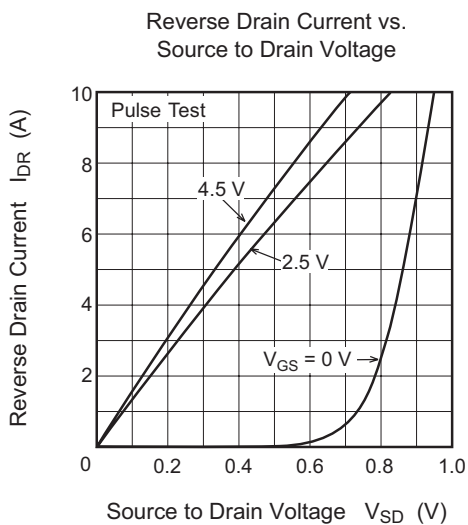
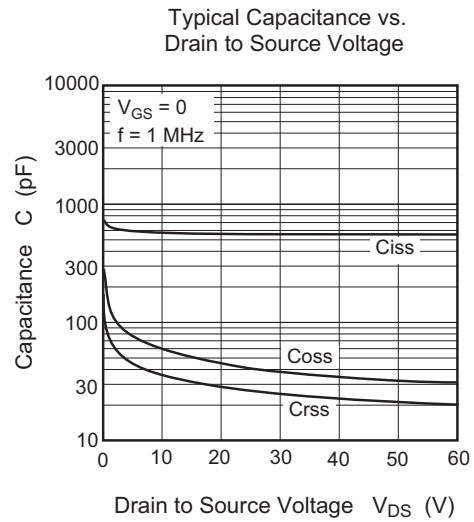
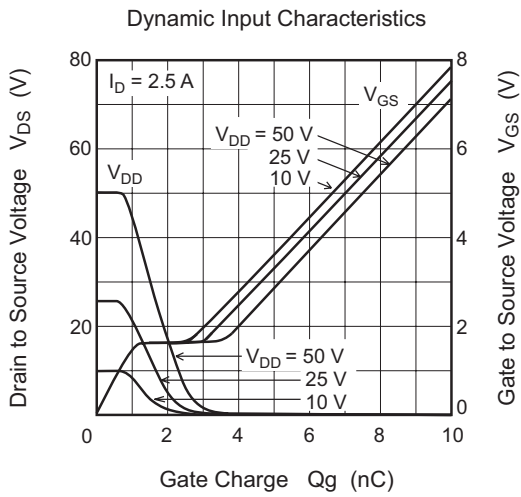
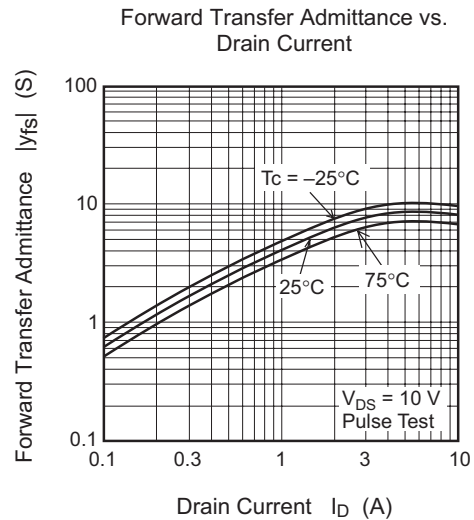
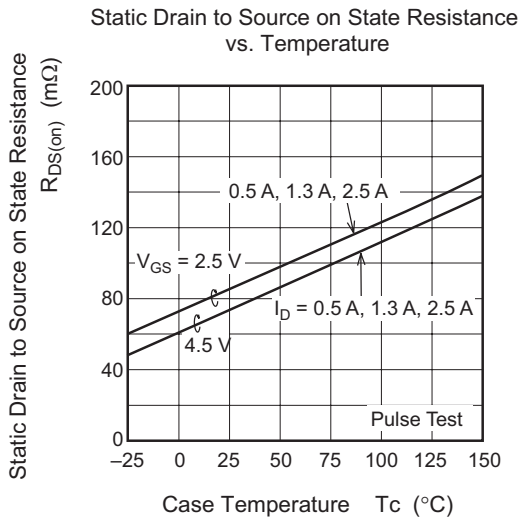
(Ta = 25°C)

