

SOT223 N-CANNEL ENHANCEMENT MODE VERTICAL DMOS FET

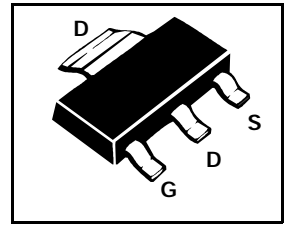
ZVN2110G

ISSUE 3 – OCTOBER 1995 

FEATURES

- * 6A PULSE DRAIN CURRENT
- * FAST SWITCHING SPEED

PARTMARKING DETAIL - ZVN2110
COMPLEMENTARY TYPE - ZVP2110G



ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|----------------|-------------|-------------|
| Drain-Source Voltage | V_{DS} | 100 | V |
| Continuous Drain Current at $T_{amb}=25^{\circ}C$ | I_D | 500 | mA |
| Pulsed Drain Current | I_{DM} | 6 | A |
| Gate Source Voltage | V_{GS} | ± 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 | $^{\circ}C$ |

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

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---|--------------|------|------|----------|--------------------|---|
| Drain-Source Breakdown Voltage | BV_{DSS} | 100 | | | V | $I_D=1mA, V_{GS}=0V$ |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | 0.8 | | 2.4 | V | $I_D=1mA, V_{DS}=V_{GS}$ |
| Gate-Body Leakage | I_{GSS} | | 0.1 | 20 | nA | $V_{GS}=\pm 20V, V_{DS}=0V$ |
| Zero Gate Voltage Drain Current | I_{DSS} | | | 1 100 | μA μA | $V_{DS}=100V, V_{GS}=0$ $V_{DS}=80V, V_{GS}=0V, T=125^{\circ}C(2)$ |
| On-State Drain Current(1) | $I_{D(on)}$ | 1.5 | 2 | | A | $V_{DS}=25V, V_{GS}=10V$ |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ | | | 4 | Ω | $V_{GS}=10V, I_D=1A$ |
| Forward Transconductance (1)(2) | g_{fs} | 250 | 350 | | mS | $V_{DS}=25V, I_D=1A$ |
| Input Capacitance (2) | C_{iss} | | 59 | 75 | pF | $V_{DS}=25V, V_{GS}=0V, f=1MHz$ |
| Common Source Output Capacitance (2) | C_{oss} | | 16 | 25 | pF | |
| Reverse Transfer Capacitance (2) | C_{rss} | | 4 | 8 | pF | |
| Turn-On Delay Time (2)(3) | $t_{d(on)}$ | | 4 | 7 | ns | $V_{DD} \approx 25V, I_D=1A$ |
| Rise Time (2)(3) | t_r | | 4 | 8 | ns | |
| Turn-Off Delay Time (2)(3) | $t_{d(off)}$ | | 8 | 13 | ns | |
| Fall Time (2)(3) | t_f | | 8 | 13 | ns | |

