

ZXMN6A11DN8

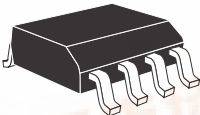
60V N-CHANNEL ENHANCEMENT MODE MOSFET

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.



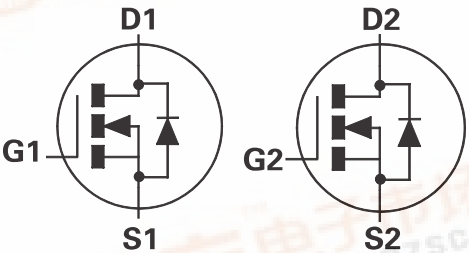
SO8

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

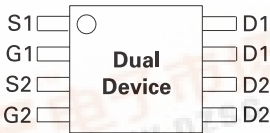


ORDERING INFORMATION

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

DEVICE MARKING

- ZXMN
6A11D



Top View



ZXMN6A11DN8

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.

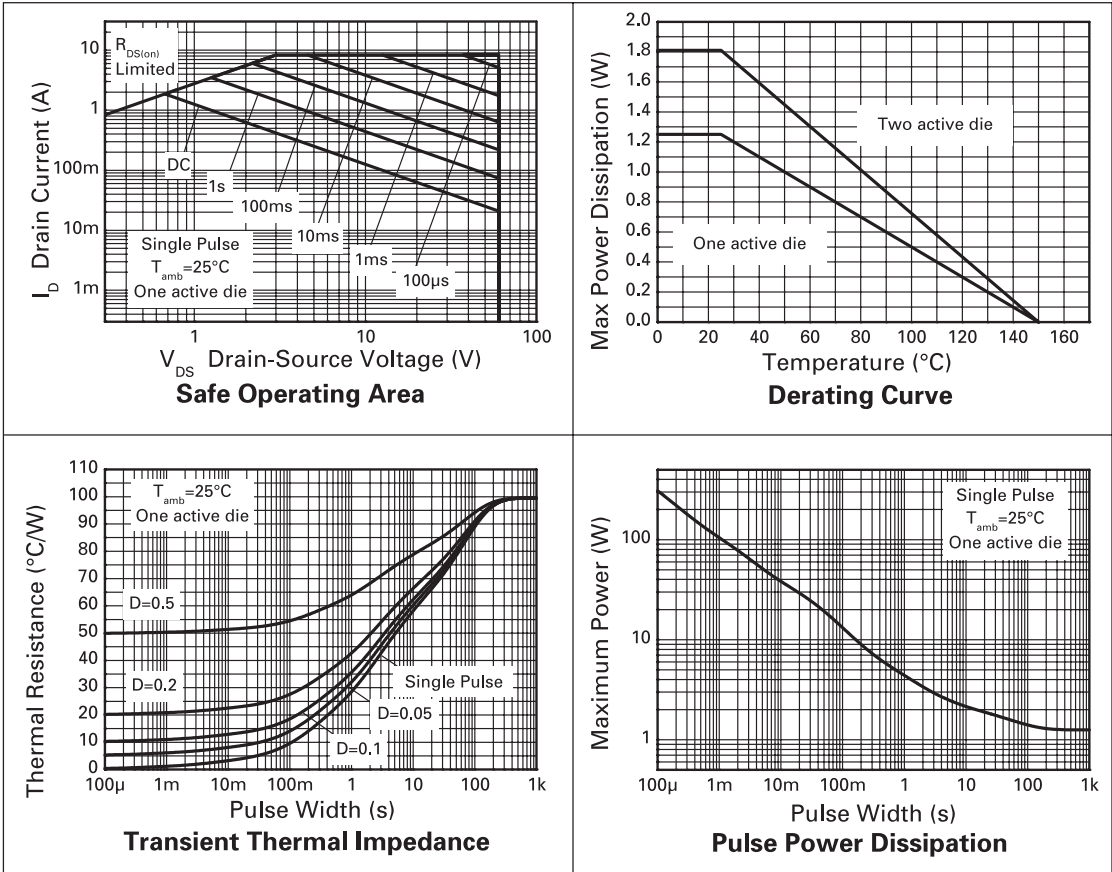
(c) Repetitive rating 25mm x 25mm FR4 PCB, D=0.05 pulse width=10 μ s - pulse width limited by maximum junction temperature.

