

# SOT223 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ZVN4424G

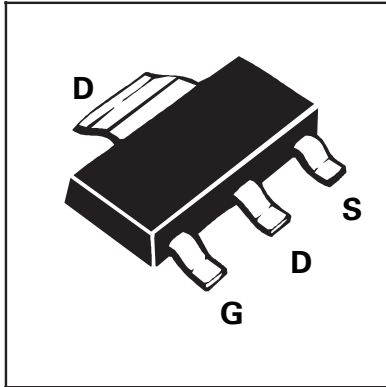
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## FEATURES

- \* 240 Volt  $V_{DS}$
- \* Extremely low  $R_{DS(on)}=4.3\Omega$
- \* Low threshold and Fast switching

## APPLICATIONS

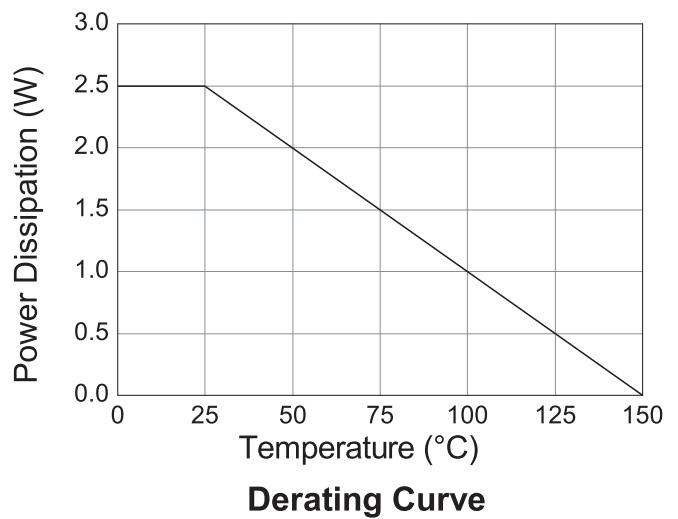
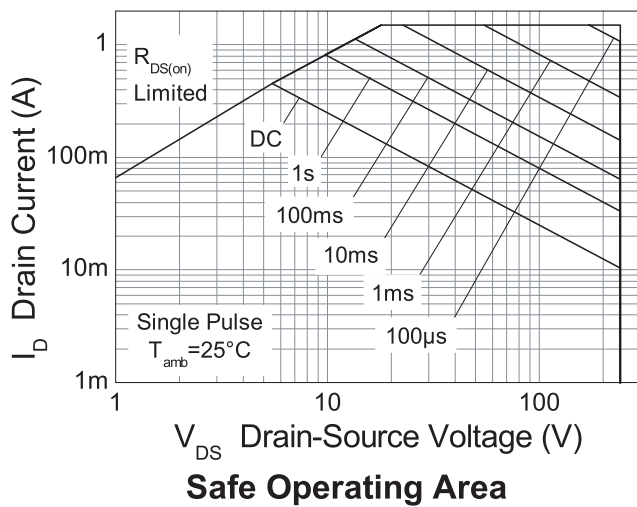
- \* Earth recall and dialling switches
- \* Electronic hook switches
- \* Battery powered equipment
- \* Telecoms and high voltage dc-dc convertors



PARTMARKING DETAILS - ZVN4424  
 COMPLEMENTARY TYPE - ZVP4424G

## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	$V_{DS}$	240	V
Continuous Drain Current at $T_{amb}=25^{\circ}C$	$I_D$	500	mA
Pulsed Drain Current	$I_{DM}$	1.5	A
Gate Source Voltage	$V_{GS}$	$\pm 40$	V
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	2.5	W
Operating and Storage Temperature Range	$T_j:T_{stg}$	-55 to +150	$^{\circ}C$



