



**THE DATASHEET OF  
ZVN4310A**



# ZVN4310A

## N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ISSUE 2 – MARCH 94

### FEATURES

- \* 100 Volt  $V_{DS}$
- \*  $R_{DS(on)} = 0.5\Omega$
- \* Spice model available

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Input Capacitance (2)	$C_{iss}$			350	pF	
Common Source Output Capacitance (2)	$C_{oss}$			140	pF	$V_{DS}=25\text{ V}, V_{GS}=0\text{V}, f=1\text{MHz}$
Reverse Transfer Capacitance (2)	$C_{rss}$			30	pF	
Turn-On Delay Time (2)(3)	$t_{d(on)}$			8	ns	
Rise Time (2)(3)	$t_r$			25	ns	$V_{DD}=25\text{V}, V_{GEN}=10\text{V}, I_D=3\text{A}$ $R_{GS}=50\Omega$
Turn-Off Delay Time (2)(3)	$t_{d(off)}$			30	ns	
Fall Time (2)(3)	$t_f$			16	ns	

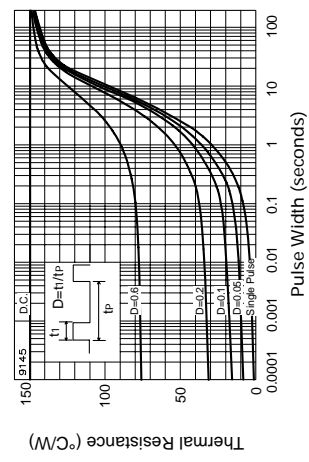
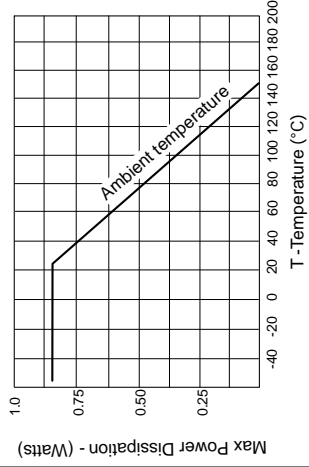
(1) Measured under pulsed conditions. Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$

(2) Sample test.

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

### THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	MAX.	UNIT
Thermal Resistance: Junction to Ambient	$R_{th(j-amb)}$	150	$^\circ\text{C/W}$
Junction to Case	$R_{th(j-case)}$	50	$^\circ\text{C/W}$



### ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	MIN
Drain-Source Voltage	$BV_{DSS}$	100
Continuous Drain Current at $T_{amb}=25^\circ\text{C}$	$I_{DSS(th)}$	1
Practical Continuous Drain Current at $T_{amb}=25^\circ\text{C}$	$I_{DSS}$	
Pulsed Drain Current	$I_{D(on)}$	9
Gate Source Voltage	$R_{DS(on)}$	
Power Dissipation at $T_{amb}=25^\circ\text{C}$	$g_{fs}$	600
Practical Power Dissipation at $T_{amb}=25^\circ\text{C}$		
Operating and Storage Temperature		

\*The power which can be dissipated assured with copper equal to 1 inch square minimum

### ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN
Drain-Source Breakdown Voltage	$BV_{DSS}$	100
Gate-Source Threshold Voltage	$V_{GS(th)}$	1
Gate-Body Leakage	$I_{GSS}$	
Zero Gate Voltage Drain Current	$I_{DSS}$	
On-State Drain Current(1)	$I_{D(on)}$	9
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$	
Forward Transconductance (1)(2)	$g_{fs}$	600

