

PIC32MZ

# clicker

a new idea just a click away

A compact starter kit with your favorite microcontroller and a mikroBUS™ socket.

# TO OUR VALUED CUSTOMERS

I want to express my thanks to you for being interested in our products and for having confidence in MikroElektronika.

The primary aim of our company is to design and produce high quality electronic products and to constantly improve the performance thereof in order to better suit your needs.

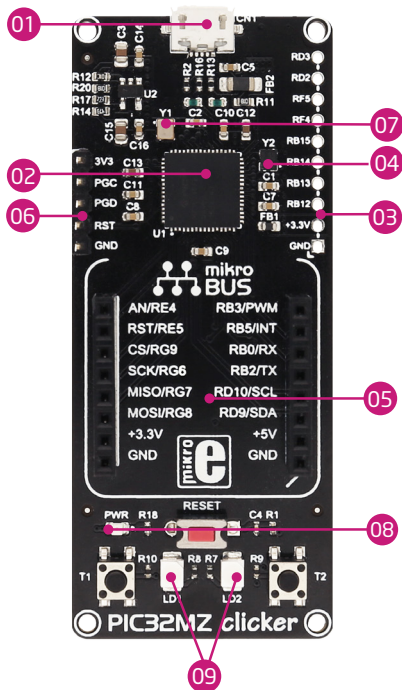
A handwritten signature in black ink, appearing to read 'N. Matic', with a stylized, cursive script.

Nebojsa Matic  
General Manager

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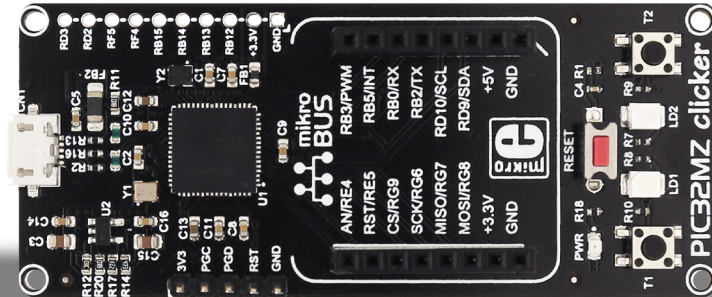
# 1. Key features



- 01 Micro USB connector
- 02 PIC32MZ MCU
- 03 Expansion header
- 04 24 MHz crystal oscillator
- 05 mikroBUS™ socket
- 06 mikroProg connector
- 07 32.768 KHz crystal oscillator
- 08 Power indication LED
- 09 Additional LEDs

