Power

LED_BUILTIN

| SCK | GPIO6 | D13 |
| --- | --- | --- |
| | | +3V3 |
| PA03 | | AREF |
| A0 | GPIO26 | A0 D14 |
| A1 | GPIO27 | A1 D15 |
| A2 | GPIO28 | A2 D16 |
| A3 | GPIO29 | A3 D17 |
| A4/SDA | GPIO12 | A4 D18 |
| A5/SCL | GPIO13 | A5 D19 |
| A6 | | A6 D20 |
| A7 | | A7 D21 |
| | | +5V |
| QSPI_CSn | | REC |
| | | GND |
| | | VIN |

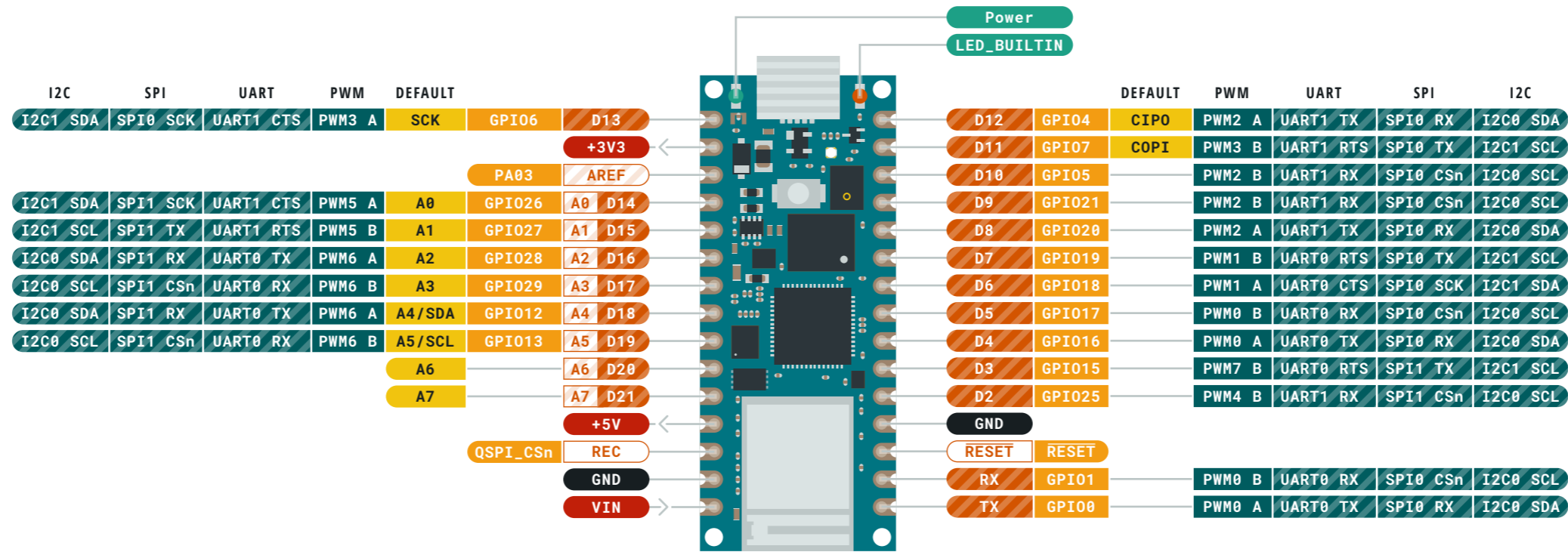| D12 | GPIO4 | CIPO |
| --- | --- | --- |
| D11 | GPIO7 | COPI |
| D10 | GPIO5 | |
| D9 | GPIO21 | |
| D8 | GPIO20 | |
| D7 | GPIO19 | |
| D6 | GPIO18 | |
| D5 | GPIO17 | |
| D4 | GPIO16 | |
| D3 | GPIO15 | |
| D2 | GPIO25 | |
| GND | | |
| RESET | RESET | |
| RX | GPIO1 | |
| TX | GPIO0 | |

