

30V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS}=30V$; $R_{DS(ON)}=0.015\Omega$; $I_D=9A$

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

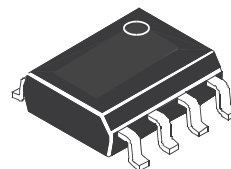
- DC - DC Converters
- Power Management Functions
- Disconnect switches
- Motor control

ORDERING INFORMATION

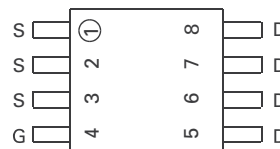
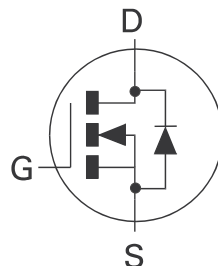
DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZXM66N03N8TA	13	12mm embossed	1000 units

DEVICE MARKING

- ZXM6
6N03



SO8



Top View

ZXM66N03N8

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate- Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($V_{GS}=10V$; $T_A=25^{\circ}C$)(b)(d) ($V_{GS}=10V$; $T_A=70^{\circ}C$)(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 $T_A=25^{\circ}C$ (a)(d) Linear Derating Factor	P_D	- -	W mW/ $^{\circ}C$
Power Dissipation at $T_A=25^{\circ}C$ (a)(e) Linear Derating Factor	P_D	- -	W mW/ $^{\circ}C$
Power Dissipation at $T_A=25^{\circ}C$ (b)(d) Linear Derating Factor	P_D	2.5 20	W mW/ $^{\circ}C$
Operating and Storage Temperature Range	$T_j:T_{stg}$	-55 to +150	$^{\circ}C$

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	-	$^{\circ}C/W$
Junction to Ambient (b)	$R_{\theta JA}$	50	$^{\circ}C/W$

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 $t \leq 10$ secs.

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

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	30			V	I _D =250μA, V _{GS} =0V
Zero Gate Voltage Drain Current	I _{DSS}			1	μA	V _{DS} =24V, V _{GS} =0V
Gate-Body Leakage	I _{GSS}			100	nA	V _{GS} =±20V, V _{DS} =0V
Gate-Source Threshold Voltage	V _{GS(th)}	1.0			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} =10V, I _D =7.3A V _{GS} =4.5V, I _D =3.7A
Forward Transconductance (3)	g _{fs}	12			S	V _{DS} =15V, I _D =3.7A
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} =15V, I _D =7.3A R _G =6.0Ω, R _D =2.0Ω (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} =15V, V _{GS} =10V I _D =7.3A (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 =7.3A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		-		ns	T _j =25°C, I _F =7.3A, di/dt= 100A/μs
Reverse Recovery Charge(3)	Q _{rr}		-		nC	

(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.

(2) Switching characteristics are independent of operating junction temperature.

(3) For design aid only, not subject to production testing.

ZXM66N03N8



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