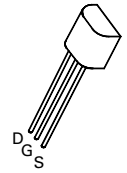
# P-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

# ZVP3306A

**ISSUE 2 – MARCH 94**

FEATURES

* 60 Volt $V_{DS}$
* $R_{DS(on)}$=14Ω




**E-Line**
**TO92 Compatible**

## ABSOLUTE MAXIMUM RATINGS.

| PARAMETER | SYMBOL | VALUE | UNIT |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | -60 | V |
| Continuous Drain Current at $T_{amb}$=25°C | $I_D$ | -160 | mA |
| Pulsed Drain Current | $I_{DM}$ | -1.6 | A |
| Gate Source Voltage | $V_{GS}$ | ± 20 | V |
| Power Dissipation at $T_{amb}$=25°C | $P_{tot}$ | 625 | mW |
| Operating and Storage Temperature Range | $T_j$:$T_{stg}$ | -55 to +150 | °C |

## ELECTRICAL CHARACTERISTICS (at $T_{amb}$ = 25°C unless otherwise stated).

| PARAMETER | SYMBOL | MIN. | MAX. | UNIT | CONDITIONS. |
|---|---|---|---|---|---|
| Drain-Source Breakdown Voltage | $BV_{DSS}$ | -60 | | V | $I_D$=-1mA, $V_{GS}$=0V |
| Gate-Source Threshold Voltage | $V_{GS(th)}$ | -1.5 | -3.5 | V | ID=-1mA, $V_{DS}$= $V_{GS}$ |
| Gate-Body Leakage | $I_{GSS}$ | | 20 | nA | $V_{GS}$=± 20V, $V_{DS}$=0V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | | -0.5<br>-50 | μA<br>μA | $V_{DS}$=-60 V, $V_{GS}$=0<br>$V_{DS}$=-48 V, $V_{GS}$=0V, T=125°C(2) |
| On-State Drain Current(1) | $I_{D(on)}$ | -400 | | mA | $V_{DS}$=-18 V, $V_{GS}$=-10V |
| Static Drain-Source On-State Resistance (1) | $R_{DS(on)}$ | | 14 | Ω | $V_{GS}$=-10V,$I_D$=-200mA |
| Forward Transconductance (1)(2) | $g_{fs}$ | 60 | | mS | $V_{DS}$=-18V,$I_D$=-200mA |
| Input Capacitance (2) | $C_{iss}$ | | 50 | pF | $V_{DS}$=-18V, $V_{GS}$=0V, f=1MHz |
| Common Source Output Capacitance (2) | $C_{oss}$ | | 25 | pF | |
| Reverse Transfer Capacitance (2) | $C_{rss}$ | | 8 | pF | |
| Turn-On Delay Time (2)(3) | $t_{d(on)}$ | | 8 | ns | $V_{DD}$≈-18V, $I_D$=-200mA |
| Rise Time (2)(3) | $t_r$ | | 8 | ns | |
| Turn-Off Delay Time (2)(3) | $t_{d(off)}$ | | 8 | ns | |
| Fall Time (2)(3) | $t_f$ | | 8 | ns | |

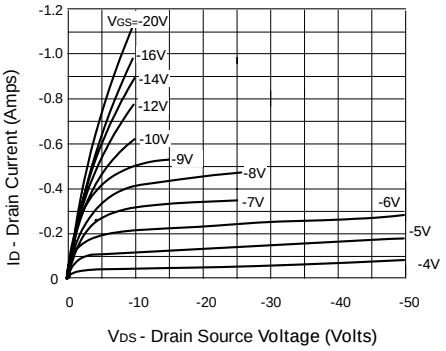
(1) Measured under pulsed conditions. Width=300μs. Duty cycle ≤2%
(2) Sample test.



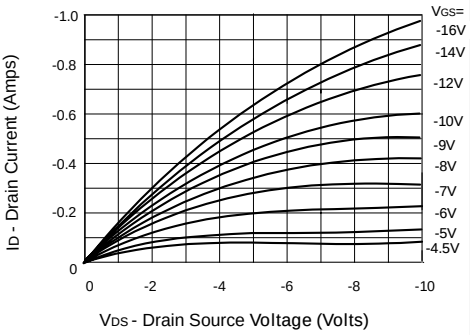
Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator

