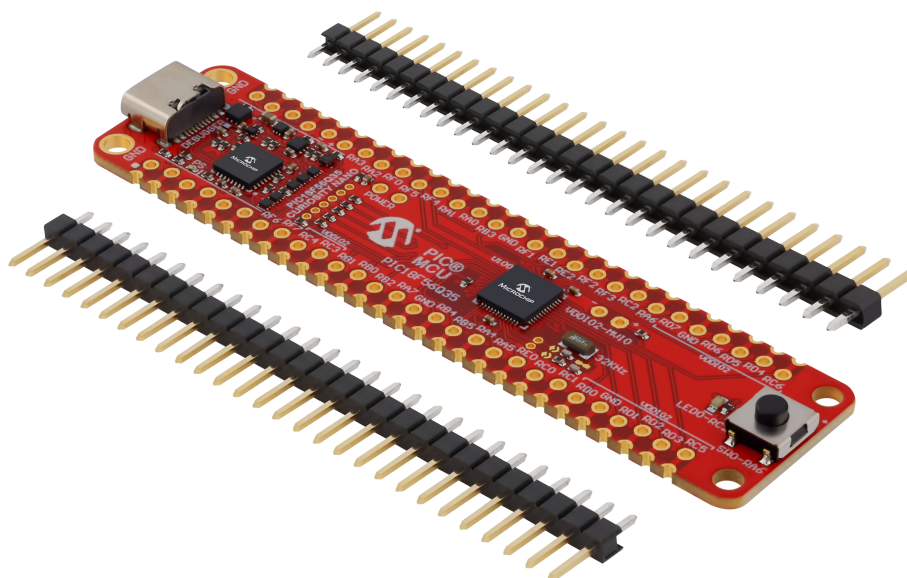


## Preface

The PIC18F56Q35 Curiosity Nano evaluation kit (EV55P36A) is a hardware platform for evaluating the PIC18F-Q35 family. This board features the PIC18F56Q35 (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 PIC18F56Q35.



- [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.

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## 1. PIC18F56Q35 Key Features

The PIC18-Q35 MCU family delivers high-performance processing with configurable logic, advanced analog peripherals, efficient DMA, mixed-voltage support, and robust security features.

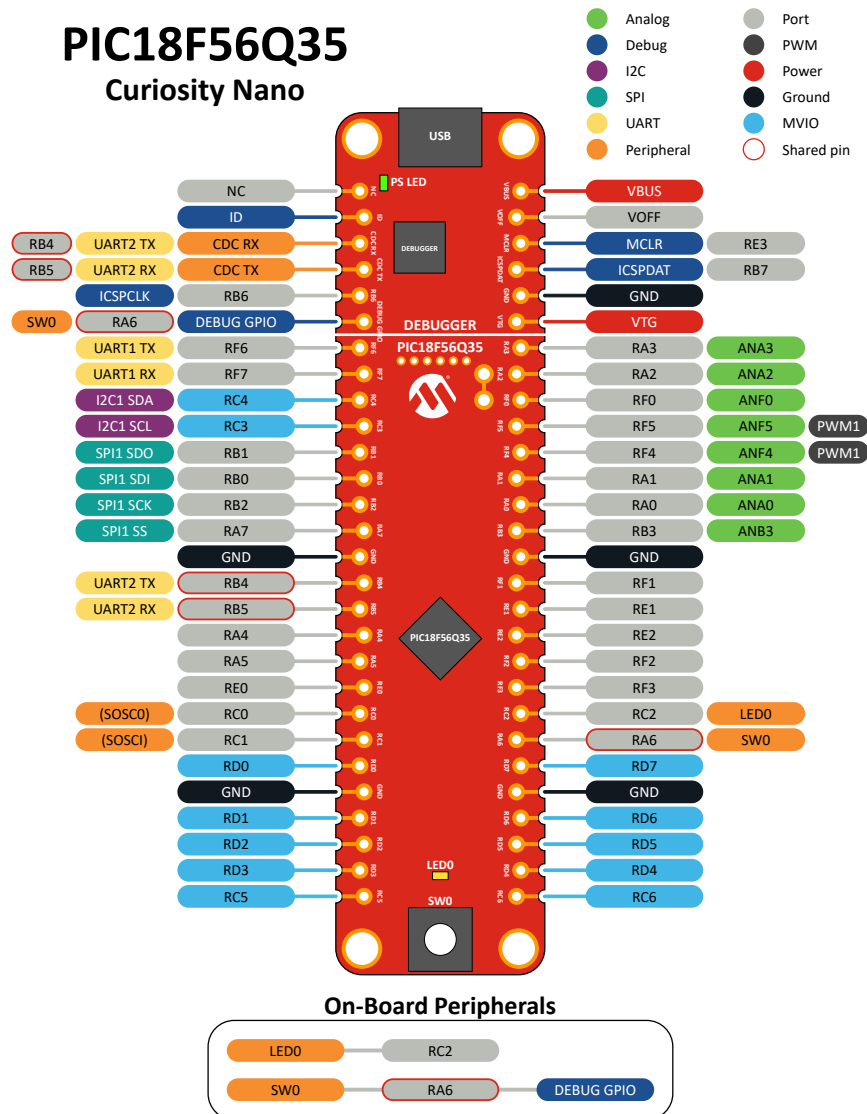
- RISC architecture with a 64 MHz clock input and a supply voltage of 1.8–5.5V
- Up to 64 KB of in-system self-programmable Flash with up to 4 KB SRAM
- Operating Voltage Range: 1.8–5.5V
- Low Power:
  - Doze, Idle and Sleep modes
  - Peripheral Module Disable (PMD)
- Configurable Logic Block (CLB)
  - Interconnected fabric containing 128 Basic Logic Elements (BLE)
    - Each BLE contains one 4-input Look-Up Table (LUT) and one flip-flop
    - Schematically programmable using the [CLB Synthesizer](#)
  - DMA-compatible
  - CLB Auto-Load on boot
  - CPU Halt allowing CLB operation without CPU intervention
- Multi-Voltage I/O (MVIO)
- Digital Peripherals:
  - Two 16-Bit Pulse-Width Modulators (PWM)
  - Three 16-Bit Timers. Two 8-Bit Timers (TMR2/4) with Hardware Limit Timer (HLT)
  - Two Universal Timers
  - Eight Configurable Logic Cells (CLC)
  - Two UART Modules
  - One SPI Module
  - One I<sup>2</sup>C Module, SMBus, PMBus™ Compatible
  - Peripheral Pin Select (PPS)
- Analog Peripherals
  - 10-Bit Analog-to-Digital Converter with Computation (ADCC)
    - Hardware Capacitive Voltage Divider (CVD) support
  - Two 8-Bit Digital-to-Analog Converters (DAC)
  - One High-Speed Comparator (CMP)
- Temperature Ranges:
  - Industrial: -40°C to 85°C
  - Extended: -40°C to 125°C

## 2. Pinout

PIC18F56Q35 Curiosity Nano pinout diagram.

All the PIC18F56Q35 I/O pins are accessible at the edge connectors on the board. The image below shows the board's pinout.

Figure 2-1. PIC18F56Q35 Curiosity Nano Pinout



**Info:** Peripheral signals shown in the image above, such as UART, I<sup>2</sup>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 PIC18F56Q35.