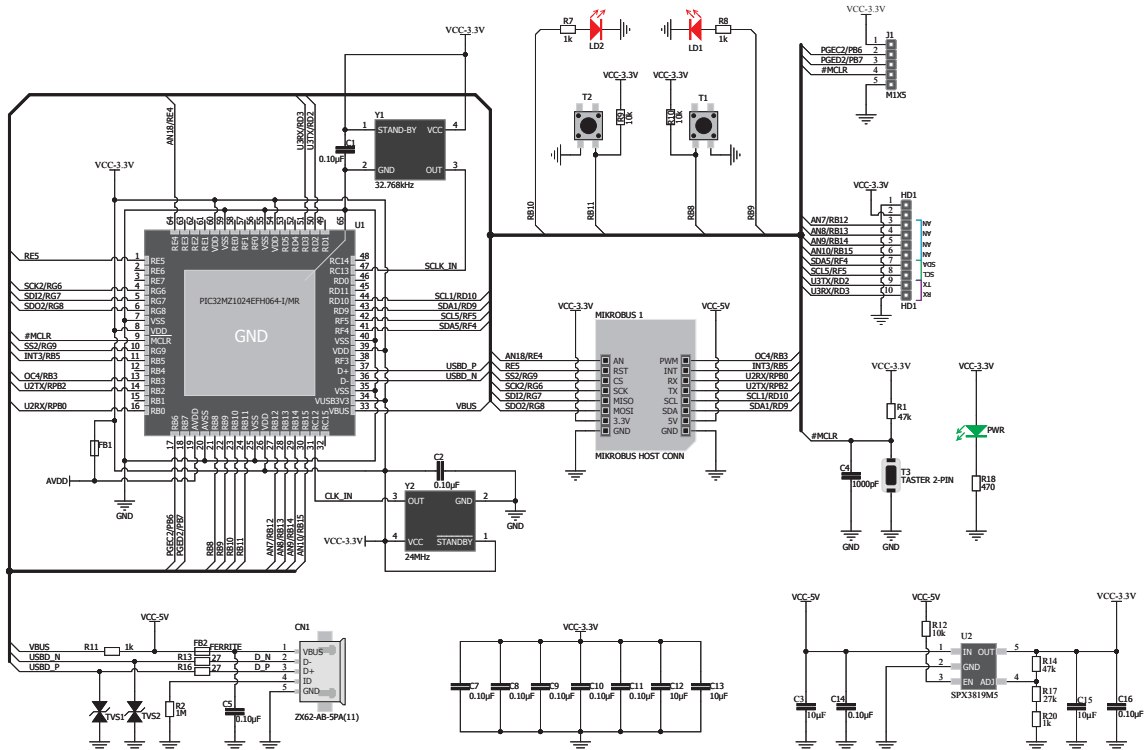
PIC32MZ clicker

## 2. What is PIC32MZ clicker?



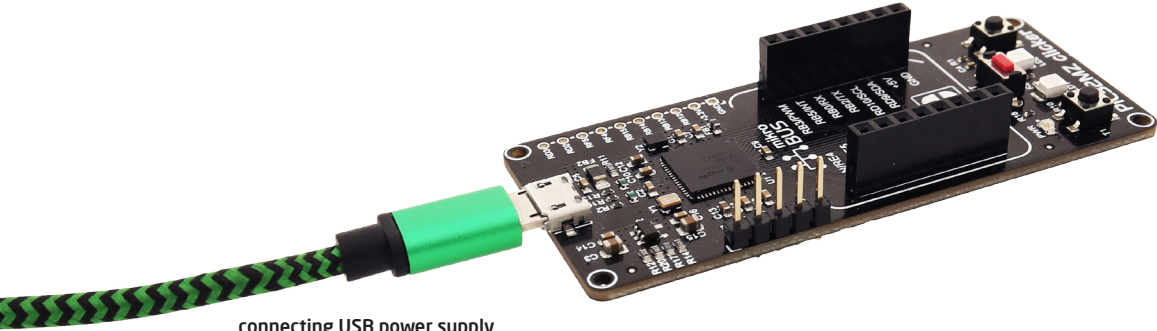
PIC32MZ clicker

PIC32MZ clicker is an amazingly compact starter development kit which brings innovative mikroBUS™ host socket to your favorite microcontroller. It features PIC32MZ 32-bit microcontroller, two indication LEDs, two general purpose buttons, micro USB connector and a single mikroBUS™ host socket. mikroProg connector and pads for interfacing with external electronics are provided as well. mikroBUS™ host connector consists of two 1x8 female headers with SPI, I2C, UART, RST, PWM, Analog and Interrupt lines as well as 3.3V, 5V and GND power lines.



PIC32MZ clicker schematic

## 4. Power supply



connecting USB power supply  
through CN1 connector

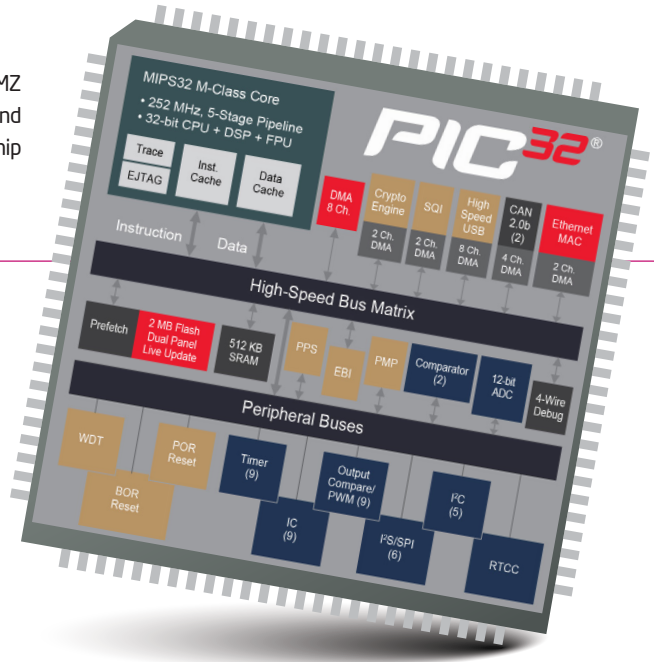
When the board is powered up the power indication **LED** will be automatically turned on. The **USB** connection can provide up to 500mA of current which is more than enough for the operation of all on-board and additional modules.