# ZVP3306A

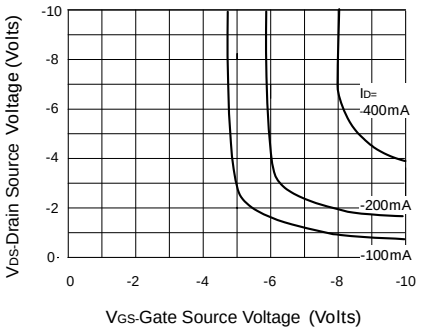
## TYPICAL CHARACTERISTICS



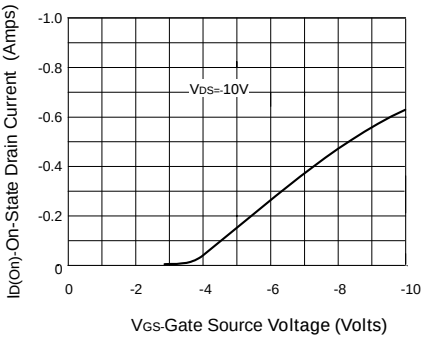

**Output Characteristics**



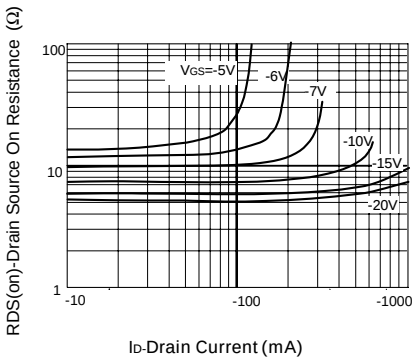

**Saturation Characteristics**



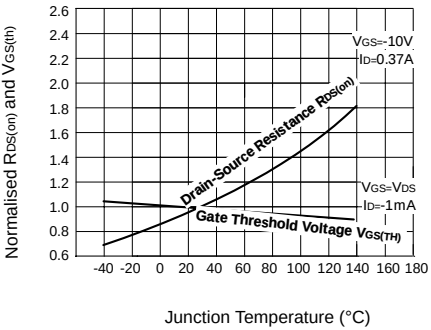

**Voltage Saturation Characteristics**




**Transfer Characteristics**

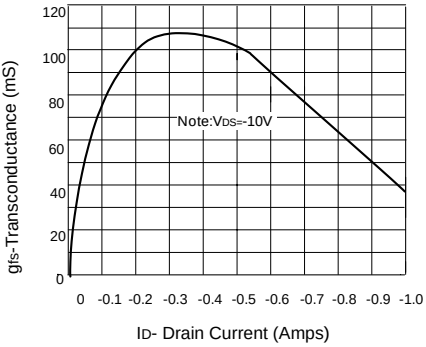



**On-resistance vs Drain Current**

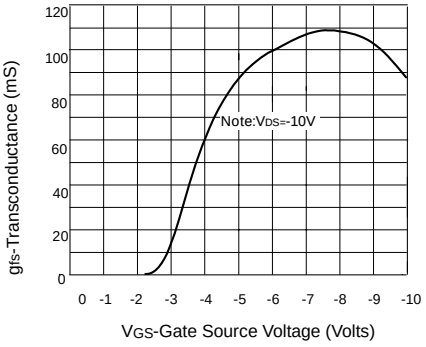



**Normalised $R_{DS(on)}$ and $V_{GS(th)}$ vs Temperature**

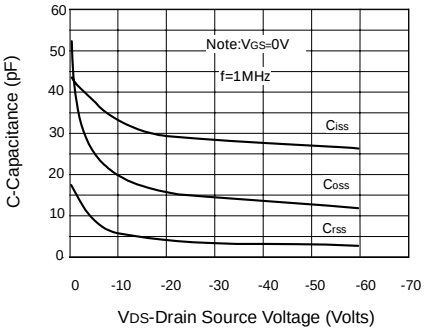
## TYPICAL CHARACTERISTICS



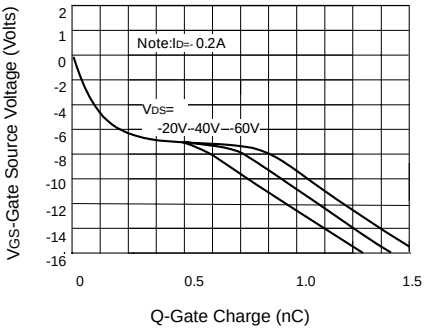

**Transconductance v drain current**




**Transconductance v gate-source voltage**




**Capacitance v drain-source voltage**




**Gate charge v gate-source voltage**

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