

ZXMN6A07F

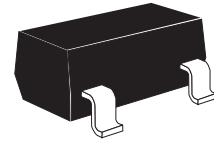
60V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 60V$; $R_{DS(ON)} = 0.300\Omega$ $I_D = 1.2A$

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.



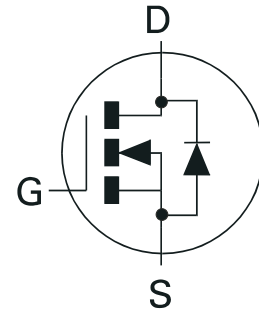
SOT23

FEATURES

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

APPLICATIONS

- DC - DC Converters
- Power Management Functions
- Relay and Solenoid driving
- Motor control



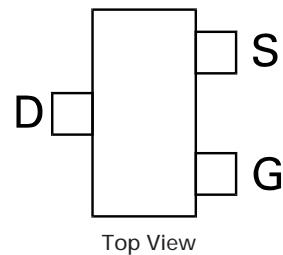
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN6A07FTA	7"	8mm	3000 units
ZXMN6A07FTC	13"	8mm	10000 units

DEVICE MARKING

- 7N6

PINOUT



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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	1.2 1.0 1.1	A
Pulsed Drain Current (c)	I_{DM}	5.6	A
Continuous Source Current (Body Diode) (b)	I_S	1	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	5.6	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

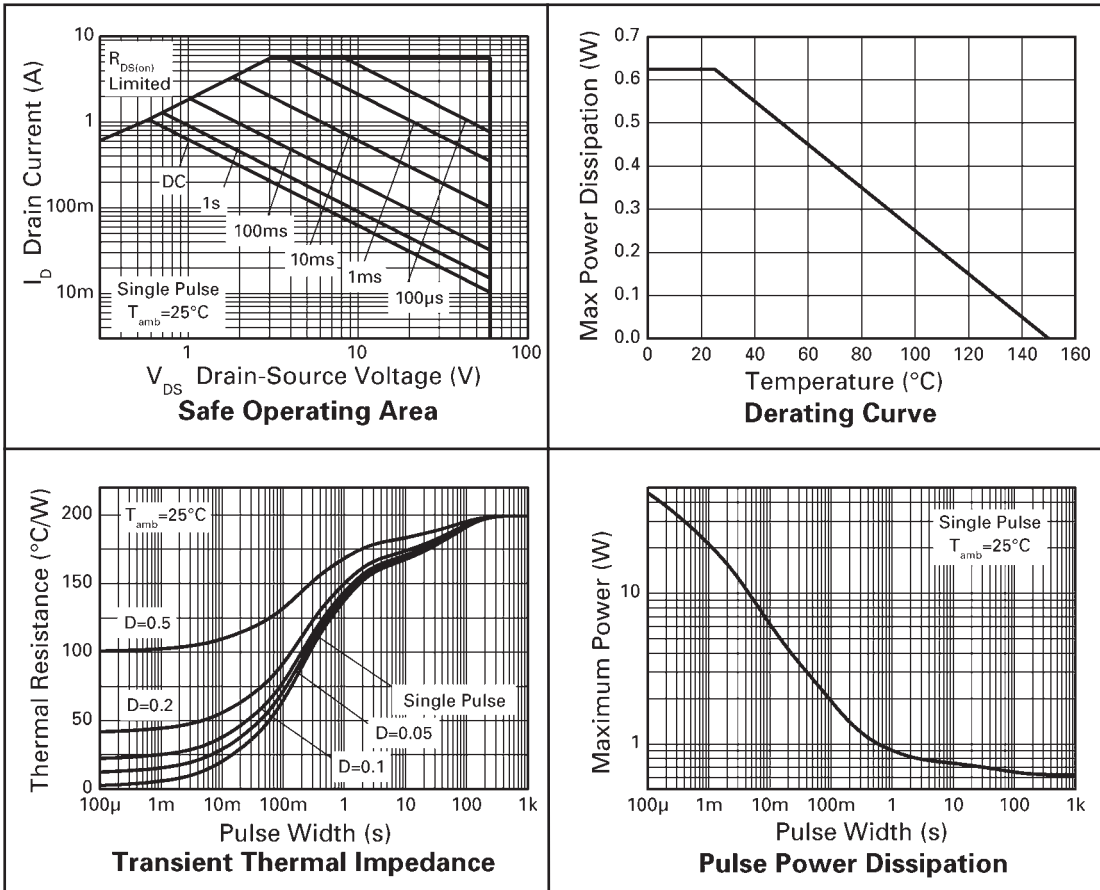
PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	$R_{\theta JA}$	200	$^\circ C/W$
Junction to Ambient (b)	$R_{\theta JA}$	155	$^\circ C/W$

