

# ZXMN10A07Z

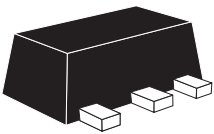
## 100V N-CHANNEL ENHANCEMENT MODE MOSFET

### SUMMARY

$V_{(BR)DSS} = 100V$ ;  $R_{DS(ON)} = 1\Omega$   $I_D = 1.15A$

### 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.



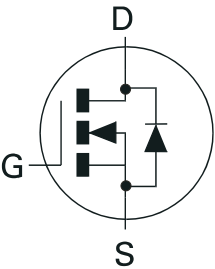
SOT89

### FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- SOT89 package

### APPLICATIONS

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

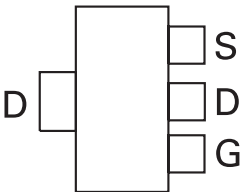


### ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXMN10A07ZTA	7"	12mm	1000 units

### DEVICE MARKING

- 7N10



Top View

# ZXMN10A07Z

## ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	$V_{DSS}$	100	V
Gate Source Voltage	$V_{GS}$	$\pm 20$	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)	$I_D$	1.15 0.92 0.87	A
Pulsed Drain Current (c)	$I_{DM}$	3.9	A
Continuous Source Current (Body Diode) (b)	$I_S$	2.1	A
Pulsed Source Current (Body Diode) (c)	$I_{SM}$	3.9	A
Power Dissipation at $T_A=25^\circ C$ (a) Linear Derating Factor	$P_D$	1.5 12	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b) Linear Derating Factor	$P_D$	2.6 21	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)	$R_{\theta JA}$	83.3	$^\circ C/W$
Junction to Ambient (b)	$R_{\theta JA}$	47.4	$^\circ C/W$

### NOTES

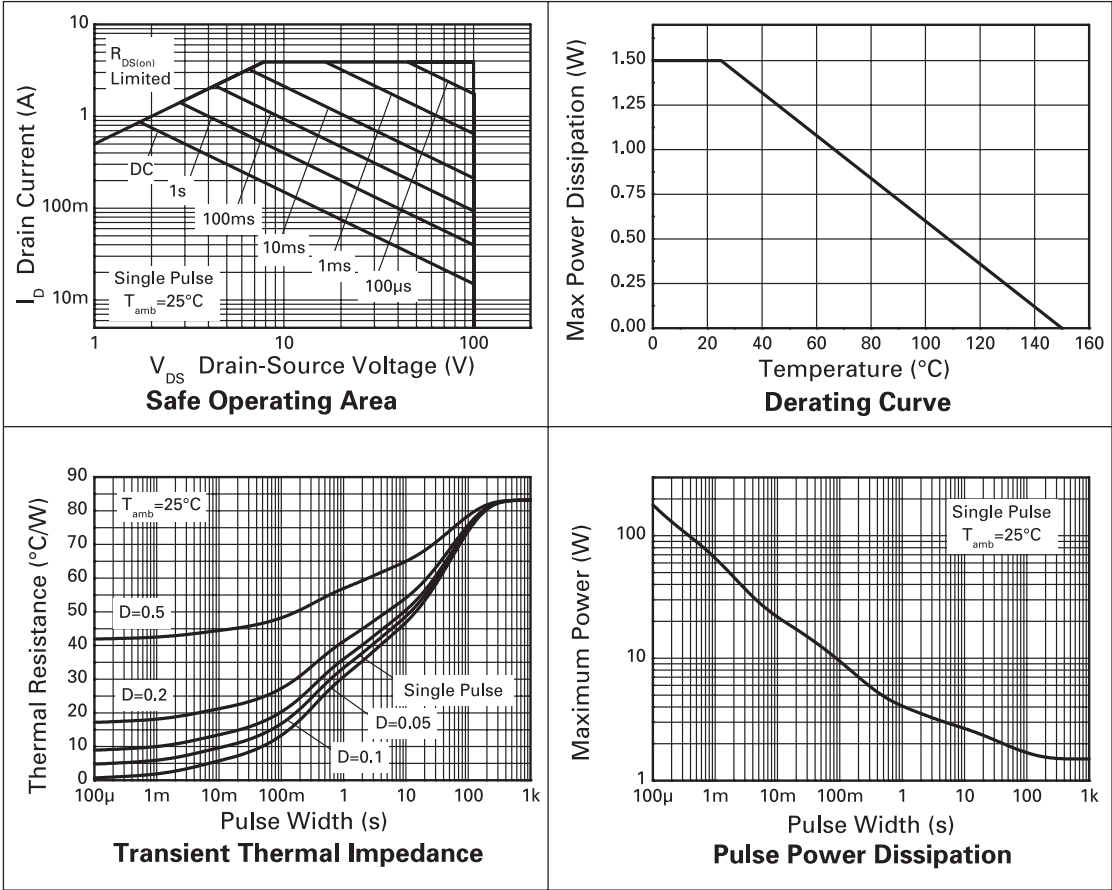
(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at  $t \leq 10$  secs.

