Chipsmall

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Stepper 4 click

PID: MIKROE-2748
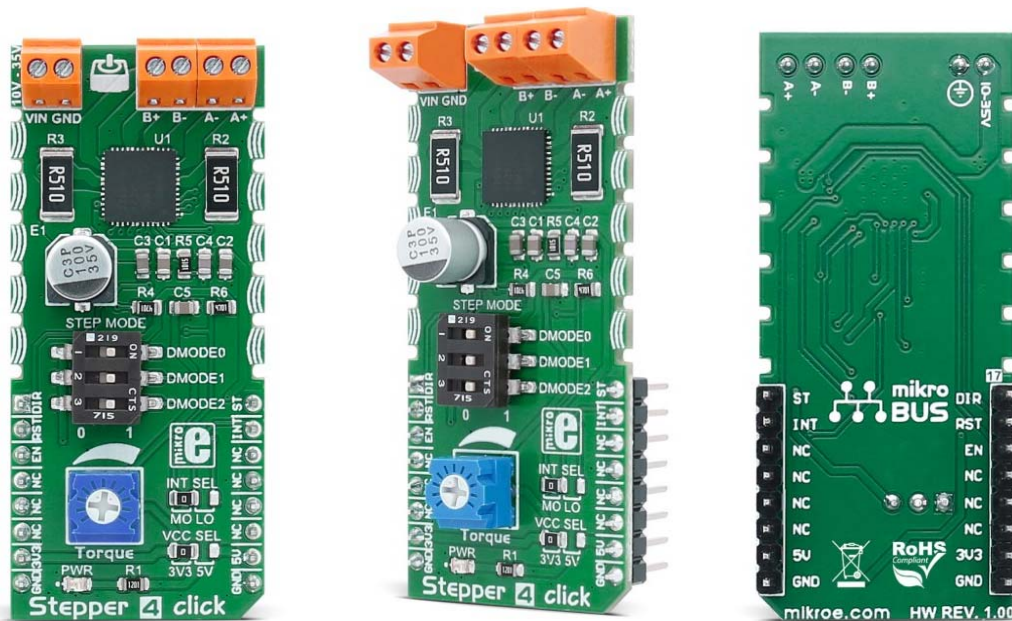
Stepper 4 click can be used for driving a stepper motor and controlling its step resolution, rotation direction, and time between the steps. It has output drive capability of **2A**.

Stepper 4 click carries the TB67S269FTG, a two-phase bipolar stepping motor driver from Toshiba. The click is designed to run on either 3.3V or 5V power supply. It communicates with the target microcontroller over the following pins on the mikroBUS™ line: AN, RST, CS, PWM, INT.

How the click works

There is a connector with two screw terminals used for connecting external DC supply.
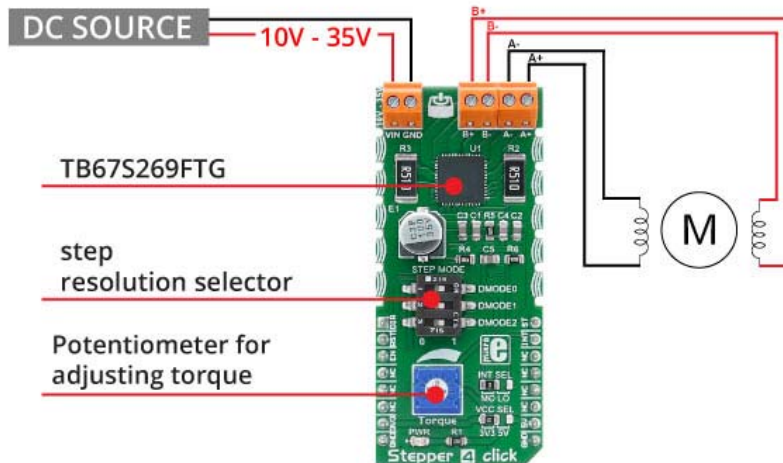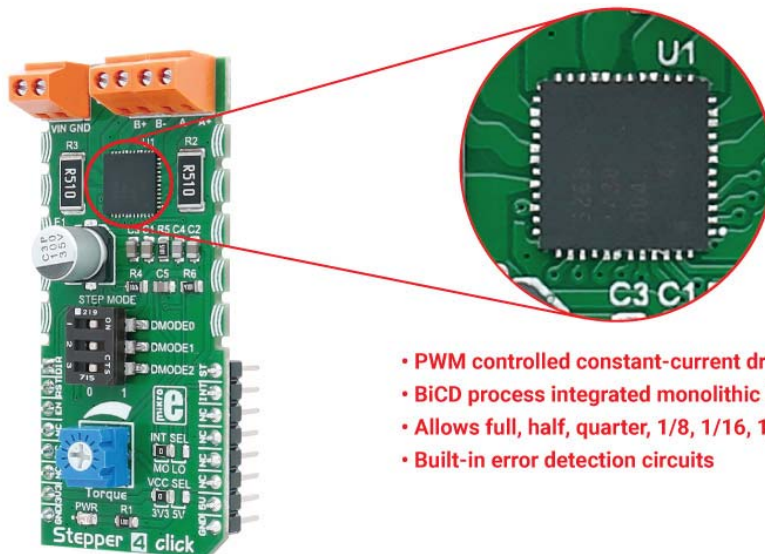

