

HAT2202C

Silicon N Channel MOS FET Power Switching

REJ03G1236-0500

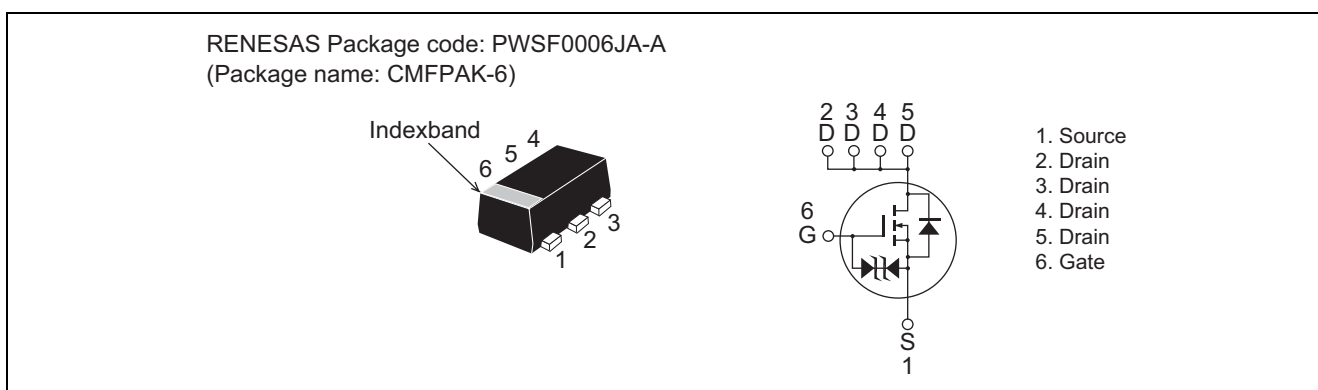
Rev.5.00

Jan 26, 2006

Features

- Low on-resistance
 $R_{DS(on)} = 31 \text{ m}\Omega$ typ. (at $V_{GS} = 4.5 \text{ V}$)
- Low drive current.
- High density mounting
- 2.5 V gate drive devices.

Outline



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 | 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} | 900 | 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 $40 \times 40 \times 1.6 \text{ mm}$)