(c) Repetitive rating 25mm x 25mm FR4 PCB, D = 0.05, pulse width 10 $\mu s$  - 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  $T_A = 25^\circ\text{C}$  unless otherwise stated).

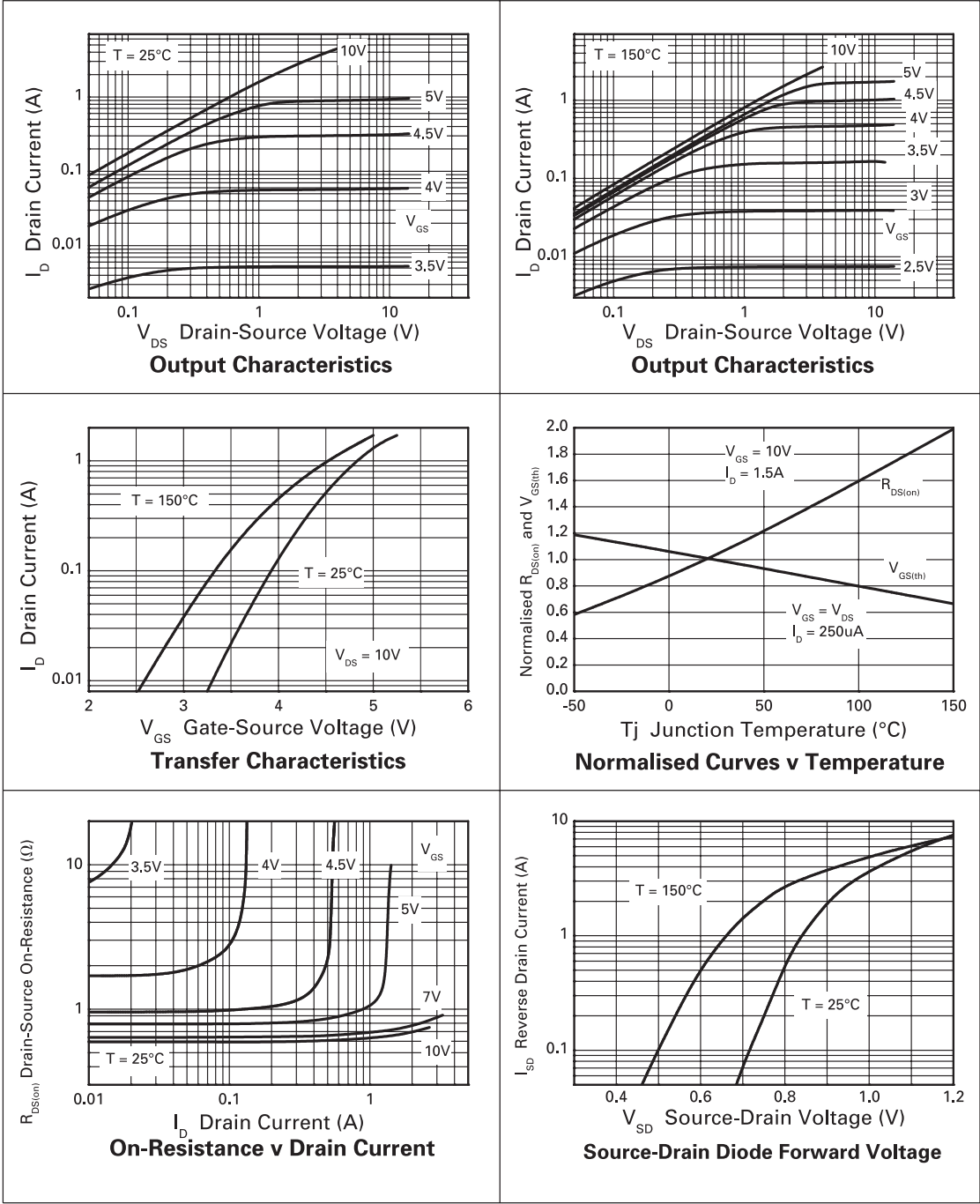
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V(BR)DSS	100			V	ID=250μA, VGS=0V
Zero Gate Voltage Drain Current	IDSS			1.0	μA	VDS=100V, VGS=0V
Gate-Body Leakage	IGSS			100	nA	VGS=±20V, VDS=0V
Gate-Source Threshold Voltage	VGS(th)	2.0			V	ID=250μA, VDS= VGS
Static Drain-Source On-State Resistance (1)	RDS(on)			1.0 1.1	Ω Ω	VGS=10V, ID=1.5A VGS=6V, ID=1A
Forward Transconductance (1)(3)	gfs		1.6		S	VDS=15V,ID=1A
DYNAMIC (3)						
Input Capacitance	Ciss		138		pF	VDS=50 V, VGS=0V, f=1MHz
Output Capacitance	Coss		12		pF	
Reverse Transfer Capacitance	Crss		6		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	td(on)		1.8		ns	VDD =50V, ID=1.0A RG=6.0Ω, VGS=10V
Rise Time	tr		1.5		ns	
Turn-Off Delay Time	td(off)		4.1		ns	
Fall Time	tf		2.1		ns	
Total Gate Charge	Qg		2.9		nC	VDS=50V,VGS=10V, ID=1.0A
Gate-Source Charge	Qgs		0.7		nC	
Gate-Drain Charge	Qgd		1.0		nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	VSD		0.84	0.95	V	TJ=25°C, IS=1.5A, VGS=0V
Reverse Recovery Time (3)	trr		27		ns	TJ=25°C, IF=1.0A, di/dt= 100A/μs
Reverse Recovery Charge (3)	Qrr		12		nC	

