

HAT2204C

Silicon N Channel MOS FET Power Switching

REJ03G0448-0500

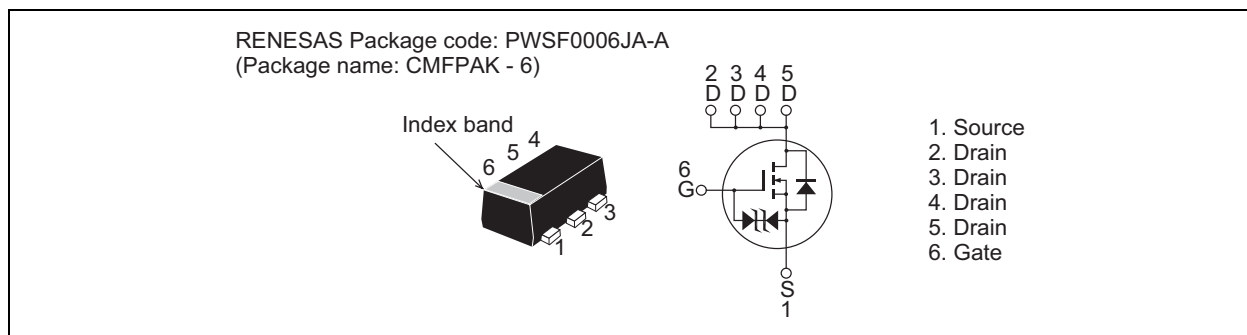
Rev.5.00

May 10, 2007

Features

- Low on-resistance
 $R_{DS(on)} = 26\text{m}\Omega$ typ.(at $V_{GS} = 4.5\text{V}$)
- Low drive current
- High density mounting
- 1.8 V gate drive device

Outline



Absolute Maximum Ratings

(Ta = 25°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	3.5	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	14	A
Body - Drain diode reverse Drain current	I_{DR}	3.5	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)

