

HAT2105T

Silicon N Channel MOS FET
High Speed Power Switching

REJ03G0384-0200

Rev.2.00

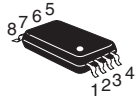
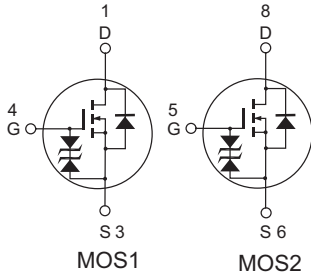
Aug 06, 2007

Features

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

Outline

RENESAS Package code: PTSP0008JB-B
(Package name: TSSOP-8 <TTP-8DV>)

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

Absolute Maximum Ratings

(Ta = 25°C)

| Item | Symbol | Ratings | Unit |
|--|--------------------------------|-------------|------|
| Drain to source voltage | V_{DSS} | 200 | V |
| Gate to source voltage | V_{GSS} | ± 15 | V |
| Drain current | I_D | 0.5 | A |
| Drain peak current | I_D (pulse) ^{Note1} | 2 | A |
| Body-drain diode reverse drain current | I_{DR} | 0.5 | A |
| Channel dissipation | P_{ch} ^{Note 2} | 1 | W |
| | P_{ch} ^{Note 3} | 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), $PW \leq 10 s$

3. 2 Drive operation ; When using the glass epoxy board (FR4 40 x 40 x 1.6 mm), $PW \leq 10 s$

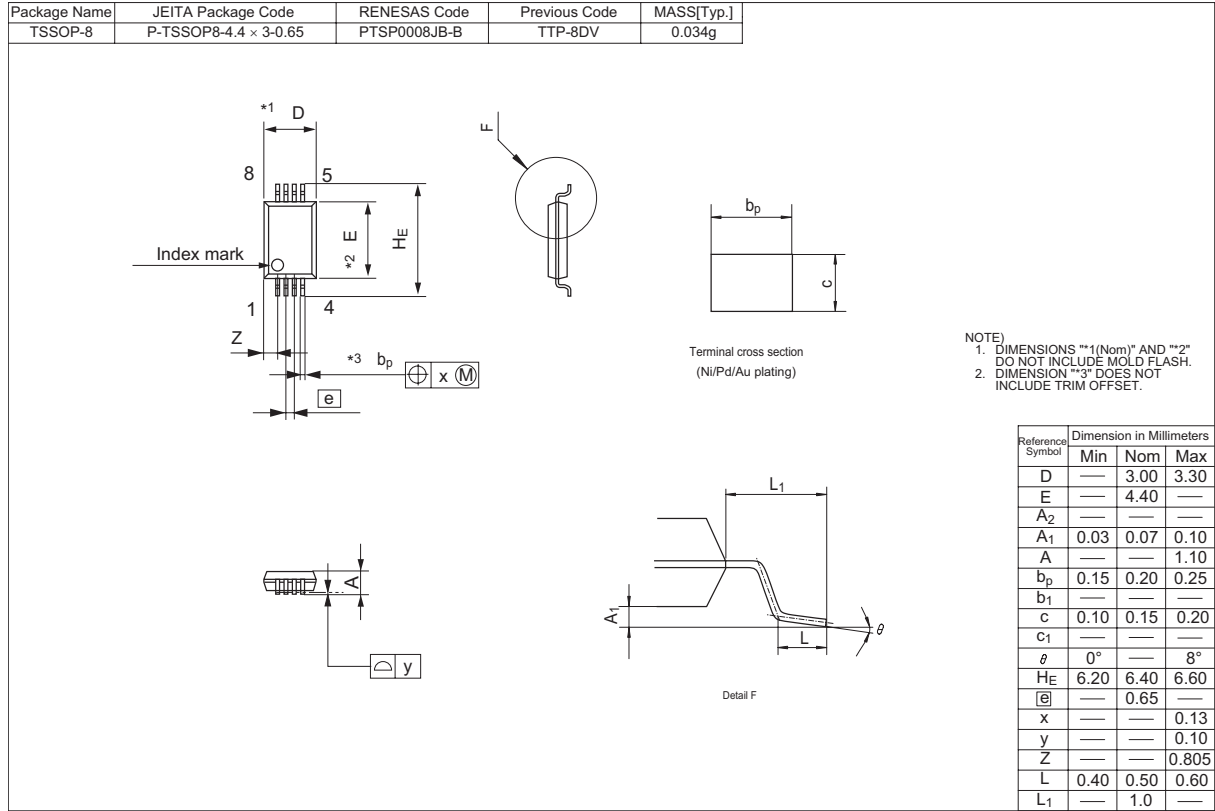
Electrical Characteristics

(Ta = 25°C)

| Item | Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|--|---------------|----------|------|----------|---------------|---|
| Drain to source breakdown voltage | $V_{(BR)DSS}$ | 200 | — | — | 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 | $V_{DS} = 200 \text{ V}$, $V_{GS} = 0$ |
| 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 | Ω | $I_D = 0.5 \text{ A}$, $V_{GS} = 10 \text{ V}$ ^{Note4} |
| | $R_{DS(on)}$ | — | 1.9 | 2.7 | Ω | $I_D = 0.5 \text{ A}$, $V_{GS} = 4 \text{ V}$ ^{Note4} |
| | $R_{DS(on)}$ | — | 2.4 | 5.5 | Ω | $I_D = 2 \text{ A}$, $V_{GS} = 5 \text{ V}$ ^{Note4} |
| Forward transfer admittance | $ y_{fs} $ | 0.56 | 0.86 | — | S | $I_D = 0.5 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note4} |
| Input capacitance | C_{iss} | — | 120 | — | pF | $V_{DS} = 10 \text{ V}$ $V_{GS} = 0$ $f = 1 \text{ MHz}$ |
| Output capacitance | C_{oss} | — | 29 | — | pF | |
| Reverse transfer capacitance | C_{rss} | — | 10 | — | pF | |
| Turn-on delay time | $t_{d(on)}$ | — | 10 | — | ns | $V_{GS} = 5 \text{ V}$, $I_D = 0.5 \text{ A}$ $V_{DD} \cong 30 \text{ V}$ |
| Rise time | t_r | — | 14 | — | ns | |
| Turn-off delay time | $t_{d(off)}$ | — | 24 | — | ns | |
| Fall time | t_f | — | 9 | — | ns | |
| Body-drain diode forward voltage | V_{DF} | — | 0.9 | 1.4 | V | $I_F = 0.5 \text{ A}$, $V_{GS} = 0$ ^{Note4} |

Notes: 4. Pulse test

Package Dimensions



Ordering Information

| Part No. | Quantity | Shipping Container |
|---------------|----------|--------------------|
| HAT2105T-EL-E | 3000 pcs | Taping |

Notes:

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