PIC16F13276 Curiosity Nano User Guide

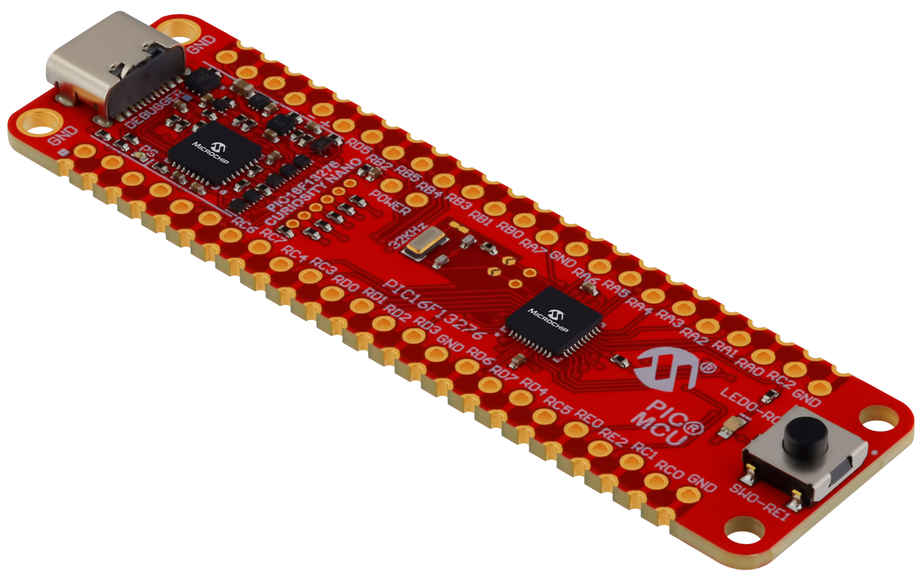
PIC16F13276 Curiosity Nano

Product Page Links

Preface

The PIC16F13276 Curiosity Nano evaluation kit (EV18Z11A) is a hardware platform for evaluating the PIC16F13276 family. This board features the PIC16F13276 (referred to as the target device in this document) mounted on the board.

The Curiosity Nano series of evaluation boards include an on-board programmer and debugger. No external tools are necessary to program and debug the PIC16F13276.



- **Kit Website** - Kit information, the latest user guide, and design documentation.
- **Device Website** - Find documentation, data sheets, samples, and purchase devices.
- **Microchip Direct** - Purchase this kit from Microchip Direct.
- **MPLAB® Discover** - Get started with code examples on MPLAB® Discover.
- **Schematics** - Board schematics and revision history.
- **Design Documentation** - Production files for every revision.

Table of Contents

1. PIC16F13276 Key Features

The PIC16F13276 MCU family delivers high-performance processing with configurable logic and advanced analog peripherals.

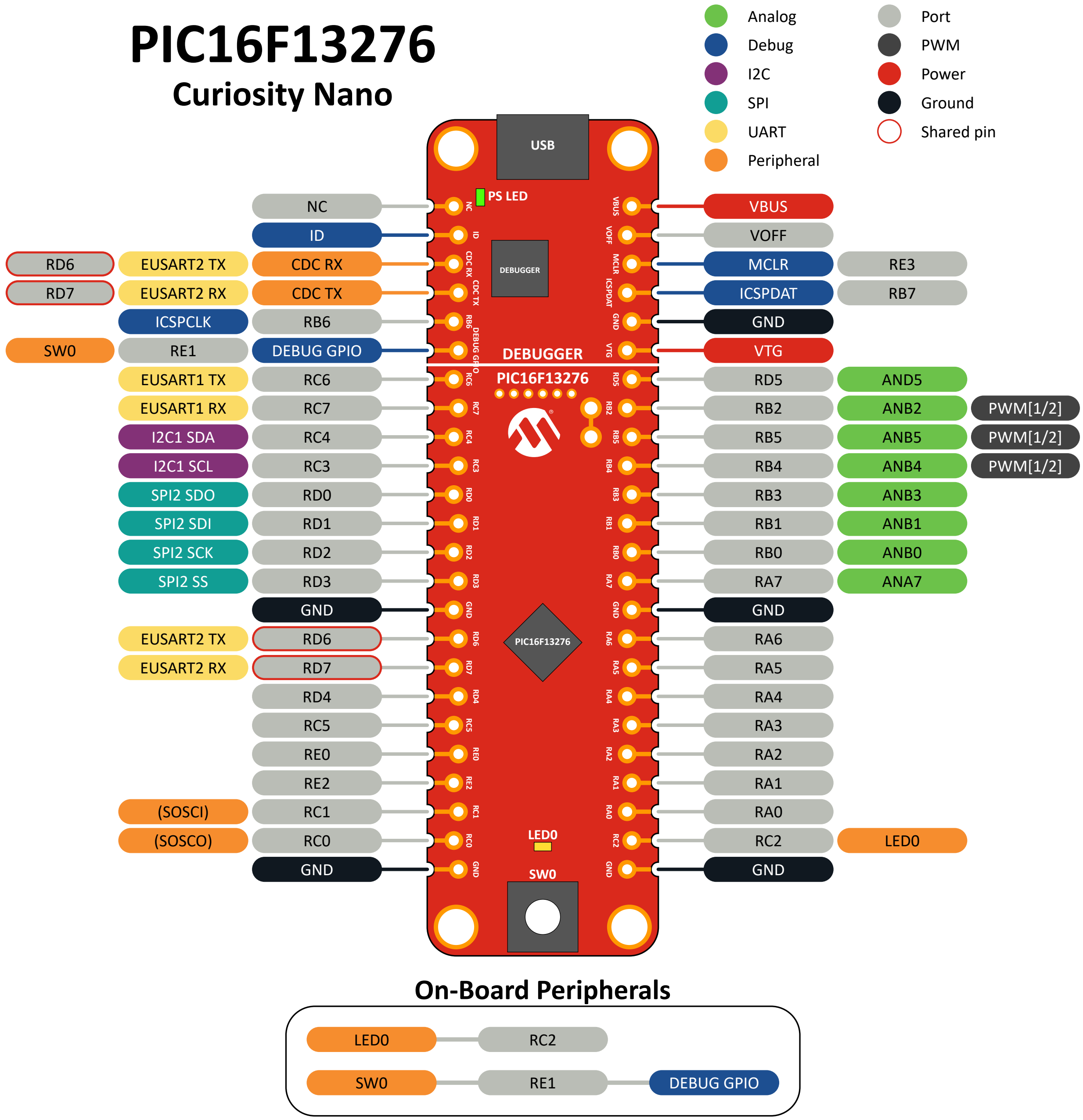
- RISC architecture with DC-32 MHz clock input and a supply voltage of 1.8–5.5V
- Up to 28 KB of Program Flash Memory with up to 2 KB Data SRAM Memory
- Operating Voltage Range : 1.8–5.5V
- Low Power
  - Doze, Idle and Sleep modes
  - Peripheral Module Disable (PMD)
- One Configurable Logic Block (CLB)
  - Interconnected fabric containing 32 Basic Logic Elements (BLE)
    - Each BLE contains one 4-input Look-Up Table (LUT) and one flip-flop
    - Schematically programmable using MPLAB® Code Configurator
  - CLB Auto-Load on boot
- Digital Peripherals
  - Two 16-Bit Pulse-Width Modulators (PWM)
  - Two 16-Bit Timers (TMR 1/3).
  - Two 8-Bit Timers (TMR2/4) with Hardware Limit Timer (HLT).
  - Four Configurable Logic Cells (CLC)
  - Programmable CRC with Memory Scan
  - Two EUSART Modules (RS-232, RS-485, and LIN)
  - Two MSSP Modules (SPI/I2C), SMBus Compatible
  - Peripheral Pin Select (PPS)
- Analog Peripherals
  - One 10-Bit Single-ended Analog-to-Digital Converter with Computation (ADCC)
  - One 10-Bit Digital-to-Analog Converter (DAC)
  - Two Comparators (CMP)
  - Two Fixed Voltage References (1.024V, 2.048V, 4.096V) (FVR)
  - One High/Low-Voltage Detect Controller (HLVD)
- Temperature Ranges:
  - Industrial: -40°C to 85°C
  - Extended: -40°C to 125°C

2. Pinout

PIC16F13276 Curiosity Nano pinout diagram.

All the PIC16F13276 I/O pins are accessible at the edge connectors on the board. The image below shows the board's pinout.

Figure 2-1. PIC16F13276 Curiosity Nano Pinout



Info: Peripheral signals shown in the image above, such as UART, I^{2}C, SPI, ADC, PWM, and others, are shown at specific pins to comply with the Curiosity Nano Board standard. These signals can usually be routed to alternate pins using the Peripheral Pin Select (PPS) feature in the PIC16F13276.

