HAT2268C

Silicon N Channel MOS FET
Power Switching

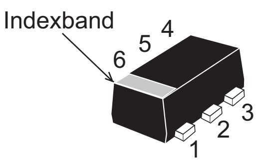
REJ03G1354-0200
Rev.2.00
Feb 28, 2006

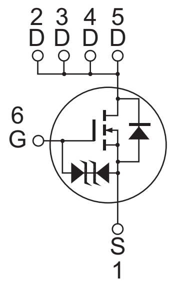
Features

- Low on-resistance
  $R_{DS(on)}$ = 27 mΩ typ. (at V_{GS} = 10 V)
- Low drive current.
- High density mounting
- 4.5 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

(Ta = 25°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	4	A
Drain peak current	I_D (pulse)[Note1]	16	A
Body - Drain diode reverse drain current	I_{DR}	4	A
Channel dissipation	Pch[Note 2]	900	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 10 µs, duty cycle ≤ 1%
2. When using the glass epoxy board. (FR4 40 × 40 × 1.6 mm)

Electrical Characteristics

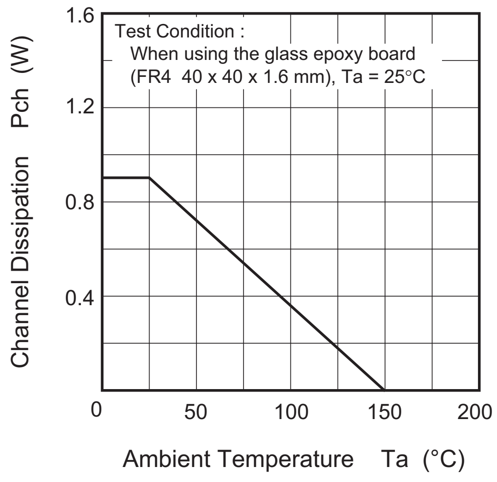
(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	30	—	—	V	I_D = 10 mA, V_{GS} = 0
Gate to Source breakdown voltage	$V_{(BR)GSS}$	+20 –10				I_G = ±10 μA, V_{DS} = 0
Gate to Source leak current	I_{GSS}	—	—	±10	μA	V_{GS} = +16 / -8 V, V_{DS} = 0
Drain to Source leak current	I_{DSS}	—	—	1	μA	V_{DS} = 30 V, V_{GS} = 0
Gate to Source cutoff voltage	$V_{GS(off)}$	1.0	—	2.0	V	V_{DS} = 10 V, I_D = 1 mA
Drain to Source on state resistance	$R_{DS(on)}$	—	27	34	mΩ	I_D = 2 A, V_{GS} = 10 V Note3
	$R_{DS(on)}$	—	37	54	mΩ	I_D = 2 A, V_{GS} = 4.5 V Note3
Forward transfer admittance	|yfs|	5.5	8.5	—	S	I_D = 2 A, V_{DS} = 10 V Note3
Input capacitance	Ciss	—	440	—	pF	V_{DS} = 10 V, V_{GS} = 0, f = 1 MHz
Output capacitance	Coss	—	110	—	pF	
Reverse transfer capacitance	Crss	—	45	—	pF	
Turn - on delay time	td(on)	—	15	—	ns	I_D = 2 A, V_{GS} = 10 V, V_{DD} = 10 V, R_L = 5 Ω , Rg = 4.7 Ω
Rise time	tr	—	50	—	ns	
Turn - off delay time	td(off)	—	45	—	ns	
Fall time	tf	—	7	—	ns	
Total Gate charge	Qg	—	8	—	nC	V_{DD} = 10 V, V_{GS} = 10 V I_D = 4 A
Gate to Source charge	Qgs	—	1.5	—	nC	
Gate to Drain charge	Qgd	—	1.3	—	nC	
Body - Drain diode forward voltage	V_{DF}	—	0.85	1.15	V	I_F = 4 A, V_{GS} = 0 Note3