**Legend**

- ■ Ground
- ■ Power
- ■ LED
- ■ Internal Pin
- ■ SWD Pin
- ▨ Digital Pin
- ▢ Analog Pin
- ▢ Other Pin
- ■ Microcontroller's Port
- ■ Default

⚠ **MAXIMUM** I/O supply voltage is 3.63V

⚠ **MAXIMUM** GPIO input voltage is 3.3V

⚠ **MAXIMUM** sum of all current being sunk into GPIO and QSPI pins is 50mA
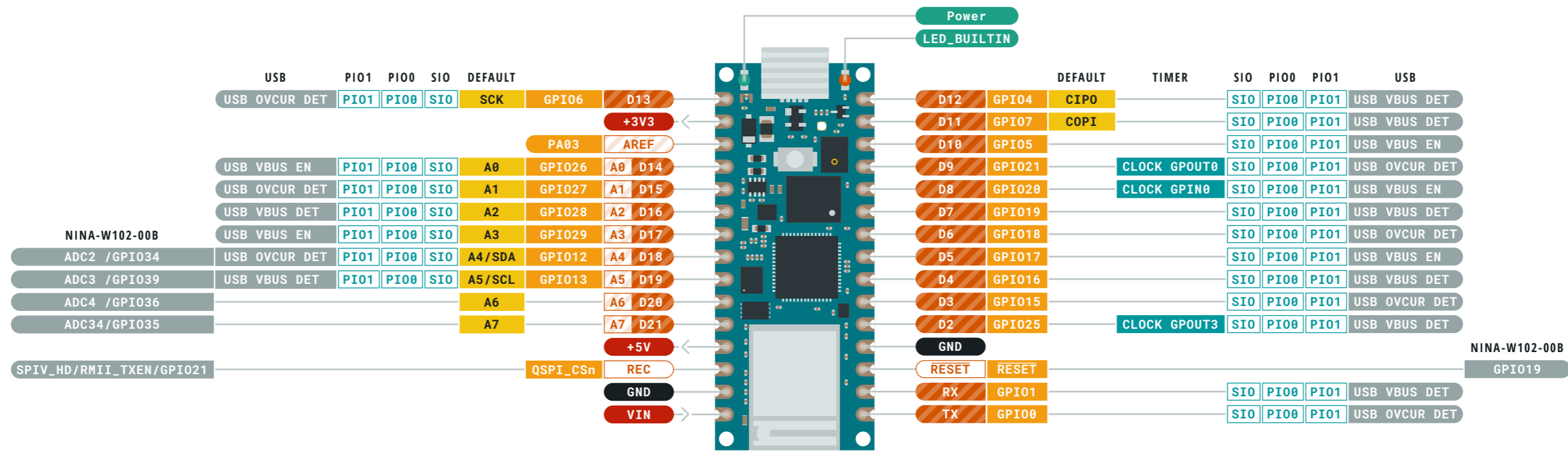
**VIN** Input voltage to the board.

**Last update: 17 Jun, 2024**

Power
LED_BUILTIN

### Left side

| I2C | SPI | UART | PWM | DEFAULT | | |
|---|---|---|---|---|---|---|
| I2C1 SDA | SPI0 SCK | UART1 CTS | PWM3 A | SCK | GPIO6 | D13 |
| | | | | +3V3 | | |
| | | | | PA03 | AREF | |
| I2C1 SDA | SPI1 SCK | UART1 CTS | PWM5 A | A0 | GPIO26 | A0 D14 |
| I2C1 SCL | SPI1 TX | UART1 RTS | PWM5 B | A1 | GPIO27 | A1 D15 |
| I2C0 SDA | SPI1 RX | UART0 TX | PWM6 A | A2 | GPIO28 | A2 D16 |
| I2C0 SCL | SPI1 CSn | UART0 RX | PWM6 B | A3 | GPIO29 | A3 D17 |
| I2C0 SDA | SPI1 RX | UART0 TX | PWM6 A | A4/SDA | GPIO12 | A4 D18 |
| I2C0 SCL | SPI1 CSn | UART0 RX | PWM6 B | A5/SCL | GPIO13 | A5 D19 |
| | | | | A6 | | A6 D20 |
| | | | | A7 | | A7 D21 |
| | | | | +5V | | |
| | | | | QSPI_CSn | REC | |
| | | | | GND | | |
| | | | | VIN | | |

