

20V P-CHANNEL ENHANCEMENT MODE MOSFET
SUMMARY

$V_{(BR)DSS}=-20V$; $R_{DS(ON)}=0.025\Omega$; $I_D=-8.0A$

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

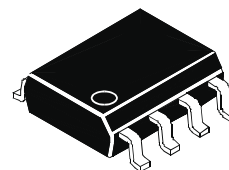
- DC - DC Converters
- Power Management Functions
- Disconnect switches
- Motor control

ORDERING INFORMATION

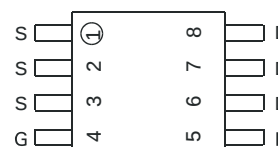
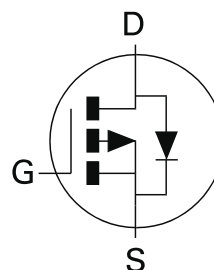
DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXM66P02N8TA	7"	12mm	500 units
ZXM66P02N8TC	7"	12mm	2500 units

DEVICE MARKING

- ZXM6
6P02



SO8



Top View

ZXM66P02N8

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	-20	V
Gate- Source Voltage	V_{GS}	± 12	V
Continuous Drain Current $V_{GS}=-4.5V$; $T_A=25^\circ C$ (b) $V_{GS}=-4.5V$; $T_A=70^\circ C$ (b) $V_{GS}=-4.5V$; $T_A=25^\circ C$ (a)	I_D	-8.0 -6.5 -6.4	A
Pulsed Drain Current (c)	I_{DM}	-28	A
Continuous Source Current (Body Diode)(b)	I_S	-4.15	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	-28	A
Power Dissipation at $T_A=25^\circ C$ (a) Linear Derating Factor	P_D	1.56 12.5	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b) 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)	$R_{\theta JA}$	80	$^\circ C/W$
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 25mm x 25mm FR4 PCB, $D = 0.05$, pulse width 10 μs - pulse width limited by maximum junction temperature.

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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}	-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)}			0.025 0.045	Ω Ω	V _{GS} =-4.5V, I _D =-3.2A V _{GS} =-2.5V, I _D =-2.7A
Forward Transconductance (1)(3)	g _{fs}		13.3		S	V _{DS} =-10V, I _D =-3.2A
DYNAMIC (3)						
Input Capacitance	C _{iss}		2068		pF	V _{DS} =-15 V, V _{GS} =0V, f=1MHz
Output Capacitance	C _{oss}		1038		pF	
Reverse Transfer Capacitance	C _{rss}		506		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	t _{d(on)}		14.0		ns	V _{DD} =-10V, I _D =-3.2A R _G =6.0Ω, V _{GS} =-5V
Rise Time	t _r		44.3		ns	
Turn-Off Delay Time	t _{d(off)}		118.4		ns	
Fall Time	t _f		98.4		ns	
Total Gate Charge	Q _g		43.3	-	nC	V _{DS} =-10V, V _{GS} =-4.5V I _D =-3.2A
Gate-Source Charge	Q _{gs}		3.5	-	nC	
Gate Drain Charge	Q _{gd}		21.3	-	nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V _{SD}			0.95	V	T _J =25°C, I _S =-3.2A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		23.1		ns	T _J =25°C, I _F =-3.2A, di/dt= 100A/μs
Reverse Recovery Charge(3)	Q _{rr}		12.2		nC	

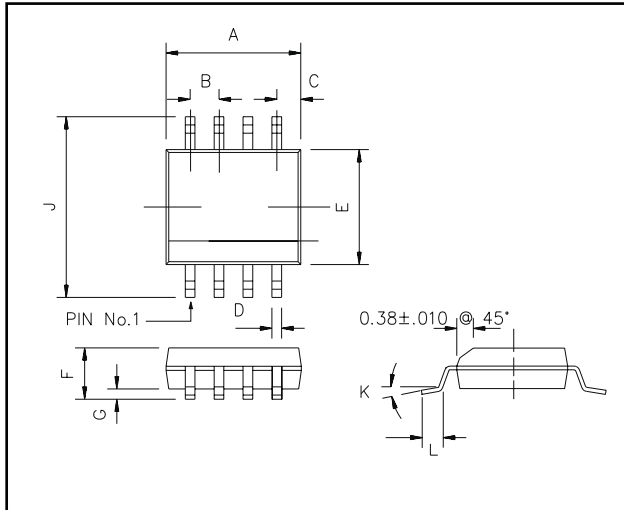
(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.

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

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

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PACKAGE DIMENSIONS



DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	4.80	4.98	0.189	0.196
B	1.27 BSC		0.05 BSC	
C	0.53 REF		0.02 REF	
D	0.36	0.46	0.014	0.018
E	3.81	3.99	0.15	0.157
F	1.35	1.75	0.05	0.07
G	0.10	0.25	0.004	0.010
J	5.80	6.20	0.23	0.24
K	0°	8°	0°	8°
L	0.41	1.27	0.016	0.050

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