

# MINI-M4<sup>™</sup>

development board for STM32

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

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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 stylized, handwritten signature in black ink, consisting of a large 'C' followed by several loops and a long horizontal stroke.

Nebojsa Matic  
General Manager

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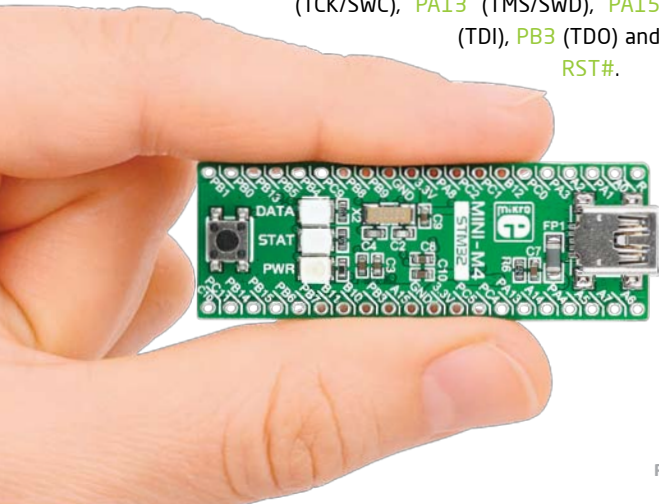
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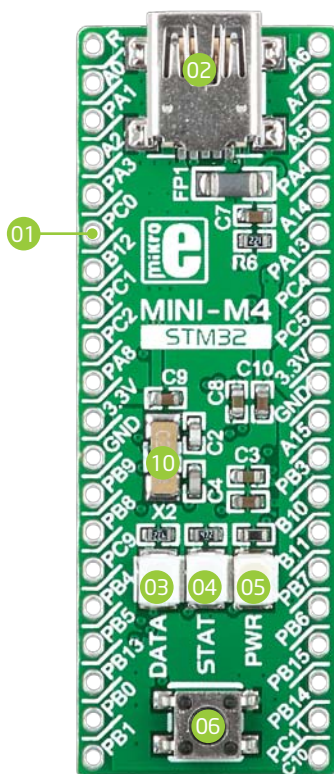
# Introduction to MINI-M4 for STM32

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)