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

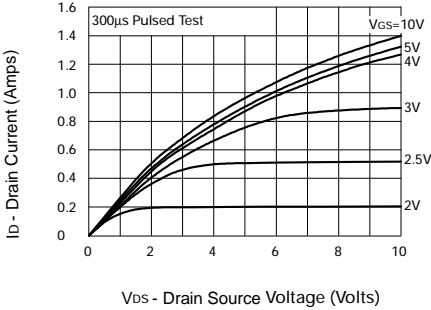
PARAMETER	SYMBOL	MIN.	TYP	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	$BV_{DSS}$	240			V	$I_D=1\text{mA}, V_{GS}=0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	0.8	1.3	1.8	V	$I_D=1\text{mA}, V_{DS}=V_{GS}$
Gate-Body Leakage	$I_{GSS}$			100	nA	$V_{GS}=\pm 40\text{V}, V_{DS}=0\text{V}$
On State Drain-Current	$I_{D(on)}$	0.8	1.4		A	$V_{DS}=10\text{V}, V_{GS}=10\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$			10 100	$\mu\text{A}$ $\mu\text{A}$	$V_{DS}=240\text{V}, V_{GS}=0\text{V}$ $V_{DS}=190\text{V}, V_{GS}=0\text{V}, T=125^{\circ}\text{C}$
Static Drain-Source On-State Resistance	$R_{DS(on)}$		4 4.3	5.5 6	$\Omega$ $\Omega$	$V_{GS}=10\text{V}, I_D=500\text{mA}^*$ $V_{GS}=2.5\text{V}, I_D=100\text{mA}^*$
Forward Transconductance (1) (2)	$g_{fs}$	0.4	0.75		S	$V_{DS}=10\text{V}, I_D=0.5\text{A}$
Input Capacitance (2)	$C_{iss}$		110	200	pF	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$
Common Source Output Capacitance (2)	$C_{oss}$		15	25	pF	
Reverse Transfer Capacitance (2)	$C_{rss}$		3.5	15	pF	
Turn-On Delay Time (2)(3)	$t_{d(on)}$		2.5	5	ns	$V_{DD} \approx 50\text{V}, I_D=0.25\text{A}, V_{GEN}=10\text{V}$
Rise Time (2)(3)	$t_r$		5	8	ns	
Turn-Off Delay Time (2)(3)	$t_{d(off)}$		40	60	ns	
Fall Time (2)(3)	$t_f$		16	25	ns	

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

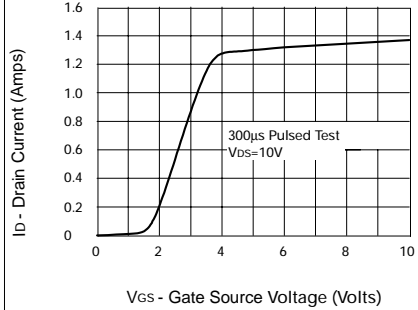
(2) Sample test.

(3) Switching times measured with 50 $\Omega$  source impedance and <5ns rise time on a pulse generator  
Spice parameter data is available upon request for this device

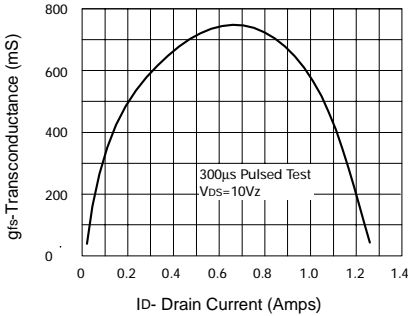
## TYPICAL CHARACTERISTICS



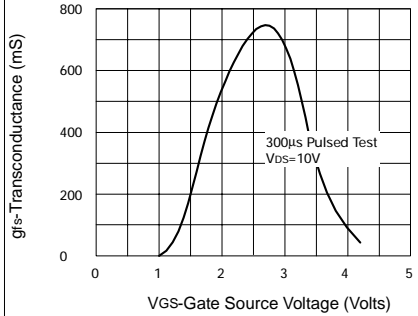
**Saturation Characteristics**



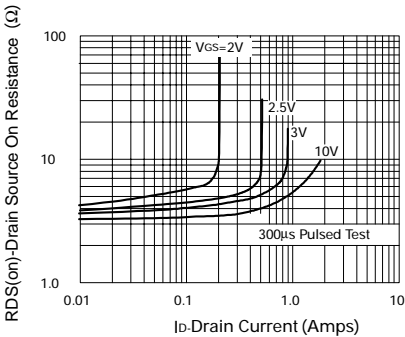
**Transfer Characteristics**



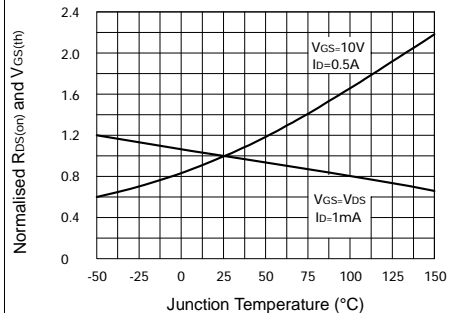
**Transconductance v drain current**



**Transconductance v gate-source voltage**



**On-resistance vs Drain Current**



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

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## TYPICAL CHARACTERISTICS

