

To our customers,

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## Old Company Name in Catalogs and Other Documents

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April 1<sup>st</sup>, 2010  
Renesas Electronics Corporation

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# HAT1108C

## Silicon P Channel MOS FET Power Switching

REJ03G1234-0500

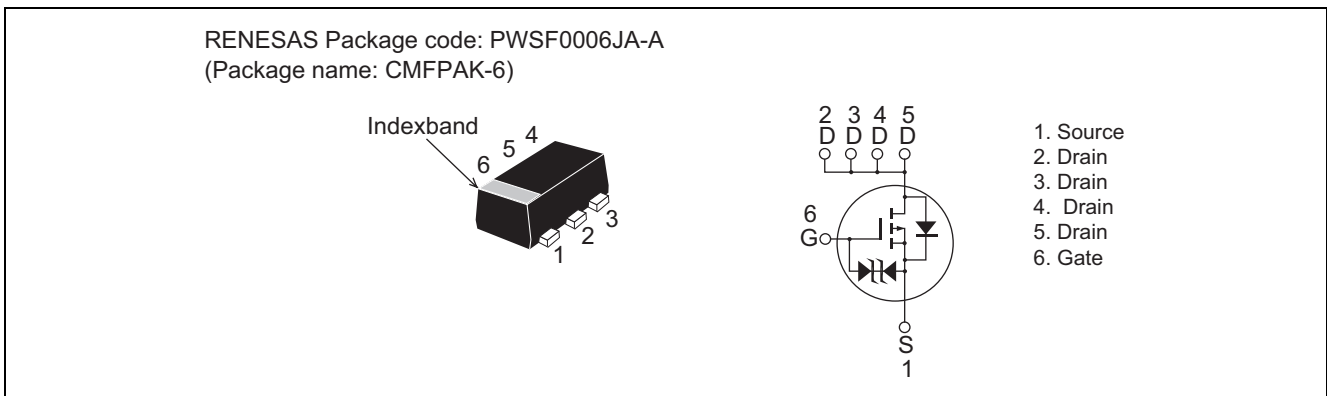
Rev.5.00

Aug 30, 2006

### Features

- Low on-resistance  
 $R_{DS(on)} = 155 \text{ m}\Omega$  typ. (at  $V_{GS} = -10 \text{ V}$ )
- Low drive current.
- 4.5 V gate drive devices.
- High density mounting

### Outline



### Absolute Maximum Ratings

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

Item	Symbol	Ratings	Unit
Drain to Source voltage	$V_{DSS}$	-30	V
Gate to Source voltage	$V_{GSS}$	-20 / +10	V
Drain current	$I_D$	-1.5	A
Drain peak current	$I_D$ (pulse) <sup>Note 1</sup>	-6	A
Body - Drain diode reverse drain current	$I_{DR}$	-1.5	A
Channel dissipation	$P_{ch}$ <sup>Note 2</sup>	830	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),  $T_a = 25^\circ\text{C}$

