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مشاهده قیمت و خرید
برای خرید و مشاهده سایر محصولات کلیک کنید

ZETEX SEMICONDUCTORS

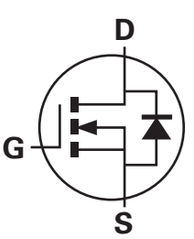
ZXMN6A25N8
60V SO8 N-channel enhancement mode MOSFET

Summary

$V_{(BR)DSS}$	$R_{DS(on)}$ (Ω)	I_D(A)
60	0.050 @ V_{GS}=10V	7.0
	0.070 @ V_{GS}=4.5V	

Description

This new generation Trench MOSFET from
Zetex features low on-resistance and fast switching,
making it ideal for high efficiency power management applications.

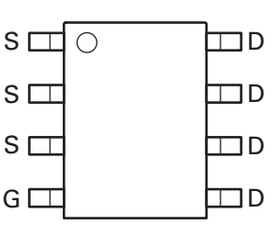


Features

- Low on-resistance
- Fast switching speed
- Low gate drive
- SO8 package

Applications

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



Top view

Ordering information

Device	Reel size (inches)	Tape width (mm)	Quantity per reel
ZXMN6A25N8TA	7	12	500

Device marking

ZXMN6A25

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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°C (b) @ V_{GS}= 10V; T_A=70°C (b) @ V_{GS}= 10V; T_A=25°C (a) @ V_{GS}= 10V; T_L=25°C (a)(d)	I_D	5.7 4.5 4.3 7.0	A
Pulsed Drain current (c)	I_{DM}	25.7	A
Continuous Source current (Body diode) (b)	I_S	4.1	A
Pulsed Source current (Body diode) (c)	I_{SM}	25.7	A
Power dissipation at T_A =25°C (a) Linear derating factor	P_D	1.56 12.5	W mW/°C
Power dissipation at T_A =25°C (b) Linear derating factor	P_D	2.8 22.2	W mW/°C
Power dissipation at T_L =25°C (d) Linear derating factor	P_D	4.14 33.1	W mW/°C
Operating and storage temperature range	T_j, T_{stg}	-55 to 150	°C

Thermal resistance

Parameter	Symbol	Value	Unit
Junction to ambient (a)	$R_{\theta JA}$	80	°C/W
Junction to ambient (b)	$R_{\theta JA}$	45	°C/W
Junction to lead (d)	$R_{\theta JL}$	30.2	°C/W

NOTES:

(a) For a device surface mounted on 25mm x 25mm x 1.6mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions.

(b) Mounted on FR4 PCB measured at $t \leq 10$ sec.

(c) Repetitive rating on 25mm x 25mm FR4 PCB, D=0.02, pulse width 300us – pulse width limited by maximum junction temperature.

(d) Thermal resistance from junction to solder-point (at the end of the drain lead).

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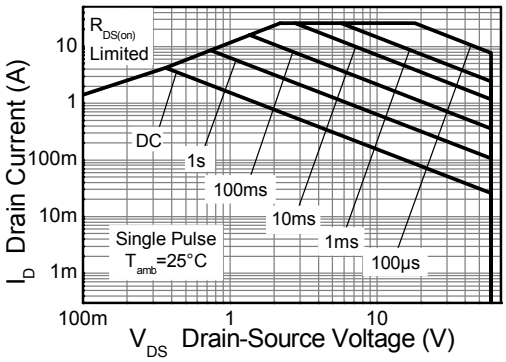
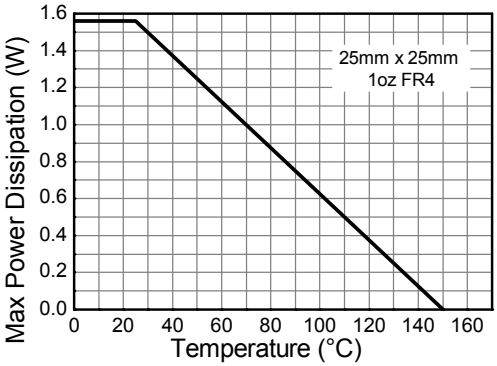
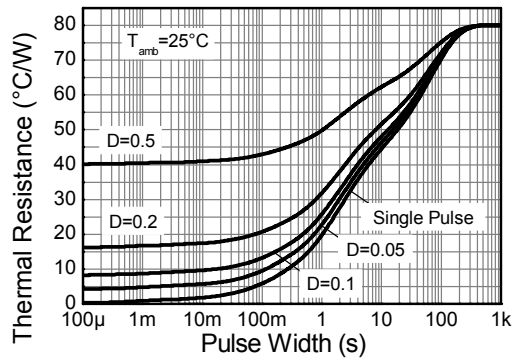
Thermal characteristics



