PA13

PY32F003L24D6TR DevLab Development Board

Professional electronic component

v1.0

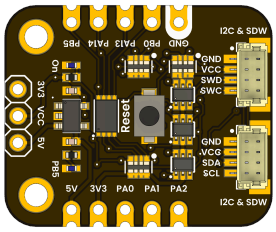
2025-09-24
Rev. A

PRODUCT OVERVIEW

The DevLab Development Board based on the PY32F003L24D6TR microcontroller is designed for rapid prototyping, embedded systems education, IoT experimentation, and wearable devices. This board combines flexible power options, modern connectivity, and accessible interfaces to accelerate your hardware development. The microcontroller features a 32-bit ARM Cortex-M0 core, up to 24 MHz clock speed, 16KB Flash memory, and 2KB SRAM, making it suitable for a wide range of applications. With built-in peripherals like SPI, I2C, UART, and a 12-bit ADC, the board supports diverse project requirements.

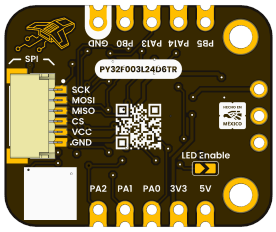
PRODUCT VIEWS

TOP VIEW



Component placement and connectors

BOTTOM VIEW



Underside components and connections

KEY FEATURES

Microcontroller
PY32F003L24D6TR (32-bit ARM Cortex-M0)

Clock Speed Internal
Up to 24 MHz

ADC
12-bit ADC with multiple channels

Memory
16KB Flash, 2KB SRAM

SPI
1 channel

I2C
1 channel

UART
1 channel

ADDITIONAL TECHNICAL INFORMATION

📦 OVERVIEW

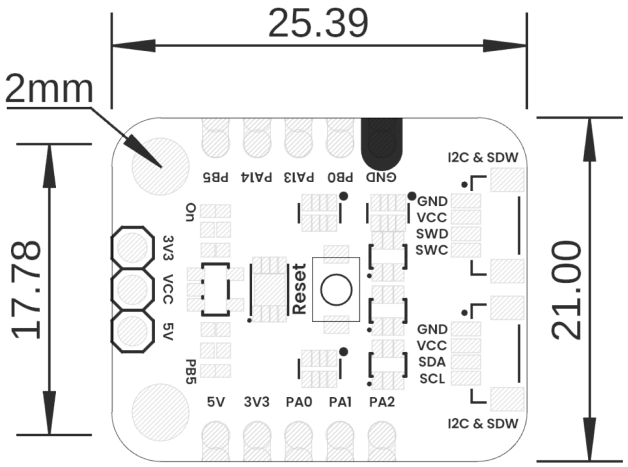
FEATURE	DESCRIPTION
Microcontroller	PY32F003L24D6TR (32-bit ARM Cortex-M0)
Memory	24KB Flash, 4KB SRAM
Flash (Kbytes)	16
SRAM (Kbytes)	2
Advanced Timers (16-bit)	1
General Purpose Timers	4
Low Power Timer	1
SysTick	1
Watchdog	2
SPI	1
I2C	1
USART	1
DMA Channels	3
RTC	Yes
GPIOs	7
12-bit ADC (ext+int)	4+2
Comparators	2
Max. CPU Frequency (MHz)	24
Operating Voltage (V)	1.7 ~ 5.5

1. HARDWARE CONNECTIONS

PIN	DESCRIPTION	NOTES
VCC	3.3V or 5V supply	Power supply
GND	Ground	Common ground
SDA	I2C Data Line (SDA)	Connect to microcontroller I2C SDA pin
SCL	I2C Clock Line (SCL)	Connect to microcontroller I2C SCL pin
D0	Digital I/O (separate connection)	Not included in QWIIC connector, must be connected separately

