

ZXM61P03F

30V P-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY
V_{(BR)DSS}=-30V; R_{DS(ON)}=0.35Ω; I_D=-1.1A

DESCRIPTION
This new generation of high density MOSFETs from TY 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.

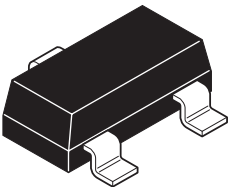
- FEATURES
- Low on-resistance
 - Fast switching speed
 - Low threshold
 - Low gate drive
 - SOT23 package

- APPLICATIONS
- DC - DC converters
 - Power management functions
 - Disconnect switches
 - Motor control

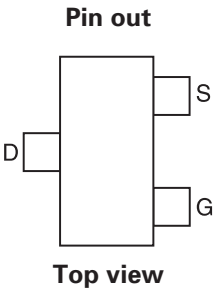
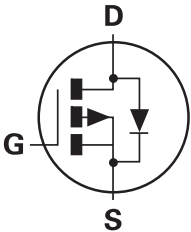
ORDERING INFORMATION

DEVICE	REEL SIZE (inches)	TAPE WIDTH (mm)	QUANTITY PER REEL
ZXM61P03FTA	7	8 embossed	3,000
ZXM61P03FTC	13	8 embossed	10,000

DEVICE MARKING
P03



SOT23



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ABSOLUTE MAXIMUM RATINGS

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)	I_D	-1.1 -0.9	A
Pulsed Drain Current (c)	I_{DM}	-4.3	A
Continuous Source Current (Body Diode)(b)	I_S	-0.88	A
Pulsed Source Current (Body Diode)(c)	I_{SM}	-4.3	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 - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

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

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	-30			V	I _D =-250μA, V _{GS} =0V
Zero Gate Voltage Drain Current	I _{DSS}			-1	μA	V _{DS} =-30V, V _{GS} =0V
Gate-Body Leakage	I _{GSS}			±100	nA	V _{GS} =±20V, V _{DS} =0V
Gate-Source Threshold Voltage	V _{GS(th)}	-1.0			V	I _D =-250μA, V _{DS} = V _{GS}
Static Drain-Source On-State Resistance (1)	R _{DS(on)}			0.35 0.55	Ω Ω	V _{GS} =-10V, I _D =-0.6A V _{GS} =-4.5V, I _D =-0.3A
Forward Transconductance (3)	g _{fs}	0.44			S	V _{DS} =-10V,I _D =-0.3A
DYNAMIC (3)						
Input Capacitance	C _{iss}		140		pF	V _{DS} =-25 V, V _{GS} =0V, f=1MHz
Output Capacitance	C _{oss}		45		pF	
Reverse Transfer Capacitance	C _{rss}		20		pF	
SWITCHING(2) (3)						
Turn-On Delay Time	t _{d(on)}		1.9		ns	V _{DD} =-15V, I _D =-0.6A R _G =6.2Ω, R _D =25Ω (Refer to test circuit)
Rise Time	t _r		2.9		ns	
Turn-Off Delay Time	t _{d(off)}		8.9		ns	
Fall Time	t _f		5.0		ns	
Total Gate Charge	Q _g			4.8	nC	V _{DS} =-24V,V _{GS} =-10V, I _D =-0.6A (Refer to test circuit)
Gate-Source Charge	Q _{gs}			0.62	nC	
Gate Drain Charge	Q _{gd}			1.3	nC	
SOURCE-DRAIN DIODE						
Diode Forward Voltage (1)	V _{SD}			-0.95	V	T _j =25°C, I _S =-0.6A, V _{GS} =0V
Reverse Recovery Time (3)	t _{rr}		14.8		ns	T _j =25°C, I _F =-0.6A, di/dt= 100A/μs
Reverse Recovery Charge(3)	Q _{rr}		7.7		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.