

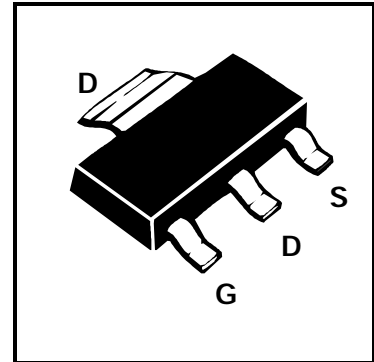
# SOT223 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

**ZVN4206G**

ISSUE 3 - JANUARY 1996

## FEATURES

- \* Compact geometry
- \* Fast switching speeds
- \* No secondary breakdown and Excellent temperature stability
- \* High input impedance and low current drive
- \* Ease of paralleling



## APPLICATIONS

- \* DC-DC converters
- \* Solenoid / relay drivers for automotive applications
- \* Stepper motor drivers and Print head drivers

PARTMARKING DETAIL - ZVN4206

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER   | SYMBOL         | VALUE       | UNIT        |
|---|----------------|-------------|-------------|
| Drain-Source Voltage                              | $V_{DS}$       | 60          | V           |
| Continuous Drain Current at $T_{amb}=25^{\circ}C$ | $I_D$          | 1           | A           |
| Pulsed Drain Current                              | $I_{DM}$       | 8           | A           |
| Gate-Source Voltage                               | $V_{GS}$       | $\pm 20$    | V           |
| Power Dissipation at $T_{amb}=25^{\circ}C$        | $P_{tot}$      | 2           | W           |
| Operating and Storage Temperature Range           | $T_j; T_{stg}$ | -55 to +150 | $^{\circ}C$ |

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## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

| PARAMETER                                   | SYMBOL       | MIN. | MAX.      | UNIT                           | CONDITIONS.  |
|---|--------------|------|-----------|--------------------------------|--|
| Drain-Source Breakdown Voltage              | $BV_{DSS}$   | 60   |           | V                              | $I_D=1\text{mA}, V_{GS}=0\text{V}$   |
| Gate-Source Threshold Voltage               | $V_{GS(th)}$ | 1.3  | 3         | V                              | $I_D=1\text{mA}, V_{DS}=V_{GS}$  |
| Gate-Body Leakage                           | $I_{GSS}$    |      | 100       | nA                             | $V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$  |
| Zero Gate Voltage Drain Current             | $I_{DSS}$    |      | 10<br>100 | $\mu\text{A}$<br>$\mu\text{A}$ | $V_{DS}=60\text{V}, V_{GS}=0\text{V}$<br>$V_{DS}=48\text{V}, V_{GS}=0\text{V}, T=125^{\circ}\text{C}(2)$ |
| On-State Drain Current (1)                  | $I_{D(on)}$  | 3    |           | A                              | $V_{DS}=25\text{V}, V_{GS}=10\text{V}$   |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ |      | 1<br>1.5  | $\Omega$<br>$\Omega$           | $V_{GS}=10\text{V}, I_D=1.5\text{A}$<br>$V_{GS}=5\text{V}, I_D=0.5\text{A}$                              |
| Forward Transconductance (1)(2)             | $g_{fs}$     | 300  |           | mS                             | $V_{DS}=25\text{V}, I_D=1.5\text{A}$   |
| Input Capacitance (2)                       | $C_{iss}$    |      | 100       | pF                             | $V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$   |
| Common Source Output Capacitance (2)        | $C_{oss}$    |      | 60        | pF                             |  |
| Reverse Transfer Capacitance (2)            | $C_{rss}$    |      | 20        | pF                             |  |
| Turn-On Delay Time (2)(3)                   | $t_{d(on)}$  |      | 8         | ns                             | $V_{DD}\approx 25\text{V}, I_D=1.5\text{A}, V_{GEN}=10\text{V}$  |
| Rise Time (2)(3)                            | $t_r$        |      | 12        | ns                             |  |
| Turn-Off Delay Time (2)(3)                  | $t_{d(off)}$ |      | 12        | ns                             |  |
| Fall Time (2)(3)                            | $t_f$        |      | 15        | ns                             |  |