3. Board Features

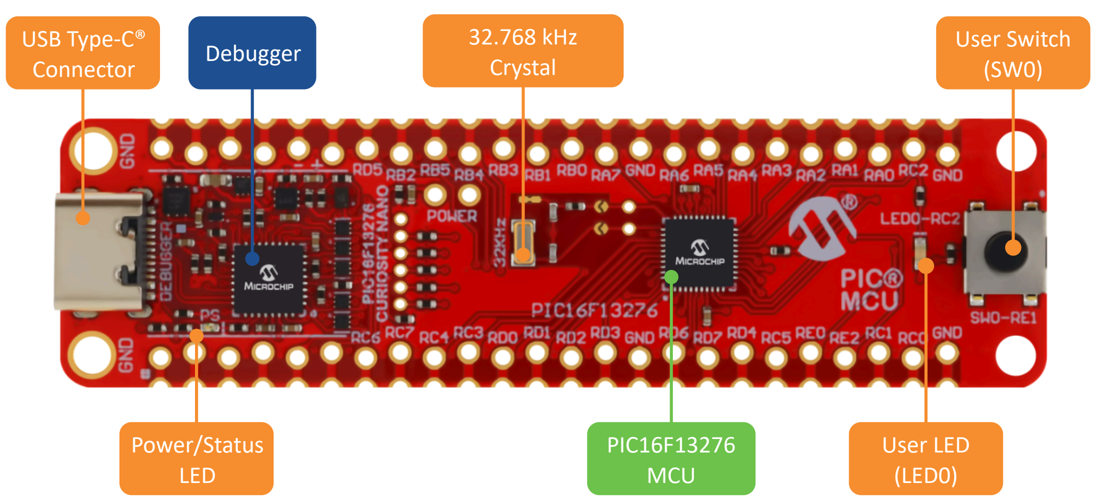
Features of Curiosity Nano, board layout picture, board block diagram, and Curiosity Nano pinout standard.

3.1. Board Features

- PIC16F13276 Microcontroller
- On-Board Nano Debugger
  - Programming and debugging
  - Virtual serial port via USB CDC
  - Green power and status LED
  - One debug GPIO channel (DGI GPIO)
  - Board identification in Microchip development environments
- Power and Connectivity
  - USB Type-C® for power and data
  - Adjustable target voltage (1.8–5.5V, up to 500 mA) controlled by the on-board debugger
- Hardware Peripherals
  - Yellow user LED
  - Mechanical user switch
  - 32.768 kHz Crystal
- Curiosity Nano Edge Connector
  - Sockets into Curiosity Nano base boards
  - Staggered layout for press fit pin headers
  - Breadboard compatible
  - Castellated edges for surface mounting

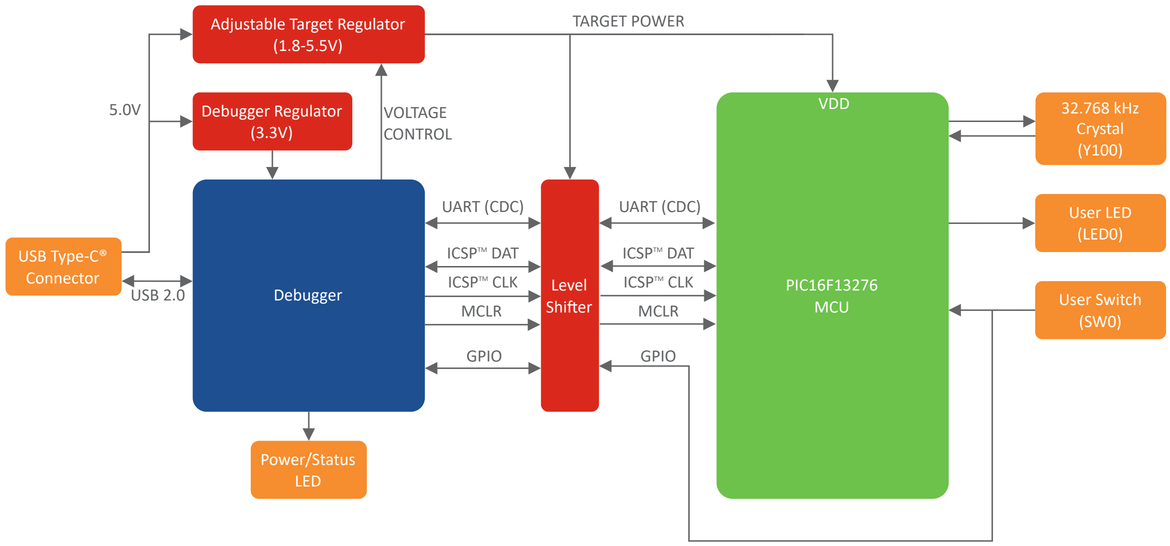
3.2. Board Overview

Figure 3-1. PIC16F13276 Curiosity Nano Board Overview



3.3. Block Diagram

Figure 3-2. PIC16F13276 Curiosity Nano Board Block Diagram



3.4. Curiosity Nano Pinout

All Curiosity Nano boards follow a standardized pinout for key functions, as illustrated in the image below. Specific pins are reserved for the debugger interface, which supports programming protocols such as UPDI, SWD, or ICSP. Additional dedicated pins are provided for the CDC virtual serial port and the Data Gateway Interface (DGI).

Serial communication interfaces are consistently mapped to designated pins:

- UART
- I2C
- SPI

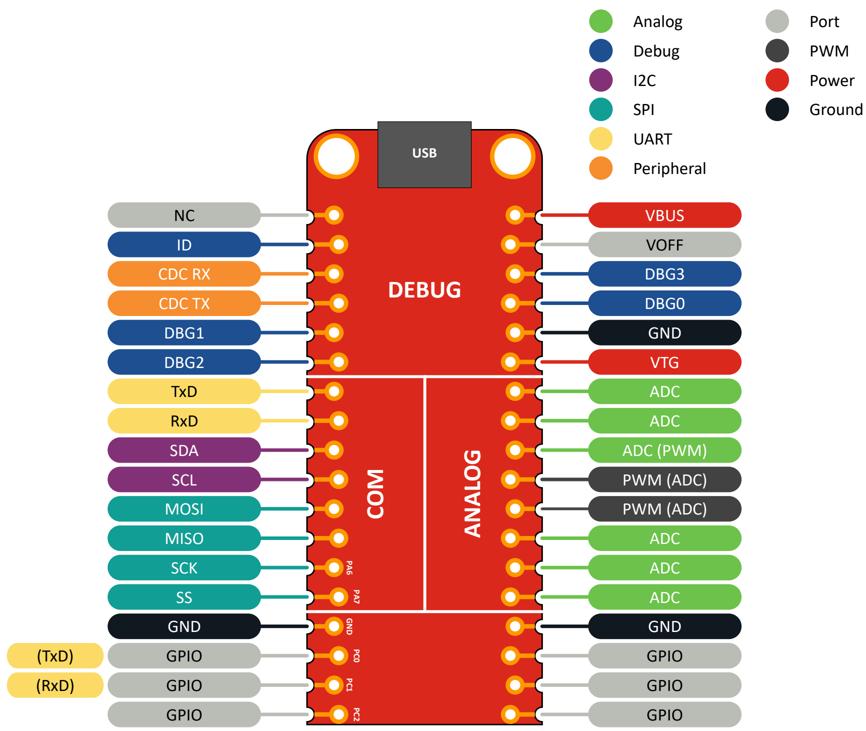
The CDC UART may share pins with the serial communication section, be available on dedicated pins located directly below the serial section, or, in some cases, be accessible only through the debugger section.

Analog capability is guaranteed only for pins within the analog section. At least two of these pins support PWM output, and some kits may offer a third optional PWM pin.

The placement and availability of additional features, such as extra serial or analog functions, may vary depending on the specific Curiosity Nano board. For this reason, only GPIO functionality is guaranteed for pins outside the sections mentioned above.

Tip: The location of debugger, serial communication, and analog pins on the edge connector is consistent across all Curiosity Nano boards, ensuring compatibility and ease of use.

Figure 3-3. Curiosity Nano Pinout



Info: Features shown in parentheses are optional and may not be available on all Curiosity Nano boards.

4. Out-of-Box Demo

Interactive demo program.

The PIC16F13276 Curiosity Nano is preprogrammed with an example application that demonstrates use of the Configurable Logic Block (CLB) peripheral. The CLB implements a hardware-based state machine that debounces the on-board push button and controls the on-board LED.

At power-up, the LED blinks at approximately 7.8 Hz. Each subsequent button press advances the state machine, changing the LED brightness using PWM dimming. All logic is synthesized within the CLB, providing efficient, real-time control with minimal CPU involvement.

For full details, see: PIC16F13276 Curiosity Nano Out-of-the-Box Demo.

5. Setup Essentials

Step-by-step project setup and pin-header assembly instructions.

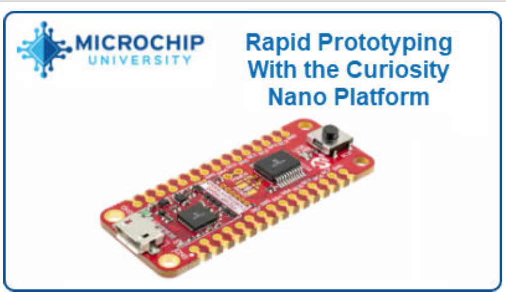
5.1. Quick Start

1. Choose your preferred integrated development environment (IDE):
   - MPLAB® Tools for VS Code®
   - Partner Toolchains: Microchip supports a range of partner toolchains. For more information and a list of supported tools, visit the Development Tool Partners page.
2. For VS Code follow these steps:
   a. Download and install VS Code for your operating system.
   b. Install MPLAB Tools for VS Code.
   c. Browse and select an example project using MPLAB® Discover
   d. Download and open the selected example project in VS Code.
   e. Connect the PIC16F13276 Curiosity Nano to your computer using a USB cable.
   f. Program the target device with the example code using MPLAB Tools for VS Code.
   g. Refer to this this guide for tips and tricks on using the extensions.

Next Steps

- Explore additional example projects in MPLAB® Discover and try customizing them for your application
- Use the PIC16F13276 Curiosity Nano with a Curiosity Nano Base Board:
  - Curiosity Nano Explorer
  - Curiosity Nano Base for Click Boards™
- Monitor data output:
  - Use the integrated terminal in VS Code or your preferred terminal to access the UART interface on your board
  - For advanced data monitoring and visualization, use MPLAB Data Visualizer

Tip: Take a look at this free Microchip University course.