### Right side

| | DEFAULT | PWM | UART | SPI | I2C |
|---|---|---|---|---|---|
| D12 | GPIO4 | CIPO | PWM2 A | UART1 TX | SPI0 RX | I2C0 SDA |
| D11 | GPIO7 | COPI | PWM3 B | UART1 RTS | SPI0 TX | I2C1 SCL |
| D10 | GPIO5 | | PWM2 B | UART1 RX | SPI0 CSn | I2C0 SCL |
| D9 | GPIO21 | | PWM2 B | UART1 RX | SPI0 CSn | I2C0 SCL |
| D8 | GPIO20 | | PWM2 A | UART1 TX | SPI0 RX | I2C0 SDA |
| D7 | GPIO19 | | PWM1 B | UART0 RTS | SPI0 TX | I2C1 SCL |
| D6 | GPIO18 | | PWM1 A | UART0 CTS | SPI0 SCK | I2C1 SDA |
| D5 | GPIO17 | | PWM0 B | UART0 RX | SPI0 CSn | I2C0 SCL |
| D4 | GPIO16 | | PWM0 A | UART0 TX | SPI0 RX | I2C0 SDA |
| D3 | GPIO15 | | PWM7 B | UART0 RTS | SPI1 TX | I2C1 SCL |
| D2 | GPIO25 | | PWM4 B | UART1 RX | SPI1 CSn | I2C0 SCL |
| GND | | | | | |
| RESET | RESET | | | | |
| RX | GPIO1 | | PWM0 B | UART0 RX | SPI0 CSn | I2C0 SCL |
| TX | GPIO0 | | PWM0 A | UART0 TX | SPI0 RX | I2C0 SDA |

### Legend

- **Ground**
- **Power**
- **LED**
- **Internal Pin**
- **SWD Pin**
- **Digital Pin**
- **Analog Pin**
- **Other Pin**
- **Microcontroller's Port**
- **Default**
- **Analog**
- **Communication**
- **Timer**
- **GPIO**

