

Product Summary

- Continuous Drain Source Voltage: $V_{DS} = 60V$
- On-State Resistance: $675m\Omega$
- Max Nominal Load Current ($V_{IN} = 5V$): 1.1A
- Min Nominal Load Current ($V_{IN} = 5V$): 0.7A
- Clamping Energy: 550mJ

Description

The ZXMS6001N3Q is a low input current self-protected low-side IntelliFET™ MOSFET intended for $V_{IN} = 5V$ applications. It features monolithic overtemperature, overcurrent, overvoltage (active clamp) and ESD protected logic level functionality. It is intended as a general purpose switch.

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 deactivate 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} .

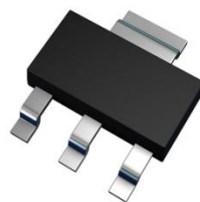
Features and Benefits

- Low Input Current
- Short Circuit Protection with Auto Restart
- Overvoltage Protection (Active Clamp)
- Thermal Shutdown with Auto Restart
- Overcurrent Protection
- Input Protection (ESD)
- Load Dump Protection (Actively Protects Load)
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

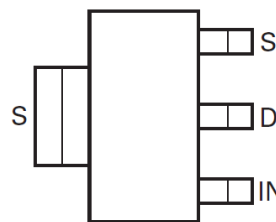
Mechanical Data

- Case: SOT223 (Type DN)
- 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 e3
- Weight: 0.112 grams (Approximate)

SOT223 (Type DN)



Top View



Top View
Pin Out

Note: The tab is connected to the source pin and must be electrically isolated from the drain pin. Connection of significant copper to the drain pin is recommended for best thermal performance.

Ordering Information (Note 5)

| Part Number | Marking | Reel Size (inches) | Tape Width (mm) | Quantity per Reel |
|---------------|----------|--------------------|-----------------|-------------------|
| ZXMS6001N3QTA | ZXMS6001 | 7 | 12 | 1,000 Units |

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 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. Automotive products are AEC-Q101 qualified and are PPAP capable. Please refer to <https://www.diodes.com/quality/>.
 5. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.