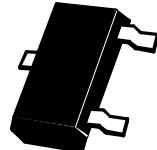
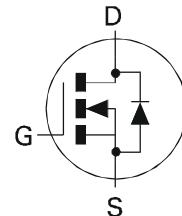


20V N-CHANNEL ENHANCEMENT MODE MOSFET**SUMMARY** **$V_{(BR)DSS}=20V$; $R_{DS(ON)}=0.18\Omega$; $I_D=1.7A$** **DESCRIPTION**

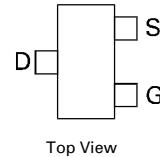
This new generation of high density MOSFETs from Zetex utilises a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.

**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



Top View

ORDERING INFORMATION

DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZXM61N02FTA	7	8mm embossed	3000 units
ZXM61N02FTC	13	8mm embossed	10000 units

DEVICE MARKING

- N02

ZXM61N02F

ABSOLUTE MAXIMUM RATINGS.

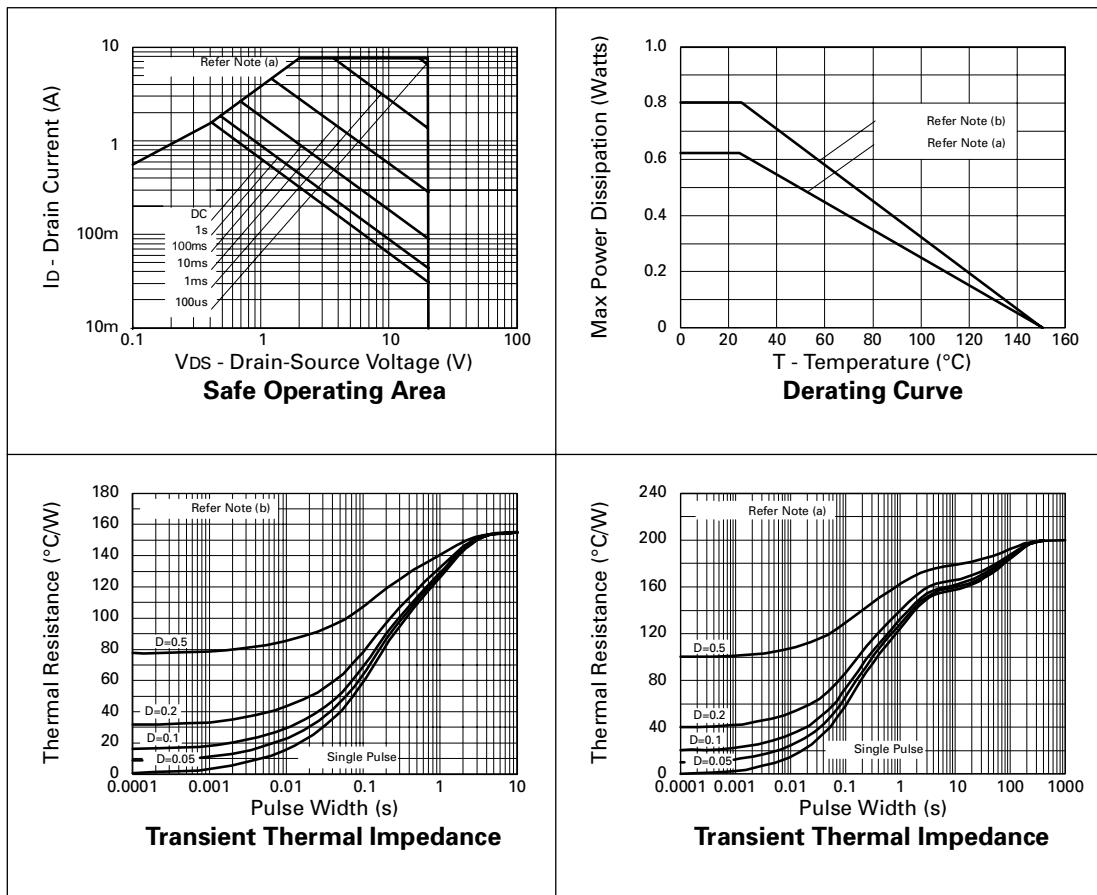
PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V _{DSS}	20	V
Gate Source Voltage	V _{GS}	± 12	V
Continuous Drain Current (V _{GS} =4.5V; T _A =25°C)(b) (V _{GS} =4.5V; T _A =70°C)(b)	I _D	1.7 1.3	A
Pulsed Drain Current (c)	I _{DM}	7.4	A
Continuous Source Current (Body Diode) (b)	I _S	0.8	A
Pulsed Source Current (Body Diode)	I _{SM}	7.4	A
Power Dissipation at T _A =25°C (a)	P _D	625	mW
Linear Derating Factor		5	mW/°C
Power Dissipation at T _A =25°C (b)	P _D	806	mW
Linear Derating Factor		6.4	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 - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

