

HAT2205C

Silicon N Channel MOS FET
Power Switching

R07DS1181EJ0500
(Previous: REJ03G1237-0400)
Rev.5.00
Mar 19, 2014

Features

- Low on-resistance
 $R_{DS(on)} = 38\text{ m}\Omega$ typ. (at $V_{GS} = 4.5\text{ V}$)
- Low drive current.
- High density mounting
- 1.8 V gate drive devices.

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} | 12 | V |
| Gate to source voltage | V_{GSS} | ± 8 | V |
| Drain current | I_D | 3 | A |
| Drain peak current | $I_{D(pulse)}$ ^{Note 1} | 12 | A |
| Body - Drain diode reverse drain current | I_{DR} | 3 | A |
| Channel dissipation | P_{ch} ^{Note 2} | 850 | 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 × 40 × 1.6 mm)

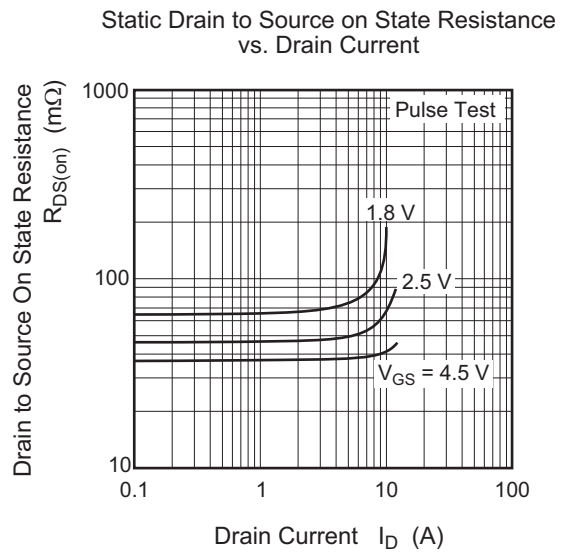
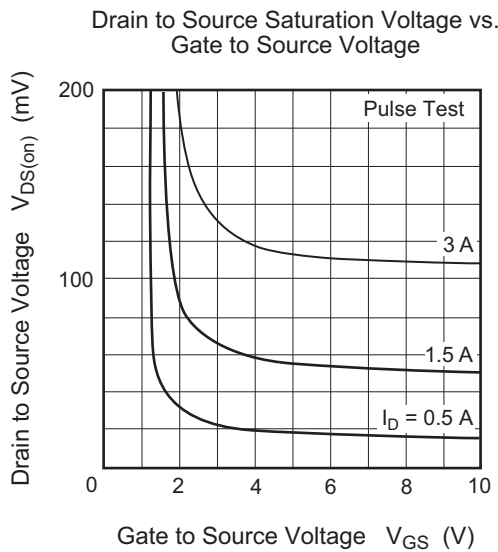
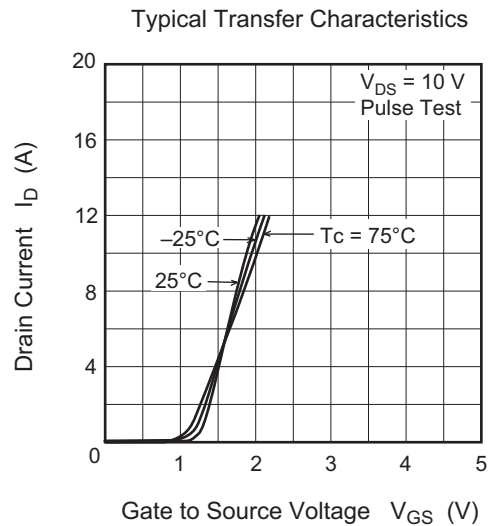
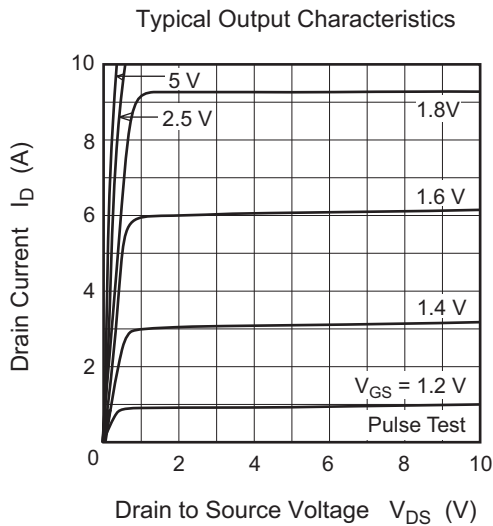
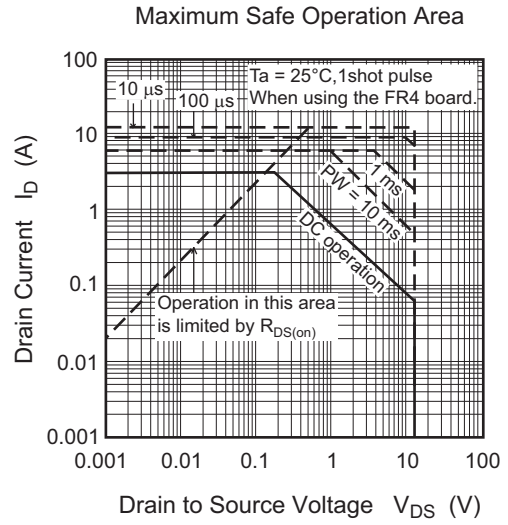
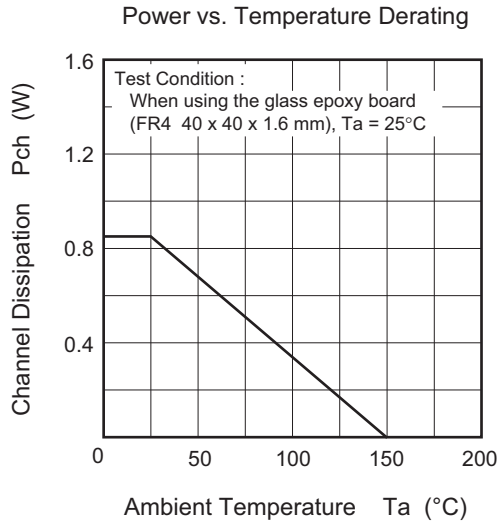
Electrical Characteristics

