

# KAMAMI

## KA-NUCLEO-F411CE



Rev. 20200922100330

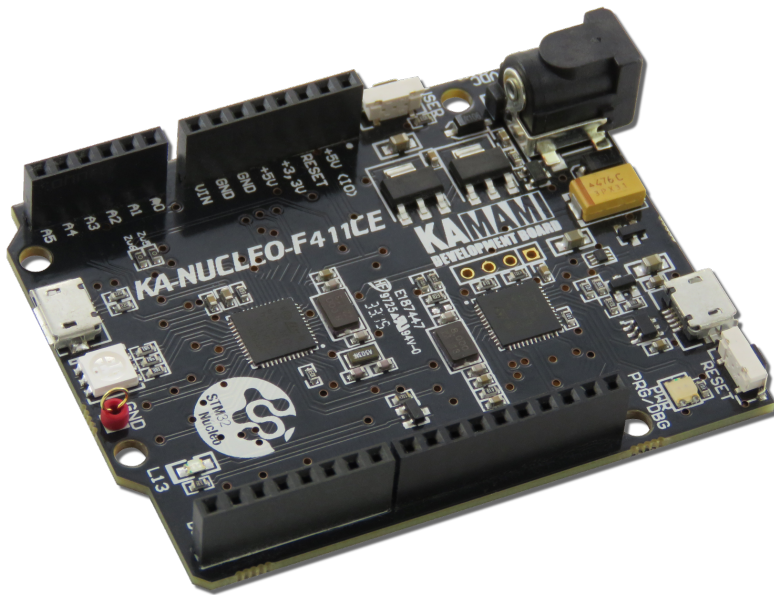
Źródło: <https://wiki.kamamilabs.com/index.php/KA-NUCLEO-F411CE>

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## Description

[KA-NUCLEO-F411CE](#) is a development board equipped with standard Arduino UNO connectors. Board is based on microcontroller STM32F411CE. The embedded programmer (compatible with ST-Link/V2-1) makes possible programming and debugging of microcontroller via USB connector.



