HAT2090R

Silicon N Channel MOS FET
High Speed Power Switching

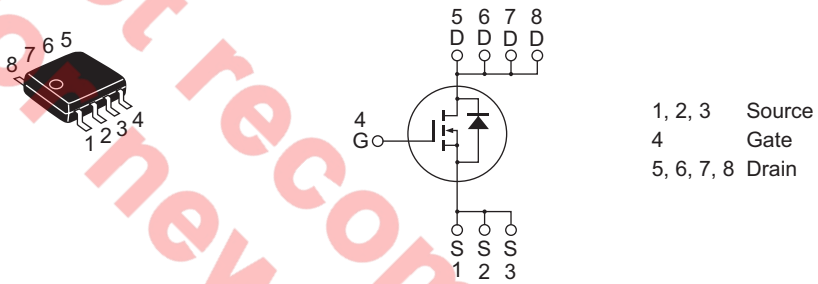
REJ03G1316-0100
(Previous: ADE-208-1474)
Rev.1.00
Nov 08, 2005

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}	350	V
Gate to source voltage	V_{GSS}	±30	V
Drain current	I_D	0.9	A
Drain peak current	$I_{D\ (pulse)}$ Note1	7.2	A
Body-drain diode reverse drain current	I_{DR}	0.9	A
Channel dissipation	Pch Note2	2.5	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 x 40 x 1.6 mm), PW ≤ 10 s

Electrical Characteristics

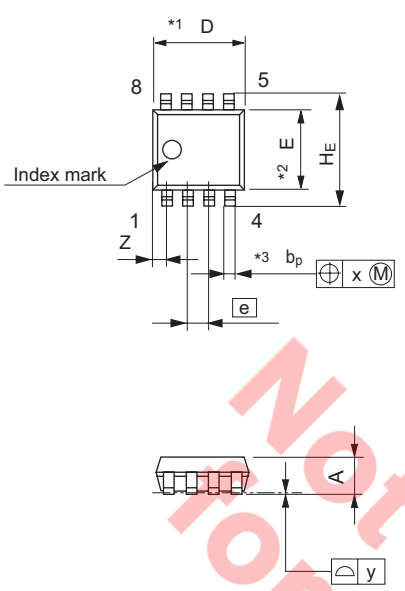
(Ta = 25°C)

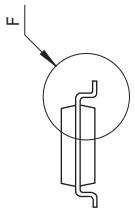
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Drain to source breakdown voltage	$V_{(BR)DSS}$	350	—	—	V	I_D = 10 mA, V_{GS} = 0
Zero gate voltage drain current	I_{DSS}	—	—	1	µA	V_{DS} = 350 V, V_{GS} = 0
Gate to source leak current	I_{GSS}	—	—	±0.1	µA	V_{GS} = ±30 V, V_{DS} = 0
Gate to source cutoff voltage	$V_{GS(off)}$	3.0	—	4.5	V	V_{DS} = 10 V, I_D = 1 mA
Forward transfer admittance	$\|y_{fs}\|$	0.7	1.2	—	S	I_D = 0.45 A, V_{DS} = 10 V Note3
Static drain to source on state resistance	$R_{DS(on)}$	—	2.5	3.0	Ω	I_D = 0.45 A, V_{GS} = 10 V Note3
Input capacitance	Ciss	—	365	—	pF	V_{DS} = 25 V V_{GS} = 0 f = 1 MHz
Output capacitance	Coss	—	35	—	pF	
Reverse transfer capacitance	Crss	—	8	—	pF	
Turn-on delay time	$t_{d(on)}$	—	20	—	ns	I_D = 0.45 A V_{GS} = 10 V R_L = 556 Ω Rg = 10 Ω
Rise time	t_r	—	10	—	ns	
Turn-off delay time	$t_{d(off)}$	—	50	—	ns	
Fall time	t_f	—	50	—	ns	
Total gate charge	Qg	—	12	—	nC	V_{DD} = 250 V V_{GS} = 10 V I_D = 0.9 A
Gate to source charge	Qgs	—	2	—	nC	
Gate to drain charge	Qgd	—	6	—	nC	
Body-drain diode forward voltage	V_{DF}	—	0.8	1.2	V	I_F = 0.9 A, V_{GS} = 0 Note3
Body-drain diode reverse recovery time	t_{rr}	—	210	—	ns	I_F = 0.9 A, V_{GS} = 0 di_F/dt = 100 A/µs

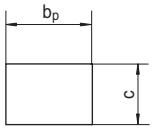
Notes: 3. Pulse test

Package Dimensions

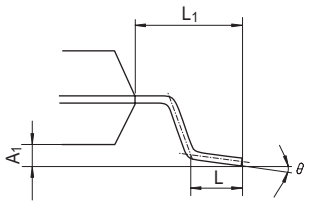
Package Name	JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
SOP-8	P-SOP8-3.95 × 4.9-1.27	PRSP0008DD-D	FP-8DAV	0.085g







Terminal cross section
(Ni/Pd/Au plating)



Detail F

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 Name	Quantity	Shipping Container
HAT2090R-EL-E	2500 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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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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