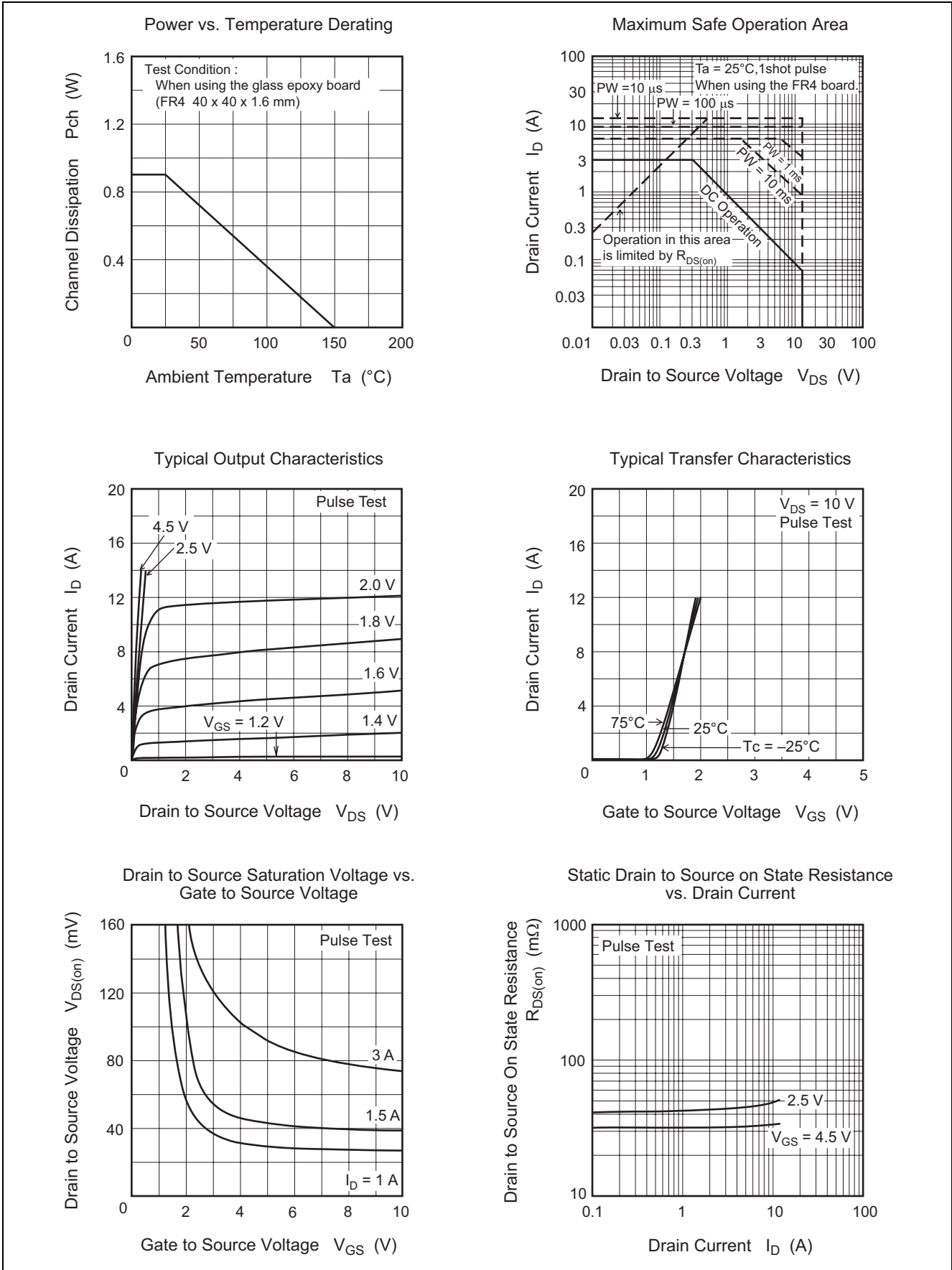
Electrical Characteristics

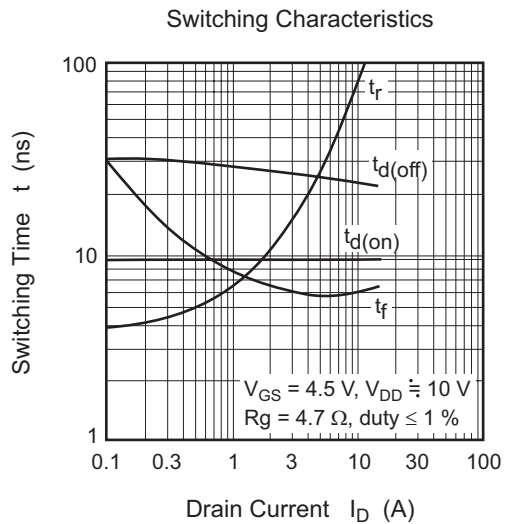
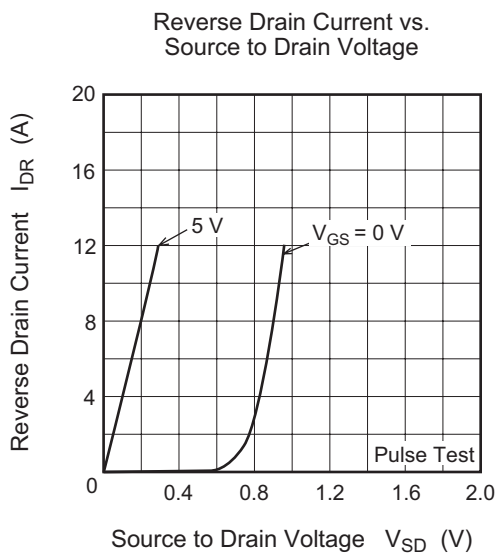
