

# ZXM64P035G

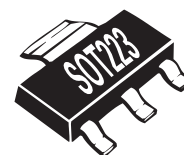
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## 35V P-CHANNEL ENHANCEMENT MODE MOSFET

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### SUMMARY

$V_{(BR)DSS} = -35V$ ;  $R_{DS(on)} = 0.075\Omega$ ;  $I_D = -5.3A$



### DESCRIPTION

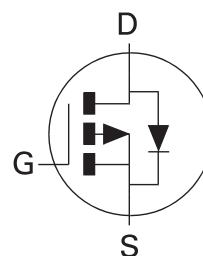
This new generation of high cell density planar MOSFETs from Zetex utilises a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.

### FEATURES

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

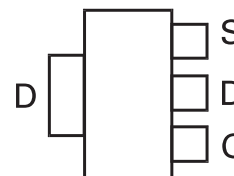
### APPLICATIONS

- 50W Class D Audio Output Stage
- Motor Control



### ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXM64P035GTA	7"	12mm	1000 units
ZXM64P035GTC	13"	12mm	4000 units



Top View

### DEVICE MARKING

- ZXM6  
4P035

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PROVISIONAL ISSUE A - DECEMBER 2001



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## ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V <sub>DSS</sub>	-35	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current (V <sub>GS</sub> = -10V; T <sub>A</sub> =25°C)(b) (V <sub>GS</sub> = -10V; T <sub>A</sub> =70°C)(b) (V <sub>GS</sub> = -10V; T <sub>A</sub> =25°C)(a)	I <sub>D</sub>	-5.3 -4.3 -3.8	A
Pulsed Drain Current (c)	I <sub>DM</sub>	-19	A
Continuous Source Current (Body Diode) (b)	I <sub>S</sub>	-2.3	A
Pulsed Source Current (Body Diode)(c)	I <sub>SM</sub>	-19	A
Power Dissipation at T <sub>A</sub> =25°C (a) Linear Derating Factor	P <sub>D</sub>	2.0 16	W mW/°C
Power Dissipation at T <sub>A</sub> =25°C (b) Linear Derating Factor	P <sub>D</sub>	3.9 31	W mW/°C
Operating and Storage Temperature Range	T <sub>j</sub> :T <sub>stg</sub>	-55 to +150	°C

## THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Ambient (a)	R <sub>θJA</sub>	62.5	°C/W
Junction to Ambient (b)	R <sub>θJA</sub>	32	°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≤10 secs.
- (c) Repetitive rating 25mm x 25mm FR4 PCB, D=0.05 pulse width limited by maximum junction temperature.



PROVISIONAL ISSUE A - DECEMBER 2001

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

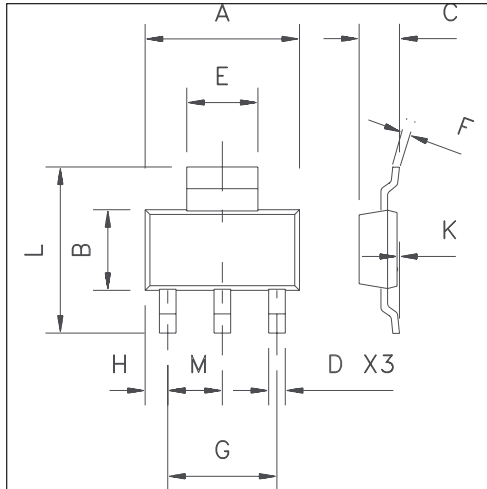
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-35			V	$I_D = -250\mu\text{A}$ , $V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$			-1	$\mu\text{A}$	$V_{DS} = -35\text{V}$ , $V_{GS} = 0\text{V}$
Gate-Body Leakage	$I_{GSS}$			$\pm 100$	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)	$R_{DS(on)}$			0.075 0.105	$\Omega$	$V_{GS} = -10\text{V}$ , $I_D = -2.4\text{A}$ $V_{GS} = -4.5\text{V}$ , $I_D = -1.2\text{A}$
Forward Transconductance (1)(3)	$g_{fs}$	2.3			S	$V_{DS} = -10\text{V}$ , $I_D = -1.2\text{A}$
<b>DYNAMIC (3)</b>						
Input Capacitance	$C_{iss}$		825		pF	$V_{DS} = -25\text{V}$ , $V_{GS} = 0\text{V}$ , $f = 1\text{MHz}$
Output Capacitance	$C_{oss}$		250		pF	
Reverse Transfer Capacitance	$C_{rss}$		80		pF	
<b>SWITCHING(2) (3)</b>						
Turn-On Delay Time	$t_{d(on)}$		4.4		ns	$V_{DD} = -15\text{V}$ , $I_D = -2.4\text{A}$ $R_G = 6.0\Omega$ , $V_{GS} = -10\text{V}$
Rise Time	$t_r$		6.2		ns	
Turn-Off Delay Time	$t_{d(off)}$		40		ns	
Fall Time	$t_f$		29.2		ns	
Total Gate Charge	$Q_g$			46	nC	$V_{DS} = -24\text{V}$ , $V_{GS} = -10\text{V}$ , $I_D = -2.4\text{A}$
Gate-Source Charge	$Q_{gs}$			9	nC	
Gate-Drain Charge	$Q_{gd}$			11.5	nC	
<b>SOURCE-DRAIN DIODE</b>						
Diode Forward Voltage (1)	$V_{SD}$			-0.95	V	$T_J = 25^\circ\text{C}$ , $I_S = -2.4\text{A}$ , $V_{GS} = 0\text{V}$
Reverse Recovery Time (3)	$t_{rr}$		30.2		ns	$T_J = 25^\circ\text{C}$ , $I_F = -2.4\text{A}$ , $di/dt = 100\text{A}/\mu\text{s}$
Reverse Recovery Charge (3)	$Q_{rr}$		27.8		nC	

### NOTES

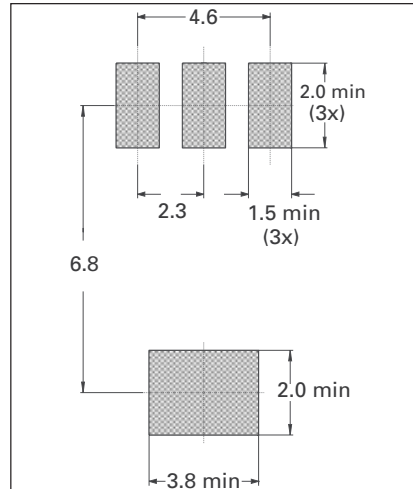
- (1) Measured under pulsed conditions. Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$  .  
 (2) Switching characteristics are independent of operating junction temperature.  
 (3) For design aid only, not subject to production testing.

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## PACKAGE DIMENSIONS



## PAD LAYOUT DETAILS



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	

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PROVISIONAL ISSUE A - DECEMBER 2001