# 5. PIC32MZ microcontroller

The PIC32MZ clicker development tool comes with the PIC32MZ microcontroller. This 32-bit (up to 1 MB Live-Update Flash and 512 KB SRAM) microcontroller with FPU is rich with on-chip peripherals.

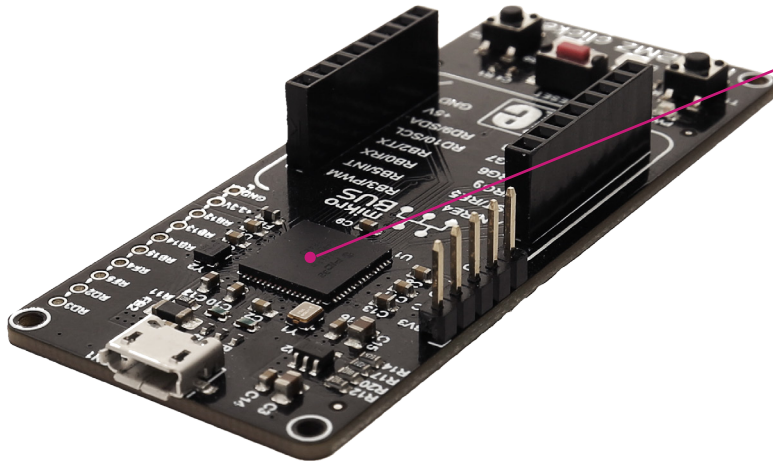
## Key microcontroller features

- 1MB of Live-Update flash
- Core: 200MHz
- Nine 16-bit or up to four 32-bit timers/counters
- 5V-tolerant pins with up to 32 mA source/sink





## 6. Programming the microcontroller



PIC32MZ  
microcontroller

The microcontroller can be programmed in two ways:

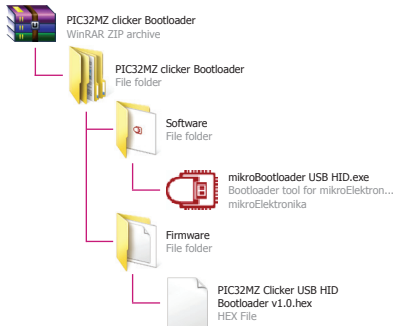
- 01 Using USB HID mikroBootloader,
- 02 Using external mikroProg™ for PIC®, dsPIC®, PIC32® programmer.

# Programming with mikroBootloader

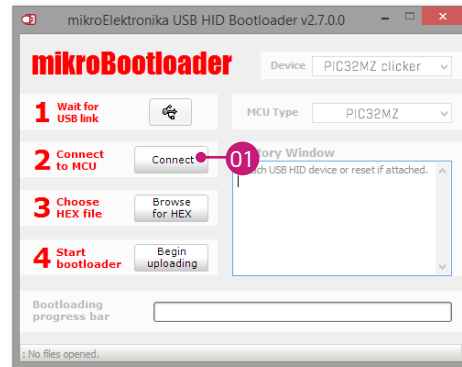
You can program the microcontroller with bootloader which is preprogrammed by default. To transfer .hex file from a PC to MCU you need bootloader software (**mikroBootloader USB HID**) which can be downloaded from:

[download.mikroe.com/examples/starter-boards/clicker/pic32mz/pic32mz-clicker-bootloader.zip](https://www.mikroe.com/examples/starter-boards/clicker/pic32mz/pic32mz-clicker-bootloader.zip)

After the mikroBootloader software is downloaded, unzip it to desired location and start it.



## step 1 - Connecting PIC32MZ clicker



### USB HID mikroBootloader window

- 01 To start, connect the USB cable, or if already connected press the **Reset** button on your PIC32MZ clicker. Click the **Connect** button within 5s to enter the bootloader mode, otherwise existing microcontroller program will execute.

