

## ZXM64N035G

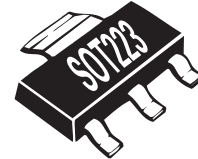
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### 35V N-CANNEL ENHANCEMENT MODE MOSFET

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#### SUMMARY

$V_{(BR)DSS} = 35V$ ;  $R_{DS(on)} = 0.050\Omega$ ;  $I_D = 6.7A$

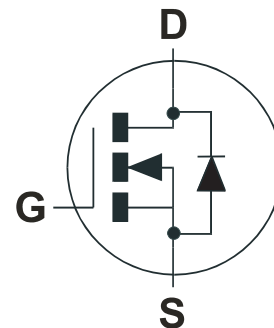


#### DESCRIPTION

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

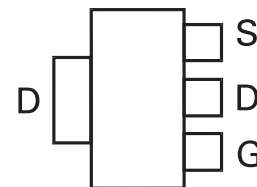


#### APPLICATIONS

- 50W Class D Audio Output Stage
- Motor Control

#### ORDERING INFORMATION

DEVICE	REEL SIZE	TAPE WIDTH	QUANTITY PER REEL
ZXM64N035GTA	7"	12mm	1000 units
ZXM64N035GTC	13"	12mm	4000 units



Top View

#### DEVICE MARKING

- ZXM6  
4N035

## ZXM64N035G

### ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	$V_{DSS}$	35	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current ( $V_{GS}=10V$ ; $T_A=25^\circ C$ ) <sup>(b)</sup> ( $V_{GS}=10V$ ; $T_A=70^\circ C$ ) <sup>(b)</sup> ( $V_{GS}=10V$ ; $T_A=25^\circ C$ ) <sup>(a)</sup>	$I_D$	6.7 5.4 4.8	A
Pulsed Drain Current <sup>(c)</sup>	$I_{DM}$	30	A
Continuous Source Current (Body Diode) <sup>(b)</sup>	$I_S$	2.4	A
Pulsed Source Current (Body Diode) <sup>(c)</sup>	$I_{SM}$	30	A
Power Dissipation at $T_A=25^\circ C$ <sup>(a)</sup> Linear Derating Factor	$P_D$	2.0 16	W mW/ $^\circ C$
Power Dissipation at $T_A=25^\circ C$ <sup>(b)</sup> 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 <sup>(a)</sup>	$R_{\theta JA}$	62.5	$^\circ C/W$
Junction to Ambient <sup>(b)</sup>	$R_{\theta JA}$	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)

