

ZXMN6A11DN8

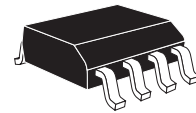
60V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 60V$; $R_{DS(ON)} = 0.14\Omega$ $I_D = 2.7A$

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.



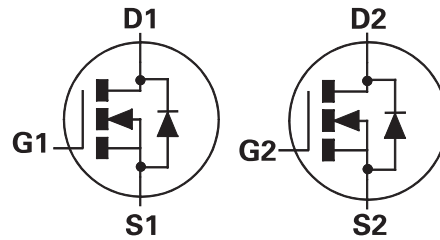
SO8

FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- Low profile SO8 package

APPLICATIONS

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

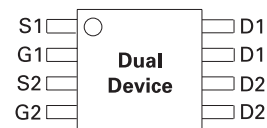


ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN6A11DN8TA	7"	12mm	500 units
ZXMN6A11DN8TC	13"	12mm	2500 units

DEVICE MARKING

- ZXMN
6A11D



Top View

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ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	60	V
Gate Source Voltage	V_{GS}	± 20	V
Continuous Drain Current $V_{GS}=10V$; $T_A=25^\circ C$ (b) $V_{GS}=10V$; $T_A=70^\circ C$ (b) $V_{GS}=10V$; $T_A=25^\circ C$ (a)	I_D	2.7 2.2 2.1	A
Pulsed Drain Current (c)	I_{DM}	8.3	A
Continuous Source Current (Body Diode) (b)	I_S	3.2	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	8.3	A
Power Dissipation at $T_A=25^\circ C$ (a)(d) Linear Derating Factor	P_D	1.25 10	mW mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (a)(e) Linear Derating Factor	P_D	1.8 14	mW mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b)(d) Linear Derating Factor	P_D	2.1 17	mW 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)(d)	$R_{\theta JA}$	100	$^\circ C/W$
Junction to Ambient (a)(e)	$R_{\theta JA}$	70	$^\circ C/W$
Junction to Ambient (b)(d)	$R_{\theta JA}$	60	$^\circ C/W$

NOTES

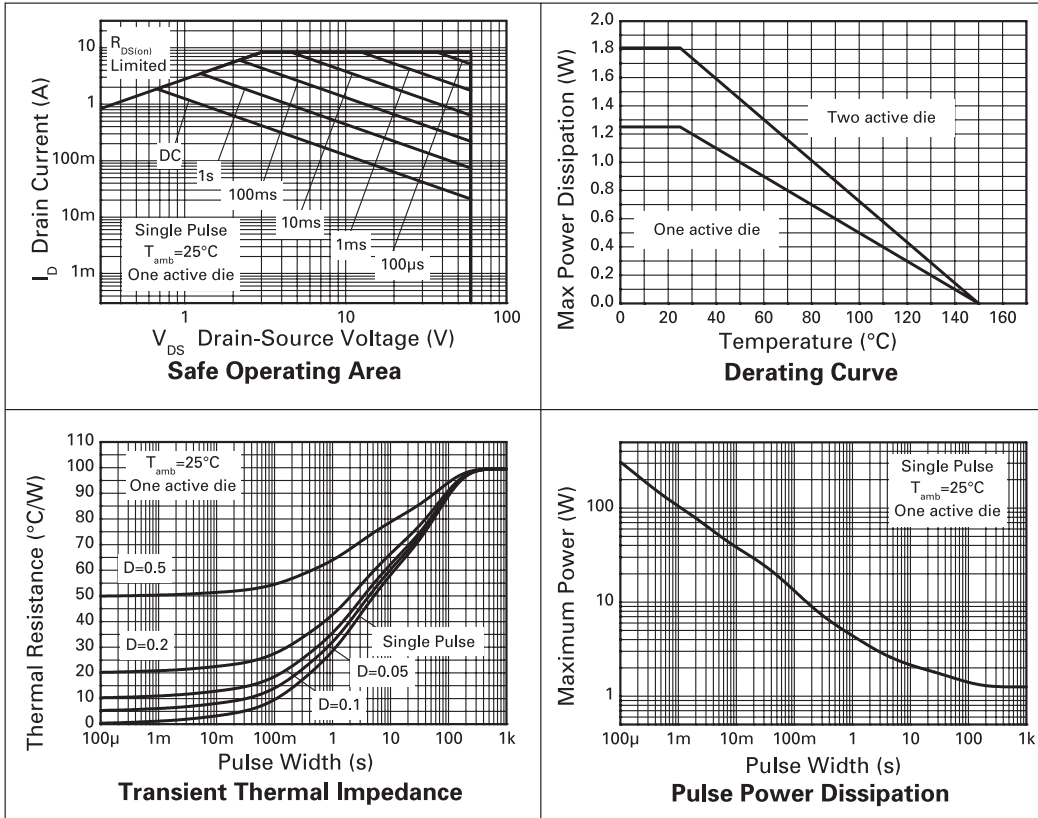
- (a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions
 (b) For a device surface mounted on FR4 PCB measured at $t \leq 10$ secs.
 (c) Repetitive rating 25mm x 25mm FR4 PCB, $D=0.05$ pulse width=10 μs - pulse width limited by maximum junction temperature.
 (d) For device with one active die
 (e) For device with two active die running at equal power.



