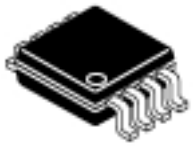
ZXMN2A04DN8

DUAL 20V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS}$=20V; $R_{DS(ON)}$=0.030Ω ; I_D=6.8A



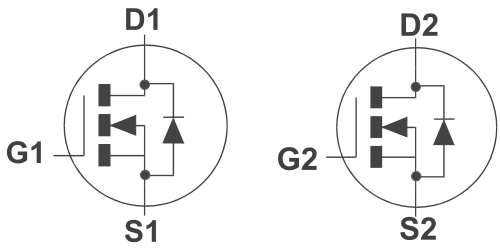
SO8

DESCRIPTION

This new generation of TRENCH 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.

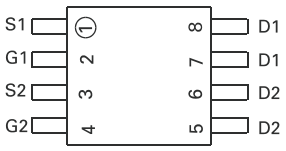
FEATURES

- 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



Top View

ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN2A04DN8TA	7”	12mm	500 units
ZXMN2A04DN8TC	13”	12mm	2500 units

DEVICE MARKING

- ZXMN
  2A04D

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}=10V; T_A=25°C)(b)(d) (V_{GS}=10V; T_A=70°C)(b)(d) (V_{GS}=10V; T_A=25°C)(a)(d)	I_D	6.8 5.4 5.2	A
Pulsed Drain Current (c)	I_{DM}	23	A
Continuous Source Current (Body Diode) (b)	I_S	12	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	23	A
Power Dissipation at T_A=25°C (a)(d) Linear Derating Factor	P_D	1.25 10	W mW/°C
Power Dissipation at T_A=25°C (a)(e) Linear Derating Factor	P_D	1.8 14	W mW/°C
Power Dissipation at T_A=25°C (b)(d) Linear Derating Factor	P_D	2.1 17	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)	$R_{\theta JA}$	70	°C/W
Junction to Ambient (b)(d)	$R_{\theta JA}$	60	°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≤10 secs.

(c) Repetitive rating 25mm x 25mm FR4 PCB, D=0.05 pulse width=10µs - pulse width limited by maximum junction temperature. Refer to Transcient Thermal Inpedance graph.

(d) For device with one active die

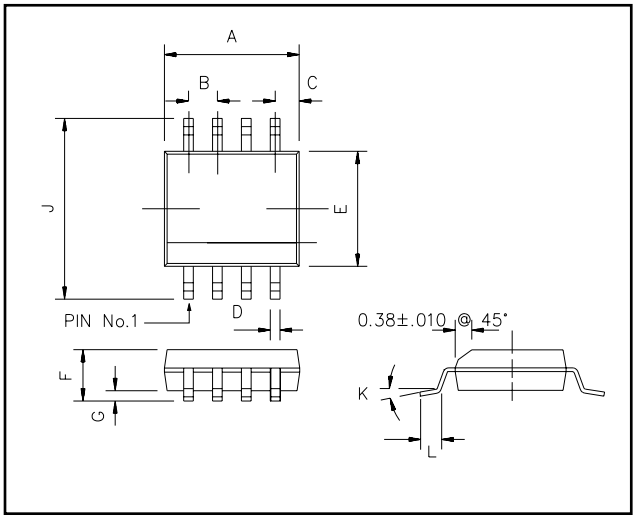
(e) For device with two active die running at equal power.

ELECTRICAL CHARACTERISTICS (at T_A = 25°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}			0.5	μA	V_{DS}=20V, 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)	$R_{DS(on)}$			0.030 0.045	Ω Ω	V_{GS}=4.5V, I_D=11A V_{GS}=2.5V, I_D=5A
Forward Transconductance (3)	g_{fs}		40		S	V_{DS}=10V,I_D=6A
DYNAMIC (3)						
Input Capacitance	C_{iss}		2300		pF	V_{DS}=15V, V_{GS}=0V, f=1MHz
Output Capacitance	C_{oss}		450		pF	
Reverse Transfer Capacitance	C_{rss}		260		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	$t_{d(on)}$		6.3		ns	V_{DD} =10V, I_D=6A R_G=6.0Ω, V_{GS}=5V
Rise Time	t_r		8.5		ns	
Turn-Off Delay Time	$t_{d(off)}$		25		ns	
Fall Time	t_f		5		ns	
Gate Charge	Q_g		19.4		nC	V_{DS}=15V,V_{GS}=5V, I_D=3.5A
Total Gate Charge	Q_g		24		nC	V_{DS}=10V,V_{GS}=4.5V, I_D=6A
Gate-Source Charge	Q_{gs}		5		nC	
Gate-Drain Charge	Q_{gd}		4		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}		TBA?	0.95	V	T_J=25°C, I_S=5.1A, V_{GS}=0V
Reverse Recovery Time (3)	t_{rr}		15		ns	T_J=25°C, I_F=6A, di/dt= 100A/μs
Reverse Recovery Charge (3)	Q_{rr}		5		nC	

NOTES
(1) Measured under pulsed conditions. Width=300μs. Duty cycle ≤ 2% .
(2) Switching characteristics are independent of operating junction temperature.
(3) For design aid only, not subject to production testing.

ZXMN2A04DN8
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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