The Curiosity Nano platform enables rapid prototyping and includes built-in debugging for working with new microcontrollers.

5.2. Using Pin Headers

The edge connector footprint on the PIC16F13276 Curiosity Nano has a staggered design, where each hole is shifted 8 mils (~0.2 mm) off-center. This hole shift allows the use of standard 100 mil pin headers without soldering them to the board. The pin headers can be used in applications such as pin sockets and prototyping boards once they are firmly in place.

Figure 5-1. Connecting Curiosity Nano Board to Base Board Using Pin Headers

Tip:

- Start at one end of the pin header and gradually insert the header along the length of the board. Once all the pins are in place, use a flat surface to push them in.
- For applications that permanently use pin headers, it is still recommended to solder them in place
- Once the pin headers are in place, they are difficult to remove by hand. Use a set of pliers and carefully remove the pin headers to avoid damage to the headers, the PCB, or yourself.

6. On-Board Nano Debugger

This section describes the features and interfaces of the on-board debugger for programming and debugging.

6.1. Overview

The PIC16F13276 Curiosity Nano features an on-board Nano Debugger for programming and debugging. When connected to a host computer, the Nano Debugger appears as a composite USB device offering several interfaces:

- **Debugger:** Enables programming and debugging of the target device.
- **Virtual serial port (CDC):** Provides access to the target device's UART interface.
- **Data Gateway Interface (DGI):** Microchip's proprietary interface for streaming data to the host computer.
- **Mass storage device:** Supports drag-and-drop programming of the target device, provides kit information files and supports utility commands.

Tip: For detailed instructions and advanced features, refer to the Nano Debugger Manual.

6.2. Power and Status LED

The on-board debugger controls a Power and Status LED (marked PS) on the PIC16F13276 Curiosity Nano board. The table below shows how the different operation modes control the LED.

Table 6-1. On-Board Debugger LED Control

Operation Mode	Power and Status LED
Boot Loader mode	The LED blinks slowly during power-up
Power-up	The LED is ON
Normal operation	The LED is ON
Programming	Activity indicator: The LED blinks slowly during programming or debugging
Drag-and-drop programming	**Success:** The LED blinks slowly for 2 sec. **Failure:** The LED blinks rapidly for 2 sec.
Fault	The LED blinks rapidly if a power fault is detected
Off	When the on-board debugger is powered down, the LED is OFF

Info: Slow blinking is approximately 1 Hz, while rapid blinking is about 5 Hz.

6.3. Connections

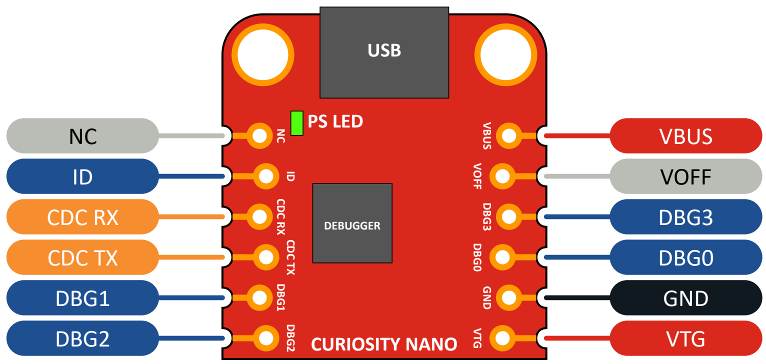
The table below lists the connections between the target device and the debugger. When the debugger is inactive, these connections are set to high-impedance (tri-state) mode. This allows users to use these pins for any function without interference from the debugger.

Info: The 12 edge connections closest to the debugger USB connector have a standardized pinout, but the function of the programming and debugging pins varies depending on the programming interface used.

Table 6-2. On-Board Debugger Connections

Debugger Pin	PIC16F13276 Pin		Description
CDC **TX**	RD7	UART **RX**	USB CDC TX line
CDC **RX**	RD6	UART **TX**	USB CDC RX line
DBG0	RB7	ICSPDAT	Debug data line
DBG1	RB6	ICSPCLK	Debug clock line
DBG2	RE1	SW0/GPIO0	Debug GPIO0/SW0
DBG3	RE3	MCLR	Reset line
VOFF	—		Pull VOFF low to disable the on-board regulator and allow external power on VTG; VOFF is monitored by the debugger
ID	—		Identification of supported base boards and extensions at power-up

Figure 6-1. Curiosity Nano Debugger Pinout



Tip: For the complete PIC16F13276 Curiosity Nano pinout, see the PIC16F13276 Curiosity Nano Pinout.

6.4. Disconnecting the On-Board Debugger

All signals between the on-board debugger and the target device are routed through cut straps on the bottom of the board. These cut straps can be used to disconnect the debugger from the target for various purposes, such as:

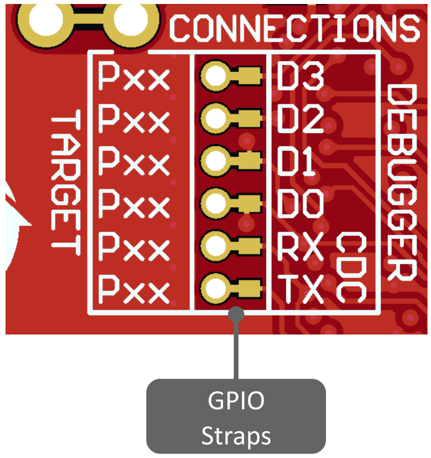
- Evaluating the target device’s power consumption in isolation removes the on-board debugger's influence on current measurements
- Using the target device with an external programmer/debugger
- Using the on-board debugger as a standalone programmer/debugger for other devices

The following cut straps are available to separate the debugger from the target:

- Debugger Pins (J101, J102, J103, J104, J105, J106)
- Power

Attention: Cutting the GPIO straps to the on-board debugger disables the virtual serial port, programming, debugging, and data streaming functions.

Figure 6-2. Curiosity Nano Debugger Cut Straps

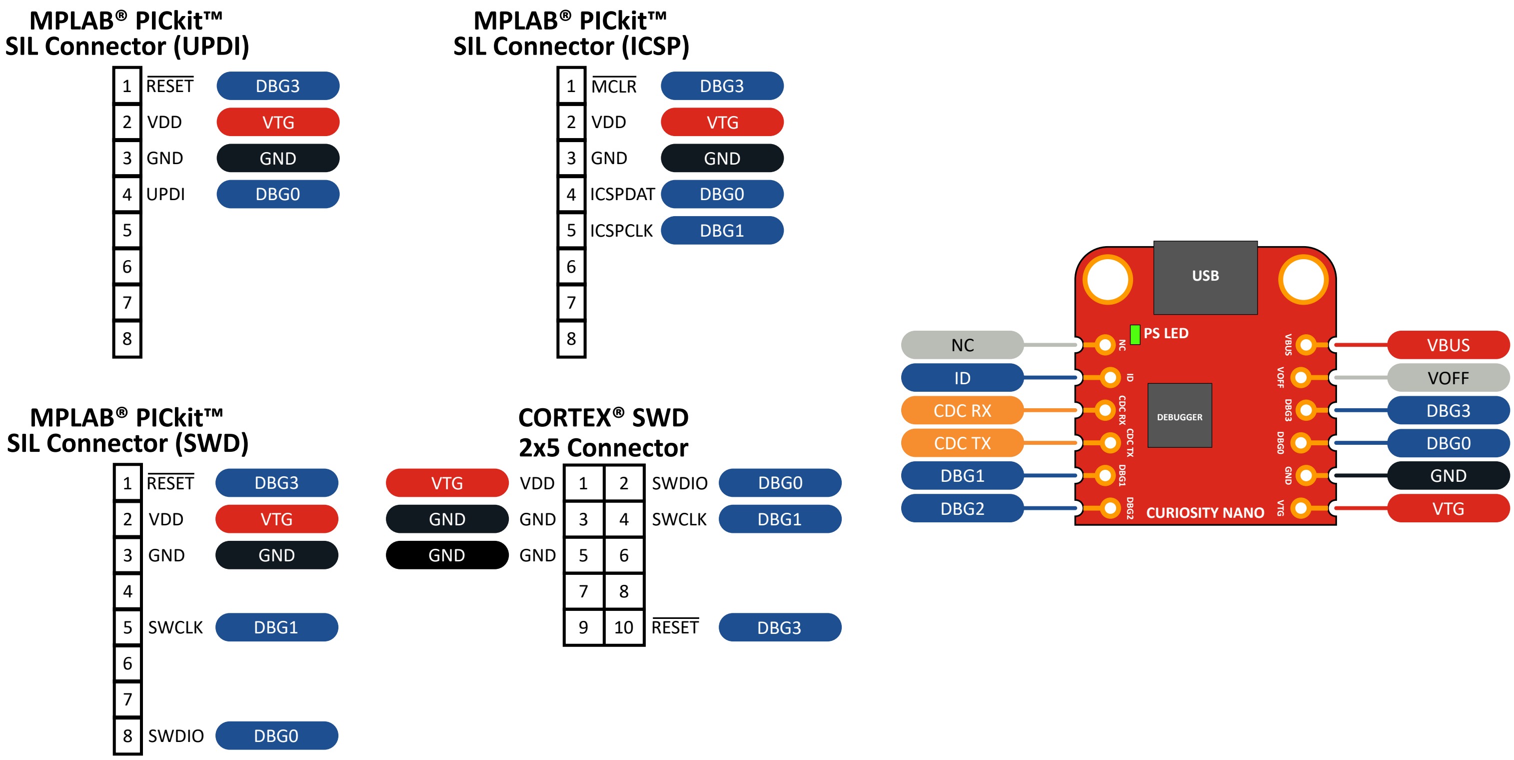


Tip: To reconnect any cut connections, use solder or mount a 0 Ω 0402-size resistor across the cut strap.