⚠ **MAXIMUM** I/O supply voltage is 3.63V

⚠ **MAXIMUM** GPIO input voltage is 3.3V

⚠ **MAXIMUM** sum of all current being sunk into GPIO and QSPI pins is 50mA
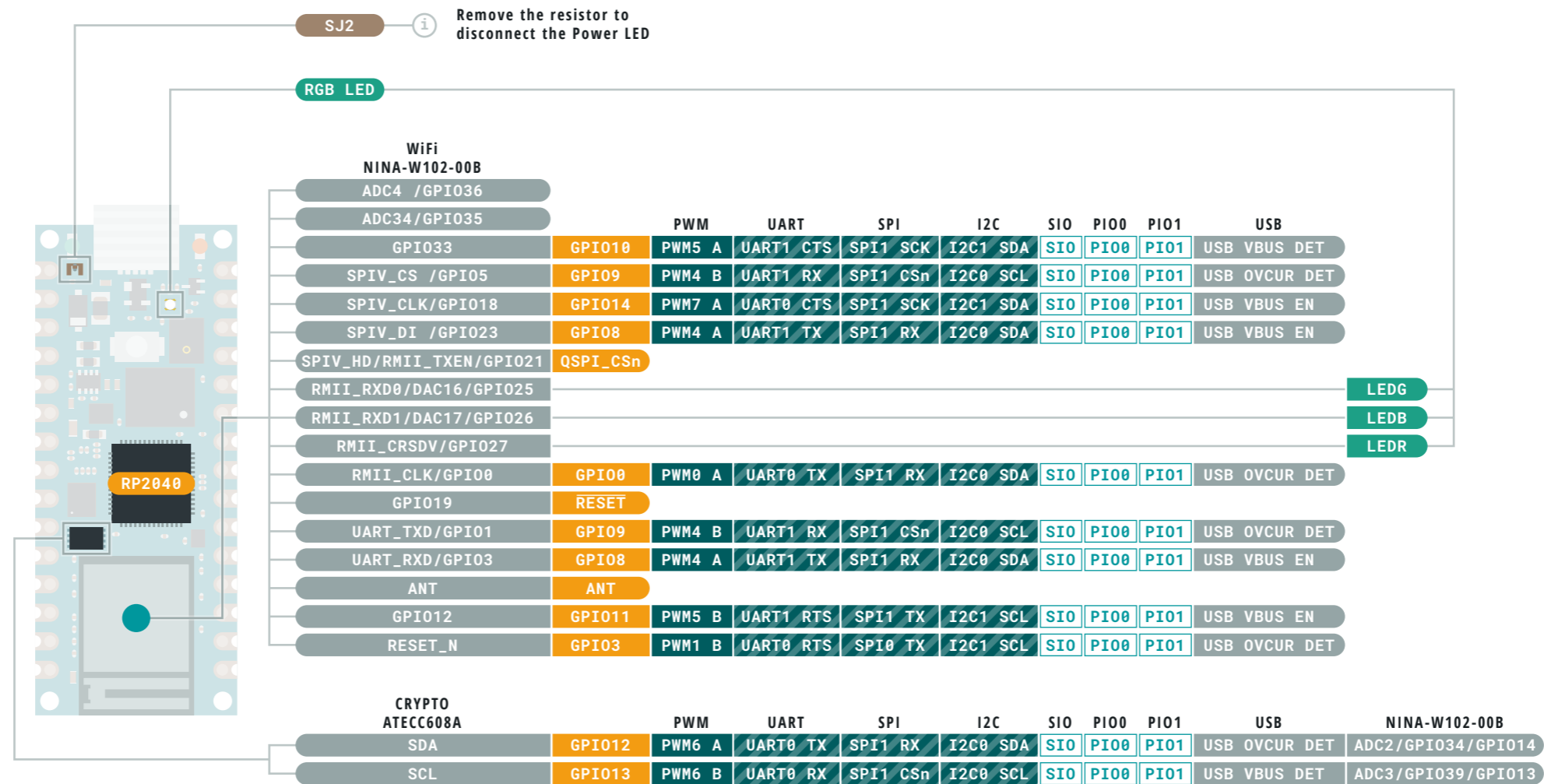
**VIN** Input voltage to the board.

# ARDUINO
# NANO RP2040 CONNECT

STORE.ARDUINO.CC/NANO-RP2040-CONNECT

Power
LED_BUILTIN

## Left side

| USB | PIO1 | PIO0 | SIO | DEFAULT | | |
|---|---|---|---|---|---|---|
| USB OVCUR DET | PIO1 | PIO0 | SIO | SCK | GPIO6 | D13 |
| | | | | | | +3V3 |
| | | | | PA03 | | AREF |
| USB VBUS EN | PIO1 | PIO0 | SIO | A0 | GPIO26 | A0 D14 |
| USB OVCUR DET | PIO1 | PIO0 | SIO | A1 | GPIO27 | A1 D15 |
| USB VBUS DET | PIO1 | PIO0 | SIO | A2 | GPIO28 | A2 D16 |
| USB VBUS EN | PIO1 | PIO0 | SIO | A3 | GPIO29 | A3 D17 |
| USB OVCUR DET | PIO1 | PIO0 | SIO | A4/SDA | GPIO12 | A4 D18 |
| USB VBUS DET | PIO1 | PIO0 | SIO | A5/SCL | GPIO13 | A5 D19 |
| | | | | A6 | | A6 D20 |
| | | | | A7 | | A7 D21 |
| | | | | | | +5V |
| | | | | QSPI_CSn | | REC |
| | | | | | | GND |
| | | | | | | VIN |