### 3. Board Features

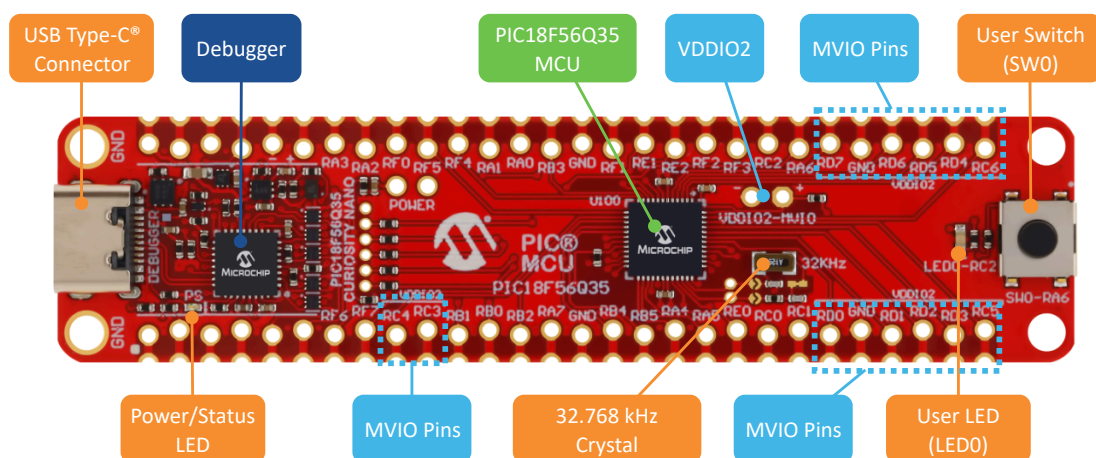
Features of Curiosity Nano, board layout picture, board block diagram, and Curiosity Nano pinout standard.

#### 3.1. Board Features

- PIC18F56Q35 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
  - 1x2 100 mil header for alternative VDDIO2 supply
- 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

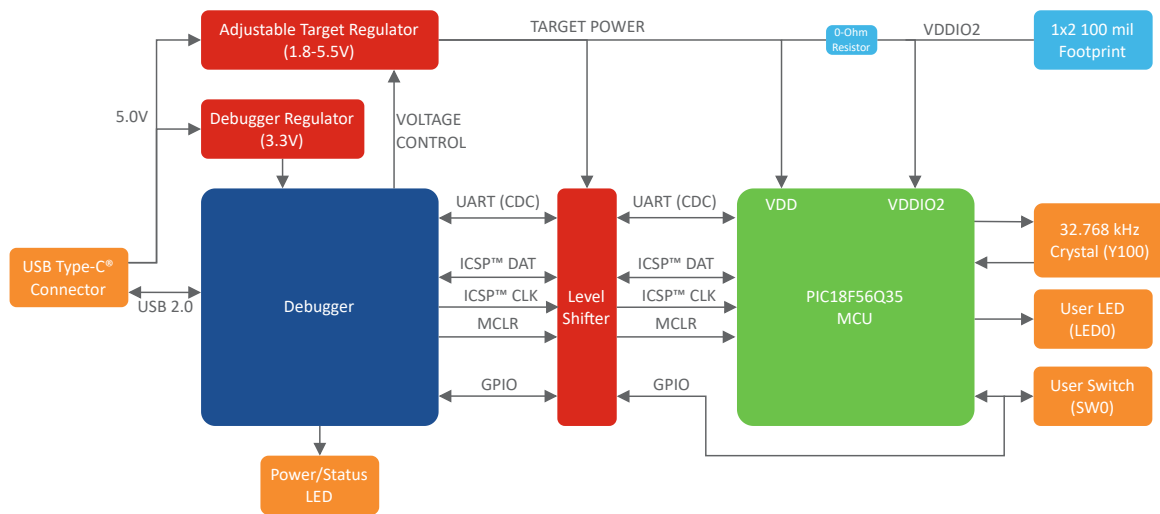
#### 3.2. Board Overview

Figure 3-1. PIC18F56Q35 Curiosity Nano Board Overview



### 3.3. Block Diagram

Figure 3-2. PIC18F56Q35 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.

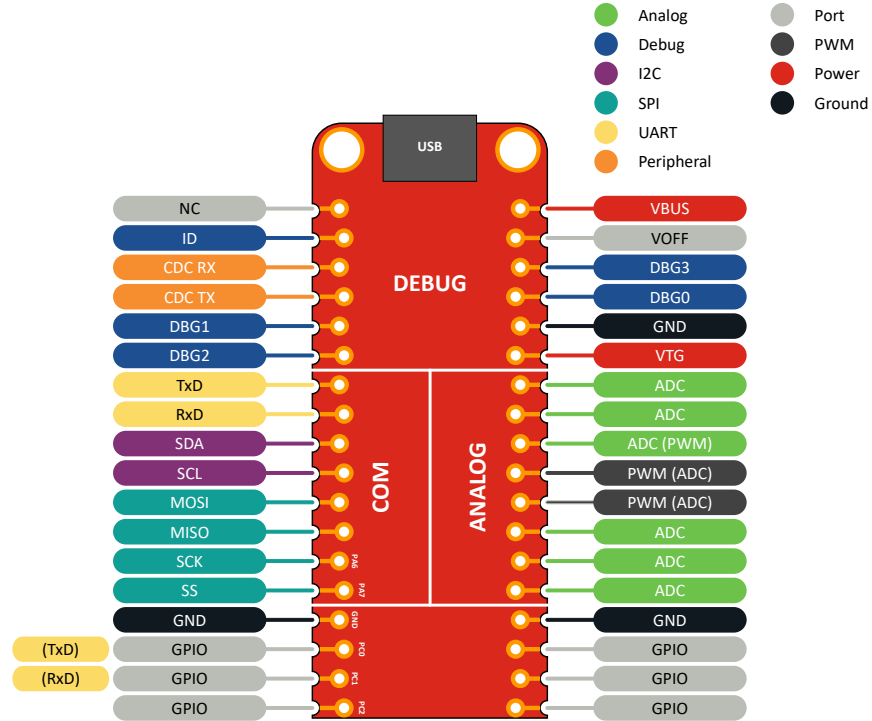
Analog capability is guaranteed only for pins within the analog section. At least two of these pins support PWM output, and some kits may offer a third optional PWM pin.

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



**i 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 PIC18F56Q35 Curiosity Nano is preprogrammed with an example application that demonstrates the 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 the [PIC18F56Q35 Curiosity Nano Out-of-the-Box Demo](#).

## 5. Setup Essentials

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

### 5.1. Quick Start

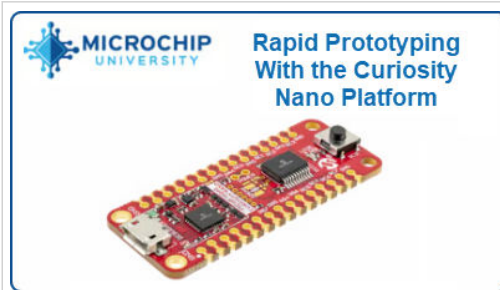
1. Choose your preferred integrated development environment (IDE):
  - MPLAB® Tools for VS Code®
  - Partner Toolchains: Microchip supports a range of partner toolchains. For more information and a list of supported tools, visit the [Development Tool Partners page](#).
2. For VS Code follow these steps:
  - 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 PIC18F56Q35 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 PIC18F56Q35 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 PIC18F56Q35 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 PIC18F56Q35 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 PIC18F56Q35 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	<b>Success:</b> The LED blinks slowly for 2 sec. <b>Failure:</b> 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.