6.5. Connecting External Debuggers

Although the board includes an on-board debugger, external debuggers can also be connected directly to the target device for programming and debugging. When the on-board debugger is not actively in use, it keeps all pins connected to the board edge and the target device in a tri-state condition. This ensures that the on-board debugger does not interfere with any external debug tools.

Figure 6-3. Connecting an External Debugger/Programmer to a Curiosity Nano Board



> ⚠ **CAUTION** The MPLAB® PICkit™ 5 In-circuit Debugger/Programmer can deliver high voltage on the $\overline{\text{MCLR}}$ pin. High voltage can permanently damage R209. If R209 is broken, the on-board debugger cannot enter the programming mode of the PIC16F13276 and will typically fail at reading the device ID.

> ⚠ **CAUTION** To prevent contention, do not use the on-board debugger for programming or debugging while the external debugger is connected.

7. Hardware Peripherals

Kit hardware peripherals overview.

7.1. LED

One yellow user LED is available on the PIC16F13276 Curiosity Nano board. It can be controlled by either GPIO or PWM. Driving the connected I/O line to GND will activate the LED.

Figure 7-1. PIC16F13276 Curiosity Nano LED0 Block Diagram

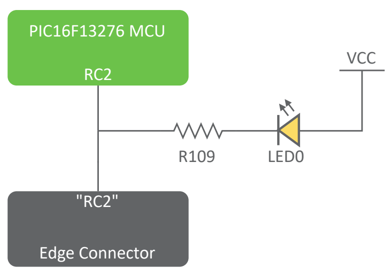


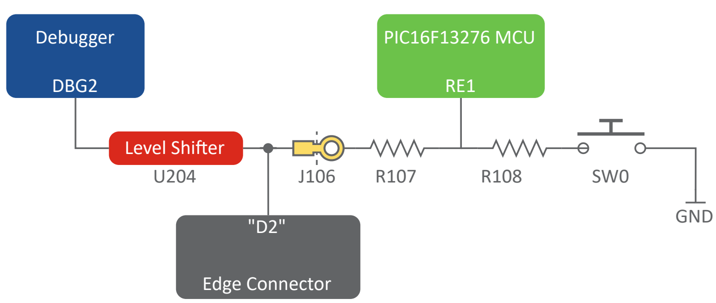
Table 7-1. LED Connection

PIC16F13276 Pin	Description	Default Connection
RC2	User LED (yellow), active low	• LED0 • Edge connector

7.2. Mechanical Switch

The PIC16F13276 Curiosity Nano board has one mechanical switch - a generic, user-configurable switch. Pressing it connects the I/O pin to ground (GND).

Figure 7-2. PIC16F13276 Curiosity Nano SW0 Block Diagram



Tip: There is no externally connected pull-up resistor on the switch. Enable the internal pull-up resistor on Pin RE1 to use it.

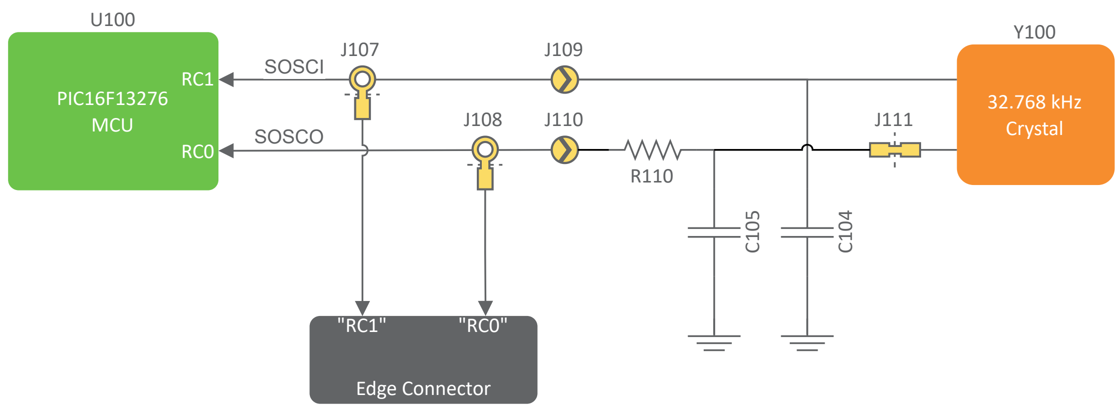
Table 7-2. Mechanical Switch Connection

PIC16F13276 Pin	Description	Default Connection
RE1	User switch (SW0), supports DGI event monitoring	• SW0 • Edge connector • On-board debugger

7.3. Crystal

The PIC16F13276 Curiosity Nano Board has a 32.768 kHz crystal mounted. The crystal is not connected to the target MCU by default, as the GPIO pins are routed to the edge connector.

Figure 7-3. 32.768 kHz Crystal Block Diagram



Note: The 32.768 kHz crystal on the PIC16F13276 Curiosity Nano is included for use and testing with the PIC16F13276 External 32.768 kHz Oscillator (SOSC) configured in High-Power mode.

Table 7-3. Crystal Connections

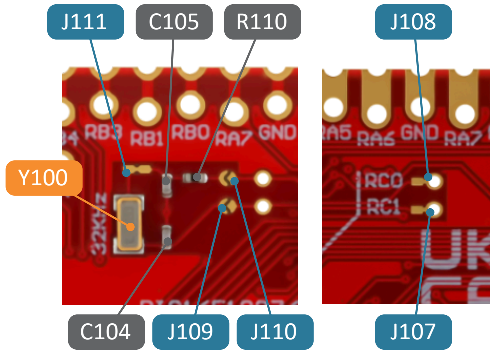
MCU Pin	Description	Default Connection
RC1	Crystal output, SOSCI	Edge connector
RC0	Crystal input, SOSCO	

WARNING Always disconnect the board from all power sources before making any hardware modifications.

How to Connect the Crystal to the Target MCU

1. Disconnect the two I/O lines routed to the edge connector by cutting the two cut straps on the bottom side of the board, J107 and J108.
2. Connect the two I/O lines to the crystal by soldering on a blob on each circular solder point on the top of the board, J109 and J110.

Figure 7-4. 32.768 kHz Crystal Overview



Info: The 0Ω series resistor, R110, may be replaced by any suitable resistor to limit the drive strength of the crystal. If no resistor is required, leave the resistor in place.

The 32.768 kHz crystal has a cut strap (J111), which can be used to measure the oscillator safety factor. This is done by cutting the strap and adding a 0402 SMD resistor across it. The AN2648 application note from Microchip contains more information about oscillator allowance and safety factors.

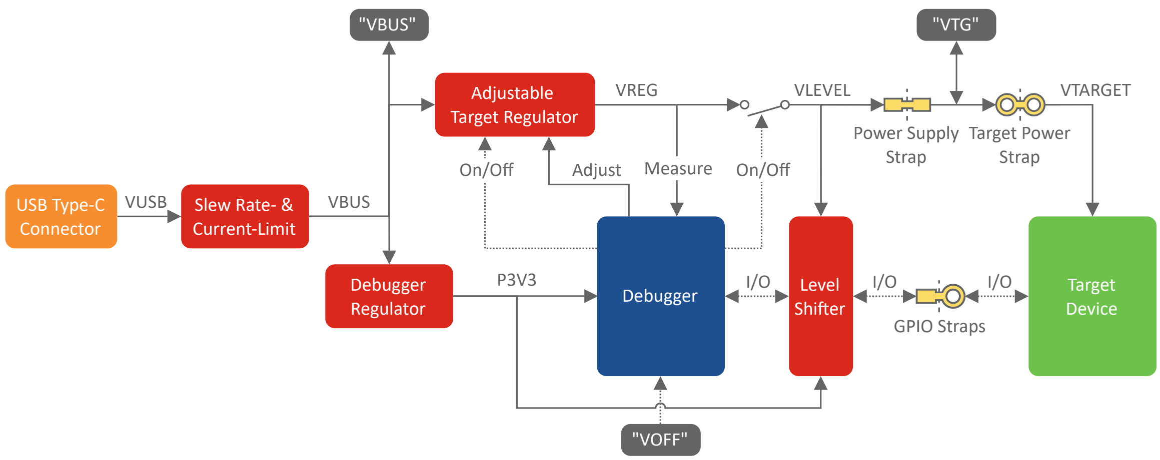
8. Power Supply

The USB port serves as the primary power source for the board. The power supply uses two LDO regulators: A fixed 3.3V regulator for the on-board debugger and an adjustable regulator for the target device and its peripherals.

When the USB is connected, there is a 1 ms start-up delay before power is applied, and a dedicated current-limiting IC restricts the supply current to approximately 500 mA to protect the board and connected devices. The figure below shows the full power supply design of the PIC16F13276 Curiosity Nano.

The maximum input voltage to the target device depends on both the USB input voltage and the on-board debugger's configuration. While the debugger can be set to allow up to 5.5V, the actual voltage will never exceed the USB input, which typically ranges from 4.4V to 5.25V. The lower of these two values determines the maximum voltage available to the target device.

