

ZXMN10A11G

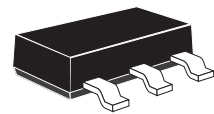
100V N-CANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 100V$; $R_{DS(ON)} = 0.6\Omega$ $I_D = 1.8A$

DESCRIPTION

This new generation of TRENCH MOSFETs from Zetex utilises 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.



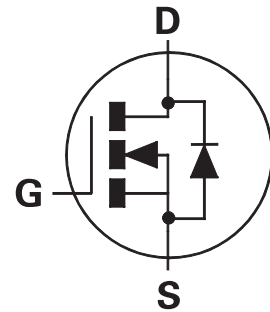
SOT223

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

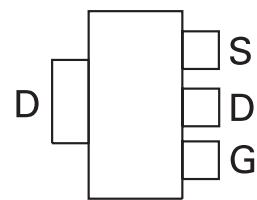


ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN10A11GFTA	7"	12mm	1000 units
ZXMN10A11GFTC	13"	12mm	4000 units

DEVICE MARKING

- ZXMN
10A11



Top View

ZXMN10A11G

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	1.8 1.4 1.3	A
Pulsed Drain Current (c)	I_{DM}	5.8	A
Continuous Source Current (Body Diode) (b)	I_S	4.6	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	5.8	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

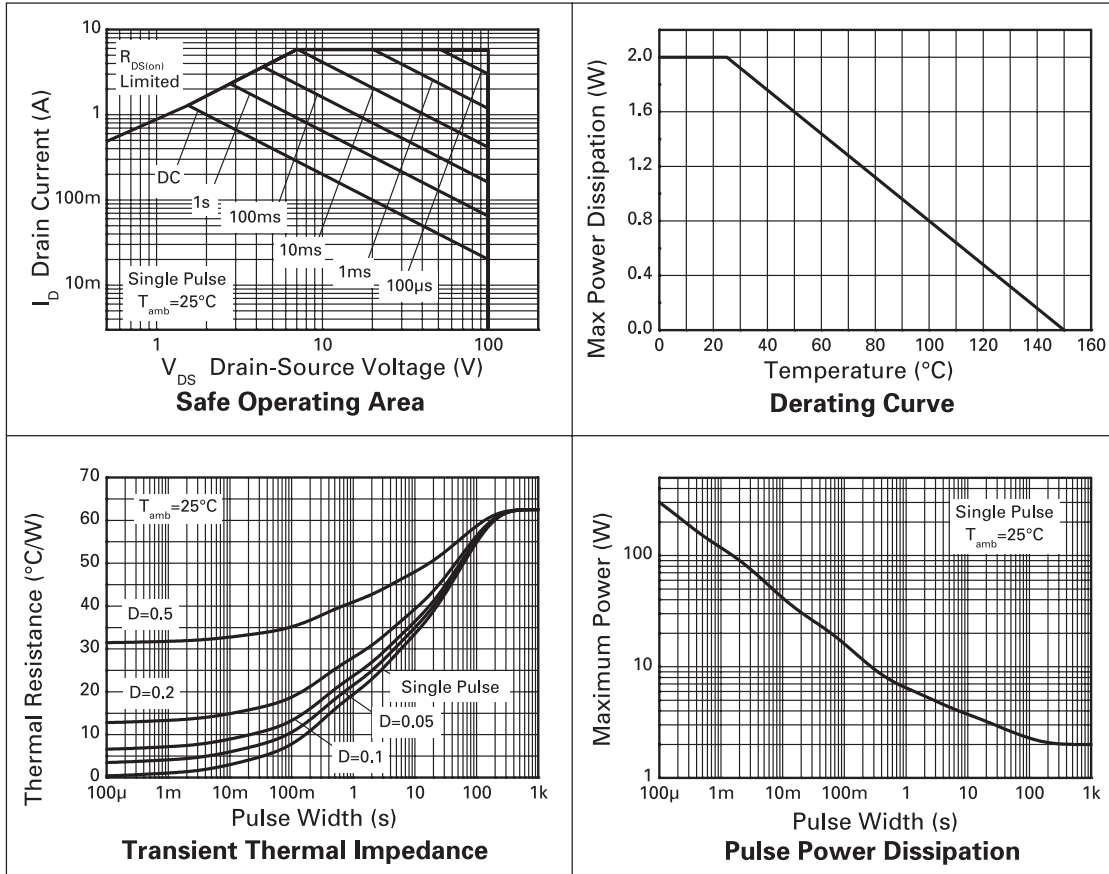
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at $t \leq 10$ secs.

