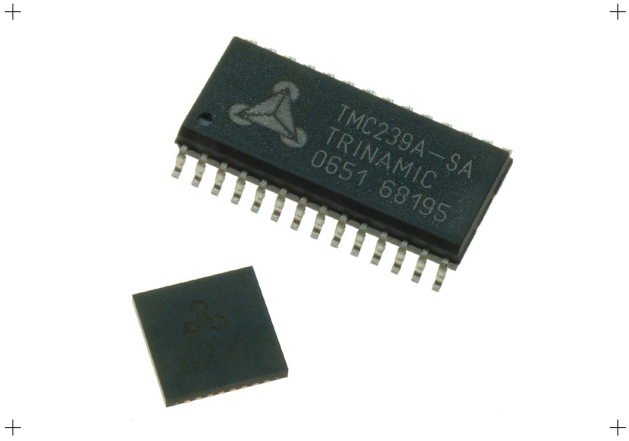



# TMC239

**Microstep Driver
for External MOSFETs
for up to 4A**

INFO

The TMC239 is a smart high current microstepping driver for bipolar stepper motors. It provides an SPI™ interface as well as the classical analog / digital control. A full set of protection and diagnostic features makes this device very rugged. It directly drives external MOSFETs for currents of up to 4A. (A list of compatible power MOSFETs is given within the datasheet.) This way it reaches an extremely high efficiency and allows driving of a high motor current without cooling measures even at high environment temperatures. With the new chip-scale QFN package a 4A motor driver can be realized on the size of a stamp!

The high motor current makes this device ideal for miniaturized highly dynamic and high torque drive systems.

The evaluation can be done with the TMC249 as the only difference is the additional stallGuard™ feature.

MAIN CHARACTERISTICS

- full protection and diagnostics
- low power dissipation
- 16 times microstepping via SPI, 64 times using additional shift register, even more via analog control
- mixed decay for smooth operation
- programmable slope control for low EME
- internal or external chopper clock
- standby and shutdown mode

INTERFACE

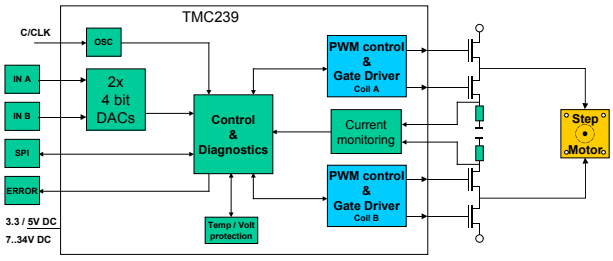
- easy-to-use SPI™ interface
- classical analog interface

ELECTRICAL DATA

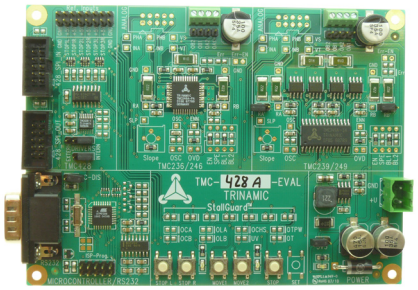
- up to 4000 mA coil current (peak) with just 4 external dual MOSFETS
- 7V to 34V motor supply (TMC239A), up to 60V using a few add. components
- higher current / voltage using additional gate drivers
- 3.3V or 5V operation for digital part

PACKAGE

- standard SO28 package
- chip size QFN32 package
- RoHS compliant




10 mm




| ORDER CODE | DESCRIPTION |
|---|---|
| **TMC239A-SA** | 4A driver for external MOSFETs, SO28 |
| **TMC239A-LA** | 4A driver for external MOSFETs, QFN32 |
| ***Related product:*** | TMC32NP, TMC32NP2, TMC34NP |
| **TMC428A-EVAL** | Evaluation board for TMC428, TMC246A and TMC249A with stallGuard™ |