

RJK0371DSP

Silicon N Channel Power MOS FET Power Switching

REJ03G1663-0201

Rev.2.01

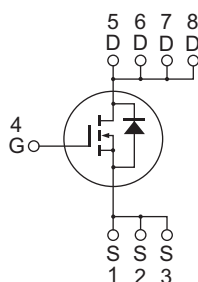
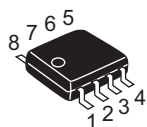
Apr 24, 2008

Features

- Capable of 4.5 V gate drive
- Low drive current
- High density mounting
- Low on-resistance
 $R_{DS(on)} = 14 \text{ m}\Omega$ typ. (at $V_{GS} = 10 \text{ V}$)
- Pb-free

Outline

RENESAS Package code: PRSP0008DD-D
(Package name: SOP-8<FP-8DAV>)



1, 2, 3 Source
4 Gate
5, 6, 7, 8 Drain

Absolute Maximum Ratings

($T_a = 25^\circ\text{C}$)

| Item | Symbol | Ratings | Unit |
|--|-----------------------------------|-------------|---------------------------|
| Drain to source voltage | V_{DSS} | 30 | V |
| Gate to source voltage | V_{GSS} | ± 20 | V |
| Drain current | I_D | 8 | A |
| Drain peak current | $I_{D(pulse)}$ ^{Note 1} | 64 | A |
| Body-drain diode reverse drain current | I_{DR} | 8 | A |
| Avalanche current | I_{AP} ^{Note 2} | 7 | A |
| Avalanche energy | E_{AR} ^{Note 2} | 4.9 | mJ |
| Channel dissipation | P_{ch} ^{Note 3} | 1.8 | W |
| Channel to ambient thermal impedance | θ_{ch-a} ^{Note 3} | 69.4 | $^\circ\text{C}/\text{W}$ |
| Channel temperature | T_{ch} | 150 | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | -55 to +150 | $^\circ\text{C}$ |