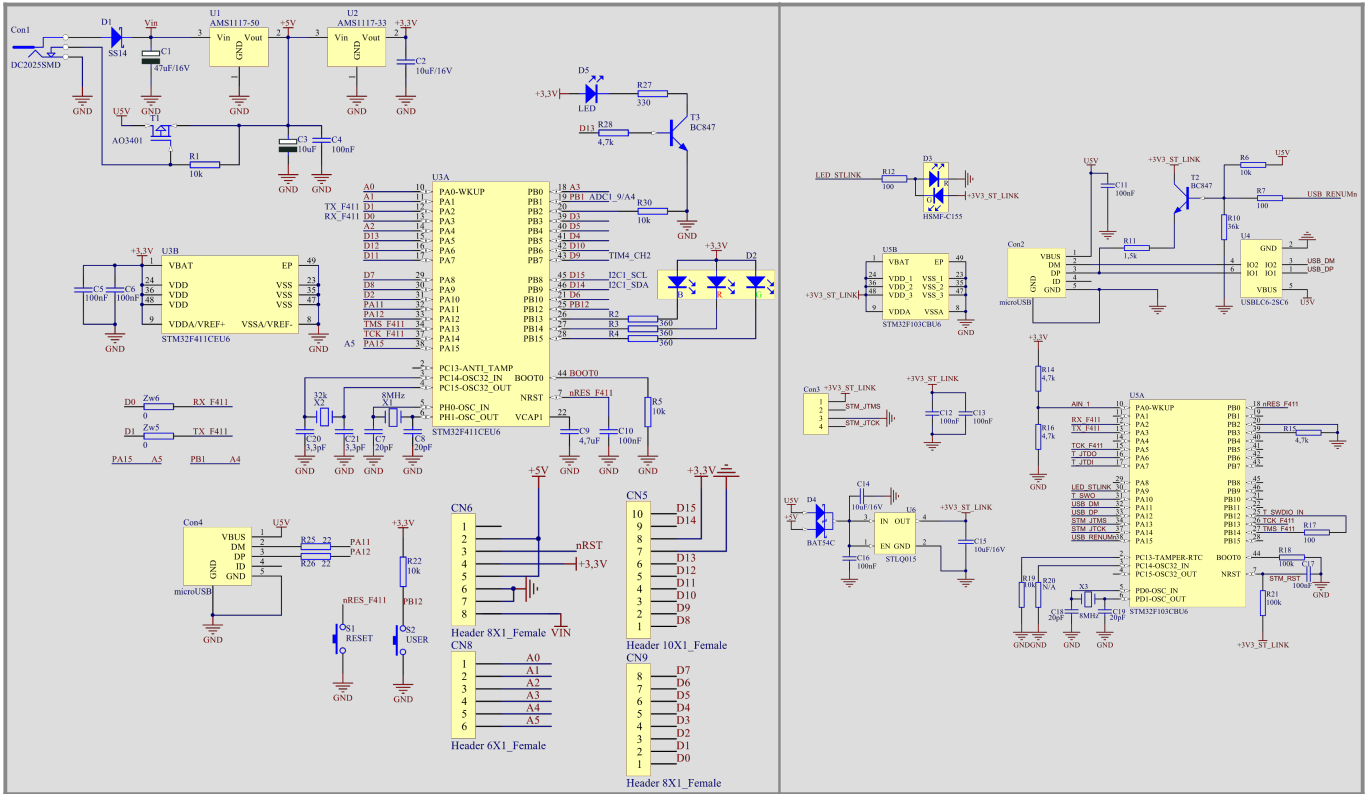
## Basic features and parameters

- Microcontroller STM32F411CE (ARM Cortex-M4, 512kB Flash memory)
- Embedded programmer / debugger compatible with ST-Link/V2-1
- Connectors compatible with Arduino standard
- MicroUSB connector for power supply input and programming
- Possibility of power via DC connector (5.5 x 2.1) by voltage in range 7 ... 15V
- Protection against reverse voltage polarity
- Possibility of power via USB connector
- On-board RGB LED and user LED
- On-board microcontroller reset-button and user push-button
- USB connector protected against electrostatic discharge
- Possibility of expanding the functionality by using additional shields
- Mounting holes with diameter 3 mm
- Module size: 69mm x 55mm x 14mm