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CHARACTERISTICS



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ELECTRICAL CHARACTERISTICS (at TA = 25°C unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60			V	$I_D=250\mu A, V_{GS}=0V$
Zero Gate Voltage Drain Current	I_{DSS}			1	μA	$V_{DS}=60V, V_{GS}=0V$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	1.0			V	$I_D=250\mu A, V_{DS}=V_{GS}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			0.14 0.25	Ω Ω	$V_{GS}=10V, I_D=4.4A$ $V_{GS}=4.5V, I_D=3.8A$
Forward Transconductance (3)	g_{fs}		4.9		S	$V_{DS}=15V, I_D=2.5A$
DYNAMIC (3)						
Input Capacitance	C_{iss}		330		pF	$V_{DS}=40V, V_{GS}=0V,$ $f=1MHz$
Output Capacitance	C_{oss}		35.0		pF	
Reverse Transfer Capacitance	C_{rss}		17.0		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	$t_{d(on)}$		1.95		ns	$V_{DD}=15V, I_D=2.5A$ $R_G=6.0\Omega, V_{GS}=10V$ (refer to test circuit)
Rise Time	t_r		3.5		ns	
Turn-Off Delay Time	$t_{d(off)}$		8.2		ns	
Fall Time	t_f		4.6		ns	
Gate Charge	Q_g		3.0		nC	$V_{DS}=15V, V_{GS}=5V,$ $I_D=2.5A$
Total Gate Charge	Q_g		5.7		nC	$V_{DS}=15V, V_{GS}=10V,$ $I_D=2.5A$ (refer to test circuit)
Gate-Source Charge	Q_{gs}		1.25		nC	
Gate-Drain Charge	Q_{gd}		0.86		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}		0.85	0.95	V	$T_J=25^\circ C, I_S=2.8A,$ $V_{GS}=0V$
Reverse Recovery Time (3)	t_{rr}		21.5		ns	$T_J=25^\circ C, I_F=2.5A,$ $di/dt=100A/\mu s$
Reverse Recovery Charge (3)	Q_{rr}		20.5		nC	