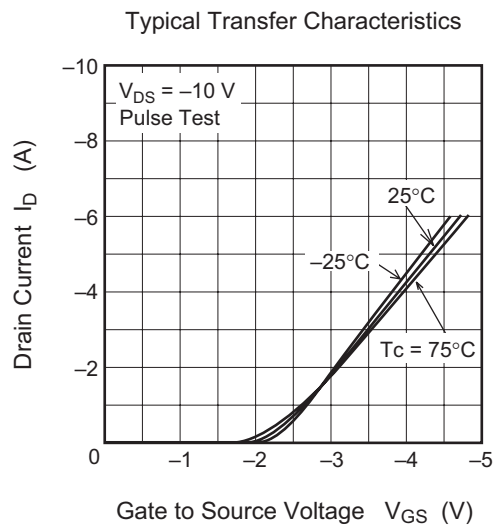
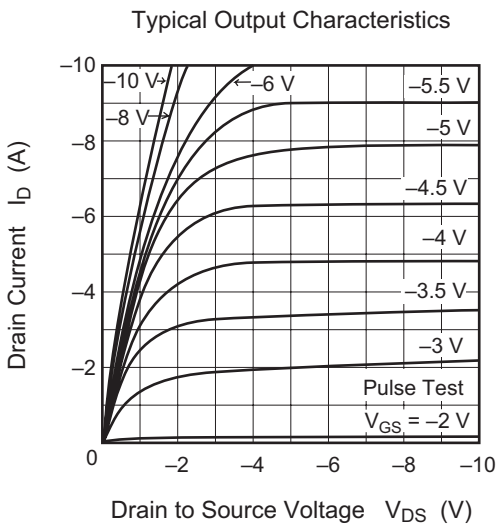
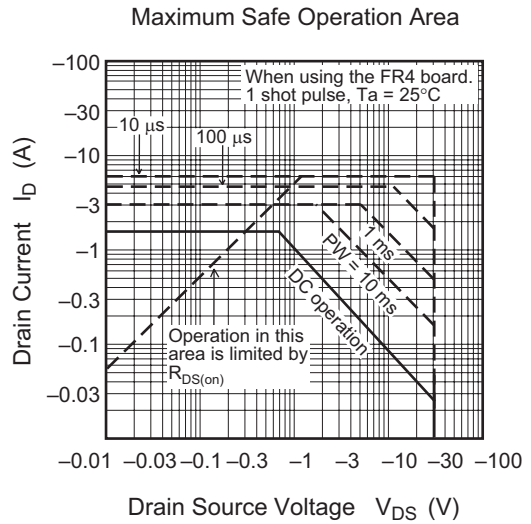
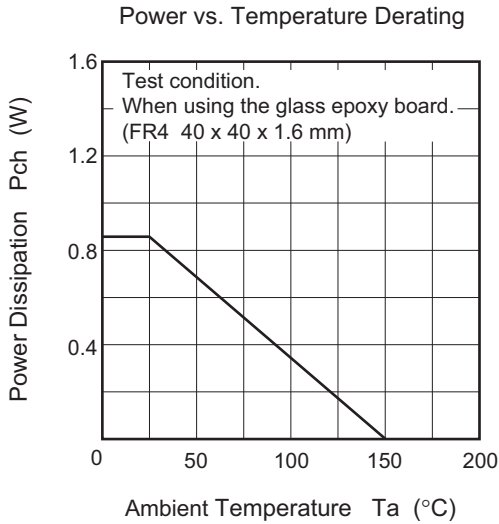
## Electrical Characteristics

(Ta = 25°C)

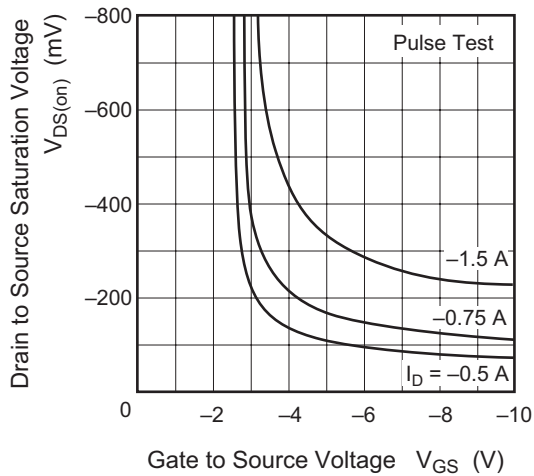
Item	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	-30	—	—	V	$I_D = -10 \text{ mA}$ , $V_{GS} = 0$
Gate to Source breakdown voltage	$V_{(BR)GSS}$	-20 +10	—	—	V	$I_G = \pm 100 \mu\text{A}$ , $V_{DS} = 0$
Gate to Source leakage current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = -16/ +8 \text{ V}$ , $V_{DS} = 0$
Drain to Source leakage current	$I_{DSS}$	—	—	-1	$\mu\text{A}$	$V_{DS} = -30 \text{ V}$ , $V_{GS} = 0$
Gate to Source cutoff voltage	$V_{GS(th)}$	-0.5	—	-2.0	V	$I_D = -1 \text{ mA}$ , $V_{DS} = -10 \text{ V}$ <sup>Note4</sup>
Drain to Source on state resistance	$R_{DS(on)}$	—	155	194	$\text{m}\Omega$	$I_D = -0.75\text{A}$ , $V_{GS} = -10 \text{ V}$ <sup>Note4</sup>
		—	245	356	$\text{m}\Omega$	$I_D = -0.75\text{A}$ , $V_{GS} = -4.5 \text{ V}$ <sup>Note4</sup>
Forward transfer admittance	$ y_{fs} $	0.65	1	—	S	$I_D = -0.75\text{A}$ , $V_{DS} = -10 \text{ V}$ <sup>Note4</sup>
Input capacitance	$C_{iss}$	—	160	—	pF	$V_{DS} = -10 \text{ V}$ , $V_{GS} = 0$ , $f = 1 \text{ MHz}$
Output capacitance	$C_{oss}$	—	50	—	pF	
Reverse transfer capacitance	$C_{rss}$	—	30	—	pF	
Total gate charge	$Q_g$	—	3	—	nC	$V_{DS} = -10 \text{ V}$ , $V_{GS} = -10 \text{ V}$ , $I_D = -1.5 \text{ A}$
Gate to Source charge	$Q_{gs}$	—	0.2	—	nC	
Gate to Drain charge	$Q_{gd}$	—	0.6	—	nC	
Turn - on delay time	$t_{d(on)}$	—	20	—	ns	$V_{DS} = -10 \text{ V}$ , $V_{GS} = -10 \text{ V}$ , $I_D = -0.75 \text{ A}$ , $R_L = 13.3 \Omega$ , $R_g = 4.7 \Omega$
Rise time	$t_r$	—	13	—	ns	
Turn - off delay time	$t_{d(off)}$	—	28	—	ns	
Fall time	$t_f$	—	5	—	ns	
Body - Drain diode forward voltage	$V_{DF}$	—	-0.85	-1.2	V	$I_F = -1.5 \text{ A}$ , $V_{GS} = 0$

