

ZXMN10A08DN8

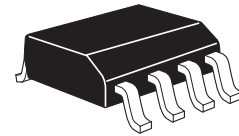
100V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 100V$; $R_{DS(ON)} = 0.25\Omega$ $I_D = 2.1A$

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.



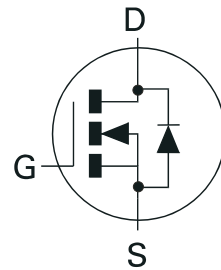
SO8

FEATURES

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

APPLICATIONS

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



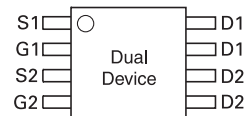
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN10A08DN8TA	7"	12mm	500 units
ZXMN10A08DN8TC	13"	12mm	2,500 units

DEVICE MARKING

- ZXMN
10A08D

PINOUT



Top View

ZXMN10A08DN8

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-source voltage	V_{DSS}	100	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	2.1 1.7 1.6	A
Pulsed drain current ^(c)	I_{DM}	9	A
Continuous source current (body diode) ^(b)	I_S	2.6	A
Pulsed source current (body diode) ^(c)	I_{SM}	9	A
Power dissipation at $T_A=25^\circ C$ ^(a) Linear derating factor	P_D	1.25 10	W mW/ $^\circ C$
Power dissipation at $T_A=25^\circ C$ ^(b) Linear derating factor	P_D	1.8 14.5	W 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)	$R_{\theta JA}$	100	$^\circ C/W$
Junction to ambient (b)	$R_{\theta JA}$	69	$^\circ C/W$

NOTES

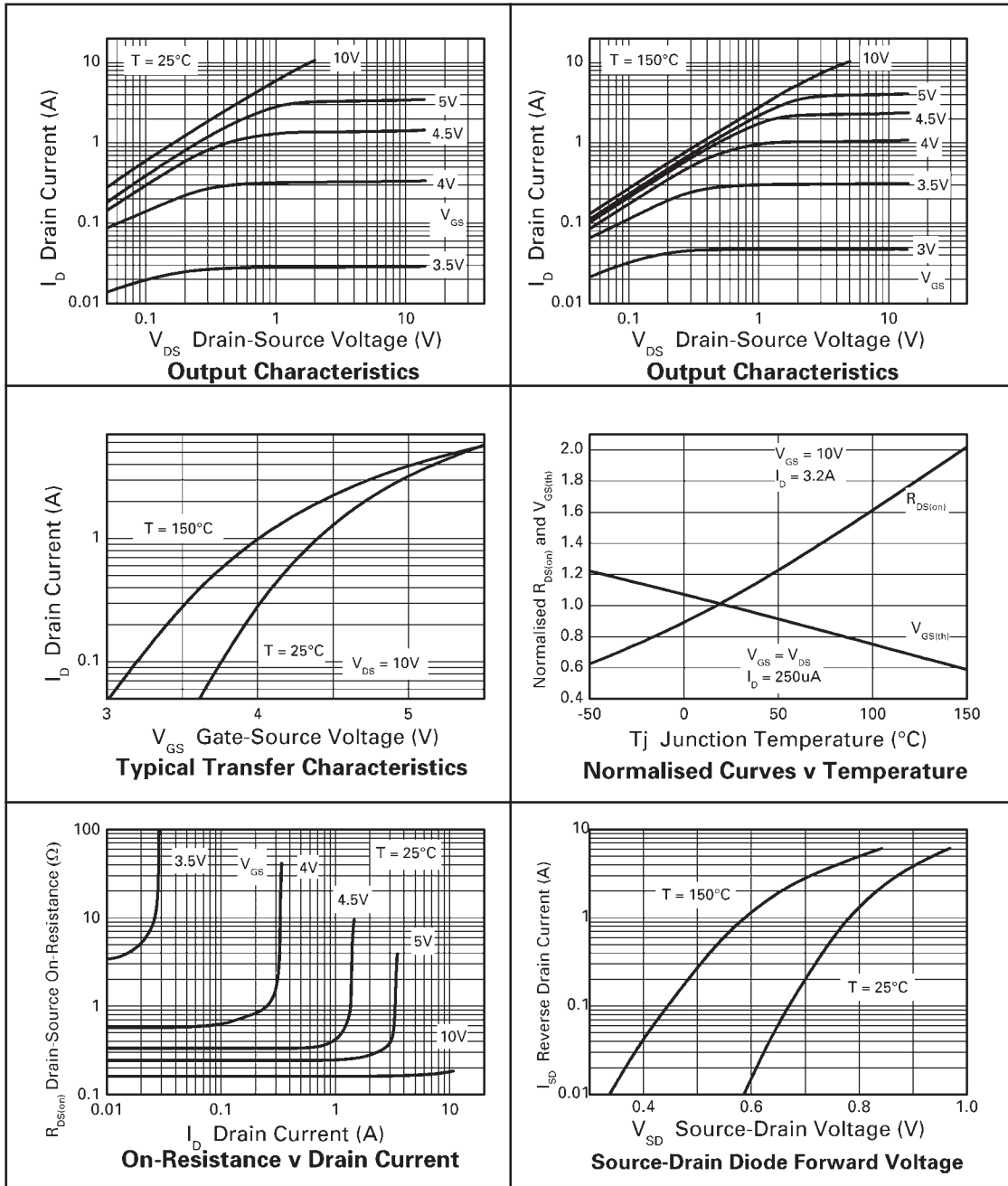
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at $t \leq 5$ secs.

