

ZXM62P03E6

30V P-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = -30V$; $R_{DS(ON)} = 0.15\Omega$; $I_D = -2.6A$

DESCRIPTION

This new generation of high density 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.

FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- SOT23-6 package

APPLICATIONS

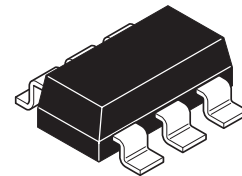
- DC - DC converters
- Power management functions
- Disconnect switches
- Motor control

ORDERING INFORMATION

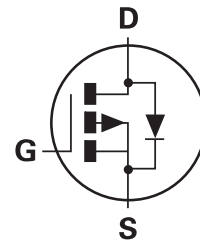
DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZXM62P03E6TA	7	8 embossed	3,000
ZXM62P03E6TC	13	8 embossed	10,000

DEVICE MARKING

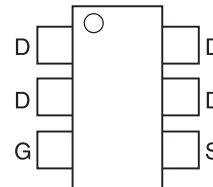
2P03



SOT23-6



Pinout



Top view

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ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	20	V
Gate Source Voltage	V_{GS}	± 12	V
Continuous Drain Current ($V_{GS}=4.5V$; $T_A=25^\circ C$)(a) ($V_{GS}=4.5V$; $T_A=70^\circ C$)(a)	I_D	1.5 1.2	A
Pulsed Drain Current (c)	I_{DM}	7.4	A
Continuous Source Current (Body Diode)	I_S	0.54	A
Pulsed Source Current (Body Diode)	I_{SM}	7.4	A
Power Dissipation at $T_A=25^\circ C$ (a) Linear Derating Factor	P_D	625 5	mW mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b) Linear Derating Factor	P_D	806 6.4	mW mW/ $^\circ C$
Operating and Storage Temperature Range	$T_J; T_{stg}$	-55 to +150	$^\circ C$

THERMAL RESISTANCE

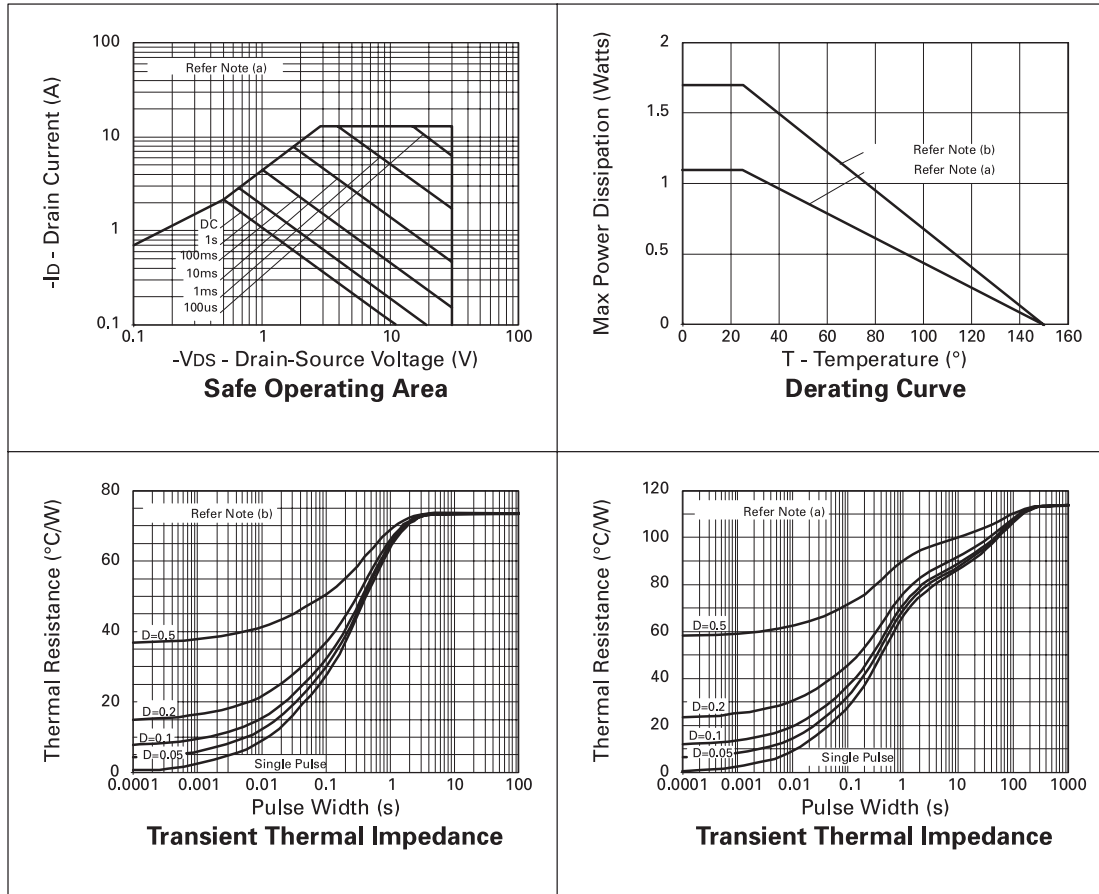
PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	113	$^\circ C/W$
Junction to Ambient (b)	$R_{\theta JA}$	73	$^\circ C/W$