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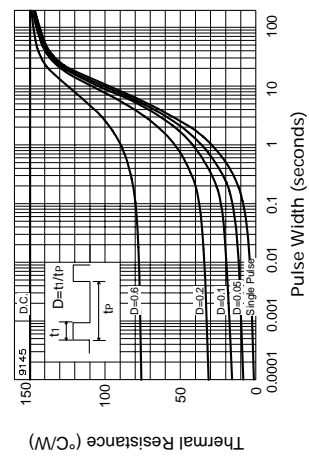
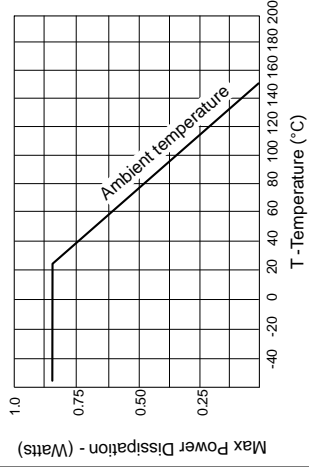
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Gate Source Voltage	$R_{DS(on)}$	
Power Dissipation at $T_{amb}=25^\circ\text{C}$	$R_{DS(on)}$	
Practical Power Dissipation at $T_{amb}=25^\circ\text{C}$	$g_{fs}$	600
Operating and Storage Temperature		

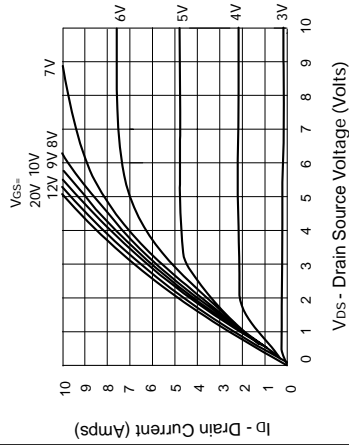
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### ELECTRICAL CHARACTERISTICS

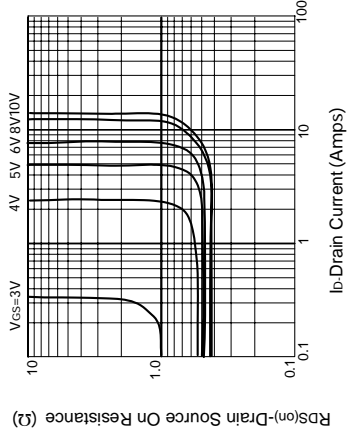
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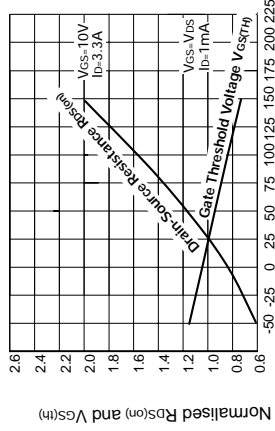
## TYPICAL CHARACTERISTICS



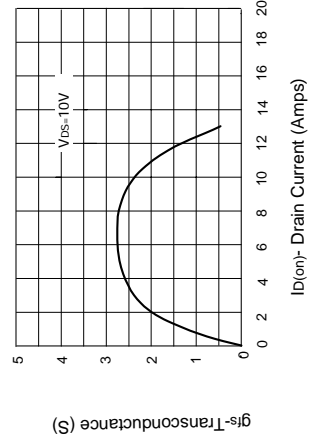
**Saturation Characteristics**



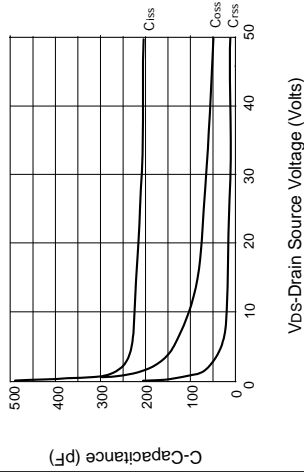
**On-resistance v drain current**



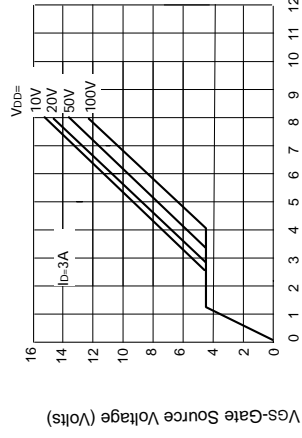
**Normalised  $R_{DS(on)}$  and  $V_{GS(th)}$  v Temperature**



**Transconductance v drain current**





**Capacitance v drain-source voltage**



**Gate charge v gate-source voltage**

## Looking for pricing, stock, or lifecycle information?

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-  [View ZVN4310A on WIN SOURCE](#)
-  [Diodes Incorporated Information](#)

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-  Shortage Management
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-  Excess Inventory Management