Figure 8-1. Power Supply Block Diagram



8.1. Target Regulator

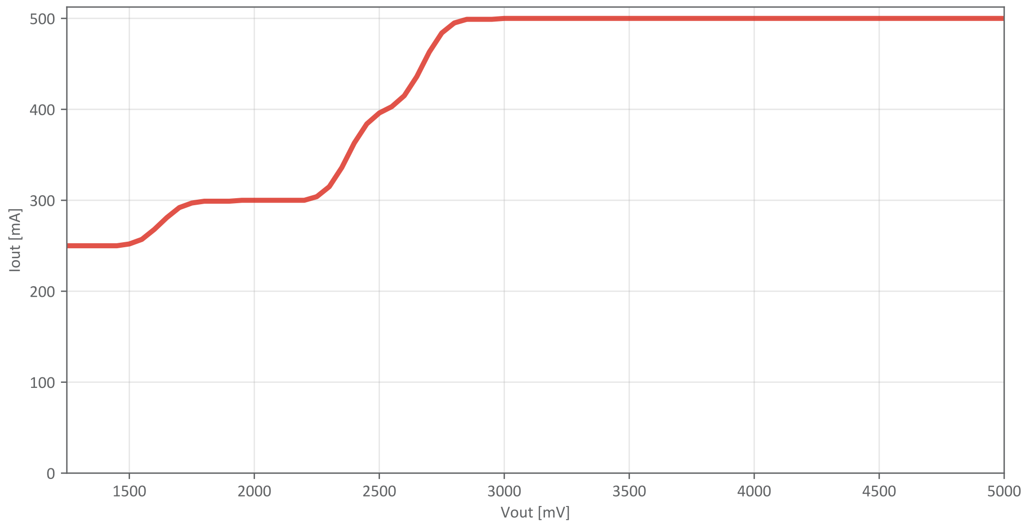
The MIC5353 variable output LDO supplies power to the target section. The on-board debugger controls the regulator's output voltage by adjusting its feedback. The on-board debugger restricts the output voltage to the safe operating range of the PIC16F13276 (1.8–5.5V).

By default, the board is configured to run at 3.3V. This setting can be changed in Microchip IDEs, and any changes made will persist through power cycles. The board voltage can be adjusted using one of the following methods:

- **Microchip IDE:** Configure the voltage setting in the IDE. Voltage changes are applied when the debugger is accessed (e.g., during programming, reading memory, or refreshing tool status).
- **Drag-and-drop command files:** Set common voltages quickly using command files. For details, see Nano Debugger Manual.
- **pymcuprog:** Use the pymcuprog tool to set the board voltage

The MIC5353 can supply up to 500 mA, but the actual maximum current may be lower due to thermal shutdown, which depends on input voltage, output voltage, and ambient temperature. The figure below illustrates the maximum output current limits of the regulator at a 5.1V input and 23°C ambient temperature.

Figure 8-2. MIC5353 Maximum Output Current vs. Output Voltage at 5.1V Input, 23°C Ambient



The on-board debugger monitors target voltage. If the voltage deviates by more than ±100 mV from the set target voltage, or if external voltage is applied to VTG without VOFF pulled low, the on-board debugger disables the regulator and blinks the status LED rapidly. See the Nano Debugger Manual for more details.

8.2. External Supply

The PIC16F13276 Curiosity Nano can be powered by an external voltage through the VTG pin, as an alternative to the on-board target regulator.

To safely use external power, follow these steps:

- Pull the VOFF pin to GND to disable the on-board regulator
- Apply external voltage to the VTG pin

WARNING

- Never apply voltage to VOFF; leave it floating to enable the on-board supply
- Only apply external voltage to VTG after pulling VOFF to GND. Failing to do so may cause damage to the board

The on-board debugger monitors the supplied voltage. If VOFF is not pulled to ground and the external voltage differs by more than ±100 mV from the regulator setting, the debugger disables the regulator and begins blinking the status LED rapidly. When the voltage returns to within ±100 mV, normal operation resumes and the LED stops blinking.

Programming, debugging, and data streaming with external power are only supported when the USB cable is connected, as it supplies power to the debugger and level shifters. With the USB connected, about 100 μA is drawn from the external supply for level shifters and voltage monitoring. If the USB cable is disconnected, the level shifters may draw up to 5 μA (typically as little as 100 nA).

Table 8-1. Voltage Limits

Parameter	Value
PIC16F13276 operating range	1.8–5.5V

Table 8-1. Voltage Limits (continued)

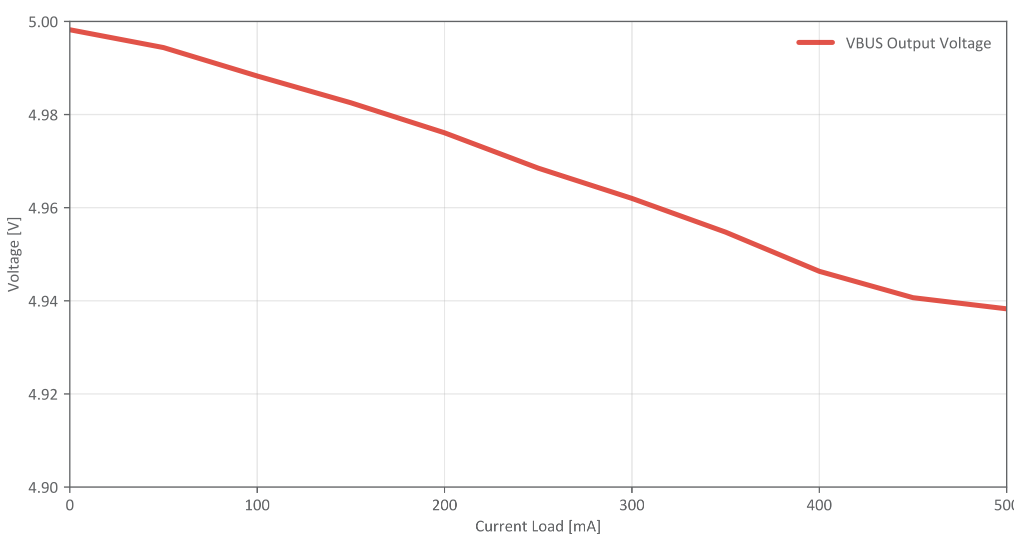
Parameter	Value
Absolute maximum external voltage	5.5V

WARNING Exceeding these limits may result in permanent damage to the board.

8.3. VBUS Output Pin

The PIC16F13276 Curiosity Nano provides a VBUS output pin that supplies 5V for powering external components. The VBUS voltage is not regulated and directly follows the USB input voltage, which may vary depending on the USB source. VBUS is protected by the same start-up delay and current limiting described in the Power Supply chapter. Be aware that as the current load on the VBUS output increases, the output voltage may decrease. The chart below illustrates how the VBUS output voltage varies with different current loads.

Figure 8-3. Load Current Impact on VBUS Output Voltage at 5V USB



8.4. Cut Straps

Curiosity Nano boards feature two cut straps for power measurement and isolation:

J200 - Power Supply Strap:

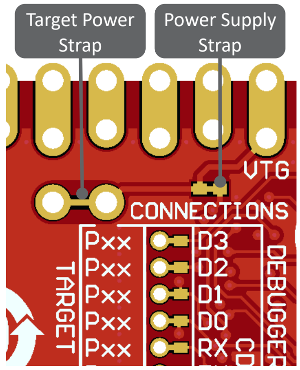
Cutting this strap fully separates the target power from the level shifters and on-board power supply. This allows for accurate current measurements when using an external power supply.

Info: Leakage back through the load switch is in the microampere range.

J201 - Target Power Strap:

For current measurements using the on-board power supply, cut this strap to measure the current drawn by the target. A 100 mil pin header can be mounted to J201 for easier connection of a measuring instrument.

Figure 8-4. Power Supply Cut Straps



8.5. Low-Power Measurement

Power for the target device is supplied via the on-board regulator or the VTG pin, routed through the Target Power Strap J201. To accurately measure the current consumption of the target device and any connected peripherals, cut the Target Power Strap (J201) on the bottom side and connect an ammeter across it.

To measure the minimum power consumption of the target device, follow these steps:

1. Cut the Target Power Strap (J201) with a sharp tool.
2. Solder a 1x2 100 mil pin header into the footprint.
3. Connect an ammeter across the pin header.
4. Write firmware that:
   a. Tri-states any I/O connected to the on-board debugger.
   b. Sets the target device in its lowest power sleep mode.
5. Program the firmware into the target device.
6. Measure the current draw.

The five on-board level shifters can each leak up to 2 µA, totaling up to 10 µA. To reduce leakage, keep the I/O pins to the level shifters tri-stated. For full isolation, disconnect the level shifters as described here. With the USB connected, the level shifters and voltage monitoring draw about 100 µA; with the USB disconnected, leakage drops to 5 µA or less.

8.6. Power Supply Exceptions

This section summarizes most issues that can arise with the power supply.

Target Voltage Shuts Down

If the target draws too much current, the MIC5353 regulator may trigger thermal shutdown. Reduce the load to restore operation.

Target Voltage Setting is Not Reached

The MIC5353 output is limited by the USB input voltage (4.4–5.25V). If the set voltage isn't reached, use a higher-quality USB source or supply external voltage via the VTG pin.

Target Voltage is Different From Setting

Applying external voltage to VTG without pulling VOFF low can cause voltage mismatch. If the voltage deviates by more than ±100 mV, the debugger disables the regulator and the PS LED blinks rapidly. Remove the external voltage to restore normal operation.

No or Very Low Target Voltage and PS LED is Blinking Rapidly

A full or partial short circuit can cause this and is a specific case of the issue above. Remove the short circuit, and the on-board debugger will re-enable the on-board target voltage regulator.

No Target Voltage and PS LED is Lit (Case 1)

This situation occurs if the target voltage is set to 0.0V. To fix this, set the target voltage to a value within the specified voltage range for the target device.

