HAT2220R

Silicon N Channel MOS FET
High Speed Power Switching

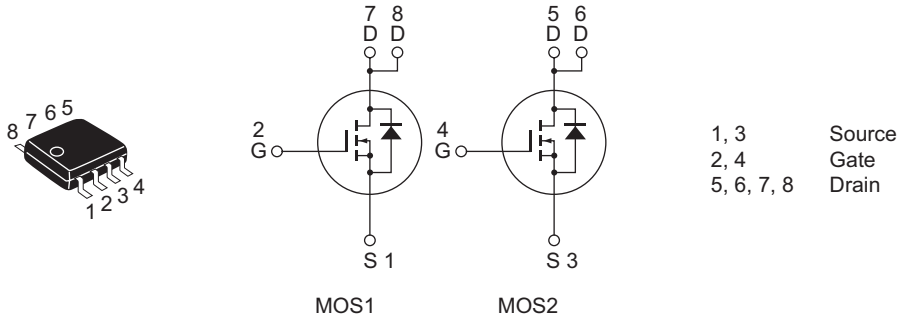
REJ03G1572-0500
Rev.5.00
Jul 20, 2007

Features

- Low on-resistance
- Low drive current
- High density mounting

Outline

RENESAS Package code: PRSP0008DD-D
(Package name: SOP-8 <FP-8DAV>)



Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to source voltage	V_{DSS}	450	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D Note1	0.7	A
Drain peak current	$I_{D(pulse)}$ Note2	2.1	A
Body-drain diode reverse drain current	I_{DR}	0.7	A
Avalanche current	I_{AP} Note3	0.7	A
Channel dissipation	Pch Note4	2	W
Channel dissipation	Pch Note5	3	W
Channel temperature	Tch	150	°C
Storage temperature	Tstg	–55 to +150	°C

Notes: 1. PW ≤ 1 s
2. PW ≤ 10 µs, duty cycle ≤ 1%
3. STch = 25 °C, Tch ≤ 150 °C
4. 1 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW ≤ 10 s
5. 2 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), PW ≤ 10 s

Electrical Characteristics

(Ta = 25°C)

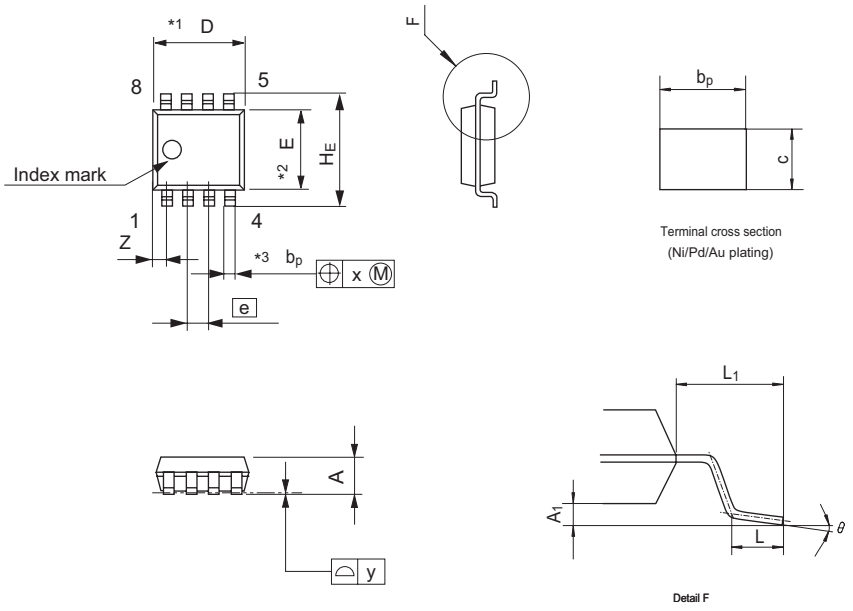
Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	450	—	—	V	I_D = 10 mA, V_{GS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	µA	V_{DS} = 450 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±30 V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	V_{DS} = 10 V, I_D = 1 mA
Forward transfer admittance	$\|y_{fs}\|$	0.55	0.95	—	S	I_D = 0.4 A, V_{DS} = 10 V Note6
Static drain to source on state resistance	$R_{DS(on)}$	—	5.5	6.5	Ω	I_D = 0.4 A, V_{GS} = 10 V Note6
Input capacitance	Ciss	—	140	—	pF	V_{DS} = 25 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	17	—	pF	
Reverse transfer capacitance	Crss	—	5	—	pF	
Turn-on delay time	$t_{d(on)}$	—	22	—	ns	I_D = 0.4 A V_{GS} = 10 V R_L = 562 Ω Rg = 10 Ω
Rise time	t_r	—	12	—	ns	
Turn-off delay time	$t_{d(off)}$	—	38	—	ns	
Fall time	t_f	—	47	—	ns	
Total gate charge	Qg	—	4.9	—	nC	V_{DD} = 360 V V_{GS} = 10 V I_D = 0.7 A
Gate to source charge	Qgs	—	0.6	—	nC	
Gate to drain charge	Qgd	—	3.2	—	nC	
Body–drain diode forward voltage	V_{DF}	—	0.84	1.24	V	I_F = 0.7 A, V_{GS} = 0 Note6
Body–drain diode reverse recovery time	t_{rr}	—	120	—	ns	I_F = 0.7 A, V_{GS} = 0 di_F/dt = 100 A/ µs

Notes: 6. Pulse test

7. Since this device includes two high voltage Power MOS FET chips (V_{DSS} ≥ 450 V), high voltage margin may occur. (Between No.6 pin and No.7 pin in the outline fig.) Therefore, please be sure to confirm about Electric discharge between No.6 pin and No.7 pin in the equivalent circuit.

Package Dimensions

Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
SOP-8	P-SOP8-3.95 × 4.9-1.27	PRSP0008DD-D	FP-8DAV	0.085g



NOTE)
1. DIMENSIONS "*1(Nom)" AND "*2" DO NOT INCLUDE MOLD FLASH.
2. DIMENSION "*3" DOES NOT INCLUDE TRIM OFFSET.

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	4.90	5.3
E	—	3.95	—
A_2	—	—	—
A_1	0.10	0.14	0.25
A	—	—	1.75
b_p	0.34	0.40	0.46
b_1	—	—	—
c	0.15	0.20	0.25
c_1	—	—	—
θ	0°	—	8°
H_E	5.80	6.10	6.20
e	—	1.27	—
x	—	—	0.25
y	—	—	0.1
Z	—	—	0.75
L	0.40	0.60	1.27
L_1	—	1.08	—

Ordering Information

Part No.	Quantity	Shipping Container
HAT2220R-EL-E	2500 pcs	Taping

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RENESAS SALES OFFICES

http://www.renesas.com

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

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