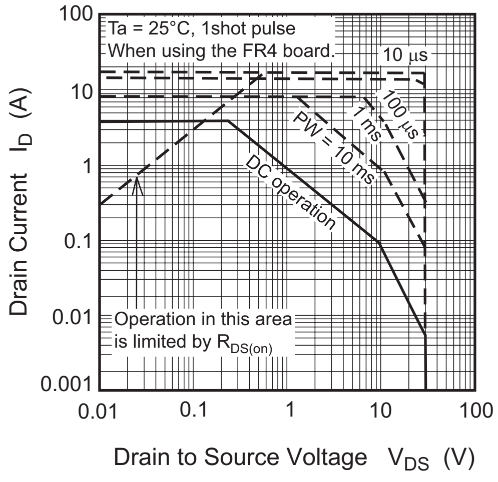
Notes: 3. Pulse test

Main Characteristics

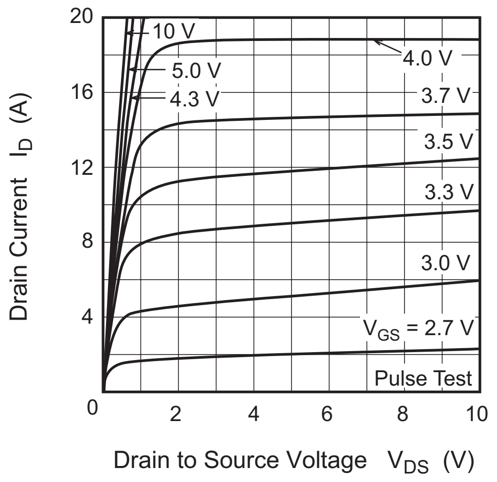
Power vs. Temperature Derating



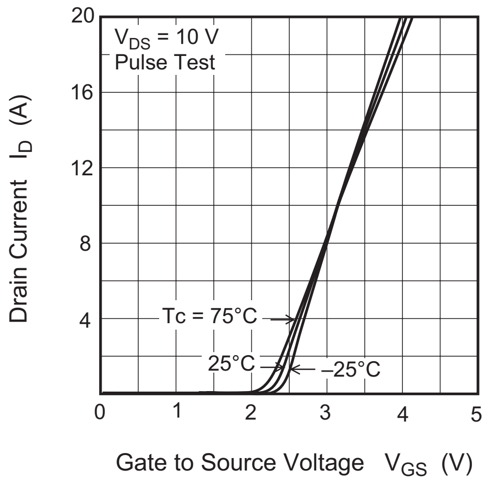
Maximum Safe Operation Area



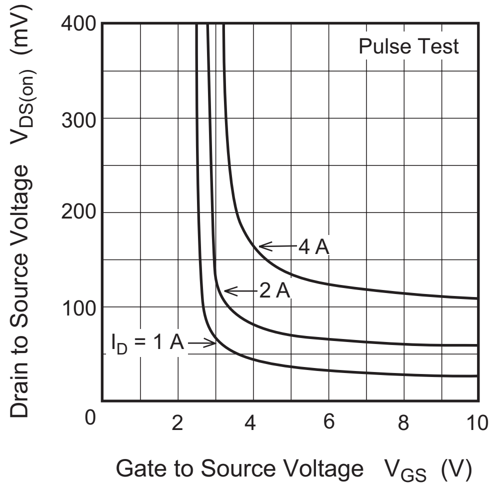
Typical Output Characteristics



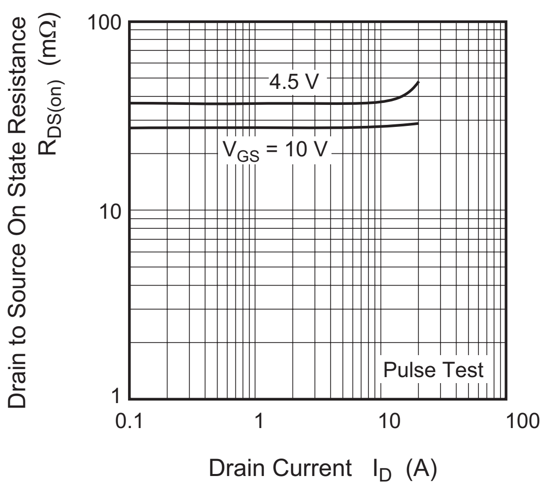
Typical Transfer Characteristics



Drain to Source Saturation Voltage vs.
Gate to Source Voltage



Static Drain to Source on State Resistance
vs. Drain Current



