

ZXMP6A17DN8

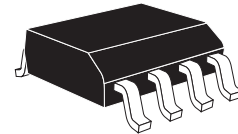
DUAL P-CHANNEL 60V ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = -60V$; $R_{DS(ON)} = 0.125\Omega$; $I_D = -3.1A$

DESCRIPTION

This new generation of high cell density planar 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.



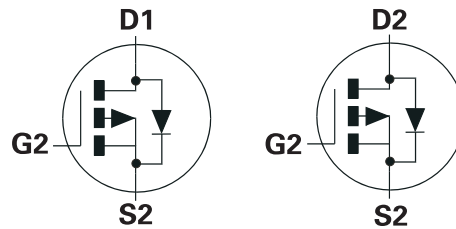
SO8

FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- Low profile SOIC package

APPLICATIONS

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



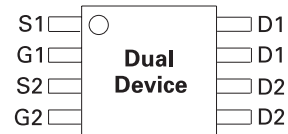
ORDERING INFORMATION

DEVICE	REEL	TAPE WIDTH	QUANTITY PER REEL
ZXMP6A17DN8TA	7"	12mm	500 units
ZXMP6A17DN8TC	13"	12mm	2500 units

DEVICE MARKING

ZXMP
6A17D

PINOUT



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)(d) @ $V_{GS}=10V$; $T_A=70^\circ C$ (b)(d) @ $V_{GS}=10V$; $T_A=25^\circ C$ (a)(d)	I_D	-3.1 -2.4 -2.3	A A A
Pulsed Drain Current (c)	I_{DM}	-11.1	A
Continuous Source Current (Body Diode)(b)	I_S	-3.0	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	-11.1	A
Power Dissipation at $T_A=25^\circ C$ (a)(d) Linear Derating Factor	P_D	1.25 10	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (a)(e) Linear Derating Factor	P_D	1.81 14.5	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b)(d) Linear Derating Factor	P_D	2.15 17	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)(d)	$R_{\theta JA}$	100	$^\circ C/W$
Junction to Ambient (b)(e)	$R_{\theta JA}$	70	$^\circ C/W$
Junction to Ambient (b)(d)	$R_{\theta JA}$	60	$^\circ C/W$

Notes

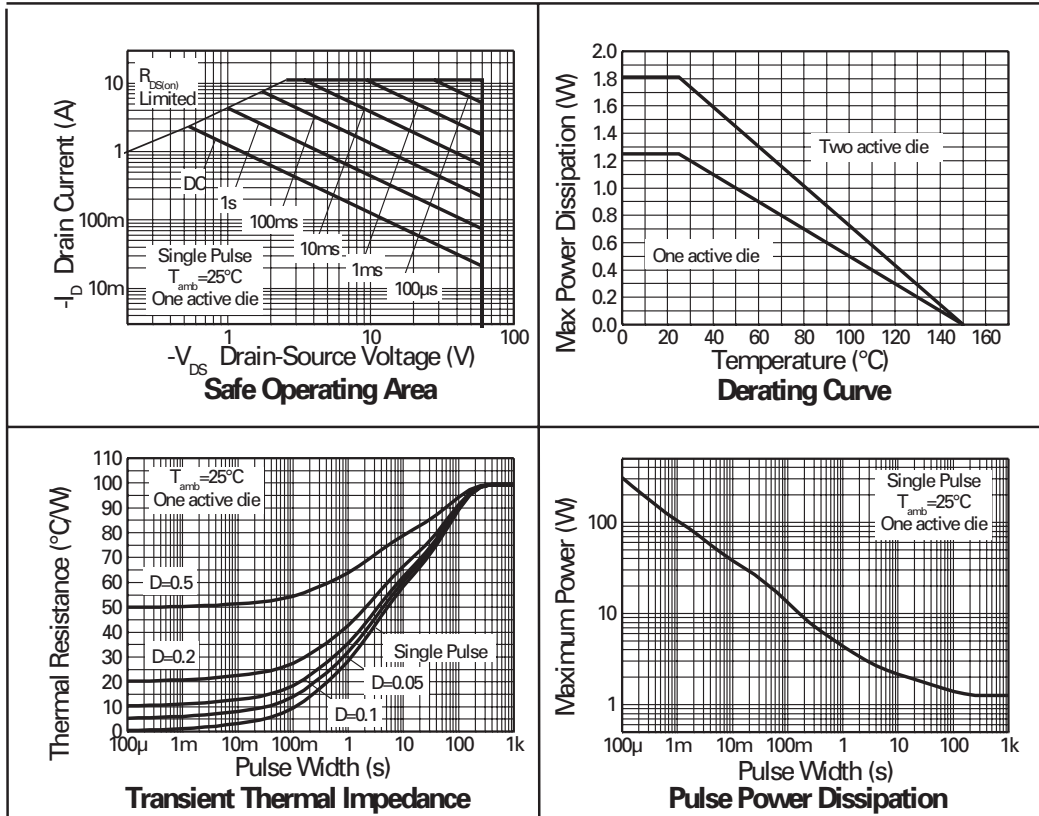
- (a) For a dual device surface mounted on 25mm x 25mm FR4 PCB with coverage of single sided 1oz copper in still air conditions.
- (b) For a dual device surface mounted on FR4 PCB measured at $t \leq 10$ sec.
- (c) Repetitive rating 25mm x 25mm FR4 PCB, $D=0.05$ pulse width=10 μs - pulse width limited by maximum junction temperature.
- (d) For a dual device with one active die.
- (e) For dual device with 2 active die running at equal power.



