

ZXMN6A11G

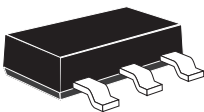
60V N-CANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 60V$; $R_{DS(ON)} = 0.14\Omega$ $I_D = 3.8A$

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.



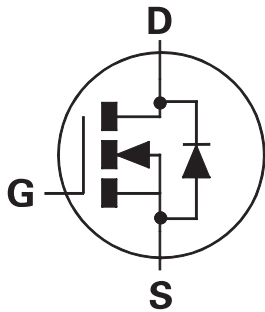
SOT223

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

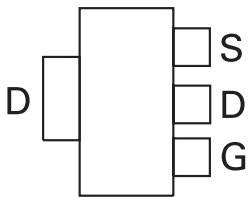


ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN6A11GFTA	7"	12mm	1000 units
ZXMN6A11GFTC	13"	12mm	4000 units

DEVICE MARKING

- ZXMN
6A11



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	3.8 3.0 2.7	A
Pulsed Drain Current (c)	I_{DM}	10	A
Continuous Source Current (Body Diode) (b)	I_S	5	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	10	A
Power Dissipation at $T_A=25^{\circ}C$ (a) Linear Derating Factor	P_D	2.0 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

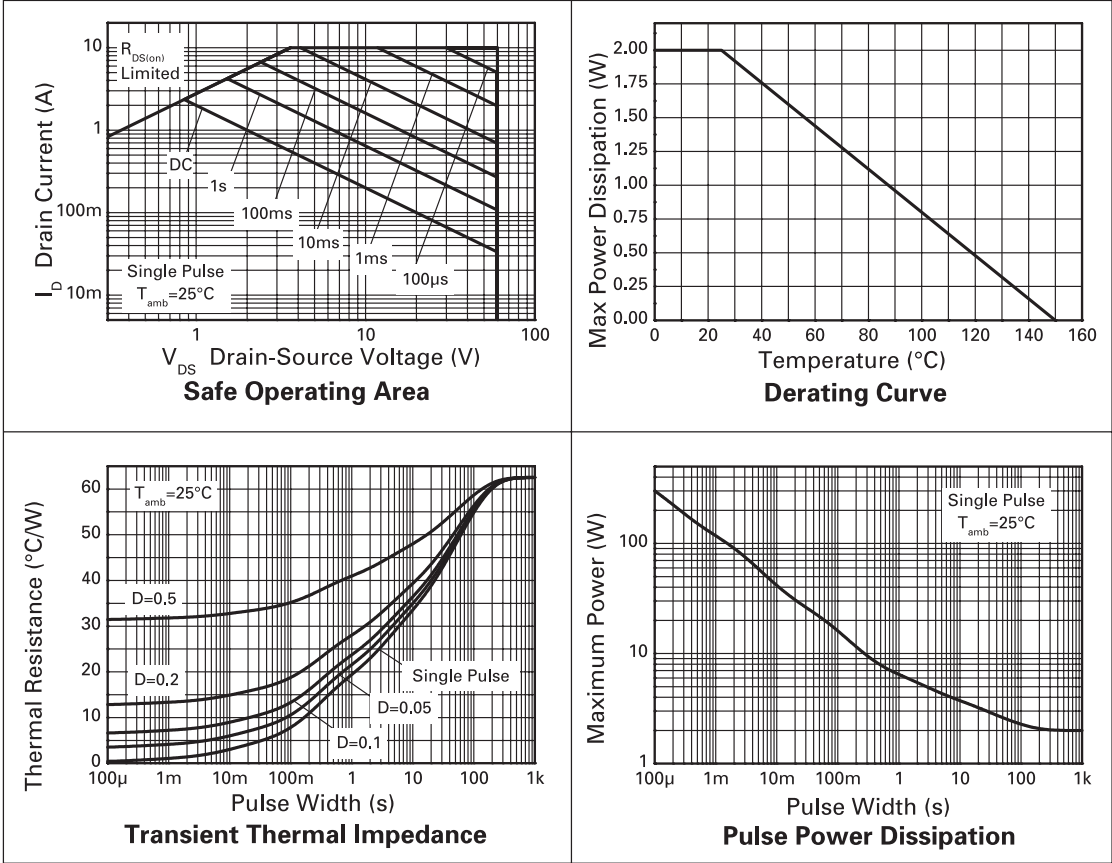
PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	62.5	$^{\circ}C/W$
Junction to Ambient (b)	$R_{\theta JA}$	32	$^{\circ}C/W$