No Target Voltage and PS LED is Lit (Case 2)

This situation can occur when cutting the Power Supply Strap (J200) and/or the Target Power Strap (J201) and leaving them open. Restore the connection by bridging or adding a jumper.

VBUS Output Voltage is Low or Not Present

Excessive current on VBUS triggers the MIC2009 current limit, cutting off VBUS. Reduce the load to restore output.

9. Hardware Revision History and Known Issues

Provides information about the latest board revision, known issues, and differences from previous versions.

9.1. Identifying Product ID and Revision

There are two ways to find the revision and product identifier of the PIC16F13276 Curiosity Nano: the kit window in your Microchip development environment or the sticker on the bottom of the PCB.

The kit window appears in Microchip development environments when the PIC16F13276 Curiosity Nano is connected to the computer. In the VS Code® environment, the kit window is accessed through the tool window.

The first nine digits of the serial number, listed under kit information, contain the product identifier and revision.

> **Tip:** If closed, the Kit Window can be opened in VS Code® using the Command Palette **(Ctrl + Shift + P**) and typing the command **MPLAB: Show kits view**.

The same information is found on the sticker on the bottom side of the PCB. The data matrix code on the sticker contains a string with the product identifier 02-012589, revision, and serial number.

The product identifier and revision are also printed in plain text as 02-012589/rr, where "rr" represents the revision. The serial number is printed on the following line.

The string in the data matrix code has the following format:

```
nnnnnnnrrfffssssss
```

n = product identifier

r = revision

f = fabrication code

s = serial number

9.2. Revision 2

Revision 2 is the initially released board revision.

10. Document Revision History

Doc. Rev.	Date	Comments
A	2/2026	Initial document release

11. Appendix

Schematic, Assembly Drawing, Adapter Pinout, Programming External MCUs, External Debuggers

11.1. Schematic

Figure 11-1. PIC16F13276 Curiosity Nano device Schematic

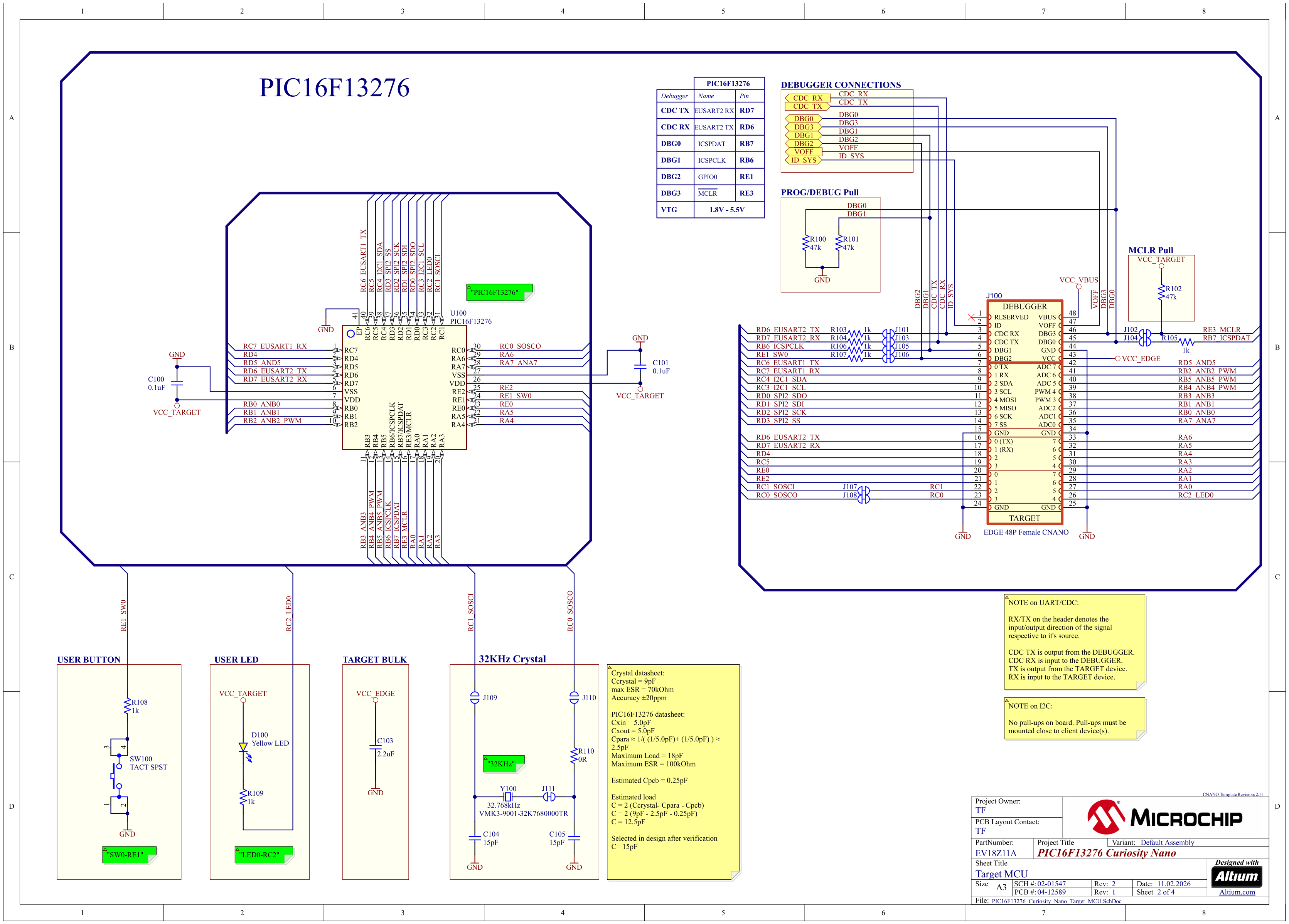
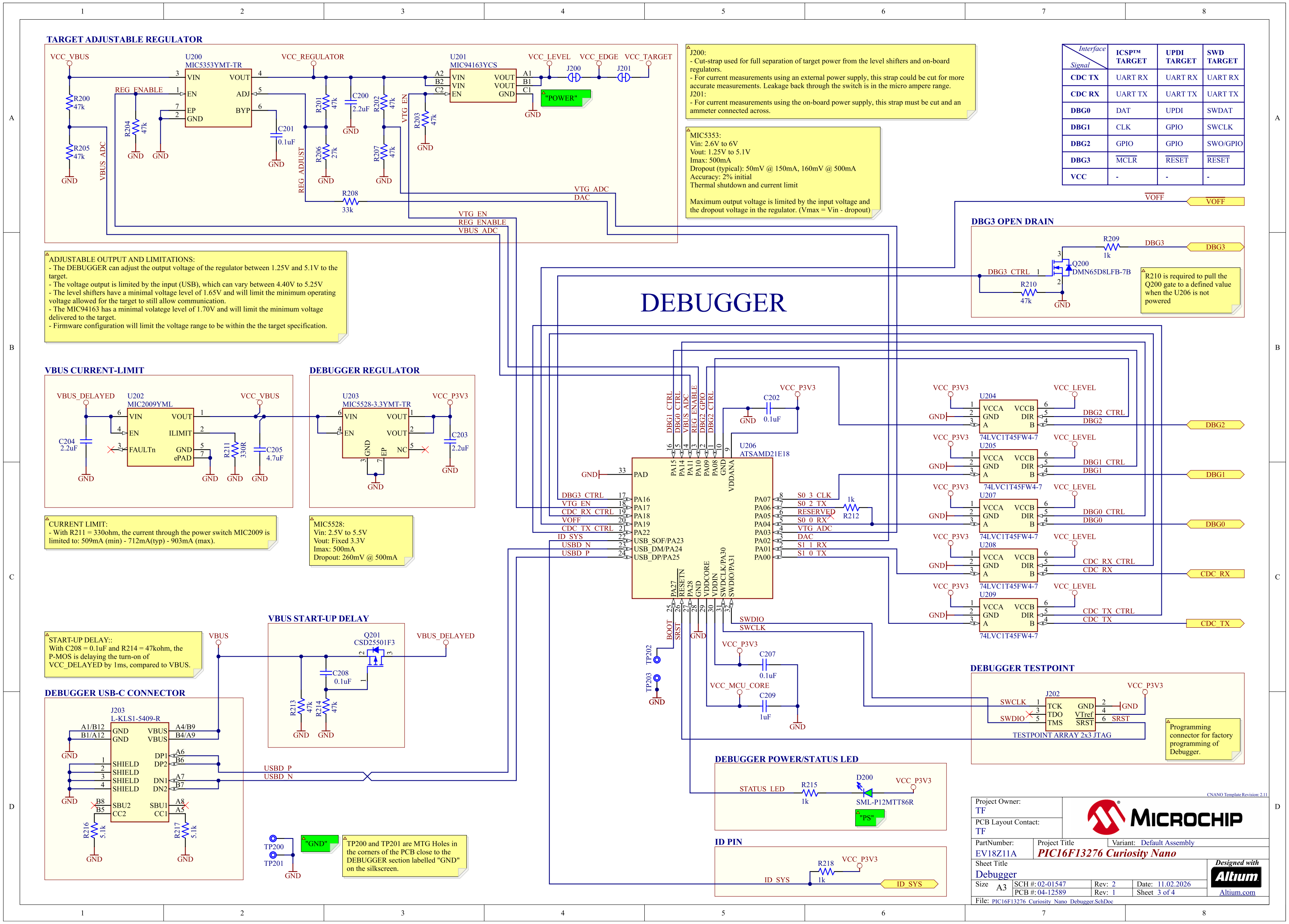


