



**THE DATASHEET OF
ZVP2110ASTZ**



P-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

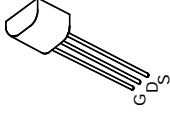
ISSUE 2 – MARCH 94

FEATURES

- * 100 Volt V_{DS}
- * $R_{DS(on)} = 8\Omega$

REFER TO ZVP2110A FOR GRAPHS

ZVP2110C



E-Line

T092 Compatible

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DS}	-100	V
Continuous Drain Current at $T_{amb}=25^{\circ}\text{C}$	I_D	-230	mA
Pulsed Drain Current	I_{DM}	-3	A
Gate Source Voltage	V_{GS}	± 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}	-100		V	$I_D = -1\text{mA}, V_{GS} = 0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	-1.5	-3.5	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}		-1 -100	μA μA	$V_{DS} = -100\text{V}, V_{GS} = 0$ $V_{DS} = -80\text{V}, V_{GS} = 0\text{V}, T = 125^{\circ}\text{C}$ (2)
On-State Drain Current(1)	$I_{D(on)}$	-750		mA	$V_{DS} = -25\text{V}, V_{GS} = -10\text{V}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$		8	Ω	$V_{GS} = -10\text{V}, I_D = -375\text{mA}$
Forward Transconductance (1)(2)	g_{fs}	125		mS	$V_{DS} = -25\text{V}, I_D = -375\text{mA}$
Input Capacitance (2)	C_{iss}		100	pF	
Common Source Output Capacitance (2)	C_{oss}		35	pF	$V_{DS} = -25\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Reverse Transfer Capacitance (2)	C_{rss}		10	pF	
Turn-On Delay Time (2)(3)	$t_{d(on)}$		7	ns	
Rise Time (2)(3)	t_r		15	ns	$V_{DS} = -25\text{V}, I_D = -375\text{mA}$
Turn-Off Delay Time (2)(3)	$t_{d(off)}$		12	ns	
Fall Time (2)(3)	t_f		15	ns	

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

(2) Sample test.

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Pulsed Drain Current	-3
Gate Source Voltage	± 20
Power Dissipation at $T_{amb}=25^{\circ}\text{C}$	700
Operating and Storage Temperature Range	-55 to +150

ELECTRICAL CHARACTERISTICS

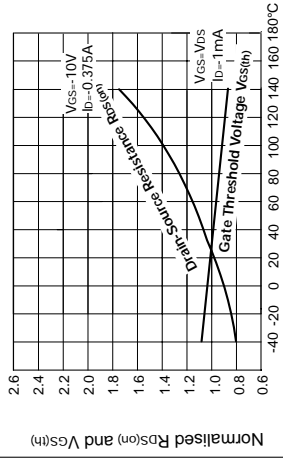
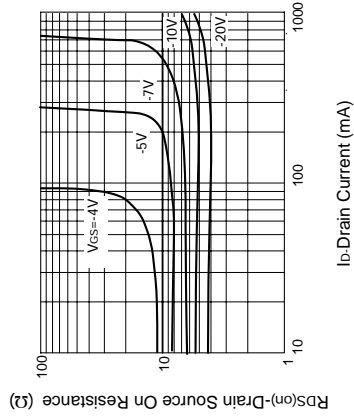
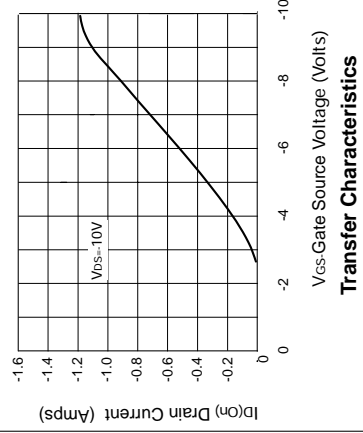
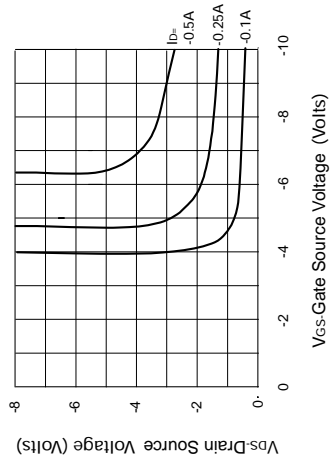
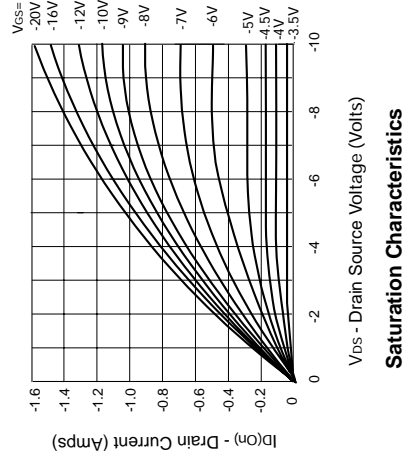
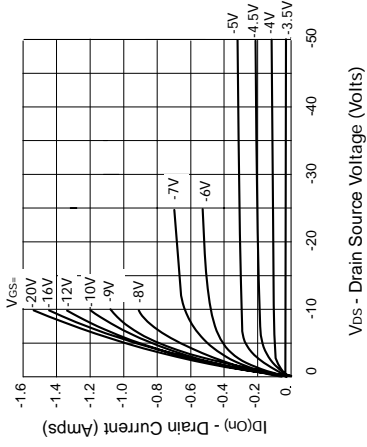
PARAMETER	SYMBOL
Drain-Source Breakdown Voltage	BV_{DSS}
Gate-Source Threshold Voltage	$V_{GS(th)}$
Gate-Body Leakage	I_{GSS}
Zero Gate Voltage Drain Current	I_{DSS}
On-State Drain Current(1)	$I_{D(on)}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$
Forward Transconductance (1)(2)	g_{fs}
Input Capacitance (2)	C_{iss}
Common Source Output Capacitance (2)	C_{oss}
Reverse Transfer Capacitance (2)	C_{rss}
Turn-On Delay Time (2)(3)	$t_{d(on)}$
Rise Time (2)(3)	t_r
Turn-Off Delay Time (2)(3)	$t_{d(off)}$
Fall Time (2)(3)	t_f

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

(2) Sample test.

