

ZXMN10A07F

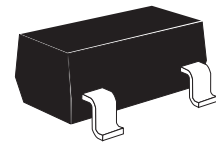
100V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 100V$; $R_{DS(ON)} = 1\Omega$ $I_D = 0.64A$

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.



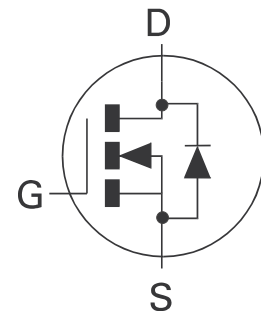
SOT23

FEATURES

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

APPLICATIONS

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

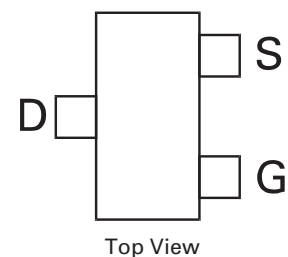


ORDERING INFORMATION

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

DEVICE MARKING

- 7N1



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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°C(b) V _{GS} =10V; T _A =70°C(b) V _{GS} =10V; T _A =25°C(a)	I _D	0.64 0.51 0.56	A
Pulsed Drain Current (c)	I _{DM}	2.5	A
Continuous Source Current (Body Diode) (b)	I _S	2	A
Pulsed Source Current (Body Diode)(c)	I _{SM}	2.5	A
Power Dissipation at T _A =25°C (a) Linear Derating Factor	P _D	625 5	mW mW/°C
Power Dissipation at T _A =25°C (b) Linear Derating Factor	P _D	806 6.4	mW 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 _{θJA}	200	°C/W
Junction to Ambient (b)	R _{θJA}	155	°C/W

NOTES

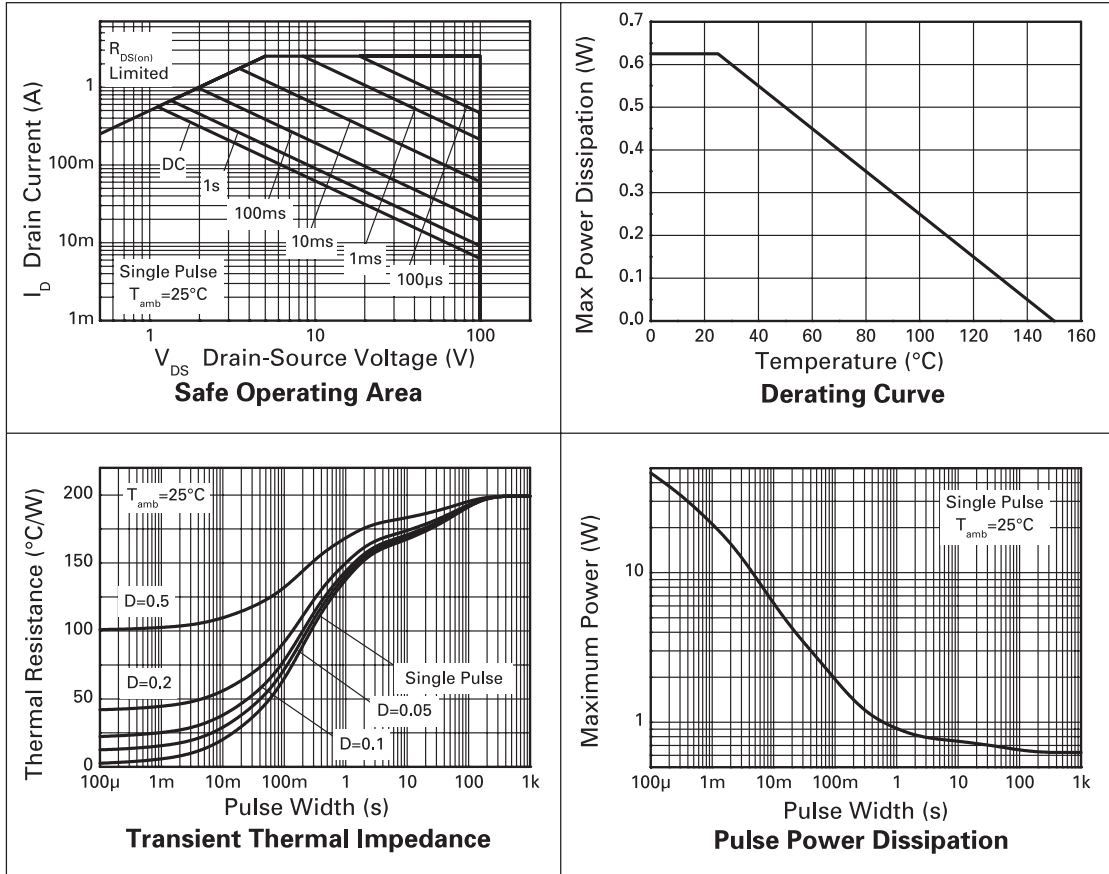
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