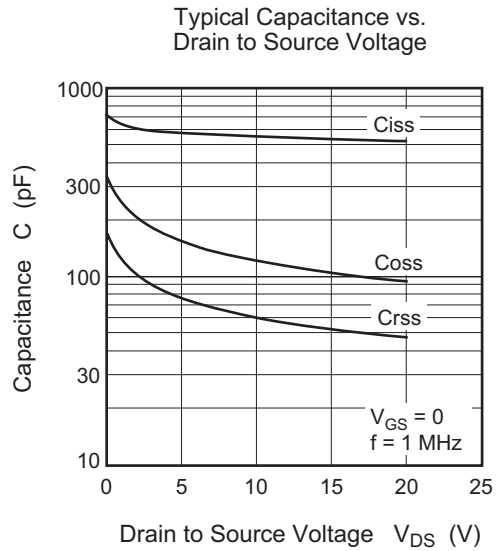
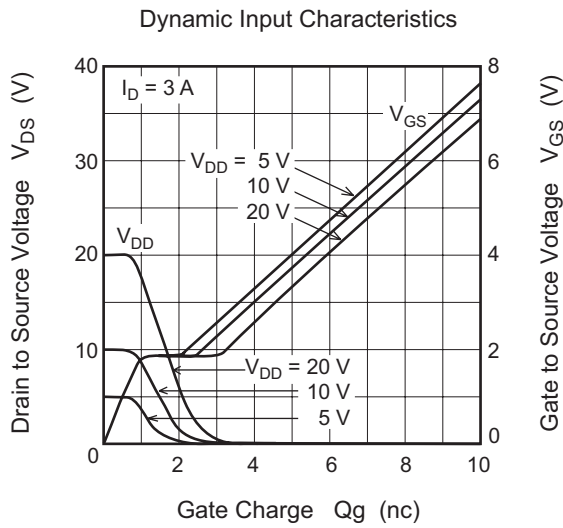
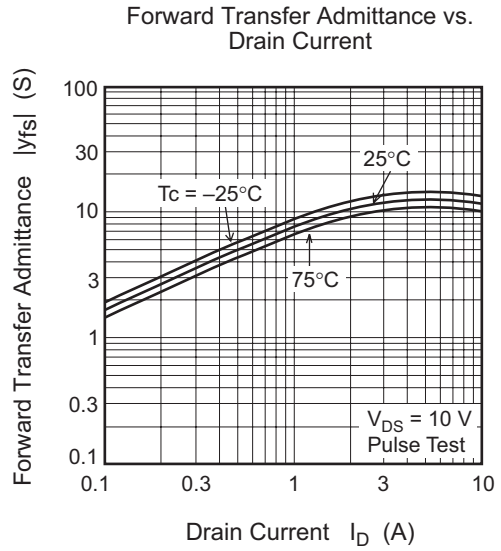
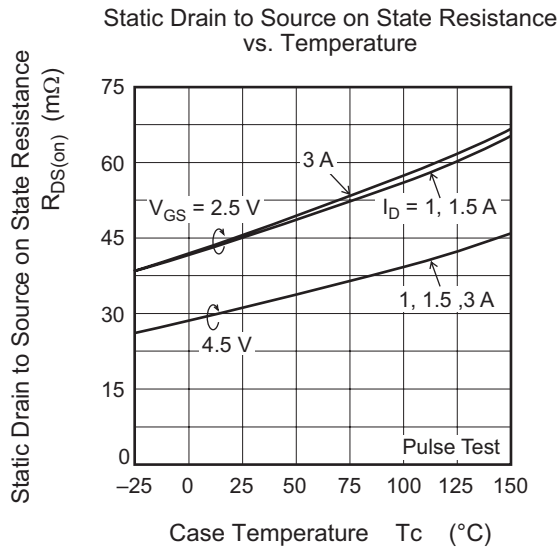
(Ta = 25°C)