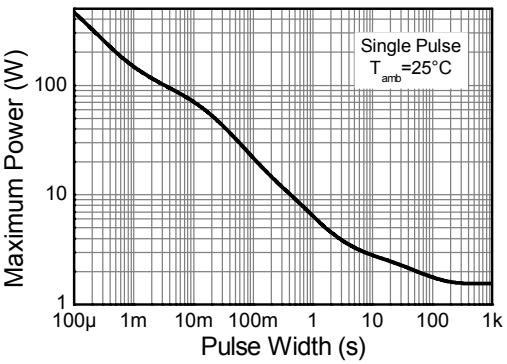
Safe Operating Area



Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

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Electrical characteristics (at T_{amb} = 25°C unless otherwise stated)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Static						
Drain-Source breakdown voltage	$V_{(BR)DSS}$	60			V	I_D =250μA, 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}=±20V, V_{DS}=0V
Gate-Source threshold voltage	$V_{GS(th)}$	1		3	V	I_D=250μA, V_{DS}=V_{GS}
Static Drain-Source on-state resistance (*)	$R_{DS(on)}$			0.050 0.070	Ω	V_{GS}= 10V, I_D= 3.6A 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, V_{GS}= 10V I_D= 1A $R_G \cong$ 6.0Ω,
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= 4.5A
Total gate charge	Q_g		20.4		nC	V_{DS}= 30V, V_{GS}= 10V I_D= 4.5A
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	I_S= 5.5A,V_{GS}=0V
Reverse recovery time (‡)	t_{rr}		22.0		ns	I_S= 2.2A,di/dt=100A/μs
Reverse recovery charge(‡)	Q_{rr}		21.4		nC	

NOTES:

(*) Measured under pulsed conditions. Pulse width ≤ 300μs; duty cycle ≤ 2%.

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

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

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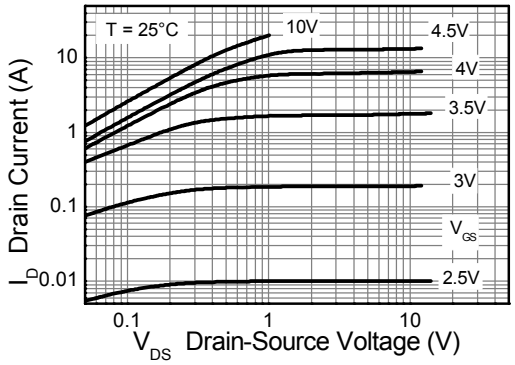
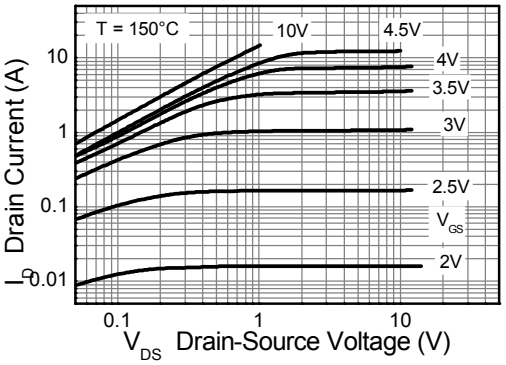
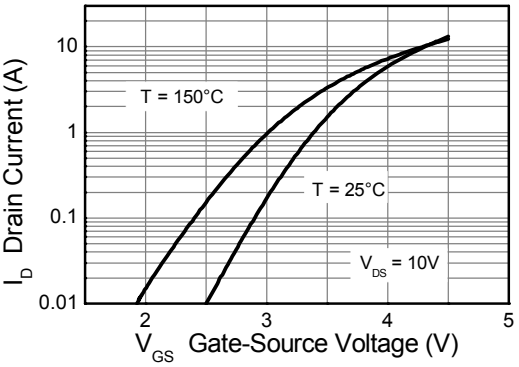
Typical characteristics



