

SOT223 N-CHANNEL ENHANCEMENT MODE LOW THRESHOLD VERTICAL DMOS FET

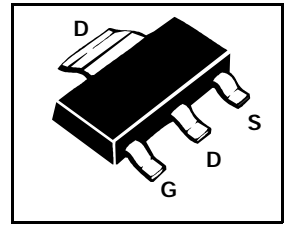
ZVNL120G

ISSUE 2 - JANUARY 1996 

FEATURES

- * $V_{DS} - 200V$
- * $R_{DS(ON)} - 10\Omega$

PARTMARKING DETAIL - ZVNL120



ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---------------------------------------------------|----------------|-------------|-------------|
| Drain-Source Voltage | V_{DS} | 200 | V |
| Continuous Drain Current at $T_{amb}=25^{\circ}C$ | I_D | 320 | mA |
| Pulsed Drain Current | I_{DM} | 2 | 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 | $^{\circ}C$ |

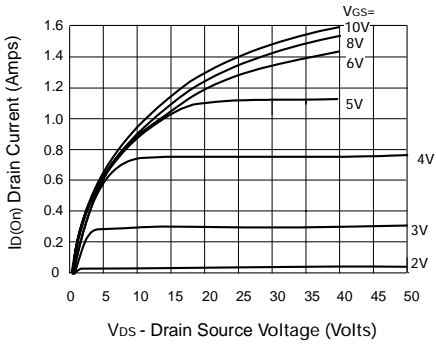
ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT | CONDITIONS. |
|---------------------------------------------|--------------|------|-----------|----------------------|------------------------------------------------------------------------------|
| Drain-Source Breakdown Voltage | BV_{DSS} | 200 | | V | $I_D=1mA, V_{GS}=0V$ |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | 0.5 | 1.5 | V | $I_D=1mA, V_{DS}=V_{GS}$ |
| Gate-Body Leakage | I_{GSS} | | 100 | nA | $V_{GS}=\pm 20V, V_{DS}=0V$ |
| Zero Gate Voltage Drain Current | I_{DSS} | | 10 100 | μA μA | $V_{DS}=200V, V_{GS}=0V$ $V_{DS}=160V, V_{GS}=0V,$ $T=125^{\circ}C(2)$ |
| On-State Drain Current(1) | $I_{D(on)}$ | 500 | | mA | $V_{DS}=25V, V_{GS}=5V$ |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ | | 10 10 | Ω Ω | $V_{GS}=5V, I_D=250mA$ $V_{GS}=3V, I_D=125mA$ |
| Forward Transconductance(1)(2) | g_{fs} | 200 | | mS | $V_{DS}=25V, I_D=250mA$ |
| Input Capacitance (2) | C_{iss} | | 85 | pF | $V_{DS}=25V, V_{GS}=0V, f=1MHz$ |
| Common Source Output Capacitance (2) | C_{oss} | | 20 | pF | |
| Reverse Transfer Capacitance (2) | C_{rss} | | 7 | pF | |
| Turn-On Delay Time (2)(3) | $t_{d(on)}$ | | 8 | ns | $V_{DD}=25V, I_D=250mA$ |
| Rise Time (2)(3) | t_r | | 8 | ns | |
| Turn-Off Delay Time (2)(3) | $t_{d(off)}$ | | 20 | ns | |
| Fall Time (2)(3) | t_f | | 12 | ns | |

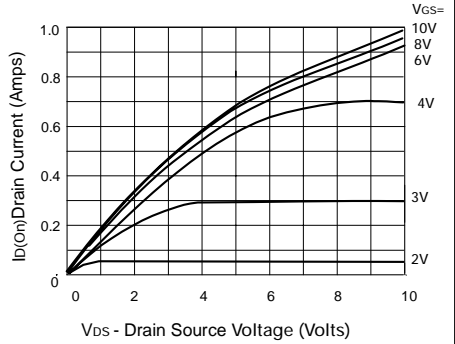
(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$ (2) Sample test.

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

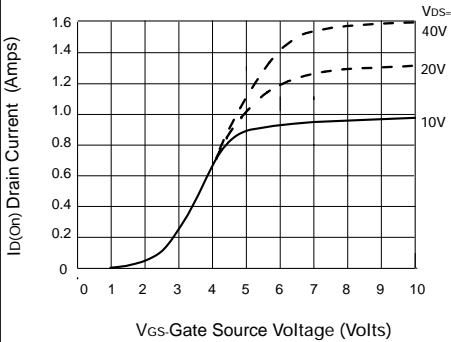
TYPICAL CHARACTERISTICS



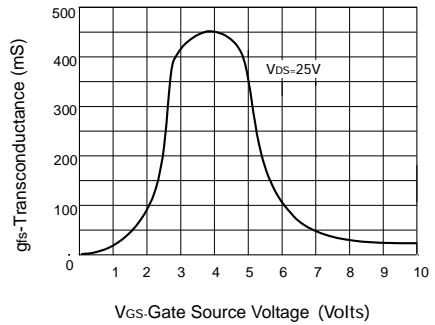
Output Characteristics



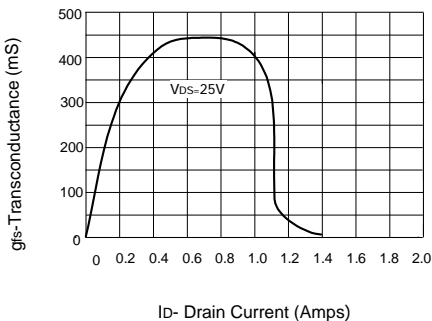
Saturation Characteristics



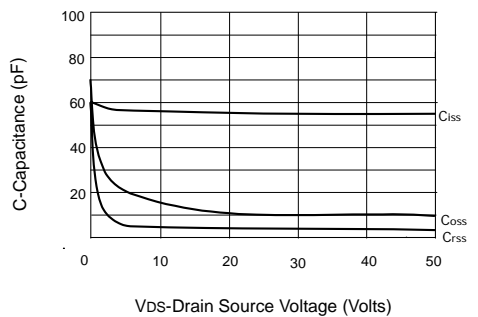
Transfer Characteristics



Transconductance v gate-source voltage



Transconductance v drain current



Capacitance v drain-source voltage

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TYPICAL CHARACTERISTICS

