

# HAT2035R

Silicon N Channel Power MOS FET  
High Speed Power Switching

REJ03G1242-0100

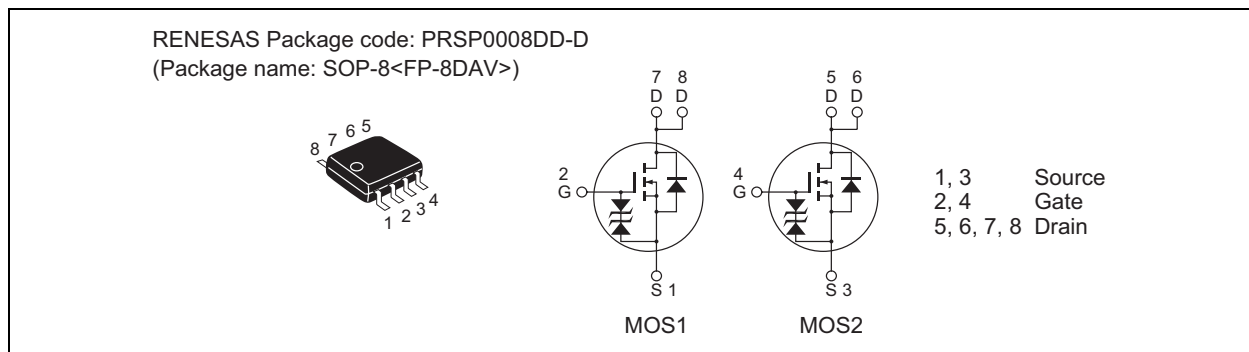
Rev.1.00

Jun. 09, 2005

## Features

- Low on-resistance
- Capable of 4 V gate drive
- Low drive current
- High density mounting

## Outline



## Absolute Maximum Ratings

(Ta = 25°C)

Item	Symbol	Ratings	Unit
Drain to Source voltage	$V_{DSS}$	150	V
Gate to Source voltage	$V_{GSS}$	±15	V
Drain current	$I_D$	0.5	A
Drain peak current	$I_{D(pulse)}$ <sup>Note1</sup>	2	A
Body-Drain diode reverse Drain current	$I_{DR}$	0.5	A
Channel dissipation	$P_{ch}$ <sup>Note2</sup>	1	W
Channel dissipation	$P_{ch}$ <sup>Note3</sup>	1.5	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. 1 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm)

3. 2 Drive operation : When using the glass epoxy board (FR4 40 x 40 x 1.6 mm)