(c) Repetitive rating 25mm x 25mm FRA PCB, $D=0.05$ pulse width = $10\mu s$ - 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)

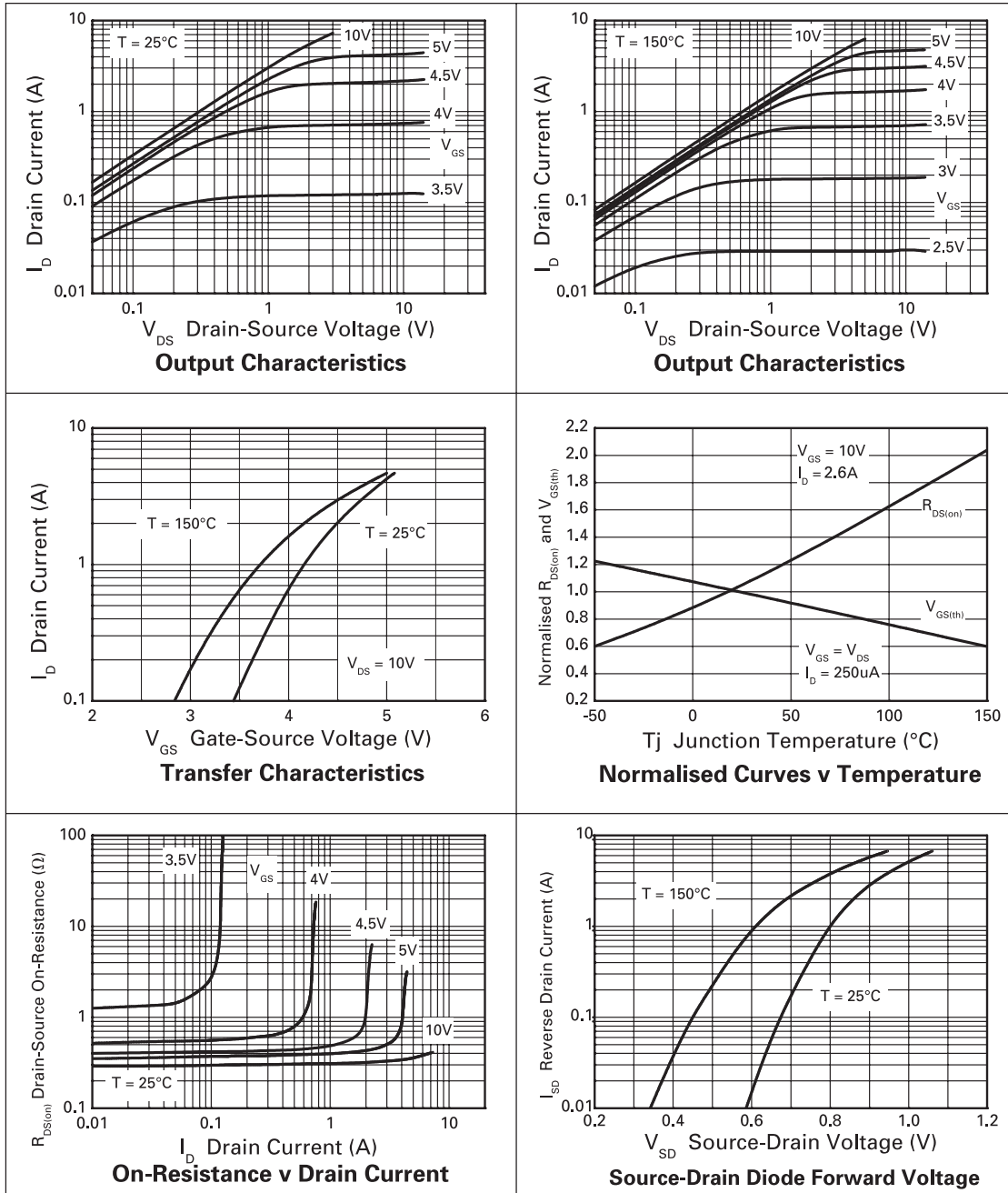
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	100			V	$I_D=250\mu A, V_{GS}=0V$
Zero Gate Voltage Drain Current	I_{DSS}			1	μA	$V_{DS}=100V, V_{GS}=0V$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	2.0		4.0	V	$I_D=250\mu A, V_{DS}=V_{GS}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			0.60 0.70	Ω Ω	$V_{GS}=10V, I_D=2.6A$ $V_{GS}=6V, I_D=1.3A$
Forward Transconductance (3)	g_{fs}		3.95		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.