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

(c) Repetitive rating 25mm x 25mm FR4 PCB, D=0.05, pulse width 10μs - 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)

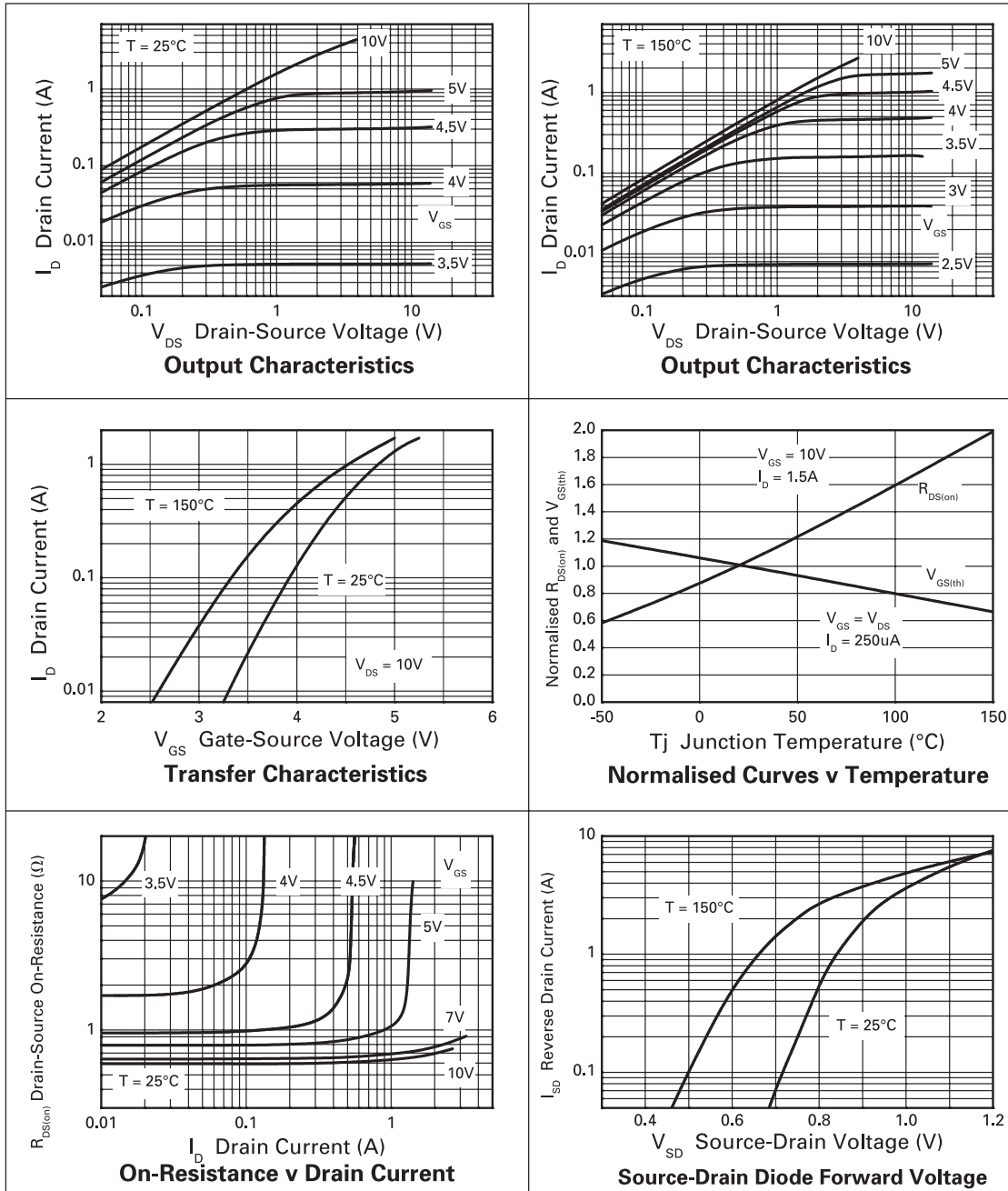
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	100			V	$I_D=250\mu A, V_{GS}=0V$
Zero Gate Voltage Drain Current	I_{DSS}			1	μA	$V_{DS}=60V, V_{GS}=0V$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS}=\pm 20V, V_{DS}=0V$
Gate-Source Threshold Voltage	$V_{GS(th)}$	2.0		4.0	V	$I_D=250\mu A, V_{DS}=V_{GS}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			1 1.1	Ω Ω	$V_{GS}=10V, I_D=1.5A$ $V_{GS}=6V, I_D=1A$
Forward Transconductance (3)	g_{fs}		1.6		S	$V_{DS}=15V, I_D=1A$
DYNAMIC (3)						
Input Capacitance	C_{iss}		138		pF	$V_{DS}=60V, V_{GS}=0V,$ $f=1MHz$
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	$V_{DS}=50V, V_{GS}=10V,$ $I_D=1.0A$
Gate-Source Charge	Q_{gs}		0.7		nC	
Gate-Drain Charge	Q_{gd}		1		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}			0.95	V	$T_J=25^\circ C, I_S=1.5A,$ $V_{GS}=0V$
Reverse Recovery Time (3)	t_{rr}		27		ns	$T_J=25^\circ C, I_F=1.8A,$ $di/dt=100A/\mu s$
Reverse Recovery Charge (3)	Q_{rr}		12		nC	

