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Step Up 2 Click

PID: MIKROE-6076

Step Up 2 Click is a compact add-on board designed to boost the power capabilities of devices. This board features the TPS61299, a synchronous boost converter from Texas Instruments. This component is renowned for its low quiescent current and high efficiency under light-load conditions. The board distinguishes itself with the ability to adjust output voltage via the integrated MAX5419 digital potentiometer, offering precise control through an I2C interface. It supports external voltages from 0.2V to 5.5V, delivering a regulated output range of 1.8V to 5.5V. Compatibility with 3.3V or 5V logic levels, selectable via the VCC SEL jumper, makes it useful for various MCUs. This Click board™ finds its application in powering devices that rely on alkaline or coin cell batteries, making it perfect for portable electronics, wearables, and small-scale IoT devices.

Step Up 2 Click is fully compatible with the mikroBUS™ socket and can be used on any host system supporting the mikroBUS™ standard. It comes with the mikroSDK open-source libraries, offering unparalleled flexibility for evaluation and customization. What sets this Click board™ apart is the groundbreaking ClickID feature, enabling your host system to seamlessly and automatically detect and identify this add-on board.

How does it work?

Step Up 2 Click is based on the TPS61299, a synchronous boost converter with an exceptionally low quiescent current from Texas Instruments. It is designed to provide efficient power solutions for devices powered by alkaline or coin cell batteries, boasting high efficiency even under light-load conditions to extend operational time. This component also stands out for its additional current limit functionality, ensuring optimal performance and reliability. With the ability to operate by simply using the EN pin from the mikroBUS™ socket for device

Mikroe produces entire development toolchains for all major microcontroller architectures.
Committed to excellency, we are dedicated to helping engineers bring the project development up to speed and achieve outstanding results.

ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.

ISO 9001: 2015 certification of quality management system (QMS).

enablement - a high logic signal activates the device, whereas a low logic signal deactivates it—this boost converter exemplifies efficiency and ease of use.
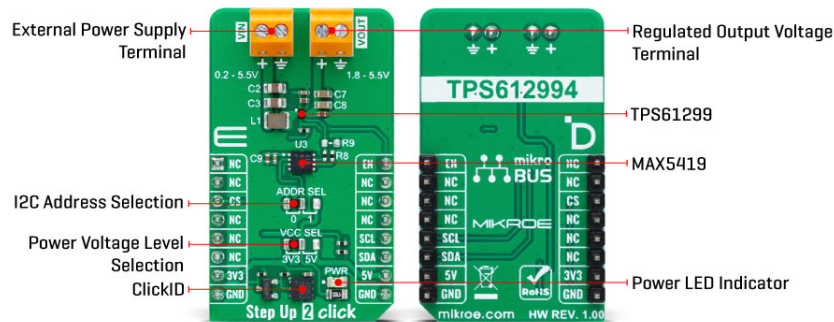
The Step Up 2 Click also integrates the MAX5419, a digital potentiometer from Analog Devices, for precise output voltage adjustments, as well as ADDR SEL jumper. This jumper allows for seamless selection of the I2C address of the MAX5419, leveraging the I2C interface for meticulous control. Supplying an external voltage range from 0.2V to 5.5V via the VIN terminal, the board offers a regulated output voltage range from 1.8V to 5.5V at the VOUT terminal - adjustable through digital potentiometer configuration.

This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCC SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. Also, this Click board™ comes equipped with a library containing easy-to-use functions and an example code that can be used as a reference for further development.

Specifications

Type	Boost
Applications	Ideal for portable electronics, wearables, and small-scale IoT devices
On-board modules	TPS61299 - synchronous boost converter from Texas Instruments
Key Features	Adjustable output voltage, ultra-low quiescent current, high efficiency, fast transient performance, low power consumption, logic for MCU compatibility, and more
Interface	GPIO,I2C
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V,External

Pinout diagram

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This table shows how the pinout on Step Up 2 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS			Pin	Notes
	NC	1	AN	PWM	16	**EN**	Device Enable
	NC	2	RST	INT	15	NC	
ID COMM	**CS**	3	CS	RX	14	NC	
	NC	4	SCK	TX	13	NC	
	NC	5	MISO	SCL	12	**SCL**	I2C Clock
	NC	6	MOSI	SDA	11	**SDA**	I2C Data
Power Supply	**3.3V**	7	3.3V	5V	10	**5V**	Power Supply
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	VCC SEL	Left	Power Voltage Level Selection 3V3/5V: Left position 3V3, Right position 5V
JP2	ADDR SEL	Left	I2C Address Selection 0/1: Left position 0, Right position 1

Step Up 2 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
External Power Supply	0.2	-	5.5	V
Output Voltage	1.8	-	5.5	V

Software Support

We provide a library for the Step Up 2 Click as well as a demo application (example), developed using MIKROE compilers. The demo can run on all the main MIKROE development boards.

Package can be downloaded/installed directly from NECTO Studio Package Manager(recommended), downloaded from our LibStock™ or found on Mikroe github account.

Library Description

This library contains API for Step Up 2 Click driver.

Key functions

- stepup2_set_vout This function sets the voltage output level.

- stepup2_set_resistance This function sets a desired resistance by writing to the volatile memory register and the wiper position.

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- stepup2_enable This function turns on the power switch and enables the boost mode.

Example Description

This example demonstrates the use of the Step Up 2 Click board by changing the output voltage.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager(recommended), downloaded from our LibStock™ or found on Mikroe github account.

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.StepUp2

Additional notes and informations

Depending on the development board you are using, you may need USB UART click, USB UART 2 Click or RS232 Click to connect to your PC, for development systems with no UART to USB interface available on the board. UART terminal is available in all MIKROE compilers.

mikroSDK

This Click board™ is supported with mikroSDK - MIKROE Software Development Kit. To ensure proper operation of mikroSDK compliant Click board™ demo applications, mikroSDK should be downloaded from the LibStock and installed for the compiler you are using.

For more information about mikroSDK, visit the official page.

Resources

mikroBUS™

Click board™ Catalog

Click Boards™

ClickID

Downloads

Step Up 2 click example on Libstock

Step Up 2 click 2D and 3D files v100

TPS61299 datasheet

MAX5419 datasheet

Step Up 2 click schematic v100

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