

# SOT223 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

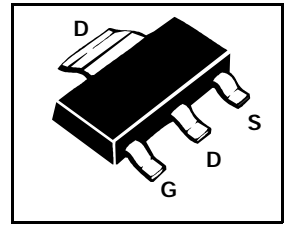
## ZVN2110G

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	$V_{GS}$	$\pm 20$	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	$\mu A$ $\mu A$	$V_{DS}=100V, V_{GS}=0$ $V_{DS}=80V, V_{GS}=0V, T=125^{\circ}C(2)$
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	$\Omega$	$V_{GS}=10V, I_D=1A$
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

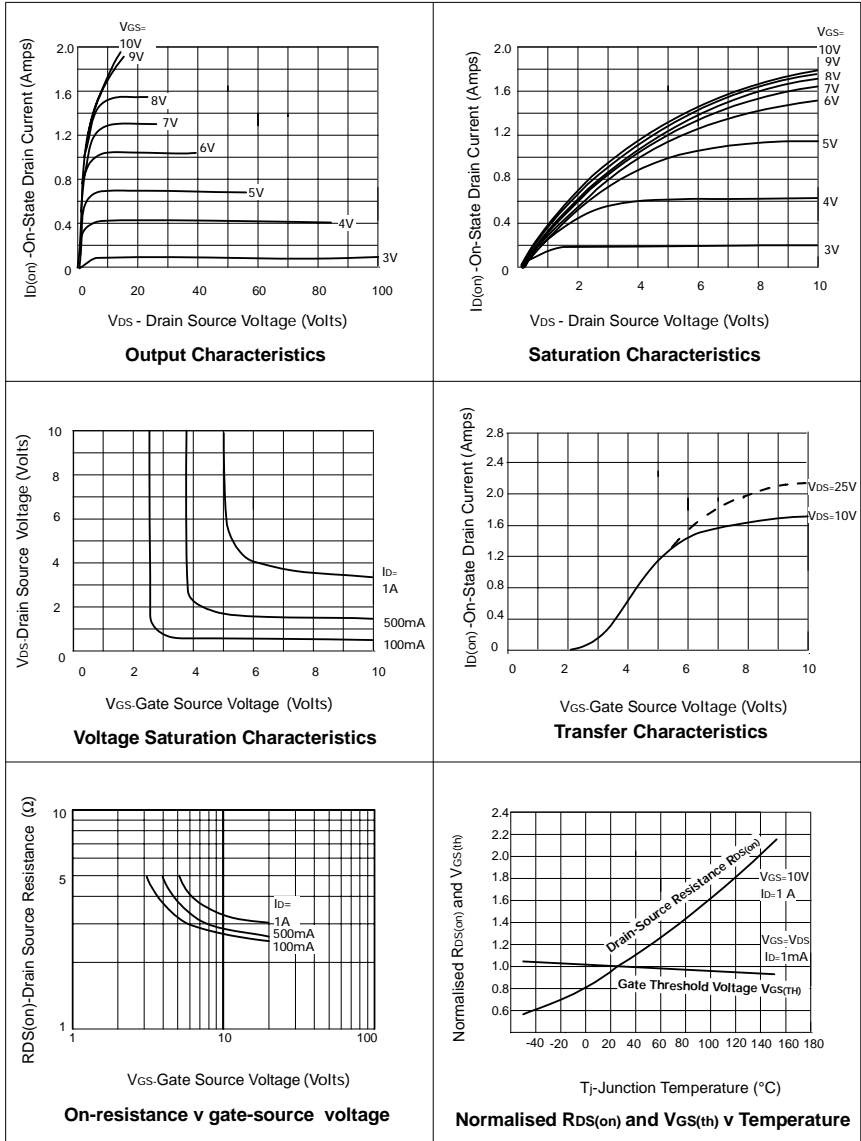
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
Diode Forward Voltage (1)	$V_{SD}$		0.82		V	$I_S=0.32A, V_{GS}=0$
Reverse Recovery Time	$T_{RR}$		112		ns	$I_F=0.32A, V_{GS}=0, I_R=0.1A$

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

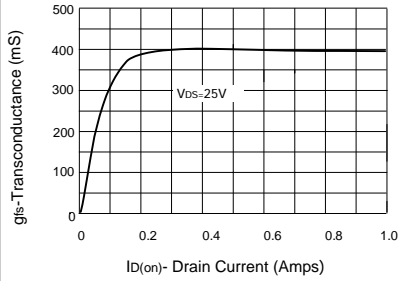
(3) Switching times measured with 50 $\Omega$  source impedance and <5ns rise time on a pulse generator

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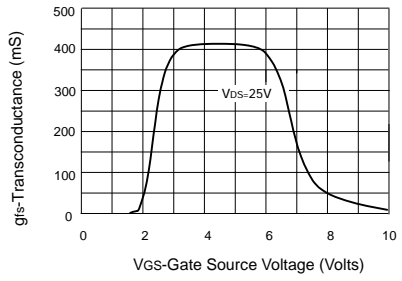
## TYPICAL CHARACTERISTICS



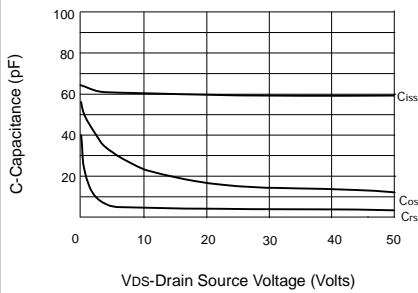
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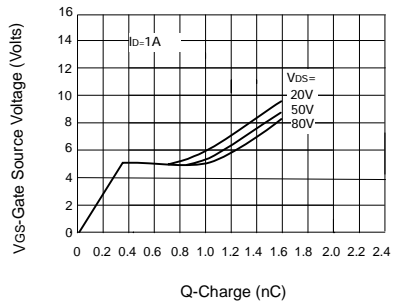
**Transconductance v drain current**



**Transconductance v gate-source voltage**



**Capacitance v drain-source voltage**



**Gate charge v gate-source voltage**