

SOT223 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

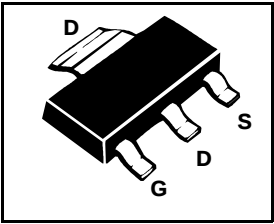
ZVN2110G

ISSUE 3 – OCTOBER 1995

FEATURES

- * 6A PULSE DRAIN CURRENT
- * FAST SWITCHING SPEED

PARTMARKING DETAIL - ZVN2110
COMPLEMENTARY TYPE - ZVP2110G



ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DS}	100	V
Continuous Drain Current at $T_{amb}=25^{\circ}C$	I_D	500	mA
Pulsed Drain Current	I_{DM}	6	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.	TYP.	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	BV_{DSS}	100			V	$I_D=1mA, V_{GS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	0.8		2.4	V	$I_D=1mA, V_{DS}=V_{GS}$
Gate-Body Leakage	I_{GSS}		0.1	20	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Zero Gate Voltage Drain Current	I_{DSS}			1 100	μA μA	$V_{DS}=100V, V_{GS}=0$ $V_{DS}=80V, V_{GS}=0V, T=125^{\circ}C(2)$
On-State Drain Current(1)	$I_{D(on)}$	1.5	2		A	$V_{DS}=25V, V_{GS}=10V$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			4	Ω	$V_{GS}=10V, I_D=1A$
Forward Transconductance (1)(2)	g_{fs}	250	350		mS	$V_{DS}=25V, I_D=1A$
Input Capacitance (2)	C_{iss}		59	75	pF	$V_{DS}=25V, V_{GS}=0V, f=1MHz$
Common Source Output Capacitance (2)	C_{oss}		16	25	pF	
Reverse Transfer Capacitance (2)	C_{rss}		4	8	pF	
Turn-On Delay Time (2)(3)	$t_{d(on)}$		4	7	ns	$V_{DD} \approx 25V, I_D=1A$
Rise Time (2)(3)	t_r		4	8	ns	
Turn-Off Delay Time (2)(3)	$t_{d(off)}$		8	13	ns	
Fall Time (2)(3)	t_f		8	13	ns	

DRAIN-SOURCE DIODE CHARACTERISTICS

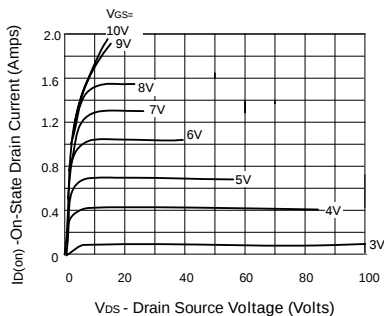
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Diode Forward Voltage (1)	V_{SD}		0.82		V	$I_S=0.32A, V_{GS}=0$
Reverse Recovery Time	T_{RR}		112		ns	$I_F=0.32A, V_{GS}=0, I_R=0.1A$

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

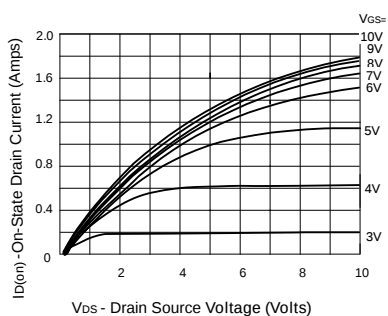
(3) Switching times measured with 50 Ω source impedance and <5ns rise time on a pulse generator

ZVN2110G

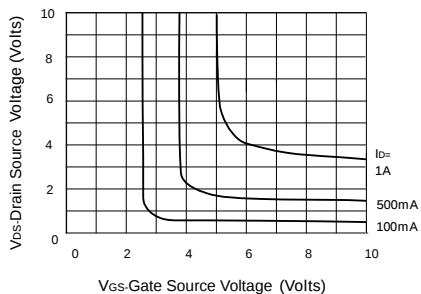
TYPICAL CHARACTERISTICS



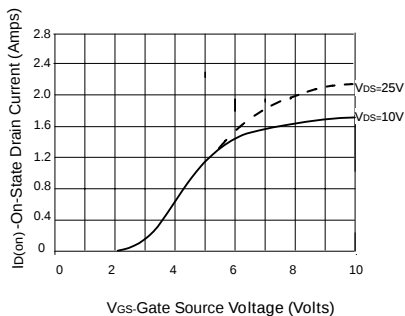
Output Characteristics



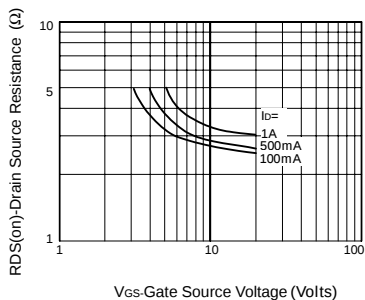
Saturation Characteristics



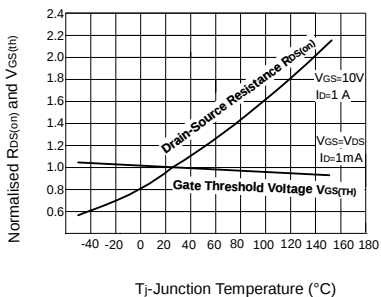
Voltage Saturation Characteristics



Transfer Characteristics

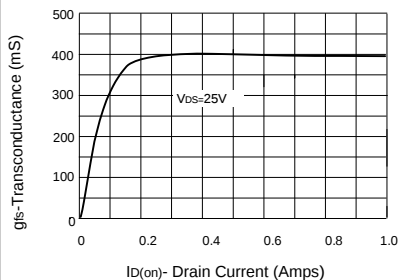


On-resistance v gate-source voltage

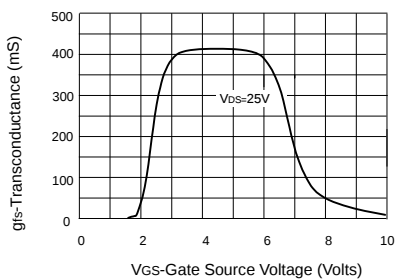


Normalised $R_{DS(on)}$ and $V_{GS(th)}$ v Temperature

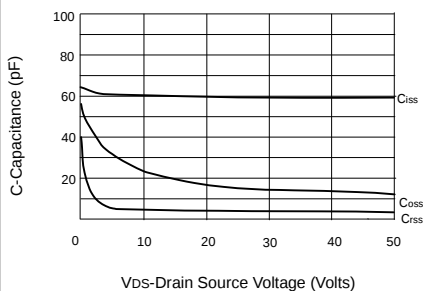
TYPICAL CHARACTERISTICS



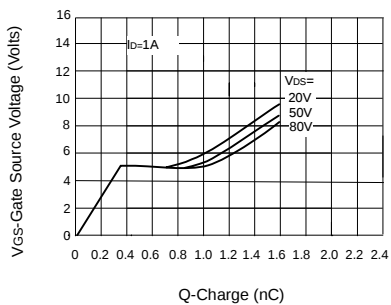
Transconductance v drain current



Transconductance v gate-source voltage



Capacitance v drain-source voltage



Gate charge v gate-source voltage