DRAIN-SOURCE DIODE CHARACTERISTICS

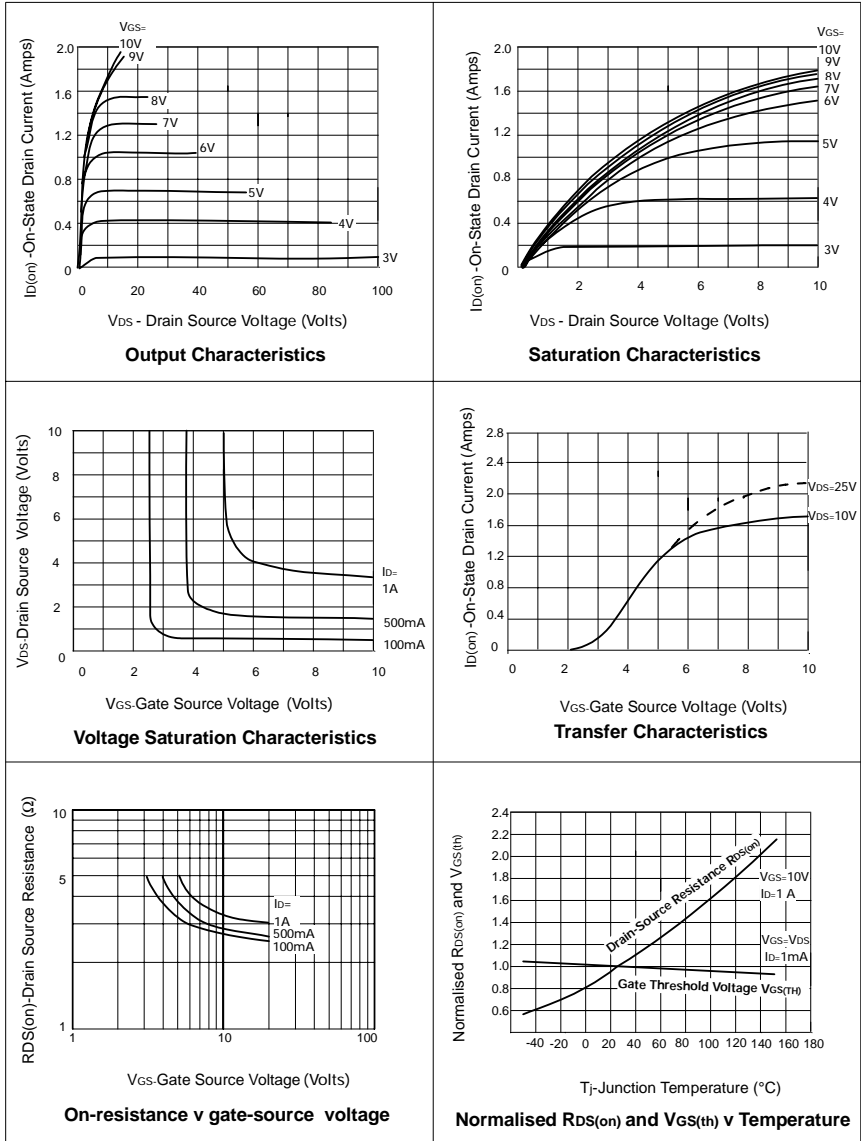
| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---------------------------|----------|------|------|------|------|---------------------------------|
| Diode Forward Voltage (1) | V_{SD} | | 0.82 | | V | $I_S=0.32A, V_{GS}=0$ |
| Reverse Recovery Time | T_{RR} | | 112 | | ns | $I_F=0.32A, V_{GS}=0, I_R=0.1A$ |

(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$ (2) Sample test.

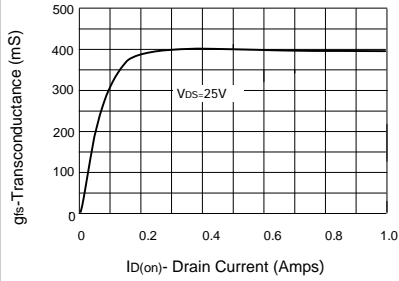
(3) Switching times measured with 50 Ω source impedance and <5ns rise time on a pulse generator

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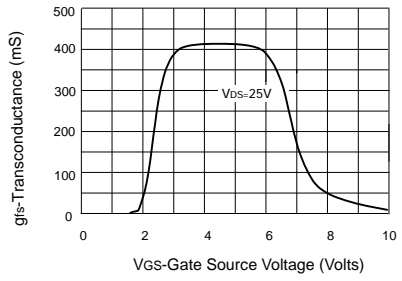
TYPICAL CHARACTERISTICS



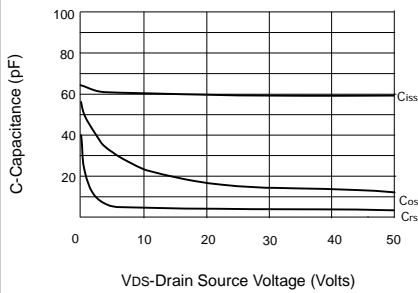
TYPICAL CHARACTERISTICS



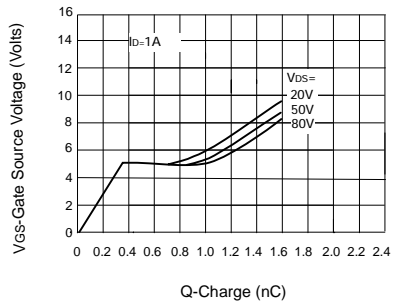
Transconductance v drain current



Transconductance v gate-source voltage



Capacitance v drain-source voltage



Gate charge v gate-source voltage