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 FR4 PC, $D = 0.02$, pulse width 10 μs - 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 TA = 25°C unless otherwise stated)

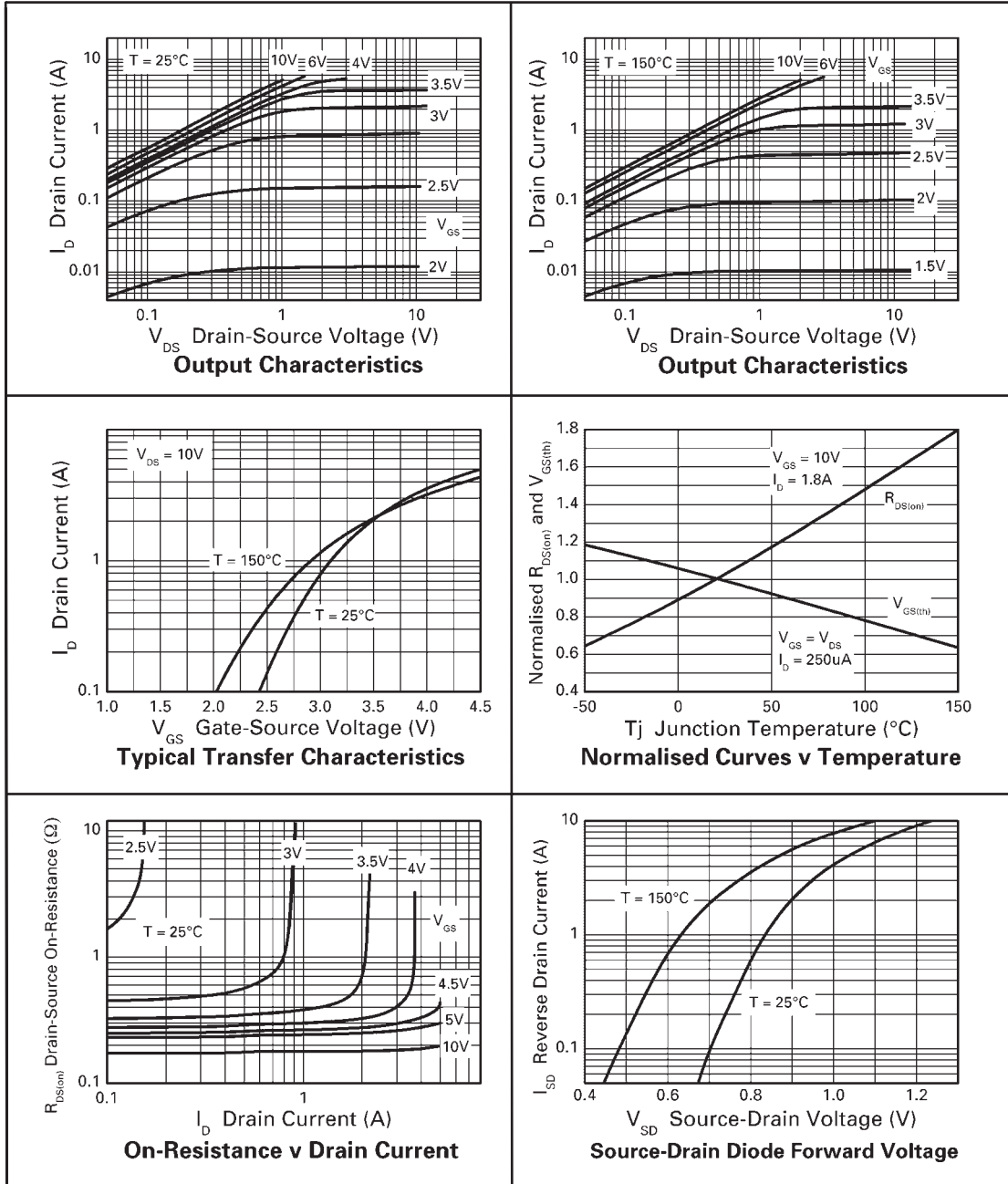
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60			V	$I_D=250\mu A, V_{GS}=0V$
Zero Gate Voltage Drain Current	I_{DSS}			1	μA	$V_{DS}=60V, V_{GS}=0V$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	1.0		3.0	V	$I_D=250\mu A, V_{DS}=V_{GS}$
Static Drain-Source On-State Resistance ⁽¹⁾	$R_{DS(on)}$			0.300 0.450	Ω Ω	$V_{GS}=10V, I_D=1.8A$ $V_{GS}=4.5V, I_D=1.3A$
Forward Transconductance ⁽³⁾	g_{fs}		2.3		S	$V_{DS}=15V, I_D=1.8A$
DYNAMIC ⁽³⁾						
Input Capacitance	C_{iss}		166		pF	$V_{DS}=40V, V_{GS}=0V,$ $f=1MHz$
Output Capacitance	C_{oss}		19.5		pF	
Reverse Transfer Capacitance	C_{rss}		8.7		pF	
SWITCHING ^{(2) (3)}						
Turn-On Delay Time	$t_{d(on)}$		1.8		ns	$V_{DD}=30V, I_D=1.8A$ $R_G=6.0\Omega, V_{GS}=10V$
Rise Time	t_r		1.4		ns	
Turn-Off Delay Time	$t_{d(off)}$		4.9		ns	
Fall Time	t_f		2.0		ns	
Gate Charge	Q_g		1.65		nC	$V_{DS}=30V, V_{GS}=5V,$ $I_D=1.8A$
Total Gate Charge	Q_g		3.2		nC	$V_{DS}=30V, V_{GS}=10V,$ $I_D=1.8A$
Gate-Source Charge	Q_{gs}		0.67		nC	
Gate-Drain Charge	Q_{gd}		0.82		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage ⁽¹⁾	V_{SD}		0.8	0.95	V	$T_J=25^\circ C, I_S=0.45A,$ $V_{GS}=0V$
Reverse Recovery Time ⁽³⁾	t_{rr}		20.5		ns	$T_J=25^\circ C, I_F=1.8A,$ $di/dt=100A/\mu s$
Reverse Recovery Charge ⁽³⁾	Q_{rr}		21.3		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.