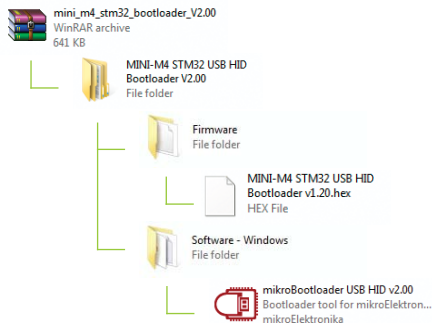
# 1. Programming with mikroBootloader

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

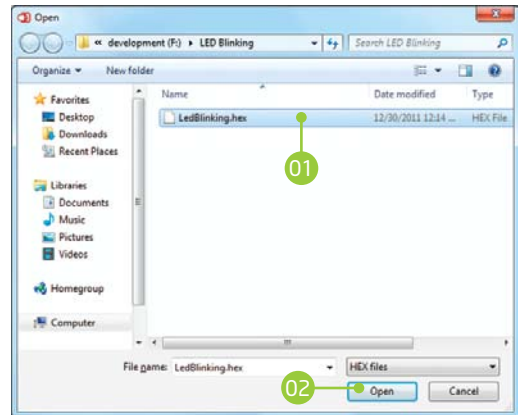


Figure 1-3: Selecting HEX

- 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

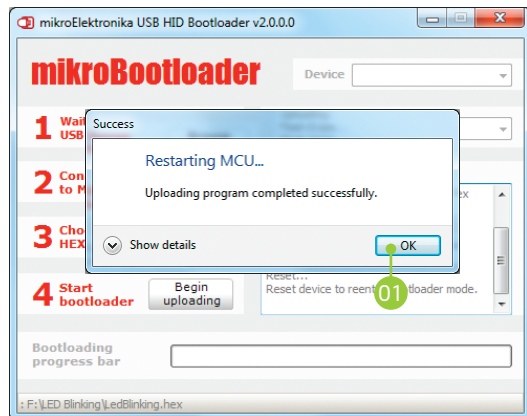


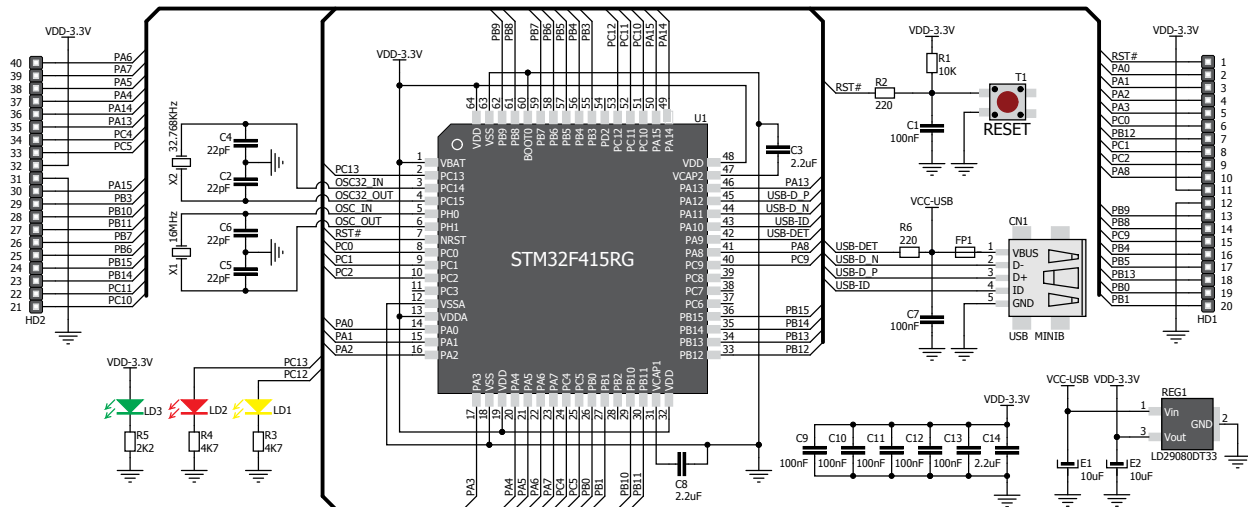
Figure 1-6: Restarting MCU

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

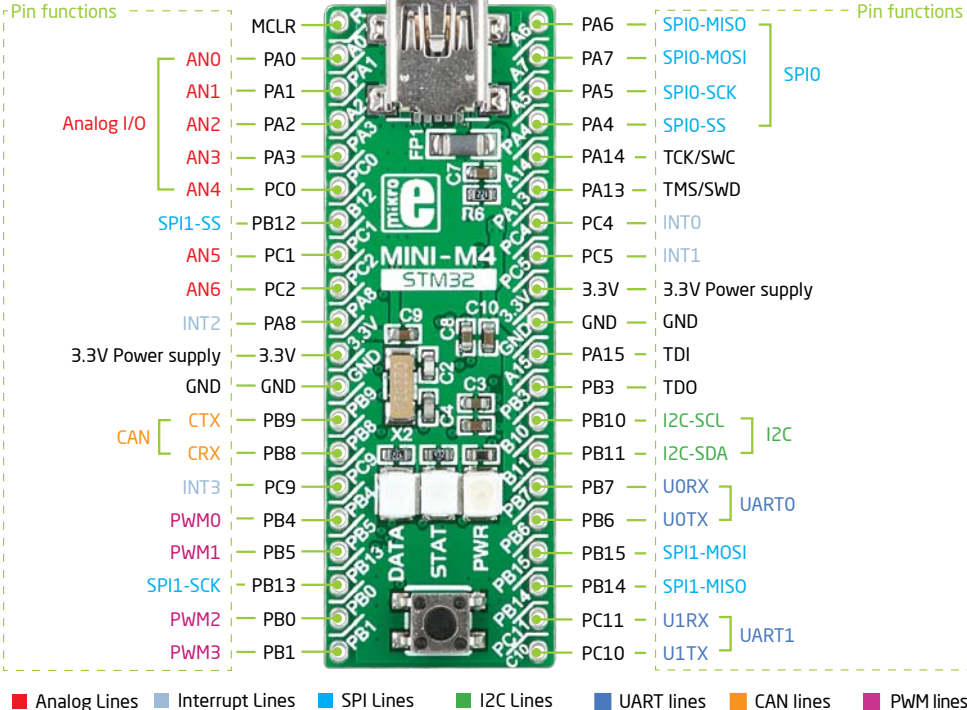


Figure 1-7: mikroBootloader ready for next job

## 2. Schematic



### 3. Pinout







Notes:

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