The other four connectors are used for connecting the stepper motor to the click. After a motor is connected, it can be controlled by the MCU through the Stepper 4 click.

The onboard potentiometer is used to set the motor's torque.

TB67S269FTG features

The TB67S269 is a two-phase bipolar stepping motor driver from Toshiba.

- PWM controlled constant-current drive
- BiCD process integrated monolithic IC
- Allows full, half, quarter, 1/8, 1/16, 1/32 step operation
- Built-in error detection circuits

Step mode selector

There are several different resolutions a stepper motor can use - a full step, half a step, etc. The driver on this click also allows different resolutions, from a full step to 1/32 of a step.

DMODE0	DMODE1	DDMODE2	Function
0	0	0	Standby mode (the OSCM is disabled and the output stage is set to 'OFF' status)
0	0	1	Full step resolution
0	1	0	Half step resolution (Type(B))
0	1	1	Quarter step resolution
1	0	0	Half step resolution (Type (B))
1	0	1	1/8 step resolution
1	1	0	1/16 step resolution
1	1	1	1/32 step resolution

Specifications

Type	Stepper
Applications	The click is designed for driving bipolar step motors in full, 1/2, 1/4, 1/8, 1/16, 1/32 step modes
On-board modules	TB67S269FT CLOCK-in controlled bipolar stepping motor driver, three pairs of screw terminals, potentiometer
Interface	GPIO
Input Voltage	3.3V or 5V
Click board size	L (57.15 x 25.4 mm)

Pinout diagram

This table shows how the pinout on **Stepper 4 click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikro BUS		Pin	Notes
Rotation direction	**DIR**	1 AN	PWM	16 **ST**	Stepping pin
Reset	**RST**	2 RST	INT	15 **INT**	Interrupt
Enable pin	**EN**	3 CS	TX	14 NC	
	NC	4 SCK	RX	13 NC	
	NC	5 MISO	SCL	12 NC	
	NC	6 MOSI	SDA	11 NC	
Power supply	**+3.3V**	7 3.3V	5V	10 **+5V**	Power supply
Ground	**GND**	8 GND	GND	9 **GND**	Ground

Jumpers and settings

Designator	Name	Default Position	Default Option	Description
VCC SEL	VCC SEL	Left	3V3	Power supply selection, left position 3V3, right position 5V
INT SEL	INT SEL	Left	MO	Interrupt pin selection, left position MO, right position LO

Programming

Code examples for Stepper 4 click, written for MikroElektronika hardware and compilers are available on Libstock.

Code snippet

The following code snippet shows how the Stepper 4 click moves a stepper motor.

Firstly, the speed is set to 400 steps per revolution. Afterwards, the acceleration and the deceleration rate is set. The STEPPER_step method moves the motor a given number of steps. When the number is negative, the motor moves counterclockwise, otherwise, it moves clockwise.

So in this example, it first moves 1000 steps to the left, and then 1000 to the right, at different speeds.

```
1 void Stepper_4_Task()
2 {
3     STEPPER_setSpeed( 400 );
4     STEPPER_setAcc( 10 );
5     STEPPER_setDec( 5 );
6     STEPPER_step( -1000 );
7     STEPPER_setSpeed( 600 );
8     STEPPER_step( 1000 );
9 }
```