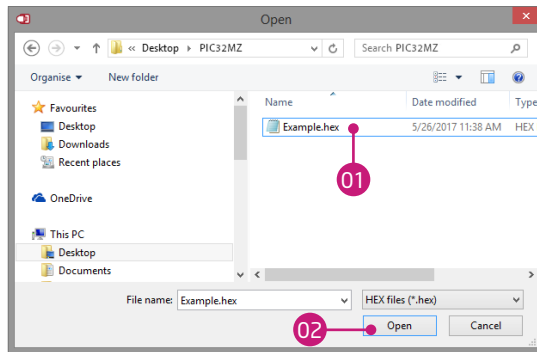
## step 2 – Browsing for .HEX file



### Browse for HEX

- 01 Click the **Browse for HEX** button and from a pop-up window choose the .HEX file which will be uploaded to MCU memory.

## step 3 – Selecting .HEX file



### Selecting HEX

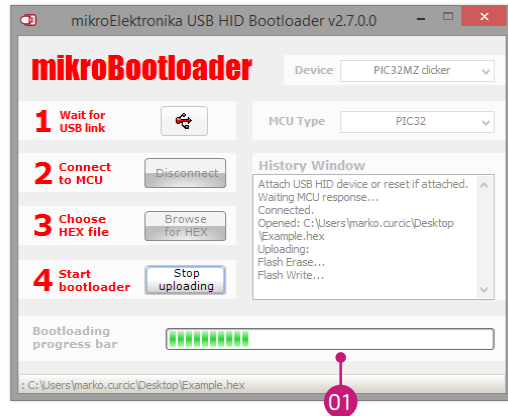
- 01 Select .HEX file using open dialog window.
- 02 Click the **Open** button.

## step 4 – Uploading .HEX file



Begin uploading

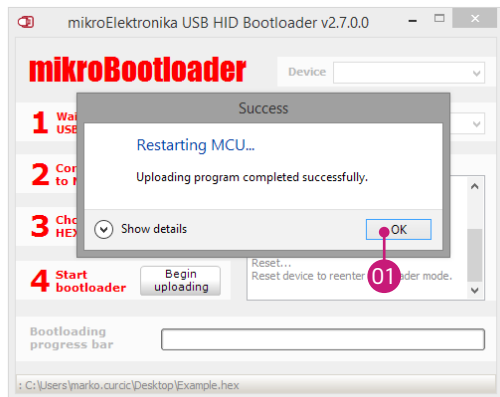
- 01 To start .HEX file bootloading click the **Begin uploading** button.



Progress bar

- 01 Progress bar enables you to monitor .HEX file uploading.

## step 5 – Finish upload



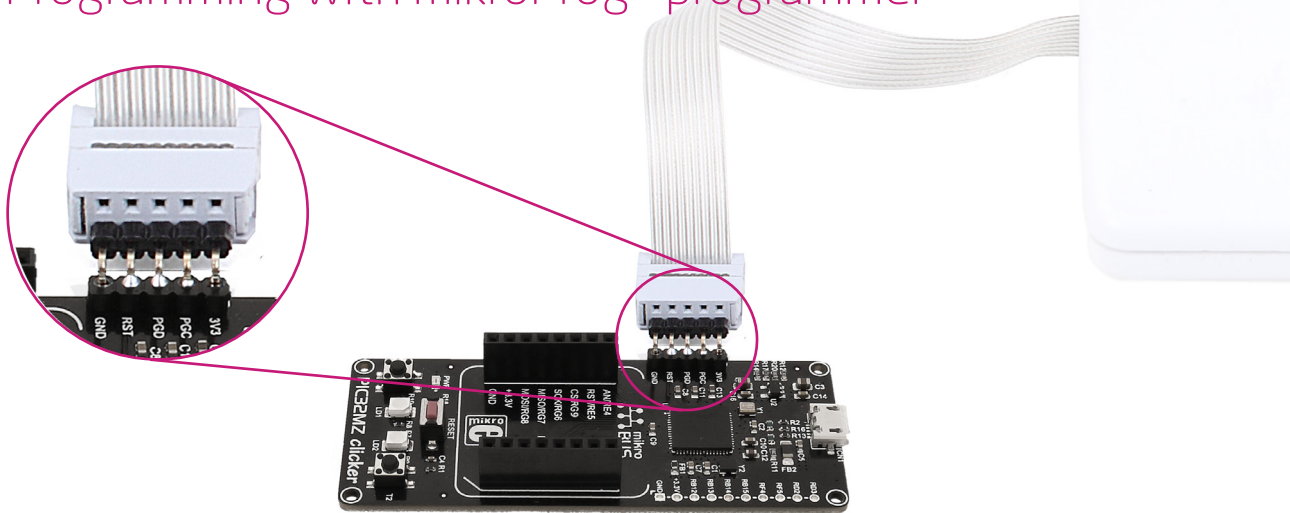
### Restarting MCU

- 01 Click **OK** button after the uploading process is finished.
- 02 Press **Reset** button on PIC32MZ clicker board and wait for 5 seconds. Your program will run automatically.



