

HAT1035R

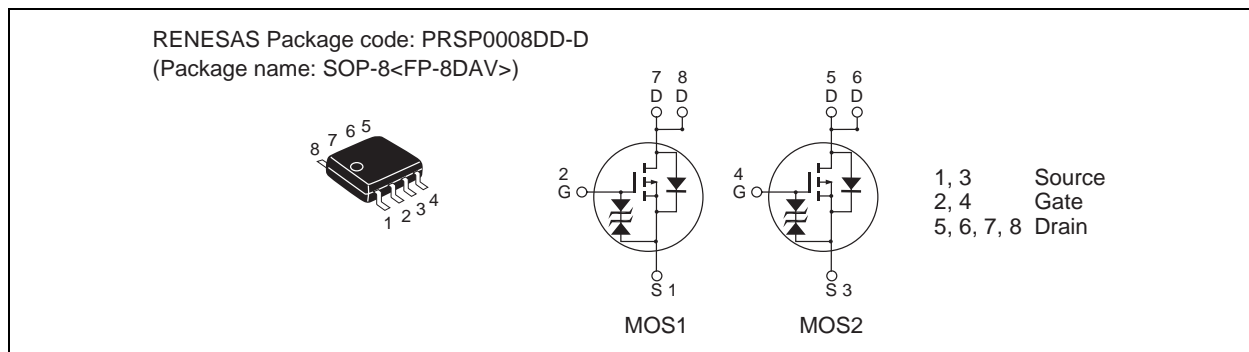
Silicon P Channel Power MOS FET
High Speed Power Switching

REJ03G0845-0100
Rev.1.00
Apr.22,2005

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	-0.25	A
Drain peak current	$I_{D(pulse)}$ ^{Note1}	-1	A
Body-Drain diode reverse Drain current	I_{DR}	-0.25	A
Channel dissipation	P_{ch} ^{Note2}	1	W
Channel dissipation	P_{ch} ^{Note3}	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)