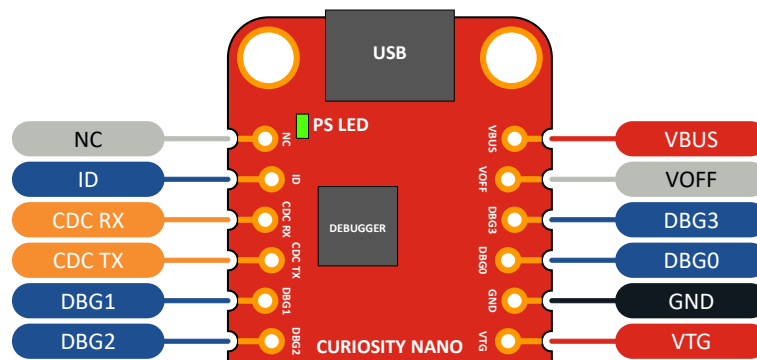


**Info:** The 12 edge connections closest to the debugger USB connector have a standardized pinout, but the function of the programming and debugging pins varies depending on the programming interface used.

**Table 6-2.** On-Board Debugger Connections

Debugger Pin	PIC18F56Q35 Pin		Description
CDC TX	RB5	UART RX	USB CDC TX line
CDC RX	RB4	UART TX	USB CDC RX line
DBG0	RB7	ICSPDAT	Debug data line
DBG1	RB6	ICSPCLK	Debug clock line
DBG2	RA6	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 PIC18F56Q35 Curiosity Nano pinout, see the [PIC18F56Q35 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

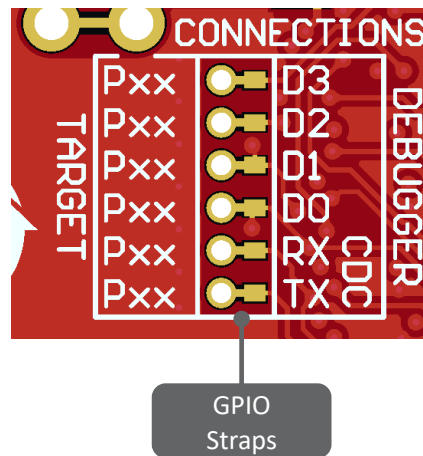
The following cut straps are available to separate the debugger from the target:

- Debugger Pins (J102, J103, J104, J105, J106, J107)
- [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



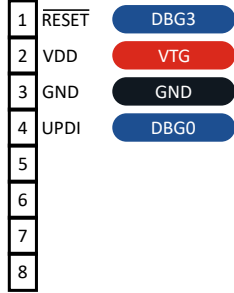
**Tip:** To reconnect any cut connections, use solder or mount a 0  $\Omega$  0402-size resistor across the cut strap.

## 6.5. Connecting External Debuggers

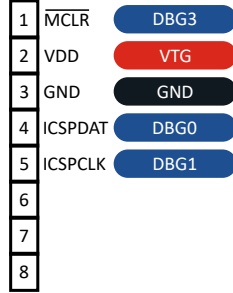
Although the board includes an on-board debugger, external debuggers can also be connected directly to the target device for programming and debugging. When the on-board debugger is not actively in use, it keeps all pins connected to the board edge and the target device in a tri-state condition. This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

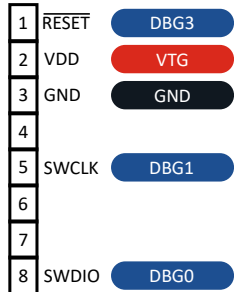
**MPLAB® PICKit™  
SIL Connector (UPDI)**



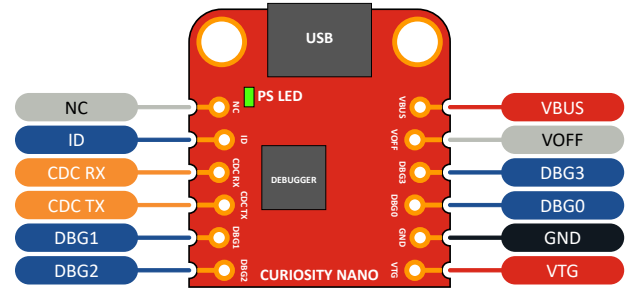
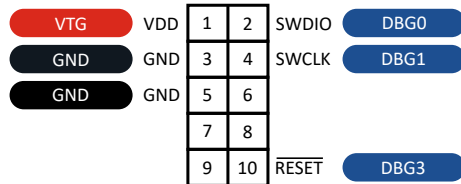
**MPLAB® PICKit™  
SIL Connector (ICSP)**



**MPLAB® PICKit™  
SIL Connector (SWD)**



**CORTEX® SWD  
2x5 Connector**



The MPLAB® PICKit™ 5 In-circuit Debugger/Programmer can deliver high voltage on the  $\overline{MCLR}$  pin. High voltage can permanently damage R209. If R209 is broken, the on-board debugger cannot enter the programming mode of the PIC18F56Q35 and will typically fail at reading the device ID.



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 PIC18F56Q35 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. PIC18F56Q35 Curiosity Nano LED0 Block Diagram

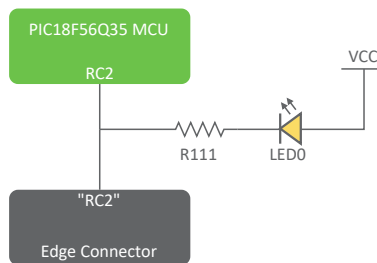


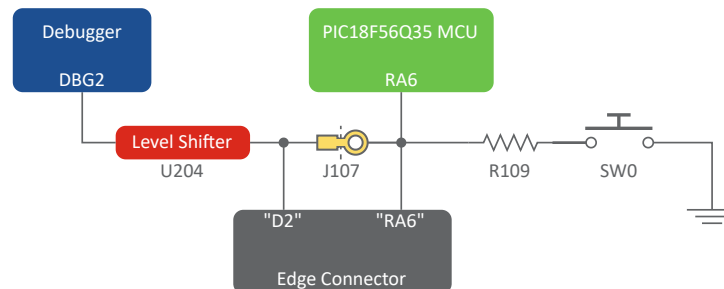
Table 7-1. LED Connection

PIC18F56Q35 Pin	Description	Default Connection
RC2	User LED (yellow), active low	<ul style="list-style-type: none"> <li>LED0</li> <li>Edge connector</li> </ul>

### 7.2. Mechanical Switch

The PIC18F56Q35 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. PIC18F56Q35 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 RA6 to use it.

