

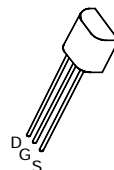
# N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

## ZVN2106A

ISSUE 2 – MARCH 94

### FEATURES

- \* 60 Volt  $V_{DS}$
- \*  $R_{DS(on)}=2\Omega$



E-Line  
TO92 Compatible

### ABSOLUTE MAXIMUM RATINGS.

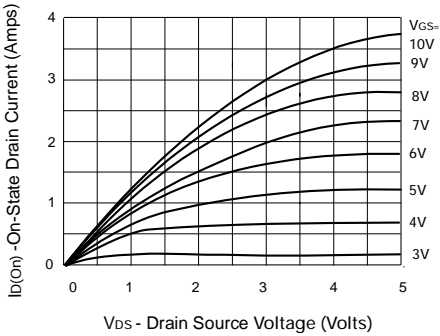
PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	$V_{DS}$	60	V
Continuous Drain Current at $T_{amb}=25^{\circ}\text{C}$	$I_D$	450	mA
Pulsed Drain Current	$I_{DM}$	8	A
Gate Source Voltage	$V_{GS}$	$\pm 20$	V
Power Dissipation at $T_{amb}=25^{\circ}\text{C}$	$P_{tot}$	700	mW
Operating and Storage Temperature Range	$T_j:T_{stg}$	-55 to +150	$^{\circ}\text{C}$

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

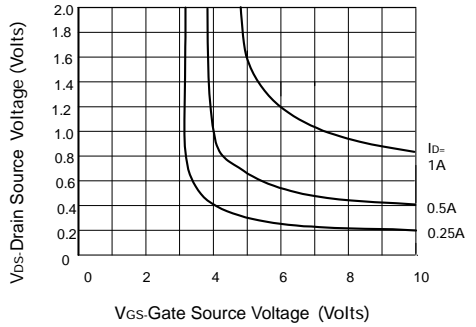
PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	$BV_{DSS}$	60		V	$I_D=1\text{mA}, V_{GS}=0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	0.8	2.4	V	$I_D=1\text{mA}, V_{DS}=V_{GS}$
Gate-Body Leakage	$I_{GSS}$		20	nA	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$		500 100	nA $\mu\text{A}$	$V_{DS}=60\text{V}, V_{GS}=0$ $V_{DS}=48\text{V}, V_{GS}=0\text{V},$ $T=125^{\circ}\text{C}(2)$
On-State Drain Current(1)	$I_{D(on)}$	2		A	$V_{DS}=18\text{V}, V_{GS}=10\text{V}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$		2	$\Omega$	$V_{GS}=10\text{V}, I_D=1\text{A}$
Forward Transconductance (1)(2)	$g_{fs}$	300		mS	$V_{DS}=18\text{V}, I_D=1\text{A}$
Input Capacitance (2)	$C_{iss}$		75	pF	$V_{DS}=18\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$
Common Source Output Capacitance (2)	$C_{oss}$		45	pF	
Reverse Transfer Capacitance (2)	$C_{rss}$		20	pF	

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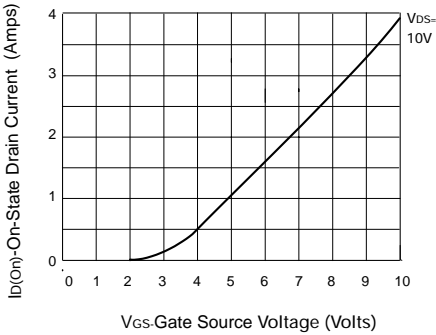
## TYPICAL CHARACTERISTICS



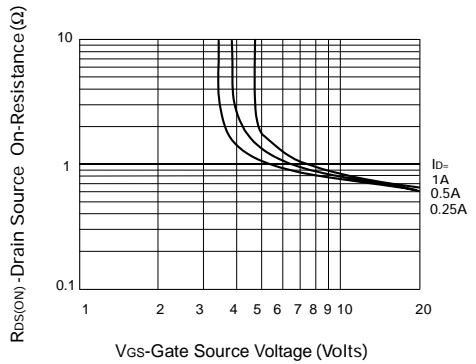
**Saturation Characteristics**



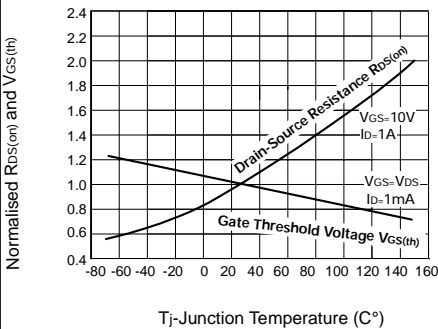
**Voltage Saturation Characteristics**



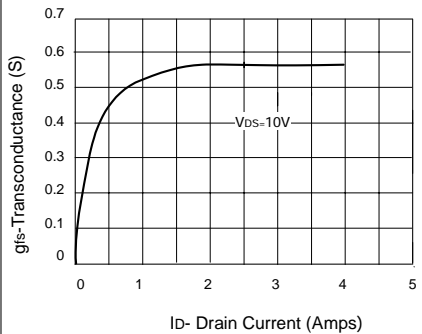
**Transfer Characteristics**



**On-resistance v gate-source voltage**

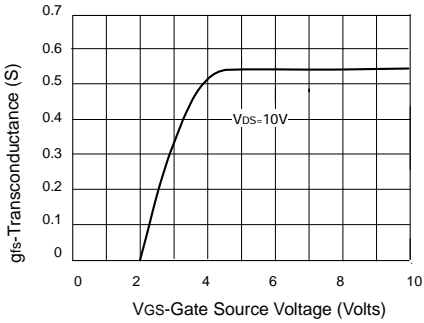


**Normalised  $R_{DS(on)}$  and  $V_{GS(th)}$  vs Temperature**

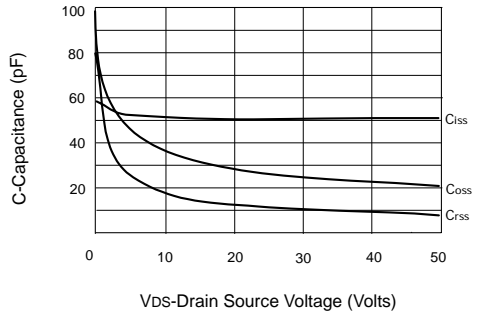


**Transconductance v drain current**

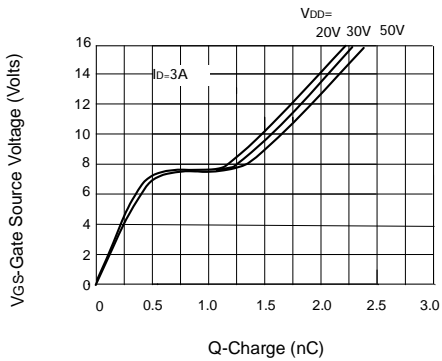
## TYPICAL CHARACTERISTICS



**Transconductance v gate-source voltage**



**Capacitance v drain-source voltage**



**Gate charge v gate-source voltage**