



# TMC454

Stepper Motor Controller with Integrated Sequencer and Encoder Inf.

**INFO** The TMC454 is a high-end motion controller for all common 2-, 3-, and 5-phase stepper motors. It provides encoder feedback for high reliability or high position resolution drives. A large set of motion control features is included on this IC. The various function blocks are hardwired and „ready-to-use“. All processes can be serialized using the instruction based interface. A complete linear & S-shaped ramp generation unit is integrated within the TMC454. All dynamic parameters can be adjusted for a given application in a very broad range. The CPU is relieved from all time critical tasks like ramp calculation or microstep generation. Thus CPU and software engineer can focus on higher level motion control jobs. In many applications, the TMC454 reduces the time time-to-market, and it saves costs for software development and hardware engineering. The TMC454 turns stepper motors into easy to use peripherals!

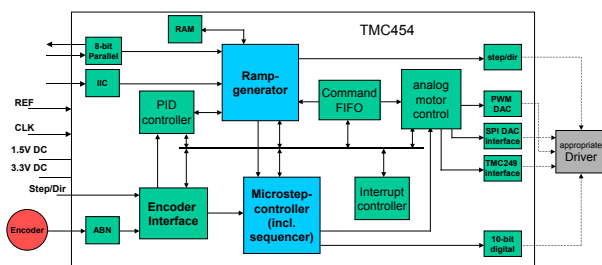
The TMC454 is upwards function compatible to its predecessor TMC453.

### MAIN CHARACTERISTICS

- upwards function and software compatible to TMC453
- controls 2-, 3-, and 5-phase stepper motors
- full step, half step, sine-step
- relieves CPU from all time critical tasks
- incremental encoder interface
- pulse generation from mHz to MHz
- S-shaped and linear ramp generation
- PID controller for holding the position
- synchronization of multiple TMC454
- direct SPI interface for TMC246/TMC249 stepper driver IC family
- high resolution microstep drive using external SPI DACs
- interrupt controller
- 3.3V / 1.5V supply
- parallel interface (3.3V), with additional control output for optional 5V level shifter
- serial IIC bus interface
- FBGA144 (1 mm fine pitch, 11 mm \* 11 mm)
- RoHS compliant

ELECTRICAL DATA INTERFACE

PACKAGE



ORDER CODE	DESCRIPTION
TMC454-BC	1-axis motion controller with encoder feedback