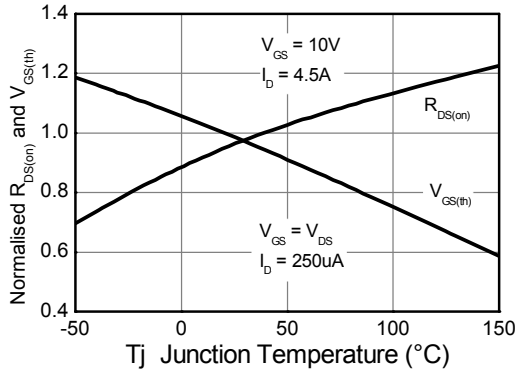
Output Characteristics



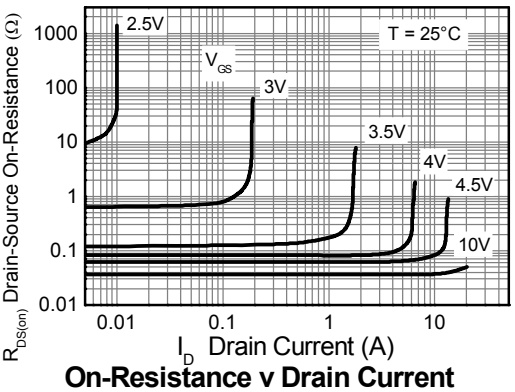
Output Characteristics



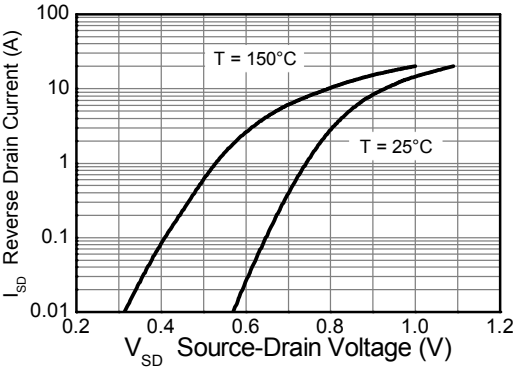
Typical Transfer Characteristics



Normalised Curves v Temperature



On-Resistance v Drain Current



Source-Drain Diode Forward Voltage

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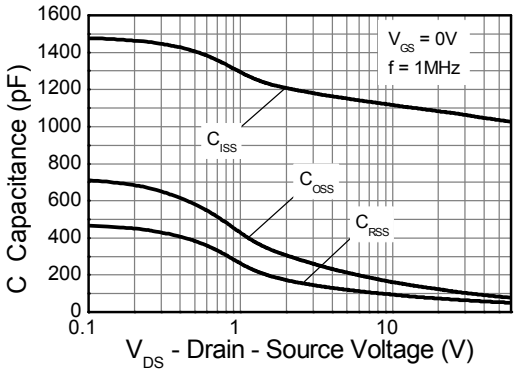
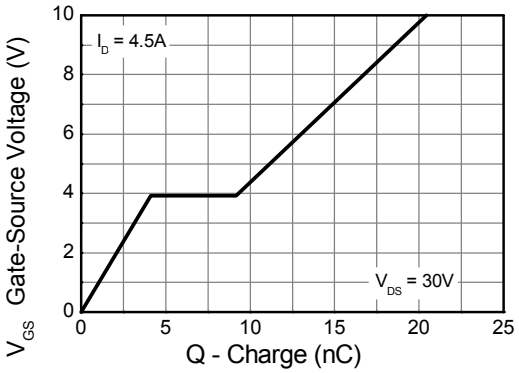
Typical characteristics

