

HAT1035R

Silicon P Channel Power MOS FET
High Speed Power Switching

REJ03G0845-0100

Rev.1.00

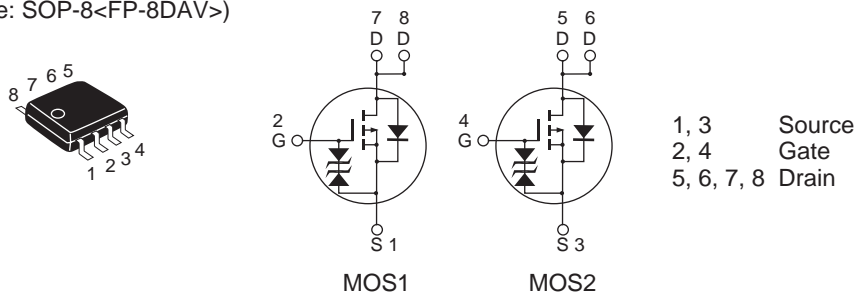
Apr.22,2005

Features

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

Outline

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} | -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)

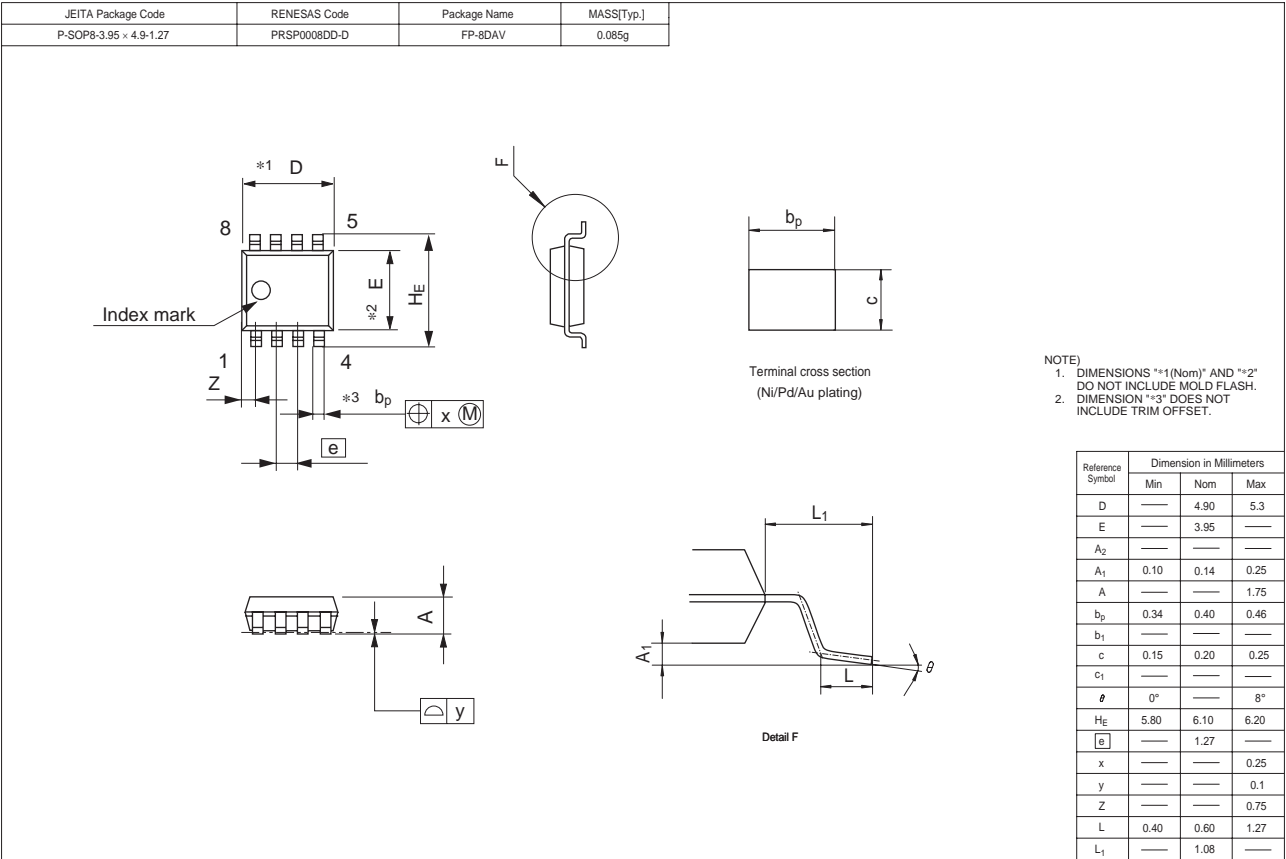
Electrical Characteristics

(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 | $I_G = \pm 100 \text{ }\mu\text{A}$, $V_{DS} = 0$ |
| 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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