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 - 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 $T_{amb} = 25^{\circ}\text{C}$ unless otherwise stated)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	-30			V	I _D =-250μA, V _{GS} =0V
Zero Gate Voltage Drain Current	I _{DSS}			-1	μA	V _{DS} =-30V, V _{GS} =0V
Gate-Body Leakage	I _{GSS}			± 100	nA	V _{GS} =± 20V, V _{DS} =0V
Gate-Source Threshold Voltage	V _{GS(th)}	-1.0			V	I _D = -250μA, V _{DS} = V _{GS}
Static Drain-Source On-State Resistance (1)	R _{DS(on)}			0.15 0.23	Ω Ω	V _{GS} =-10V, I _D =-1.6A V _{GS} =-4.5V, I _D =-0.8A
Forward Transconductance (3)	g _{fs}	1.1			S	V _{DS} =-10V, I _D =-0.8A
DYNAMIC (3)						
Input Capacitance	C _{iss}		330		pF	V _{DS} =-25 V, V _{GS} =0V, f=1MHz
Output Capacitance	C _{oss}		120		pF	
Reverse Transfer Capacitance	C _{rss}		45		pF	
SWITCHING (2) (3)						
Turn-On Delay Time	t _{d(on)}		2.8		ns	V _{DD} = -15V, I _D =-1.6A R _G =6.2Ω, R _D =25Ω (Refer to test circuit)
Rise Time	t _r		6.4		ns	
Turn-Off Delay Time	t _{d(off)}		13.9		ns	
Fall Time	t _f		10.3		ns	
Total Gate Charge	Q _g			10.2	nC	V _{DS} =-24V, V _{GS} =-10V, I _D =-1.6A (Refer to test circuit)
Gate-Source Charge	Q _{gs}			1.5	nC	
Gate Drain Charge	Q _{gd}			3	nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V _{SD}			-0.95	V	T _j =25°C, I _S =-1.6A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		19.9		ns	T _j =25°C, I _F =-1.6A, di/dt= 100A/μs
Reverse Recovery Charge(3)	Q _{rr}		13		nC	