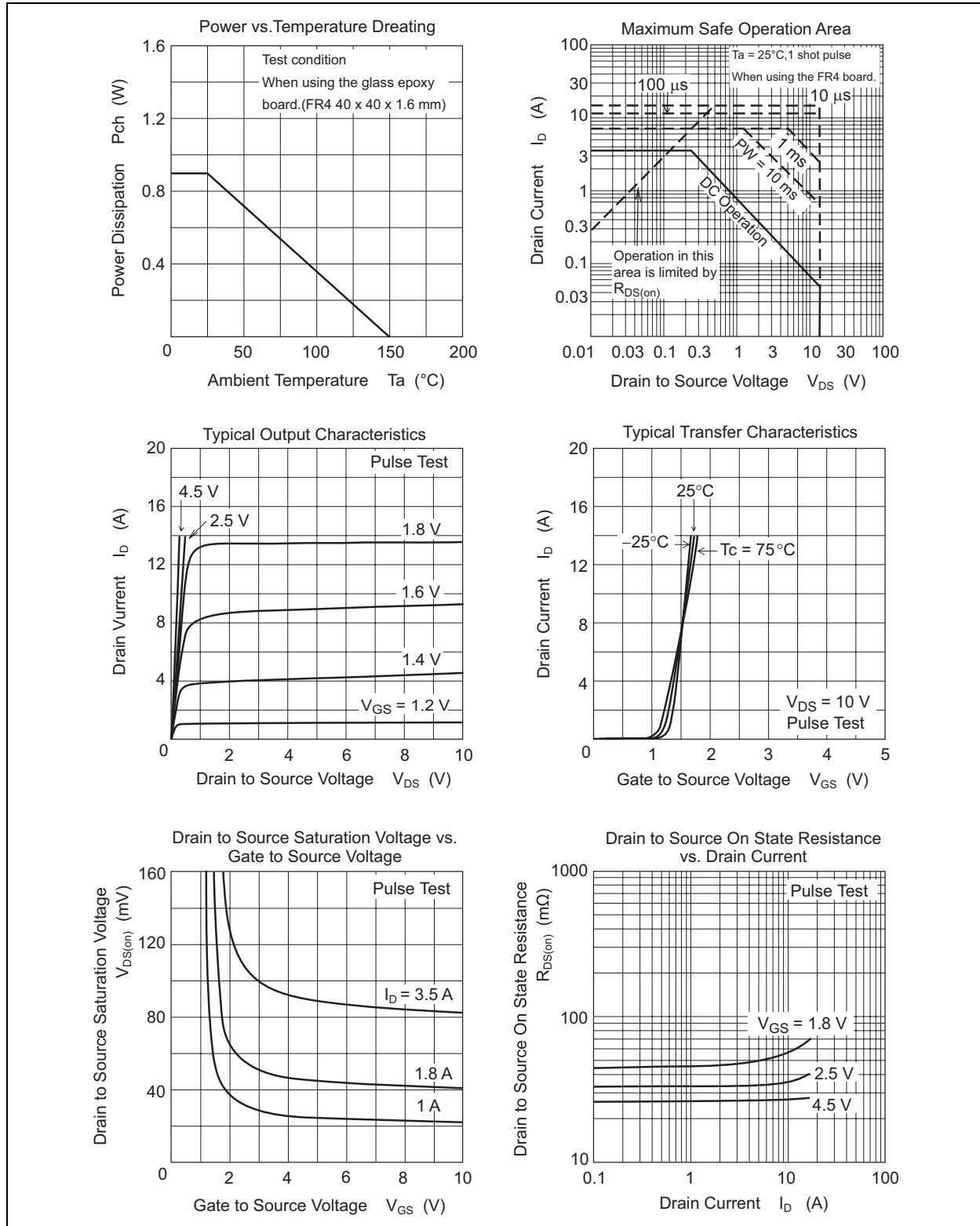
Electrical Characteristics

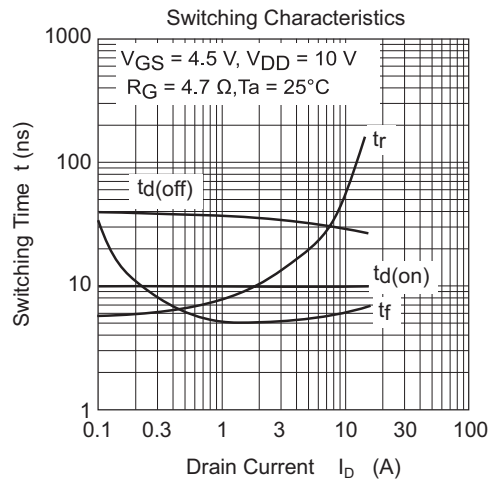
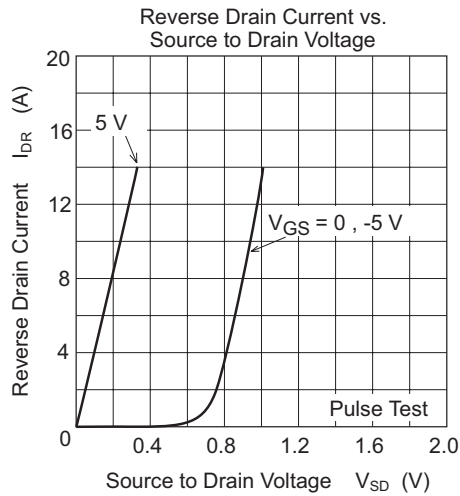
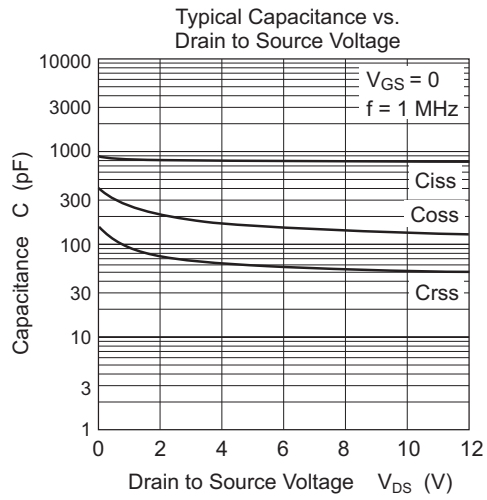
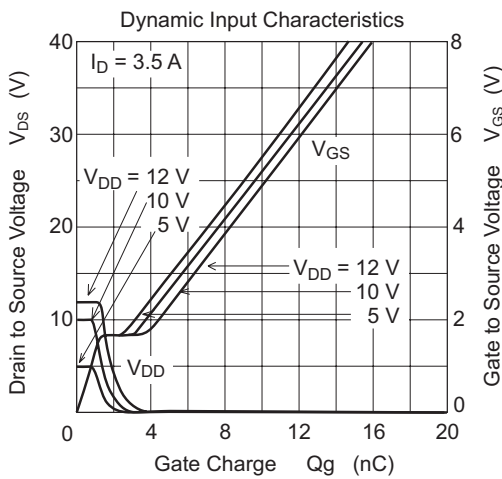
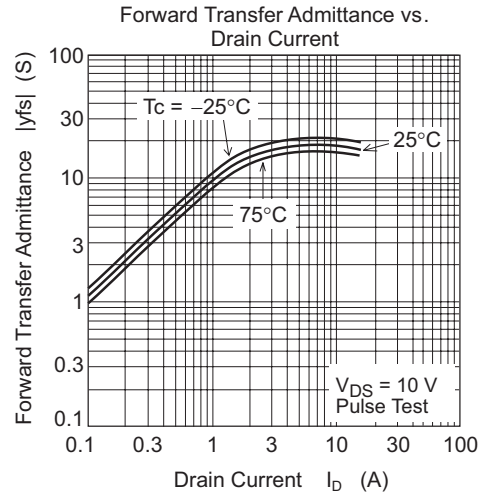
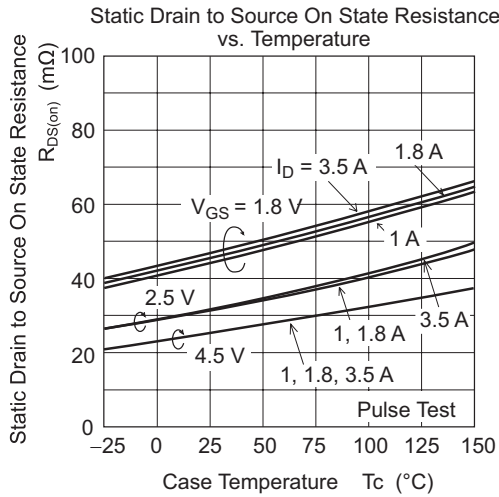
(T_a = 25°C)