NINA-W102-00B
- ADC2 /GPIO34
- ADC3 /GPIO39
- ADC4 /GPIO36
- ADC34/GPIO35

SPIV_HD/RMII_TXEN/GPIO21

## Right side

| DEFAULT | | TIMER | SIO | PIO0 | PIO1 | USB |
|---|---|---|---|---|---|---|
| D12 | GPIO4 CIPO | | SIO | PIO0 | PIO1 | USB VBUS DET |
| D11 | GPIO7 COPI | | SIO | PIO0 | PIO1 | USB VBUS DET |
| D10 | GPIO5 | | SIO | PIO0 | PIO1 | USB VBUS EN |
| D9 | GPIO21 | CLOCK GPOUT0 | SIO | PIO0 | PIO1 | USB OVCUR DET |
| D8 | GPIO20 | CLOCK GPIN0 | SIO | PIO0 | PIO1 | USB VBUS EN |
| D7 | GPIO19 | | SIO | PIO0 | PIO1 | USB VBUS DET |
| D6 | GPIO18 | | SIO | PIO0 | PIO1 | USB OVCUR DET |
| D5 | GPIO17 | | SIO | PIO0 | PIO1 | USB VBUS EN |
| D4 | GPIO16 | | SIO | PIO0 | PIO1 | USB VBUS DET |
| D3 | GPIO15 | | SIO | PIO0 | PIO1 | USB OVCUR DET |
| D2 | GPIO25 | CLOCK GPOUT3 | SIO | PIO0 | PIO1 | USB VBUS DET |
| GND | | | | | | |
| RESET | RESET | | | | | |
| RX | GPIO1 | | SIO | PIO0 | PIO1 | USB VBUS DET |
| TX | GPIO0 | | SIO | PIO0 | PIO1 | USB OVCUR DET |

NINA-W102-00B
GPIO19

## Legend

- Ground
- Power
- LED
- Internal Pin
- SWD Pin
- Digital Pin
- Analog Pin
- Other Pin
- Timer
- Microcontroller's Port
- Default
- Analog
- Communication
- GPIO

⚠ MAXIMUM I/O supply voltage is 3.63V

⚠ MAXIMUM GPIO input voltage is 3.3V

⚠ MAXIMUM sum of all current being sunk into GPIO and QSPI pins is 50mA
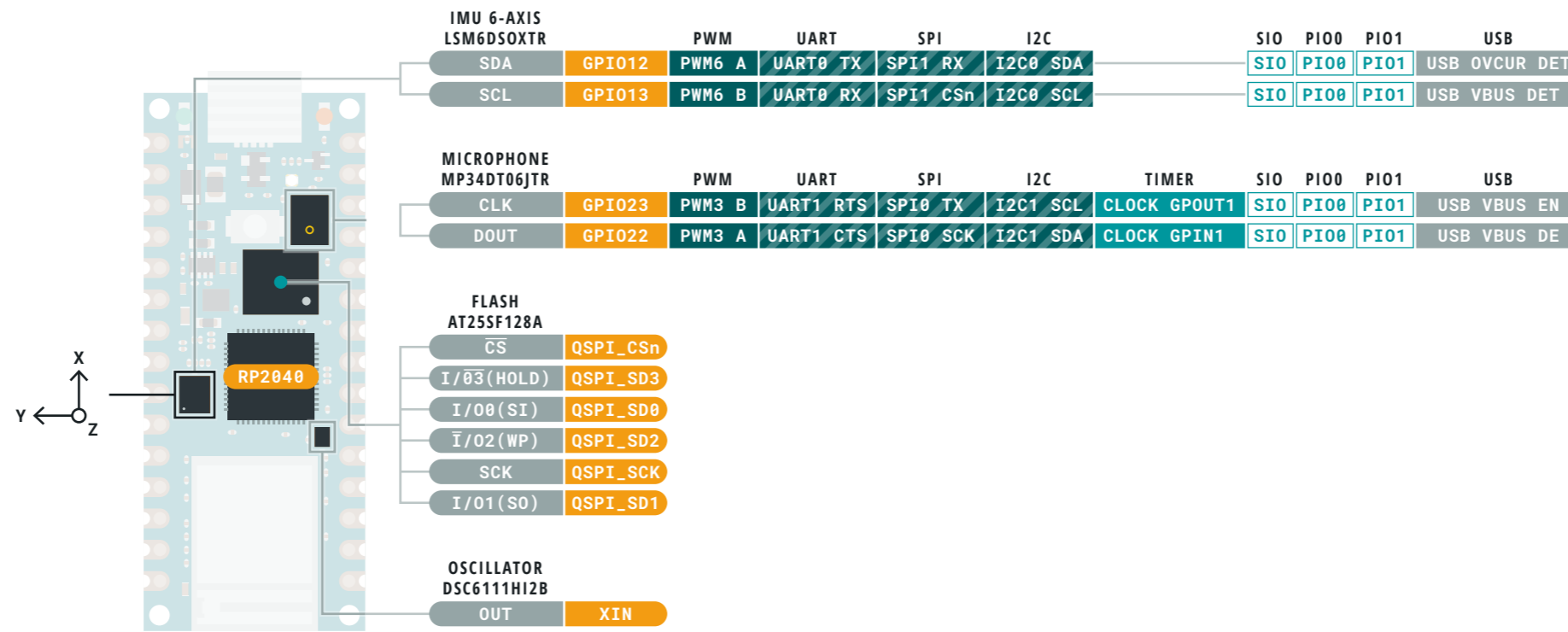
VIN Input voltage to the board.