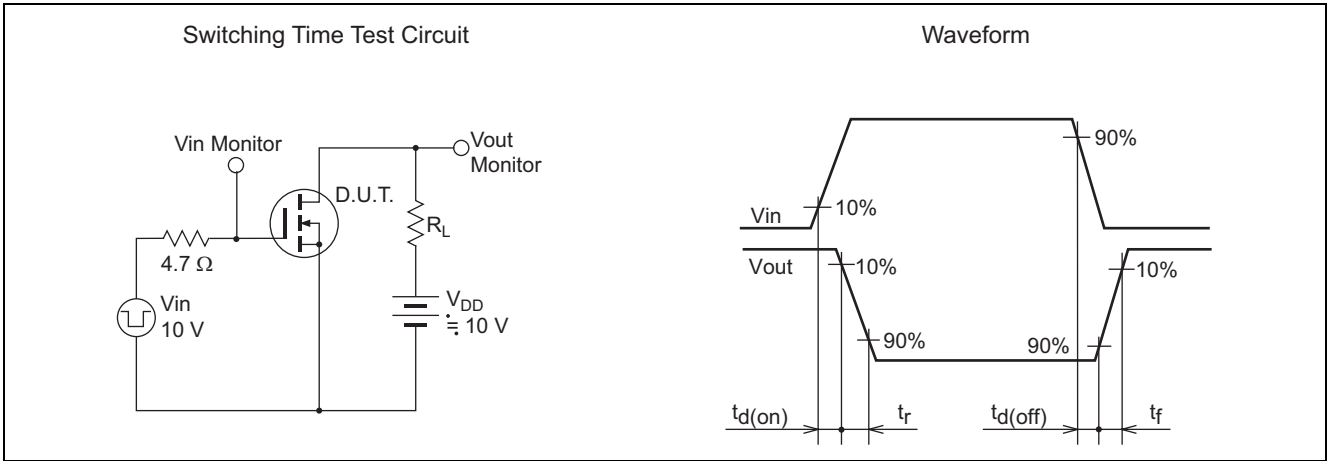
| Item | Symbol | Min | Typ | Max | Unit | Test Conditions |
|-------------------------------------|---------------|----------|-----|----------|------------------|---|
| Drain to Source breakdown voltage | $V_{(BR)DSS}$ | 20 | — | — | V | $I_D = 10 \text{ mA}$, $V_{GS} = 0$ |
| Gate to Source breakdown voltage | $V_{(BR)GSS}$ | ± 12 | — | — | V | $I_G = \pm 10 \text{ }\mu\text{A}$, $V_{DS} = 0$ |
| Gate to Source leakage current | I_{GSS} | — | — | ± 10 | μA | $V_{GS} = \pm 10\text{V}$, $V_{DS} = 0$ |
| Drain to Source leakage current | I_{DSS} | — | — | 1 | μA | $V_{DS} = 20 \text{ V}$, $V_{GS} = 0$ |
| Gate to Source cutoff voltage | $V_{GS(th)}$ | 0.4 | — | 1.4 | V | $I_D = 10 \text{ V}$, $I_D = 1 \text{ mA}$ |
| Drain to Source on state resistance | $R_{DS(on)}$ | — | 31 | 40 | $\text{m}\Omega$ | $I_D = 1.5 \text{ A}$, $V_{GS} = 4.5 \text{ V}$ ^{Note3} |
| | | — | 43 | 55 | $\text{m}\Omega$ | $I_D = 1.5 \text{ A}$, $V_{GS} = 2.5 \text{ V}$ ^{Note3} |
| Forward transfer admittance | $ y_{fs} $ | 6.5 | 9.5 | — | S | $I_D = 1.5 \text{ A}$, $V_{DS} = 10 \text{ V}$ ^{Note3} |
| Input capacitance | C_{iss} | — | 520 | — | pF | $V_{DS} = 10 \text{ V}$, $V_{GS} = 0$, $f = 1 \text{ MHz}$ |
| Output capacitance | C_{oss} | — | 115 | — | pF | |
| Reverse transfer capacitance | C_{rss} | — | 60 | — | pF | |
| Total gate charge | Q_g | — | 6 | — | nC | $V_{DD} = 10 \text{ V}$, $V_{GS} = 4.5 \text{ V}$, $I_D = 3 \text{ A}$ |
| Gate to Source charge | Q_{gs} | — | 1 | — | nC | |
| Gate to Drain charge | Q_{gd} | — | 1.4 | — | nC | |
| Turn - on delay time | $t_{d(on)}$ | — | 9 | — | ns | $I_D = 1.5 \text{ A}$, $V_{GS} = 10 \text{ V}$, $V_{DD} = 10 \text{ V}$, $R_L = 6.7 \text{ }\Omega$, $R_g = 4.7 \text{ }\Omega$ |
| Rise time | t_r | — | 8 | — | ns | |
| Turn - off delay time | $t_{d(off)}$ | — | 28 | — | ns | |
| Fall time | t_f | — | 6 | — | 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

