

Boost Click



PID: MIKROE-2780

Boost Click is a compact add-on board that steps up the voltage from its input (supply) to its output (load). This board features the [MIC2606](#), a wide input range boost regulator with an integrated switch and Schottky diode from [Microchip](#). It is a 2MHz PWM DC/DC boost switching regulator that provides an adjustable output voltage. The MIC2606 uses input voltages (5V - 20V) and converts them as output voltages (12V - 38V) with an efficiency of up to 80% (approx.). This Click board™ makes the perfect solution for the development of TV tuners, broadband communications, TFT-LCD bias supplies, positive output regulators, SEPIC converters, and more.

Boost Click is supported by a [mikroSDK](#) compliant library, which includes functions that simplify software development. This [Click board™](#) comes as a fully tested product, ready to be used on a system equipped with the [mikroBUS™](#) socket.

How does it work?

Boost Click is based on the MIC2606, a wide input range boost regulator with an integrated switch and Schottky diode from Microchip. It features a wide input voltage range, adjustable output voltage, programmable soft start, high efficiency, low output and input ripple, output over-voltage protection, and over-temperature protection. Boost Click comes with Input and Output voltage screw terminals. Besides the Input screw terminal as an external input voltage, you can use a 5V from the mikroBUS™ socket's rail. The selection can be made over the two jumpers labeled EXT 5V, where the external input voltage is set by default.

The MCP4921, a 12-bit DAC with an SPI interface from Microchip, adjusts the output voltage. This DAC feeds the regulator's feedback pin over a voltage divider. The DAC uses the MAX6106

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as a voltage reference from Analog Devices. The MAX6106 provides a 2.048V reference voltage. The output voltage is connected to the MCP3551, a low-power single-channel 22-bit Delta -Sigma ADC from Microchip. This way, the microcontroller reads the output voltage through the SPI from the onboard ADC and sends calculated data through the SPI to an onboard DAC according to the desired output voltage.


This Click board™ can operate with either 3.3V or 5V logic voltage levels selected via the VCCIO SEL jumper. This way, both 3.3V and 5V capable MCUs can use the communication lines properly. However, the 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	Can be used for the development of TV tuners, broadband communications, TFT-LCD bias supplies, positive output regulators, SEPIC converters, and more
On-board modules	MIC2606 - wide input range boost regulator with an integrated switch and Schottky diode from Microchip
Key Features	Wide input voltage range, wide output voltage range, DAC for output voltage adjustment, ADC for reading the output voltage, programmable soft start, high efficiency, low input and output ripple, and more
Interface	SPI
Feature	No ClickID
Compatibility	mikroBUS™
Click board size	L (57.15 x 25.4 mm)
Input Voltage	3.3V or 5V, External

Pinout diagram

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

Notes	Pin					Pin	Notes
DAC SPI Select	CS2	1	AN	PWM	16	NC	
Boost Regulator Enable	EN	2	RST	INT	15	NC	
SPI Chip Select	CS1	3	CS	RX	14	NC	
SPI Clock	SCK	4	SCK	TX	13	NC	
SPI Data OUT	SDO	5	MISO	SCL	12	NC	
SPI Data IN	SDI	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

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Onboard settings and indicators

Label	Name	Default	Description
-	PWR	-	Power LED Indicator
JP1	VCCIO SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V
JP2-JP3	EXT 5V	Left	Input Voltage Selection EXT/5V: Left position EXT, Right position 5V

Boost Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
Input Voltage	5	-	20	V
Output Voltage	12	-	38	V

Software Support

We provide a library for the BOOST 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 BOOST Click driver.

Key functions

- Generic write 14-bit data function.
- Generic read 22-bit of data function.
- Set configuration function.

Example Description

Boost click provides an adjustable output voltage through the onboard DAC that drives the FB pin of the MIC2606 to set desired 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:

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- MikroSDK.Board
- MikroSDK.Log
- Click.Boost

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™](#)

Downloads

[Boost click example on Libstock](#)

[Boost click schematic v100](#)

[MIC2606 datasheet](#)

[Boost click 2D and 3D files v100](#)

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