

TMC429

Three Axis universal motion controller for stepper motor drivers



INFO The TMC429 is a miniaturized low cost, high performance stepper motor controller for up to three motors. It integrates all real time critical tasks in reliable, dedicated hardware: An integrated motion ramp profile generator as well as an adaptable microstep sequencer with microstep RAM table. Advanced stop- and reference switch handling allows for precise and fast referencing as well as on-the-fly position checking. Automatic motor current control gives high motor dynamics while saving energy. The interrupt output can generate precise position pulses.

The TMC429 is fully downwards compatible to the TMC428 and connects to the recent coolStep™ drivers (TMC260, TMC262 and TMC389) via Step- & Direction signals (S/D) or to the classic TRINAMIC drivers TMC236, TMC239, TMC246 and TMC249 via SPI™. The communication with the host microcontroller is done with an extra SPI™ interface. The host just needs to do high-level control tasks, e.g. giving the command: Drive motor 2 to position 1000. The TMC429 automatically calculates the motion ramp based on velocity and acceleration parameters.

MAIN CHARACTERISTICS

- Miniaturized low cost stepper motor controller for up to three independant axes
- Built in ramp generators
- High-performance individual micro stepping (up to 64x) via built in sequencer
- SPI™ host interface with easy-to-use protocol
- Step-/Direction or SPI™ driver interface
- On-the-fly alteration of target motion parameters (e.g. position, velocity etc.)
- perfect fit for (2-phase drivers) TMC260, TMC262, TMC236, TMC246, TMC239, TMC249 and (3-phase drivers) TMC389
- Fullstep frequencies up to 20 kHz
- Read-out of driver status

INTERFACE

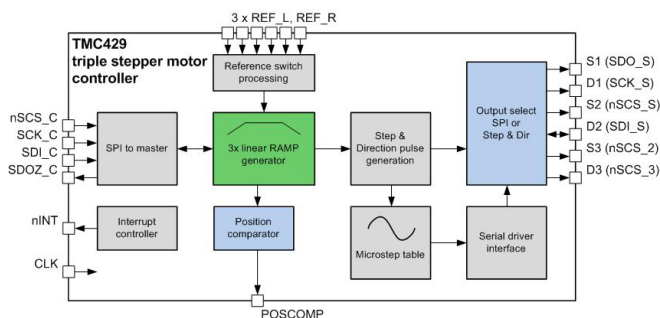
- Step & Direction outputs
- easy-to-use SPI™ (20bit)

ELECTRICAL DATA

- Power down mode (100 µA)
- 3.3V or 5V operation with CMOS/TTL compatible IOs

PACKAGE

- QFN32 5x5 mm² chip size package
- SSOP16 or SOP24 with full TMC428 compatibility
- RoHS compliant



ORDER CODE	DESCRIPTION
TMC429-I	3-axis controller SSOP16-package
TMC429-PI24	3-axis controller SOP24-package
TMC429-LI	3-axis controller QFN32-package