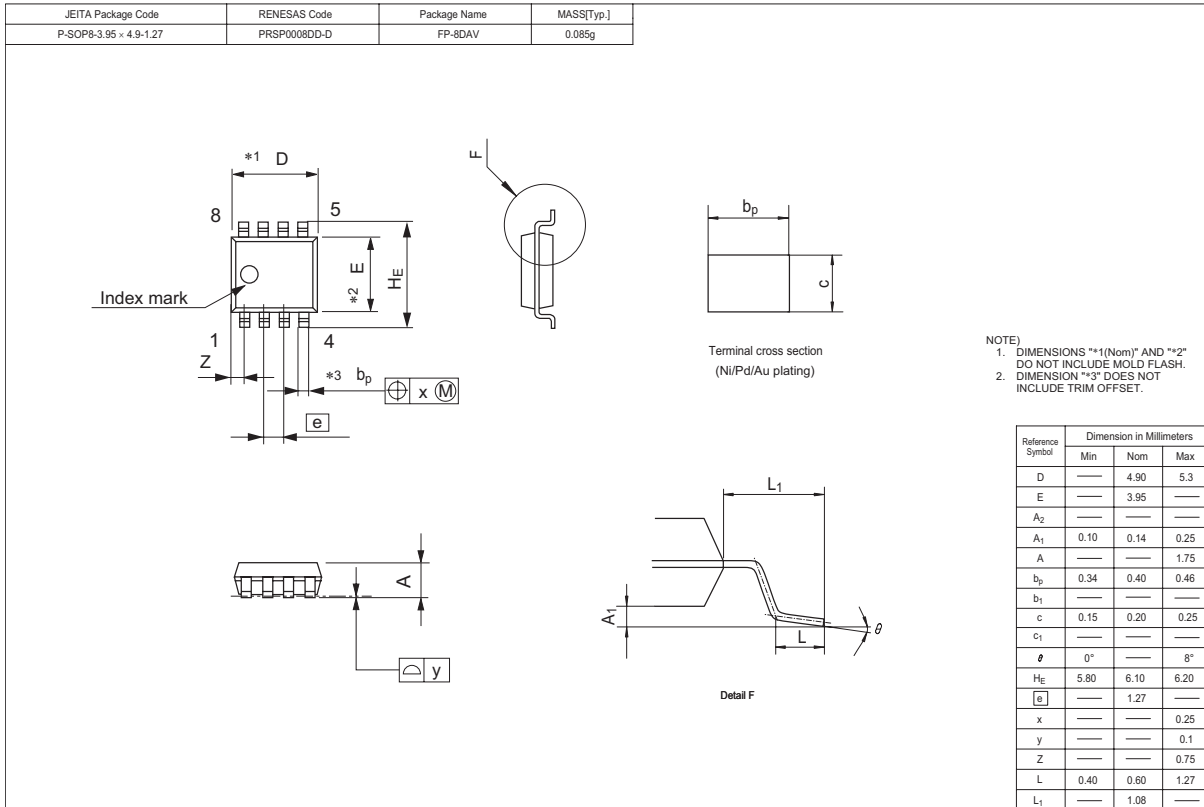
## Electrical Characteristics

(Ta = 25°C)

Item	Symbol	Min	Typ	Max	Unit	Test Conditions
Drain to Source breakdown voltage	$V_{(BR)DSS}$	150	—	—	V	$I_D = 10 \text{ mA}, V_{GS} = 0$
Gate to Source breakdown voltage	$V_{(BR)GSS}$	$\pm 15$	—	—	V	$I_G = \pm 100 \mu\text{A}, V_{DS} = 0$
Gate to Source leak current	$I_{GSS}$	—	—	$\pm 10$	$\mu\text{A}$	$V_{GS} = \pm 12 \text{ V}, V_{DS} = 0$
Zero Gate voltage Drain current	$I_{DSS}$	—	—	5	$\mu\text{A}$	$V_{DS} = 150 \text{ V}, V_{GS} = 0$
Gate to Source cutoff voltage	$V_{GS(off)}$	1.0	—	2.1	V	$V_{DS} = 10 \text{ V}, I_D = 1 \text{ mA}$
Static Drain to Source on state resistance	$R_{DS(on)}$	—	1.6	2.2	$\Omega$	$I_D = 0.5 \text{ A}, V_{GS} = 10 \text{ V}^{\text{Note4}}$
	$R_{DS(on)}$	—	1.9	2.7	$\Omega$	$I_D = 0.5 \text{ A}, V_{GS} = 4 \text{ V}^{\text{Note4}}$
	$R_{DS(on)}$	—	2.4	5.5	$\Omega$	$I_D = 2 \text{ A}, V_{GS} = 5 \text{ V}^{\text{Note4}}$
Forward transfer admittance	$ y_{fs} $	0.56	0.86	—	S	$I_D = 0.5 \text{ A}, V_{DS} = 10 \text{ V}^{\text{Note4}}$
Input capacitance	$C_{iss}$	—	95	—	pF	$V_{DS} = 10 \text{ V}$
Output capacitance	$C_{oss}$	—	42	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	$C_{rss}$	—	11	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	9	—	ns	$V_{GS} = 5 \text{ V}, I_D = 0.5 \text{ A},$ $V_{DD} \cong 30 \text{ V}$
Rise time	$t_r$	—	16	—	ns	
Turn-off delay time	$t_{d(off)}$	—	18	—	ns	
Fall time	$t_f$	—	14	—	ns	
Body–Drain diode forward voltage	$V_{DF}$	—	0.9	1.4	V	$I_F = 0.5 \text{ A}, V_{GS} = 0^{\text{Note4}}$
Body–Drain diode reverse recovery time	$t_{rr}$	—	90	—	ns	$I_F = 0.5 \text{ A}, V_{GS} = 0$ $diF/dt = 50 \text{ A}/\mu\text{s}$

Notes: 4. Pulse test

### Package Dimensions



### Ordering Information

Part Name	Quantity	Shipping Container
HAT2035R-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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