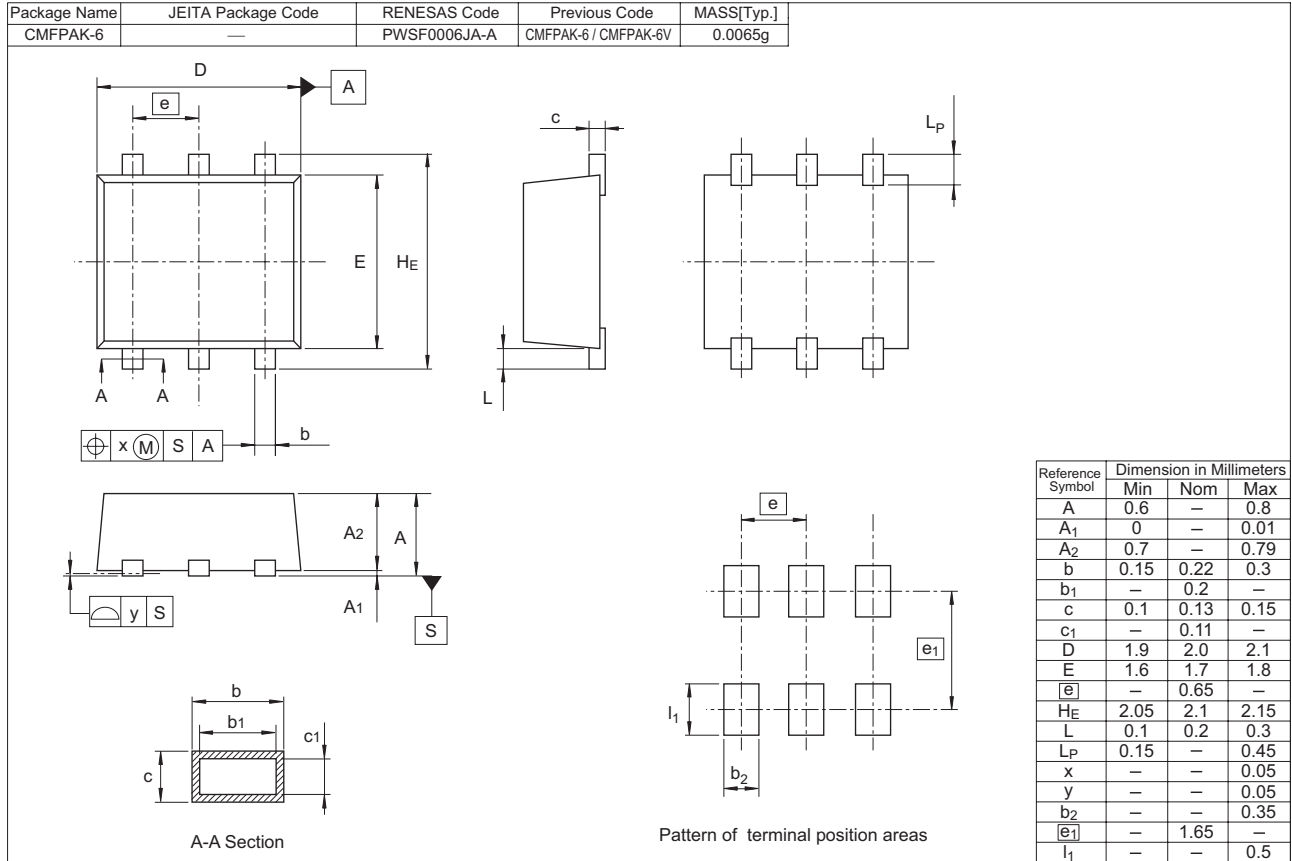
Main Characteristics







Package Dimensions



Ordering Information

| Part Name | Quantity | Shipping Container |
|---------------|----------|--------------------|
| HAT2202C-EL-E | 3000 pcs | Taping |

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