Notes: 4. Pulse test

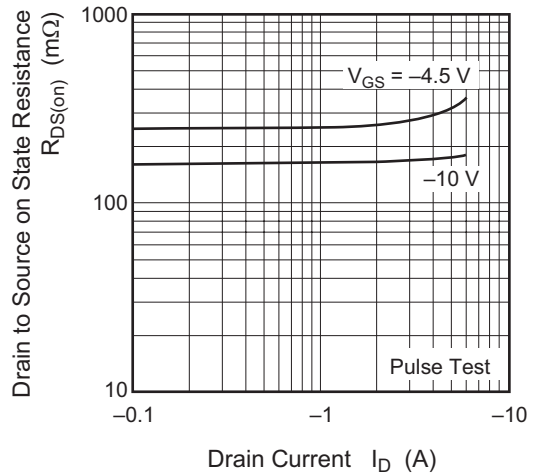
Main Characteristics



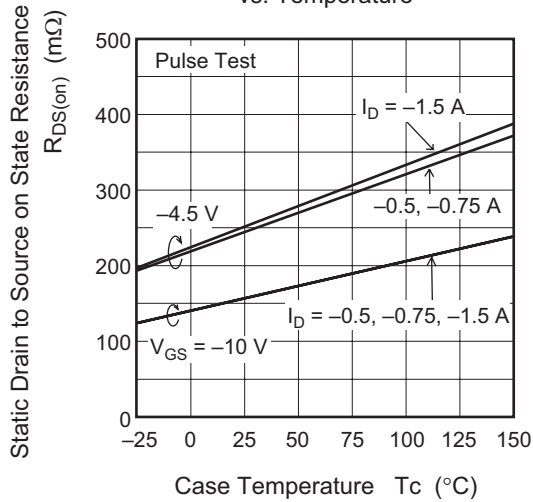
Drain to Source Saturation Voltage vs. Gate to Source Voltage



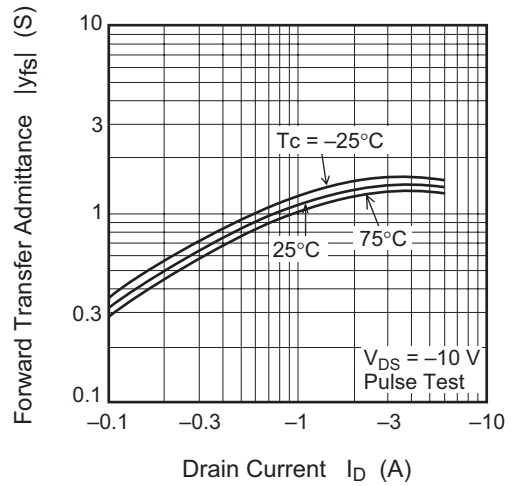
Static Drain to Source on State Resistance vs. Drain Current



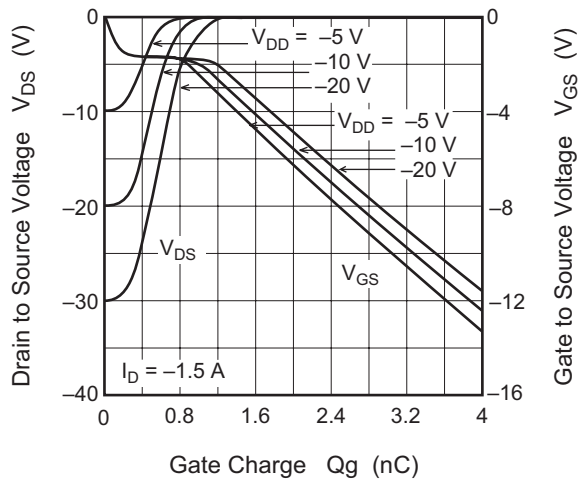
Static Drain to Source on State Resistance vs. Temperature



