

ZXMN10A07F

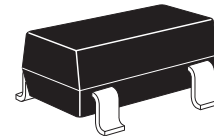
100V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 100V$: $R_{DS(on)} = 0.7\Omega$ $I_D = 0.8A$

DESCRIPTION

This new generation of Trench 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.



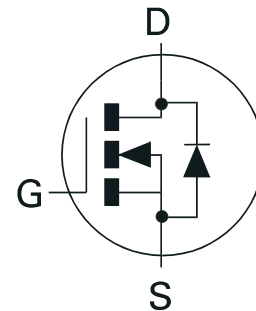
SOT23

FEATURES

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

APPLICATIONS

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



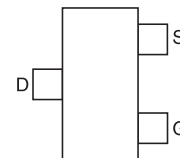
ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN10A07FTA	7"	8mm	3000 units
ZXMN10A07FTC	13"	8mm	10000 units

DEVICE MARKING

- 7N1

PINOUT



Top View

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ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	100	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	0.8 0.6 0.7	A
Pulsed Drain Current ^(c)	I_{DM}	3.5	A
Continuous Source Current (Body Diode) ^(b)	I_S	0.5	A
Pulsed Source Current (Body Diode) ^(c)	I_{SM}	3.5	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

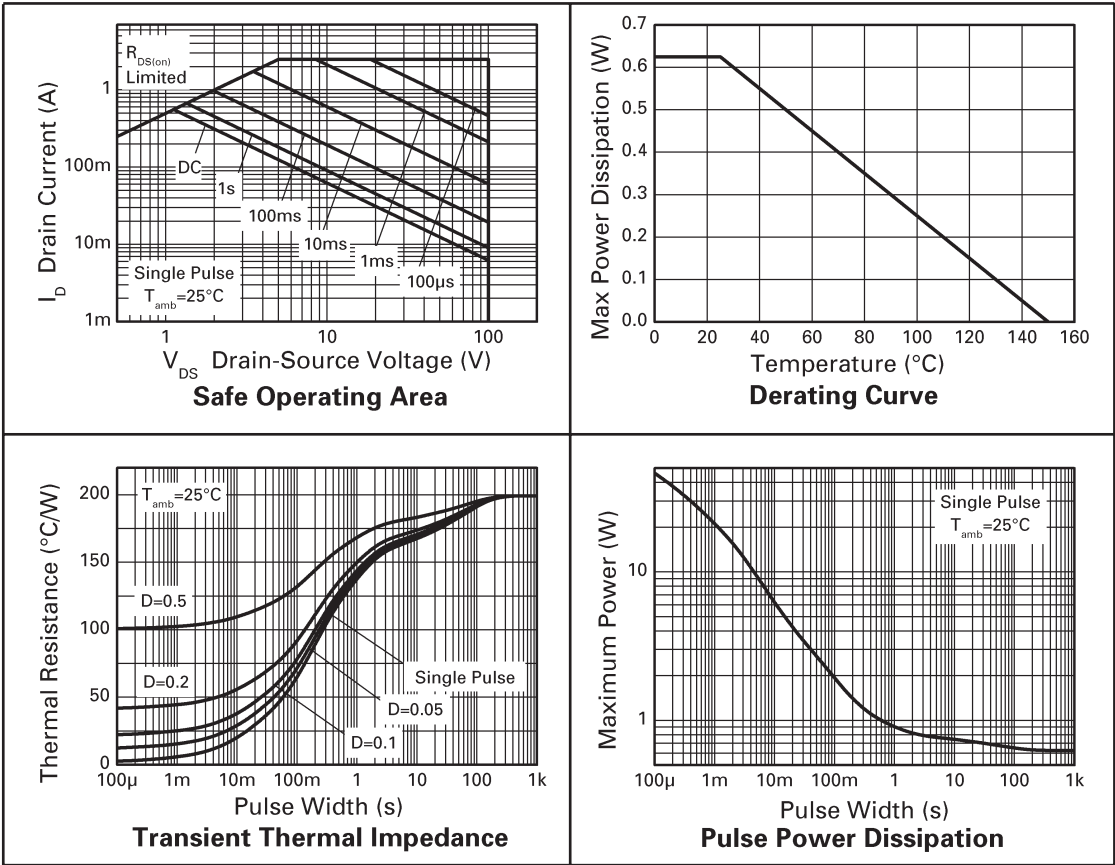
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at $t \leq 5$ secs.

