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ZXMD65P02N8

DUAL 20V P-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = -20V$; $R_{DS(ON)} = 0.050\Omega$; $I_D = -5.1A$

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

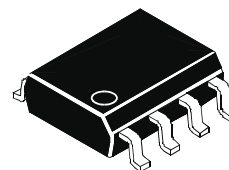
- DC - DC Converters
- Power Management Functions
- Disconnect switches
- Motor control

ORDERING INFORMATION

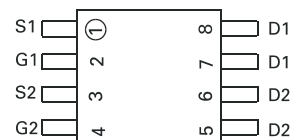
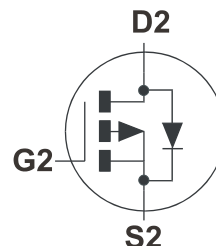
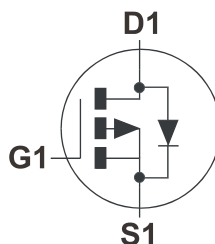
DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMD65P02N8TA	7"	12mm	500 units
ZXMD65P02N8TC	13"	12mm	2500 units

DEVICE MARKING

- ZXMD
65P02



SO8



Top View

ZXM D65P02N8

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)(d) $V_{GS}=-4.5V$; $T_A=70^\circ C$ (b)(d) $V_{GS}=-4.5V$; $T_A=25^\circ C$ (a)(d)	I_D	-5.1 -4.1 -4.0	A
Pulsed Drain Current (c)(d)	I_{DM}	-18	A
Continuous Source Current (Body Diode)(b)(d)	I_S	-3.1	A
Pulsed Source Current (Body Diode)(c)(d)	I_{SM}	-18	A
Power Dissipation at $T_A=25^\circ C$ (a)(d) Linear Derating Factor	P_D	1.25 10	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (a)(e) Linear Derating Factor	P_D	1.75 14	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b)(d) Linear Derating Factor	P_D	2.0 16	W mW/ $^\circ C$

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)(d)	$R_{\theta JA}$	100	$^\circ C/W$
Junction to Ambient (a)(e)	$R_{\theta JA}$	71.4	$^\circ C/W$
Junction to Ambient (b)(d)	$R_{\theta JA}$	62.5	$^\circ C/W$

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.

(d) For device with one active die.

(e) For device with two active die running at equal power.

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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)}			0.050 0.080	Ω Ω	V _{GS} =-4.5V, I _D =-2.9A V _{GS} =-2.5V, I _D =-1.5A
Forward Transconductance (1)(3)	g _{fs}		8.5		S	V _{DS} =-10V, I _D =-2.9A
DYNAMIC (3)						
Input Capacitance	C _{iss}		960		pF	V _{DS} =-15 V, V _{GS} =0V, f=1MHz
Output Capacitance	C _{oss}		480		pF	
Reverse Transfer Capacitance	C _{rss}		240		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	t _{d(on)}		6.6		ns	V _{DD} =-10V, I _D =-2.9A R _G =6.0Ω, V _{GS} =-5V
Rise Time	t _r		29.9		ns	
Turn-Off Delay Time	t _{d(off)}		57.9		ns	
Fall Time	t _f		63.2		ns	
Total Gate Charge	Q _g		20		nC	V _{DS} =-10V, V _{GS} =-4.5V I _D =-2.9A
Gate-Source Charge	Q _{gs}		1.8		nC	
Gate Drain Charge	Q _{gd}		10		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V _{SD}			0.95	V	T _j =25°C, I _S =-2.9A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		39.2		ns	T _j =25°C, I _F =-2.9A, di/dt= 100A/μs
Reverse Recovery Charge(3)	Q _{rr}		28.8		nC	

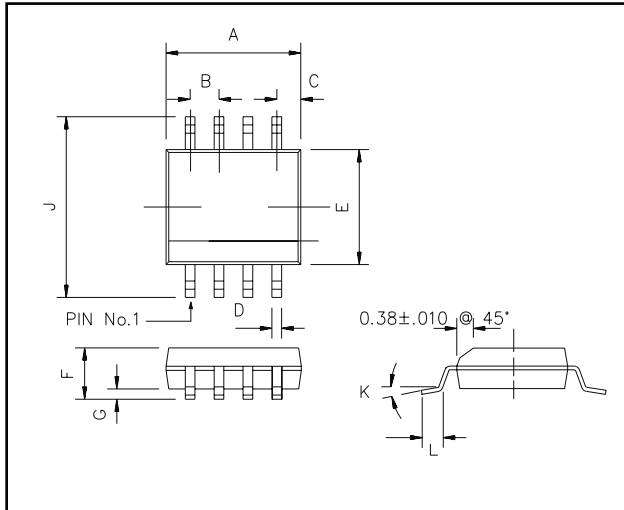
(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.

(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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