## NOTES

- (1) Measured under pulsed conditions. Width=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.

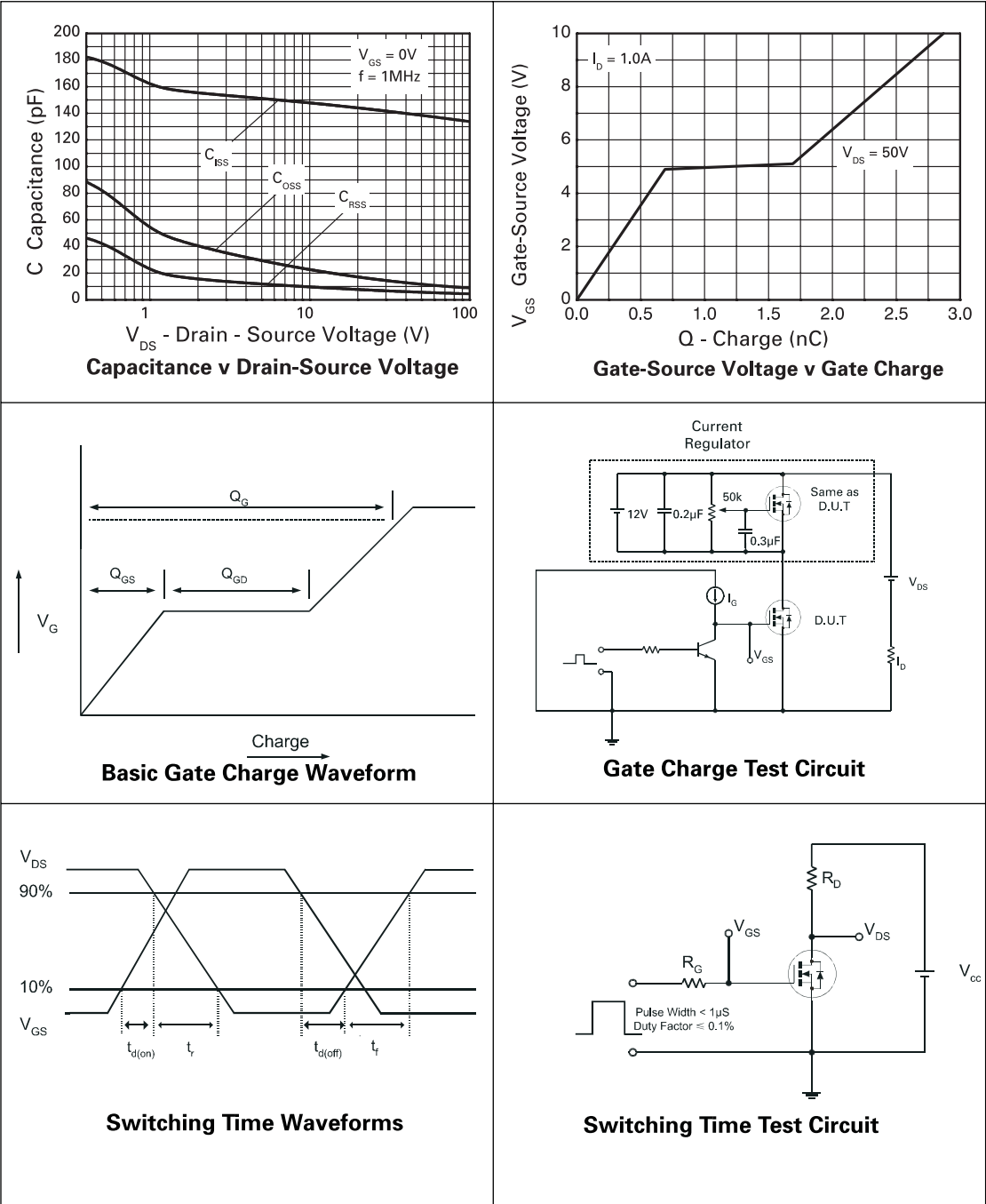
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TYPICAL CHARACTERISTICS



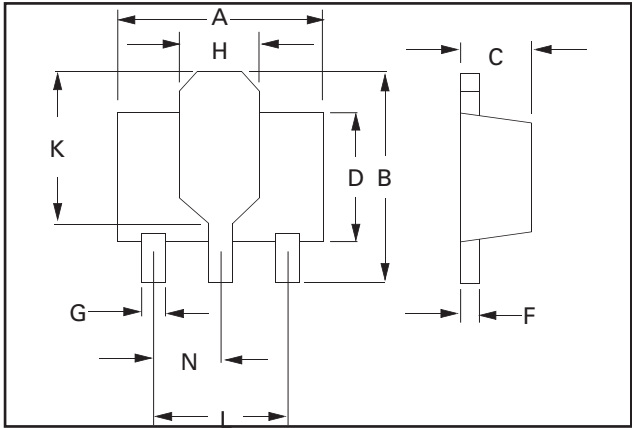
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## TYPICAL CHARACTERISTICS

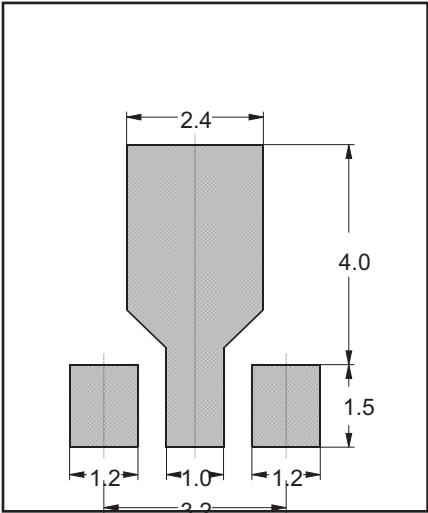


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## PACKAGE DIMENSIONS



## PAD LAYOUT DETAILS



DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	2.67	3.05	0.105	0.120
B	1.20	1.40	0.047	0.055
C	–	1.10	–	0.043
D	0.37	0.53	0.0145	0.021
F	0.085	0.15	0.0033	0.0059
G	NOM 1.9		NOM 0.075	
K	0.01	0.10	0.0004	0.004
L	2.10	2.50	0.0825	0.0985
N	NOM 0.95		NOM 0.037	

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