CHARACTERISTICS

ZXM61N02F

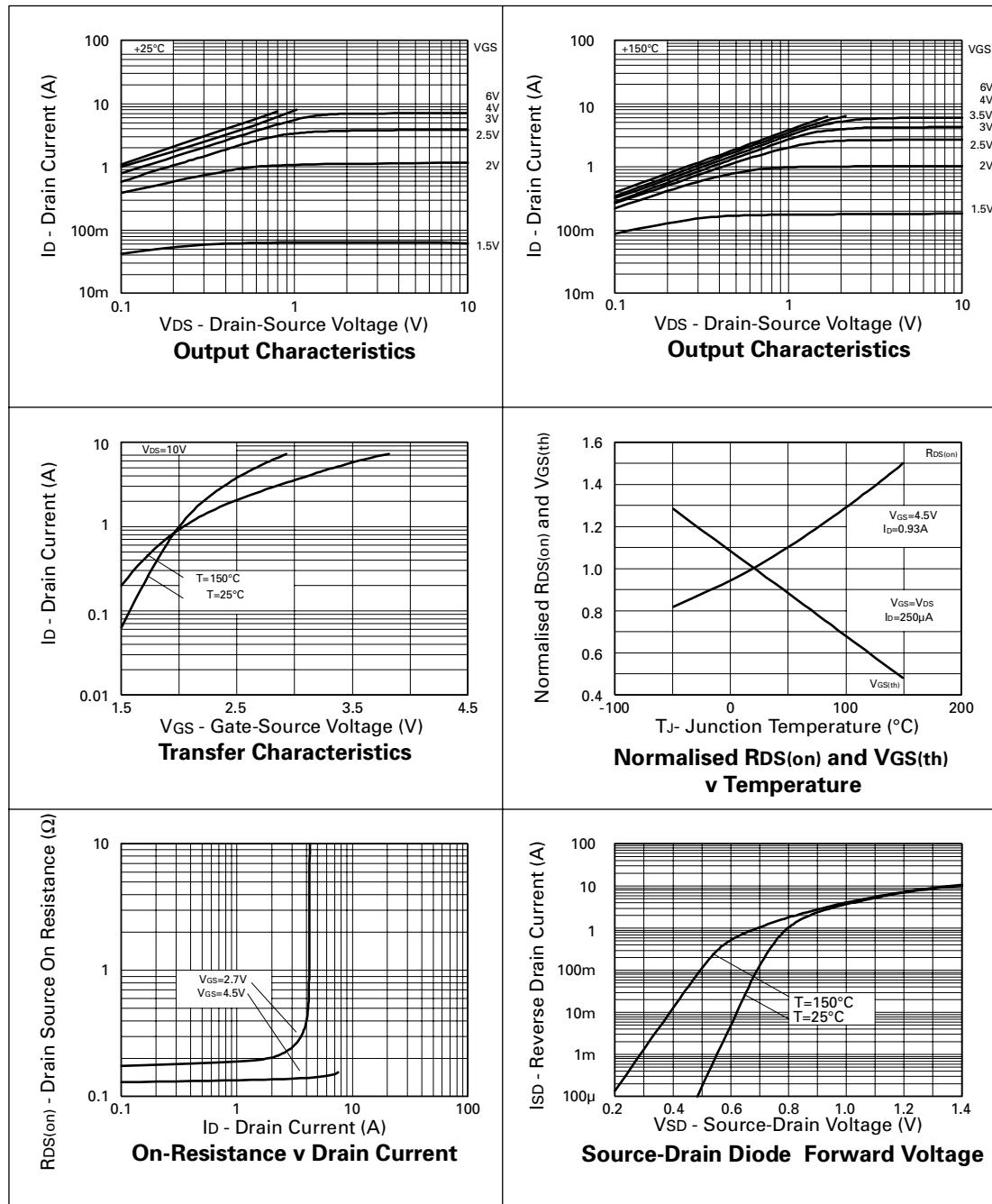
ELECTRICAL CHARACTERISTICS (at TA = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	TYP.(3)	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	20			V	I _D =250μA, V _{GS} =0V
Zero Gate Voltage Drain Current	I _{DSS}			1	μA	V _{DS} =20V, V _{GS} =0V
Gate-Body Leakage	I _{GSS}			100	nA	V _{GS} =± 12V, V _{DS} =0V
Gate-Source Threshold Voltage	V _{GS(th)}	0.7			V	I _D =250μA, V _{DS} = V _{GS}
Static Drain-Source On-State Resistance (1)	R _{DS(on)}			0.18 0.24	Ω	V _{GS} =4.5V, I _D =0.93A V _{GS} =2.7V, I _D =0.47A
Forward Transconductance (3)	g _{fs}	1.3			S	V _{DS} =10V, I _D =0.47A
DYNAMIC (3)						
Input Capacitance	C _{iss}		160		pF	
Output Capacitance	C _{oss}		50		pF	V _{DS} =15 V, V _{GS} =0V, f=1MHz
Reverse Transfer Capacitance	C _{rss}		30		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	t _{d(on)}		2.4		ns	
Rise Time	t _r		4.2		ns	
Turn-Off Delay Time	t _{d(off)}		7.8		ns	V _{DD} =10V, I _D =0.93A R _G =6.2Ω, R _D =11Ω (refer to test circuit)
Fall Time	t _f		4.2		ns	
Total Gate Charge	Q _g			3.4	nC	
Gate-Source Charge	Q _{gs}			0.41	nC	V _{DS} =16V, V _{GS} =4.5V, I _D =0.93A (refer to test circuit)
Gate-Drain Charge	Q _{gd}			0.8	nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V _{SD}			0.95	V	T _J =25°C, I _S =0.93A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		12.9		ns	T _J =25°C, I _F =0.93A, di/dt= 100A/μs
Reverse Recovery Charge (3)	Q _{rr}		5.2		nC	