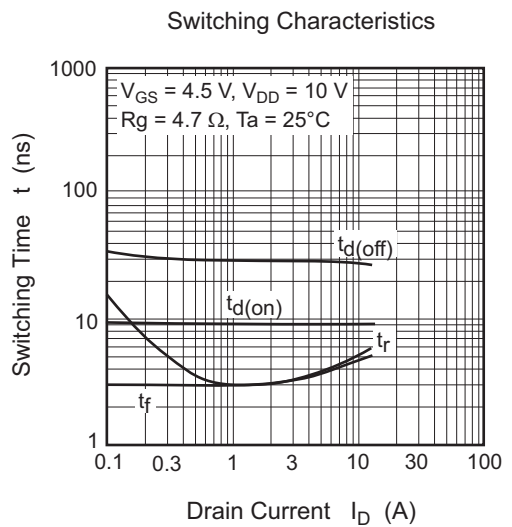
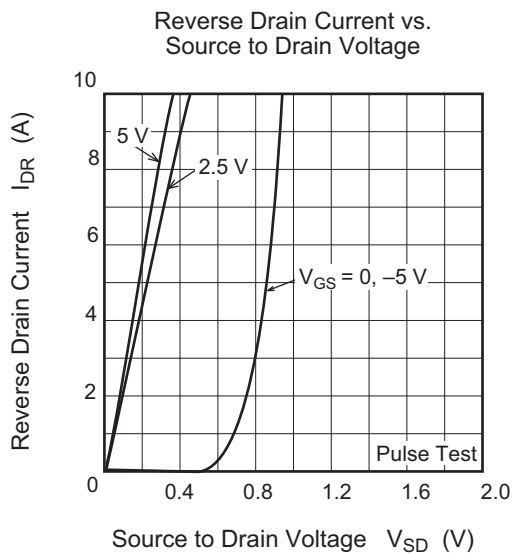
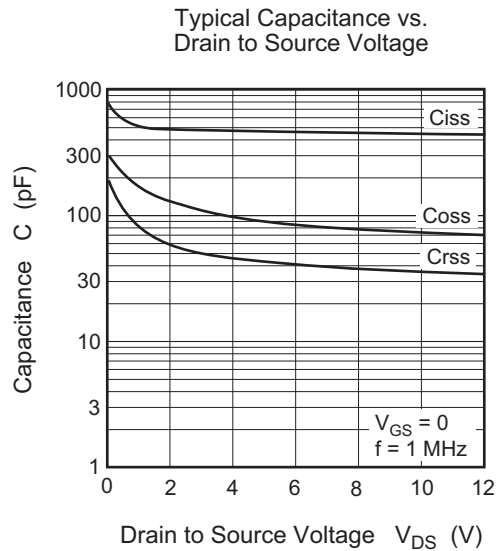
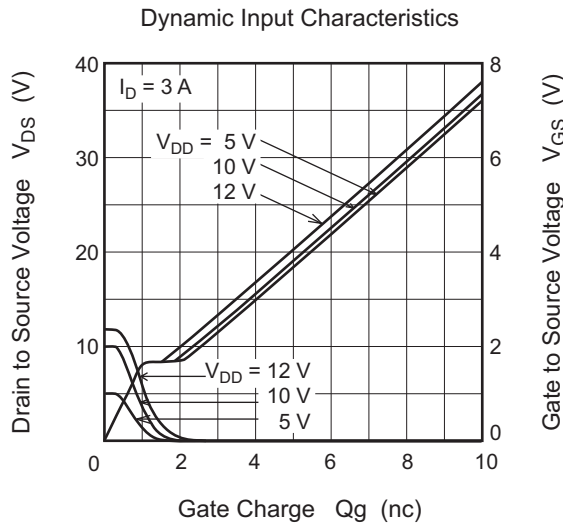
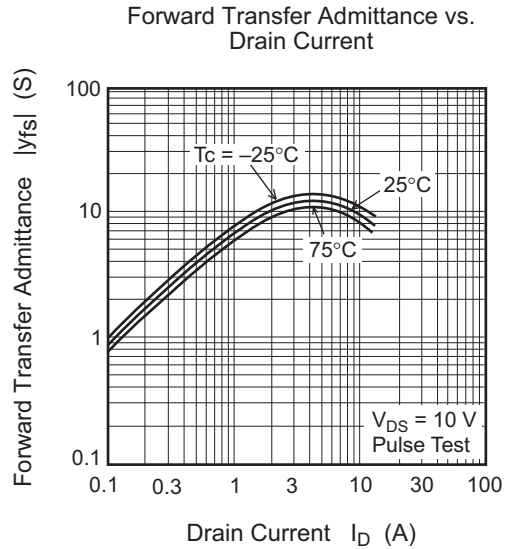
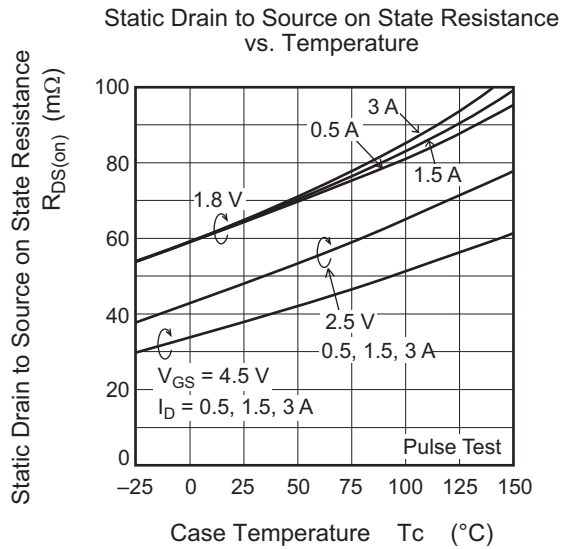
(Ta = 25°C)