(c) Repetitive rating 25mm x 25mm FR4 PCB, $D = 0.02$, pulse width 300 μs - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph

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TYPICAL CHARACTERISTICS



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

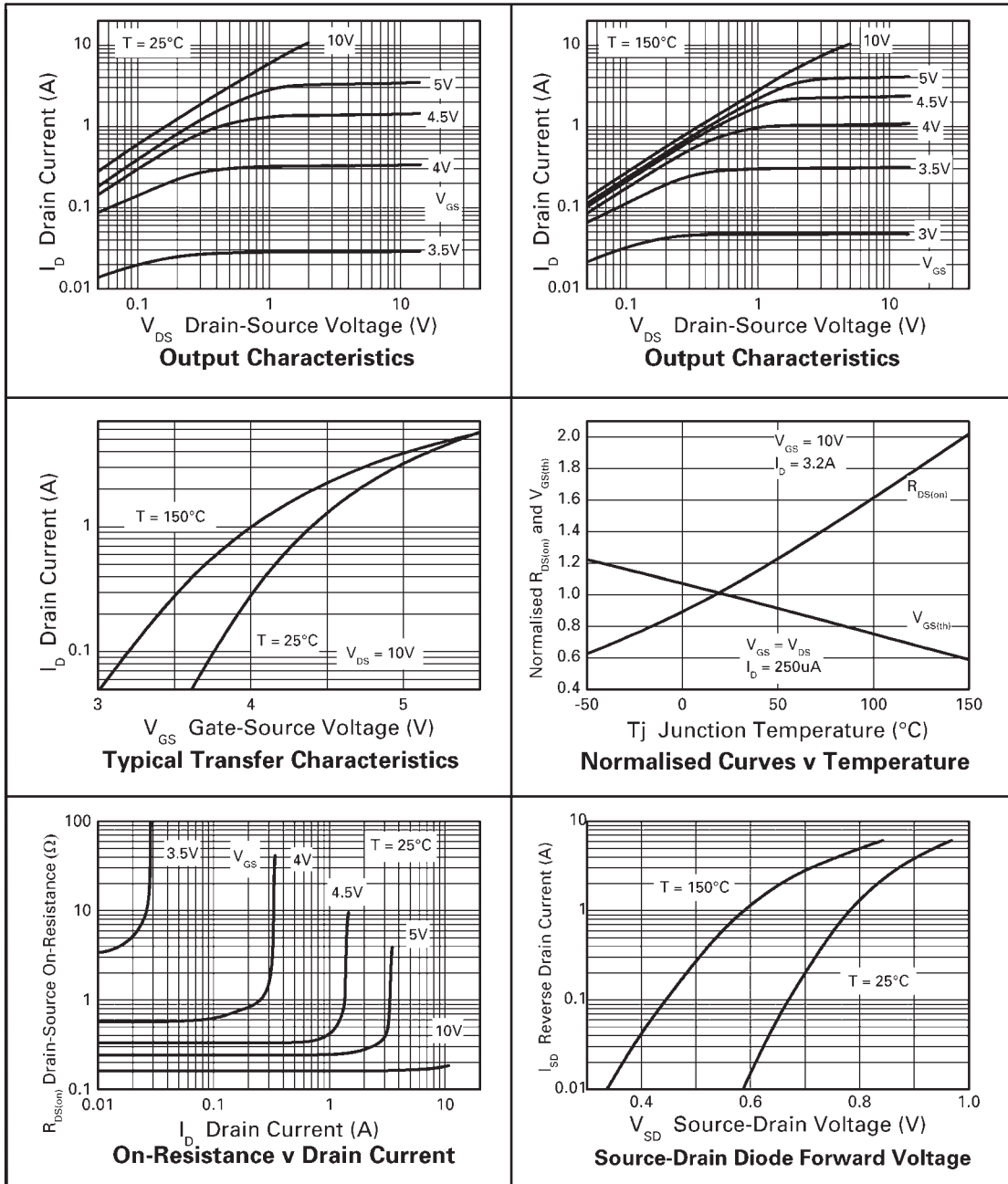
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-source breakdown voltage	V _{(BR)DSS}	100			V	I _D =250μA, V _{GS} =0V
Zero gate voltage drain current	I _{DSS}			0.5	μA	V _{DS} =100V, V _{GS} =0V
Gate-body leakage	I _{GSS}			100	nA	V _{GS} =±20V, V _{DS} =0V
Gate-source threshold voltage	V _{GS(th)}	2.0			V	I _D =250μA, V _{DS} = V _{GS}
Static drain-source on-state resistance ⁽¹⁾	R _{DS(on)}			0.25 0.30	Ω Ω	V _{GS} =10V, I _D =3.2A V _{GS} =6V, I _D =2.6A
Forward transconductance ⁽¹⁾⁽³⁾	g _{fs}		5.0		S	V _{DS} =15V, I _D =3.2A
DYNAMIC ⁽³⁾						