ARDUINO.CC

Last update: 17 Jun, 2024

ARDUINO

SJ2 — (i) Remove the resistor to disconnect the Power LED

RGB LED

RP2040

### WiFi NINA-W102-00B

| Pin | MCU Port | PWM | UART | SPI | I2C | SIO | PIO0 | PIO1 | USB |
|-----|----------|-----|------|-----|-----|-----|------|------|-----|
| ADC4 /GPIO36 | | | | | | | | | |
| ADC34/GPIO35 | | | | | | | | | |
| GPIO33 | GPIO10 | PWM5 A | UART1 CTS | SPI1 SCK | I2C1 SDA | SIO | PIO0 | PIO1 | USB VBUS DET |
| SPIV_CS /GPIO5 | GPIO9 | PWM4 B | UART1 RX | SPI1 CSn | I2C0 SCL | SIO | PIO0 | PIO1 | USB OVCUR DET |
| SPIV_CLK/GPIO18 | GPIO14 | PWM7 A | UART0 CTS | SPI1 SCK | I2C1 SDA | SIO | PIO0 | PIO1 | USB VBUS EN |
| SPIV_DI /GPIO23 | GPIO8 | PWM4 A | UART1 TX | SPI1 RX | I2C0 SDA | SIO | PIO0 | PIO1 | USB VBUS EN |
| SPIV_HD/RMII_TXEN/GPIO21 | QSPI_CSn | | | | | | | | |
| RMII_RXD0/DAC16/GPIO25 | | | | | | | | | LEDG |
| RMII_RXD1/DAC17/GPIO26 | | | | | | | | | LEDB |
| RMII_CRSDV/GPIO27 | | | | | | | | | LEDR |
| RMII_CLK/GPIO00 | GPIO0 | PWM0 A | UART0 TX | SPI1 RX | I2C0 SDA | SIO | PIO0 | PIO1 | USB OVCUR DET |
| GPIO19 | RESET | | | | | | | | |
| UART_TXD/GPIO1 | GPIO9 | PWM4 B | UART1 RX | SPI1 CSn | I2C0 SCL | SIO | PIO0 | PIO1 | USB OVCUR DET |
| UART_RXD/GPIO3 | GPIO8 | PWM4 A | UART1 TX | SPI1 RX | I2C0 SDA | SIO | PIO0 | PIO1 | USB VBUS EN |
| ANT | ANT | | | | | | | | |
| GPIO12 | GPIO11 | PWM5 B | UART1 RTS | SPI1 TX | I2C1 SCL | SIO | PIO0 | PIO1 | USB VBUS EN |
| RESET_N | GPIO3 | PWM1 B | UART0 RTS | SPI0 TX | I2C1 SCL | SIO | PIO0 | PIO1 | USB OVCUR DET |

