

ZXMN10A11G

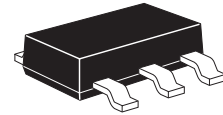
100V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 100V$; $R_{DS(ON)} = 0.35\Omega$ $I_D = 2.4A$

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.



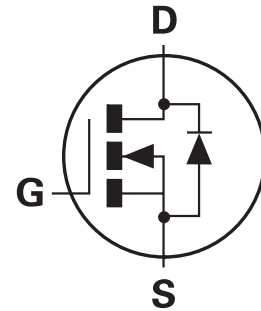
SOT223

FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- SOT223 package

APPLICATIONS

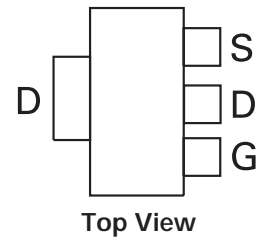
- DC - DC converters
- Power management functions
- Relay and solenoid driving
- Motor control



ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN10A11GTA	7"	12mm	1000 units
ZXMN10A11GTC	13"	12mm	4000 units

PINOUT



DEVICE MARKING

- ZXMN
10A11

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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	2.4 1.9 1.7	A
Pulsed drain current ^(c)	I_{DM}	7.9	A
Continuous source current (body diode) ^(b)	I_S	4.6	A
Pulsed source current (body diode) ^(c)	I_{SM}	7.9	A
Power dissipation at $T_A=25^\circ C$ ^(a) Linear derating factor	P_D	2 16	W mW/ $^\circ C$
Power dissipation at $T_A=25^\circ C$ ^(b) Linear derating factor	P_D	3.9 31	W mW/ $^\circ C$
Operating and storage temperature range	$T_J; T_{stg}$	-55 to +150	$^\circ C$

THERMAL RESISTANCE

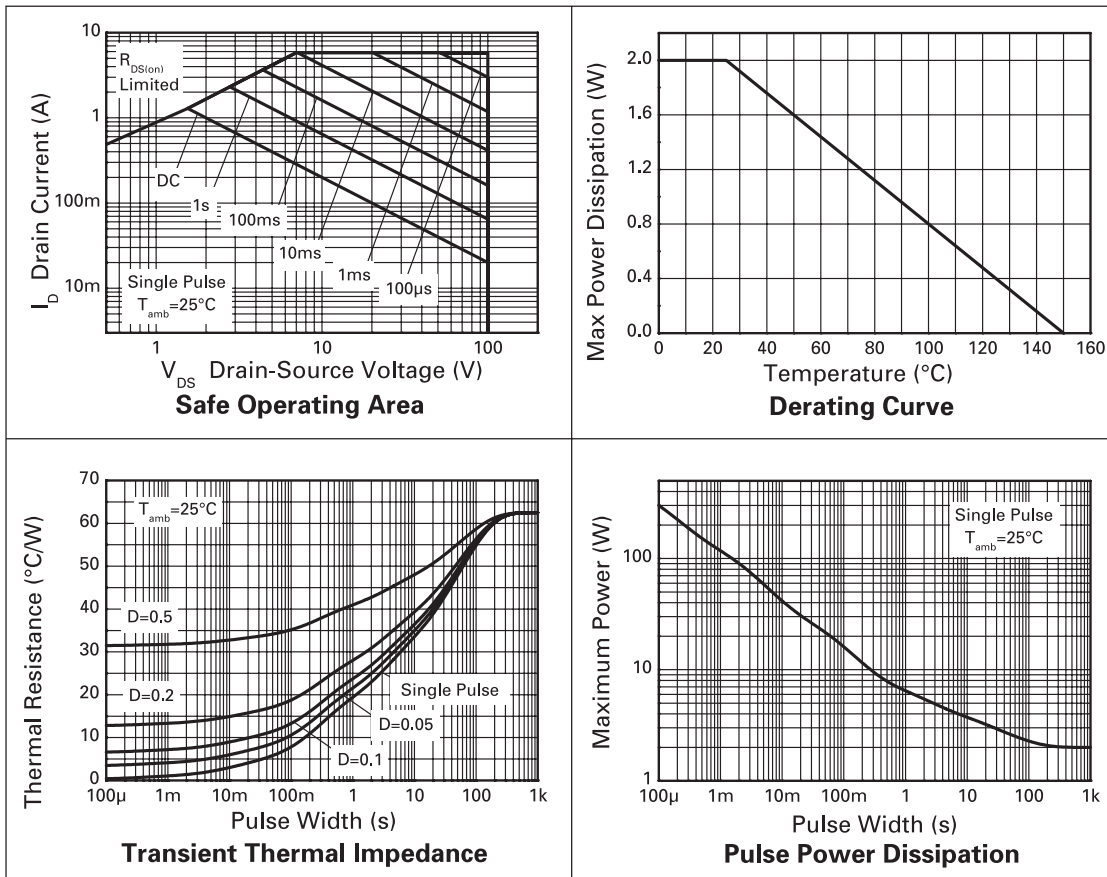
PARAMETER	SYMBOL	VALUE	UNIT
Junction to ambient ^(a)	$R_{\theta JA}$	62.5	$^\circ C/W$
Junction to ambient ^(b)	$R_{\theta JA}$	32	$^\circ C/W$

