

ZXM62N03G

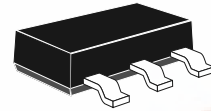
30V N-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = 30V$; $R_{DS(on)} = 0.11\Omega$; $I_D = 4.7A$

DESCRIPTION

This new generation of High Density 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.



SOT223

FEATURES

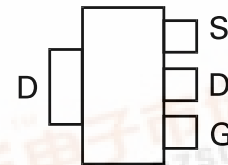
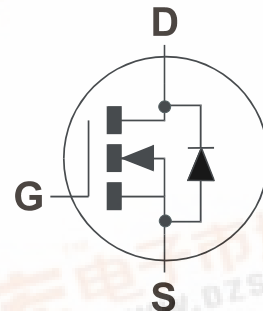
- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- SOT223 package

APPLICATIONS

- DC-DC Converters
- Audio Output Stage
- Relay and Solenoid driving
- Motor Control

ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXM62N03GTA	7"	12mm	1000 units
ZXM62N03GTC	13"	12mm	4000 units



Top View

DEVICE MARKING

- ZXM6
2N03

ZXM62N03G

ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DSS}	30	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	4.7 3.8 3.4	A
Pulsed Drain Current (c)	I_{DM}	16	A
Continuous Source Current (Body Diode) (b)	I_S	2.6	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	16	A
Power Dissipation at $T_A=25^\circ C$ (a) Linear Derating Factor	P_D	2.0 16	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ (b) Linear Derating Factor	P_D	3.9 31	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)	$R_{\theta JA}$	62.5	$^\circ C/W$
Junction to Ambient (b)	$R_{\theta JA}$	32	$^\circ C/W$

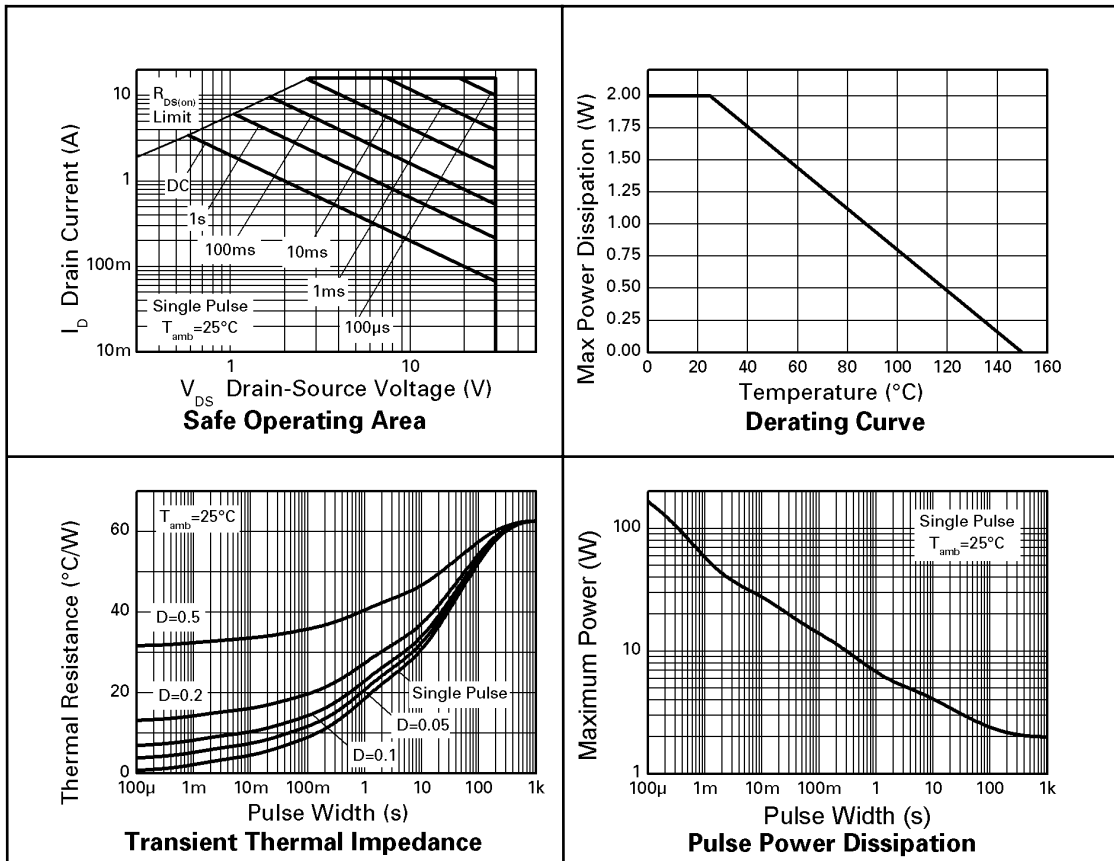
NOTES

(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 limited by maximum junction temperature.