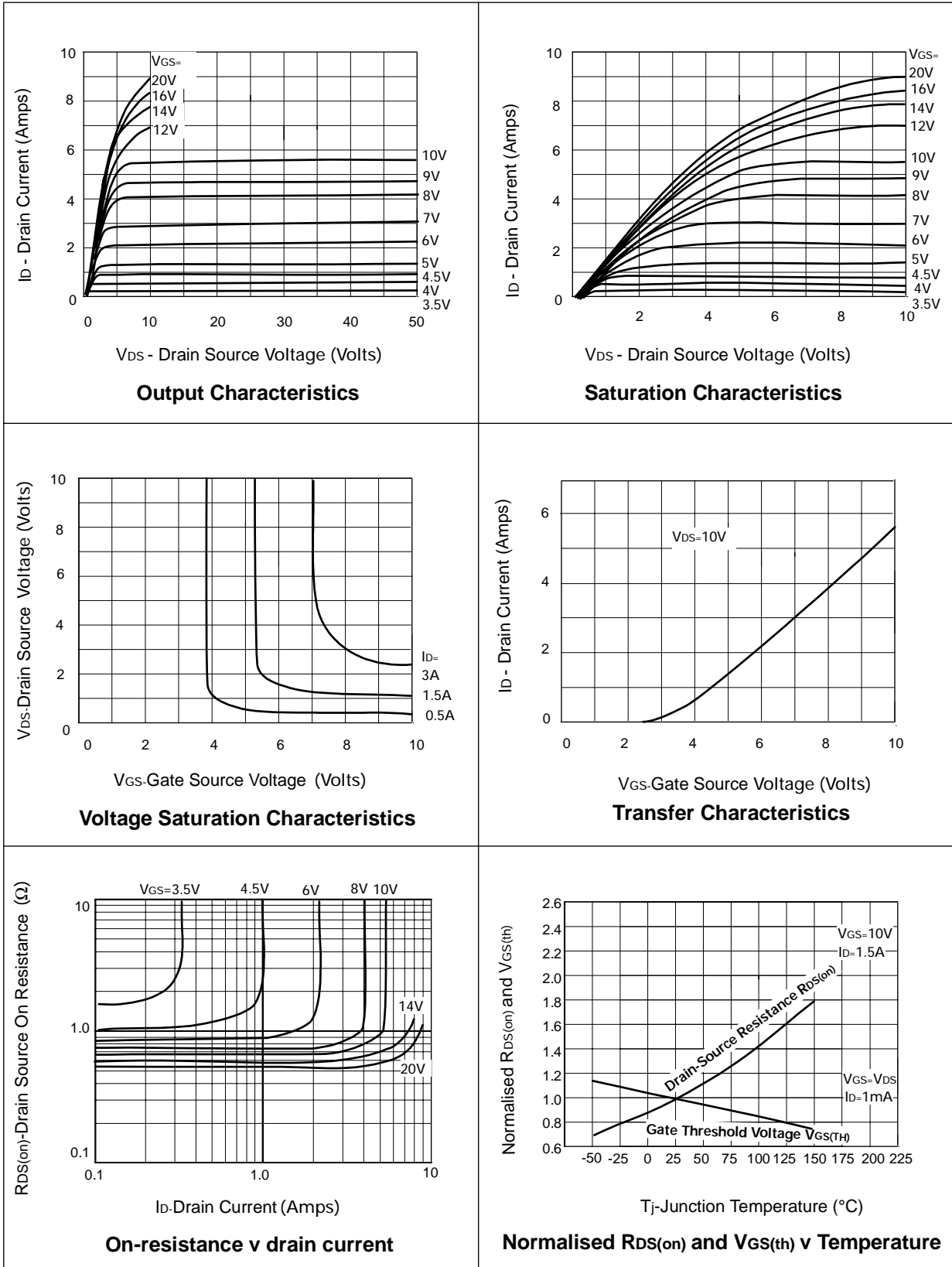
(1) Measured under pulsed conditions. Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

(2) Sample test.

(3) Switching times measured with 50 $\Omega$  source impedance and <5ns rise time on a pulse generator

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## TYPICAL CHARACTERISTICS



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## TYPICAL CHARACTERISTICS

