TMC428

**Three Axis
Stepper Motor Controller
with Integrated Sequencer**

INFO The TMC428 is a revolutionary miniaturized low cost and 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 TMC428 directly connects to SPI™ drivers or to step-/direction drivers. A second SPI™ interface allows communication with a host microcontroller. The host microcontroller just needs to do high-level control tasks, e.g. giving the command: Drive motor 2 to position 1000. The TMC428 then automatically calculates the motion ramp based on velocity and acceleration parameters. The TMC423 adds encoder functionality to the TMC428. Evaluation Boards, application notes, spreadsheets for parameter calculation, C code examples and schematics are available in order to support short design-in times.

MAIN CHARACTERISTICS

- unique minaturized stepper motor controller realized as low power 0.35µ CMOS device
- up to three stepper motors
- up to 64 times microstepping
- full step frequencies up to 20 kHz
- alteration of parameters at any time
- driver status information read back for µC
- power down mode
- ideally suited motor drivers are TMC236, TMC239, TMC246 and TMC249

INTERFACE
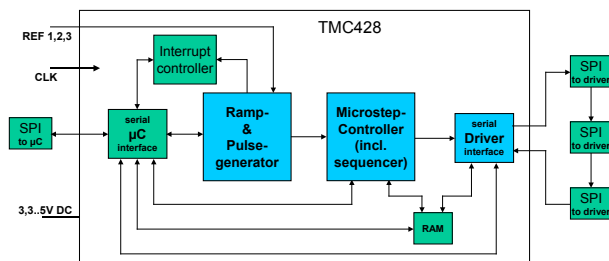- SPI™ µC interface
- easy-to-use protocol for µC
- serial 4-wire driver interface (SPI™)
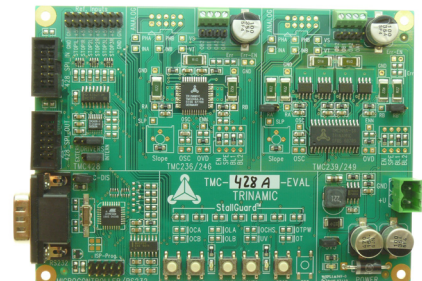- step-/direction output

ELECTRICAL DATA
- 3.3V or 5V operation
- CMOS / TTL compatible IOs

PACKAGE
- miniature SSOP16 package
- SO24 package available
- RoHS compliant

ORDER CODE	DESCRIPTION
TMC428-I	3-axis controller SSOP16-package
TMC428-PI24	3-axis controller SOP24-package
TMC428A-EVAL	Evaluation board for TMC428, TMC246 and TMC249 with stallGuard™