

ZXM64P035L3

35V P-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

$V_{(BR)DSS} = -35V$; $R_{DS(on)} = 0.075\Omega$; $I_D = -12A$

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.

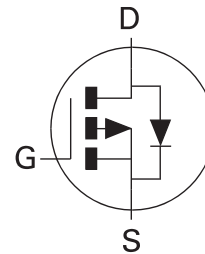


FEATURES

- Low on-resistance
- Fast switching speed
- Low threshold
- Low gate drive
- TO220 package

APPLICATIONS

- 100W Class D Audio Output Stage
- Motor Control

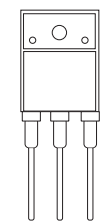


ORDERING INFORMATION

DEVICE	MULTIPLES
ZXM64P035L3	1000

DEVICE MARKING

- ZXM6
4P035



G D S
Front View

PROVISIONAL ISSUE A - JANUARY 2002



ZXM64P035L3

ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V _{DSS}	-35	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current (V _{GS} = -10V; T _C =25°C)(a) (V _{GS} = -10V; T _A =25°C)(b)	I _D	-12 -3.3	A
Pulsed Drain Current (b)	I _{DM}	-19	A
Continuous Source Current (Body Diode) (b)	I _S	-2.3	A
Pulsed Source Current (Body Diode)(b)	I _{SM}	-19	A
Power Dissipation at T _A =25°C (a) Linear Derating Factor	P _D	20 160	W mW/°C
Power Dissipation at T _A =25°C (b) Linear Derating Factor	P _D	1.5 12	W mW/°C
Operating and Storage Temperature Range	T _j :T _{stg}	-55 to +150	°C

THERMAL RESISTANCE

PARAMETER	SYMBOL	VALUE	UNIT
Junction to Case (a)	R _{θJC}	6.25	°C/W
Junction to Ambient (b)	R _{θJA}	83.3	°C/W



PROVISIONAL ISSUE A - JANUARY 2002

ZXM64P035L3

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

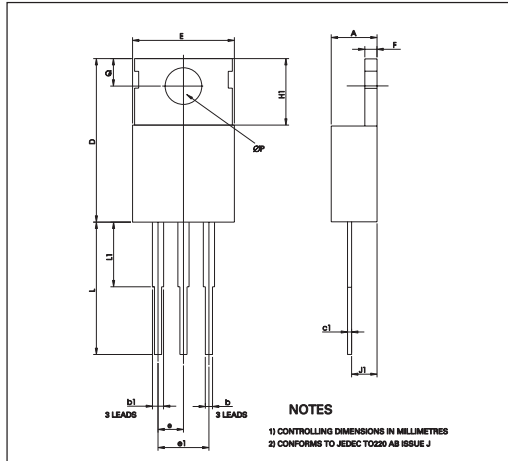
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	CONDITIONS.
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	-35			V	$I_D = -250\mu\text{A}$, $V_{GS} = 0\text{V}$
Zero Gate Voltage Drain Current	I_{DSS}			-1	μA	$V_{DS} = -35\text{V}$, $V_{GS} = 0\text{V}$
Gate-Body Leakage	I_{GSS}			± 100	nA	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$
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 (1)	$R_{DS(on)}$			0.075 0.105	Ω Ω	$V_{GS} = -10\text{V}$, $I_D = -2.4\text{A}$ $V_{GS} = -4.5\text{V}$, $I_D = -1.2\text{A}$
Forward Transconductance (1)(3)	g_{fs}	2.3			S	$V_{DS} = -10\text{V}$, $I_D = -1.2\text{A}$
DYNAMIC (3)						
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	
SWITCHING(2) (3)						
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	
SOURCE-DRAIN DIODE						
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 μs . Duty cycle $\leq 2\%$.
 (2) Switching characteristics are independent of operating junction temperature.
 (3) For design aid only, not subject to production testing.

ZXM64P035L3

Package Outline



Package Dimensions

DIM	Millimetres		Inches	
	Min	Max	Min	Max
A	3.56	4.82	0.140	0.189
b	0.38	1.01	0.015	0.040
b1	1.15	1.77	0.045	0.070
c1	0.41	0.50	0.016	0.020
D	14.23	16.51	0.560	0.650
E	9.66	10.66	0.380	0.419
e	2.29	2.79	0.090	0.110
e1	4.83	5.33	0.190	0.210
F	0.51	1.39	0.20	0.055
H1	5.58	6.85	0.230	0.270
J1	2.04	2.92	0.080	0.115
L	12.70	14.73	0.500	0.580
L1	—	6.35	—	0.250
ØP	3.54	4.08	0.139	0.160
Q	2.54	3.42	0.100	0.134

© Zetex plc 2001

Zetex plc Fields New Road Chadderton Oldham, OL9 8NP United Kingdom Telephone (44) 161 622 4422 Fax: (44) 161 622 4420	Zetex GmbH Streitfeldstraße 19 D-81673 München Germany Telefon: (49) 89 45 49 49 0 Fax: (49) 89 45 49 49 49	Zetex Inc 700 Veterans Memorial Hwy Hauppauge, NY11788 USA Telephone: (631) 360 2222 Fax: (631) 360 8222	Zetex (Asia) Ltd 3701-04 Metroplaza, Tower 1 Hing Fong Road Kwai Fong Hong Kong Telephone: (852) 26100 611 Fax: (852) 24250 494
--	--	---	---

These offices are supported by agents and distributors in major countries world-wide.

This publication is issued to provide outline information only which (unless agreed by the Company in writing) may not be used, applied or reproduced for any purpose or form part of any order or contract or be regarded as a representation relating to the products or services concerned. The Company reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service.

For the latest product information, log on to www.zetex.com



PROVISIONAL ISSUE A - JANUARY 2002