

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 utilizes 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

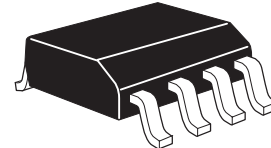
- DC - DC converters
- Power management functions
- Disconnect switches
- Motor control

ORDERING INFORMATION

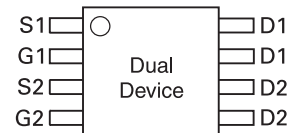
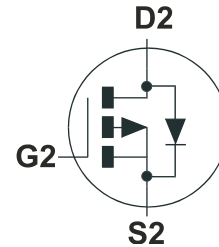
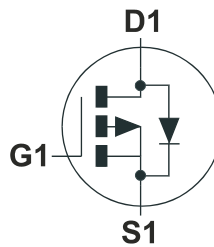
DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMD65P02N8TA	7"	12mm	500 units
ZXMD65P02N8TC	13"	12mm	2500 units

DEVICE MARKING

- ZXMD
65P02



SO8



TOP VIEW

ZXMD65P02N8

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/°C
Power Dissipation at $T_A=25^\circ C$ (a)(e) Linear Derating Factor	P_D	1.75 14	W mW/°C
Power Dissipation at $T_A=25^\circ C$ (b)(d) Linear Derating Factor	P_D	2.0 16	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)(d)	$R_{\theta JA}$	100	°C/W
Junction to Ambient (a)(e)	$R_{\theta JA}$	71.4	°C/W
Junction to Ambient (b)(d)	$R_{\theta JA}$	62.5	°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.

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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	

NOTES:

- (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.

