

## Product Summary

- Continuous Drain Source Voltage: 60V
- On-State Resistance: 500mΩ
- Nominal Load Current ( $V_{IN} = 5V$ ): 1.3A
- Clamping Energy: 90mJ

## Description

The ZXMS6004FFQ is a self-protected low side IntelliFET™ MOSFET with logic level input. It integrates overtemperature, overcurrent, overvoltage (active clamp) and ESD protected logic level functionality. The ZXMS6004FFQ is ideal as a general purpose switch driven from 3.3V or 5V microcontrollers in harsh environments where standard MOSFETs are not rugged enough.

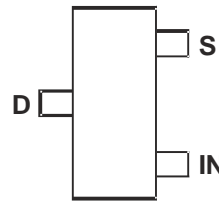
## Applications

- Especially Suited for Loads with a High In-Rush Current such as Lamps and Motors
- All Types of Resistive, Inductive and Capacitive Loads in Switching Applications
- μC Compatible Power Switch for 12V and 24V DC Applications
- Automotive Rated
- Replaces Electromechanical Relays and Discrete Circuits
- Linear Mode Capability – the current-limiting protection circuitry is designed to de-activate at low  $V_{DS}$  to minimize on state power dissipation. The maximum DC operating current is therefore determined by the thermal capability of the package/board combination, rather than by the protection circuitry. This does not compromise the product's ability to self-protect at low  $V_{DS}$ .

SOT23F



Top View



Top view  
Pin Out

## Features and Benefits

- Compact High Power Dissipation Package
- Low Input Current
- Logic Level Input (3.3V and 5V)
- Short Circuit Protection with Auto Restart
- Over Voltage Protection (Active Clamp)
- Thermal Shutdown with Auto Restart
- Overcurrent Protection
- Input Protection (ESD)
- High Continuous Current Rating
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The ZXMS6004FFQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

## Mechanical Data

- Case: SOT23F
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish  $\text{e3}$
- Weight: 0.012 grams (Approximate)

## Ordering Information (Note 4)

Part Number	Marking	Reel Size (inches)	Tape Width (mm)	Quantity per Reel
ZXMS6004FFQTA	1K6	7	12	3,000
ZXMS6004FFQ-7	1K6	7	8	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
  2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
  3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
  4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.