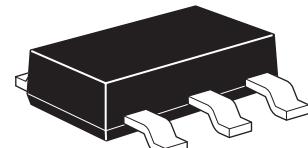


ZXMN6A25G

60V SOT223 N-channel enhancement mode MOSFET

Summary

$V_{(BR)DSS}$	$R_{DS(on)}$ (Ω)	I_D (A)
60	0.050 @ $V_{GS} = 10V$	6.7
	0.070 @ $V_{GS} = 4.5V$	5.7



Description

This new generation trench MOSFET from Zetex features a unique structure combining the benefits of low on-resistance and fast switching, making it ideal for high efficiency power management applications.

Features

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

Applications

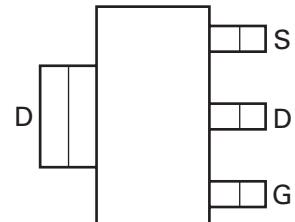
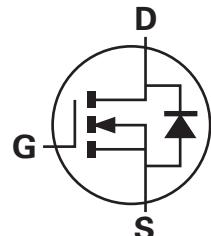
- DC-DC converters
- Power management functions
- Disconnect switches
- Motor control

Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXMN6A25GTA	7	12	1,000

Device marking

ZXMN
6A25



Pinout - top view

Absolute maximum ratings

Thermal resistance

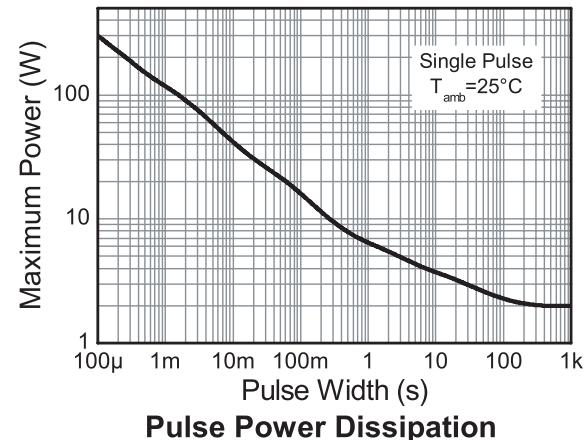
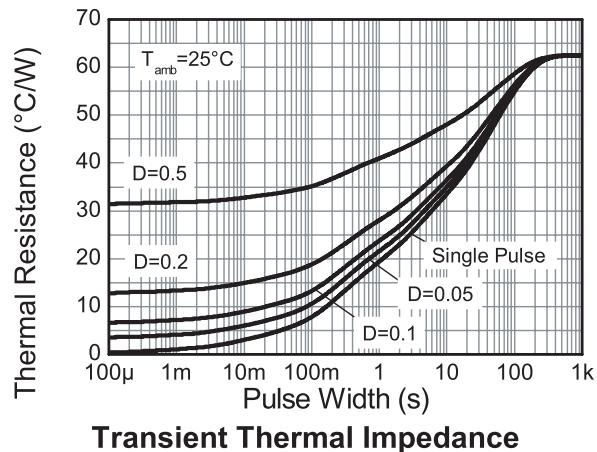
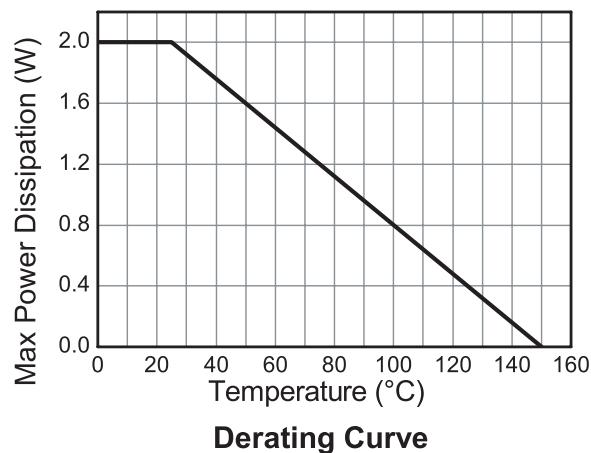
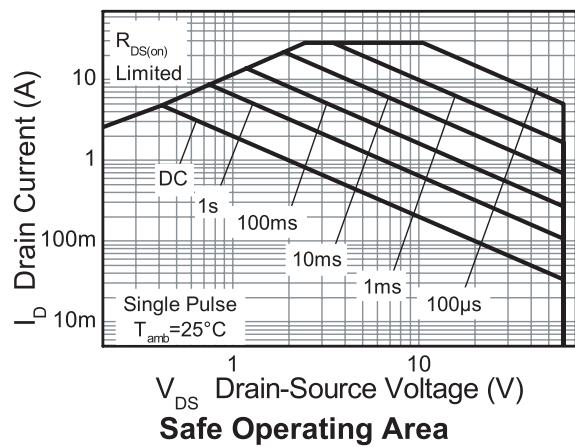
Parameter	Symbol	Limit	Unit
Junction to ambient	$R_{\Theta JA}$	62.5	°C/W
Junction to ambient	$R_{\Theta JA}$	32	°C/W

