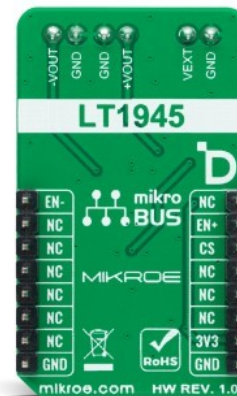
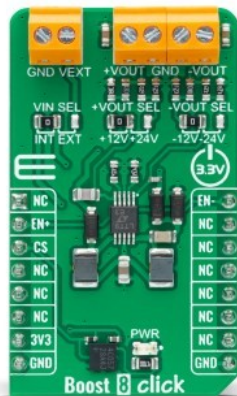


Boost 8 Click



PID: MIKROE-5468

Boost 8 Click is a compact add-on board that steps up the voltage from its input (supply) to its output (load). This board features the [LT1945](#), a dual micropower DC/DC converter from [Analog Devices](#). Each converter inside the LT1945 is designed with a 350mA current limit generating well-regulated positive and negative outputs of $\pm 12V$ or $\pm 24V$, making the LT1945 ideal for various applications. In addition to the possibility of working with a 3.3V mikroBUS™ power rail, it also provides the opportunity of using an external power supply with a very low voltage of 2.7V. A current-limited, fixed-off-time control scheme conserves operating current, resulting in high efficiency over a broad range of load current. 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 8 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 8 Click is based on the LT1945, a dual micropower DC/DC converter from Analog Devices that boosts an input voltage to a higher level required by an output load. The LT1945 uses a constant off-time control scheme to provide high efficiency over a wide range of output currents. Each converter inside the LT1945 is designed with a 350mA current limit generating well-regulated positive and negative outputs of $\pm 12V$ or $\pm 24V$, making the LT1945 ideal for various applications. It also contains additional circuitry to provide protection during the Start-Up sequence and under short-circuit conditions, reducing the average inductor output current and minimizing the power dissipation in the power switch.

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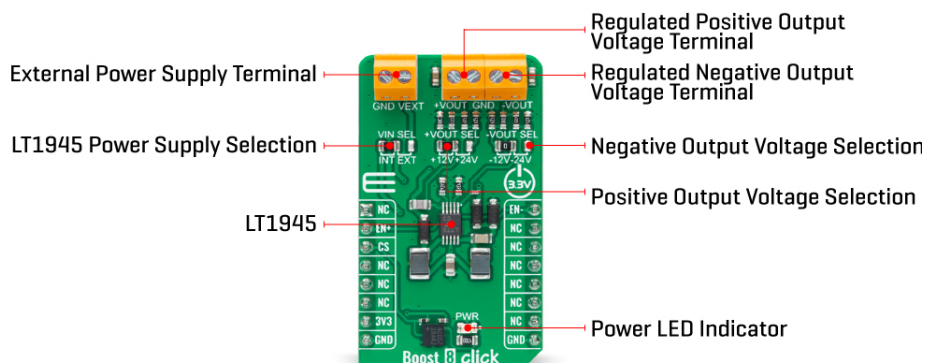
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ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
OHSAS 18001: 2008 certification of occupational health and safety management system.



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



As mentioned before, the LT1945 can configure the positive and negative output voltage in the $\pm 12V$ or $\pm 24V$ range. The desired output voltage can be selected by positioning SMD jumpers labeled as +VOUT SEL and -VOUT SEL to an appropriate position. It is also possible to control the activity of the output channels via two mikroBUS™ pins, EN+ and EN- pins, routed to the RST and PWM pin of the mikroBUS™ socket. By setting these pins to a high logic state, we set 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 only be operated from a 3.3V logic voltage level. Therefore, the board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. Additionally, there is a possibility for the LT1945 power supply selection via jumper labeled as VIN SEL to supply the LT1945 from an external power supply terminal in the range from 2.7V to 5V or with 3.3V from mikroBUS™ power rail. 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	LT1945 - dual micropower DC/DC converter from Analog Devices
Key Features	Regulated negative and positive outputs, current-limited, high efficiency, fixed off-time control scheme, low power consumption, selectable converter power supply, digitally-controlled output channels, and more
Interface	GPIO
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V, External

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Pinout diagram

This table shows how the pinout on Boost 8 Click corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin					Pin	Notes
	NC	1	AN	PWM	16	EN-	Negative Channel Control
Positive Channel Control	EN +	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	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1	+VOUT SEL	Left	Positive Output Voltage Selection +12V/+24V: Left position +12V, Right position +24V
JP2	-VOUT SEL	Left	Negative Output Voltage Selection -12V/-24V: Left position -12V, Right position -24V
JP3	VIN SEL	Left	LT1945 Power Supply Selection INT/EXT: Left position INT, Right position EXT

Boost 8 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
External Supply Voltage	2.7	-	5	V
Positive Output Voltage	-	12/24	-	V
Negative Output Voltage	-	-12/-24	-	V

Software Support

We provide a library for the Boost 8 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](#).

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Library Description

This library contains API for Boost 8 Click driver.

Key functions

- `boost8_enable_positive_voltage` Enable positive voltage output function.
- `boost8_disable_positive_voltage` Disable positive voltage output function.
- `boost8_enable_negative_voltage` Enable negative voltage output function.

Example Description

This is an example that demonstrates the use of the Boost 8 Click board™.

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.Boost8

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™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

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Downloads

[LT1945 datasheet](#)

[Boost 8 click 2D and 3D files](#)

[Boost 8 click schematic](#)

[Boost 8 click example on Libstock](#)

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