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ELECTRICAL CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise stated).

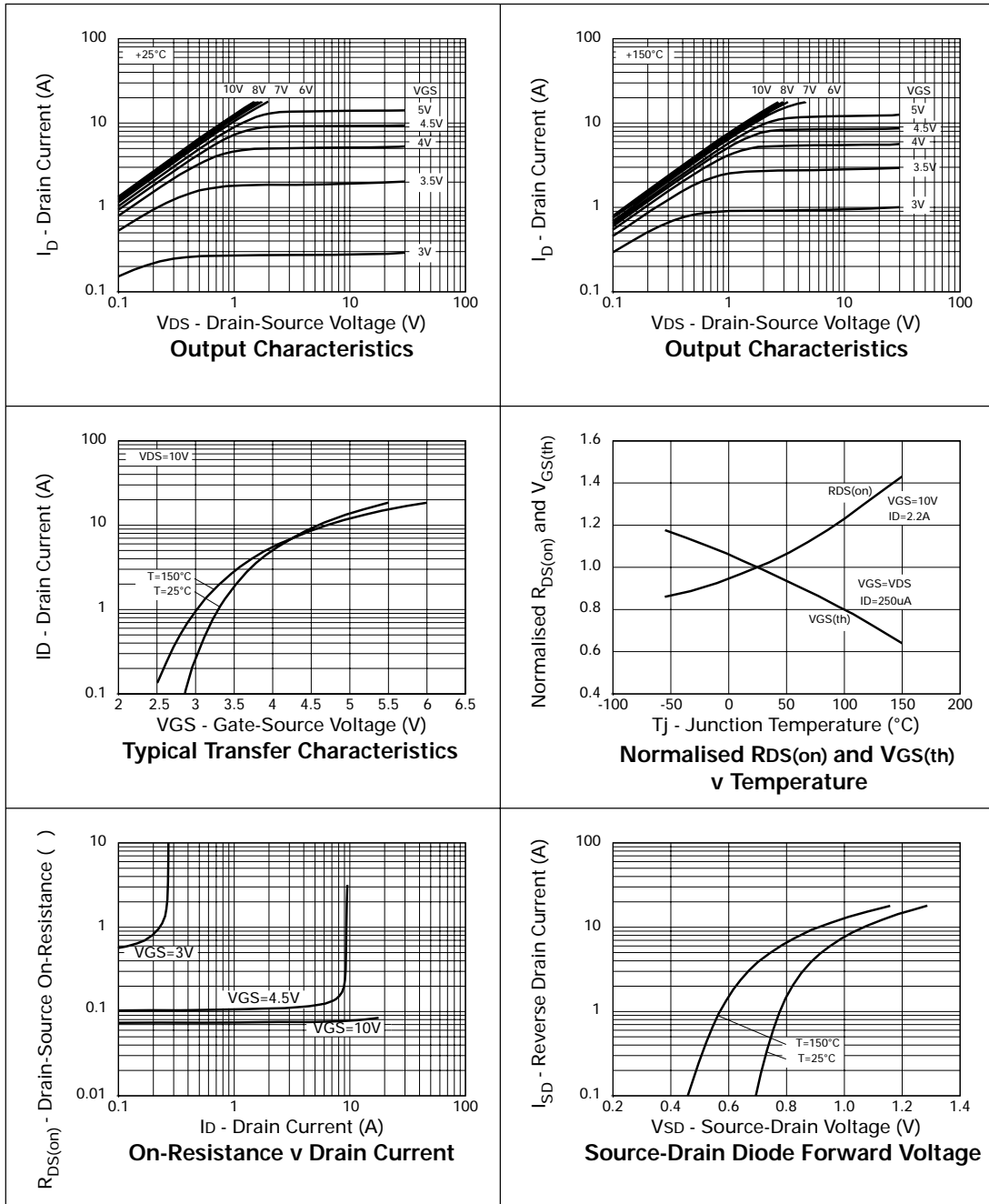
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	30			V	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}			1	μA	$V_{DS}=30\text{V}$, $V_{GS}=0\text{V}$
Gate-Body Leakage	I_{GSS}			100	nA	$V_{GS}=\pm 20\text{V}$, $V_{DS}=0\text{V}$
Gate-Source Threshold Voltage	$V_{GS(th)}$	1.0			V	$I_D=250\mu\text{A}$, $V_{DS}=V_{GS}$
Static Drain-Source On-State Resistance (1)	$R_{DS(on)}$			0.11 0.15	Ω Ω	$V_{GS}=10\text{V}$, $I_D=2.2\text{A}$ $V_{GS}=4.5\text{V}$, $I_D=1.1\text{A}$
Forward Transconductance (1)(3)	g_{fs}	1.1			S	$V_{DS}=15\text{V}$, $I_D=1.1\text{A}$
DYNAMIC (3)						
Input Capacitance	C_{iss}		380		pF	$V_{DS}=25\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$
Output Capacitance	C_{oss}		90		pF	
Reverse Transfer Capacitance	C_{rss}		30		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	$t_{d(on)}$		2.9		ns	$V_{DD}=15\text{V}$, $I_D=2.2\text{A}$ $R_G=6.0\Omega$, $V_{GS}=10\text{V}$
Rise Time	t_r		5.6		ns	
Turn-Off Delay Time	$t_{d(off)}$		11.7		ns	
Fall Time	t_f		6.4		ns	
Total Gate Charge	Q_g			9.6	nC	$V_{DS}=24\text{V}$, $V_{GS}=10\text{V}$, $I_D=2.2\text{A}$
Gate-Source Charge	Q_{gs}			1.7	nC	
Gate-Drain Charge	Q_{gd}			2.8	nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V_{SD}			0.95	V	$T_J=25^\circ\text{C}$, $I_S=2.2\text{A}$, $V_{GS}=0\text{V}$
Reverse Recovery Time (3)	t_{rr}		18.8		ns	$T_J=25^\circ\text{C}$, $I_F=2.2\text{A}$, $di/dt= 100\text{A}/\mu\text{s}$
Reverse Recovery Charge (3)	Q_{rr}		11.4		nC	