Figure 11-2. PIC16F13276 Curiosity Nano Debugger Schematic



11.2. Assembly Drawing

Figure 11-3. PIC16F13276 Curiosity Nano Assembly Drawing Top

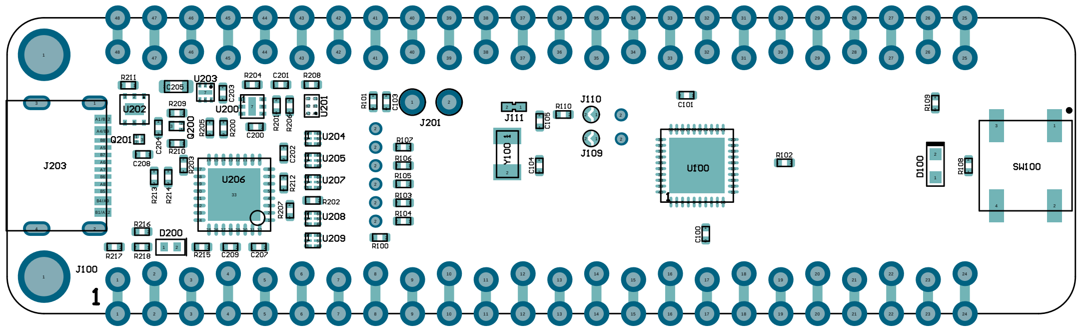
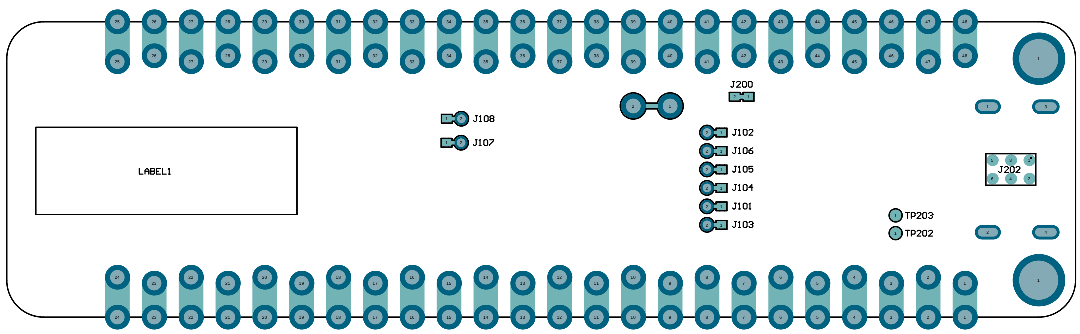
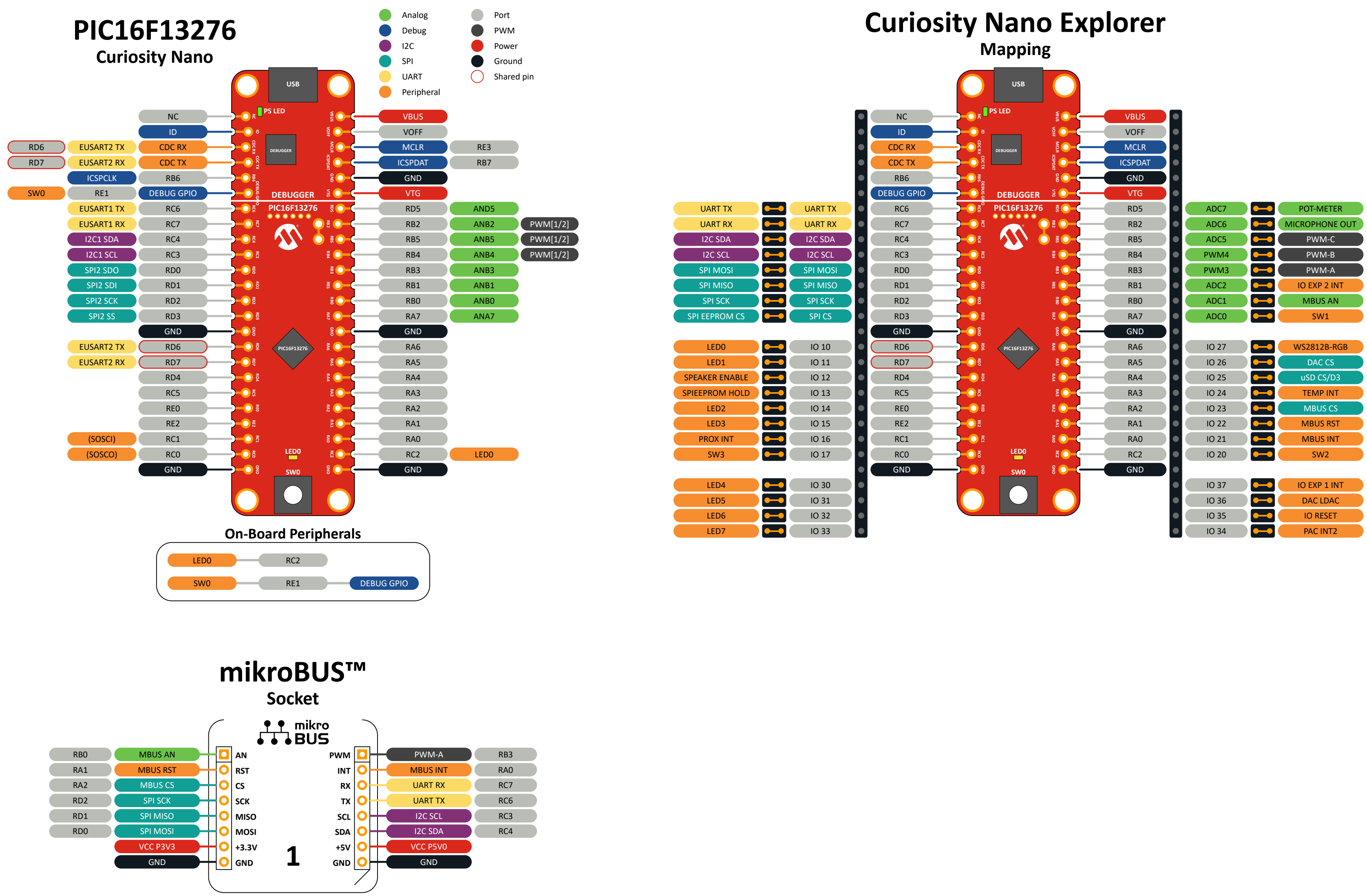


Figure 11-4. PIC16F13276 Curiosity Nano Assembly Drawing Bottom



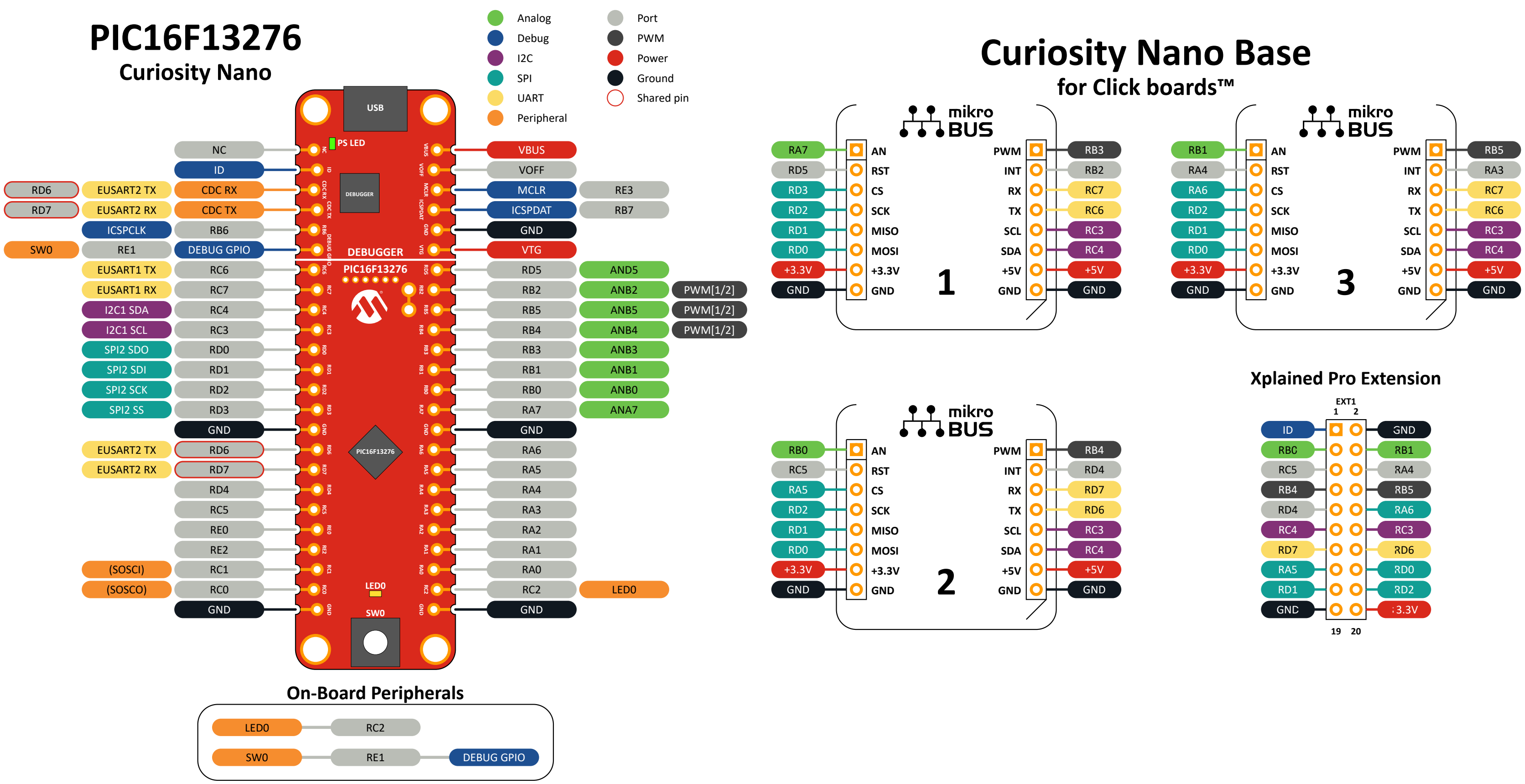
11.3. Curiosity Nano Explorer

Figure 11-5. Curiosity Nano Explorer Pinout Mapping



11.4. Curiosity Nano Base for Click boards™

Figure 11-6. PIC16F13276 Curiosity Nano Pinout Mapping



11.5. Bill of Materials

Figure 11-7. PIC16F13276 Curiosity Nano Bill of Materials

Component list — **PIC16F13276 Curiosity Nano**

PCBA Number:	**02-01547**
PCBA Revision:	**2**
Variant:	**Default Assembly**
Print Date: 11.02.2026	11:57:52

