

# P-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ISSUE 2 – SEPTEMBER 94

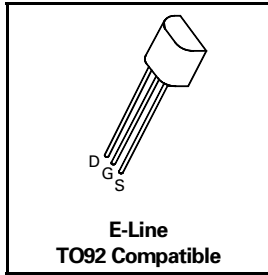
## FEATURES

- \* 240 Volt  $V_{DS}$
- \*  $R_{DS(on)}=9\Omega$
- \* Low threshold

## APPLICATIONS

- \* Electronic Hook Switch

# ZVP4424A



## 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	A
Gate Source Voltage	$V_{GS}$	$\pm 40$	V
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	750	mW
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	$BV_{DSS}$	-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	$V_{GS}\pm 40V, V_{DS}=0V$
Zero Gate Voltage Drain Current	$I_{DSS}$			-10 -100	$\mu A$ $\mu A$	$V_{DS}=-240V, V_{GS}=0V$ $V_{DS}=-190V, V_{GS}=0V, T=125^{\circ}C$
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	$\Omega$ $\Omega$	$V_{GS}=-10V, I_D=-200mA$ $V_{GS}=-3.5V, I_D=-100mA$
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	
Rise Time (2)(3)	$t_r$		8	15	ns	$V_{DD}\approx -50V, I_D=-0.25A, V_{GEN}=-10V$
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 $\mu s$ . Duty cycle  $\leq 2\%$  (2) Sample test.  
(3) Switching times measured with 50 $\Omega$  source impedance and <5ns rise time on a pulse generator

# P-CHANNEL ENHANCEMENT MODE VERTICAL DMOS FET

ISSUE 2 – SEPTEMBER 94

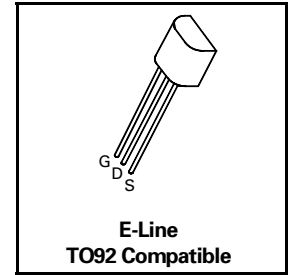
## FEATURES

- \* 240 Volt  $V_{DS}$
- \*  $R_{DS(on)}=9\Omega$
- \* Low threshold

## APPLICATIONS

- \* Electronic Hook Switch

# ZVP4424C



REFER TO ZVP4424A FOR GRAPHS

## 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	A
Gate Source Voltage	$V_{GS}$	$\pm 40$	V
Power Dissipation at $T_{amb}=25^{\circ}C$	$P_{tot}$	750	mW
Operating and Storage Temperature Range	$T_j; T_{stg}$	-55 to +150	$^{\circ}C$

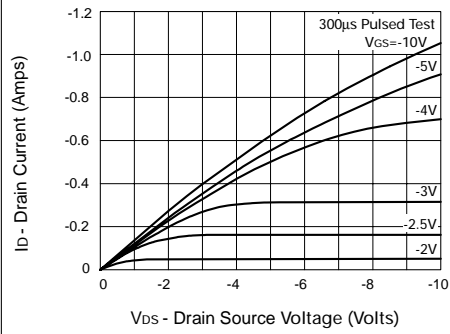
## ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}C$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP	MAX.	UNIT	CONDITIONS.
Drain-Source Breakdown Voltage	$BV_{DSS}$	-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	$V_{GS}\pm 40V, V_{DS}=0V$
Zero Gate Voltage Drain Current	$I_{DSS}$			-10 -100	$\mu A$ $\mu A$	$V_{DS}=-240V, V_{GS}=0V$ $V_{DS}=-190V, V_{GS}=0V, T=125^{\circ}C$
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	$\Omega$ $\Omega$	$V_{GS}=-10V, I_D=-200mA$ $V_{GS}=-3.5V, I_D=-100mA$
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	
Rise Time (2)(3)	$t_r$		8	15	ns	$V_{DD}\approx -50V, I_D=-0.25A, V_{GEN}=-10V$
Turn-Off Delay Time (2)(3)	$t_{d(off)}$		26	40	ns	
Fall Time (2)(3)	$t_f$		20	30	ns	