### CRYPTO ATECC608A

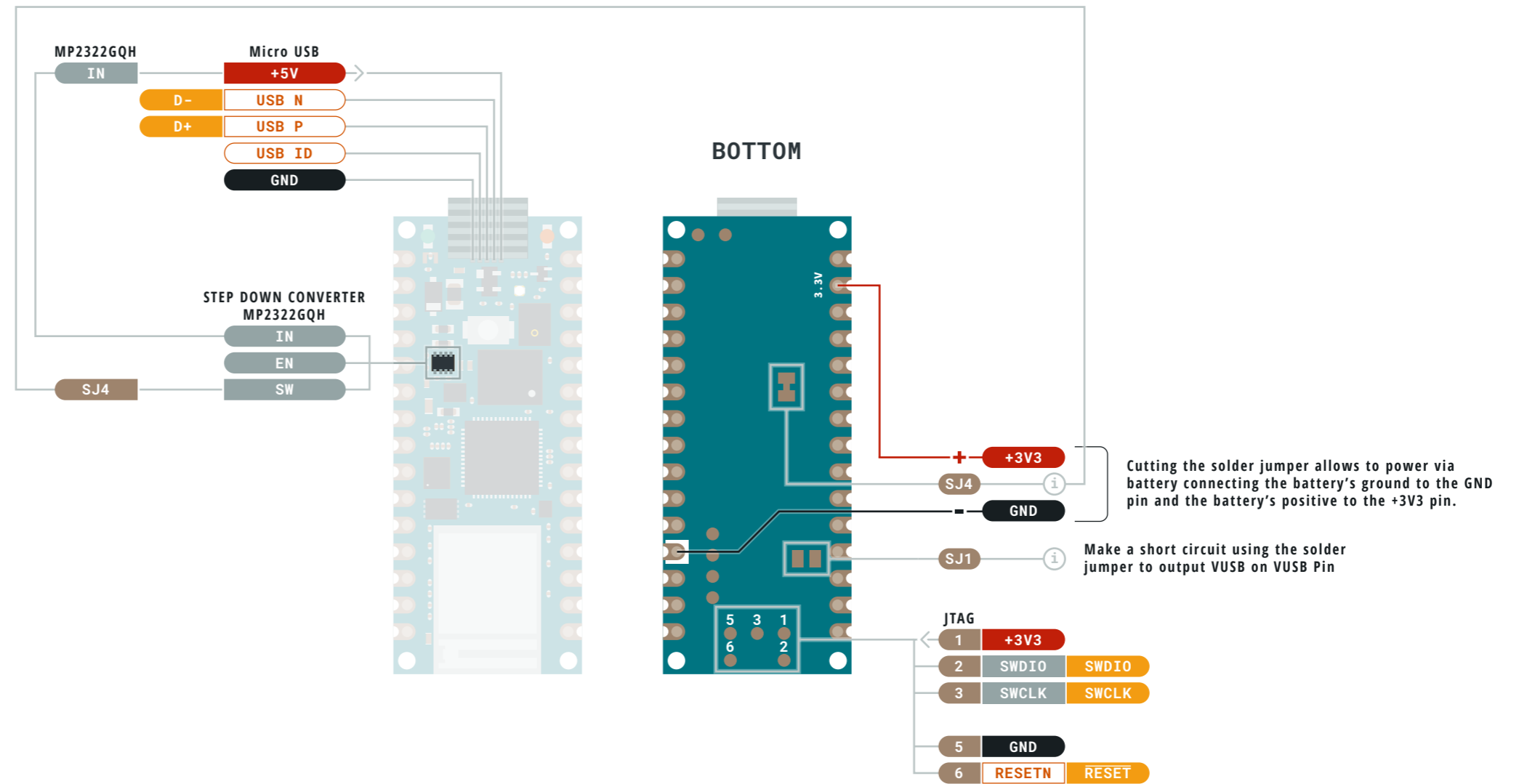| Pin | MCU Port | PWM | UART | SPI | I2C | SIO | PIO0 | PIO1 | USB | NINA-W102-00B |
|-----|----------|-----|------|-----|-----|-----|------|------|-----|---------------|
| SDA | GPIO12 | PWM6 A | UART0 TX | SPI1 RX | I2C0 SDA | SIO | PIO0 | PIO1 | USB OVCUR DET | ADC2/GPIO34/GPIO14 |
| SCL | GPIO13 | PWM6 B | UART0 RX | SPI1 CSn | I2C0 SCL | SIO | PIO0 | PIO1 | USB VBUS DET | ADC3/GPIO39/GPIO13 |