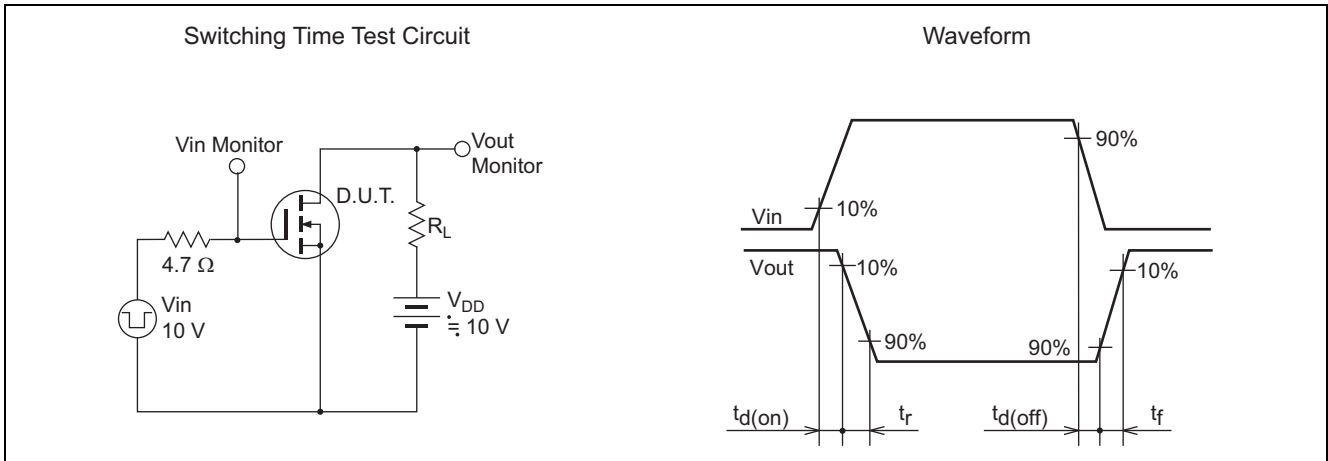
| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|-------------------------------------|---------------|---------|-----|----------|------------------|--|
| Drain to Source breakdown voltage | $V_{(BR)DSS}$ | 12 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Gate to Source breakdown voltage | $V_{(BR)GSS}$ | ± 8 | — | — | V | $I_G = \pm 10 \text{ }\mu\text{A}$, $V_{DS} = 0$ |
| Gate to Source leakage current | I_{GSS} | — | — | ± 10 | μA | $V_{GS} = \pm 6.4 \text{ V}$, $V_{DS} = 0$ |
| Drain to Source leakage current | I_{DSS} | — | — | 1 | μA | $V_{DS} = 12 \text{ V}$, $V_{GS} = 0$ |
| Gate to Source cutoff voltage | $V_{GS(th)}$ | 0.3 | — | 1.2 | V | $V_{DS} = 10 \text{ V}$, $I_D = 1 \text{ mA}$ |
| Drain to Source on state resistance | $R_{DS(on)}$ | — | 38 | 50 | $\text{m}\Omega$ | $V_{GS} = 4.5 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3} |
| | $R_{DS(on)}$ | — | 48 | 67 | $\text{m}\Omega$ | $V_{GS} = 2.5 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3} |
| | $R_{DS(on)}$ | — | 65 | 97 | $\text{m}\Omega$ | $V_{GS} = 1.8 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3} |
| Forward transfer admittance | $ y_{fs} $ | 6 | 9 | — | S | $V_{DS} = 10 \text{ V}$, $I_D = 1.5 \text{ A}$ ^{Note3} |
| Input capacitance | C_{iss} | — | 430 | — | pF | $V_{GS} = 0$, $f = 1 \text{ MHz}$, $V_{DS} = 10 \text{ V}$ |
| Output capacitance | C_{oss} | — | 72 | — | pF | |
| Reverse transfer capacitance | C_{rss} | — | 35 | — | pF | |
| Total gate charge | Q_g | — | 6 | — | nC | $V_{GS} = 4.5 \text{ V}$, $V_{DS} = 10 \text{ V}$, $I_D = 3 \text{ A}$ |
| Gate to Source charge | Q_{gs} | — | 0.9 | — | nC | |
| Gate to Drain charge | Q_{gd} | — | 0.9 | — | nC | |
| Turn - on delay time | $t_{d(on)}$ | — | 9 | — | ns | $V_{GS} = 4.5 \text{ V}$, $I_D = 1.5 \text{ A}$, $V_{DD} = 10 \text{ V}$, $R_L = 6.7 \text{ }\Omega$, $R_g = 4.7 \text{ }\Omega$ |
| Rise time | t_r | — | 3 | — | ns | |
| Turn - off delay time | $t_{d(off)}$ | — | 30 | — | ns | |
| Fall time | t_f | — | 3 | — | ns | |
| Body - Drain diode forward voltage | V_{DF} | — | 0.8 | 1.1 | V | $I_F = 3 \text{ A}$, $V_{GS} = 0$ ^{Note3} |