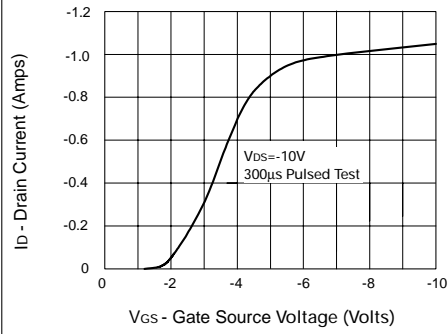
- (1) Measured under pulsed conditions. Width=300 $\mu s$ . Duty cycle  $\leq 2\%$  (2) Sample test.  
(3) Switching times measured with 50 $\Omega$  source impedance and <5ns rise time on a pulse generator

# ZVP4424A

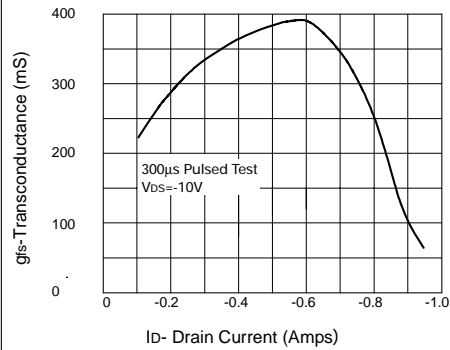
## TYPICAL CHARACTERISTICS



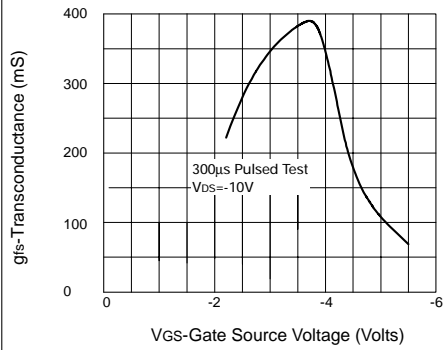
**Saturation Characteristics**



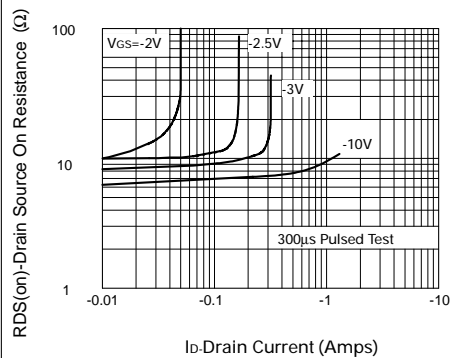
**Transfer Characteristics**



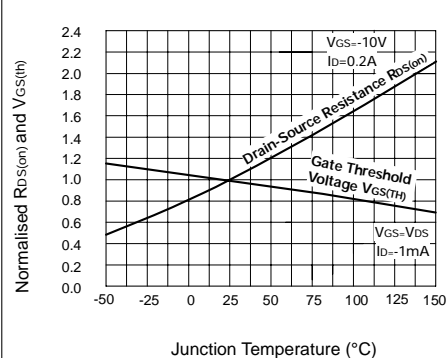
**Transconductance v drain current**



**Transconductance v gate-source voltage**



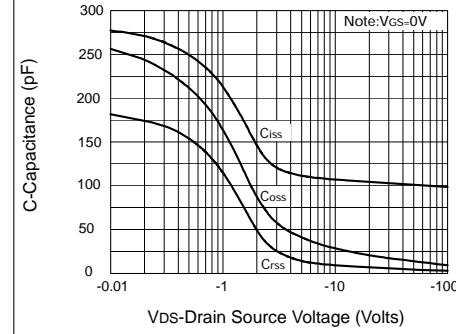
**On-resistance vs Drain Current**



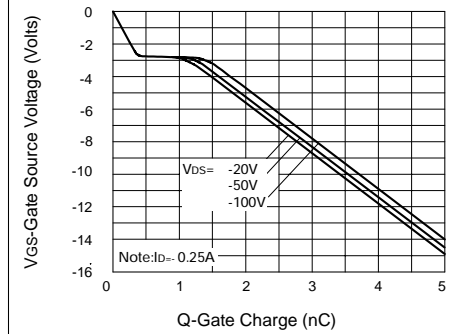
**Normalised RDS(on) and VGS(th) vs Temperature**

