

# MINI-M4™

development board for STM32

The whole STM32 development board fitted in DIP40 form factor, containing powerful STM32F415RG microcontroller.

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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 white, handwritten signature in cursive script, appearing to read 'N. Matic', set against a dark green background.

Nebojsa Matic  
General Manager

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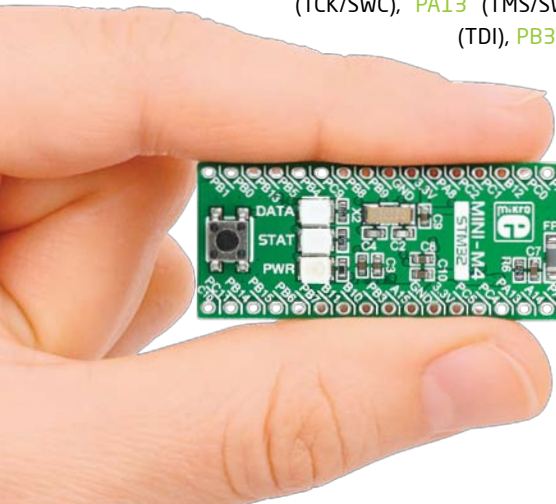
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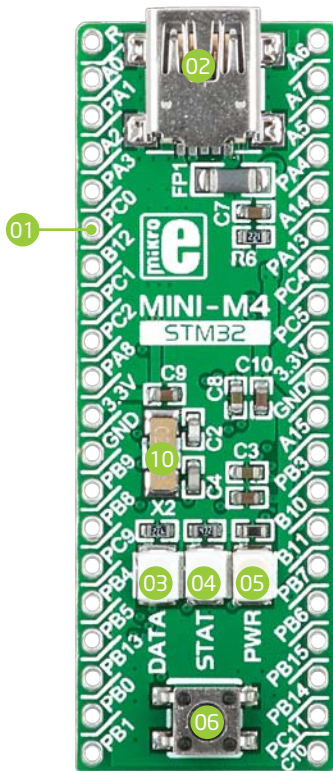
# Introduction to MINI-M4 for STM32

Miniature and powerful development tool designed to work as stand alone device or as MCU card in DIP40 socket. MINI-M4 for STM32 is pre programmed with USB HID bootloader so it is not necessary to have external programmer. If there is need for external programmers (mikroProg™ or ST-LINK V2) attach it to MINI-M4 for STM32 via pads marked with PA14 (TCK/SWC), PA13 (TMS/SWD), PA15 (TDI), PB3 (TDO) and RST#.



## Key features

- 01 Connection Pads
- 02 USB MINI-B connector
- 03 DATA LED
- 04 STAT LED
- 05 POWER supply LED
- 06 Reset button
- 07 Power supply regulator
- 08 Microcontroller STM32F415RG
- 09 16 MHz Crystal oscillator
- 10 32.768kHz Crystal oscillator



## System Specification



### power supply

3.3V via pads or 5V via USB



### power consumption

depends on MCU state (max current into 3.3V pad is 800mA)



### board dimensions

50.8 x 17.78mm (2 x 0.7")



### weight

~6g (0.013 lbs)

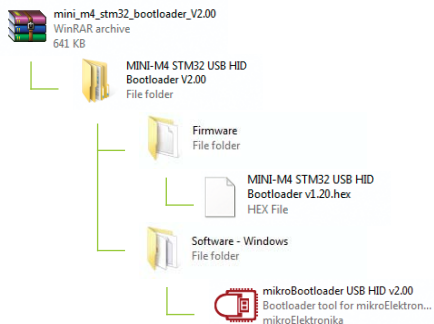
# 1. Programming with mikroBootloader

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



[http://www.mikroe.com/downloads/get/1938/mini\\_m4\\_stm32\\_bootloader\\_v200.zip](http://www.mikroe.com/downloads/get/1938/mini_m4_stm32_bootloader_v200.zip)

After software is downloaded unzip it to desired location and start mikroBootloader USB HID software.



## step 1 - Connecting MINI-M4



Figure 1-1: USB HID mikroBootloader window

- 01 To start, connect the USB cable, or if already connected press the **Reset** button on your MINI-M4 board. Click the **"Connect"** button within 5s to enter the bootloader mode, otherwise existing microcontroller program will execute.