NOTES:

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 $t \leq 10$ sec.
- (c) Repetitive rating - 25mm x 25mm FR4 PCB, $D=0.02$, pulse width 300 μ s - pulse width limited by maximum junction temperature.

Typical characteristics



ZXMN6A25G

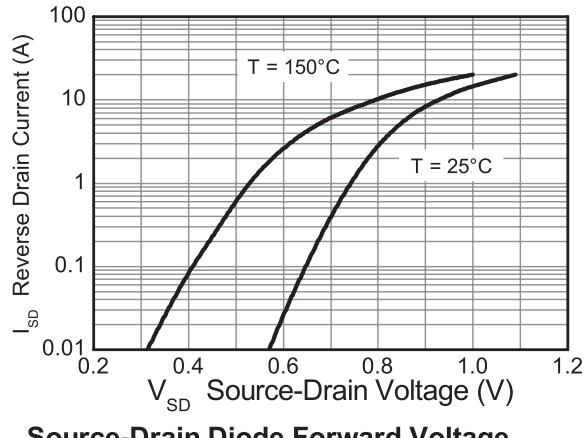
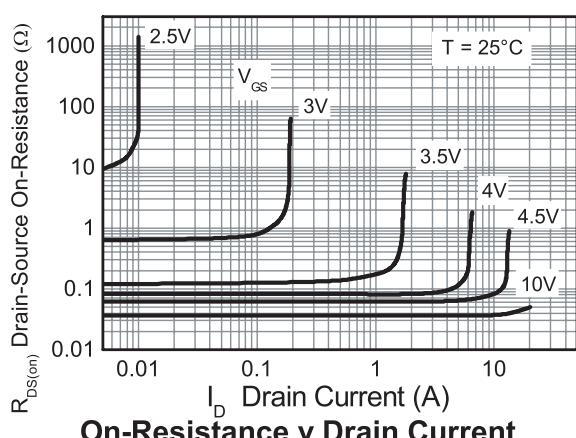
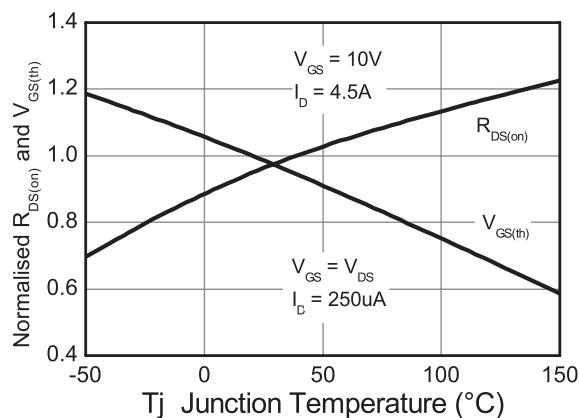
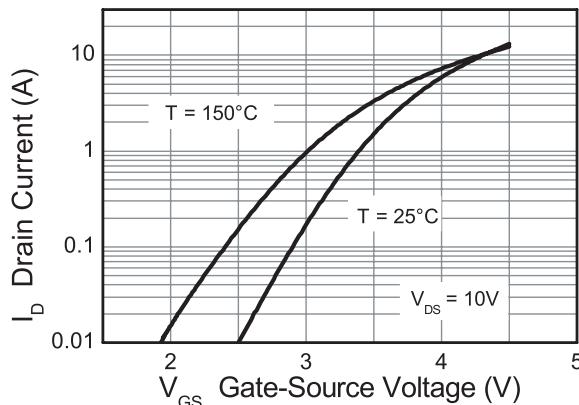
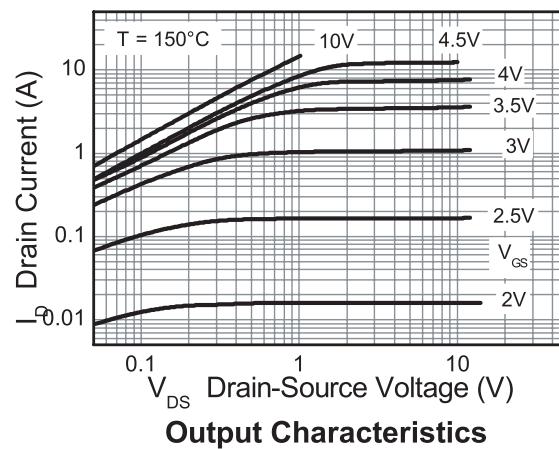
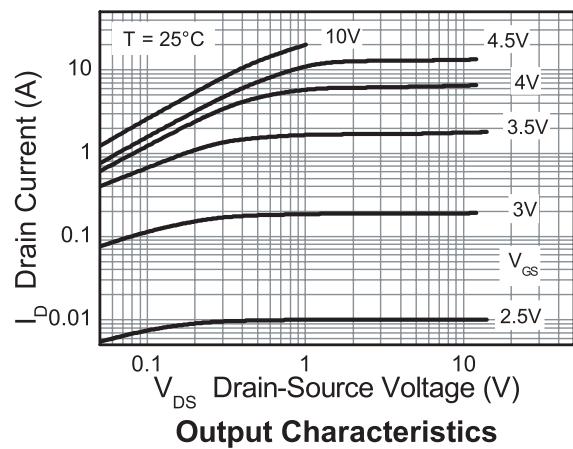
Electrical characteristics (at $T_{amb} = 25^\circ C$ unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
STATIC						
Drain-source breakdown voltage	$V_{(BR)DSS}$	60			V	$I_D = 250\mu A, V_{GS} = 0V$
Zero gate voltage drain current	I_{DSS}			1.0	μA	$V_{DS} = 60V, V_{GS} = 0V$
Gate-body leakage	I_{GSS}			100	nA	$V_{GS} = \pm 20V, V_{DS} = 0V$
Gate-source threshold voltage	$V_{GS(th)}$	1			V	$I_D = 250\mu A, V_{DS} = V_{GS}$
Static drain-source on-state resistance (*)	$R_{DS(on)}$			0.050	Ω	$V_{GS} = 10V, I_D = 3.6A$
