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EEPROM 8 Click





PID: MIKROE-5073

EEPROM 8 Click is a compact add-on board that contains a highly reliable nonvolatile memory solution. This board features the CAV24C512, a 512-Kb electrically erasable programmable memory with enhanced hardware write protection for entire memory from ON Semiconductor. Internally organized as 65,536 words of 8 bits each, the CAV24C512 comes up with the compatible I2C serial interface. The CAV24C512 combines unprecedented data storage with excellent energy efficiency. It lasts one million full-memory read/write/erase cycles with more than 100 years of data retention. This Click board™ is suitable for consumer and industrial applications where dependable nonvolatile memory storage is essential.

EEPROM 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?

EEPROM 8 Click as its foundation uses the CAV24C512, a 512-Kb EEPROM with an I2C interface and Write Protection Mode from ON Semiconductor. The CAV24C512 is organized as 65,536 words of 8 bits each and benefits from a wide power supply range and 100 years of data retention combining their unprecedented data storage with excellent energy efficiency. It is highly reliable, lasting one million full-memory read/write/erase cycles. On-chip Error Correction Code (ECC) makes this Click board™ suitable for high-reliability applications where dependable nonvolatile memory storage is essential.

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ISO 14001: 2015 certification of environmental management system.
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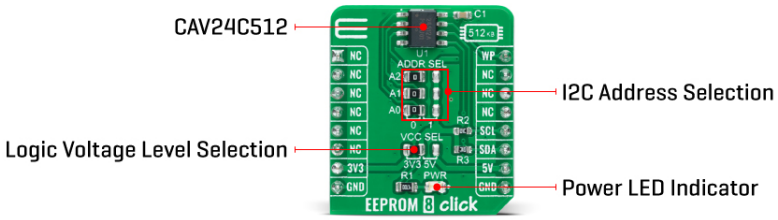

This Click board™ communicates with MCU using the standard I2C 2-Wire interface that supports Standard (100 kHz), Fast (400 kHz), and Fast-Plus (1MHz) modes of operation. The CAV24C512 has a 7-bit slave address with the first five MSBs fixed to 1010. The address pins A0, A1, and A2, are programmed by the user and determine the value of the last three LSBs of the slave address, which can be selected by positioning onboard SMD jumpers labeled as ADDR SEL to an appropriate position marked as 0 or 1.

On the other side, the configurable Write Protection function, labeled as WP routed to the PWM pin of the mikroBUS™ socket, allows the user to freeze the entire memory area, thus protecting it from Write instructions.

This Click board™ can operate with both 3.3V and 5V logic voltage levels selected via the VCC SEL jumper. This way, it is allowed for both 3.3V and 5V capable MCUs to use the communication lines properly. However, the Click board™ comes equipped with a library that contains easy-to-use functions and an example code that can be used, as a reference, for further development.

Specifications

Type	EEPROM
Applications	Can be used for consumer and industrial applications where dependable nonvolatile memory storage is essential
On-board modules	CAV24C512 - 512-Kb electrically erasable programmable memory from ON Semiconductor
Key Features	Low power consumption, write protection, more than million read/write/erase cycles, more than 100 years of data retention, high reliability, high density, and more.
Interface	I2C
ClickID	No
Compatibility	mikroBUS™
Click board size	S (28.6 x 25.4 mm)

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Input Voltage	3.3V or 5V

Pinout diagram

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

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	**WP**	Write Protect
	NC	2	RST	INT	15	NC	
	NC	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	**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	Logic Level Voltage Selection 3V3/5V: Left position 3V3, Right position 5V
JP2-JP4	ADDR SEL	Left	I2C Address Selection 0/1: Left position 0, Right position 1

EEPROM 8 Click electrical specifications

Description	Min	Typ	Max	Unit
Supply Voltage	-	3.3	-	V
Memory Size	-	-	512	Kb
Endurance	1.000.000	-	-	Cycles
Data Retention	100	-	-	Years
Operating Temperature Range	-40	+25	+120	°C

Software Support

We provide a library for the EEPROM 8 Click as well as a demo application (example), developed using MikroElektronika compilers. The demo can run on all the main MikroElektronika development boards.

Package can be downloaded/installed directly from NECTO Studio Package Manager(recommended way), downloaded from our LibStock™ or found on Mikroe github account.

Library Description

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This library contains API for EEPROM 8 Click driver.

Key functions

- eeprom8_write_page This function writes up to 128 bytes of data starting from the selected register.
- eeprom8_read_random_byte This function reads one byte data from the desired register.
- eeprom8_read_sequential This function reads the desired number of bytes starting from the selected register.

Example Description

This example demonstrates the use of EEPROM 8 Click board™ by writing specified data to the memory and reading it back.

The full application code, and ready to use projects can be installed directly from NECTO Studio Package Manager(recommended way), downloaded from our LibStock™ or found on Mikroe github account.

Other Mikroe Libraries used in the example:

- MikroSDK.Board
- MikroSDK.Log
- Click.EEPROM8

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 MikroElektronika compilers.

mikroSDK

This Click board™ is supported with mikroSDK - MikroElektronika 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™

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Downloads

EEPROM 8 click example on Libstock

CAV24C512 datasheet

EEPROM 8 click 2D and 3D files

EEPROM 8 click schematic

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