NOTES

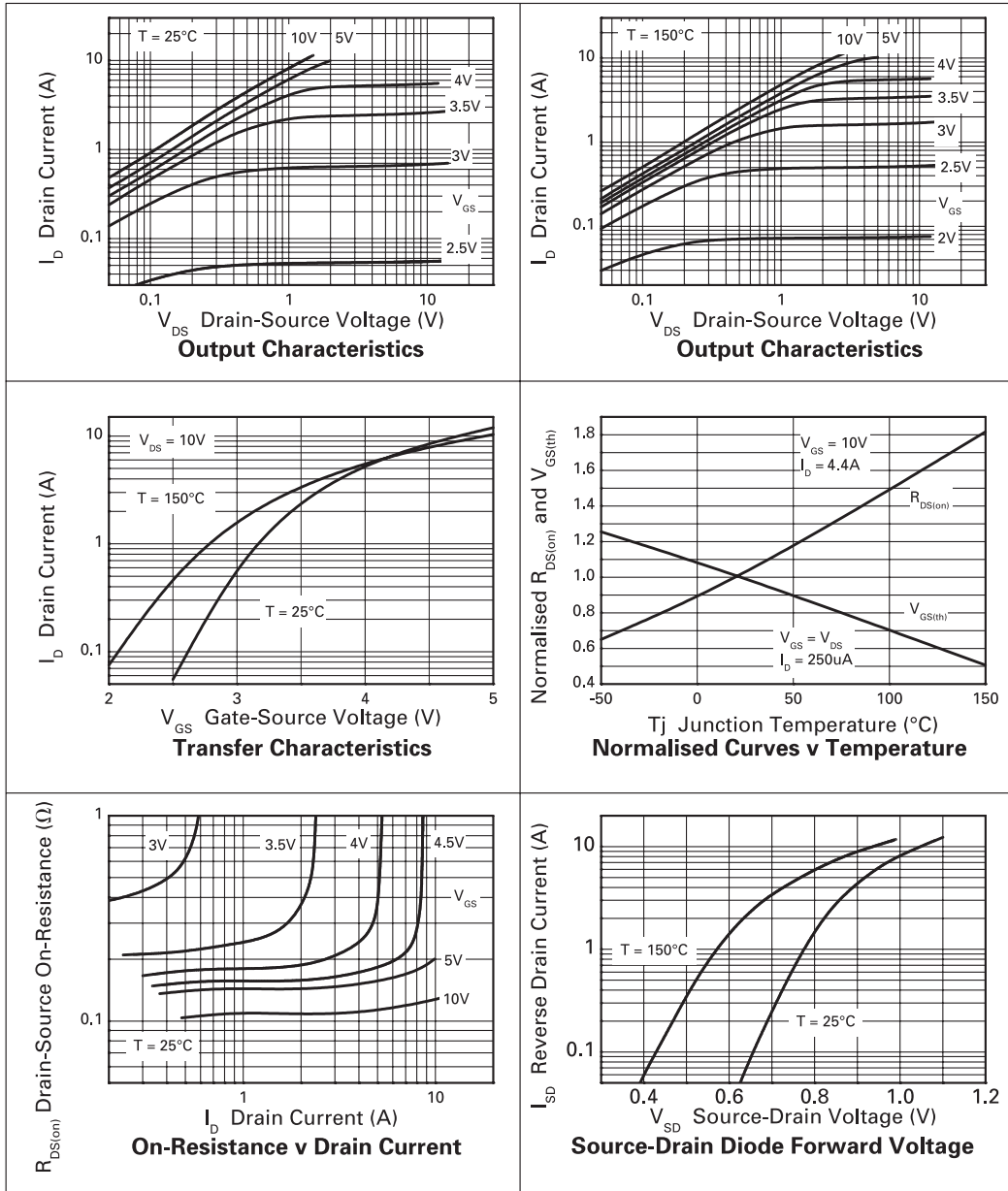
- (1) Measured under pulsed conditions. Width $\leq 300\mu s$. Duty cycle $\leq 2\%$.
 (2) Switching characteristics are independent of operating junction temperature.
 (3) For design aid only, not subject to production testing.