## step 2 - Browsing for .HEX file



Figure 1-2: Browse for HEX

- 01 Click the **"Browse for HEX"** button and from a pop-up window (**Figure 1-3**) choose the .HEX file which will be uploaded to MCU memory.

## step 3 - Selecting .HEX file

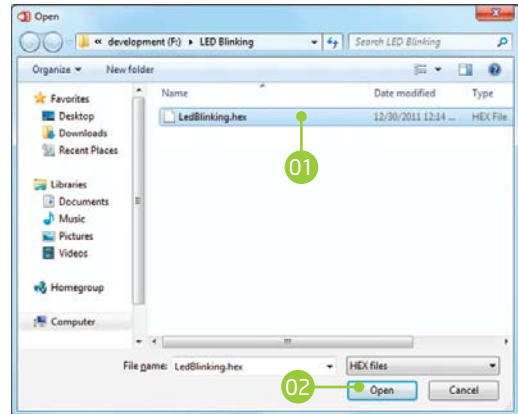


Figure 1-3: Selecting HEX

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

## step 4 - Uploading .HEX file



Figure 1-4: Begin uploading

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



Figure 1-5: Progress bar

01 You can monitor .HEX file uploading via progress bar



## step 5 - Finish upload

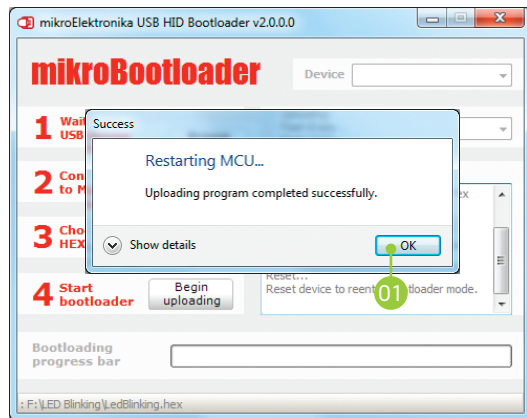


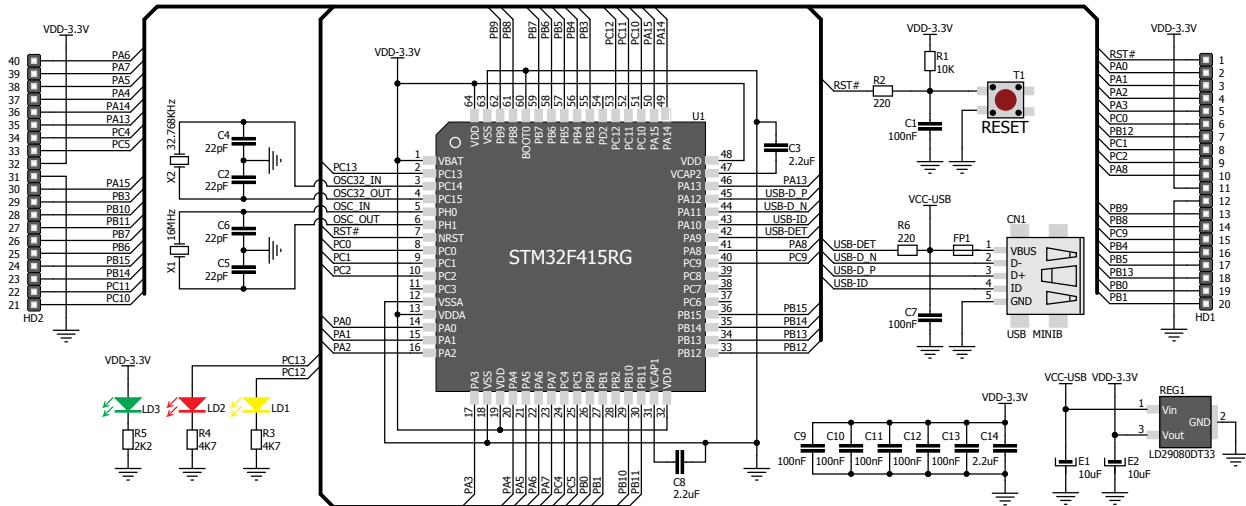
Figure 1-6: Restarting MCU

- 01 Click the **"OK"** button after uploading is finished and wait for 5 seconds. Board will automatically reset and your new program will execute.