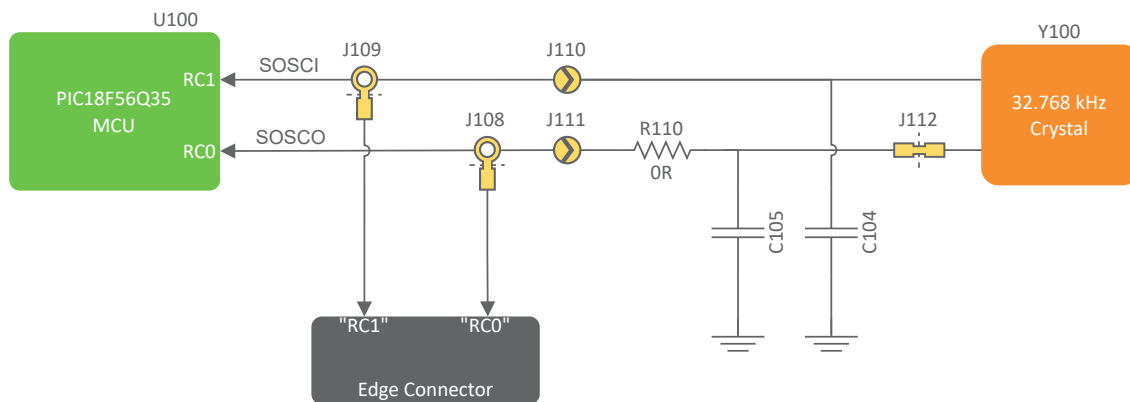
**Table 7-2.** Mechanical Switch Connection

PIC18F56Q35 Pin	Description	Default Connection
RA6	User switch (SW0), supports DGI event monitoring	<ul style="list-style-type: none"> <li>SW0</li> <li>Edge connector</li> <li><a href="#">On-board debugger</a></li> </ul>

### 7.3. Crystal

The PIC18F56Q35 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 PIC18F56Q35 Curiosity Nano is included for use and testing with the PIC18F56Q35 External 32.768 kHz Oscillator (XOSC32K) configured in High-Power mode.

**Table 7-3.** Crystal Connections

PIC18F56Q35 Pin	Description	Default Connection
RC0	Crystal output, SOSCO	Edge connector
RC1	Crystal input, SOSCI	

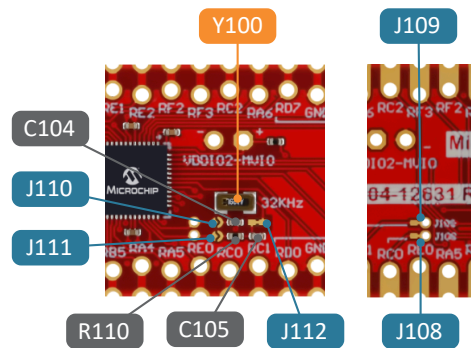


**WARNING** Always disconnect the board from all power sources before making any hardware modifications.

#### How to Connect the Crystal to the Target Device

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, J108 and J109.
2. Connect the two I/O lines to the crystal by soldering a blob onto each circular solder point on the top of the board, J110 and J111.

Figure 7-4. 32.768 kHz Crystal Overview



**Info:** The  $0\Omega$  series resistor, R110, may be replaced with any suitable resistor to limit the drive strength of the crystals. If no resistor is required, leave the resistor in place.

The 32.768 kHz crystal has a cut strap (J112), 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.

## 7.4. Multi-Voltage I/O

The target MCU includes a Multi-Voltage I/O (MVIO) domain powered through the VDDIO2 pin. Pins RC3–RC6 and RD0–RD7 are exclusively powered by VDDIO2. If VDDIO2 is not supplied, these I/O pins will not operate.

On the PIC18F56Q35 Curiosity Nano board, VCC\_TARGET supplies VDDIO2 by default. Removing the  $0\Omega$  resistor R102 disconnects the default power connection. After removal, an external power supply can power the MVIO pins through the 1x2-100mil footprint (J100).

### **WARNING**

- Always disconnect the board from all power sources before making changes
- To prevent damage to the board, remove R102 before applying external voltage to VDDIO2
- The MVIO circuit lacks reverse polarity protection. Incorrect connections at J100 may permanently damage the board.

Figure 7-5. MVIO Block Diagram

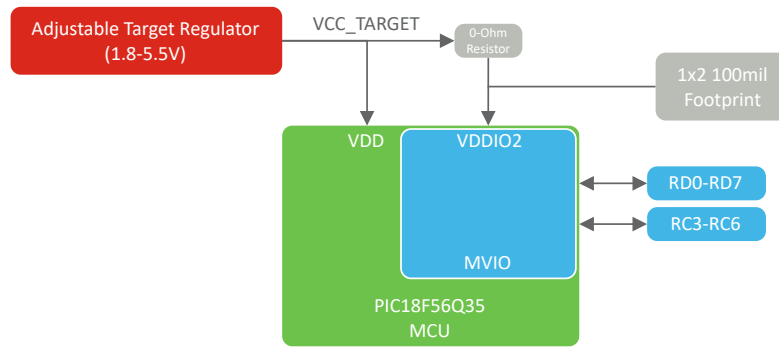
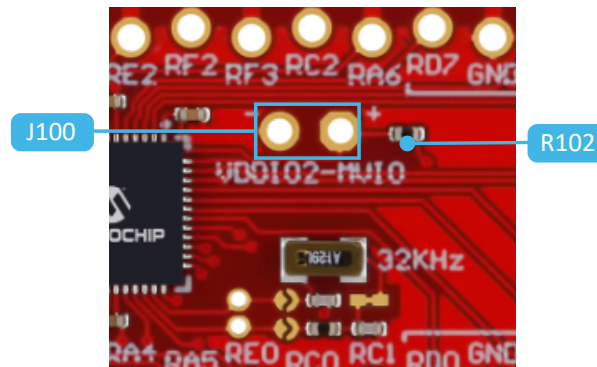


Figure 7-6. VDDIO2 Connections



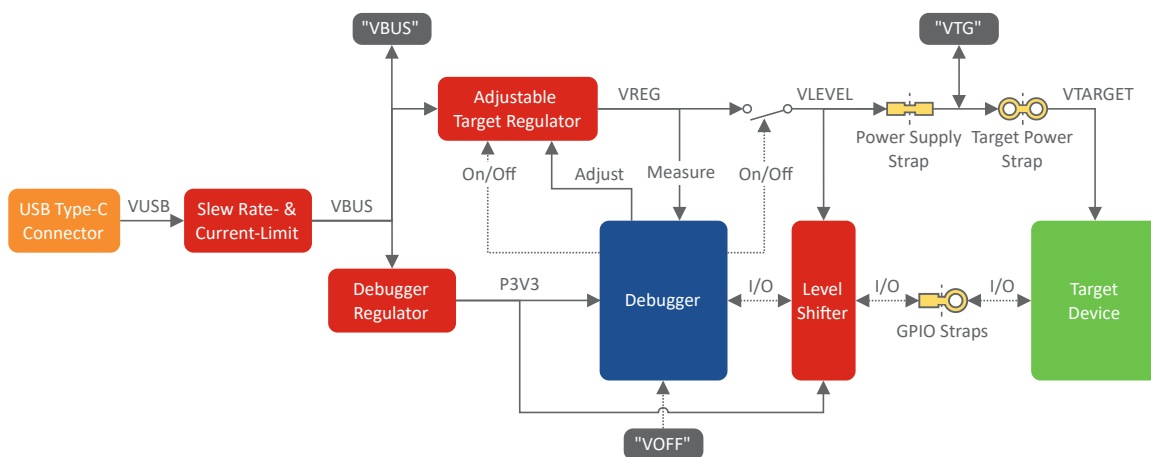
## 8. Power Supply

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 PIC18F56Q35 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