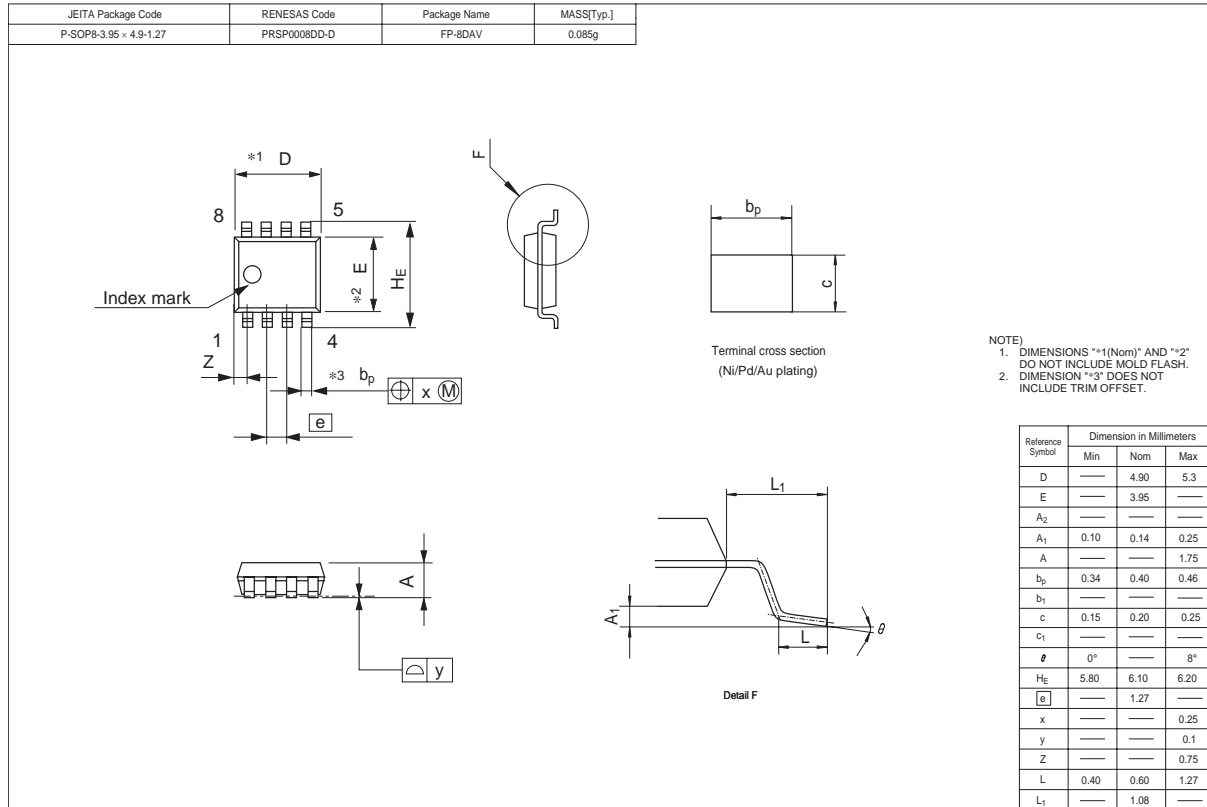
Electrical Characteristics

(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	$V_{(BR)GSS}$	± 15	—	—	V	$I_G = \pm 100 \mu\text{A}$, $V_{DS} = 0$
Gate to Source leak current	I_{GSS}	—	—	± 10	μA	$V_{GS} = \pm 12 \text{ V}$, $V_{DS} = 0$
Zero Gate voltage Drain current	I_{DSS}	—	—	-5	μA	$V_{DS} = -150 \text{ V}$, $V_{GS} = 0$
Gate to Source cutoff voltage	$V_{GS(off)}$	-1.0	—	-2.0	V	$V_{DS} = -10 \text{ V}$, $I_D = -1 \text{ mA}$
Static Drain to Source on state resistance	$R_{DS(on)}$	—	5.0	6.2	Ω	$I_D = -0.25 \text{ A}$, $V_{GS} = -10 \text{ V}$ ^{Note4}
	$R_{DS(on)}$	—	6.0	7.5	Ω	$I_D = -0.25 \text{ A}$, $V_{GS} = -4 \text{ V}$ ^{Note4}
	$R_{DS(on)}$	—	7.0	10.0	Ω	$I_D = -1 \text{ A}$, $V_{GS} = -5 \text{ V}$ ^{Note4}
Forward transfer admittance	$ y_{fs} $	0.29	0.45	—	S	$I_D = -0.25 \text{ A}$, $V_{DS} = -10 \text{ V}$ ^{Note4}
Input capacitance	C_{iss}	—	92	—	pF	$V_{DS} = -10 \text{ V}$
Output capacitance	C_{oss}	—	37	—	pF	$V_{GS} = 0$
Reverse transfer capacitance	C_{rss}	—	10	—	pF	$f = 1 \text{ MHz}$
Turn-on delay time	$t_{d(on)}$	—	10	—	ns	$V_{GS} = -5 \text{ V}$, $I_D = -0.25 \text{ A}$, $V_{DD} \cong -30 \text{ V}$
Rise time	t_r	—	13	—	ns	
Turn-off delay time	$t_{d(off)}$	—	22	—	ns	
Fall time	t_f	—	15	—	ns	
Body-Drain diode forward voltage	V_{DF}	—	-0.9	-1.4	V	$I_F = -0.25 \text{ A}$, $V_{GS} = 0$ ^{Note4}
Body-Drain diode reverse recovery time	t_{rr}	—	80	—	ns	$I_F = -0.25 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 50 \text{ A}/\mu\text{s}$

Notes: 4. Pulse test

Package Dimensions



Ordering Information

Part Name	Quantity	Shipping Container
HAT1035R-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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