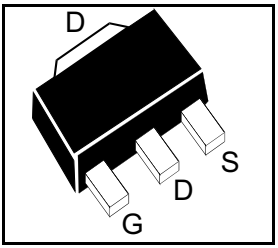
SOT89 P-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ISSUE 1 - NOVEMBER 1998

ZVP4424Z



FEATURES
* 240 Volt V_{DS}
* $R_{DS(on)}$= 8.8Ω typical at V_{GS}=-3.5V
* Low threshold and Fast switching

APPLICATIONS
* Electronic hook switches
* Telecoms and Battery powered equipment

COMPLEMENTARY TYPE - ZVN4424Z
PARTMARKING DETAIL - 24P

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	VALUE	UNIT
Drain-Source Voltage	V_{DS}	-240	V
Continuous Drain Current at T_{amb}=25°C	I_D	-200	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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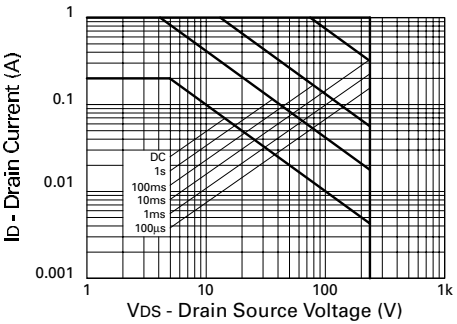
ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

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	$V_{GS(th)}$	-0.7	-1.4	-2.0	V	I_D=-1mA, V_{DS}= V_{GS}
Gate-Body Leakage	I_{GSS}			100	nA	V_{GS}=± 40V, V_{DS}=0V
Zero Gate Voltage Drain Current	I_{DSS}			-10 -100	µA µA	V_{DS}=-240V, V_{GS}=0V V_{DS}=-190V, V_{GS}=0V, T=125°C
On-State Drain Current	$I_{D(on)}$	-0.75	-1.0		A	V_{DS}=-10V, V_{GS}=-10V
Static Drain-Source On-State Resistance	$R_{DS(on)}$		7.1 8.8	9 11	Ω Ω	V_{GS}=-10V, I_D=-200mA V_{GS}=-3.5V, I_D=-100mA
Forward Transconductance (1) (2)	g_{fs}	125			mS	V_{DS}=-10V,I_D=-0.2A
Input Capacitance (2)	C_{iss}		100	200	pF	V_{DS}=-25V, V_{GS}=0V, f=1MHz
Common Source Output Capacitance (2)	C_{oss}		18	25	pF	
Reverse Transfer Capacitance (2)	C_{rss}		5	15	pF	
Turn-On Delay Time (2)(3)	$t_{d(on)}$		8	15	ns	V_{DD} ≈-50V, I_D=-0.25A, V_{GEN}=-10V
Rise Time (2)(3)	t_r		8	15	ns	
Turn-Off Delay Time (2)(3)	$t_{d(off)}$		26	40	ns	
Fall Time (2)(3)	t_f		20	30	ns	

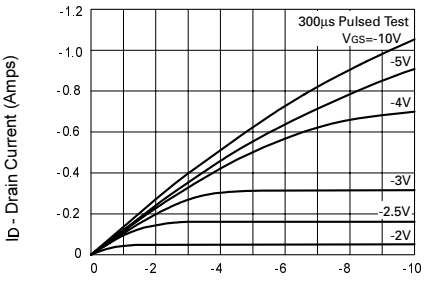
(1) Measured under pulsed conditions. Width=300µs. Duty cycle ≤2%
(2) Sample test.
(3) Switching times measured with 50Ω source impedance and <5ns rise time on a pulse generator
Spice parameter data is available upon request for this device

TYPICAL CHARACTERISTICS

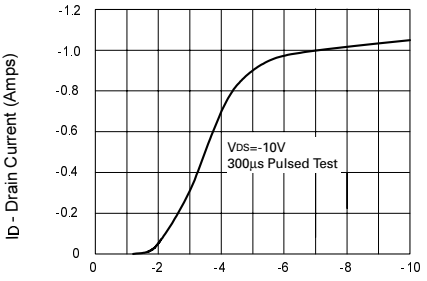


Safe Operating Area

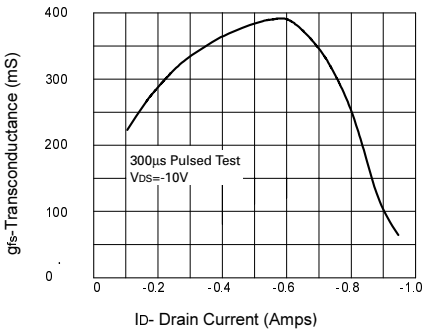
TYPICAL CHARACTERISTICS



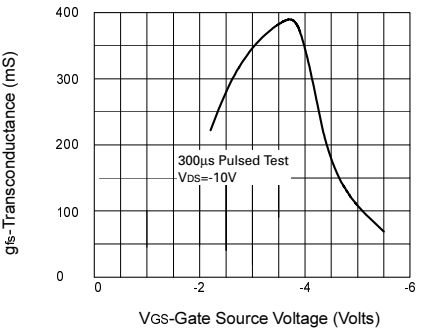
Saturation Characteristics



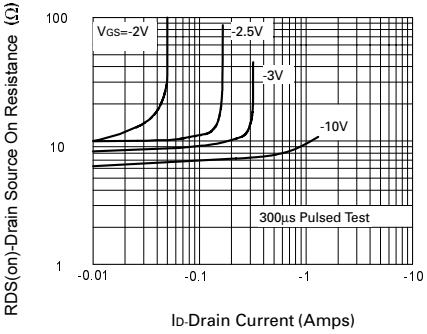
Transfer Characteristics



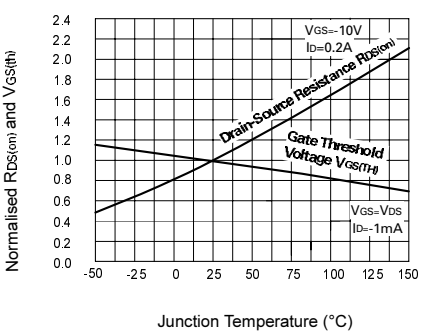
Transconductance v drain current



Transconductance v gate-source voltage



On-resistance vs Drain Current



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

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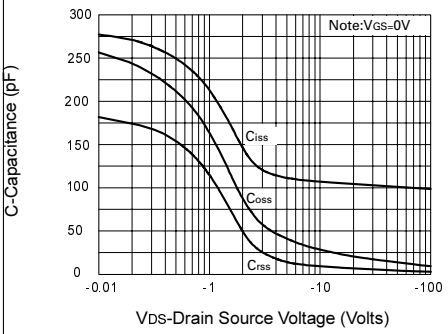
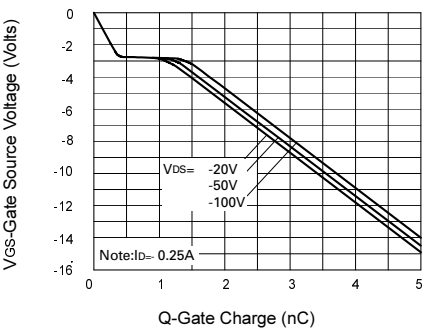


Capacitance v drain-source voltage



Gate charge v gate-source voltage