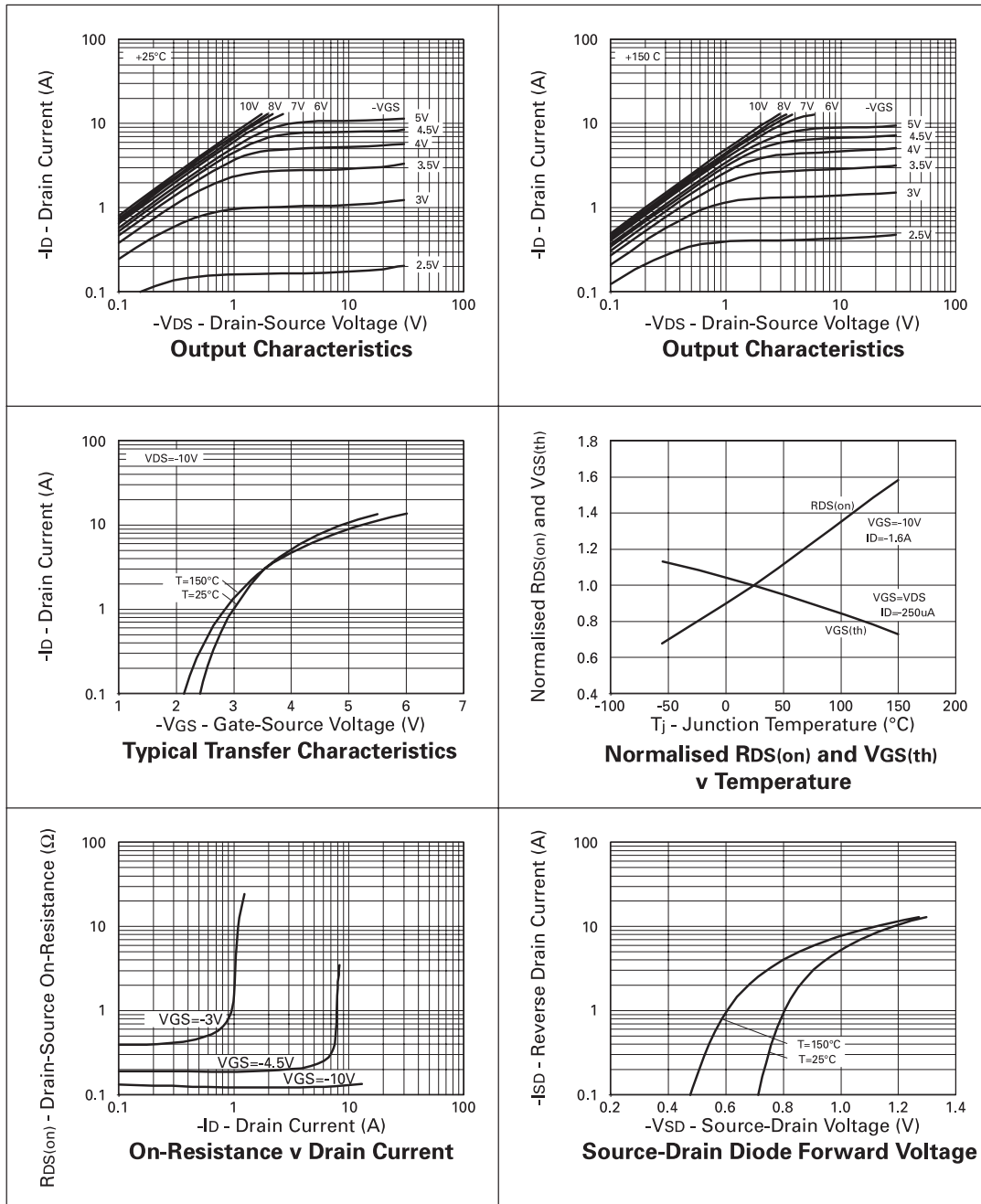
(1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.

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

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

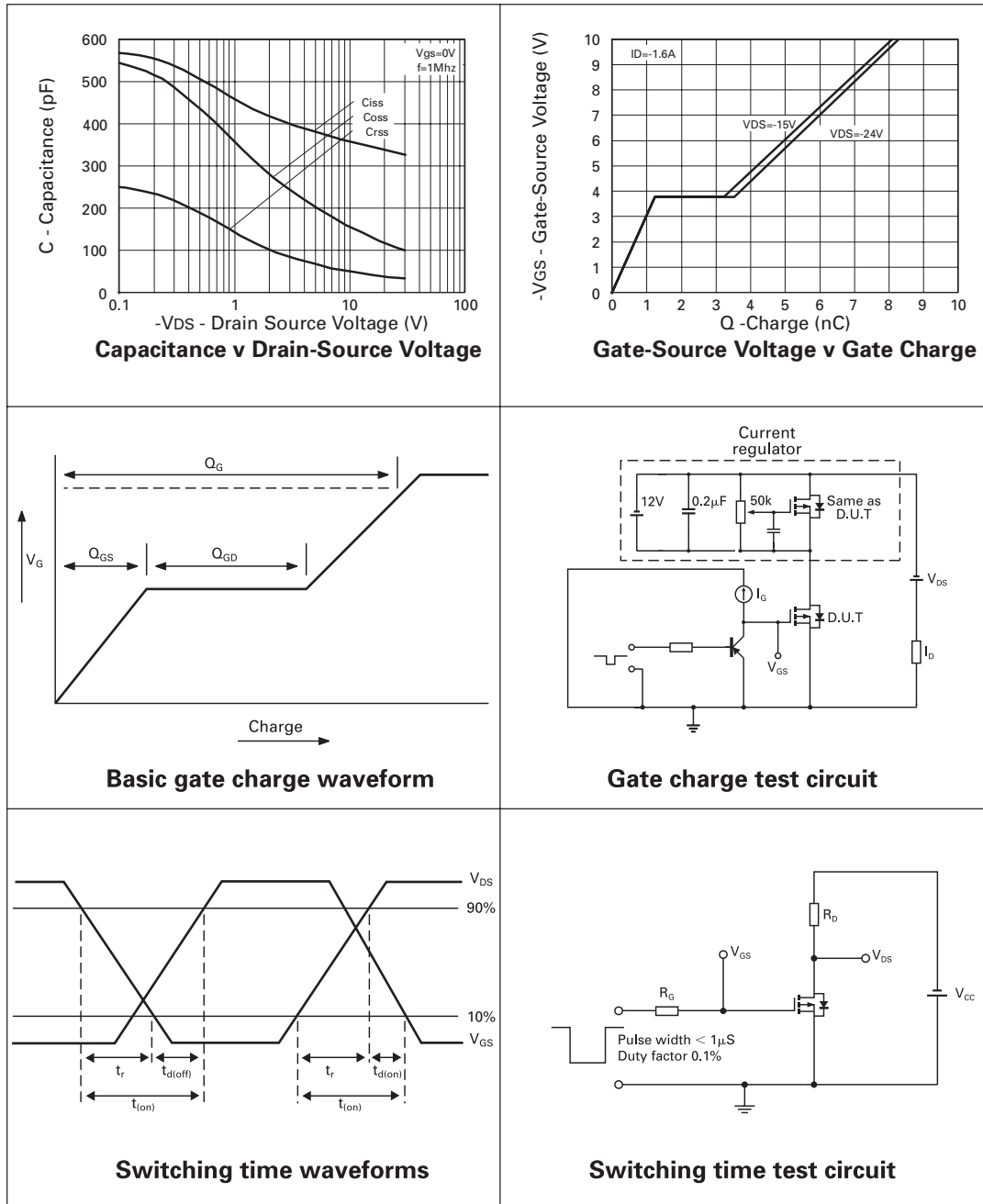
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TYPICAL CHARACTERISTICS