## Standard equipment

Code	Description
<b>KA-NUCLEO-F411</b>	• Assembled and tested module

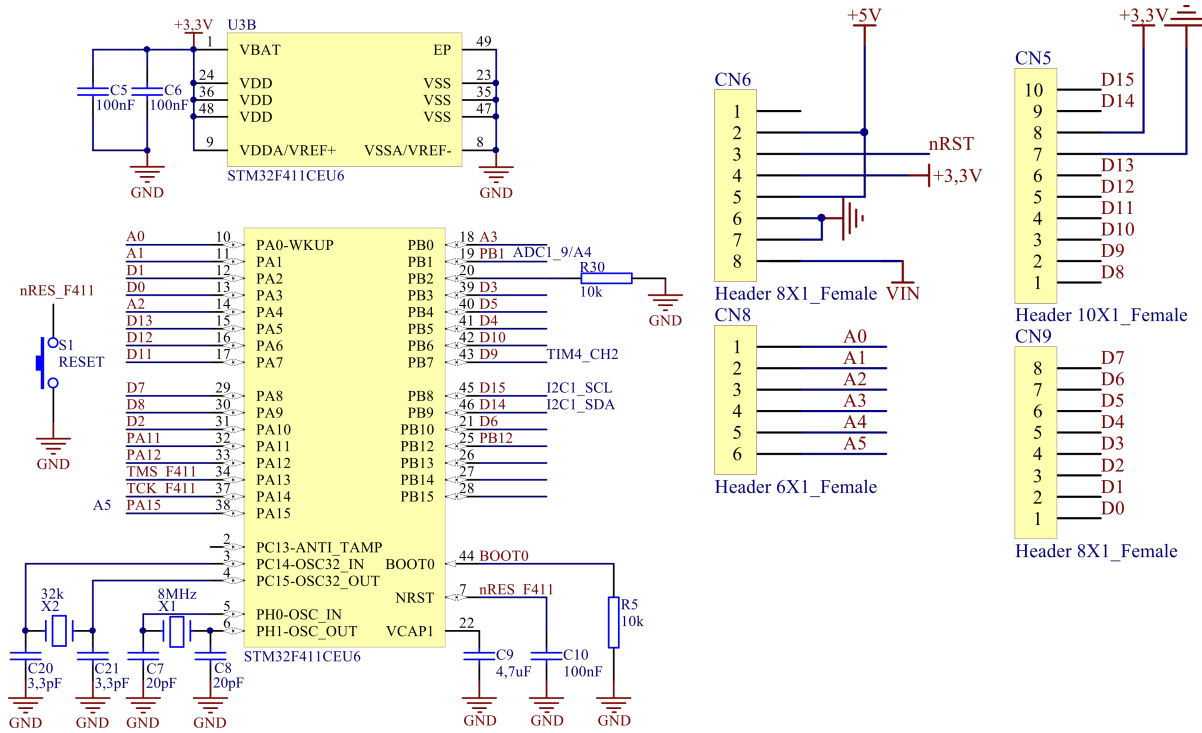
## Electrical schematics



## Microcontroller STM32F411CEU6

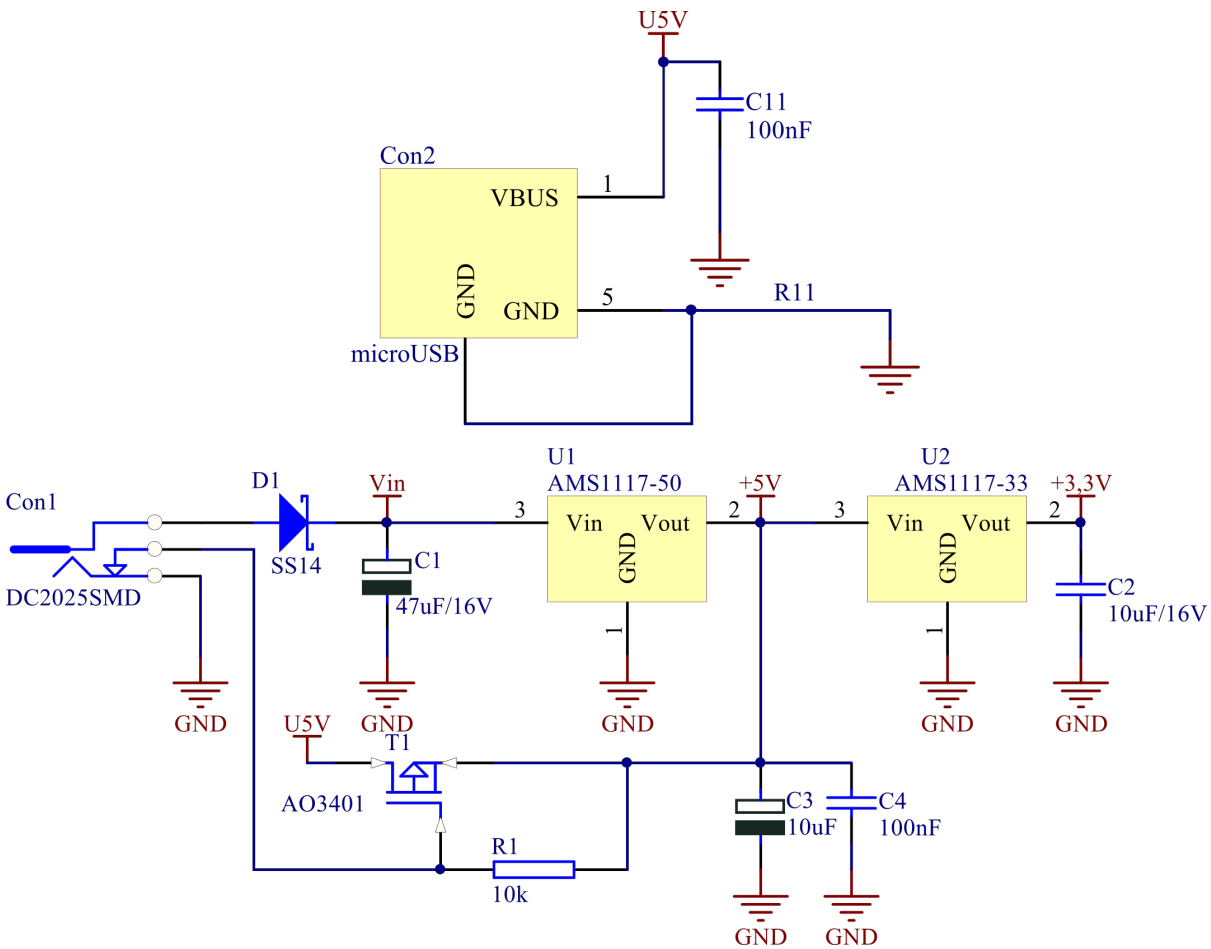
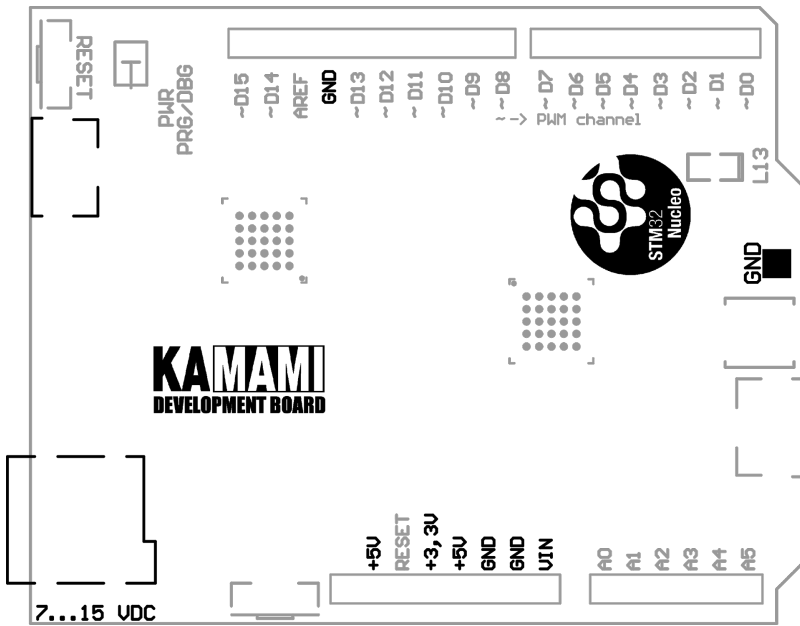
The board based on 32-bit microcontroller STM32F411CEU6 from STMicroelectronics in UFQFPN48 package. Chip has 512kB embedded Flash memory, 128kB RAM and can be running with frequency at 100 MHz. Microcontrollers GPIO lines are available on extension pin headers with Arduino UNO standard.

**Attention!**  
**Microcontrollers pins: PA0(A0), PA4(A2), PA5(D13) and PB5(D4) don't be a 5V tolerant pins. They shouldn't be supply with voltage exceeding 3.3V**