NOTES

- (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.

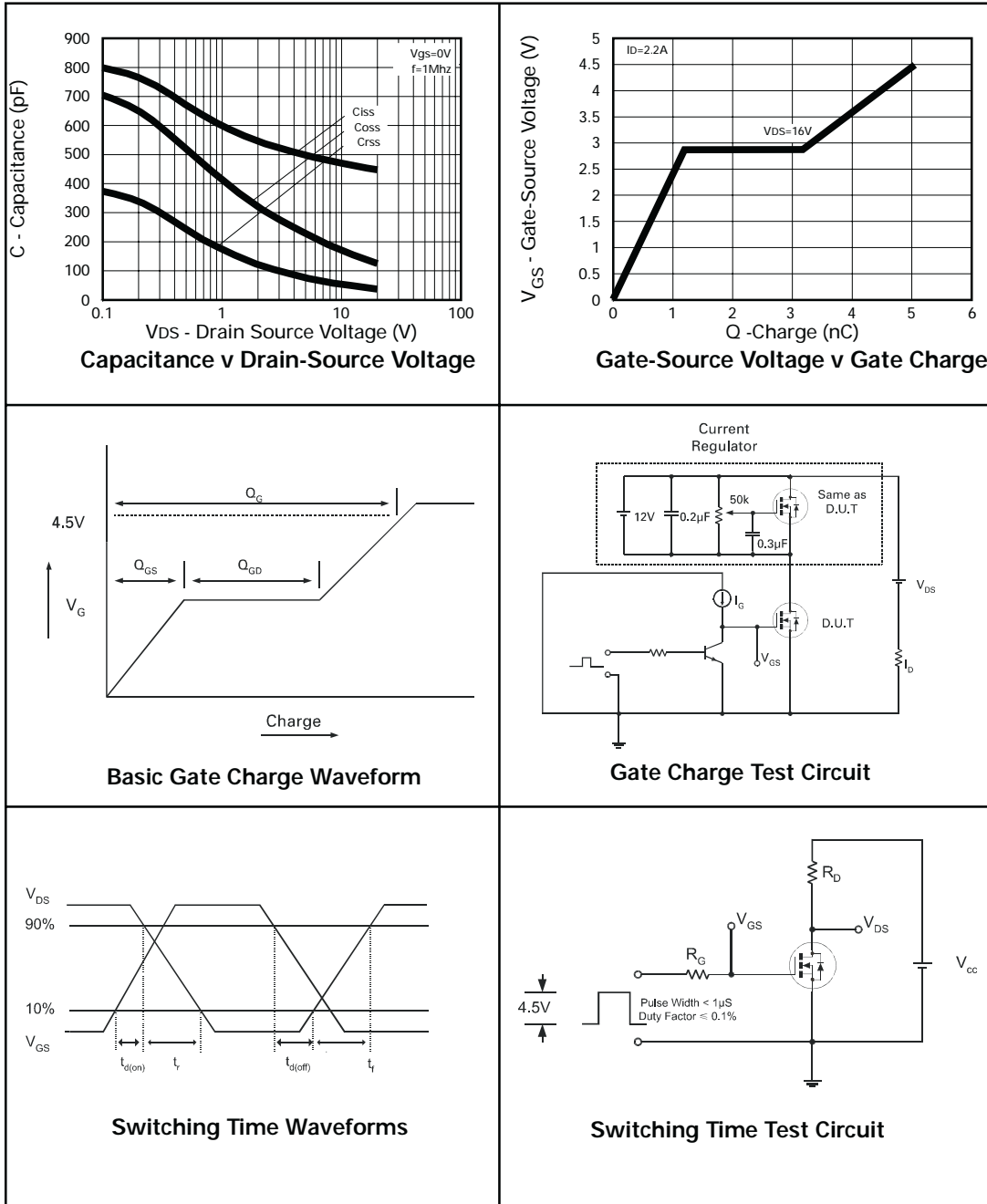
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TYPICAL CHARACTERISTICS



