

HAT2207C

Silicon N Channel MOS FET Power Switching

REJ03G1239-0400

Rev.4.00

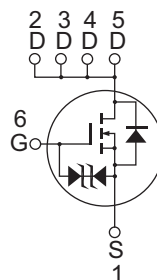
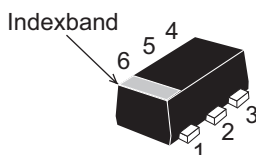
Jun. 10, 2005

Features

- Low on-resistance
 $R_{DS(on)} = 100 \text{ m}\Omega$ typ.(at $V_{GS} = 4.5 \text{ V}$)
- Low drive current
- High density mounting
- 2.5 V gate drive device

Outline

RENESAS Package code: PWSF0006JA-A
(Package name: CMFPAK-6)



1. Source
2. Drain
3. Drain
4. Drain
5. Drain
6. Gate

Absolute Maximum Ratings

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

| Item | Symbol | Ratings | Unit |
|--|---------------------------------|-------------|------------------|
| Drain to Source voltage | V_{DSS} | 20 | V |
| Gate to Source voltage | V_{GSS} | ± 12 | V |
| Drain current | I_D | 1.5 | A |
| Drain peak current | $I_{D(pulse)}$ ^{Note1} | 6 | A |
| Body - Drain diode reverse Drain current | I_{DR} | 1.5 | A |
| Channel dissipation | P_{ch} ^{Note2} | 790 | mW |
| 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. When using the glass epoxy board (FR4 40 x 40 x 1.6mm)

