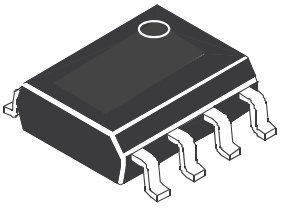
20V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS}$=20V; $R_{DS(ON)}$=0.015Ω; I_D=9A



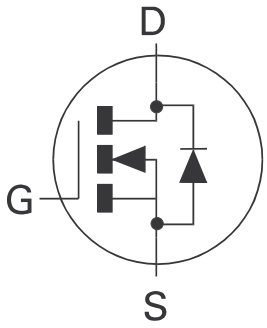
SO8

DESCRIPTION

This new generation of high density MOSFETs from Zetex utilises a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.

FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- Low profile SOIC package

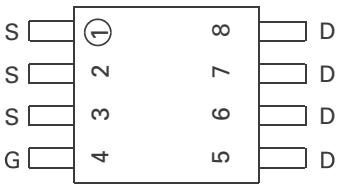


APPLICATIONS

- DC - DC Converters
- Power Management Functions
- Disconnect switches
- Motor control

ORDERING INFORMATION

DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZXM66N02N8TA	13	12mm embossed	1000 units



Top View

DEVICE MARKING

- ZXM6
  6N02

ZXM66N02N8

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	20	V
Gate- Source Voltage	V_{GS}	±12	V
Continuous Drain Current (V_{GS}=4.5V; T_A=25°C)(b)(d) (V_{GS}=4.5V; T_A=70°C)(b)(d)	I_D	9.0 8.0	A
Pulsed Drain Current (c)(d)	I_{DM}	35	A
Continuous Source Current (Body Diode)(b)(d)	I_S	3.1	A
Pulsed Source Current (Body Diode)(c)(d)	I_{SM}	35	A
Power Dissipation at T_A=25°C (a)(d) Linear Derating Factor	P_D	- -	W mW/°C
Power Dissipation at T_A=25°C (a)(e) Linear Derating Factor	P_D	- -	W mW/°C
Power Dissipation at T_A=25°C (b)(d) Linear Derating Factor	P_D	2.5 20	W mW/°C
Operating and Storage Temperature Range	T_j:T_{stg}	-55 to +150	°C

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	-	°C/W
Junction to Ambient (b)	$R_{\theta JA}$	30	°C/W

NOTES

(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at t≤10 secs.

(c) Repetitive rating - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	20			V	I_D=250µA, V_{GS}=0V
Zero Gate Voltage Drain Current	I_{DSS}			1	µA	V_{DS}=16V, V_{GS}=0V
Gate-Body Leakage	I_{GSS}			100	nA	V_{GS}=±12V, V_{DS}=0V
Gate-Source Threshold Voltage	$V_{GS(th)}$	0.7			V	I_D=250µA, V_{DS}= V_{GS}
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			0.015 0.020	Ω Ω	V_{GS}=4.5V, I_D=4.1A V_{GS}=2.5V, I_D=3.5A
Forward Transconductance (3)	g_{fs}	11			S	V_{DS}=15V,I_D=4.1A
DYNAMIC (3)						
Input Capacitance	C_{iss}		-		pF	V_{DS}=15 V, V_{GS}=0V, f=1MHz
Output Capacitance	C_{oss}		-		pF	
Reverse Transfer Capacitance	C_{rss}		-		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	$t_{d(on)}$		-		ns	V_{DD} =10V, I_D=4.1A R_G=6.0Ω, R_D=2.4Ω (Refer to test circuit)
Rise Time	t_r		-		ns	
Turn-Off Delay Time	$t_{d(off)}$		-		ns	
Fall Time	t_f		-		ns	
Total Gate Charge	Q_g			-	nC	V_{DS}=16V,V_{GS}=4.5V I_D=4.1A (Refer to test circuit)
Gate-Source Charge	Q_{gs}			-	nC	
Gate Drain Charge	Q_{gd}			-	nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}			0.95	V	T_j=25°C, I_S=4.1A, V_{GS}=0V
Reverse Recovery Time (3)	t_{rr}		-		ns	T_j=25°C, I_F=4.1A, di/dt= 100A/µs
Reverse Recovery Charge(3)	Q_{rr}		-		nC	

(1) Measured under pulsed conditions. Width=300µs. Duty cycle ≤2% .
(2) Switching characteristics are independent of operating junction temperature.
(3) For design aid only, not subject to production testing.

ZXM66N02N8

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ADVANCED INFORMATION