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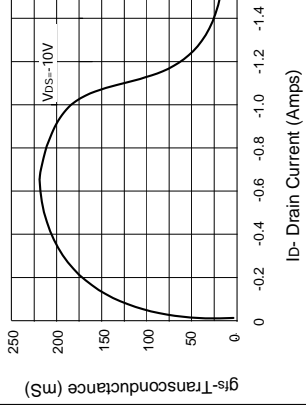
TYPICAL CHARACTERISTICS



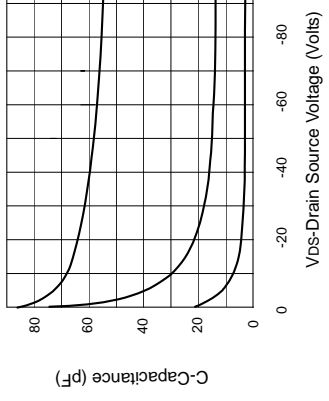
On-resistance v drain current

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

TYPICAL CHARACTERISTICS



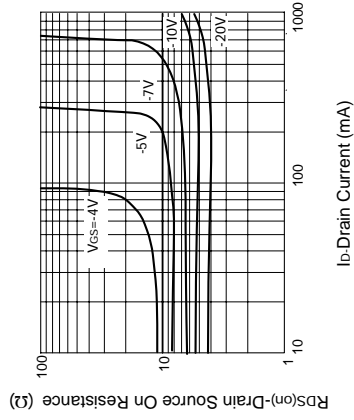
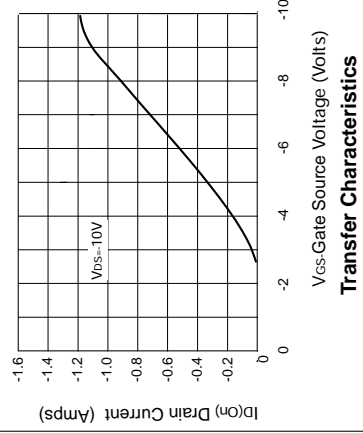
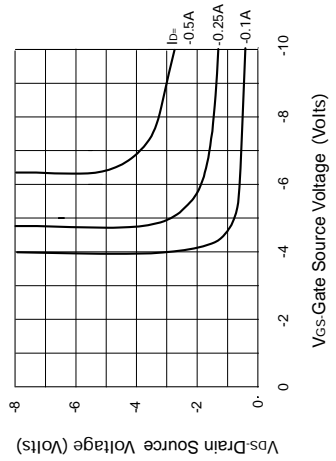
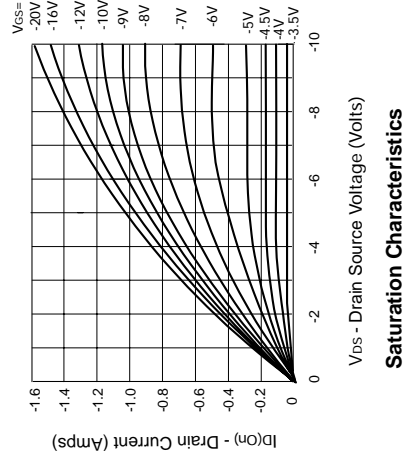
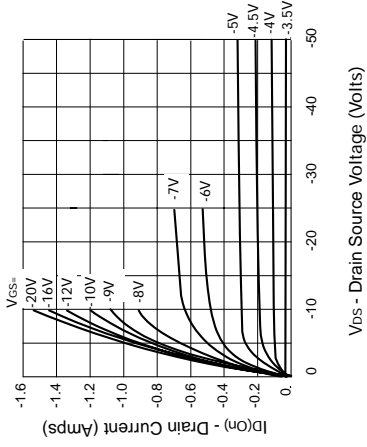
Transconductance v drain current



Capacitance v drain-source voltage

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TYPICAL CHARACTERISTICS

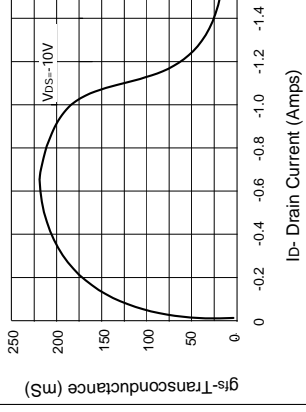


On-resistance v drain current

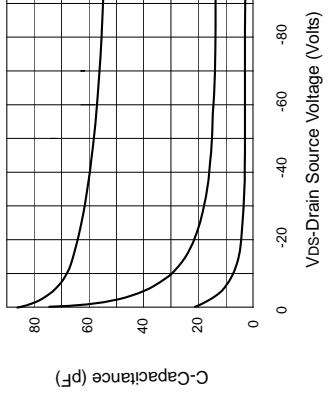
Normalised $R_{DS(on)}$ and $V_{GS(th)}$ vs Temperature

3-422

TYPICAL CHARACTERISTICS





Transconductance v drain current



Capacitance v drain-source voltage

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