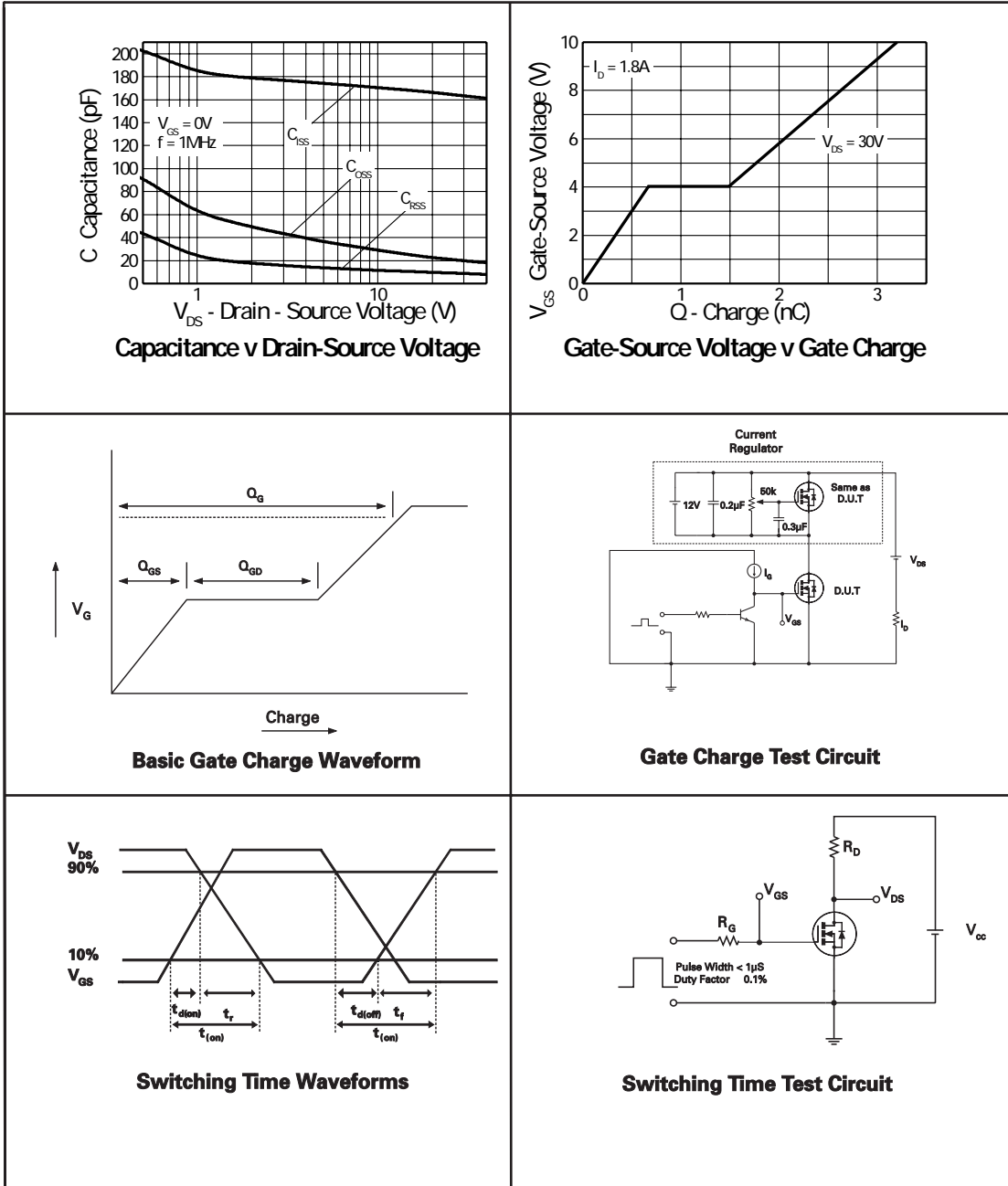
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TYPICAL CHARACTERISTICS