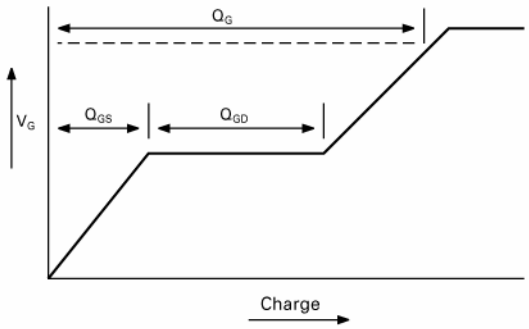


Capacitance v Drain-Source Voltage

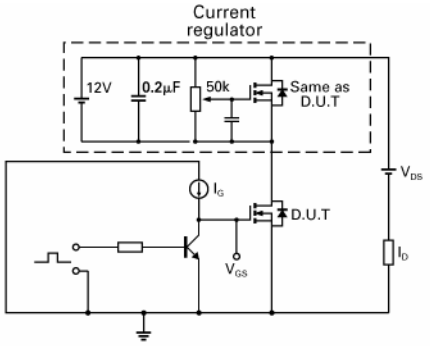


Gate-Source Voltage v Gate Charge

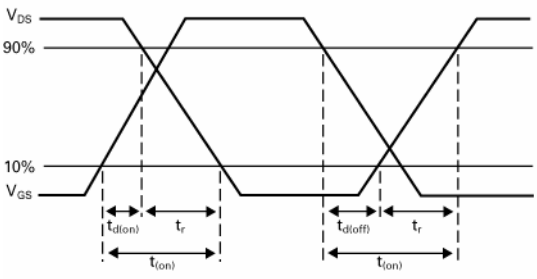
Test circuits



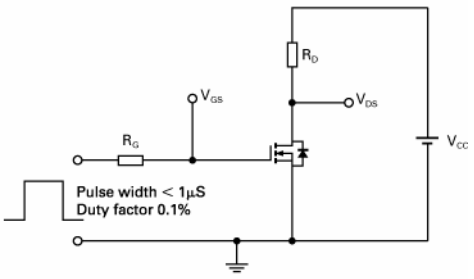
Basic gate charge waveform



Gate charge test circuit



Switching time waveforms



Switching time test circuit

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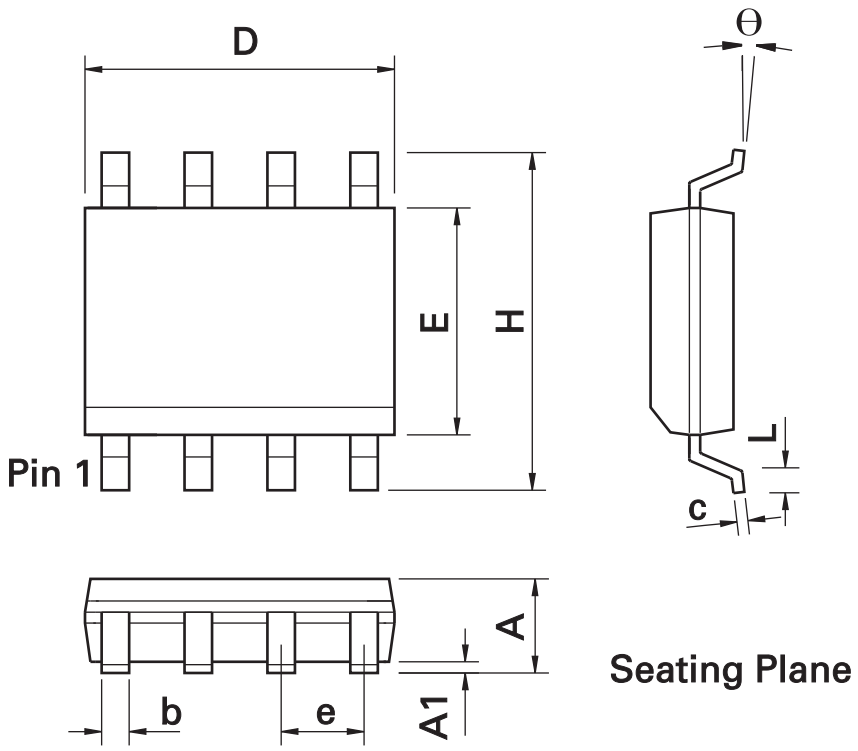
Package outline SO8



SO8 Package Information

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

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

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Zetex sales offices

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

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