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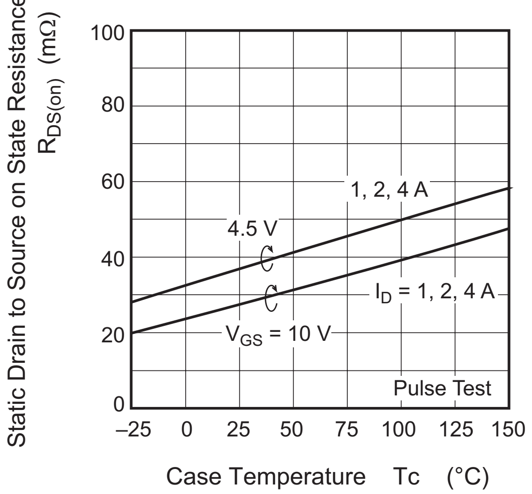
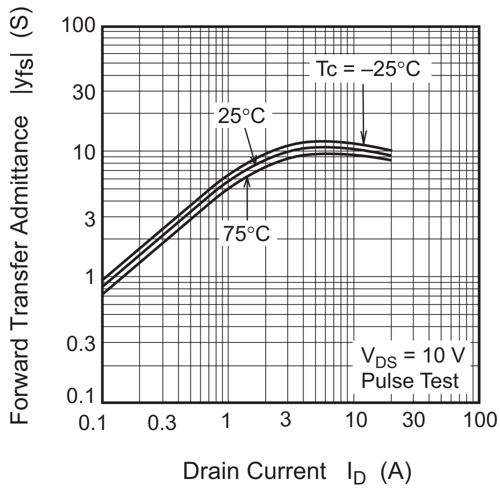
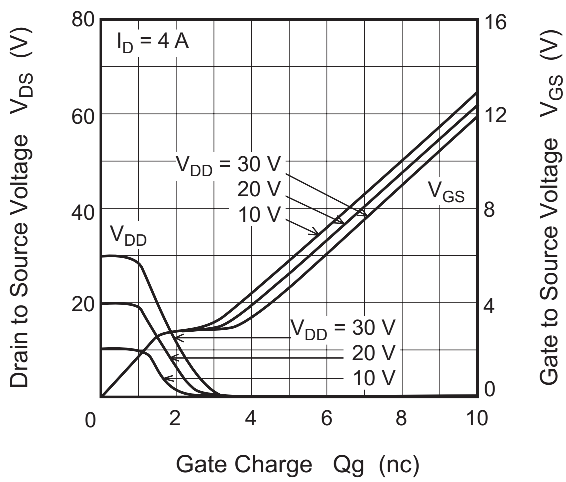
Static Drain to Source on State Resistance
vs. Temperature



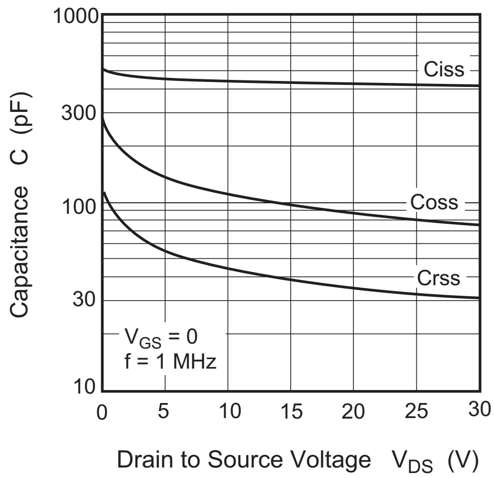
Forward Transfer Admittance vs.
Drain Current



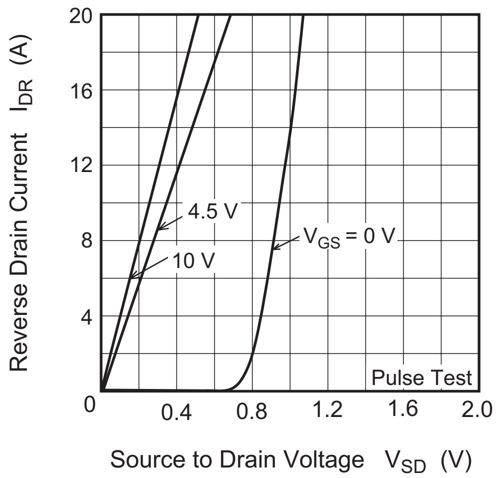
Dynamic Input Characteristics



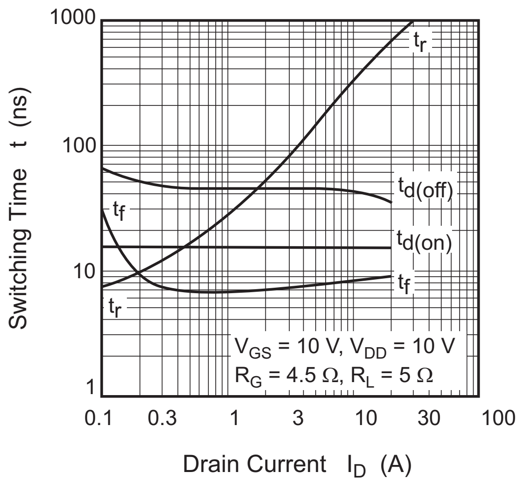
Typical Capacitance vs.
Drain to Source Voltage