**Legend**

- Ground
- Power
- LED
- Internal Pin
- SWD Pin
- Digital Pin
- Analog Pin
- Other Pin
- Microcontroller's Port
- Default
- Analog
- Communication
- Timer
- GPIO

⚠ **MAXIMUM** I/O supply voltage is 3.63V

⚠ **MAXIMUM** GPIO input voltage is 3.3V

⚠ **MAXIMUM** sum of all current being sunk into GPIO and QSPI pins is 50mA

**VIN** Input voltage to the board.

**IMU 6-AXIS**
**LSM6DSOXTR**

| | | PWM | UART | SPI | I2C | | SIO | PIO0 | PIO1 | USB |
|---|---|---|---|---|---|---|---|---|---|---|
| SDA | GPIO12 | PWM6 A | UART0 TX | SPI1 RX | I2C0 SDA | | SIO | PIO0 | PIO1 | USB OVCUR DET |
| SCL | GPIO13 | PWM6 B | UART0 RX | SPI1 CSn | I2C0 SCL | | SIO | PIO0 | PIO1 | USB VBUS DET |

**MICROPHONE**
**MP34DT06JTR**

| | | PWM | UART | SPI | I2C | TIMER | SIO | PIO0 | PIO1 | USB |
|---|---|---|---|---|---|---|---|---|---|---|
| CLK | GPIO23 | PWM3 B | UART1 RTS | SPI0 TX | I2C1 SCL | CLOCK GPOUT1 | SIO | PIO0 | PIO1 | USB VBUS EN |
| DOUT | GPIO22 | PWM3 A | UART1 CTS | SPI0 SCK | I2C1 SDA | CLOCK GPIN1 | SIO | PIO0 | PIO1 | USB VBUS DE |

**FLASH**
**AT25SF128A**

| | |
|---|---|
| C̄S̄ | QSPI_CSn |
| I/O3(HOLD) | QSPI_SD3 |
| I/O0(SI) | QSPI_SD0 |
| Ī/O2(WP) | QSPI_SD2 |
| SCK | QSPI_SCK |
| I/O1(SO) | QSPI_SD1 |

**OSCILLATOR**
**DSC6111HI2B**

| | |
|---|---|
| OUT | XIN |

RP2040

X Y Z

MP2322GQH

| IN |

Micro USB

| +5V |
| D- | USB N |
| D+ | USB P |
| USB ID |
| GND |

**BOTTOM**

STEP DOWN CONVERTER
MP2322GQH

| IN |
| EN |
| SJ4 | SW |

3.3V

| + | +3V3 |
| SJ4 | ⓘ |
| - | GND |

Cutting the solder jumper allows to power via battery connecting the battery's ground to the GND pin and the battery's positive to the +3V3 pin.

| SJ1 | ⓘ |

Make a short circuit using the solder jumper to output VUSB on VUSB Pin

**JTAG**

| 5 | 3 | 1 |
| 6 | | 2 |

| 1 | +3V3 |
| 2 | SWDIO | SWDIO |
| 3 | SWCLK | SWCLK |
| 5 | GND |
| 6 | RESETN | RESET |

| | | |
|---|---|---|
| ■ Ground | ◩ Digital Pin | |
| ■ Power | ◻ Analog Pin | |
| ■ LED | ◻ Other Pin | |
| ■ Internal Pin | ■ Microcontroller's Port | |
| ■ SWD Pin | ■ Default | |

⚠ **MAXIMUM** I/O supply voltage is 3.63V

⚠ **MAXIMUM** GPIO input voltage is 3.3V

⚠ **MAXIMUM** sum of all current being sunk into GPIO and QSPI pins is 50mA

**VIN** Input voltage to the board.