(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)

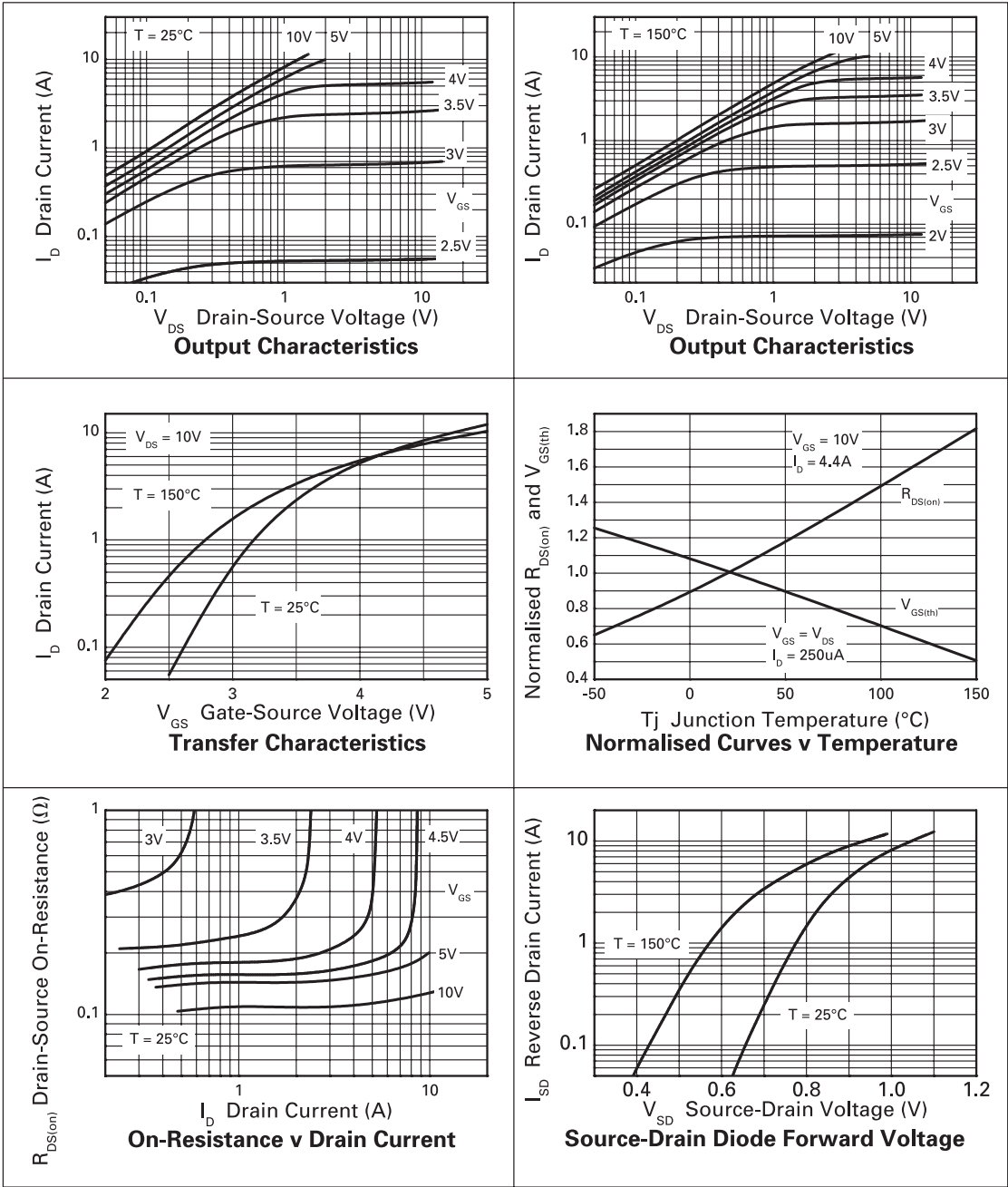
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	60			V	I _D =250μA, V _{GS} =0V
Zero Gate Voltage Drain Current	I _{DSS}			1	μA	V _{DS} =60V, V _{GS} =0V
Gate-Body Leakage	I _{GSS}			100	nA	V _{GS} =±20V, V _{DS} =0V
Gate-Source Threshold Voltage	V _{GS(th)}	1.0			V	I _D =250μA, 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} =40 V, 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 =6.0Ω, 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°C, I _S =2.8A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		21.5		ns	T _J =25°C, I _F =2.5A, di/dt= 100A/μs
Reverse Recovery Charge (3)	Q _{rr}		20.5		nC	

NOTES

- (1) Measured under pulsed conditions. Width $\leq$ 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.