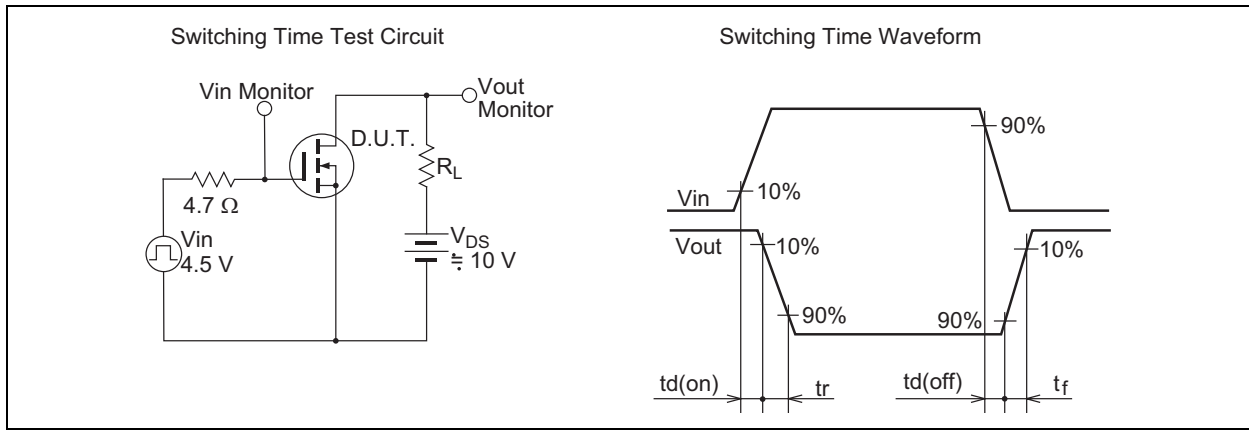
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	V _{(BR)DSS}	12	—	—	V	I _D = 10 mA, V _{GS} = 0
Gate to Source breakdown voltage	V _{(BR)GSS}	±8	—	—	—	I _G = ±10 μA, V _{DS} = 0
Gate to Source leakage current	I _{GSS}	—	—	±10	μA	V _{GS} = ±6.4 V, V _{DS} = 0
Drain to Source leakage current	I _{DSS}	—	—	1	μA	V _{DS} = 12 V, V _{GS} = 0
Gate to Source cutoff voltage	V _{GS(off)}	0.3	—	1.2	V	V _{DS} = 10 V, I _D = 1 mA
Drain to Source on state resistance	R _{DS(on)}	—	26	34	mΩ	I _D = 1.8 A, V _{GS} = 4.5 V ^{Note3}
	R _{DS(on)}	—	34	44	mΩ	I _D = 1.8 A, V _{GS} = 2.5 V ^{Note3}
	R _{DS(on)}	—	45	69	mΩ	I _D = 1.8 A, V _{GS} = 1.8 V ^{Note3}
Forward transfer admittance	y _{fs}	8.5	13	—	S	I _D = 1.8 A, V _{DS} = 10 V ^{Note3}
Input capacitance	C _{iss}	—	770	—	pF	V _{DS} = 10 V
Output capacitance	C _{oss}	—	115	—	pF	V _{GS} = 0
Reverse transfer capacitance	C _{rss}	—	50	—	pF	f = 1 MHz
Turn - on delay time	t _{d(on)}	—	10	—	ns	I _D = 1.8 A, V _{GS} = 4.5 V
Rise time	t _r	—	9.5	—	ns	V _{DS} = 10 V, R _L = 5.6 Ω,
Turn - off delay time	t _{d(off)}	—	36	—	ns	R _g = 4.7 Ω
Fall time	t _f	—	5	—	ns	
Total Gate charge	Q _g	—	9	—	nC	V _{DD} = 10 V
Gate to Source charge	Q _{gs}	—	1.5	—	nC	V _{GS} = 4.5 V
Gate to Drain charge	Q _{gd}	—	2	—	nC	I _D = 3.5 A
Body - Drain diode forward voltage	V _{DF}	—	0.8	1.1	V	I _F = 3.5 A, V _{GS} = 0 ^{Note3}