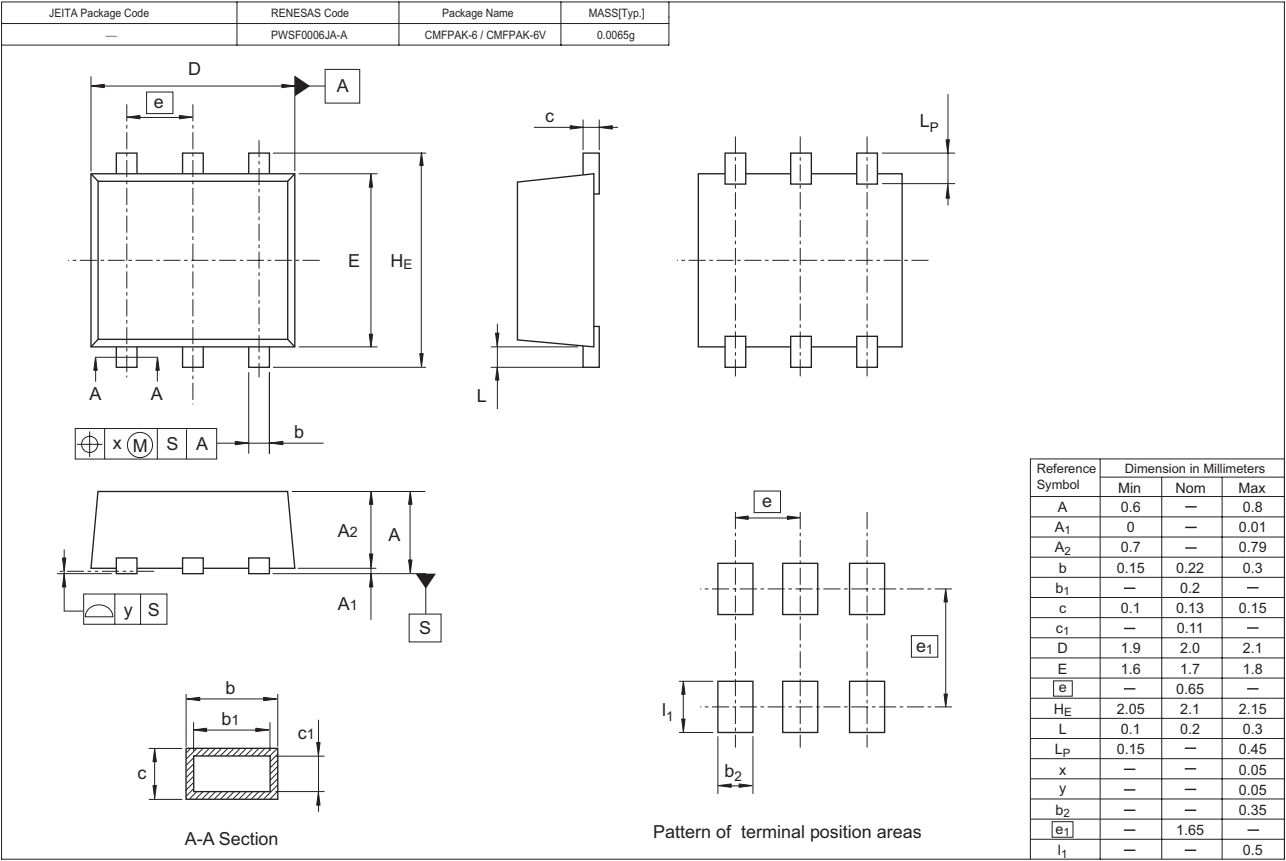
Electrical Characteristics

(Ta = 25°C)

| Item | Symbol | Min | Typ | Max | Unit | Test conditions |
|-------------------------------------|---------------|----------|------|----------|------------------|--|
| Drain to Source breakdown voltage | $V_{(BR)DSS}$ | 20 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Gate to Source breakdown voltage | $V_{(BR)GSS}$ | ± 12 | | | | $I_G = \pm 10 \text{ }\mu\text{A}$, $V_{DS} = 0$ |
| Gate to Source leak current | I_{GSS} | — | — | ± 10 | μA | $V_{GS} = \pm 10 \text{ V}$, $V_{DS} = 0$ |
| Drain to Source leak current | I_{DSS} | — | — | 1 | μA | $V_{DS} = 20 \text{ V}$, $V_{GS} = 0$ |
| Gate to Source cutoff voltage | $V_{GS(off)}$ | 0.4 | — | 1.4 | V | $V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$ |
| Drain to Source on state resistance | $R_{DS(on)}$ | — | 100 | 130 | $\text{m}\Omega$ | $I_D = 0.8 \text{ A}$, $V_{GS} = 4.5 \text{ V}$ ^{Note3} |
| | $R_{DS(on)}$ | — | 140 | 210 | $\text{m}\Omega$ | $I_D = 0.8 \text{ A}$, $V_{GS} = 2.5 \text{ V}$ ^{Note3} |
| Forward transfer admittance | $ y_{fs} $ | 1.5 | 3 | — | S | $I_D = 0.8 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note3} |
| Input capacitance | C_{iss} | — | 135 | — | pF | $V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$ |
| Output capacitance | C_{oss} | — | 40 | — | pF | |
| Reverse transfer capacitance | C_{rss} | — | 15 | — | pF | |
| Turn - on delay time | $t_{d(on)}$ | — | 7 | — | ns | $I_D = 0.8 \text{ A}$, $V_{GS} = 10 \text{ V}$, $V_{DD} = 10 \text{ V}$, $R_L = 12.5 \text{ }\Omega$, $R_g = 4.7 \text{ }\Omega$ |
| Rise time | t_r | — | 12 | — | ns | |
| Turn - off delay time | $t_{d(off)}$ | — | 15 | — | ns | |
| Fall time | t_f | — | 7 | — | ns | |
| Total Gate charge | Q_g | — | 1.7 | — | nC | $V_{DD} = 10 \text{ V}$, $V_{GS} = 4.5 \text{ V}$, $I_D = 1.5 \text{ A}$ |
| Gate to Source charge | Q_{gs} | — | 0.4 | — | nC | |
| Gate to Drain charge | Q_{gd} | — | 0.5 | — | nC | |
| Body - Drain diode forward voltage | V_{DF} | — | 0.85 | 1.1 | V | $I_F = 1.5 \text{ A}$, $V_{GS} = 0$ ^{Note3} |

Notes: 3. Pulse test

Package Dimensions



Ordering Information

| Part Name | Quantity | Shipping Container |
|---------------|----------|--------------------|
| HAT2207C-EL-E | 3000 pcs | Taping |

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