				0.070	Ω	$V_{GS} = 4.5V, I_D = 3.0A$
Forward transconductance ^(*) (‡)	g_{fs}		10.2		S	$V_{DS} = 15V, I_D = 4.5A$
Dynamic^(‡)						
Input capacitance	C_{iss}		1063		pF	$V_{DS} = 30V, V_{GS} = 0V$ $f = 1MHz$
Output capacitance	C_{oss}		104		pF	
Reverse transfer capacitance	C_{rss}		64		pF	
Switching^(†) (‡)						
Turn-on-delay time	$t_{d(on)}$		3.8		ns	$V_{DD} = 30V, I_D = 1A$ $R_G \approx 6.0W, V_{GS} = 10V$
Rise time	t_r		4.0		ns	
Turn-off delay time	$t_{d(off)}$		26.2		ns	
Fall time	t_f		10.6		ns	
Gate charge	Q_g		11.0		nC	$V_{DS} = 30V, V_{GS} = 5V$ $I_D = 1.4A$
Total gate charge	Q_g		20.4		nC	
Gate-source charge	Q_{gs}		4.1		nC	
Gate Drain Charge	Q_{gd}		5.1		nC	
Source-drain diode						
Diode forward voltage ^(*)	V_{SD}		0.85	0.95	V	$T_j = 25^\circ C, I_S = 5.5A, V_{GS} = 0V$
Reverse recovery time ^(‡)	t_{rr}		22.0		ns	$T_j = 25^\circ C, I_S = 2.2A, di/dt = 100A/\mu s$
Reverse recovery charge ^(‡)	Q_{rr}		21.4		nC	