NOTES

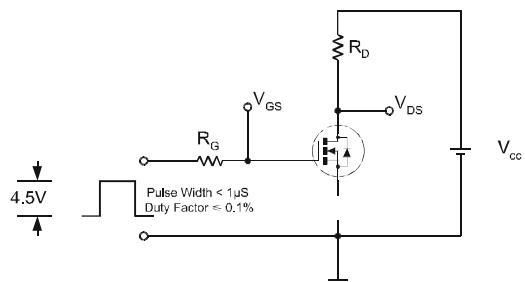
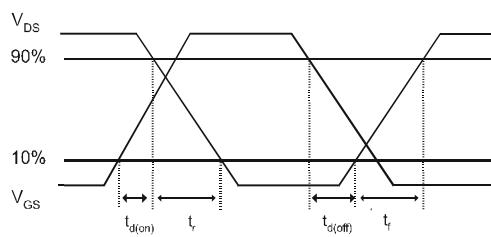
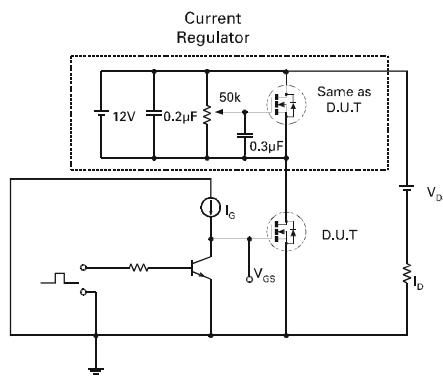
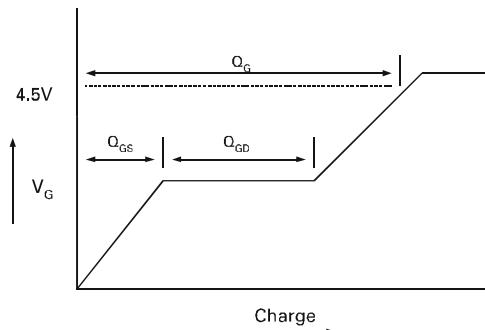
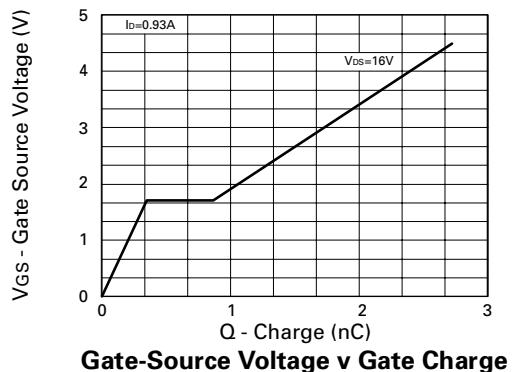
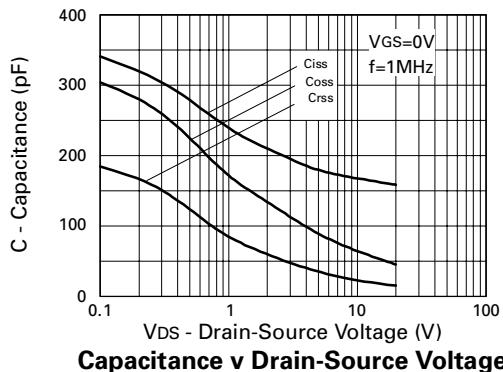
- (1) Measured under pulsed conditions. Width≤300μs. Duty cycle ≤2% .
- (2) Switching characteristics are independent of operating junction temperature.
- (3) For design aid only, not subject to production testing.

TYPICAL CHARACTERISTICS



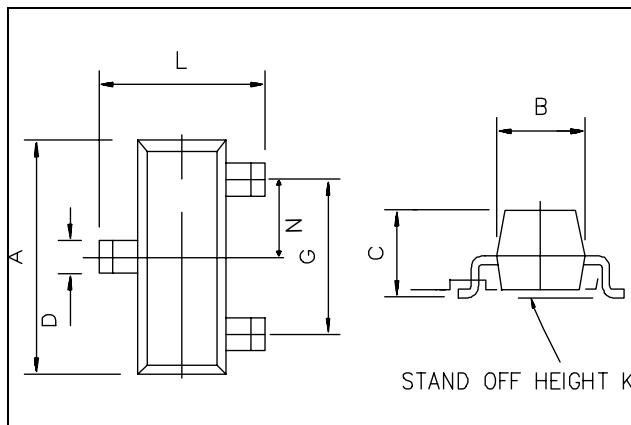
ZXM61N02F

TYPICAL CHARACTERISTICS

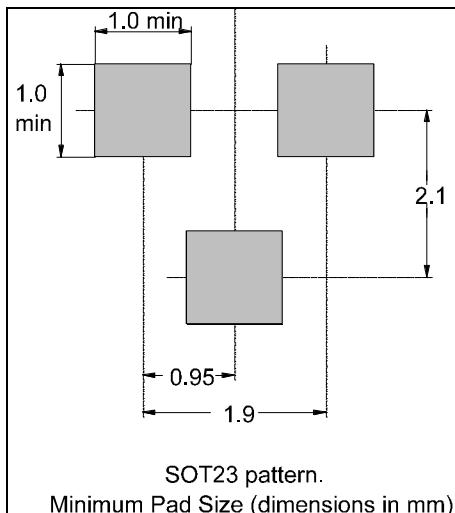


ZXM61N02F

PACKAGE DIMENSIONS



PAD LAYOUT DETAILS



SOT23 pattern.
Minimum Pad Size (dimensions in mm)

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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