Reverse Drain Current vs.
Source to Drain Voltage



Switching Characteristics



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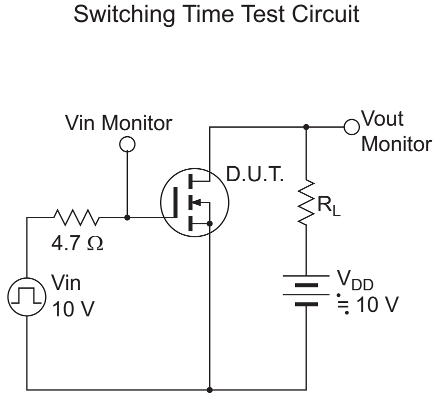
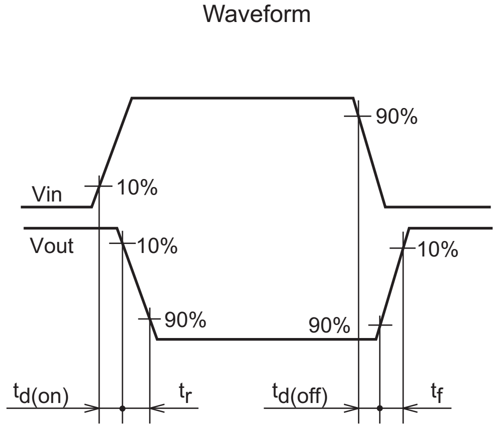
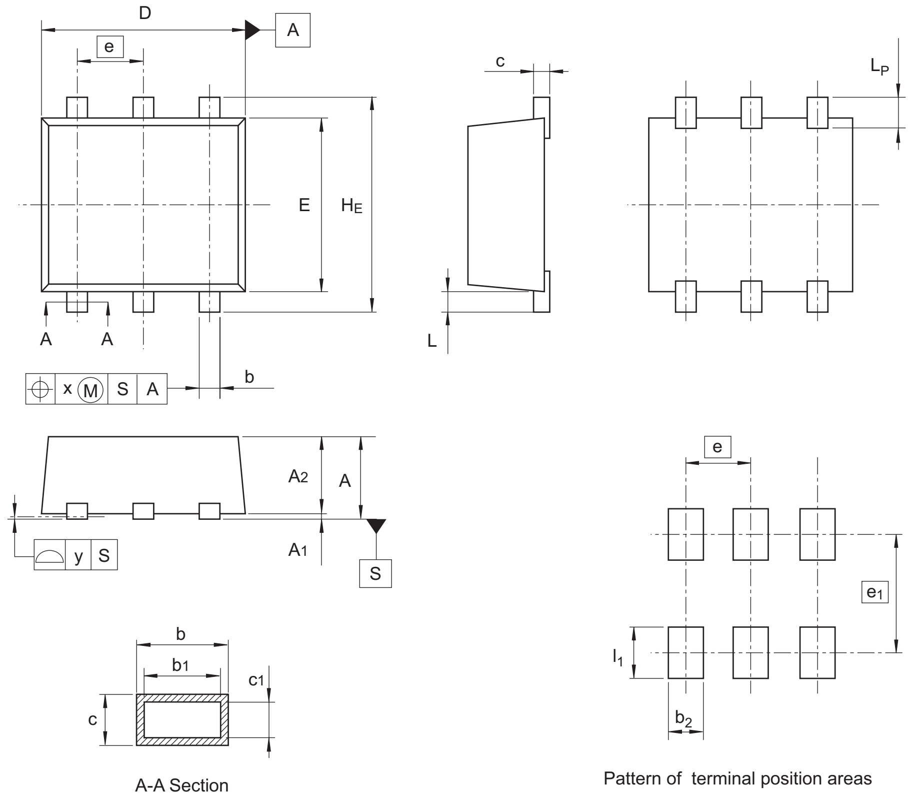

Switching Time Test Circuit
Vin Monitor
Vout
Monitor
D.U.T.
RL
4.7 Ω
Vin
10 V
VDD
= 10 V


Waveform
Vin
Vout
10%
90%
10%
90%
90%
10%
td(on)
tr
td(off)
tf

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
CMFPAK-6	—	PWSF0006JA-A	CMFPAK-6 / CMFPAK-6V	0.0065g



Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
A	0.6	–	0.8
A_1	0	–	0.01
A_2	0.7	–	0.79
b	0.15	0.22	0.3
b_1	–	0.2	–
c	0.1	0.13	0.15
c_1	–	0.11	–
D	1.9	2.0	2.1
E	1.6	1.7	1.8
$\boxed{e}$	–	0.65	–
H_E	2.05	2.1	2.15
L	0.1	0.2	0.3
L_P	0.15	–	0.45
x	–	–	0.05
y	–	–	0.05
b_2	–	–	0.35
$\boxed{e_1}$	–	1.65	–
l_1	–	–	0.5

Ordering Information

Part Name	Quantity	Shipping Container
HAT2268C-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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http://www.renesas.com

Refer to "**http://www.renesas.com/en/network**" for the latest and detailed information.

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