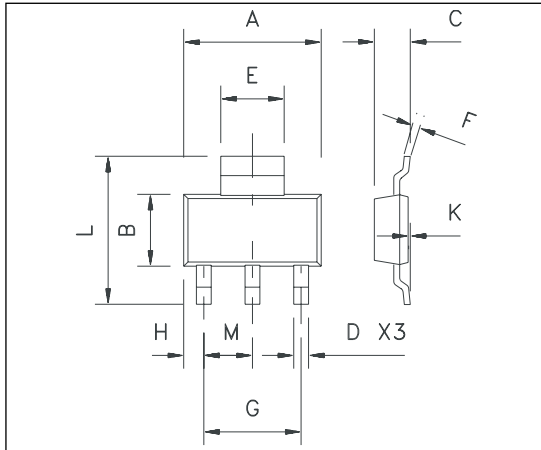
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TYPICAL CHARACTERISTICS



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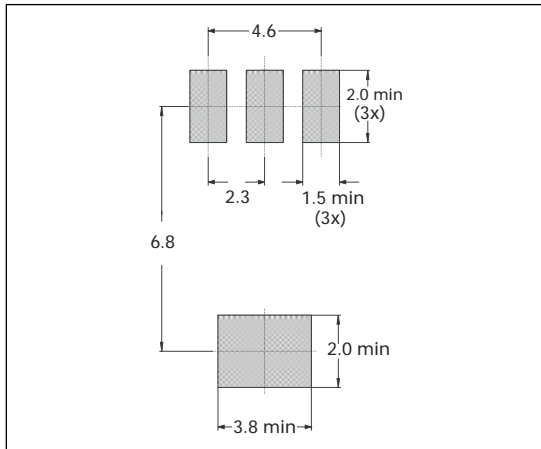
PACKAGE OUTLINE



PACKAGE DIMENSIONS

DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	6.3	6.7	0.248	0.264
B	3.3	3.7	0.130	0.146
C	-	1.7	-	0.067
D	0.6	0.8	0.024	0.031
E	2.9	3.1	0.114	0.122
F	0.24	0.32	0.009	0.13
G	NOM 4.6		NOM 0.181	
H	0.85	1.05	0.033	0.041
K	0.02	0.10	0.0008	0.004
L	6.7	7.3	0.264	0.287
M	NOM 2.3		NOM 0.0905	

PAD LAYOUT DETAILS



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ISSUE 1 - OCTOBER 2002