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TYPICAL CHARACTERISTICS

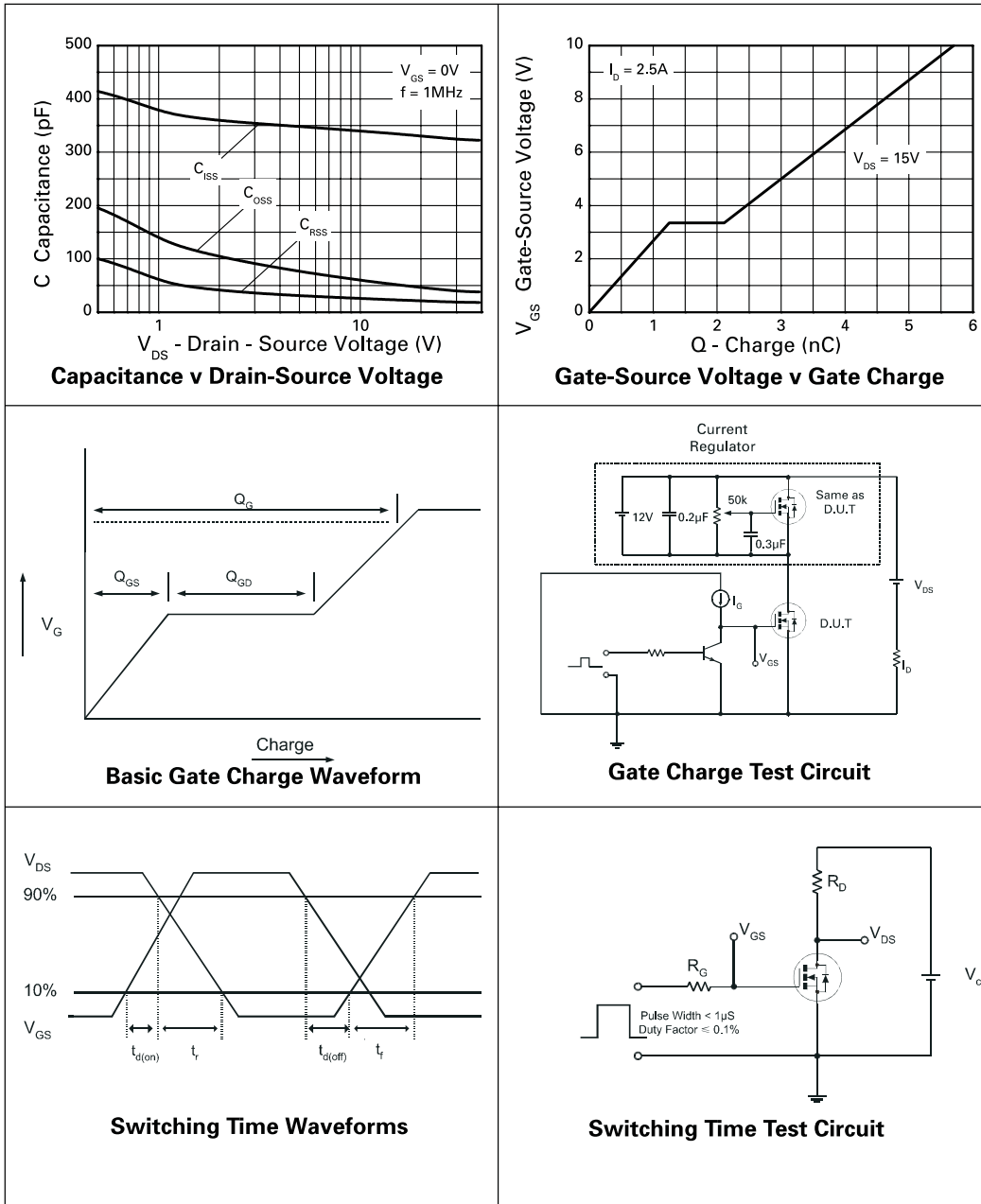


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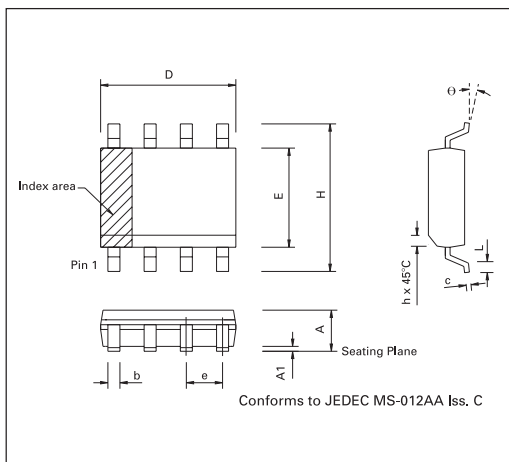
TYPICAL CHARACTERISTICS



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PACKAGE OUTLINE



PACKAGE DIMENSIONS

DIM	INCHES	
	MIN	MAX
A	0.053	0.069
A1	0.004	0.010
D	0.189	0.197
H	0.228	0.244
E	0.150	0.157
L	0.016	0.050
e	0.050 BSC	
b	0.013	0.020
c	0.008	0.010
θ	0°	8°
h	0.010	0.020

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Zetex plc
Fields New Road
Chadderton
Oldham, OL9 8NP
United Kingdom
Telephone (44) 161 622 4422
Fax: (44) 161 622 4420

Zetex GmbH
Streitfeldstraße 19
D-81673 München
Germany
Telefon: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49

Zetex Inc
700 Veterans Memorial Hwy
Hauppauge, NY11788
USA
Telephone: (631) 360 2222
Fax: (631) 360 8222

Zetex (Asia) Ltd
3701-04 Metroplaza, Tower 1
Hing Fong Road
Kwai Fong
Hong Kong
Telephone: (852) 26100 611
Fax: (852) 24250 494

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