### mikroBootloader ready for next job

# Programming with mikroProg™ programmer



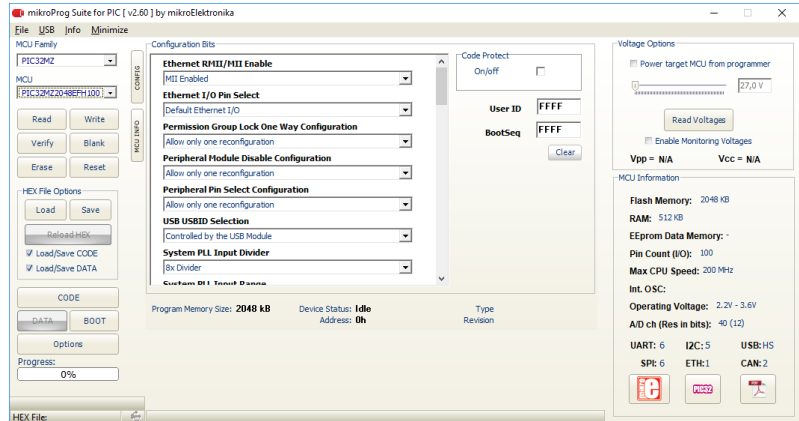
mikroProg™ connector

The microcontroller can be programmed with external mikroProg™ for PIC®, dsPIC® and PIC32® programmer and mikroProg Suite™ for PIC® software. The external programmer is connected to the development system via 1x5 mikroProg™ connector. mikroProg™ is a fast USB 2.0 programmer with hardware debugger support. It supports PIC10®, PIC12®, PIC16®, PIC18®, dsPIC30/33®, PIC24® and PIC32® devices from Microchip®. Outstanding performance, easy operation and elegant design are its key features.

# 7. mikroProg Suite™ for PIC® Software

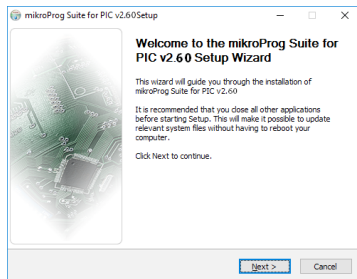


The **mikroProg** programmer requires special programming software called mikroProg Suite for **PIC®**. It can be used for programming all Microchip® microcontroller families, including **PIC10®**, **PIC12®**, **PIC16®**, **PIC18®**, **dsPIC30/33®**, **PIC24®** and **PIC32®**. The software has intuitive interface and **SingleClick™** programming technology. Just download the latest version of mikroProg Suite™ and your programmer is ready to program new devices. mikroProg Suite is updated regularly, at least four times a year, so your programmer will be more and more powerful with each new release.