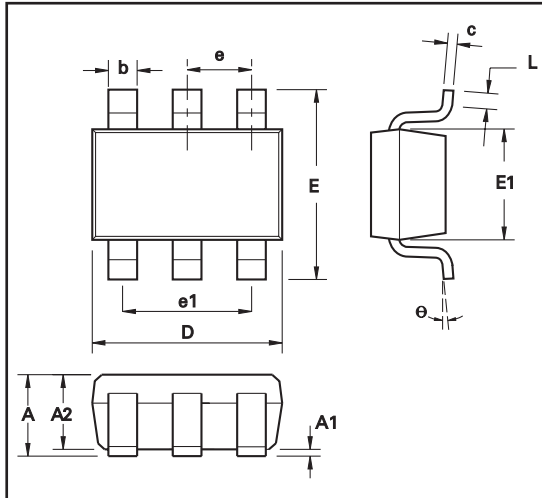
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TYPICAL CHARACTERISTICS

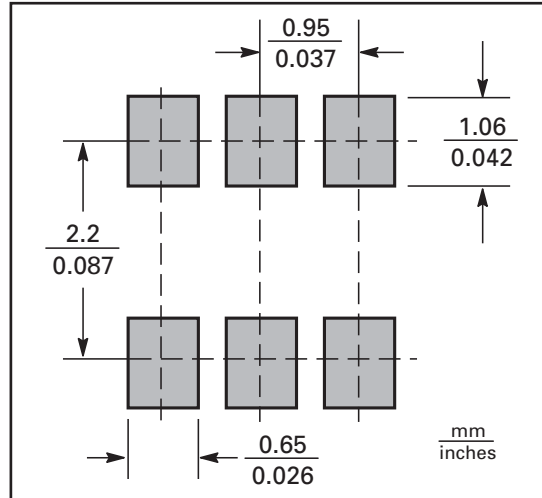


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PACKAGE OUTLINE



PAD LAYOUT DETAILS



DIM	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.45	0.35	0.057
A1	0.00	0.15	0	0.006
A2	0.90	1.30	0.035	0.051
b	0.35	0.50	0.014	0.019
C	0.09	0.20	0.0035	0.008
D	2.80	3.00	0.110	0.118
E	2.60	3.00	0.102	0.118
E1	1.50	1.75	0.059	0.069
L	0.10	0.60	0.004	0.002
e	0.95 REF		0.037 REF	
e1	1.90 REF		0.074 REF	
L	0°	10°	0°	10°

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Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany	Zetex Inc 700 Veterans Memorial Hwy 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 europa.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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Как с нами связаться

Телефон: 8 (812) 309 58 32 (многоканальный)

Факс: 8 (812) 320-02-42

Электронная почта: org@eplast1.ru

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.