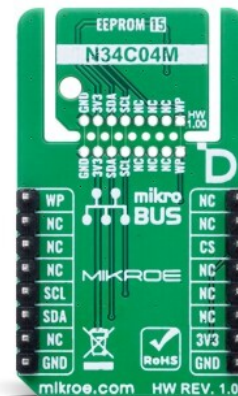
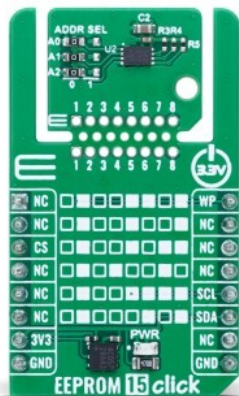


EEPROM 15 Click



PID: MIKROE-6554

EEPROM 15 Click is a compact add-on board designed for reliable non-volatile data storage in embedded and computing systems. This board features the [N34C04MU3ETG](#), a 4Kb serial EEPROM from [onsemi](#), fully compliant with the JEDEC JC42.4 (EE1004–v) SPD specification for DDR4 DIMMs. This board supports I2C communication with selectable addresses and speeds up to 1MHz, includes a 16-byte page write buffer, and features a hardware Write Protect pin. Built on low-power CMOS technology, it offers 1 million write cycles and 100 years of data retention, ensuring long-term reliability. Thanks to MIKROE's innovative Click Snap format, the board allows flexible implementation and standalone operation. It is ideal for applications in computing systems that require robust and efficient EEPROM storage.

For more information about **EEPROM 15 Click** visit the official [product page](#).

How does it work?

EEPROM 15 Click is based on the N34C04MU3ETG, a 4Kb serial EEPROM from onsemi, designed for reliable and efficient data storage in computing systems. It is specifically designed to meet the JEDEC JC42.4 (EE1004–v) Serial Presence Detect (SPD) specification for DDR4 DIMMs. This EEPROM supports multiple I2C communication modes, including Standard mode at 100kHz, Fast mode at 400kHz, and Fast Plus mode at up to 1MHz, making it versatile for various speed requirements in embedded applications. The N34C04MU3ETG version integrated on this board includes a unique response behavior where it issues a NoACK signal after receiving a dummy data byte, ensuring compatibility with SPD protocols. Additionally, it features a 16-byte page write buffer that enhances writing efficiency and minimizes the time needed for data programming. Based on a low-power CMOS technology, it offers an impressive endurance of up to one million write cycles and guarantees data retention for a minimum of 100 years, making

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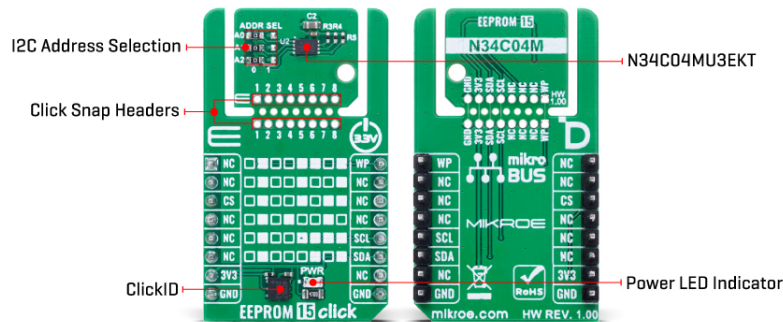


ISO 27001: 2013 certification of informational security management system.
ISO 14001: 2015 certification of environmental management system.
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ISO 9001: 2015 certification of quality management system (QMS).

it highly reliable for long-term applications, like use in computing environments that demand robust non-volatile memory with excellent performance and durability.



This Click board™ is designed in a unique format supporting the newly introduced MIKROE feature called "Click Snap." Unlike the standardized version of Click boards, this feature allows the main IC area to become movable by breaking the PCB, opening up many new possibilities for implementation. Thanks to the Snap feature, the N34C04MU3ETG can operate autonomously by accessing its signals directly on the pins marked 1-8. Additionally, the Snap part includes a specified and fixed screw hole position, enabling users to secure the Snap board in their desired location.

As mentioned, this Click board™ uses an I2C interface with clock speeds of up to 1MHz, ensuring fast communication with the host MCU. The I2C address of the N34C04MU3ETG can be easily configured via onboard jumpers marked ADDR SEL in the Snap area, allowing multiple devices to coexist on the same bus. In addition to the I2C interface pins, EEPROM 15 Click features an WP pin used to inhibit all write operations, when pulled HIGH. One of the two available 2Kb EEPROM banks (referred to as SPD pages in the EE1004–v specification) is activated for access at power–up. After power–up, banks can be switched via software command. Each of the four 1Kb EEPROM blocks can be Write Protected by software command.

This Click board™ can be operated only with a 3.3V logic voltage level. The board must perform appropriate logic voltage level conversion before using MCUs with different logic levels. It also comes equipped with a library containing functions and example code that can be used as a reference for further development.

Click Snap

Click Snap is an innovative feature of our standardized Click add-on boards, introducing a new level of flexibility and ease of use. This feature allows for easy detachment of the main sensor area by simply snapping the PCB along designated lines, enabling various implementation possibilities. For detailed information about Click Snap, please visit the [official page](#) dedicated to this feature.

Specifications

Type	EEPROM
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Applications	Ideal for applications in computing systems that require robust and efficient EEPROM storage
On-board modules	N34C04MU3ETG - 4Kb serial EEPROM from onsemi
Key Features	4Kb serial EEPROM, compliant with JEDEC JC42.4 (EE1004-v) SPD specification, supports I2C communication up to 1MHz, 16-byte page write buffer, low-power CMOS technology, 1 million write cycles endurance, 100 years data retention, unique NoACK response after dummy byte, dual-bank architecture with selectable SPD pages, Click Snap, and more
Interface	I2C
Feature	Click Snap, ClickID
Compatibility	mikroBUS™
Click board size	M (42.9 x 25.4 mm)
Input Voltage	3.3V

Pinout diagram

This table shows how the pinout on EEPROM 15 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	WP	Write Protect
	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	NC	
Ground	GND	8	GND	GND	9	GND	Ground

Onboard settings and indicators

Label	Name	Default	Description
LD1	PWR	-	Power LED Indicator
JP1-JP3	ADDR SEL	Left	I2C Address Selection 0/1: Left position 0, Right position 1

EEPROM 15 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Memory Size	-	-	4	Kb
Write Endurance	1M	-	-	Cycles
Data Retention	100	-	-	Years

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Software Support

[EEPROM 15 Click](#) demo application is developed using the [NECTO Studio](#), ensuring compatibility 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 EEPROM 15 Click board by writing specified data to the memory and reading it back.

Key Functions

- `eeeprom15_cfg_setup` This function initializes Click configuration structure to initial values.
- `eeeprom15_init` This function initializes all necessary pins and peripherals used for this Click board.
- `eeeprom15_select_bank` This function selects the active memory bank in the EEPROM.
- `eeeprom15_write_memory` This function writes data to the EEPROM memory starting from the specified address.
- `eeeprom15_read_memory` This function reads data from the EEPROM memory starting from the specified address.

Application Init

Initializes the driver and logger.

Application Task

Writes a desired number of bytes to the memory and then verifies if it is written correctly by reading from the same memory location and displaying the memory content on the USB UART.

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](#)

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[Click board™ Catalog](#)

[Click boards™](#)

[ClickID](#)

Downloads

[EEPROM 15 click example package](#)

[EEPROM 15 click 2D and 3D files v100](#)

[EEPROM 15 click schematic v100](#)

[N34C04 datasheet](#)

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