

SOT89 P-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ISSUE 1 - NOVEMBER 1998

ZVP4424Z

FEATURES

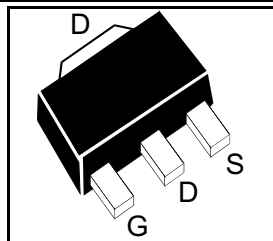
- * 240 Volt V_{DS}
- * $R_{DS(on)} = 8.8\Omega$ typical at $V_{GS} = -3.5V$
- * Low threshold and Fast switching

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 $T_{amb}=25^{\circ}C$	I_D	-200	mA
Pulsed Drain Current	I_{DM}	-1.0	A
Gate Source Voltage	V_{GS}	± 40	V
Power Dissipation at $T_{amb}=25^{\circ}C$	P_{tot}	1†	W
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

† recommended P_{tot} calculated using FR4 measuring 15x15x0.6mm

Refer to the handling instructions for soldering surface mount components.

ZVP4424Z

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

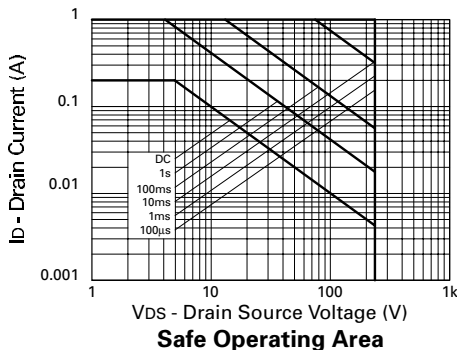
PARAMETER	SYMBOL	MIN.	TYP	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	BV_{DSS}	-240			V	$I_D = -1\text{mA}$, $V_{GS} = 0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	-0.7	-1.4	-2.0	V	$I_D = -1\text{mA}$, $V_{DS} = V_{GS}$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS} = \pm 40\text{V}$, $V_{DS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}			-10 -100	μA	$V_{DS} = -240\text{V}$, $V_{GS} = 0\text{V}$ $V_{DS} = -190\text{V}$, $V_{GS} = 0\text{V}$, $T = 125^{\circ}\text{C}$
On-State Drain Current	$I_{D(on)}$	-0.75	-1.0		A	$V_{DS} = -10\text{V}$, $V_{GS} = -10\text{V}$
Static Drain-Source On-State Resistance	$R_{DS(on)}$		7.1 8.8	9 11	Ω	$V_{GS} = -10\text{V}$, $I_D = -200\text{mA}$ $V_{GS} = -3.5\text{V}$, $I_D = -100\text{mA}$
Forward Transconductance (1) (2)	g_{fs}	125			mS	$V_{DS} = -10\text{V}$, $I_D = -0.2\text{A}$
Input Capacitance (2)	C_{iss}		100	200	pF	$V_{DS} = -25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$
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	$V_{DD} = -50\text{V}$, $I_D = -0.25\text{A}$, $V_{GEN} = -10\text{V}$
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=300 μs . Duty cycle $\leq 2\%$

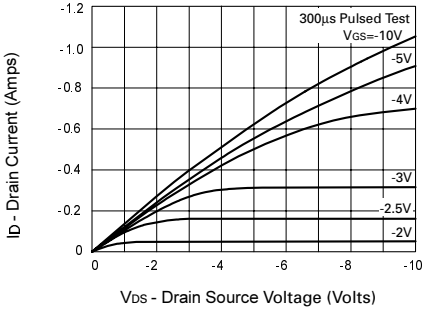
(2) Sample test.

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

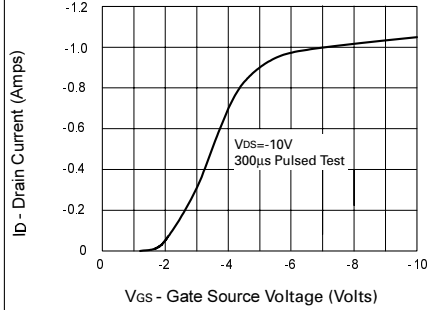
TYPICAL CHARACTERISTICS



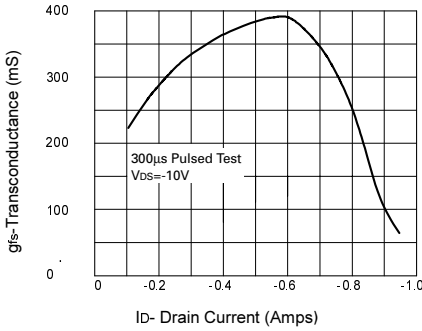
TYPICAL CHARACTERISTICS



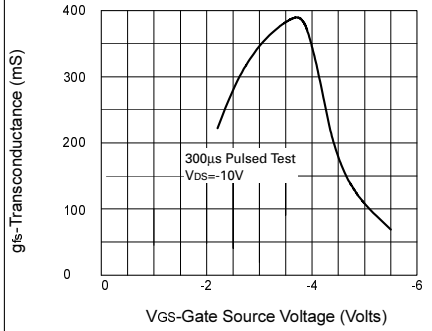
Saturation Characteristics



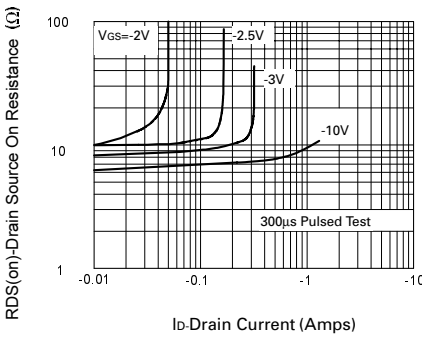
Transfer Characteristics



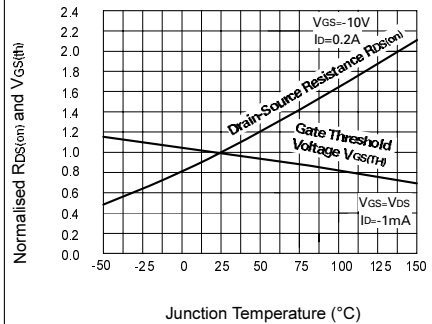
Transconductance v drain current



Transconductance v gate-source voltage



On-resistance vs Drain Current



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

ZVP4424Z

TYPICAL CHARACTERISTICS