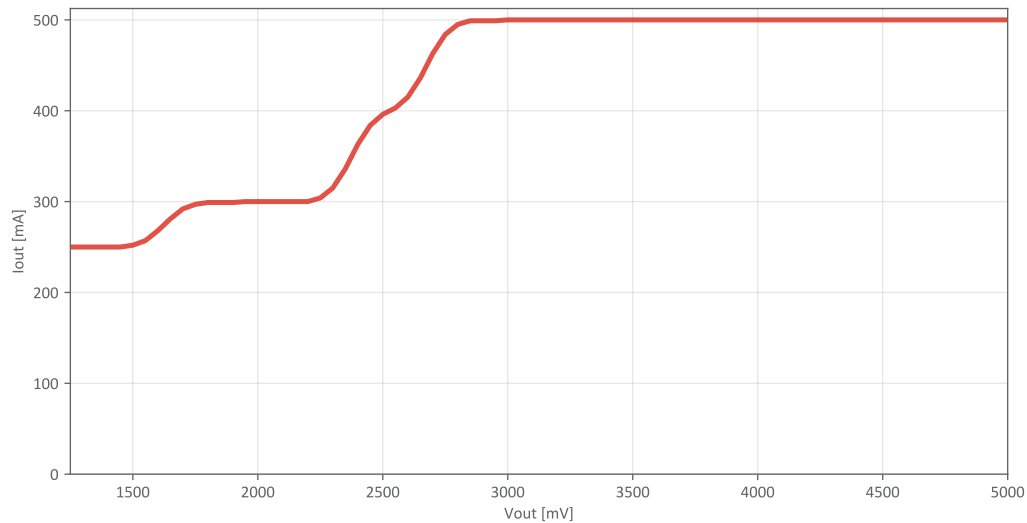
The [MIC5353](#) variable output LDO supplies power to the target section. The on-board debugger controls the regulator's output voltage by adjusting its feedback. The on-board debugger restricts the output voltage to the safe operating range of the PIC18F56Q35 (1.8–5.5V).

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  $\pm 100$  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 PIC18F56Q35 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



- 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  $\pm 100$  mV from the regulator setting, the debugger disables the regulator and begins blinking the status LED rapidly. When the voltage returns to within  $\pm 100$  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  $\mu$ A 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  $\mu$ A (typically as little as 100 nA).

**Table 8-1.** Voltage Limits

Parameter	Value
PIC18F56Q35 operating range	1.8-5.5V

**Table 8-1. Voltage Limits (continued)**

Parameter	Value
Absolute maximum external voltage	5.5V

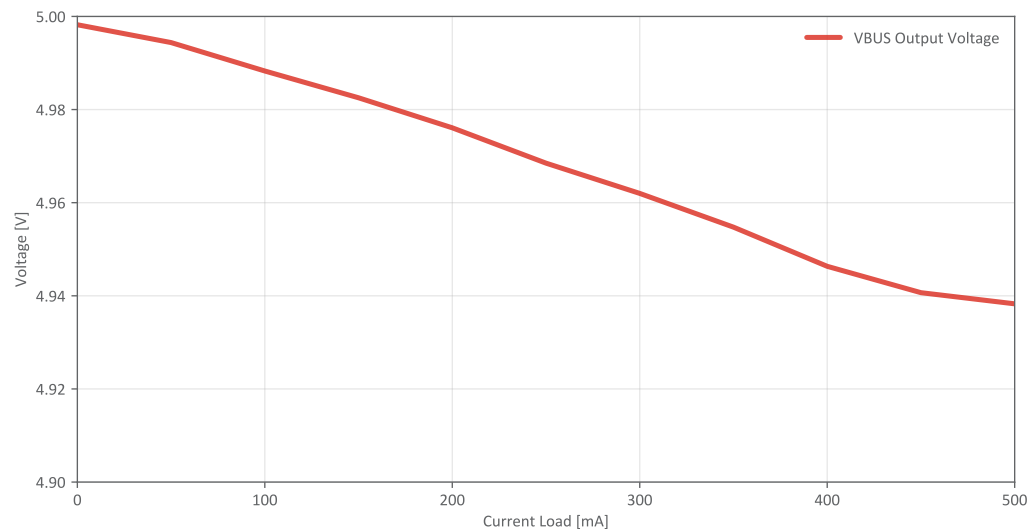


Exceeding these limits may result in permanent damage to the board.

### 8.3. VBUS Output Pin

The PIC18F56Q35 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.

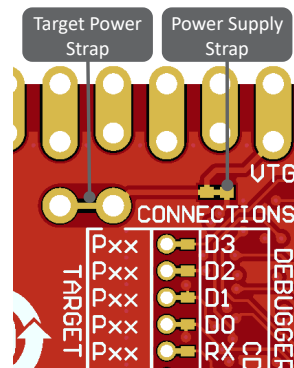


**Info:** Leakage back through the load switch is in the microampere range.

#### 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  $\mu\text{A}$ , totaling up to 10  $\mu\text{A}$ . 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  $\mu\text{A}$ ; with the USB disconnected, leakage drops to 5  $\mu\text{A}$  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  $\pm 100$  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 PIC18F56Q35 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 PIC18F56Q35 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 02-01592, revision, and serial number.

The product identifier and revision are also printed in plain text as 02-01592/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:

```
nnnnnnnrrfffsssss
```

n = product identifier

r = revision

f = fabrication code

s = serial number

### 9.2. Revision 2

Revision 2 is the initial board revision released.