# ZVP4424A

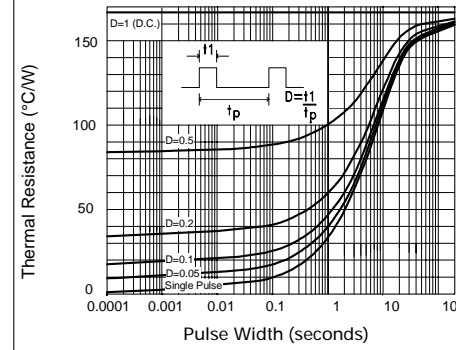
## TYPICAL CHARACTERISTICS



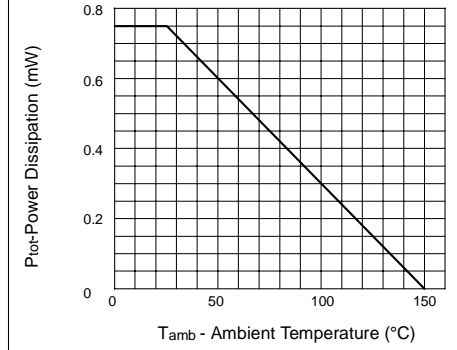
**Capacitance v drain-source voltage**



**Gate charge v gate-source voltage**



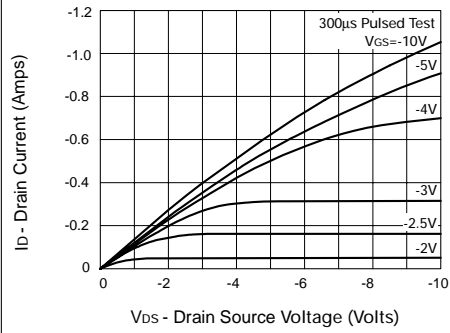
**Maximum transient thermal impedance**



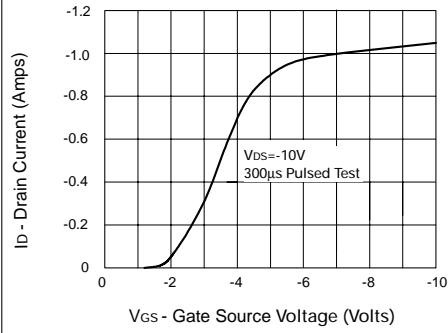
**Derating Curve**

# ZVP4424A

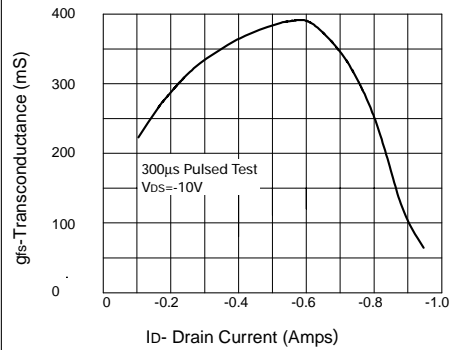
## TYPICAL CHARACTERISTICS



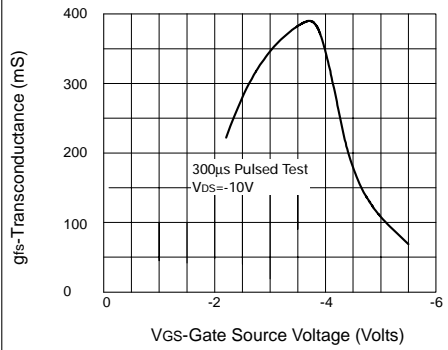
Saturation Characteristics



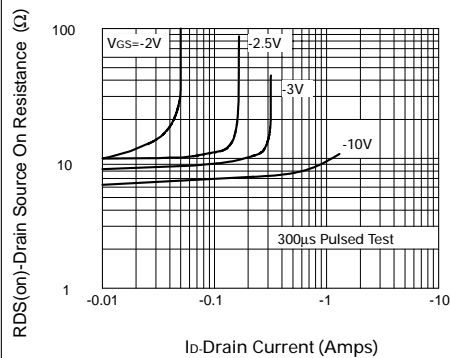
Transfer Characteristics



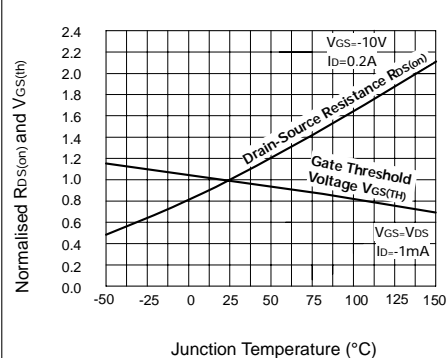
Transconductance v drain current



Transconductance v gate-source voltage



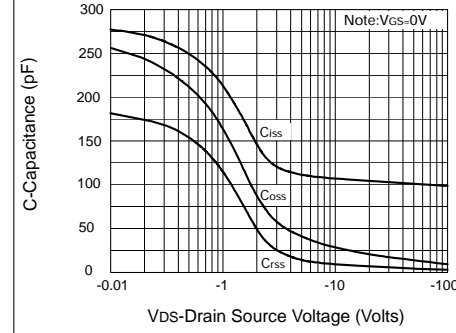
On-resistance vs Drain Current



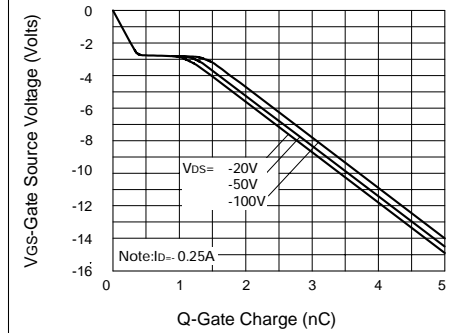
Normalised RDS(on) and VGS(th) vs Temperature

# ZVP4424A

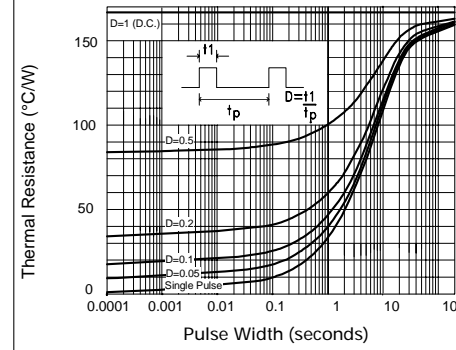
## TYPICAL CHARACTERISTICS



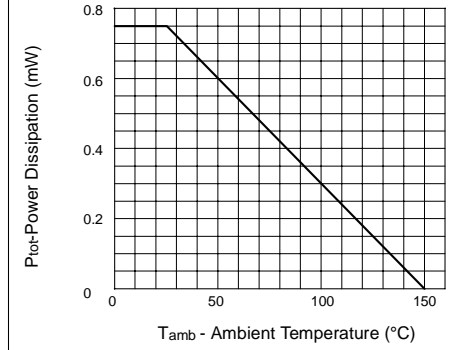
Capacitance v drain-source voltage



Gate charge v gate-source voltage



