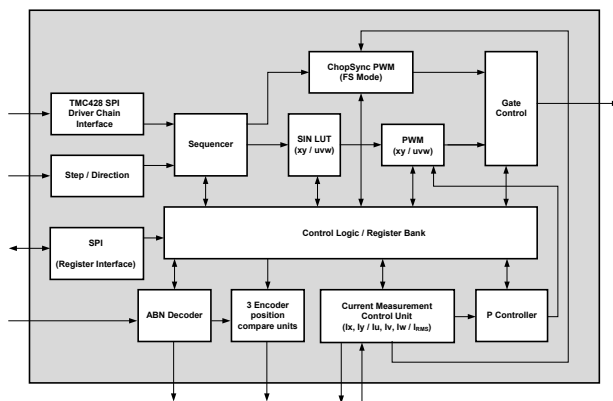




## TMC332

**Micro Step Sequencer for 2-phase and 3-phase Motors with Integrated PWM Units and Closed Loop Current Regulator**

**INFO** The TMC332 is a high precision micro step sequencer with integrated PWM units. Internal micro step counters with programmable step width make the handling of the physical units comfortable. The TMC428 step direction interface of the TMC332 is directly compatible to the driver chain interface of the TMC428 motion controller. The other step direction interface is a classical two wire step direction interface. Parameterizing of the TMC332 takes place over a common SPI micro controller interface. The integrated sine wave look up table can output either 2 sine waves with a phase shift of  $90^\circ$  for 2-phase stepper motors or 3 sine waves with  $\pm 120^\circ$  phase shift for 3-phase motors. The gate control block of the TMC332 provides the gate control signals for the power stage half bridges, including programmable break before make timing and over current protection. Incremental encoders (ABN) to evaluate the physical motor position can be connected to the TMC332. The TMC332 also contains a current measurement unit and a current regulator, requiring only a few inexpensive external components. Switching to fullstep and the chopSync™ feature allow high velocity operation.



### MAIN CHARACTERISTICS

- high precision micro step sequencer for smooth motion applications
- 2-phase stepper motor control
- 3-phase stepper motor control
- 9 bit PWM units, 8 bit PWM scaler
- 4 bit PWM sub-modulation for scaling quantization compensation
- PWM frequency programmable
- programmable break-before-make timing
- integrated current measurement ADC (just 2 LM339, 1 LM324 and some RC required)
- integrated current regulation
- manual or automatic microstep to fullstep switching for higher speeds
- chopSync™ for high velocity operation
- operation with 3.3V compatible IOs / 1.5V core voltage

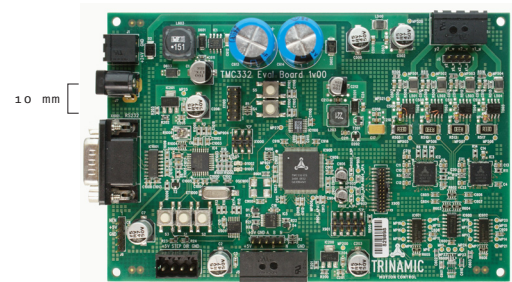
### ELECTRICAL DATA

### INTERFACE

- classical two wire step direction interface
- TMC428 driver chain step direction interface
- common SPI interface for parameterizing of TMC332 and TMC428

### PACKAGE

- FBGA144 package 13 x 13 mm<sup>2</sup>
- RoHS compliant



ORDER CODE	DESCRIPTION
TMC332-BC	Micro step sequencer, FBGA144 package
<i>Related product:</i>	
TMC332-Eval	Evaluation board for TMC332