## 10. Document Revision History

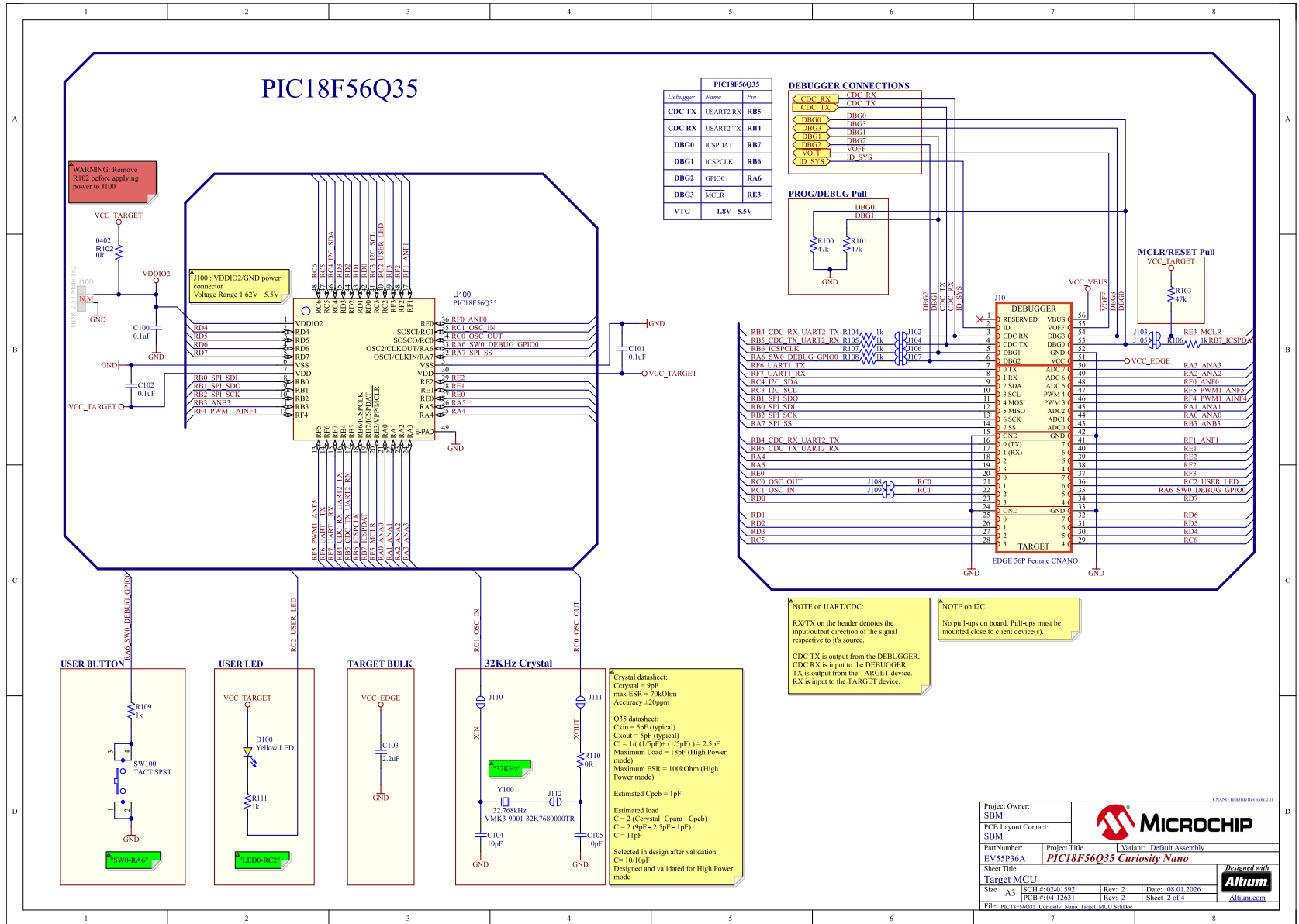
Doc. Rev.	Date	Comments
A	03/2026	Initial document release

## 11. Appendix

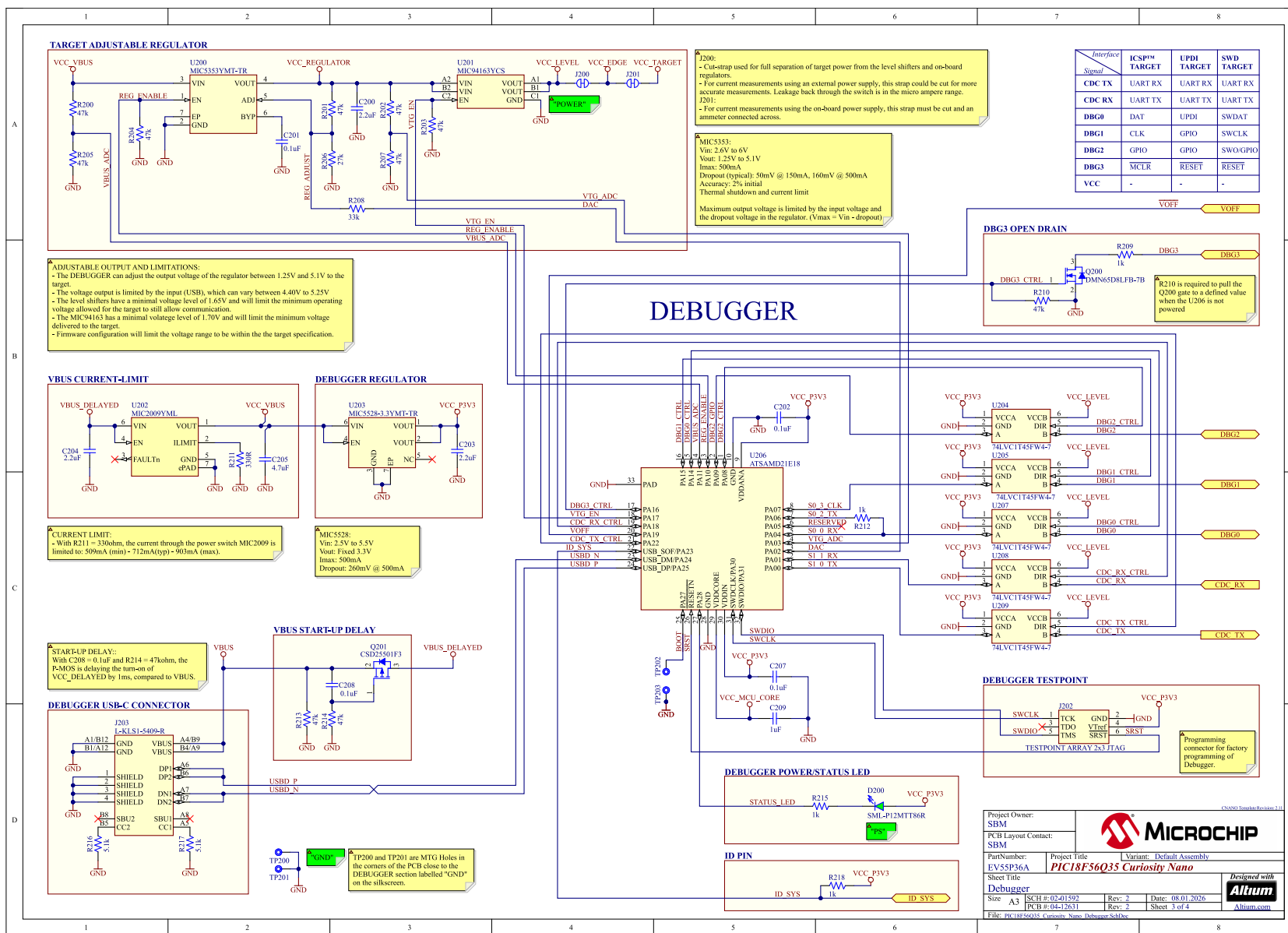
Schematic, Assembly Drawing, Adapter Pinout, Programming External MCUs, External Debuggers