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 $t \leq 5$ secs.
 (c) Repetitive rating 25mm x 25mm FRA PCB, $D=0.05$ pulse width = 10 μs - pulse width limited by maximum junction temperature.

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CHARACTERISTICS



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

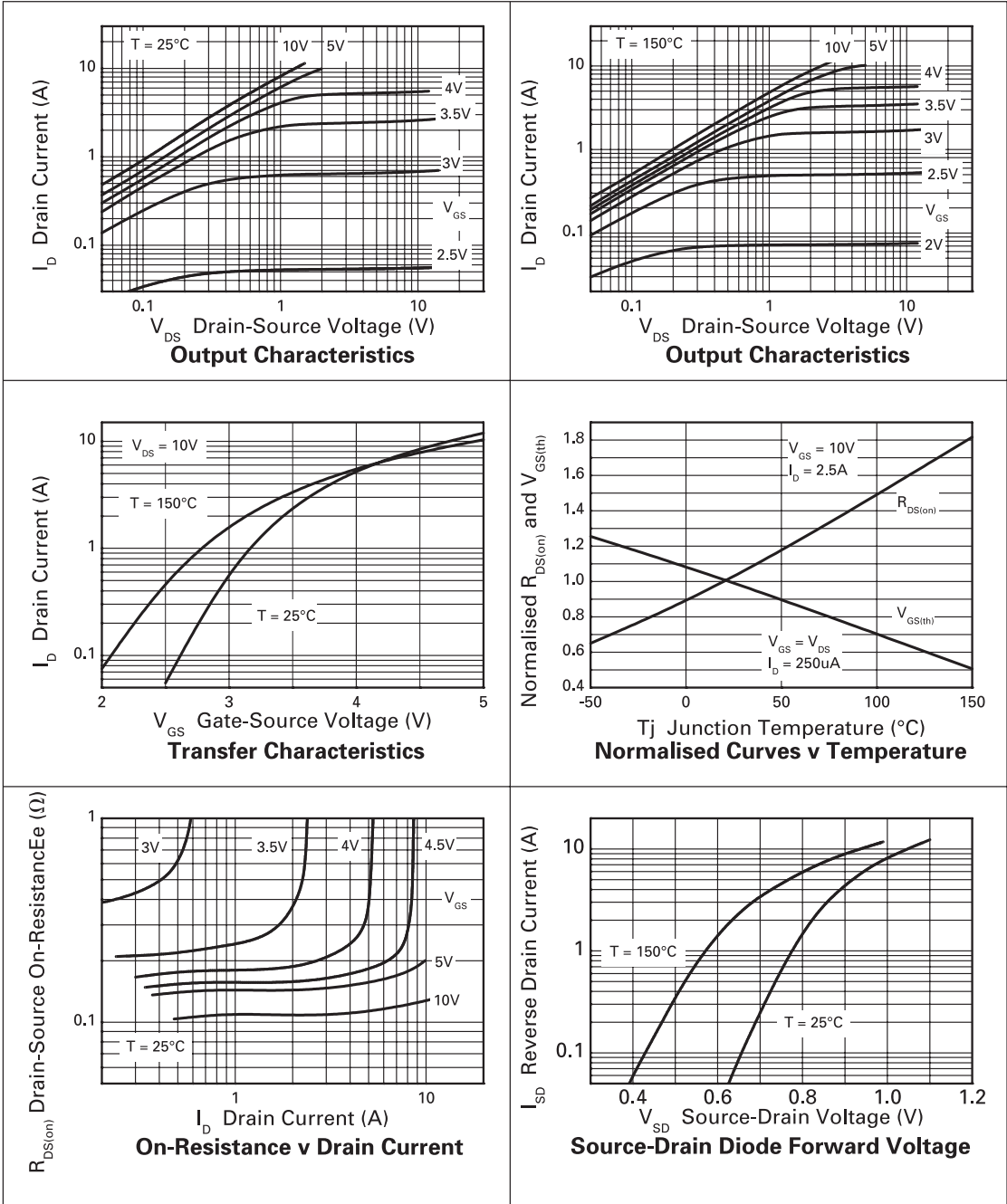
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V(BR)DSS	60			V	ID=250μA, VGS=0V
Zero Gate Voltage Drain Current	IDSS			1	μA	VDS=60V, VGS=0V
Gate-Body Leakage	IGSS			100	nA	VGS=±20V, VDS=0V
Gate-Source Threshold Voltage	VGS(th)	1.0			V	ID=250μA, VDS= VGS
Static Drain-Source On-State Resistance (1)	RDS(on)			0.140 0.250	Ω Ω	VGS=10V, ID=4.4A VGS=4.5V, ID=3.8A
Forward Transconductance (3)	gfs		4.9		S	VDS=15V,ID=2.5A
DYNAMIC (3)						
Input Capacitance	Ciss		330		pF	VDS=40 V, VGS=0V, f=1MHz
Output Capacitance	Coss		35.2		pF	
Reverse Transfer Capacitance	Crss		17.1		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	td(on)		1.95		ns	VDD =30V, ID=2.5A RG=6.0Ω, VGS=10V (refer to test circuit)
Rise Time	tr		3.5		ns	
Turn-Off Delay Time	td(off)		8.2		ns	
Fall Time	tf		4.6		ns	
Gate Charge	Qg		3.0		nC	VDS=15V, VGS=5V, ID=2.5A
Total Gate Charge	Qg		5.7		nC	VDS=15V,VGS=10V, ID=2.5A (refer to test circuit)
Gate-Source Charge	Qgs		1.25		nC	
Gate-Drain Charge	Qgd		0.86		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	VSD		0.85	0.95	V	TJ=25°C, IS=2.8A, VGS=0V
Reverse Recovery Time (3)	trr		21.5		ns	TJ=25°C, IF=2.5A, di/dt= 100A/μs
Reverse Recovery Charge (3)	Qrr		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.