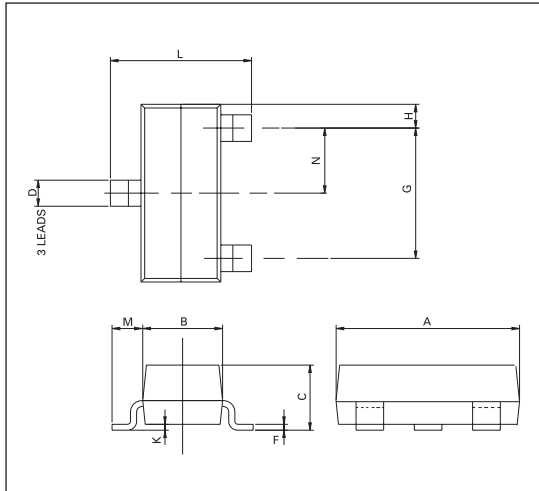
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TYPICAL CHARACTERISTICS

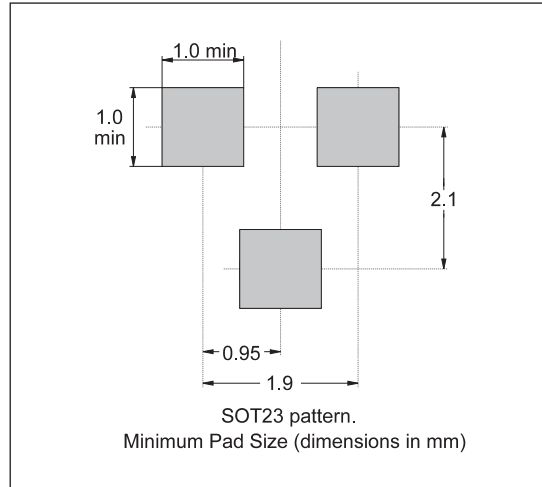


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PACKAGE OUTLINE



PAD LAYOUT



CONTROLLING DIMENSIONS IN MILLIMETRES. APPROX CONVERSIONS INCHES.

PACKAGE DIMENSIONS

DIM	MILLIMETRES		INCHES		DIM	MILLIMETRES		INCHES	
	MIN	MAX	MIN	MAX		MIN	MAX	MIN	MAX
A	2.67	3.05	0.105	0.120	H	0.33	0.51	0.013	0.020
B	1.20	1.40	0.047	0.055	K	0.01	0.10	0.0004	0.004
C	—	1.10	—	0.043	L	2.10	2.50	0.083	0.0985
D	0.37	0.53	0.015	0.021	M	0.45	0.64	0.018	0.025
F	0.085	0.15	0.0034	0.0059	N	0.95 NOM		0.0375 NOM	
G	1.90 NOM		0.075 NOM		θ	10° TYP		10° TYP	

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