## Power supply

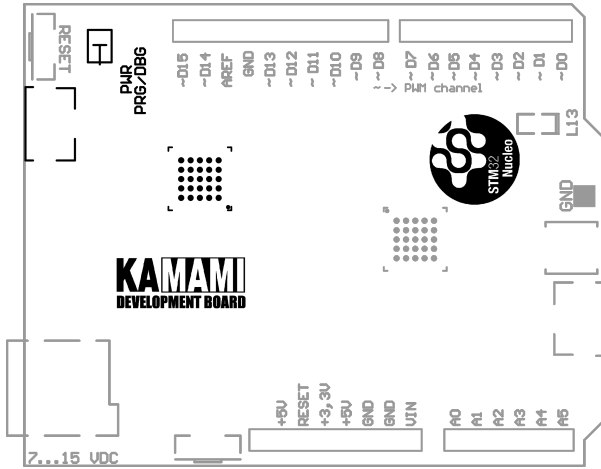
KA-NUCLEO-F411CE board can be supply via both USB connector and external power supplier with connector 5.5 x 2.1. The board has embedded protection circuit against reverse voltage polarity.





## USB communication

On board programmer compatible with ST-Link/V2-1 make possible programming and debugging of STM32F411CEU6 microcontroller. State of programmer is signalling by the bicolour LED D3 – correct connecting of programmer to PC is signalling by constant red colour of LED, communication between programmer and microcontroller by blinking red and green LEDs and orange LED colour indicates communication error.

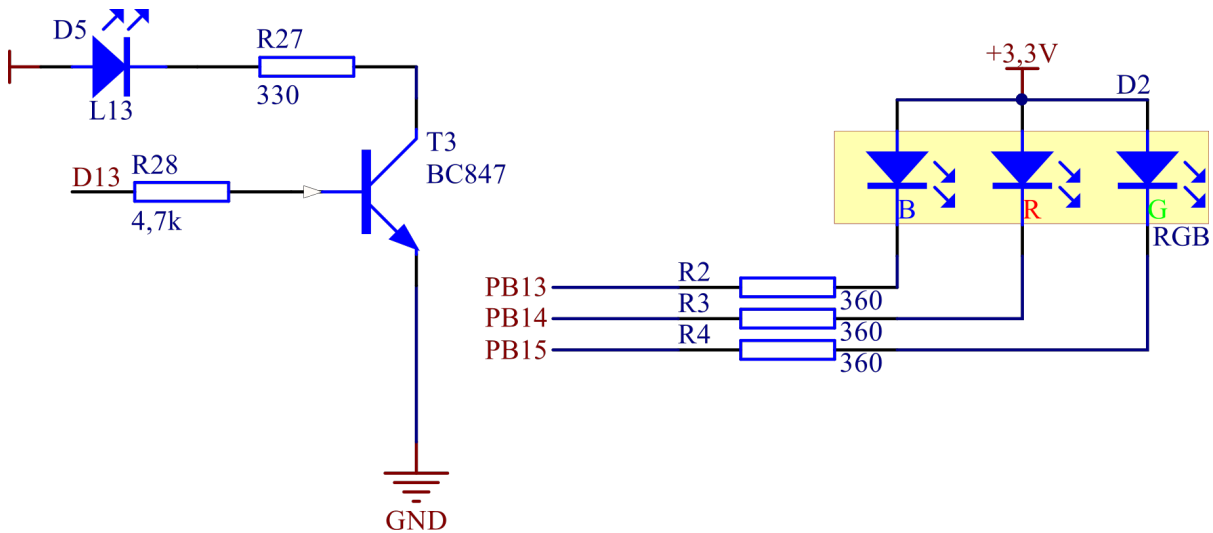
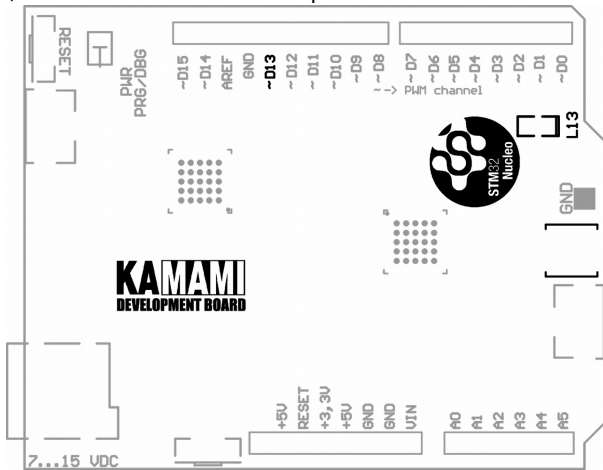