Input capacitance	C _{iss}		405		pF	V _{DS} =50 V, V _{GS} =0V, f=1MHz
Output capacitance	C _{oss}		28.2		pF	
Reverse transfer capacitance	C _{rss}		14.2		pF	
SWITCHING ^{(2) (3)}						
Turn-on delay time	t _{d(on)}		3.4		ns	V _{DD} =30V, I _D =1.2A R _G =6.0Ω, V _{GS} =10V
Rise time	t _r		2.2		ns	
Turn-off delay time	t _{d(off)}		8		ns	
Fall time	t _f		3.2		ns	
Gate charge	Q _g		4.2		nC	V _{DS} =50V, V _{GS} =5V, I _D =1.2A
Total gate charge	Q _g		7.7		nC	V _{DS} =50V, V _{GS} =10V, I _D =1.2A
Gate-source charge	Q _{gs}		1.8		nC	
Gate-drain charge	Q _{gd}		2.1		nC	
SOURCE-DRAIN DIODE						
Diode forward voltage ⁽¹⁾	V _{SD}		0.87	0.95	V	T _J =25°C, I _S =3.2A, V _{GS} =0V
Reverse recovery time ⁽³⁾	t _{rr}		27		ns	T _J =25°C, I _F =1.2A, di/dt= 100A/μs
Reverse recovery charge ⁽³⁾	Q _{rr}		32		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.