Notes: 3. Pulse test

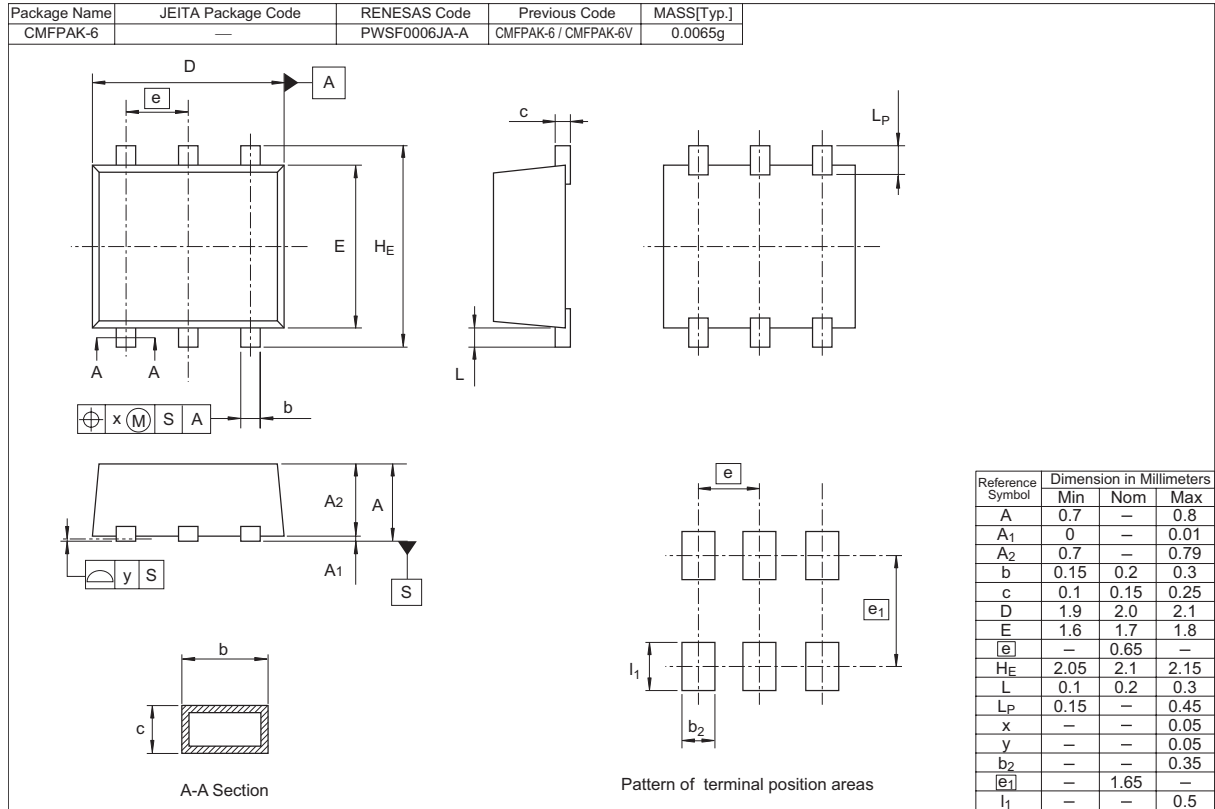
Main Characteristics







Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT2204C-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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