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Boost 7 Click





PID: MIKROE-5575

Boost 7 Click is a compact add-on board that steps up the voltage from its input (supply) to its output (load). This board features the BD8316GWL, a dual DC/DC converter from Rohm Semiconductor. Each converter inside the BD8316GWL is designed with up to 200mA current limit generating well-regulated positive and negative outputs of ±3.3V or ±5V, making the BD8316GWL ideal for various applications. In addition to the possibility of working with both mikroBUS™ power rails, it also provides the opportunity of using an external power supply with a very low voltage of 2.5V. This Click board™ is used to step up an input voltage to some higher level, required by a load, for various applications that require "split rail" operating voltages.

Boost 7 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 7 Click is based on the BD8316GWL, a dual step-up and inverted DC/DC converter from Rohm Semiconductor that boosts an input voltage to a higher level required by an output load. The BD8316GWL switching regulator feature integrated N-channel FETs and power P-channel MOSFETs alongside a Soft Start feature. Each converter inside the LT1945 is designed with up to 200mA current limit generating well-regulated positive and negative outputs of ±3.3V or ±5V, making the BD8316GWL ideal for various portable applications.

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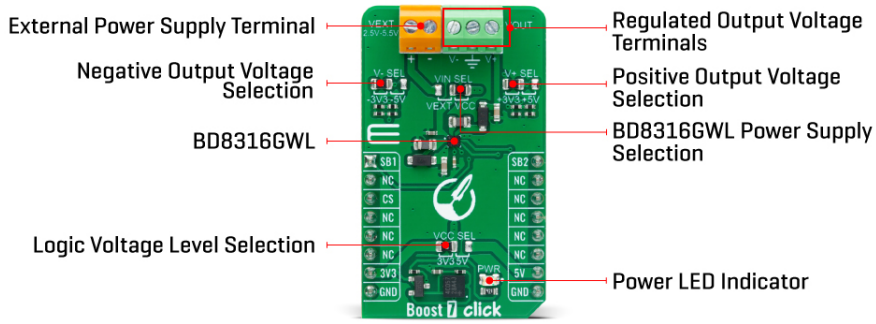

As mentioned, the BD8316GWL can configure the positive and negative output voltage in the ±3.3V or ±5V range. The desired output voltage can be selected by positioning SMD jumpers labeled as V- SEL and V+ SEL to an appropriate position. It is also possible to control the activity of the output channels via two mikroBUS™ pins, SB1 and SB2 pins. These pins are routed to a default position of the AN and PWM pins of the mikroBUS™ socket. By setting these pins to a high logic state, we put the converter outputs to an active state, and regulated voltages are available at the output terminals. In the same way, setting these pins to a low logic level disables the channels.

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. Additionally, there is a possibility for the BD8316GWL power supply selection via jumper labeled as VIN SEL to supply the BD8316GWL from an external power supply terminal in the range from 2.5V to 5.5V or with a selected voltage from mikroBUS™ power rails. 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 to step up an input voltage to some higher level
On-board modules	BD8316GWL - dual DC/DC converter from Rohm Semiconductor
Key Features	Regulated negative and positive outputs, current-limited, high efficiency, low power consumption, selectable converter power supply, digitally-controlled output channels, and more
Interface	GPIO
ClickID	Yes
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V,External

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Pinout diagram

This table shows how the pinout on Boost 7 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
Negative Channel Control	**SB1**	1	AN	PWM	16	**SB2**	Positive Channel Control
	NC	2	RST	INT	15	NC	
	NC	3	CS	RX	14	NC	
	NC	4	SCK	TX	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

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	V-SEL	Left	Negative Output Voltage Selection -3.3V/-5V: Left position -3.3V, Right position -5V
JP2	V+SEL	Left	Positive Output Voltage Selection +3.3V/+5V: Left position +3.3V, Right position +5V
JP3	VCC SEL	Left	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V
JP4	VIN SEL	Right	BD8316GWL Power Supply Selection VEXT/VCC: Left position VEXT, Right position VCC

Boost 7 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
External Supply Voltage	2.5	-	5.5	V
Positive Output Voltage	-	+3.3/+5	-	V
Negative Output Voltage	-	-3.3/-5	-	V

Software Support

We provide a library for the Boost 7 Click as well as a demo application (example), developed

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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 7 Click driver.

Key functions

- boost7_enable_out1 This function enables the OUT1 (V-) by setting the STB1 pin to high logic state.
- boost7_disable_out1 This function disables the OUT1 (V-) by setting the STB1 pin to low logic state.
- boost7_enable_out2 This function enables the OUT2 (V+) by setting the STB2 pin to high logic state.

Example Description

This example demonstrates the use of Boost 7 Click board™ by controlling the V- and V+ outputs state.

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.Boost7

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. A 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™

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mikroSDK

Click board™ Catalog

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Downloads

Boost 7 click example on Libstock

Boost 7 click 2D and 3D files

BD8316GWL datasheet

Boost 7 Click schematic

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