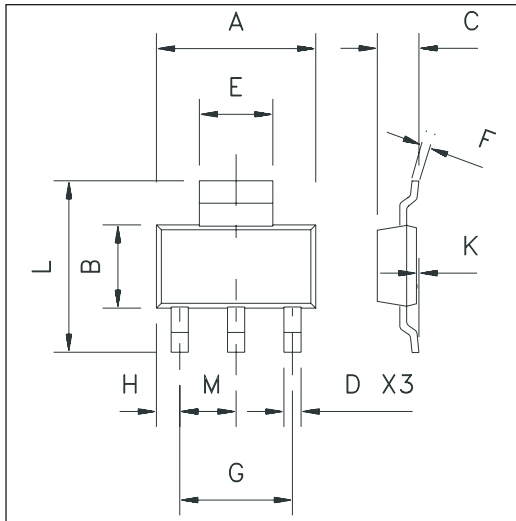
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	35			V	$I_D=250\mu\text{A}, V_{GS}=0\text{V}$
Zero Gate Voltage Drain Current	$I_{DSS}$			1	$\mu\text{A}$	$V_{DS}=35\text{V}, V_{GS}=0\text{V}$
Gate-Body Leakage	$I_{GSS}$			100	nA	$V_{GS}=\pm 20\text{V}, V_{DS}=0\text{V}$
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 <sup>(1)</sup>	$R_{DS(on)}$			0.050 0.062	$\Omega$	$V_{GS}=10\text{V}, I_D=3.7\text{A}$ $V_{GS}=4.5\text{V}, I_D=1.9\text{A}$
Forward Transconductance <sup>(1)(3)</sup>	$g_{fs}$	4.3			S	$V_{DS}=10\text{V}, I_D=1.9\text{A}$
<b>DYNAMIC</b> <sup>(3)</sup>						
Input Capacitance	$C_{iss}$		950		pF	$V_{DS}=25\text{V}, V_{GS}=0\text{V},$ $f=1\text{MHz}$
Output Capacitance	$C_{oss}$		200		pF	
Reverse Transfer Capacitance	$C_{rss}$		50		pF	
<b>SWITCHING</b> <sup>(2) (3)</sup>						
Turn-On Delay Time	$t_{d(on)}$		4.2		ns	$V_{DD}=15\text{V}, I_D=3.7\text{A}$ $R_G=6.0\Omega, V_{GS}=10\text{V}$
Rise Time	$t_r$		4.6		ns	
Turn-Off Delay Time	$t_{d(off)}$		20.5		ns	
Fall Time	$t_f$		8		ns	
Total Gate Charge	$Q_g$			27	nC	$V_{DS}=24\text{V}, V_{GS}=10\text{V},$ $I_D=3.7\text{A}$
Gate-Source Charge	$Q_{gs}$			5	nC	
Gate-Drain Charge	$Q_{gd}$			4.5	nC	
<b>SOURCE-DRAIN DIODE</b>						
Diode Forward Voltage <sup>(1)</sup>	$V_{SD}$			0.95	V	$T_J=25^\circ\text{C}, I_S=3.7\text{A},$ $V_{GS}=0\text{V}$
Reverse Recovery Time <sup>(3)</sup>	$t_{rr}$		24.5		ns	$T_J=25^\circ\text{C}, I_F=3.7\text{A},$ $di/dt=100\text{A}/\mu\text{s}$
Reverse Recovery Charge <sup>(3)</sup>	$Q_{rr}$		19.1		nC	

**NOTES**

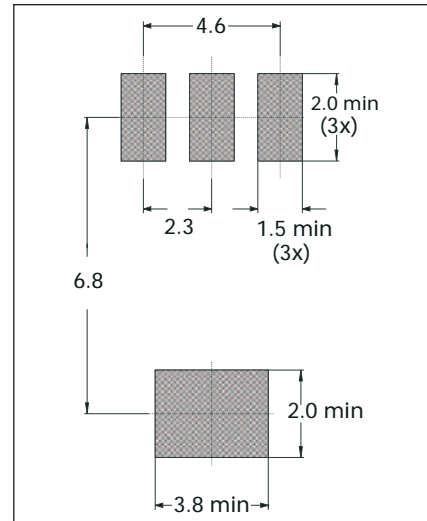
- (1) Measured under pulsed conditions. Width=300 $\mu\text{s}$ . Duty cycle  $\leq 2\%$ .
- (2) Switching characteristics are independent of operating junction temperature.
- (3) For design aid only, not subject to production testing.

# ZXM64N035G

## PACKAGE DIMENSIONS



## PAD LAYOUT DETAILS



DIM	Millimeters		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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Europe	Americas	Asia Pacific	Corporate Headquarters
Zetex GmbH Streitfeldstraße 19 D-81673 München Germany	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY 11788 USA	Zetex (Asia) Ltd 3701-04 Metroplaza Tower 1 Hing Fong Road, Kwai Fong Hong Kong	Zetex plc Lansdowne Road, Chadderton Oldham, OL9 9TY United Kingdom
Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49 <a href="mailto:europa.sales@zetex.com">europa.sales@zetex.com</a>	Telephone: (1) 631 360 2222 Fax: (1) 631 360 8222 <a href="mailto:usa.sales@zetex.com">usa.sales@zetex.com</a>	Telephone: (852) 26100 611 Fax: (852) 24250 494 <a href="mailto:asia.sales@zetex.com">asia.sales@zetex.com</a>	Telephone (44) 161 622 4444 Fax: (44) 161 622 4446 <a href="mailto:hq@zetex.com">hq@zetex.com</a>

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