

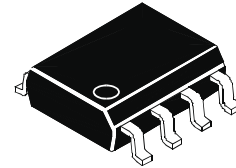
DUAL 30V P-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = -30V$; $R_{DS(ON)} = 0.055\Omega$; $I_D = -4.8A$

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.



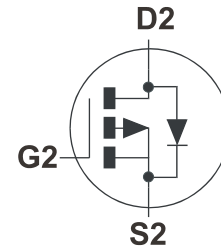
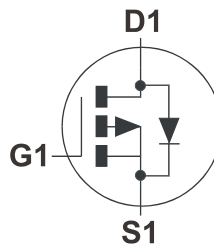
SO8

FEATURES

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

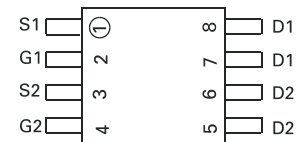
APPLICATIONS

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



ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMD65P03N8TA	7"	12mm	500 units
ZXMD65P03N8TC	13"	12mm	2500 units



Top View

DEVICE MARKING

- ZXMD
65P03

ZXMD65P03N8

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) $V_{GS}=-10V$; $T_A=25^\circ C$ (a)(d)	I_D	-4.8 -3.8 -3.8	A
Pulsed Drain Current (c)(d)	I_{DM}	-18	A
Continuous Source Current (Body Diode)(b)(d)	I_S	-3.0	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.



ZXMD65P03N8

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNI T	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-30			V	$I_D = -250\mu\text{A}$, $V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}			-1	μA	$V_{DS} = -24\text{V}$, $V_{GS} = 0\text{V}$
Gate-Body Leakage	I_{GSS}			-100	nA	$V_{GS} = \pm 12\text{V}$, $V_{DS} = 0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	-1.0			V	$I_D = -250\mu\text{A}$, $V_{DS} = V_{GS}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			0.055 0.080	Ω Ω	$V_{GS} = -10\text{V}$, $I_D = -4.9\text{A}$ $V_{GS} = -4.5\text{V}$, $I_D = -3.6\text{A}$
Forward Transconductance (1)(3)	g_{fs}		8.8		S	$V_{DS} = -15\text{V}$, $I_D = -4.9\text{A}$
DYNAMIC (3)						
Input Capacitance	C_{iss}		930		pF	$V_{DS} = -25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$
Output Capacitance	C_{oss}		311		pF	
Reverse Transfer Capacitance	C_{rss}		113		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	$t_{d(on)}$		3.8		ns	$V_{DD} = -15\text{V}$, $I_D = -4.9\text{A}$ $R_G = 6.0\Omega$, $V_{GS} = -10\text{V}$
Rise Time	t_r		6.4		ns	
Turn-Off Delay Time	$t_{d(off)}$		49.5		ns	
Fall Time	t_f		26.2		ns	
Gate Charge	Q_g		13		nC	$V_{DS} = -15\text{V}$, $V_{GS} = -5\text{V}$ $I_D = -4.9\text{A}$
Total Gate Charge	Q_g		25.7		nC	$V_{DS} = -15\text{V}$, $V_{GS} = -10\text{V}$ $I_D = -4.9\text{A}$
Gate-Source Charge	Q_{gs}		3.2		nC	
Gate Drain Charge	Q_{gd}		7.0		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}			0.95	V	$T_J = 25^{\circ}\text{C}$, $I_S = -4.9\text{A}$, $V_{GS} = 0\text{V}$
Reverse Recovery Time (3)	t_{rr}		31.5		ns	$T_J = 25^{\circ}\text{C}$, $I_F = -4.9\text{A}$, $di/dt = 100\text{A}/\mu\text{s}$
Reverse Recovery Charge(3)	Q_{rr}		63.9		nC	

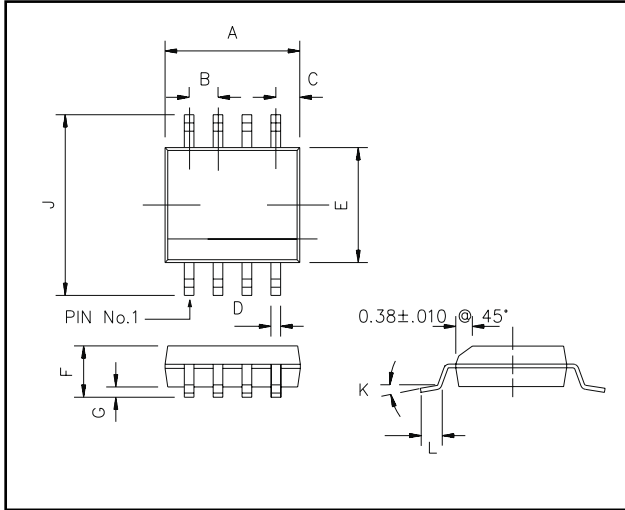
(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.

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

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

ZXMD65P03N8

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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