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CHARACTERISTICS



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ELECTRICAL CHARACTERISTICS (at $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-60			V	$I_D = -250\mu\text{A}, V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}			-1.0	μA	$V_{DS} = -60\text{V}, V_{GS} = 0\text{V}$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS} = \pm 20\text{V}, V_{DS} = 0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	-0.8			V	$I_D = -250\mu\text{A}, V_{DS} = V_{GS}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			0.125 0.190	Ω	$V_{GS} = -10\text{V}, I_D = -2.2\text{A}$ $V_{GS} = -4.5\text{V}, I_D = -1.8\text{A}$
Forward Transconductance (1)(3)	g_{fs}		4.9		S	$V_{DS} = -15\text{V}, I_D = -2.2\text{A}$
DYNAMIC (3)						
Input Capacitance	C_{iss}		670		pF	$V_{DS} = -30\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$
Output Capacitance	C_{oss}		46.7		pF	
Reverse Transfer Capacitance	C_{rss}		28.0		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	$t_{d(on)}$		1.9		ns	$V_{DD} = -30\text{V}, I_D = -1\text{A}$ $R_G = 6.0\Omega, V_{GS} = -10\text{V}$
Rise Time	t_r		22.4		ns	
Turn-Off Delay Time	$t_{d(off)}$		20.0		ns	
Fall Time	t_f		16.0		ns	
Gate Charge	Q_g		7.3		nC	$V_{DS} = -30\text{V}, V_{GS} = -5\text{V}, I_D = -2.2\text{A}$
Total Gate Charge	Q_g		15.1		nC	$V_{DS} = -30\text{V}, V_{GS} = -10\text{V}, I_D = -2.2\text{A}$
Gate-Source Charge	Q_{gs}		1.8		nC	
Gate-Drain Charge	Q_{gd}		1.9		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}		-0.85	-0.95	V	$T_J = 25^{\circ}\text{C}, I_S = -2\text{A}, V_{GS} = 0\text{V}$
Reverse Recovery Time (3)	t_{rr}		26.4		ns	$T_J = 25^{\circ}\text{C}, I_F = -1.7\text{A}, di/dt = 100\text{A}/\mu\text{s}$
Reverse Recovery Charge (3)	Q_{rr}		32.7		nC	

