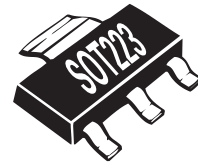


ZXM64P035G

35V P-CHANNEL ENHANCEMENT MODE MOSFET

SUMMARY

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



DESCRIPTION

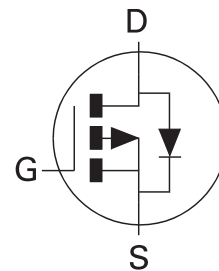
This new generation of high cell density planar MOSFETs from Zetex utilizes a unique structure that combines the benefits of low on-resistance with fast switching speed. This makes them ideal for high efficiency, low voltage, power management applications.

FEATURES

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

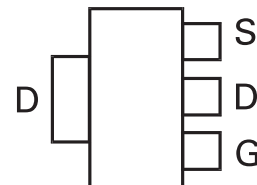
APPLICATIONS

- 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

ZXM64P035G

ABSOLUTE MAXIMUM RATING

| PARAMETER | SYMBOL | LIMIT | UNIT |
|--|----------------|----------------------|---------------------|
| Drain-Source Voltage | V_{DSS} | -35 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current ($V_{GS} = -10V$; $T_A = 25^\circ C$)(b) ($V_{GS} = -10V$; $T_A = 70^\circ C$)(b) ($V_{GS} = -10V$; $T_A = 25^\circ C$)(a) | I_D | -5.3 -4.3 -3.8 | A |
| Pulsed Drain Current (c) | I_{DM} | -19 | A |
| Continuous Source Current (Body Diode) (b) | I_S | -2.3 | A |
| Pulsed Source Current (Body Diode)(c) | I_{SM} | -19 | A |
| Power Dissipation at $T_A = 25^\circ C$ (a) Linear Derating Factor | P_D | 2.0 16 | W mW/ $^\circ C$ |
| Power Dissipation at $T_A = 25^\circ C$ (b) 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 (a) | $R_{\theta JA}$ | 62.5 | $^\circ C/W$ |
| Junction to Ambient (b) | $R_{\theta JA}$ | 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).

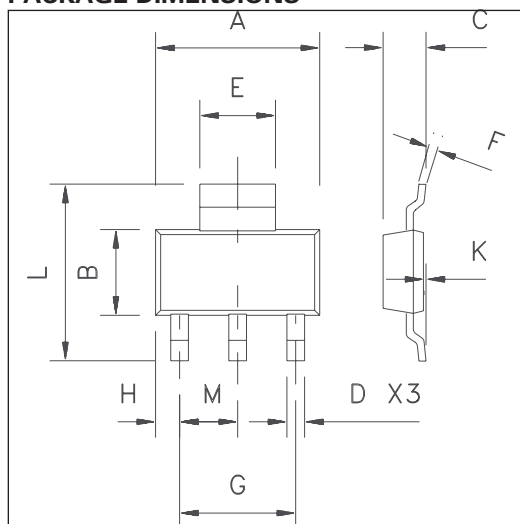
| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | CONDITIONS. |
|---|---------------|------|------|----------------|----------------------|---|
| STATIC | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | -35 | | | V | $I_D = -250\mu\text{A}$, $V_{GS} = 0\text{V}$ |
| Zero Gate Voltage 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

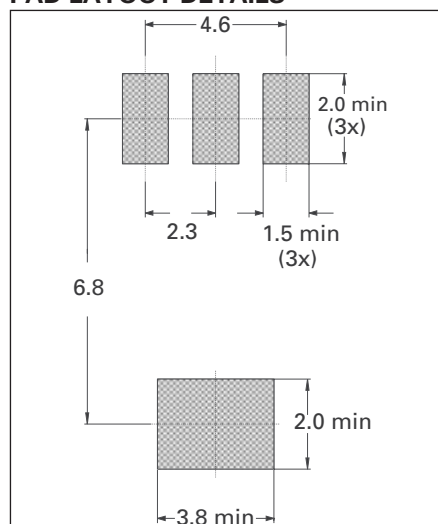
- (1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.
- (2) Switching characteristics are independent of operating junction temperature.
- (3) For design aid only, not subject to production testing.

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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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