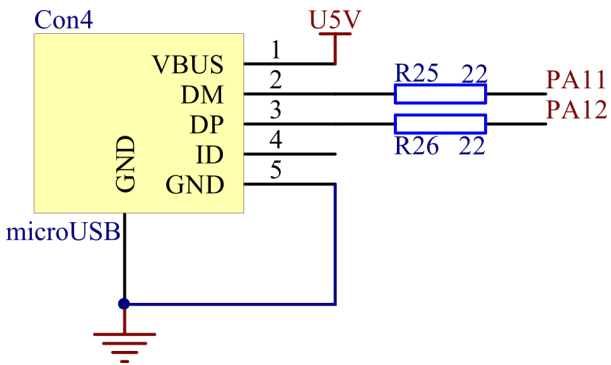
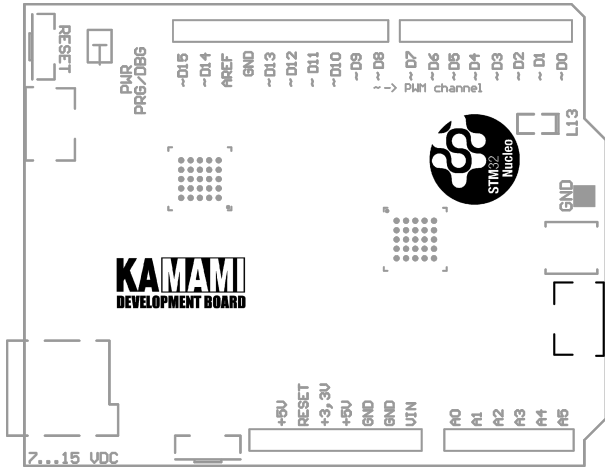
## User LED and RGB LED

KA-NUCLEO-F411CE board is equipped with two user LED - L3 LED (connected to D13 microcontrollers pin) and tricolour LED (with cathode connected to pins PB13...PB15 of microcontroller); both LEDs can be control by user program.



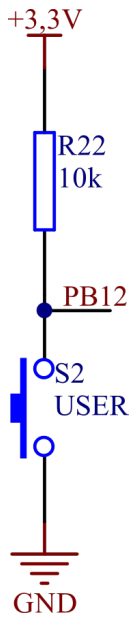
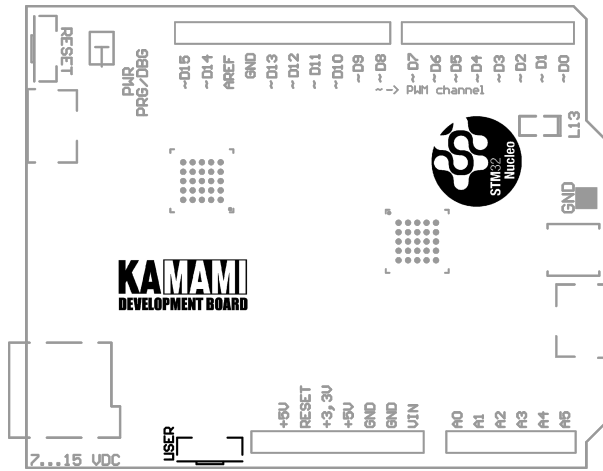
# USB Host connector

Embedded microUSB connector on KA-NUCLEO-F411CE board is with microcontroller connected. That make possible to used microcontroller as USB Full Speed device.



# User push-button

On KA-NUCLEO-F411CE board is placed user push-button connected to PB12 pin.



## Multimedia

That's how it was created KA-NUCLEO-F411CE board

## External links

- [Datasheet of STMicroelectronics STM32F411CEU6 microcontroller](#)



Zastrzegamy prawo do wprowadzania zmian bez uprzedzenia.

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