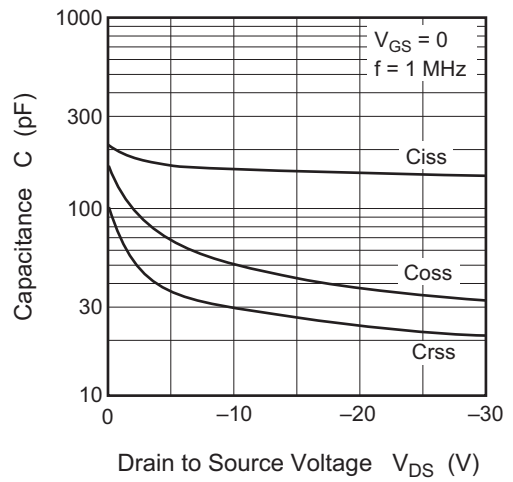
Forward Transfer Admittance vs. Drain Current



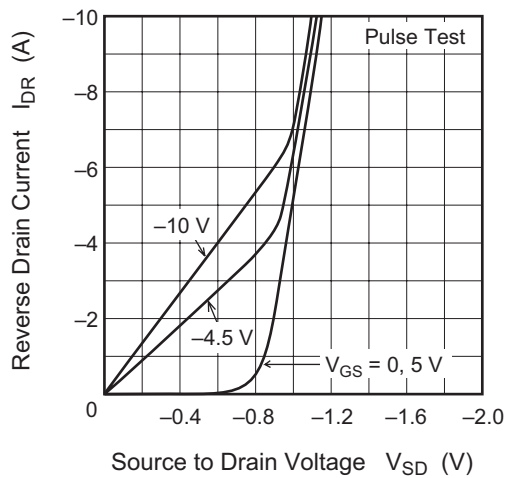
Dynamic Input Characteristics



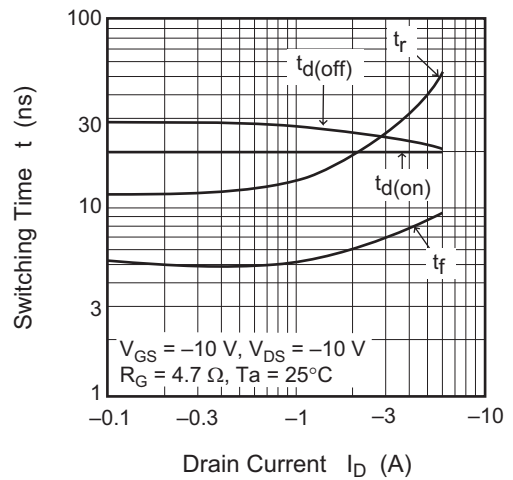
Typical Capacitance vs. Drain to Source Voltage

