

Boost 10 Click



PID: MIKROE-6927

Boost 10 Click is a compact add-on board providing a stable boosted output voltage for battery-powered devices and other applications requiring DC/DC voltage increase. It is based on the [LT8337](#), a synchronous step-up DC/DC converter from [Analog Devices](#). It features Silent Switcher architecture with optional spread spectrum frequency modulation for reduced EMI, a wide input range from 3.3V to 10V, selectable regulated output from 5V to 12V, power supply source selection and digital output voltage adjustment through the TPL0501 digital potentiometer. The LT8337 also offers low quiescent current in Burst Mode, 100% duty-cycle capability in PassThru operation, output soft-start, output overvoltage lockout, and a power-good status flag for system supervision. It is well suited for battery-powered systems, portable electronics, and general-purpose step-up power applications.

For more information about **Boost 10 Click** visit the official [product page](#).

How does it work?

Boost 10 Click is based on the LT8337, a synchronous step-up DC/DC converter from Analog Devices that combines high efficiency with low electromagnetic interference through its Silent Switcher architecture, while also supporting optional spread spectrum frequency modulation for additional EMI reduction at high switching frequencies. This board supports a wide operating range, accepting an external input supply from 3.3V up to 10V through the VIN terminal and providing a regulated output selectable from 5V to 12V on the VOUT terminal, making it suitable for regulated step-up power conversion in battery-powered systems and general-purpose boost applications.

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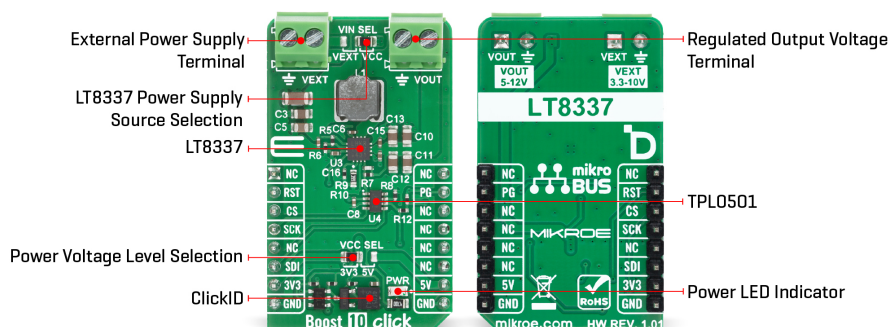
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The LT8337 supply source can also be selected via the VIN SEL jumper, allowing the device to operate either from the external VEXT source or from the internal VCC rail, which adds flexibility in different system configurations. Output voltage programming is implemented through a resistor divider realized with the [TPL0501](#) from Texas Instruments, a single-channel digital potentiometer with a linear taper, SPI interface, and 256 wiper positions, enabling digital adjustment of the output level. The LT8337 also features low quiescent current on the VIN pin during Burst Mode operation, which helps improve efficiency in low-load conditions and makes the board especially well suited for battery-powered applications where power saving is important.

In addition, the device supports 100% duty-cycle capability for its synchronous MOSFET in PassThru operation when VIN exceeds VOUT, allowing efficient behavior in conditions where the input voltage is already above the desired output level. To improve system reliability and startup behavior, the LT8337 includes output soft-start functionality and output overvoltage lockout protection, while the PG pin provides a power-good status flag for output monitoring and supervisory control.

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 battery-powered systems, portable electronics, and general-purpose step-up power applications
On-board modules	LT8337 - synchronous step-up silent switcher from Analog Devices
Key Features	Silent Switcher architecture, optional spread spectrum frequency modulation for reduced EMI, synchronous step-up DC/DC conversion, wide input voltage range, digital output voltage adjustment via digital potentiometer, low quiescent current in Burst Mode operation,

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	100% duty-cycle capability in PassThru operation, output soft-start, output overvoltage lockout, power-good status flag , and more
Interface	SPI
Feature	ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V or 5V, External

Pinout diagram

This table shows how the pinout on Boost 10 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	NC	
ID SEL	RST	2	RST	INT	15	PG	Power-Good Indicator
SPI Select / ID COMM	CS	3	CS	RX	14	NC	
SPI Clock	SCK	4	SCK	TX	13	NC	
	NC	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

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	VIN SEL	Right	LT8337 Power Supply Source Selection VEXT/VCC: Left position VEXT, Right position VCC

Boost 10 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	3.3	-	5	V
External Power Supply	3.3	-	10	V
Output Voltage	5	-	12	V

Software Support

[Boost 10 Click](#) demo application is developed using the [NECTO Studio](#), ensuring compatibility

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with [mikroSDK](#)'s open-source libraries and tools. Designed for plug-and-play implementation and testing, the demo is fully compatible with all development, starter, and mikromedia boards featuring a [mikroBUS™](#) socket.

Example Description

This example demonstrates the use of the Boost 10 Click board by dynamically adjusting the output voltage using the onboard digital potentiometer. The application gradually increases and decreases the output voltage within the supported range and logs the set value to the serial terminal.

Key Functions

- `boost10_cfg_setup` This function initializes Click configuration structure to initial values.
- `boost10_init` This function initializes all necessary pins and peripherals used for this Click board.
- `boost10_set_vout` This function calculates the required feedback resistance for the requested output voltage and updates the digital potentiometer accordingly.
- `boost10_get_pg_pin` This function reads and returns the logic state of the PG pin.

Application Init

Initializes the logger and Boost 10 Click driver and configures SPI communication through the mikroBUS socket.

Application Task

Periodically changes the output voltage between the minimum and maximum supported values in defined steps and logs the configured voltage.

Application Output

This Click board can be interfaced and monitored in two ways:

- Application Output - Use the "Application Output" window in Debug mode for real-time data monitoring. Set it up properly by following [this tutorial](#).
- UART Terminal - Monitor data via the UART Terminal using a [USB to UART converter](#). For detailed instructions, check out [this tutorial](#).

Additional Notes and Information

The complete application code and a ready-to-use project are available through the NECTO Studio Package Manager for direct installation in the [NECTO Studio](#). The application code can also be found on the MIKROE [GitHub](#) account.

Resources

[mikroBUS™](#)

[mikroSDK](#)

[Click board™ Catalog](#)

[Click boards™](#)

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[ClickID](#)

Downloads

[Boost 10 click example package](#)

[Boost 10 click 2D and 3D files v101](#)

[Boost 10 click schematic v101](#)

[LT8337 datasheet](#)

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