# 11.1. Schematic

Figure 11-1. PIC18F56Q35 Curiosity Nano device Schematic



**Figure 11-2. PIC18F56Q35 Curiosity Nano Debugger Schematic**



## 11.2. Assembly Drawing

Figure 11-3. PIC18F56Q35 Curiosity Nano Assembly Drawing Top

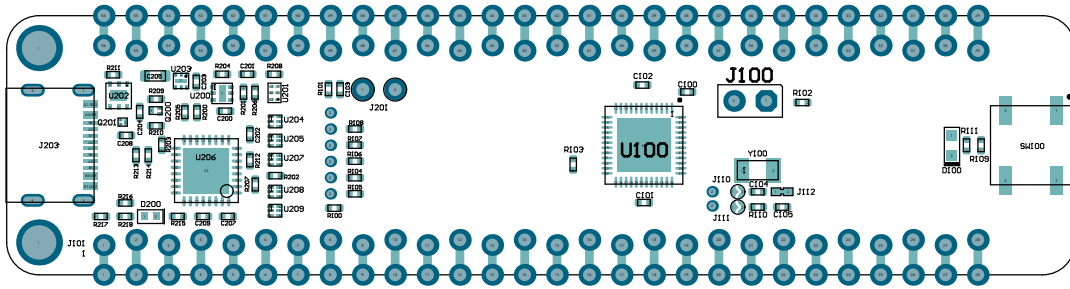
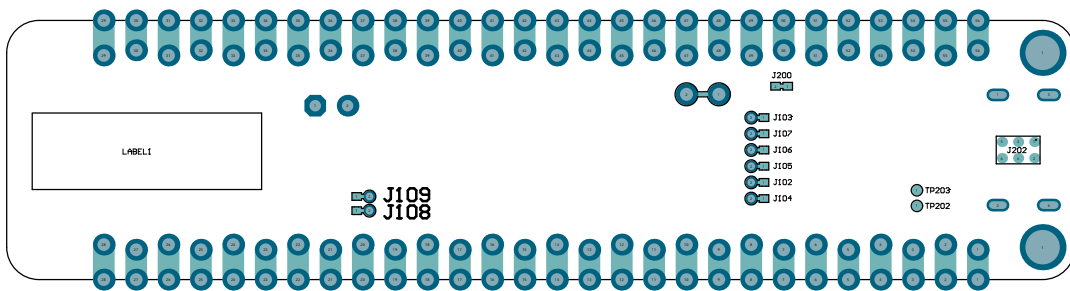
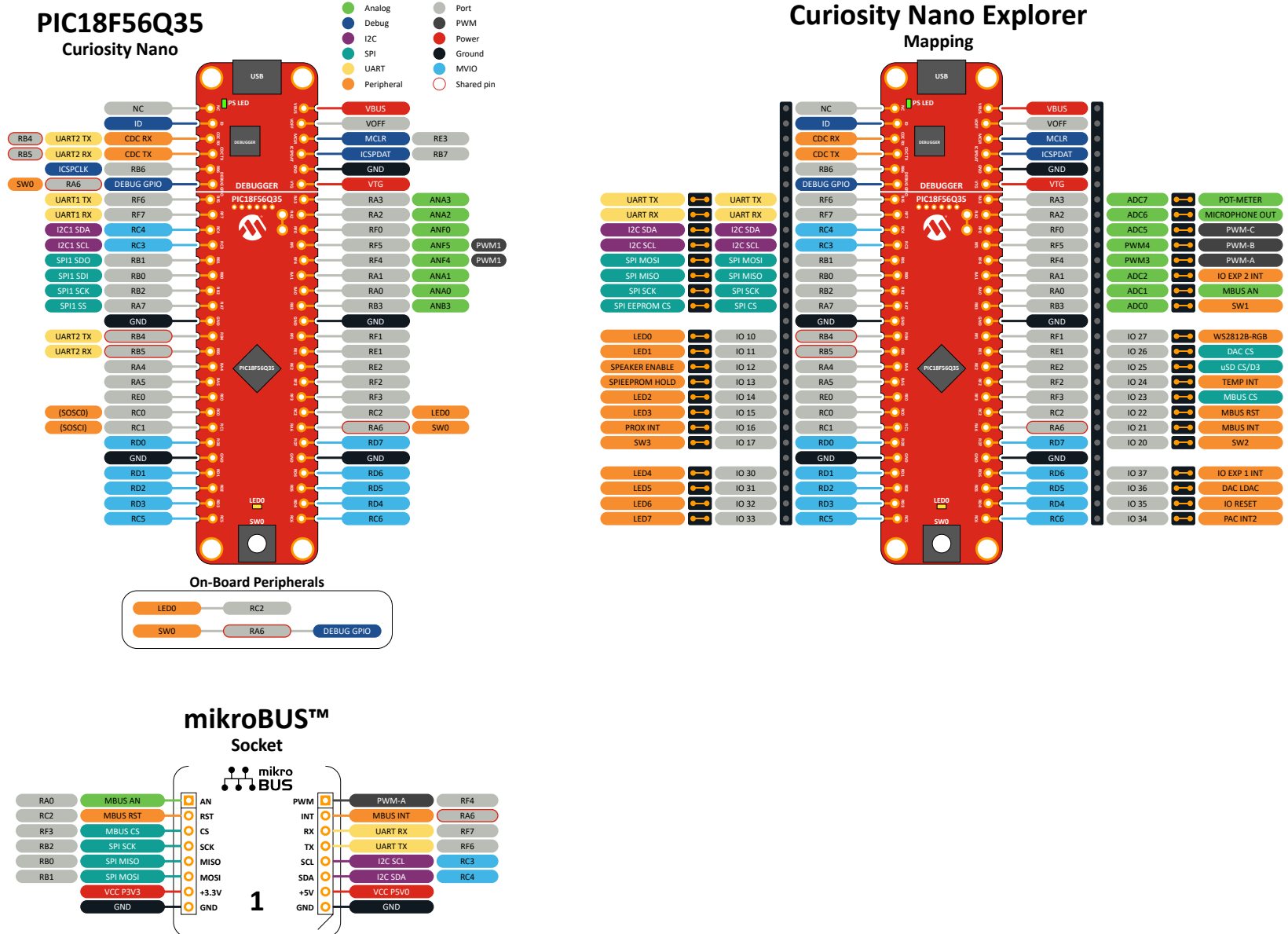