Maximum transient thermal impedance



Derating Curve

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [Diodes Incorporated](#) manufacturer:*

Other Similar products are found below :

[614233C](#) [648584F](#) [MCH3443-TL-E](#) [MCH6422-TL-E](#) [FDPF9N50NZ](#) [FW216A-TL-2W](#) [FW231A-TL-E](#) [APT5010JVR](#) [NTNS3A92PZT5G](#)  
[IRF100S201](#) [JANTX2N5237](#) [2SK2464-TL-E](#) [2SK3818-DL-E](#) [FCA20N60\\_F109](#) [FDZ595PZ](#) [STD6600NT4G](#) [FSS804-TL-E](#) [2SJ277-DL-E](#)  
[2SK1691-DL-E](#) [2SK2545\(Q,T\)](#) [405094E](#) [423220D](#) [MCH6646-TL-E](#) [TPCC8103,L1Q\(CM](#) [367-8430-0972-503](#) [VN1206L](#) [424134F](#)  
[026935X](#) [051075F](#) [SBVS138LT1G](#) [614234A](#) [715780A](#) [NTNS3166NZT5G](#) [751625C](#) [873612G](#) [IRF7380TRHR](#) [IPS70R2K0CEAKMA1](#)  
[RJK60S3DPP-E0#T2](#) [RJK60S5DPK-M0#T0](#) [APT5010JVFR](#) [APT12031JFLL](#) [APT12040JVR](#) [DMN3404LQ-7](#) [NTE6400](#) [JANTX2N6796U](#)  
[JANTX2N6784U](#) [JANTXV2N5416U4](#) [SQM110N05-06L-GE3](#) [SIHF35N60E-GE3](#) [2SK2614\(TE16L1,Q\)](#)