Notes: 3. Pulse test

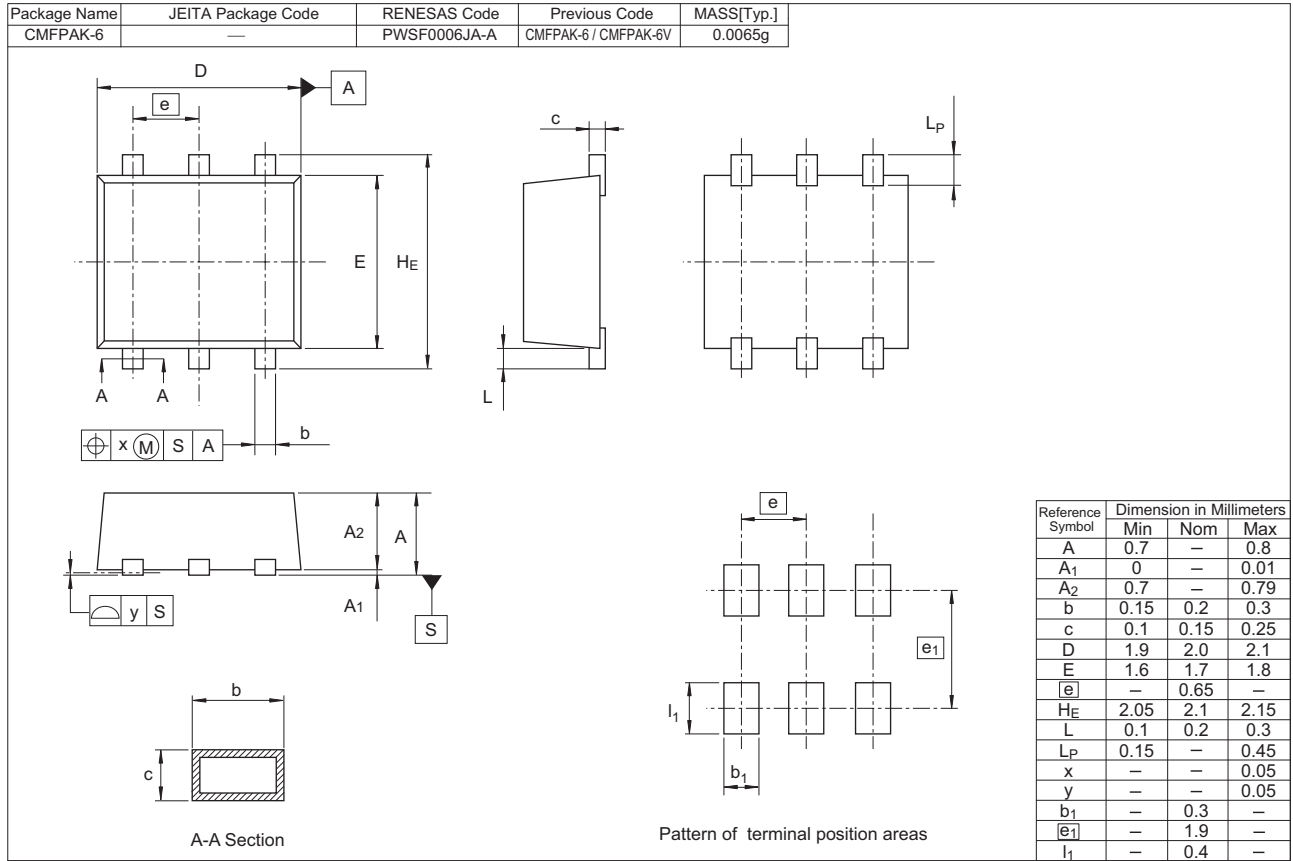
Main Characteristics







Package Dimensions



Ordering Information

| Orderable Part Number | Quantity | Shipping Container |
|-----------------------|----------|--------------------|
| HAT2205C-EL-E | 3000 pcs | Taping |

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