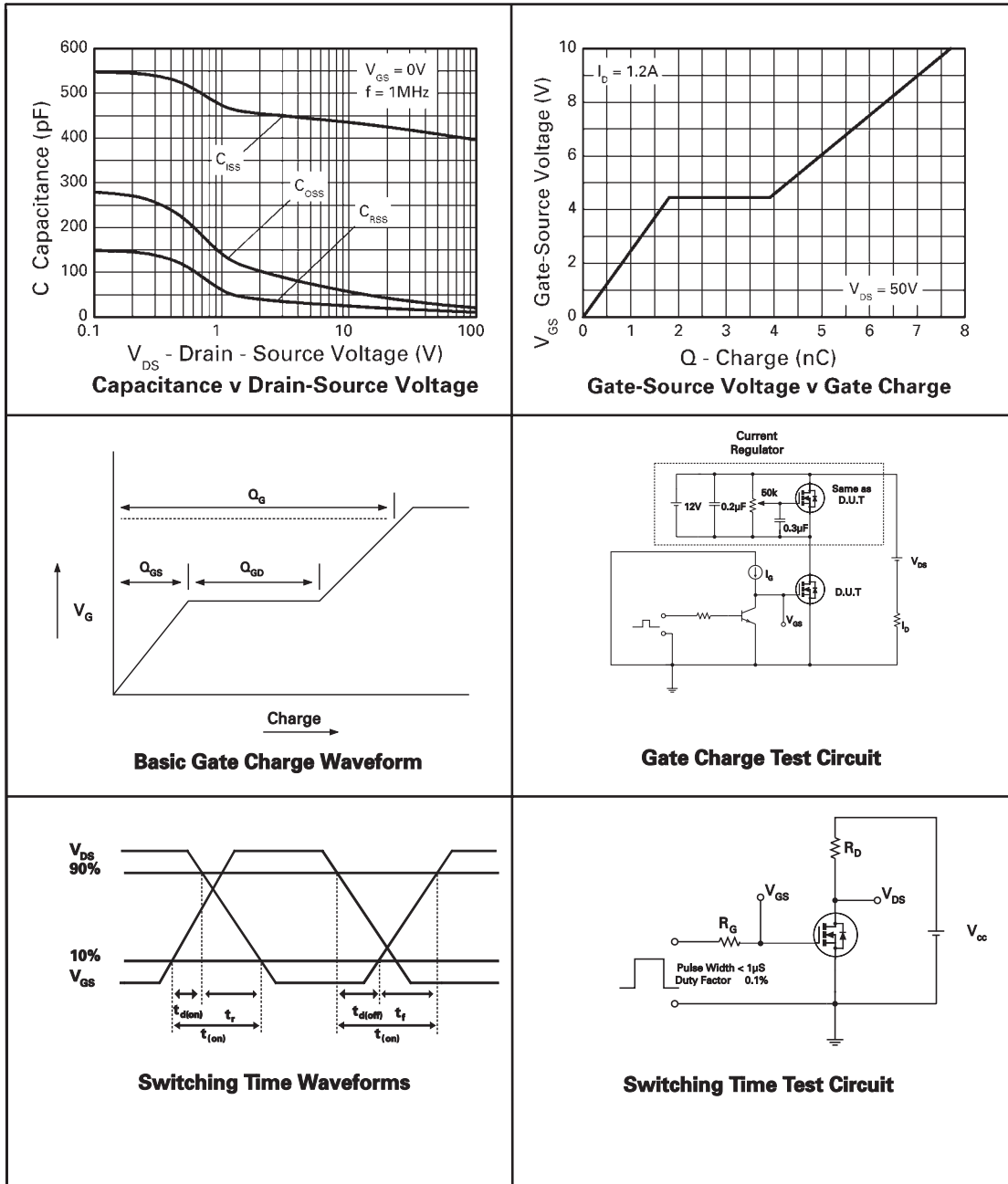
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TYPICAL CHARACTERISTICS



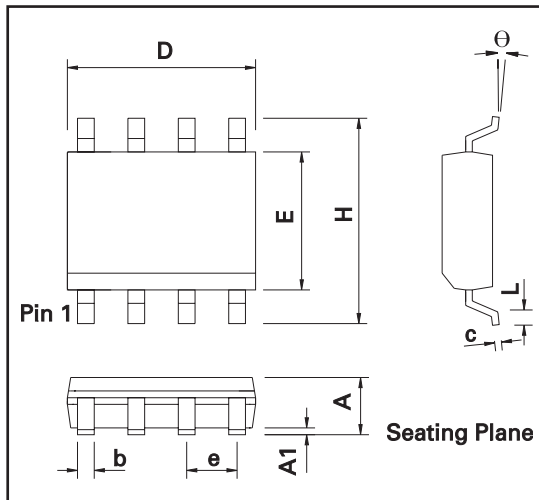
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TYPICAL CHARACTERISTICS



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PACKAGE OUTLINE



CONTROLLING DIMENSIONS IN MILLIMETERS APPROX CONVERSIONS INCHES

PACKAGE DIMENSIONS

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	1.35	1.75	0.053	0.069	e	1.27 BSC		0.050 BSC	
A1	0.10	0.25	0.004	0.010	b	0.33	0.51	0.013	0.020
D	4.80	5.00	0.189	0.197	c	0.19	0.25	0.008	0.010
H	5.80	6.20	0.228	0.244	θ	0°	8°	0°	8°
E	3.80	4.00	0.150	0.157	h	0.25	0.50	0.010	0.020
L	0.40	1.27	0.016	0.050	-	-	-	-	-

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