NOTES

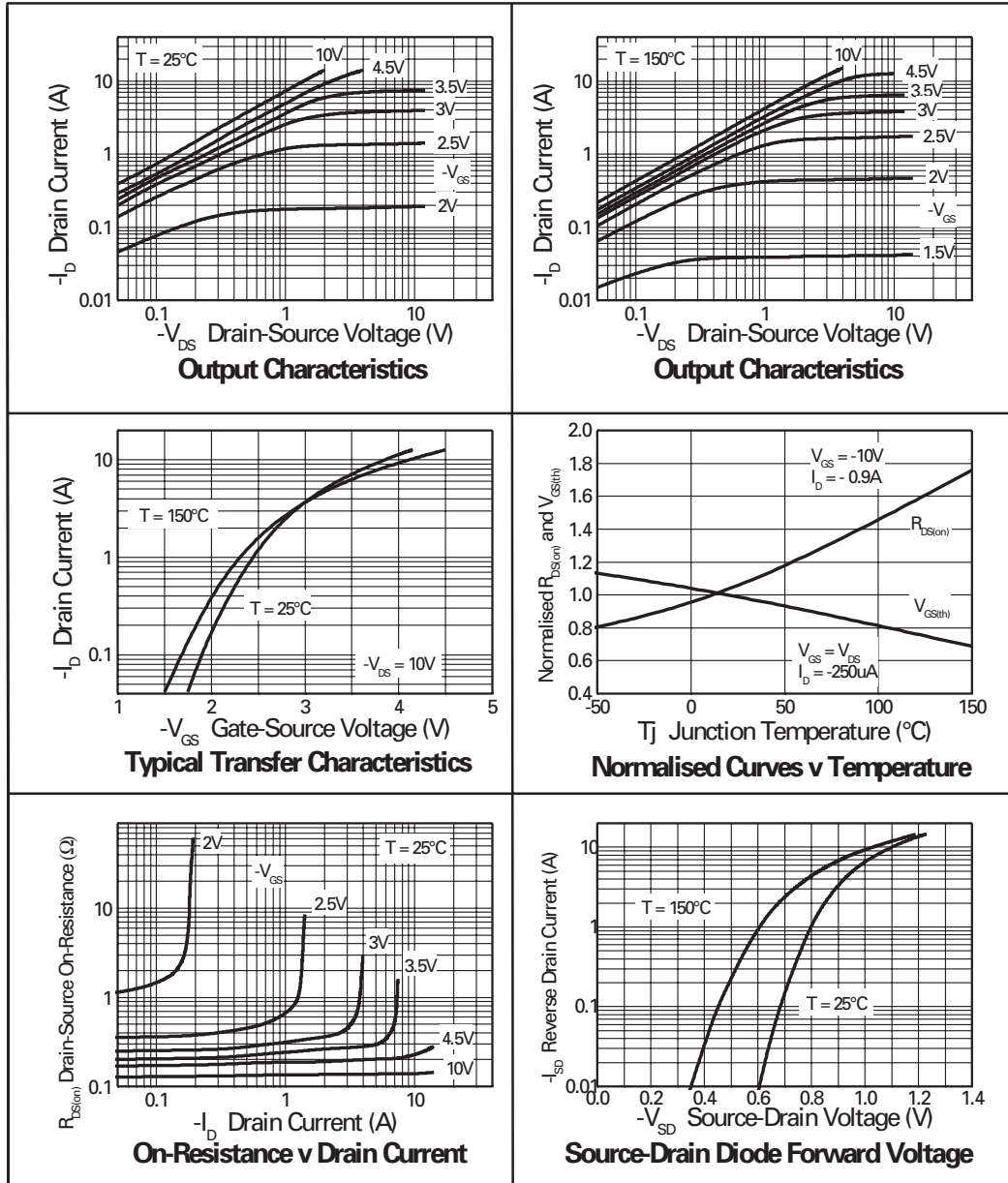
- (1) Measured under pulsed conditions. Width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.
- (2) Switching characteristics are independent of operating junction temperature.
- (3) For design aid only, not subject to production testing.