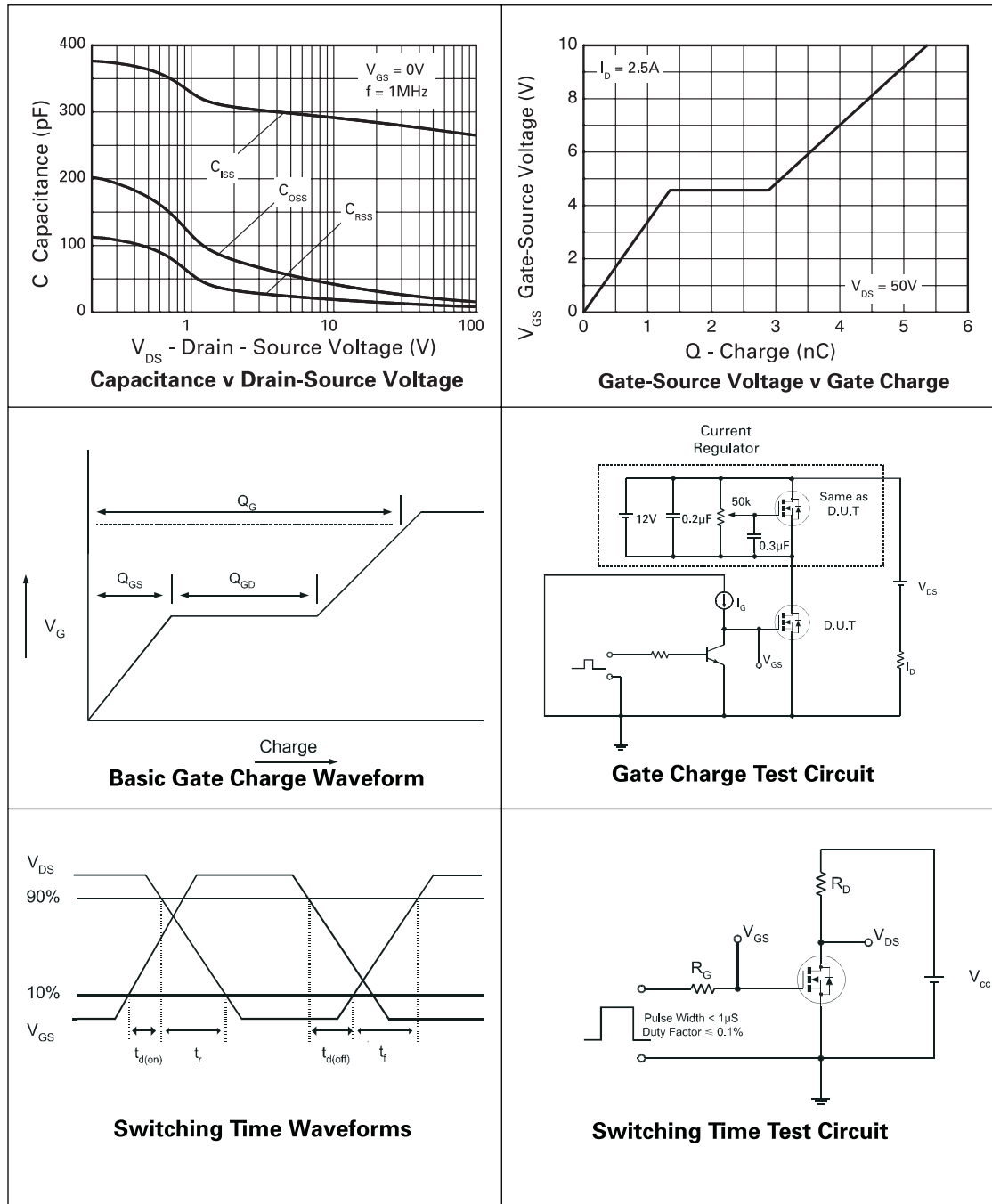
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TYPICAL CHARACTERISTICS



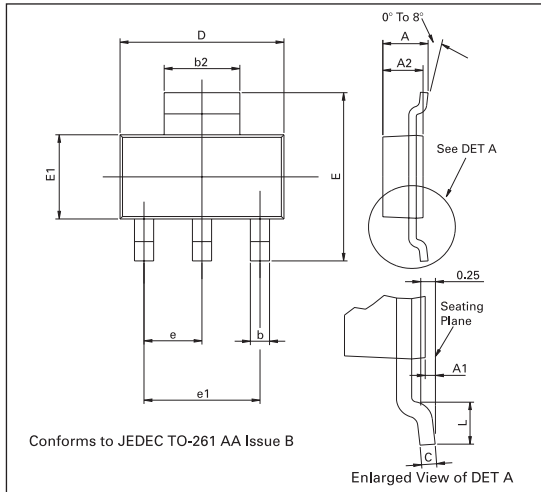
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TYPICAL CHARACTERISTICS



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PACKAGE OUTLINE



PACKAGE DIMENSIONS

DIM	MILLIMETRES	
	MIN	MAX
A	—	1.80
A1	0.02	0.10
A2	1.55	1.65
b	0.66	0.84
b2	2.90	3.10
C	0.23	0.33
D	6.30	6.70
e	2.30 BASIC	
e1	4.60 BASIC	
E	6.70	7.30
E1	3.30	3.70
L	0.90	—

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ISSUE 1 - MARCH 2002

ZETEX