(c) Repetitive rating 25mm x 25mm FR4 PCB, $D=0.02$, pulse width 300 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 Tamb = 25°C unless otherwise stated)

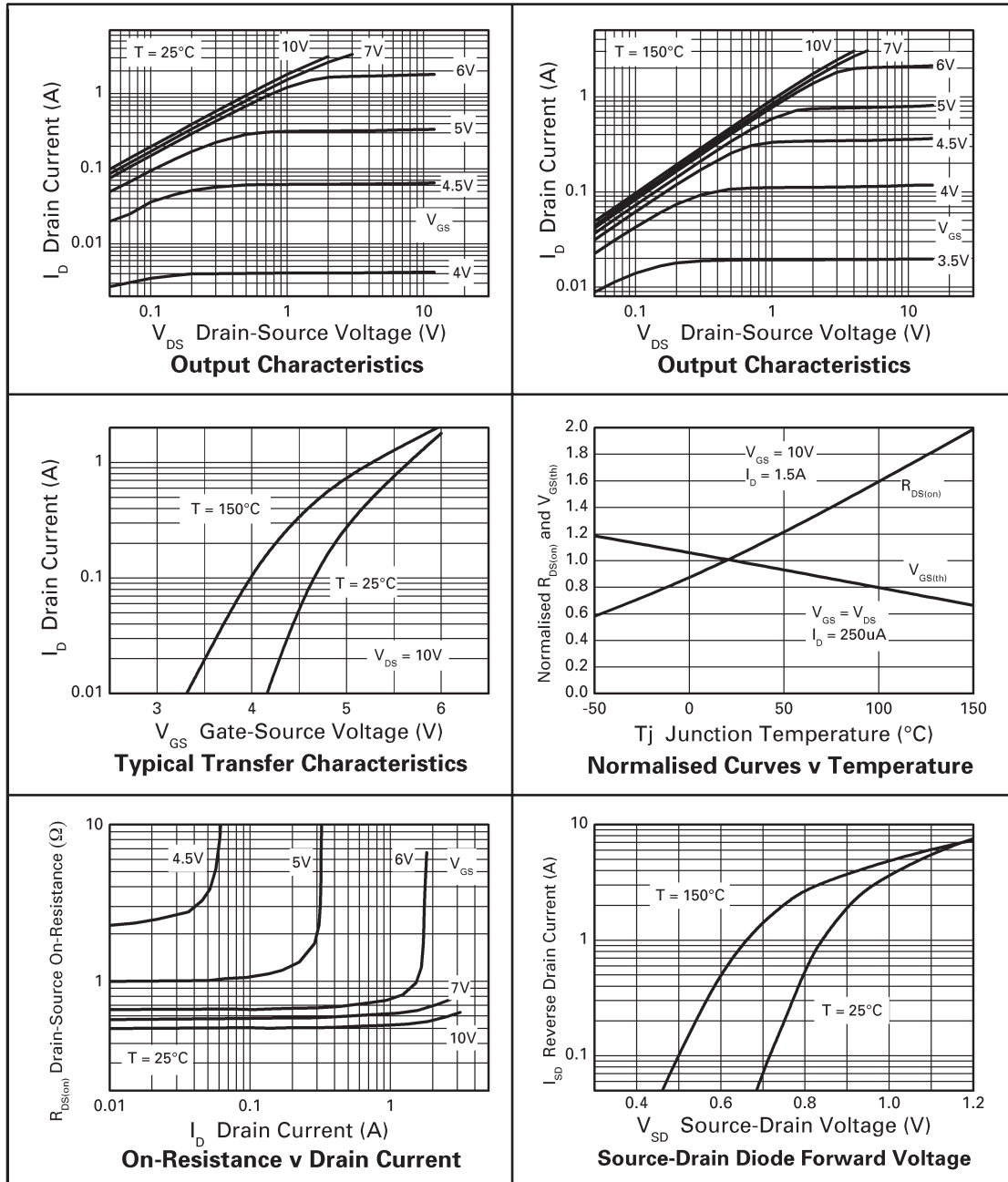
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	100			V	$I_D=250\mu A, V_{GS}=0V$
Zero Gate Voltage Drain Current	I_{DSS}			1	μA	$V_{DS}=100V, V_{GS}=0V$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	2.0		4.0	V	$I_D=250\mu A, V_{DS}=V_{GS}$
Static Drain-Source On-State Resistance ⁽¹⁾	$R_{DS(on)}$			0.7 0.9	Ω Ω	$V_{GS}=10V, I_D=1.5A$ $V_{GS}=6V, I_D=1A$
Forward Transconductance ^{(1) (3)}	g_{fs}		1.6		S	$V_{DS}=15V, I_D=1A$
DYNAMIC ⁽³⁾						
Input Capacitance	C_{iss}		138		pF	$V_{DS}=50V, V_{GS}=0V,$ $f=1MHz$
Output Capacitance	C_{oss}		12		pF	
Reverse Transfer Capacitance	C_{rss}		6		pF	
SWITCHING ^{(2) (3)}						
Turn-On Delay Time	$t_{d(on)}$		1.8		ns	$V_{DD}=50V, I_D=1A$ $R_G=6.0\Omega, V_{GS}=10V$
Rise Time	t_r		1.5		ns	
Turn-Off Delay Time	$t_{d(off)}$		4.1		ns	
Fall Time	t_f		2.1		ns	
Total Gate Charge	Q_g		2.9		nC	$V_{DS}=50V, V_{GS}=10V,$ $I_D=1A$
Gate-Source Charge	Q_{gs}		0.7		nC	
Gate-Drain Charge	Q_{gd}		1		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage ⁽¹⁾	V_{SD}		0.85	0.95	V	$T_j=25^{\circ}C, I_S=1.5A,$ $V_{GS}=0V$
Reverse Recovery Time ⁽³⁾	t_{rr}		27		ns	$T_j=25^{\circ}C, I_S=1.8A,$ $di/dt=100A/\mu s$
Reverse Recovery Charge ⁽³⁾	Q_{rr}		12		nC	