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TYPICAL CHARACTERISTICS

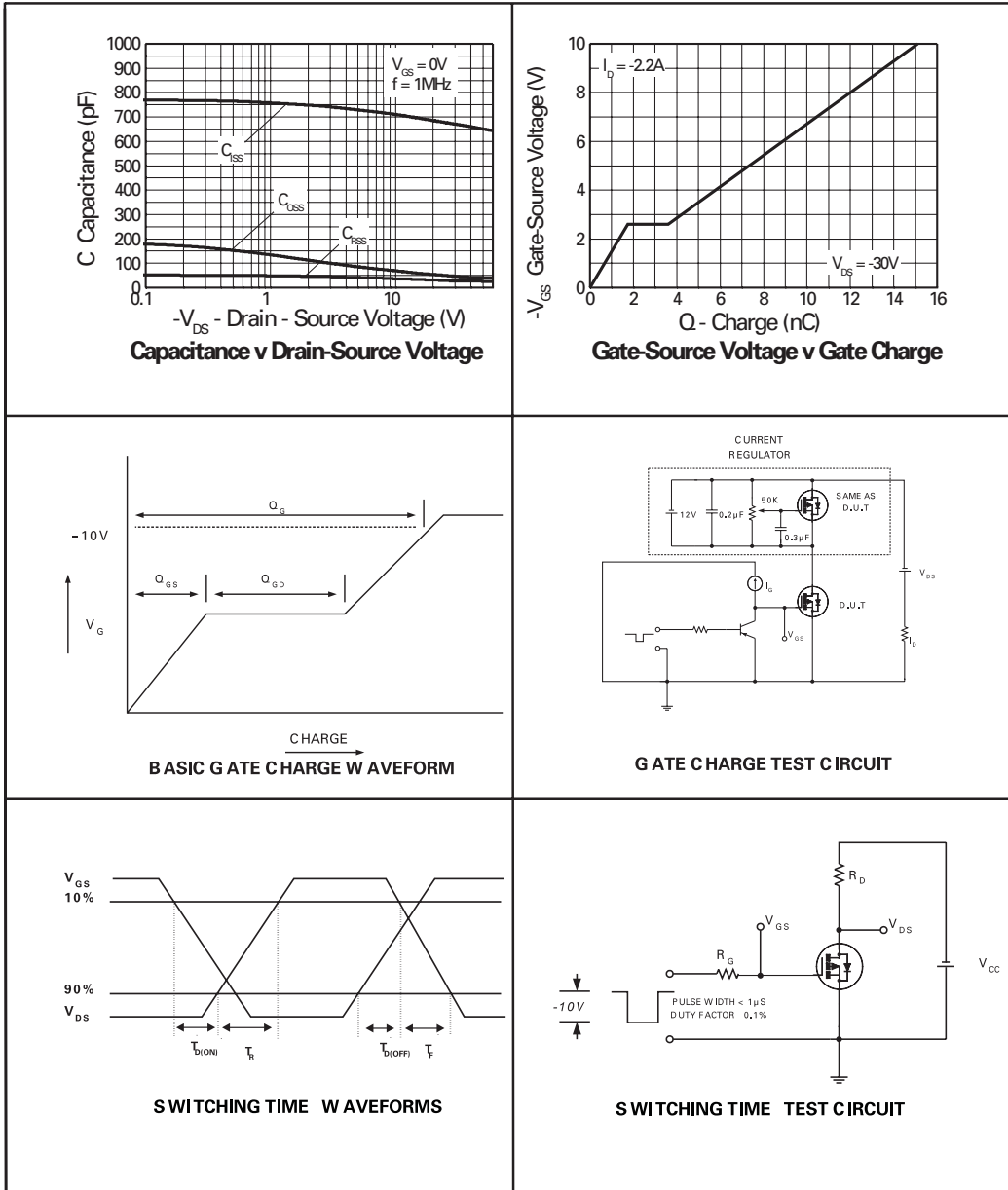


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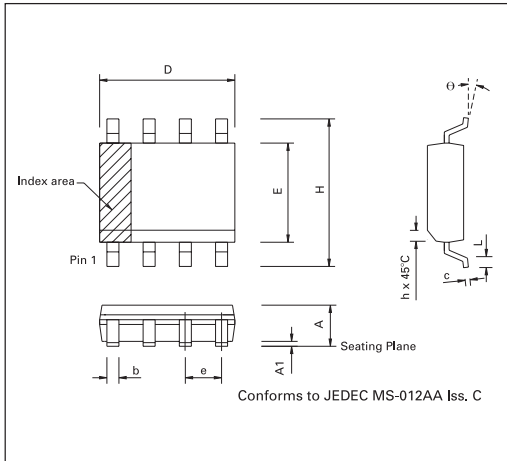
TYPICAL CHARACTERISTICS



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PACKAGE OUTLINE



CONTROLLING DIMENSIONS ARE IN INCHES
APPROX IN MILLIMETRES

PACKAGE DIMENSIONS

DIM	INCHES		MILLIMETRES	
	MIN	MAX	MIN	MAX
A	0.053	0.069	1.35	1.75
A1	0.004	0.010	0.10	0.25
D	0.189	0.197	4.80	5.00
H	0.228	0.244	5.80	6.20
E	0.150	0.157	3.80	4.00
L	0.016	0.050	0.40	1.27
e	0.050 BSC		1.27 BSC	
b	0.013	0.020	0.33	0.51
c	0.008	0.010	0.19	0.25
θ	0°	8°	0°	8°
h	0.010	0.020	0.25	0.50

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Europe

Zetex plc
Fields New Road
Chadderton
Oldham, OL9 8NP
United Kingdom
Telephone (44) 161 622 4422
Fax: (44) 161 622 4420
uk.sales@zetex.com

Zetex GmbH
Streitfeldstraße 19
D-81673 München
Germany
Telefon: (49) 89 45 49 49 0
Fax: (49) 89 45 49 49 49
europe.sales@zetex.com

Americas

Zetex Inc
700 Veterans Memorial Hwy
Hauppauge, NY11788
USA
Telephone: (631) 360 2222
Fax: (631) 360 8222
usa.sales@zetex.com

Asia Pacific

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

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