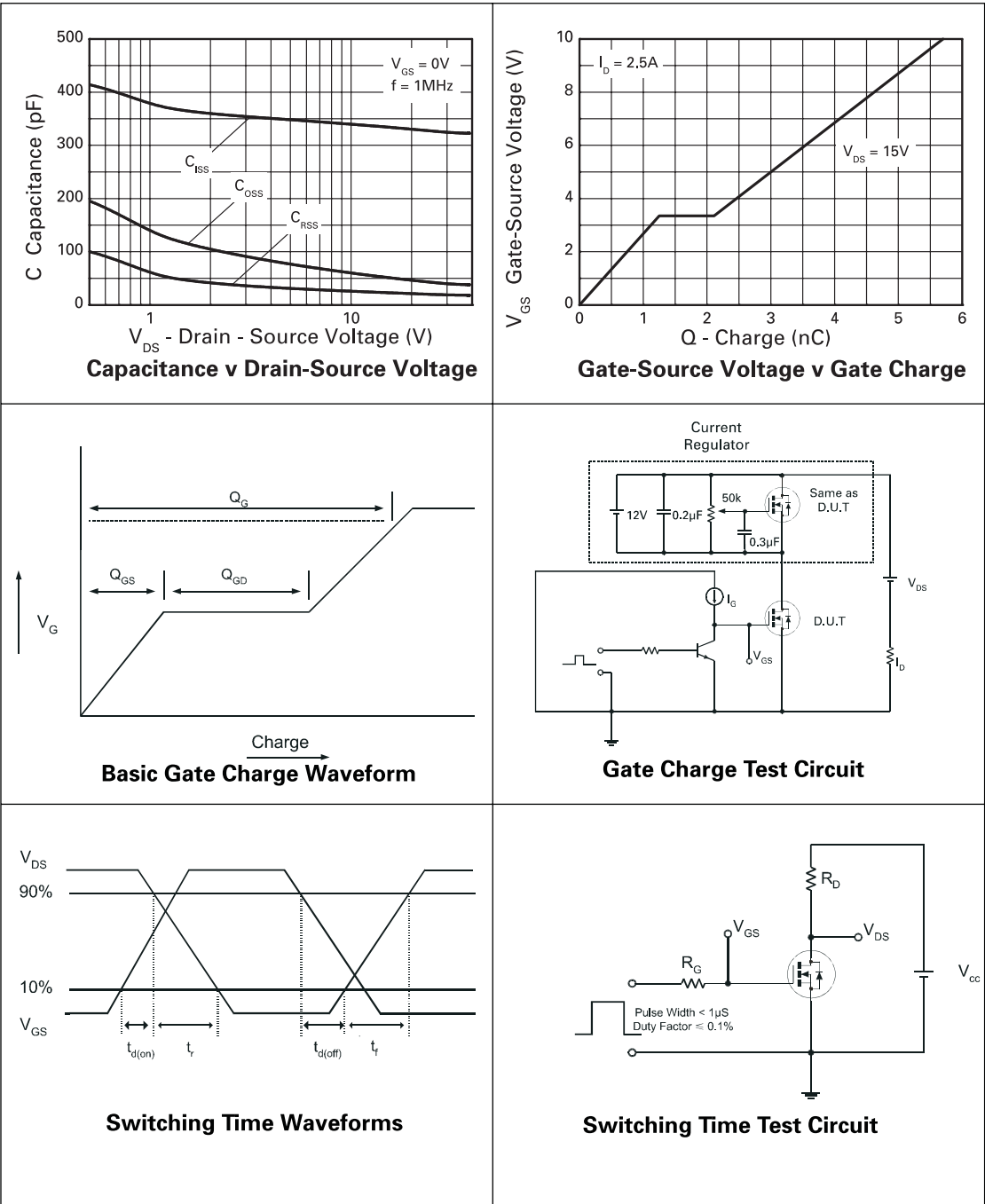
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TYPICAL CHARACTERISTICS