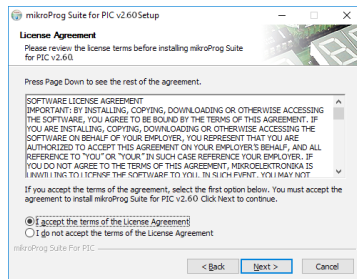


Main window of mikroProg Suite™ for PIC® programming software

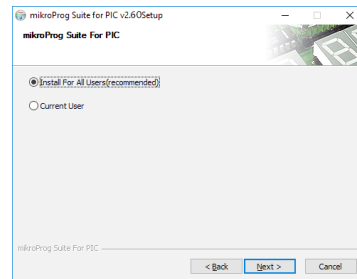
# Software Installation Wizard



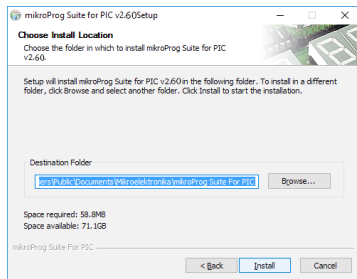
01 Start Installation



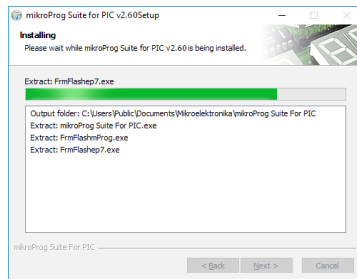
02 Accept EULA and continue



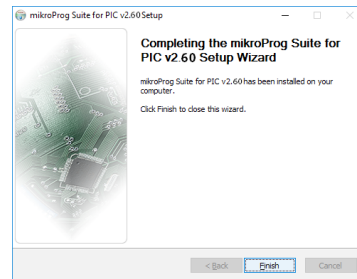
03 Install for all users



04 Choose destination folder



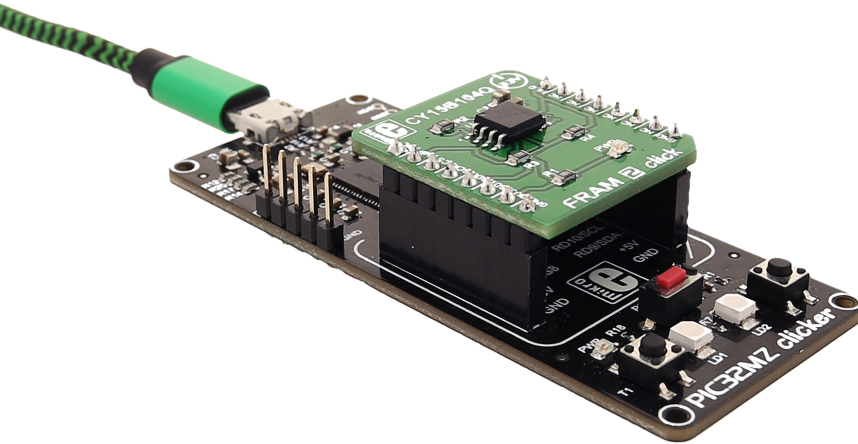
05 Installation in progress



06 Finish installation



## 8. click boards are plug and play!



PIC32MZ clicker driving  
FRAM 2 click™ board

Up to now, MikroElektronika has released more than 300 mikroBUS™ compatible click™ boards. On the average, we make one click per day. It is our intention to provide you with as many add-on boards as possible, so you will be able to expand your development board with additional functionality. Each board comes with a set of working example codes. Please visit the click™ boards webpage for the complete list of currently available boards:

[shop.mikroe.com/click](http://shop.mikroe.com/click)



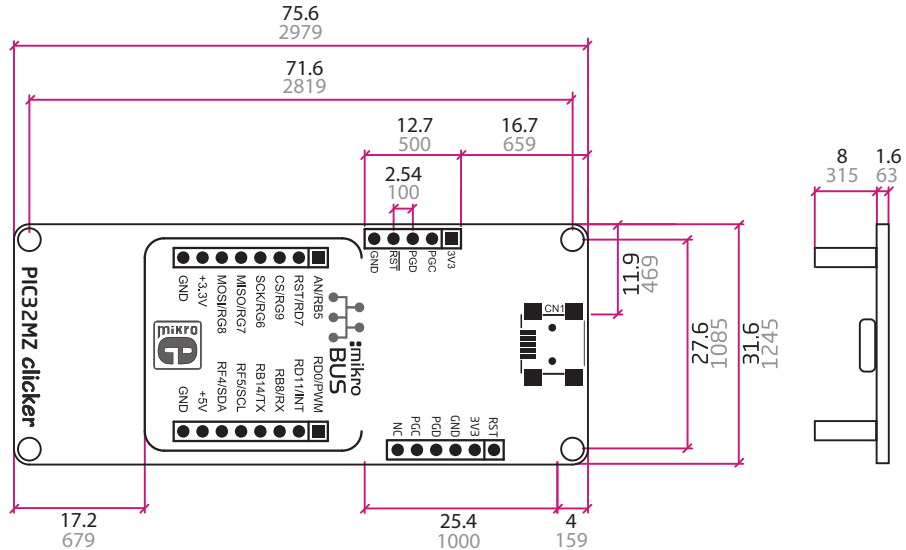
# 9. Dimensions

## Legend

-  mm
-  mils

## Mounting hole size

- Ø2 mm
- Ø79 mils



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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
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