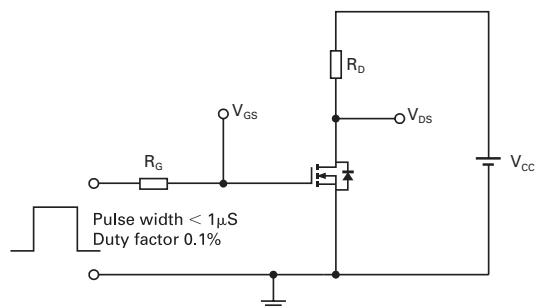
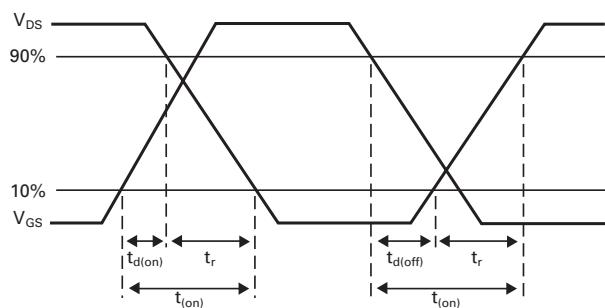
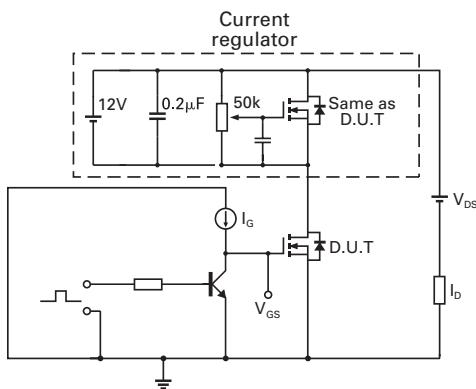
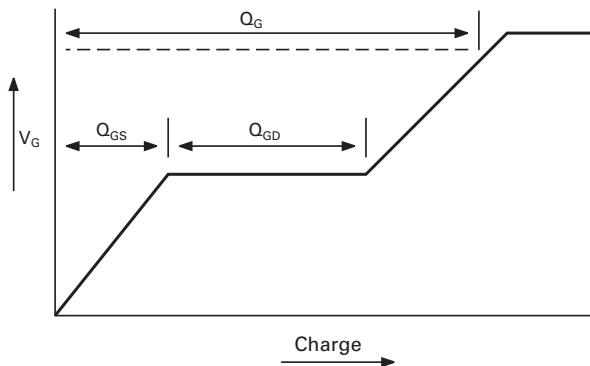
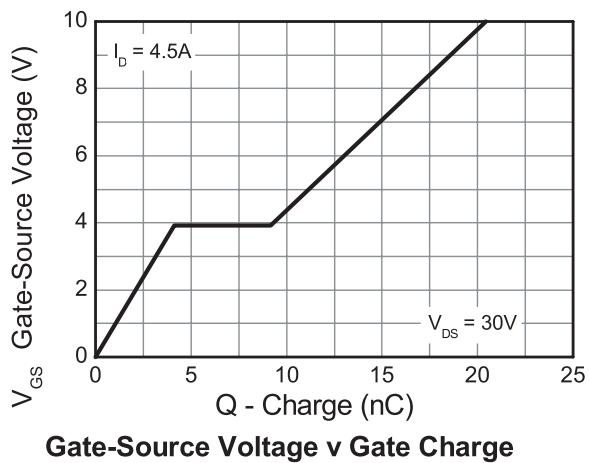
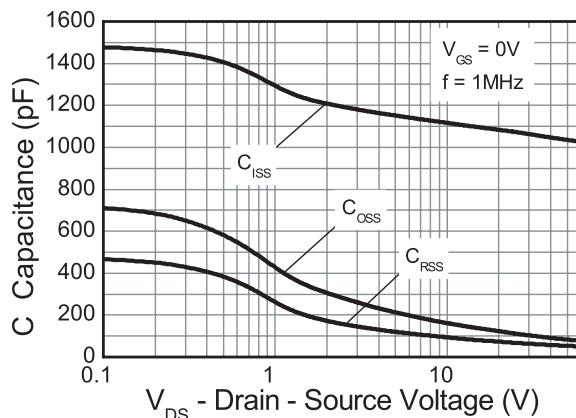
NOTES:

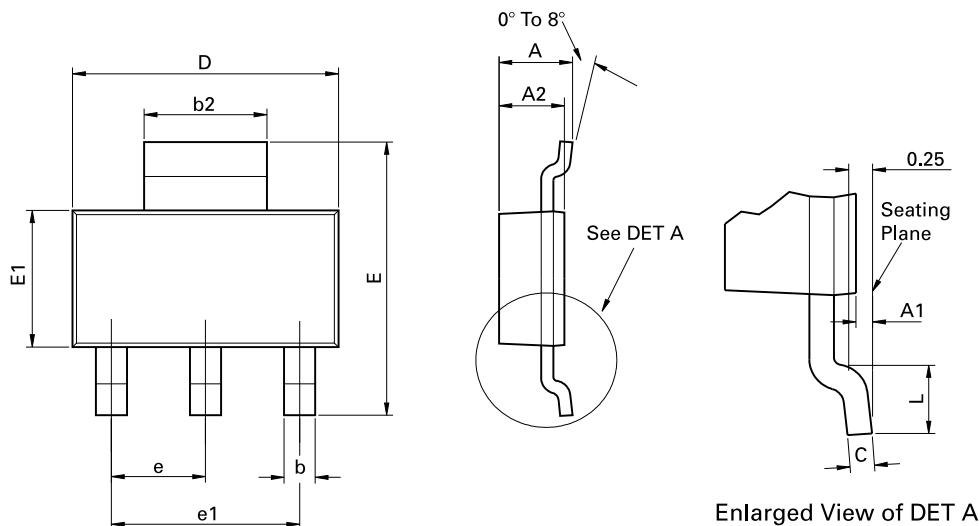
- (*) Measured under pulsed conditions. Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.
- (†) Switching characteristics are independent of operating junction temperature.
- (‡) For design aid only, not subject to production testing.

Typical characteristics



Typical characteristics



Package outline - SOT223

Enlarged View of DET A

Conforms to JEDEC TO-261 AA Issue B

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	-	-	-	-	-

Note: Controlling dimensions are in millimeters. Approximate dimensions are provided in inches.

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Zetex sales offices

Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Kustermann-park Balanstraße 59 D-81541 München Germany Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 europe.sales@zetex.com	Zetex Inc 700 Veterans Memorial Highway Hauppauge, NY 11788 USA Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 usa.sales@zetex.com	Zetex (Asia Ltd) 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong Telephone: (852) 26100 611 Fax: (852) 24250 494 asia.sales@zetex.com	Zetex Semiconductors plc Zetex Technology Park, Chadderton Oldham, OL9 9LL United Kingdom Telephone: (44) 161 622 4444 Fax: (44) 161 622 4446 hq@zetex.com

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