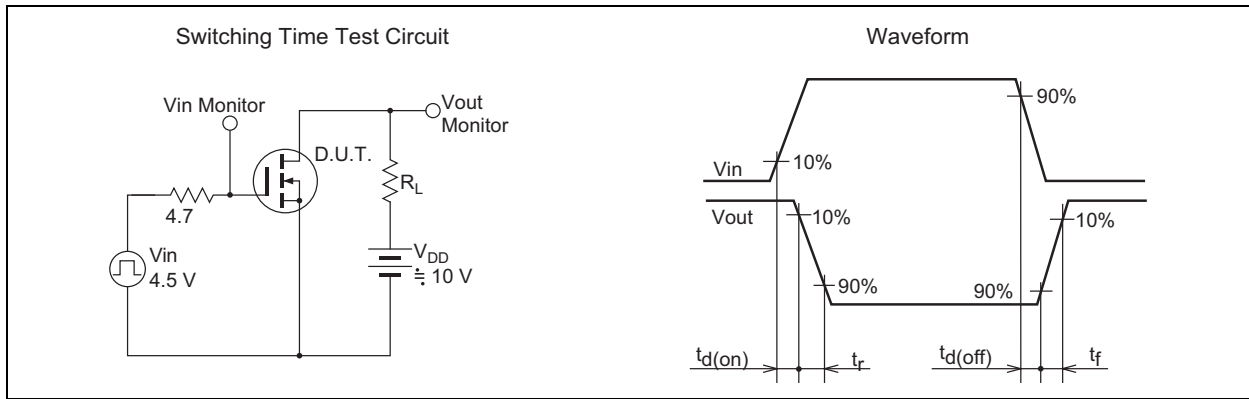
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	60	—	—	V	$I_D = 10 \text{ mA}$, $V_{GS} = 0$
Gate to source breakdown voltage	$V_{(BR)GSS}$	± 12				$I_G = \pm 100 \mu\text{A}$, $V_{DS} = 0$
Gate to source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 10 \text{ V}$, $V_{DS} = 0$
Drain to source leak current	I_{DSS}	—	—	1	μA	$V_{DS} = 60 \text{ V}$, $V_{GS} = 0$
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	$\text{m}\Omega$	$I_D = 1.3 \text{ A}$, $V_{GS} = 4.5 \text{ V}$ ^{Note3}
	$R_{DS(on)}$	—	85	119	$\text{m}\Omega$	$I_D = 1.3 \text{ A}$, $V_{GS} = 2.5 \text{ V}$ ^{Note3}
Forward transfer admittance	$ y_{fs} $	3.3	5	—	S	$I_D = 1.3 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{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	
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	
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	
Body - drain diode forward voltage	V_{DF}	—	0.8	1.1	V	$I_F = 2.5 \text{ A}$, $V_{GS} = 0$ ^{Note3}

Notes: 3. Pulse test

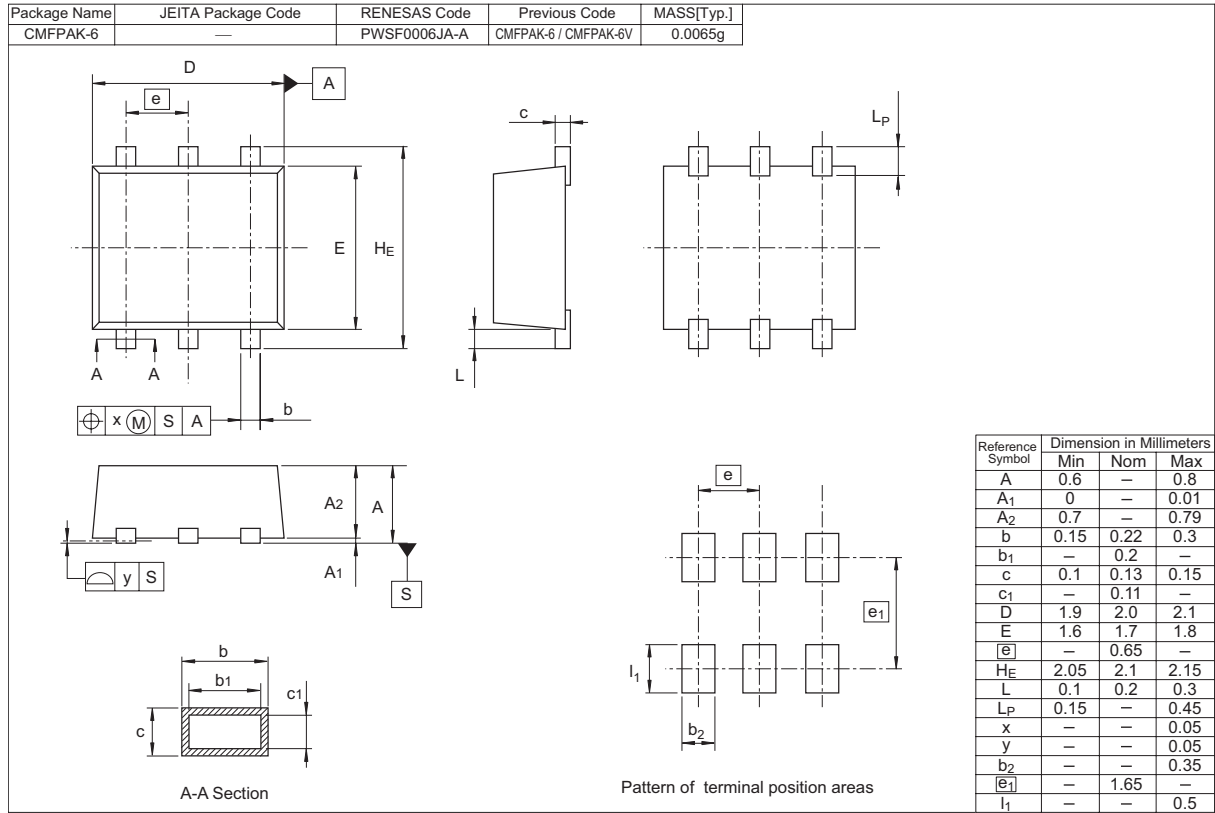
Main Characteristics







Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT2240C-EL-E	3000 pcs	Taping

Note: For some grades, production may be terminated. Please contact the Renesas sales office to check the state of production before ordering the product.

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