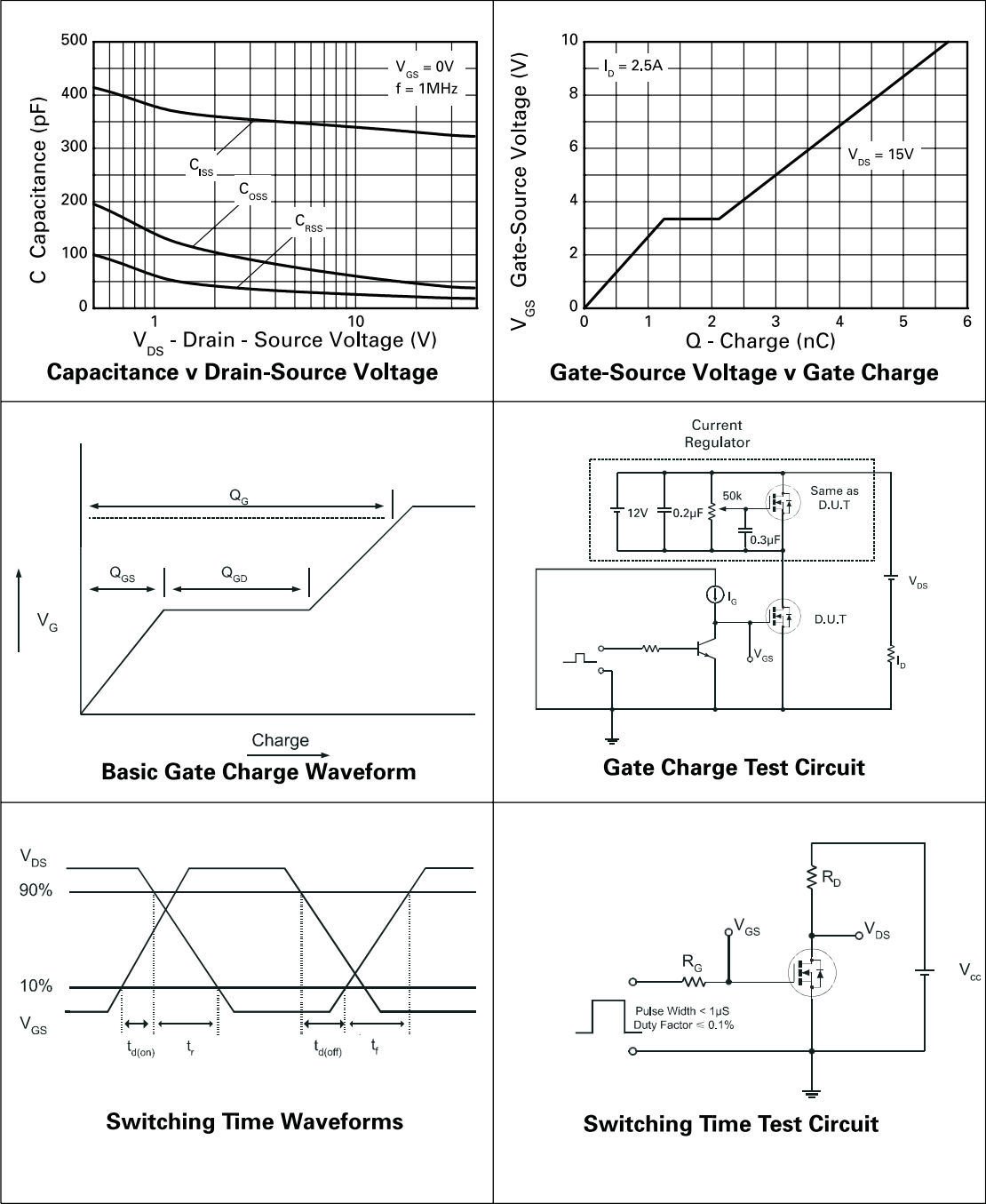
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TYPICAL CHARACTERISTICS



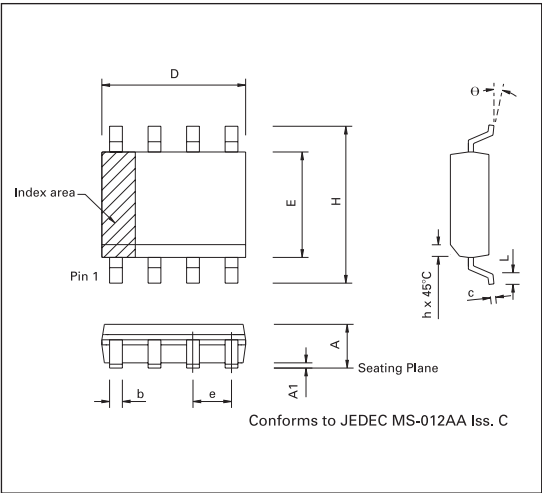
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TYPICAL CHARACTERISTICS



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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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