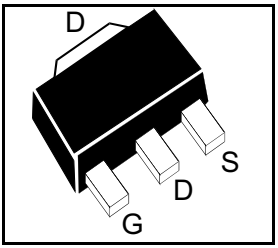
SOT89 N-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ZVN4424Z

ISSUE 1 - NOVEMBER 1998

FEATURES
* 240 Volt BV_{DS}
* Extremely low $R_{DS(on)}$=4.3Ω
* 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 - N24
COMPLEMENTARY TYPE - ZVP4424Z

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DS}	240	V
Continuous Drain Current at T_{amb}=25°C	I_D	300	mA
Pulsed Drain Current	I_{DM}	1.0	A
Gate Source Voltage	V_{GS}	± 40	V
Power Dissipation at T_{amb}=25°C	P_{tot}	1 †	W
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

† recommended P_{tot} calculated using FR4 measuring 15x15x0.6mm
Refer to the handling instructions for soldering surface mount components.

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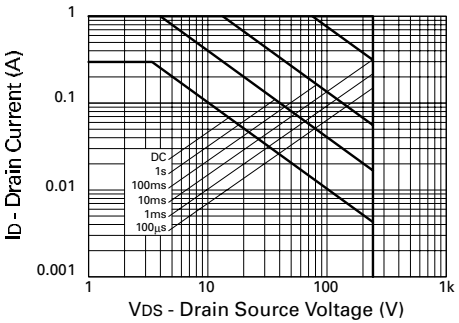
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	BV_{DSS}	240			V	I_D=1mA, V_{GS}=0V
Gate-Source Threshold Voltage	$V_{GS(th)}$	0.8	1.3	1.8	V	I_D=1mA, V_{DS}= V_{GS}
Gate-Body Leakage	I_{GSS}			100	nA	V_{GS}=± 40V, V_{DS}=0V
On State Drain-Current	$I_{D(on)}$	0.8	1.4		A	V_{DS}=10V, V_{GS}=10V
Zero Gate Voltage Drain Current	I_{DSS}			10 100	µA µA	V_{DS}=240 V, V_{GS}=0V V_{DS}=190 V, V_{GS}=0V, T=125°C
Static Drain-Source On-State Resistance	$R_{DS(on)}$		4 4.3	5.5 6	Ω Ω	V_{GS}=10V,I_D=500mA* V_{GS}=2.5V,I_D=100mA*
Forward Transconductance (1) (2)	g_{fs}	0.4	0.75		S	V_{DS}=10V,I_D=0.5A
Input Capacitance (2)	C_{iss}		110	200	pF	V_{DS}=25V, V_{GS}=0V, f=1MHz
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}≈50V, I_D=0.25A, V_{GEN}=10V
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	

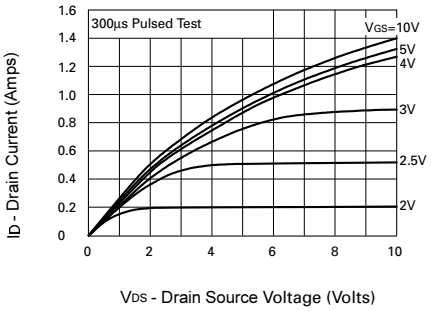
(1) Measured under pulsed conditions. Width=300µs. Duty cycle ≤2%
(2) Sample test.
(3) Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator
Spice parameter data is available upon request for this device

TYPICAL CHARACTERISTICS

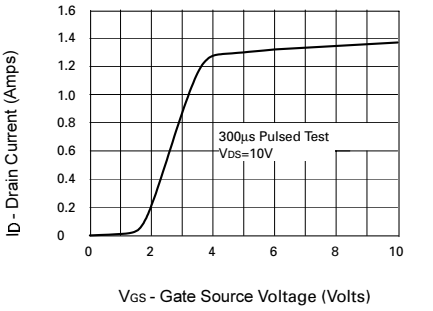


Safe Operating Area

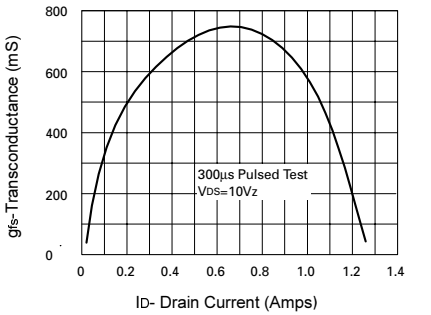
TYPICAL CHARACTERISTICS



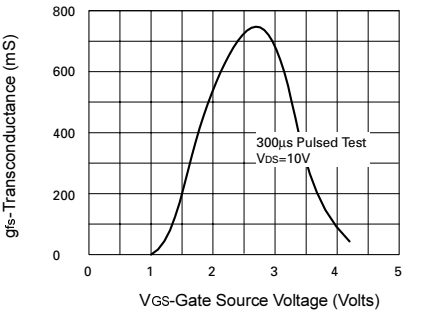
Saturation Characteristics



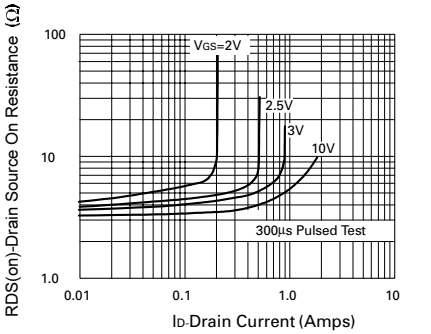
Transfer Characteristics



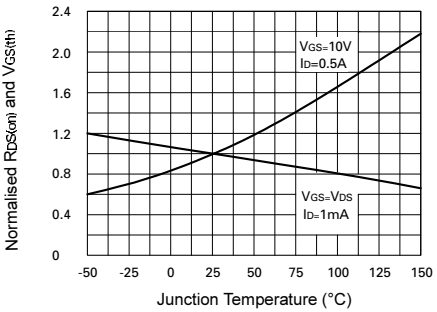
Transconductance v drain current



Transconductance v gate-source voltage



On-resistance vs Drain Current



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

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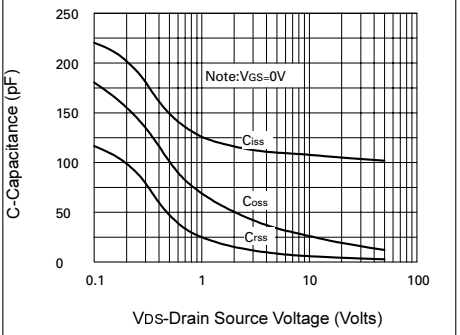
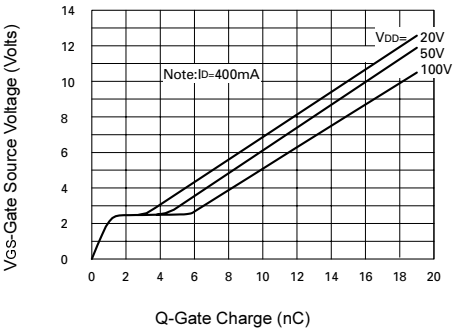
TYPICAL CHARACTERISTICS



Capacitance v drain-source voltage



Gate charge v gate-source voltage