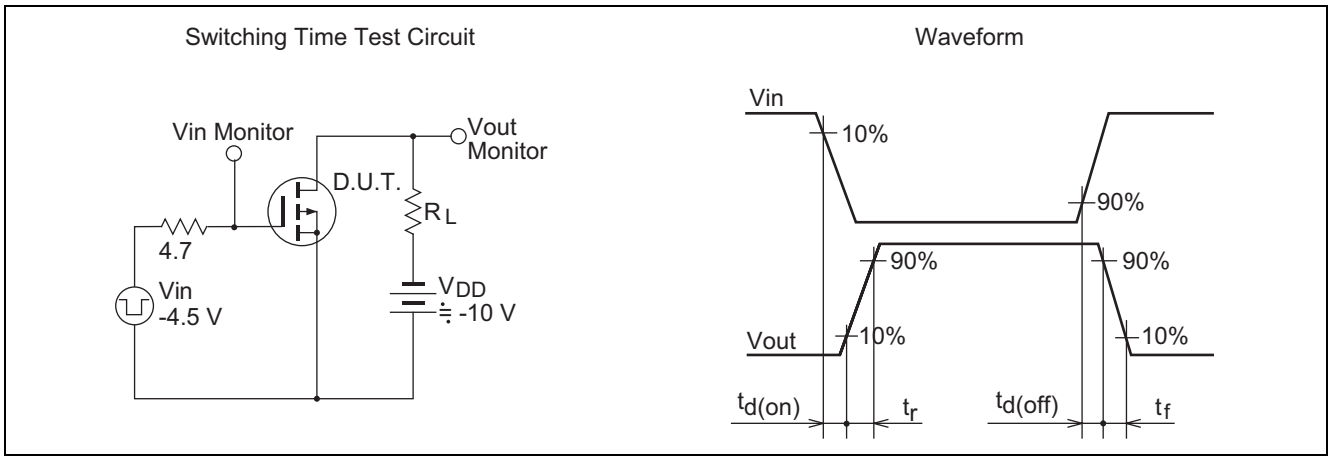


Reverse Drain Current vs. Source to Drain Voltage

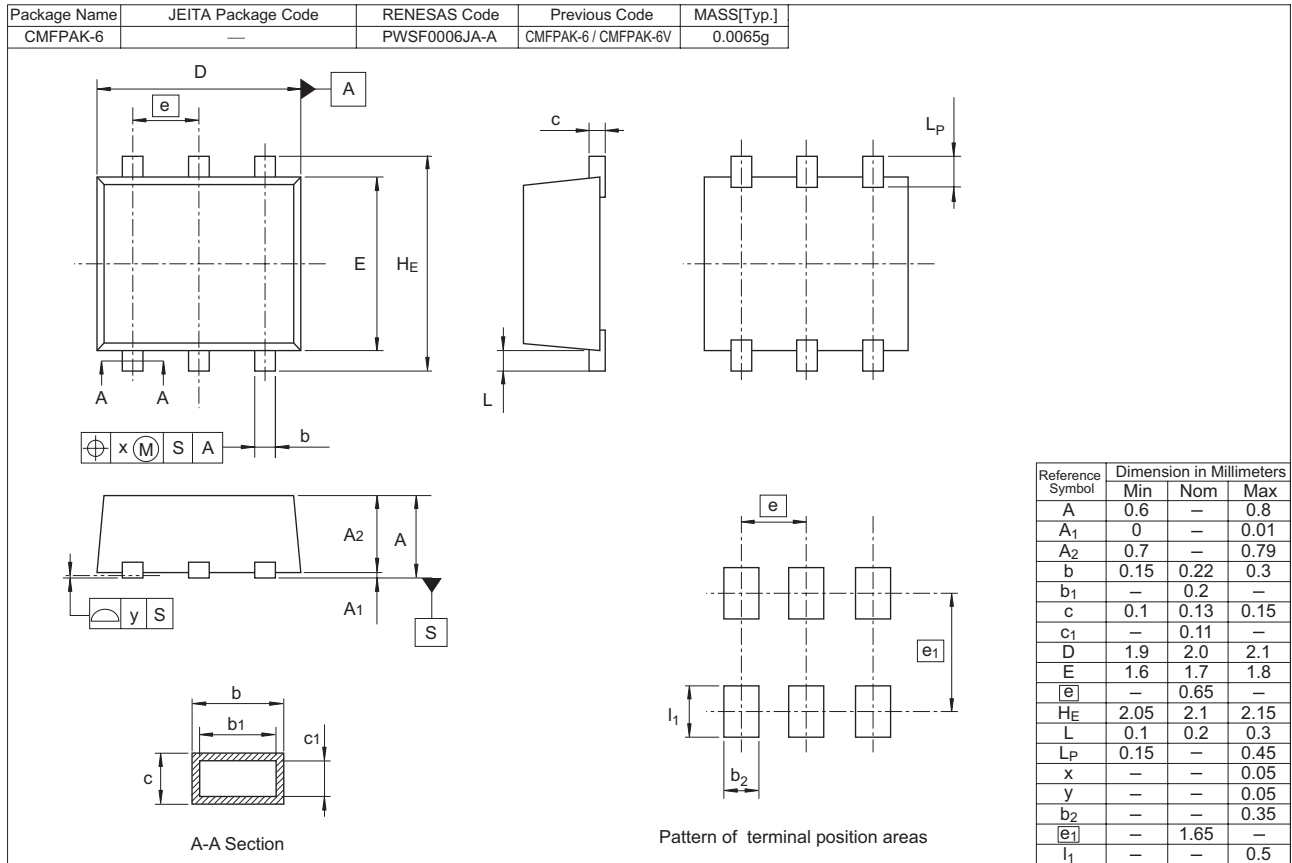


Switching Characteristics





### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
HAT1108C-EL-E	3000 pcs	Taping

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