NOTES

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

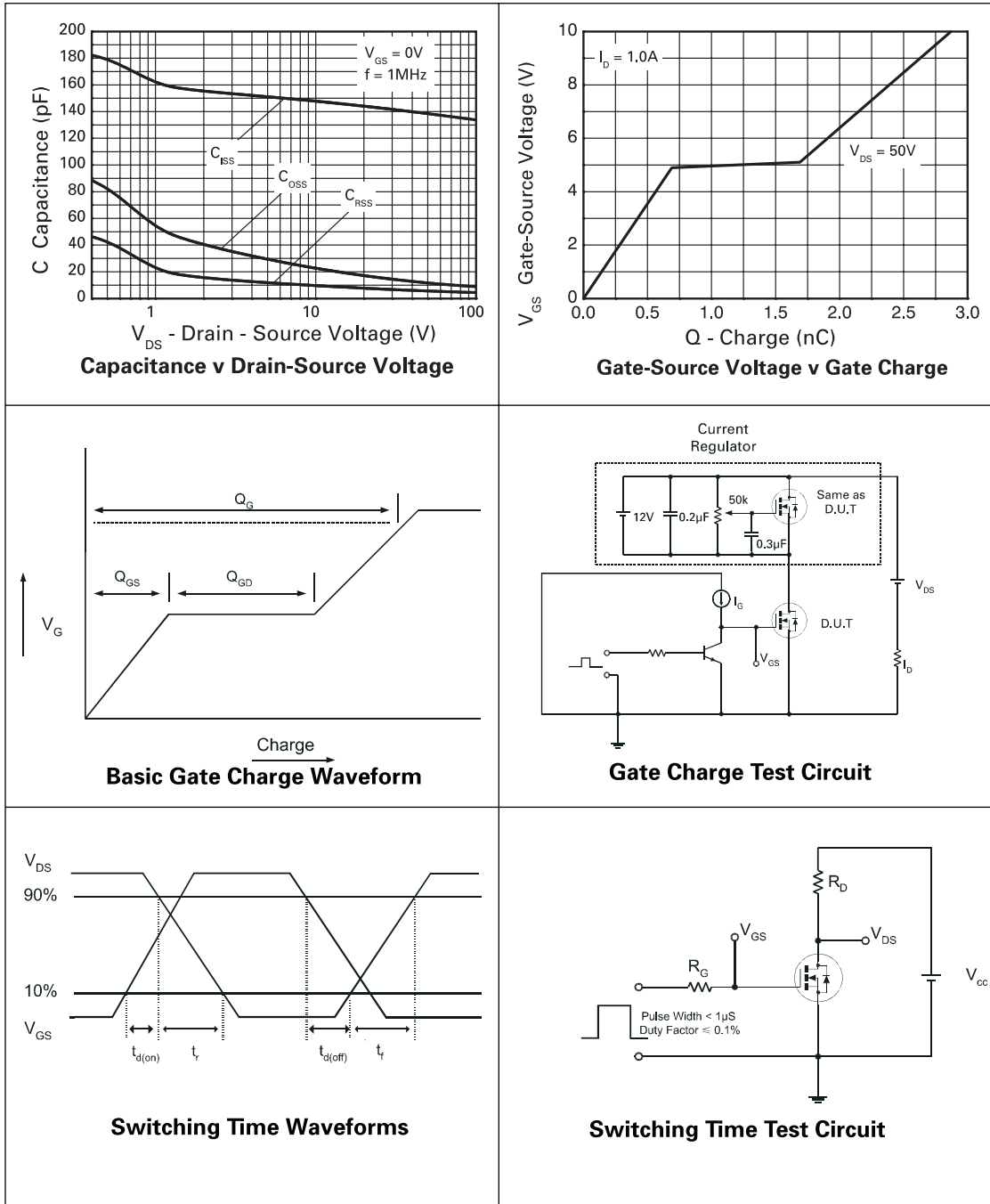
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TYPICAL CHARACTERISTICS



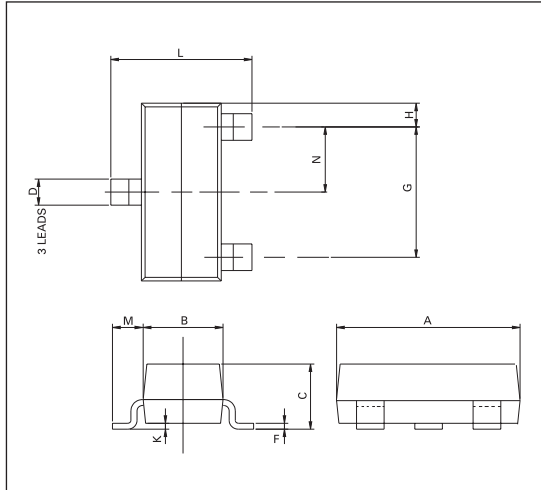
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TYPICAL CHARACTERISTICS



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PACKAGE OUTLINE



PAD LAYOUT



PACKAGE DIMENSIONS

DIM	MILLIMETRES		DIM	MILLIMETRES	
	MIN	MAX		MIN	MAX
A	2.67	3.05	H	0.33	0.51
B	1.20	1.40	K	0.01	0.10
C	—	1.10	L	2.10	2.50
D	0.37	0.53	M	0.45	0.64
F	0.085	0.15	N	0.95 NOM	
G	1.90 NOM		φ	10° TYP	

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