NOTES

- (1) Measured under pulsed conditions. Pulse 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.

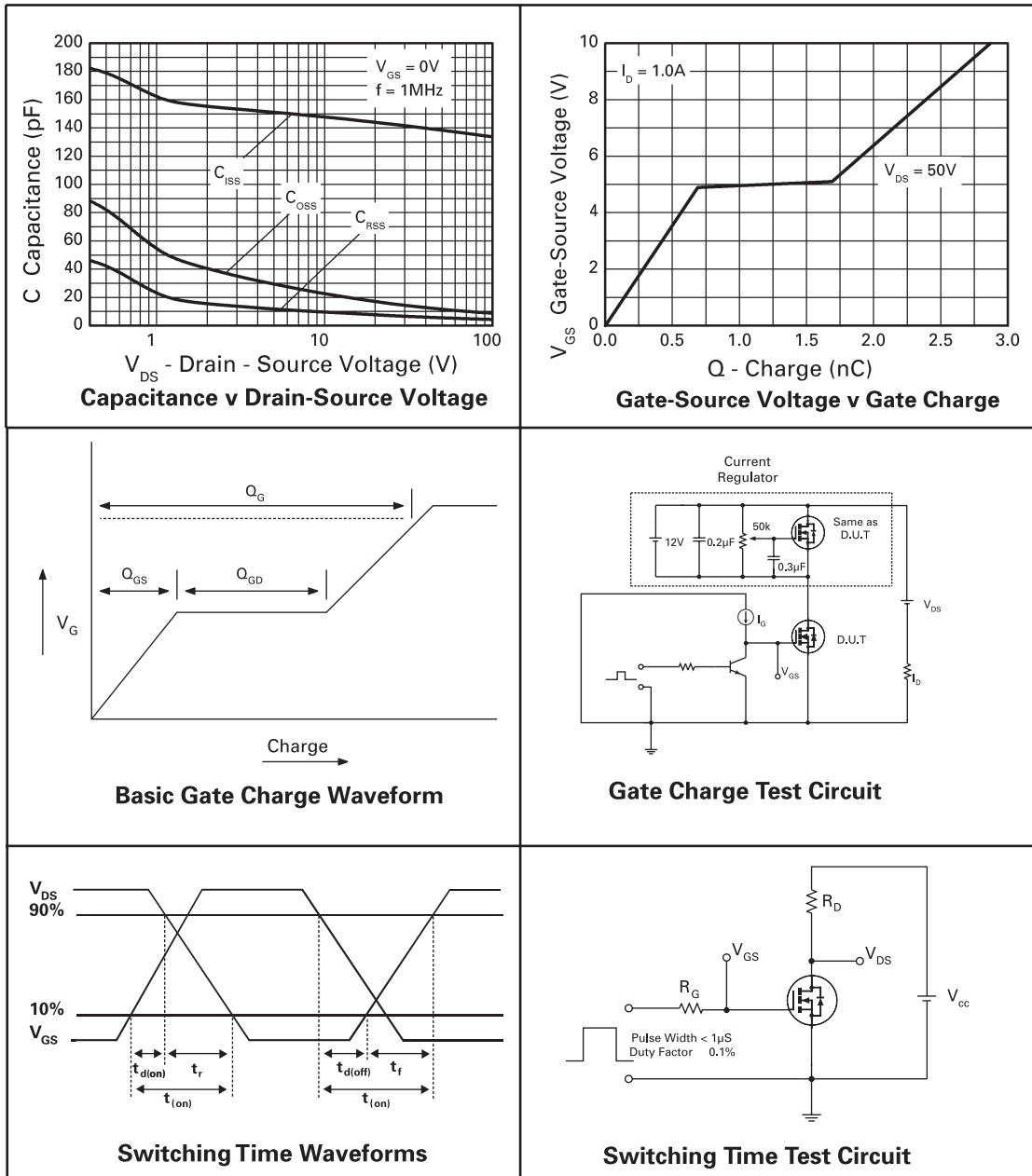
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TYPICAL CHARACTERISTICS



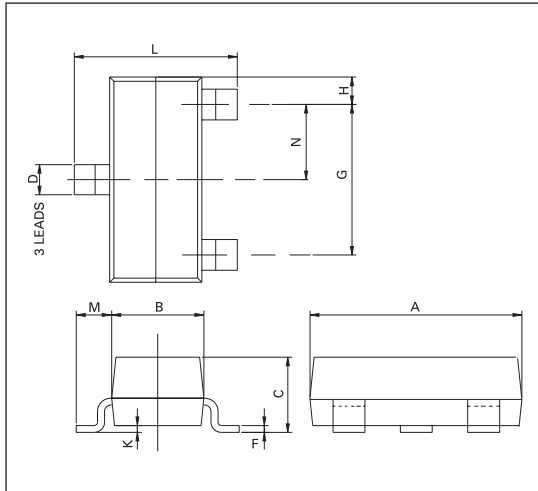
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TYPICAL CHARACTERISTICS

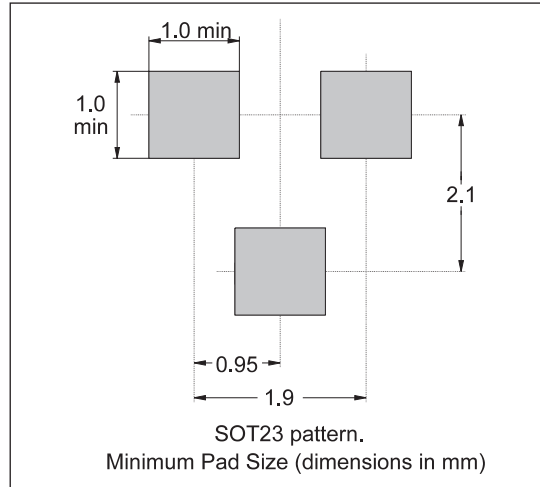


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PACKAGE OUTLINE



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		φ	10° TYP		10° TYP	

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