

HAT2090R

Silicon N Channel MOS FET
High Speed Power Switching

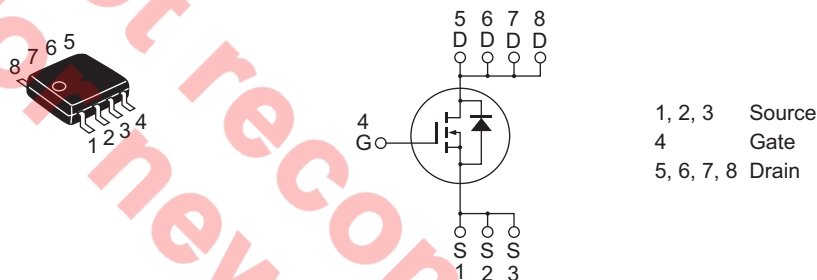
REJ03G1316-0100
(Previous: ADE-208-1474)
Rev.1.00
Nov 08, 2005

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	P_{ch} ^{Note2}	2.5	W
Channel temperature	T_{ch}	150	°C
Storage temperature	T_{stg}	-55 to +150	°C

Notes: 1. $PW \leq 10 \mu s$, duty cycle $\leq 1\%$

2. When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), $PW \leq 10 s$

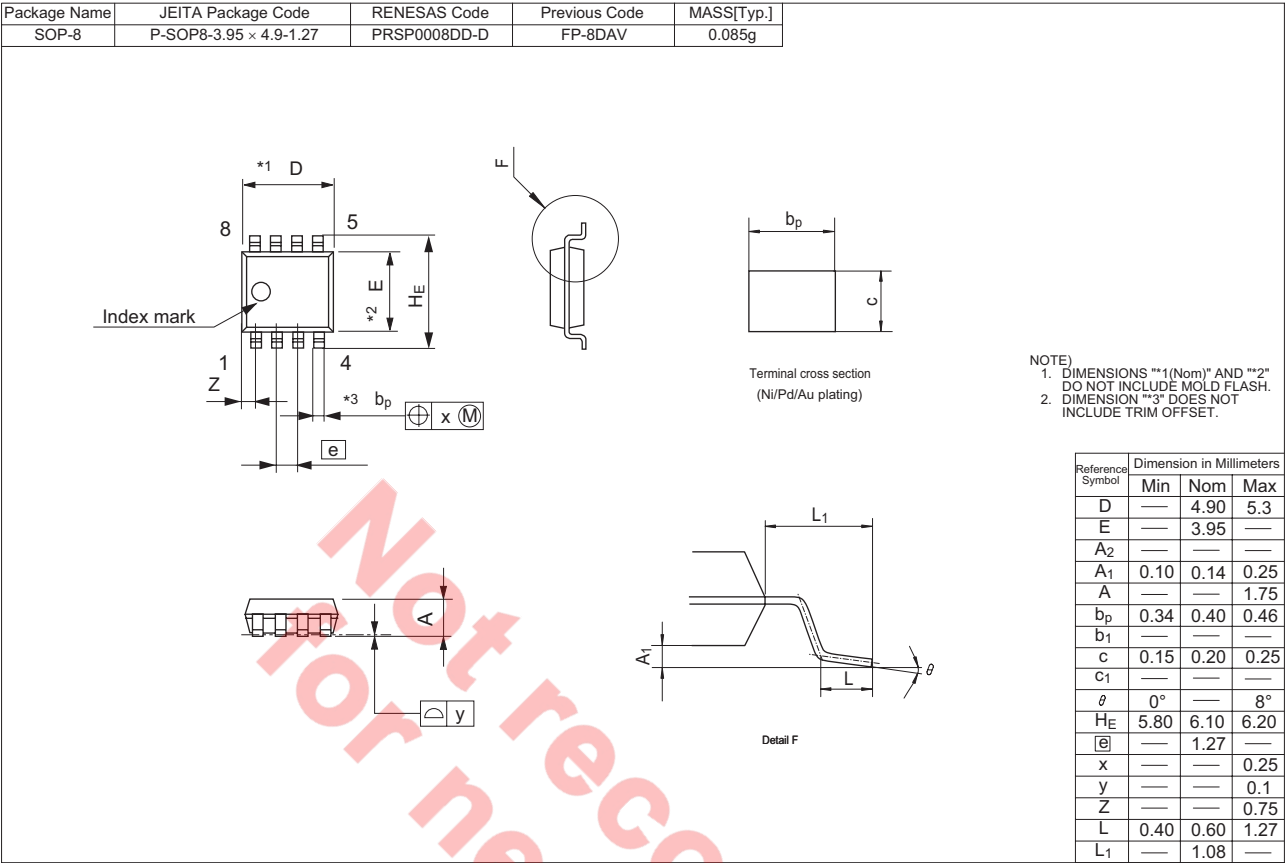
Electrical Characteristics

(Ta = 25°C)

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

Notes: 3. Pulse test

Package Dimensions



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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