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

2. Value at $T_{ch} = 25^\circ\text{C}$, $R_g \geq 50 \Omega$

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

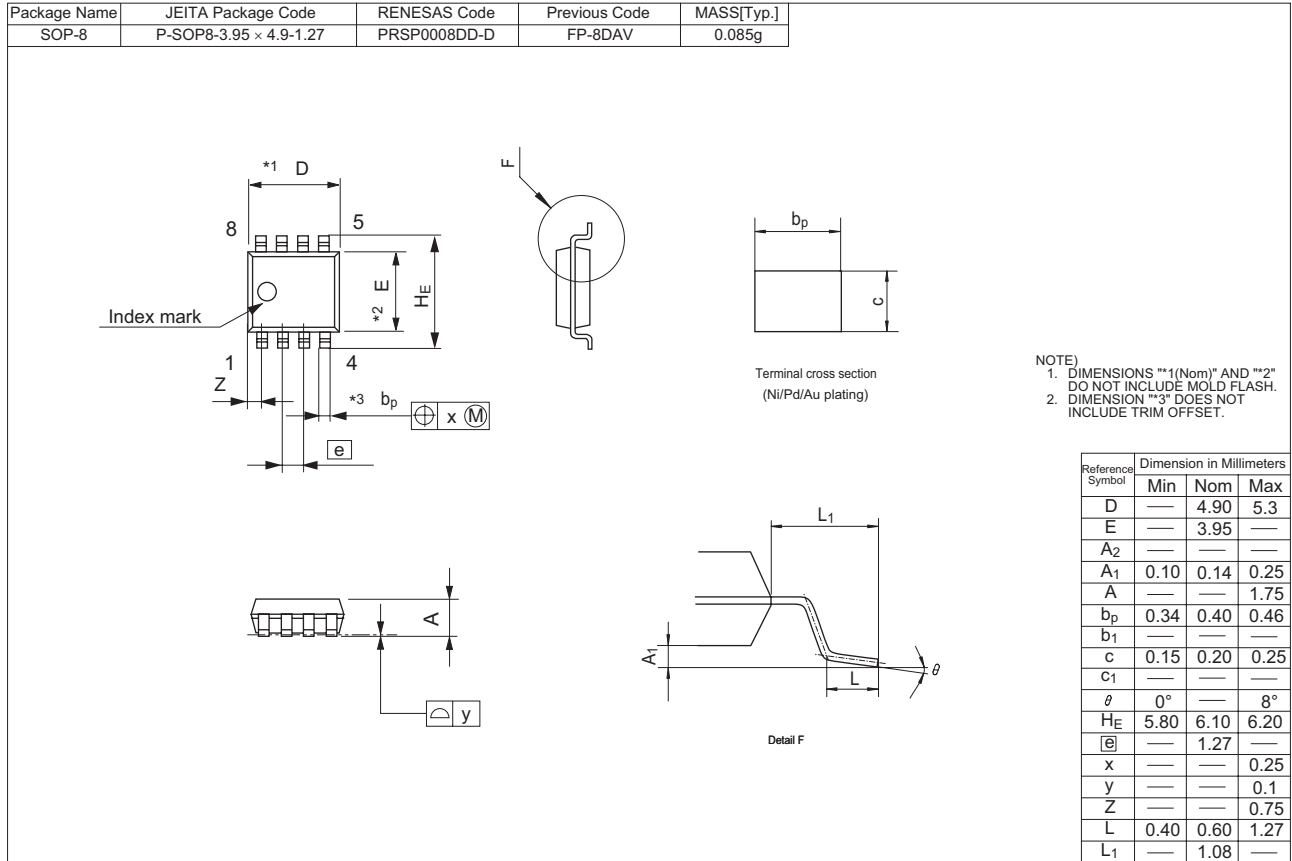
Electrical Characteristics

(Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|--|---------------|-----|------|-----------|------------------|---|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | 30 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Gate to source leak current | I_{GSS} | — | — | ± 0.1 | μA | $V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0$ |
| Zero gate voltage drain current | I_{DSS} | — | — | 1 | μA | $V_{DS} = 30 \text{ V}$, $V_{GS} = 0$ |
| Gate to source cutoff voltage | $V_{GS(off)}$ | 1.2 | — | 2.5 | V | $V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$ |
| Static drain to source on state resistance | $R_{DS(on)}$ | — | 14 | 19 | $\text{m}\Omega$ | $I_D = 4 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4} |
| | $R_{DS(on)}$ | — | 19 | 27 | $\text{m}\Omega$ | $I_D = 4 \text{ A}$, $V_{GS} = 4.5 \text{ V}$ ^{Note4} |
| Forward transfer admittance | $ y_{fs} $ | — | 15 | — | S | $I_D = 4 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note4} |
| Input capacitance | C_{iss} | — | 590 | — | pF | $V_{DS} = 10 \text{ V}$ |
| Output capacitance | C_{oss} | — | 115 | — | pF | $V_{GS} = 0$ |
| Reverse transfer capacitance | C_{rss} | — | 36 | — | pF | $f = 1 \text{ MHz}$ |
| Gate Resistance | R_g | — | 1.5 | — | Ω | |
| Total gate charge | Q_g | — | 3.8 | — | nC | $V_{DD} = 10 \text{ V}$ |
| Gate to source charge | Q_{gs} | — | 1.5 | — | nC | $V_{GS} = 4.5 \text{ V}$ |
| Gate to drain charge | Q_{gd} | — | 1.0 | — | nC | $I_D = 8 \text{ A}$ |
| Turn-on delay time | $t_{d(on)}$ | — | 4.5 | — | ns | $V_{GS} = 10 \text{ V}$, $I_D = 4 \text{ A}$ |
| Rise time | t_r | — | 3.0 | — | ns | $V_{DD} \cong 10 \text{ V}$ |
| Turn-off delay time | $t_{d(off)}$ | — | 31.4 | — | ns | $R_L = 2.5 \Omega$ |
| Fall time | t_f | — | 3.5 | — | ns | $R_g = 4.7 \Omega$ |
| Body-drain diode forward voltage | V_{DF} | — | 0.83 | 1.08 | V | $I_F = 8 \text{ A}$, $V_{GS} = 0$ ^{Note4} |
| Body-drain diode reverse recovery time | t_{rr} | — | 15 | — | ns | $I_F = 8 \text{ A}$, $V_{GS} = 0$ $di_F/dt = 100 \text{ A}/\mu\text{s}$ |

Notes: 4. Pulse test

Package Dimensions



Ordering Information

| Part No. | Quantity | Shipping Container |
|------------------|----------|--------------------|
| RJK0371DSP-00-J0 | 2500 pcs | Taping |

Notes:

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Renesas Technology Korea Co., Ltd.
Kukje Center Bldg. 18th Fl., 191, 2-ka, Hangang-ro, Yongsan-ku, Seoul 140-702, Korea
Tel: <82> (2) 796-3115, Fax: <82> (2) 796-2145

Renesas Technology Malaysia Sdn. Bhd
Unit 906, Block B, Menara Amcorp, Amcorp Trade Centre, No.18, Jln Persiaran Barat, 46050 Petaling Jaya, Selangor Darul Ehsan, Malaysia
Tel: <603> 7955-9390, Fax: <603> 7955-9510

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April 1st, 2010
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