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, $D=0.02$ pulse width = 300 μs - pulse width limited by maximum junction temperature. Refer to transient Thermal Impedance graph.

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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	$V_{(BR)DSS}$	100			V	$I_D=250\mu A, V_{GS}=0V$
Zero gate voltage drain current	I_{DSS}			1	μA	$V_{DS}=100V, V_{GS}=0V$
Gate-body leakage	I_{GSS}			100	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Gate-source threshold voltage	$V_{GS(th)}$	2.0		4.0	V	$I_D=250\mu A, V_{DS}=V_{GS}$
Static drain-source On-State resistance ⁽¹⁾	$R_{DS(on)}$			0.35 0.45	Ω Ω	$V_{GS}=10V, I_D=2.6A$ $V_{GS}=6V, I_D=1.3A$
Forward transconductance ⁽³⁾	g_{fs}		4		S	$V_{DS}=15V, I_D=2.6A$
DYNAMIC ⁽³⁾						
Input capacitance	C_{iss}		274		pF	$V_{DS}=50V, V_{GS}=0V,$ $f=1MHz$
Output capacitance	C_{oss}		21		pF	
Reverse transfer capacitance	C_{rss}		11		pF	
SWITCHING ^{(2) (3)}						
Turn-on delay time	$t_{d(on)}$		2.7		ns	$V_{DD}=50V, I_D=1A$ $R_G=6.0\Omega, V_{GS}=10V$
Rise time	t_r		1.7		ns	
Turn-off delay time	$t_{d(off)}$		7.4		ns	
Fall time	t_f		3.5		ns	
Gate charge	Q_g		3		nC	$V_{DS}=50V, V_{GS}=5V,$ $I_D=2.5A$
Total gate charge	Q_g		5.4		nC	$V_{DS}=50V, V_{GS}=10V,$ $I_D=2.5A$
Gate-source charge	Q_{gs}		1.4		nC	
Gate-drain charge	Q_{gd}		1.5		nC	
SOURCE-DRAIN DIODE						
Diode forward voltage ⁽¹⁾	V_{SD}		0.85	0.95	V	$T_J=25^\circ C, I_S=1.85A,$ $V_{GS}=0V$
Reverse recovery time ⁽³⁾	t_{rr}		26		ns	$T_J=25^\circ C, I_F=1.0A,$ $di/dt=100A/\mu s$
Reverse recovery charge ⁽³⁾	Q_{rr}		30		nC	

NOTES:

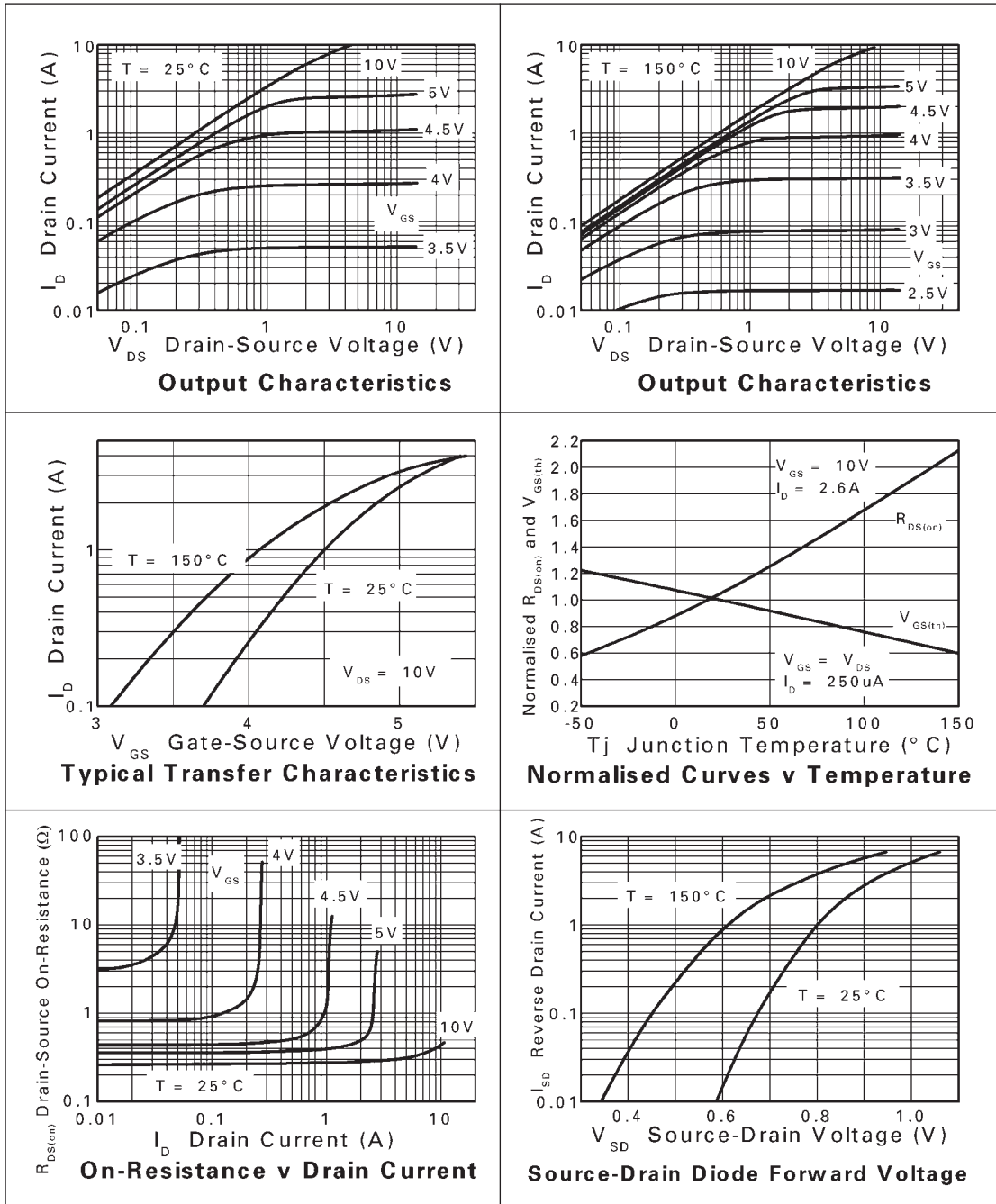
(1) Measured under pulsed conditions. Width $\leq 300\mu s$. Duty cycle $\leq 2\%$.

(2) Switching characteristics are independent of operating junction temperature.

(3) For design aid only, not subject to production testing.