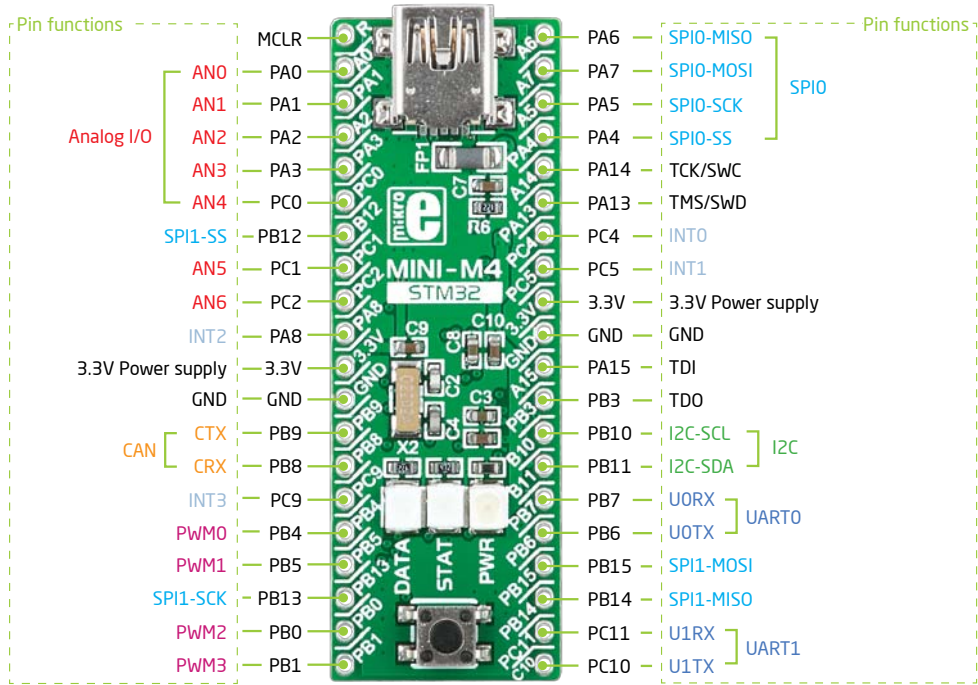


Figure 1-7: mikroBootloader ready for next job

# 2. Schematic

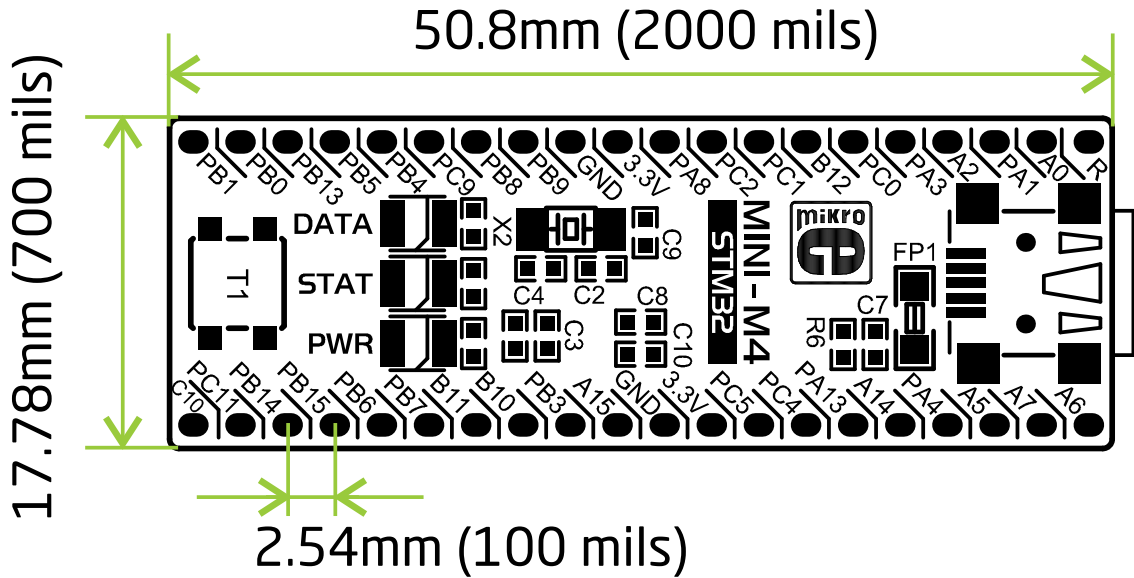


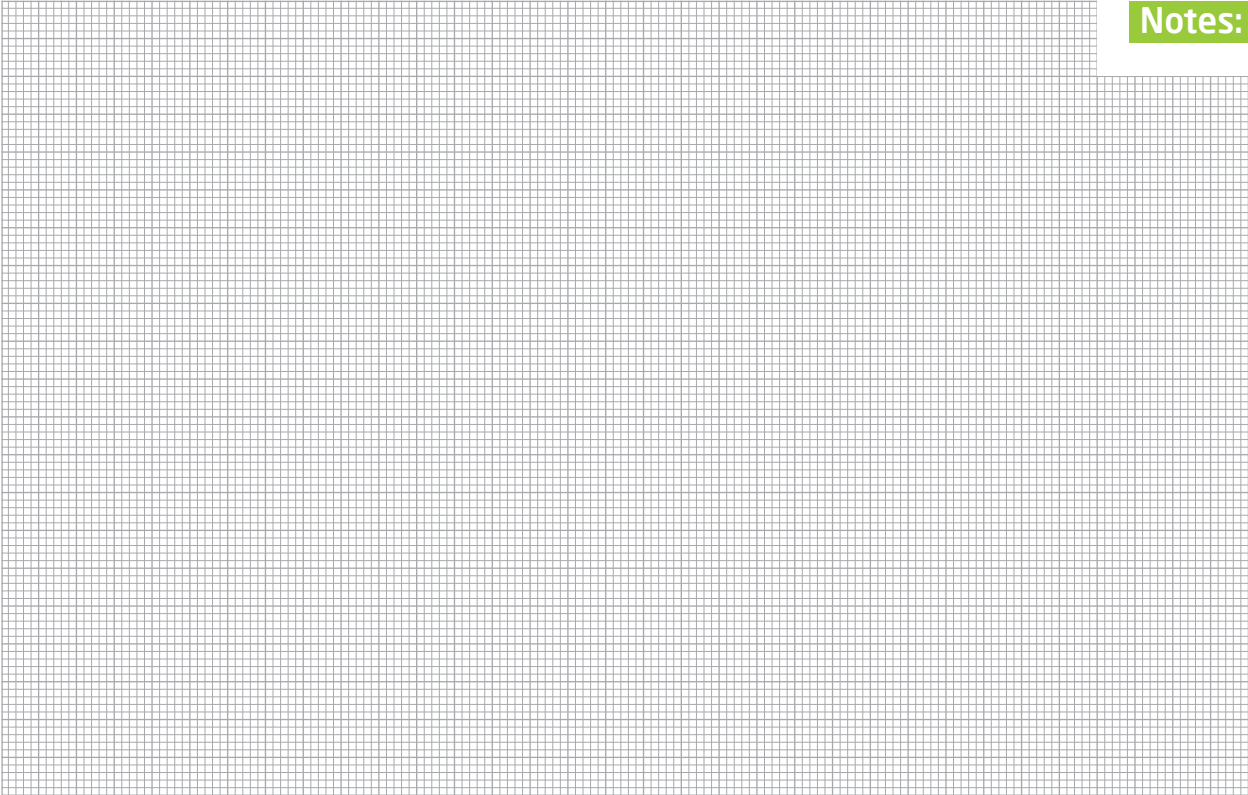
# 3. Pinout



■ Analog Lines  
 ■ Interrupt Lines  
 ■ SPI Lines  
 ■ I2C Lines  
 ■ UART lines  
 ■ CAN lines  
 ■ PWM lines

## 4. Dimensions





Notes:

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