Figure 11-4. PIC18F56Q35 Curiosity Nano Assembly Drawing Bottom



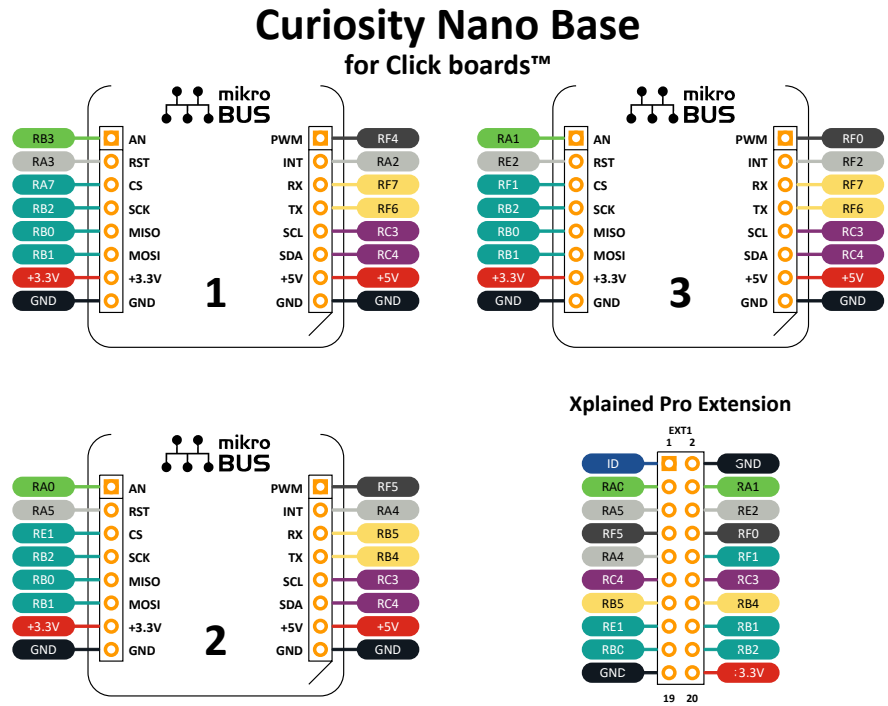
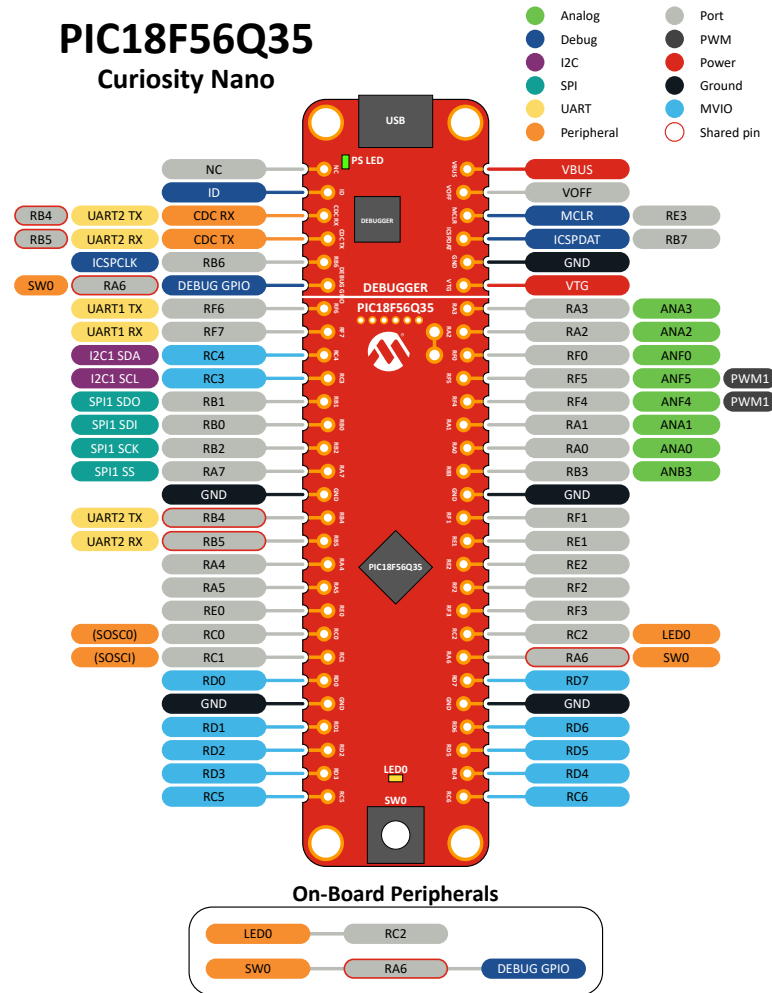
### 11.3. Curiosity Nano Explorer

Figure 11-5. Curiosity Nano Explorer Pinout Mapping



# 11.4. Curiosity Nano Base for Click boards™

Figure 11-6. PIC18F56Q35 Curiosity Nano Pinout Mapping



# 11.5. Bill of Materials

Figure 11-7. PIC18F56Q35 Curiosity Nano Bill of Materials

Component list		PIC18F56Q35 Curiosity Nano				
PCBA Number:		02-01592				
PCBA Revision:		2				
Variant:		Default Assembly				
Print Date:		08.01.2026 12:27:59				
Fitted	Designator	Quantity	Value	Manufacturer 1	Manufacturer Part Number 1	Description_
Fitted	C100, C101, C102, C201, C202, C207, C208	7	0,1uF	KEMET	C0402C104K4RAC7867	CAP CER 0.1uF 16V 10% X7R SMD 0402
Fitted	C103, C200, C203, C204	4	2.2uF	Murata	GRM155R61A225KE95D	CAP CER 2.2uF 10V 10% X5R SMD 0402
Fitted	C104, C105	2	10pF	Murata	GJM1555C1H100JB01D	CAP CER 10pF 50V 5% NPO SMD 0402
Fitted	C205	1	4.7uF	KEMET	C0803C475K8PAC7867	CAP CER 4.7uF 10V 10% X5R SMD 0803
Fitted	C209	1	1uF	KEMET	C0402C105K9PACTU	CAP CER 1uF 6.3V 10% X5R SMD 0402
Fitted	D100	1	Yellow LED	Rohm Semiconductor	SML-D12Y1W186	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 0.076RLGA
Fitted	R100, R101, R103, R200, R201, R202, R203, R204, R205, R207, R210, R213, R214	13	47k	Yageo	RC0402FR-0747KL	RES TKF 47k 1% 1/16W SMD 0402
Fitted	R102, R110	2	0R	Vishay	CRCW04020000Z0EDHP	RES TKF 0R 1/5W SMD 0402 AEC-Q200
Fitted	R104, R105, R106, R107, R108, R109, R111, R209, R212, R215, R218	11	1k	Panasonic	ERJ-2RKF1001X	RES TKF 1k 1% 1/10W SMD 0402
Fitted	R206	1	27k	Yageo	RC0402FR-0727KL	RES TKF 27k 1% 1/16W SMD 0402
Fitted	R208	1	33k	Yageo	ACO402FR-0733KL	RES TKF 33k 1% 1/16W 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	Daiyoo Electronics Co., Ltd.	TS604VM1-035CR-R	SWITCH TACT SPST 12 50mA TS604VM1-035CR-R SMD
Fitted	Test1	1				TEST, PIC18F56Q35 CNANO
Fitted	Test2	1	Debugger Firmw are			FW, CNANO-DEBUGGER
Fitted	U100	1	PIC18F56Q35	Microchip Technology	PIC18F56Q35-66MX	MCHP MCU 8-BIT 64MHz 64KB 4KB PIC18F56Q35-66MX VQFN-48
Fitted	U200	1	MIC3353YMT-TR	Microchip Technology	MIC3353YMT-TR	MCHP ANALOG LDO ADJ 500mA MIC3353YMT-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	MIC5528-3.3VMT-TR	MCHP ANALOG LDO 3.3V MIC5528-3.3VMT-TR 6-TDFN
Fitted	U204, U205, U207, U208, U209	5	74LVC1T45PW4-7	Diodes Incorporated	74LVC1T45PW4-7	IC VOLTAGE TRANSLATOR B-BDIR 1 CIRCUIT 74LVC1T45PW4-7 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
Not Fitted	J100	0	HDR-2.54 Male 1x2	Würth Elektronik	6130021121	CON HDR-2.54 Male 1x2 Gold 5.84MM TH VERT
Approved		67	Notes			



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