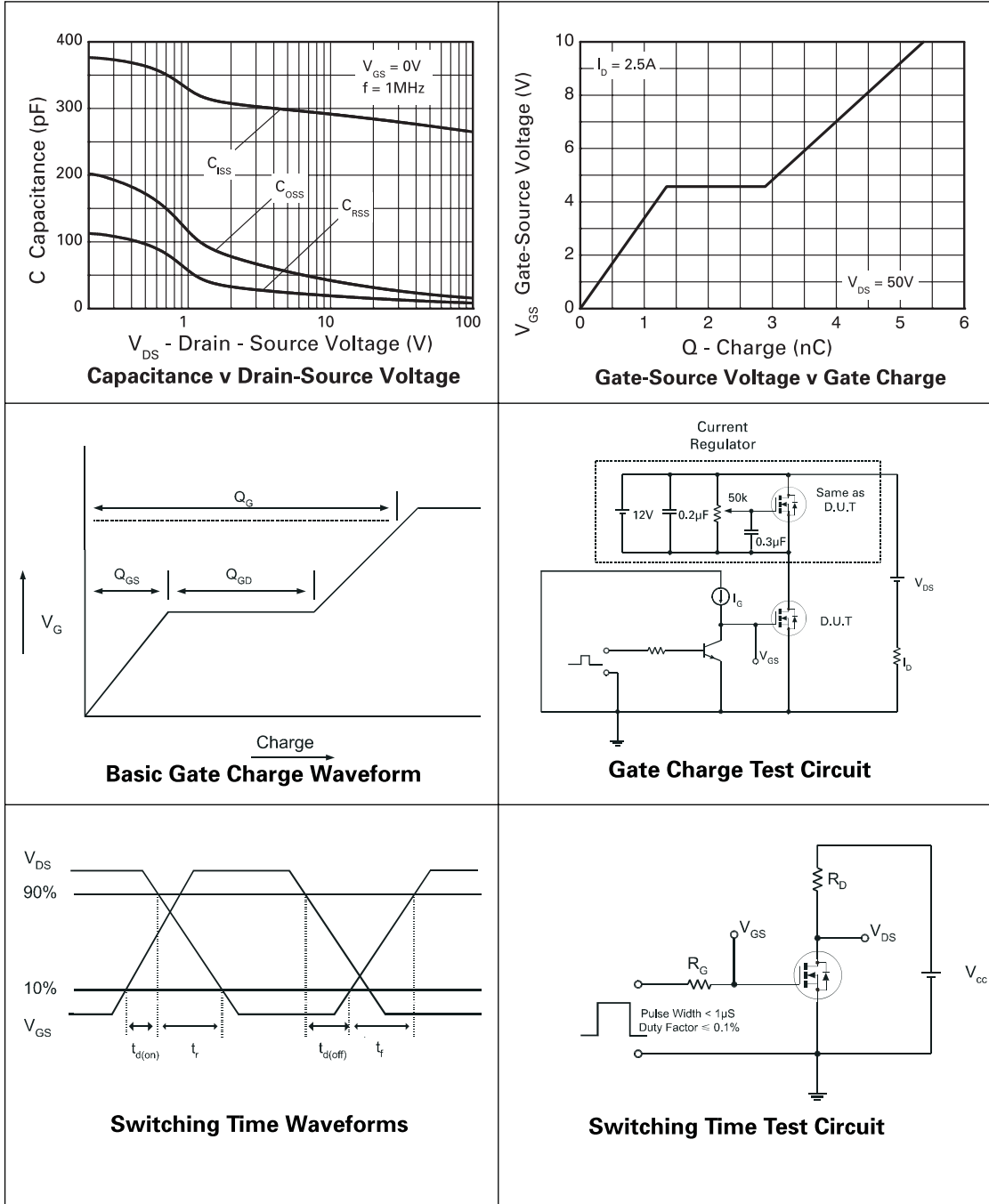
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TYPICAL CHARACTERISTICS



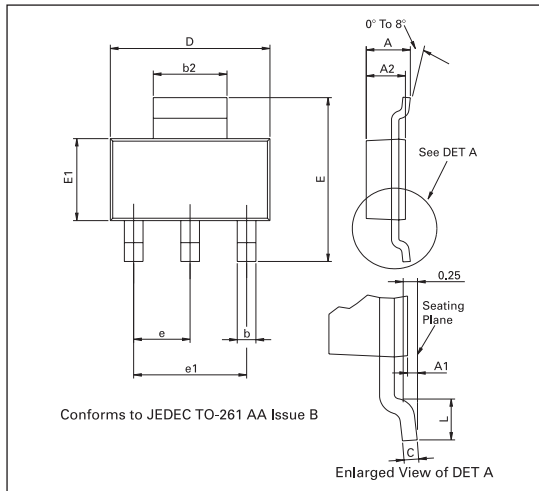
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TYPICAL CHARACTERISTICS



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PACKAGE OUTLINE



PACKAGE DIMENSIONS

DIM	Millimeters		Inches		DIM	Millimeters		Inches	
	Min	Max	Min	Max		Min	Max	Min	Max
A	-	1.80	-	0.071	e	2.30 BSC		0.0905 BSC	
A1	0.02	0.10	0.0008	0.004	e1	4.60 BSC		0.181 BSC	
b	0.66	0.84	0.026	0.033	E	6.70	7.30	0.264	0.287
b2	2.90	3.10	0.114	0.122	E1	3.30	3.70	0.130	0.146
C	0.23	0.33	0.009	0.013	L	0.90	-	0.355	-
D	6.30	6.70	0.248	0.264	-	-	-	-	-

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