Fitted	Designator	Quantity	Value	Manufacturer 1	Manufacturer Part Number 1	Description_
Fitted	C100, C101	2	0.1uF	KEMET	C0402C104K4RAC7867	CAP CER 0.1uF 16V 10% X7R SMD 0402
Fitted	C103	1	2.2uF	Murata	GRM155R61A225KE95D	CAP CER 2.2uF 10V 10% X5R SMD 0402
Fitted	C104, C105	2	15pF	Murata	GJM1555C1H150JB01J	CAP CER 15pF 50V ±5% C0G SMD 0402
Fitted	C200, C203, C204	3	2.2uF	Murata	GRM155R61A225KE95D	CAP CER 2.2uF 10V 10% X5R SMD 0402
Fitted	C201, C202, C207, C208	4	0.1uF	KEMET	C0402C104K4RAC7867	CAP CER 0.1uF 16V 10% X7R SMD 0402
Fitted	C205	1	4.7uF	KEMET	C0603C475K8PAC7867	CAP CER 4.7uF 10V 10% X5R SMD 0603
Fitted	C209	1	1uF	KEMET	C0402C105K9PACTU	CAP CER 1uF 6.3V 10% X5R SMD 0402
Fitted	D100	1	Yellow LED	Rohm Semiconductor	SML-D12Y1WT86	LED YELLOW DIFFUSED 1608 SMD
Fitted	D200	1	LED SINGLE SML-P12MTT86R YELLOW-GREEN	Rohm Semiconductor	SML-P12MTT86R	DIO LED YELLOW-GREEN 2.2V 20mA 25mcd Clear SMD 0402
Fitted	J203	1	USB2.0 Type-C FEMALE	KLS Electronic	L-KLS1-5409-R	CON USB2.0 Type-C Female SMD R/A
Fitted	LABEL1	1	PCBA LABEL 18X6mm	ACT Logimark AS	505462	LABEL PCBA 18x6mm Datamatrix Assy# / Rev / Serial / Date
Fitted	Q200	1	DMN65D8LFB-7B	Diodes Incorporated	DMN65D8LFB-7	TRANS FET N-CH DMN65D8LFB-7B 260mA 60V 430mW X1_DFN1006-3
Fitted	Q201	1	CSD25501F3	Texas Instruments	CSD25501F3	TRANS FET P-CH CSD25501F3 -20V -3.6A 0.076R LGA
Fitted	R100, R101, R102	3	47k	Yageo	RC0402FR-0747KL	RES TKF 47k 1% 1/16W SMD 0402
Fitted	R103, R104, R105, R106, R107, R108, R109	7	1k	Panasonic	ERJ-2RKF1001X	RES TKF 1k 1% 1/10W SMD 0402
Fitted	R110	1	0R	Vishay	CRCW04020000Z0EDHP	RES TKF 0R 1/5W SMD 0402 AEC-Q200
Fitted	R200, R201, R202, R203, R204, R205, R207, R210, R213, R214	10	47k	Yageo	RC0402FR-0747KL	RES TKF 47k 1% 1/16W SMD 0402
Fitted	R206	1	27k	Yageo	RC0402FR-0727KL	RES TKF 27k 1% 1/16W SMD 0402
Fitted	R208	1	33k	Yageo	AC0402FR-0733KL	RES TKF 33k 1% 1/16W SMD 0402
Fitted	R209, R212, R215, R218	4	1k	Panasonic	ERJ-2RKF1001X	RES TKF 1k 1% 1/10W SMD 0402
Fitted	R211	1	330R	Panasonic Electronic Components	ERJ-2RKF3300X	RES TKF 330R 1% 1/10W SMD 0402 AEC-Q200
Fitted	R216, R217	2	5.1k	Panasonic	ERJ-2RKF5101X	RES TKF 5.1k 1% 1/10W SMD 0402
Fitted	SW100	1	TACT SPST	Dailywell Electronics Co.,Ltd.	TS604VM1-035CR-R	SWITCH TACT SPST 12 50mA TS604VM1-035CR-R SMD
Fitted	Test1	1				TEST, PIC16F13276 Curiosity Nano
Fitted	Test2	1	Debugger Firmware			FW, CNANO-DEBUGGER
Fitted	U100	1	PIC16F13276	Microchip Technology	PIC16F13276-I/NHX	MCHP MCU 8-BIT 32MHz 28KB 2KB PIC16F13276-I/NHX VQFN-40
Fitted	U200	1	MIC5353YMT-TR	Microchip Technology	MIC5353YMT-TR	MCHP ANALOG LDO ADJ 500mA MIC5353YMT-TR MLF-6
Fitted	U201	1	MIC94163YCS	Microchip Technology	MIC94163YCS-TR	IC LOAD SWITCH HI SIDE 3A 6WLCSP
Fitted	U202	1	MIC2009YML	Microchip Technology	MIC2009YML-TR	MCHP ANALOG POWER SWITCH 5.5V 2A MIC2009YML-TR MLF-6
Fitted	U203	1	MIC5528 3V3	Microchip Technology	MIC5528-3.3YMT-TR	MCHP ANALOG LDO 3.3V MIC5528-3.3YMT-TR 6-TDFN
Fitted	U204, U205, U207, U208, U209	5	74LVC1T45FW4-7	Diodes Incorporated	74LVC1T45FW4-7	IC VOLTAGE TRANSLATOR BI-DIR 1 CIRCUIT 74LVC1T45FW4-7 X2-DFN1010-6
Fitted	U206	1	ATSAMD21E18	Microchip Technology	ATSAMD21E18A-MUT	MCHP MCU 32-BIT 48MHz 256Kb 32Kb ATSAMD21E18A-MUT QFN-32
Fitted	Y100	1	32.768kHz	Microchip Technology	VMK3-9001-32K7680000TR	MCHP CRYSTAL 32.768kHz 9pF SMD L3.2W1.5XH0.9
		65				

Approved	**Notes**

Microchip Information

Trademarks

The “Microchip” name and logo, the “M” logo, and other names, logos, and brands are registered and unregistered trademarks of Microchip Technology Incorporated or its affiliates and/or subsidiaries in the United States and/or other countries (“Microchip Trademarks”). Information regarding Microchip Trademarks can be found at https://www.microchip.com/en-us/about/legal-information/microchip-trademarks.

ISBN: 979-8-3371-2845-0

Legal Notice

This publication and the information herein may be used only with Microchip products, including to design, test, and integrate Microchip products with your application. Use of this information in any other manner violates these terms. Information regarding device applications is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. Contact your local Microchip sales office for additional support or, obtain additional support at www.microchip.com/en-us/support/design-help/client-support-services.

THIS INFORMATION IS PROVIDED BY MICROCHIP “AS IS”. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, AND FITNESS FOR A PARTICULAR PURPOSE, OR WARRANTIES RELATED TO ITS CONDITION, QUALITY, OR PERFORMANCE.

IN NO EVENT WILL MICROCHIP BE LIABLE FOR ANY INDIRECT, SPECIAL, PUNITIVE, INCIDENTAL, OR CONSEQUENTIAL LOSS, DAMAGE, COST, OR EXPENSE OF ANY KIND WHATSOEVER RELATED TO THE INFORMATION OR ITS USE, HOWEVER CAUSED, EVEN IF MICROCHIP HAS BEEN ADVISED OF THE POSSIBILITY OR THE DAMAGES ARE FORESEEABLE. TO THE FULLEST EXTENT ALLOWED BY LAW, MICROCHIP’S TOTAL LIABILITY ON ALL CLAIMS IN ANY WAY RELATED TO THE INFORMATION OR ITS USE WILL NOT EXCEED THE AMOUNT OF FEES, IF ANY, THAT YOU HAVE PAID DIRECTLY TO MICROCHIP FOR THE INFORMATION.

Use of Microchip devices in life support and/or safety applications is entirely at the buyer’s risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights unless otherwise stated.

Microchip Devices Code Protection Feature

Note the following details of the code protection feature on Microchip products:

- Microchip products meet the specifications contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is secure when used in the intended manner, within operating specifications, and under normal conditions.
- Microchip values and aggressively protects its intellectual property rights. Attempts to breach the code protection features of Microchip products are strictly prohibited and may violate the Digital Millennium Copyright Act.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of its code. Code protection does not mean that we are guaranteeing the product is “unbreakable”. Code protection is constantly evolving. Microchip is committed to continuously improving the code protection features of our products.

Product Page Links

PIC16F13276