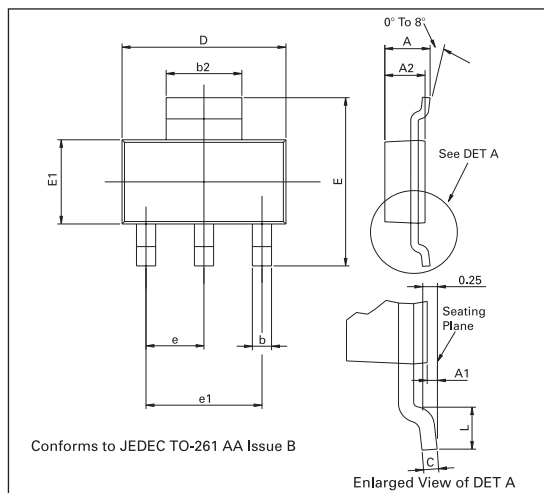
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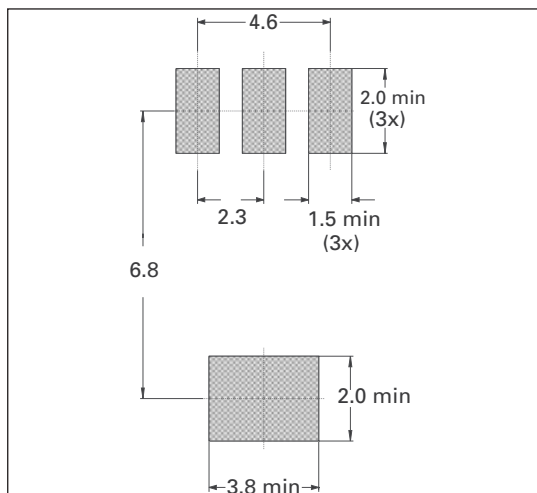


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PACKAGE OUTLINE



PAD LAYOUT DETAILS



PACKAGE DIMENSIONS

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

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