HARDWARE DOCUMENTATION

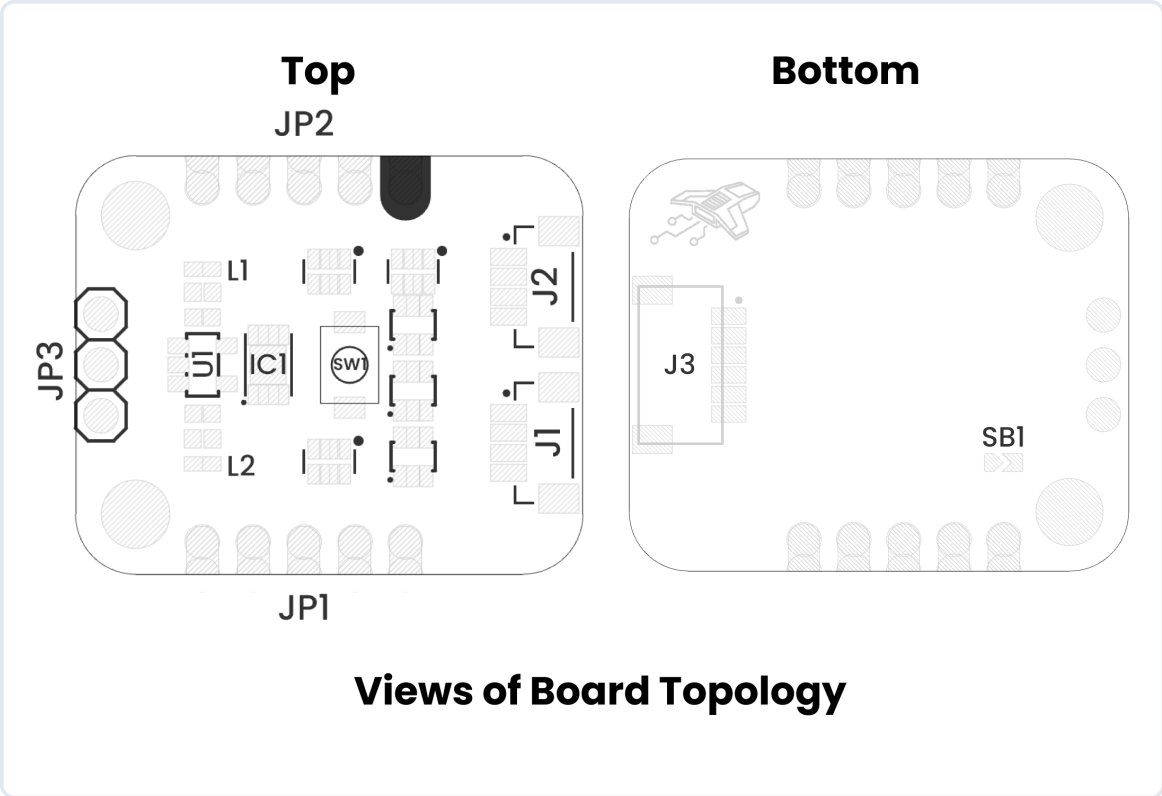
MECHANICAL DIMENSIONS



Board Dimensions in Millimeters

Physical dimensions and mounting specifications (measurements in millimeters)

SYSTEM TOPOLOGY



Connection topology and system integration diagram

Click image to open in full size

COMPONENT REFERENCE

REF.	DESCRIPTION
IC1	PY32f003L24D6TR Microcontroller
U1	AP2112K 3.3V Regulator
SW1	Reset Push Button
L1	Power On LED
L2	Built In LED to PB5
J1	JST 1mm Connector for I2C or JTAG
J2	JST 1mm Connector for I2C or JTAG
J3	JST 1mm Connector for SPI
JP1	Header for GPIOs
JP2	Header for GPIOs
JP3	Header for Power Supply Selection
SB1	Solder Bridge to Enable LED Built In

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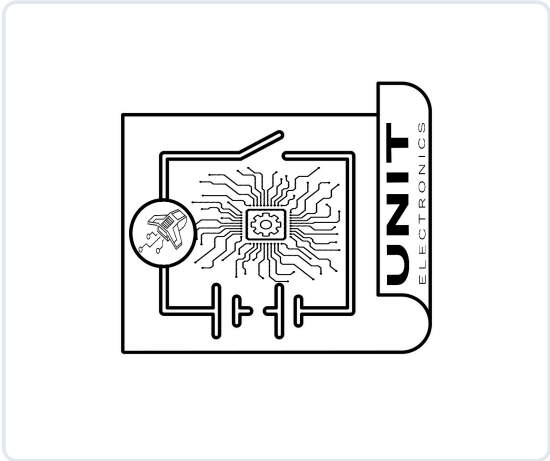
CIRCUIT SCHEMATIC



Complete circuit schematic showing all component connections

View Complete Schematic PDF

PIN DESCRIPTION

Detailed pin assignment and electrical specifications

SIGNAL DESCRIPTION

PIN LABEL	FUNCTION / NOTES
VCC	Power Input
GND	Ground
PA0	USART2_TX MISO
PA1	USART2_RX SCK
PA2	ADC_IN2 CS
PB0 / PF2	GPIO / NRST
PB5	LED Built In / GPIO / MOSI
PA13 / PB6	SWDIO / I2C_SCL
PA14 / PA10	SWCLK / I2C_SDA

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PIN CONFIGURATION LAYOUT

Physical connector layout and pin positioning

Pin Configuration Layout

Complete pin configuration diagram showing all connectors, pin assignments, and electrical connections for proper integration

HARDWARE SPECIFICATIONS

Complete technical documentation and specifications

TECHNICAL SPECIFICATIONS

```
- **Microcontroller:** [Insert name and variant]
- **Core Architecture:** [Xtensa / ARM Cortex-M / RISC-V]
- **Clock Speed:** [e.g., 240 MHz]
- **Flash / RAM:** [e.g., 8 MB Flash, 2 MB PSRAM]
- **Wireless:** [2.4 GHz Wi-Fi, BLE 5.0]
- **Interfaces:** I2C, SPI, UART, ADC
- **Connector:** QWIIC + Pin Headers
- **Power:**
  - Input via USB-C: 5V
  - Regulated Output: 3.3V
  - Battery Support: [Yes / No]
- **Dimensions:** [e.g., 55mm x 25mm]...
```

CONNECTIVITY OPTIONS

```
- **I2C:** JST 1mm QWIIC connector (Power + I2C lines)
- **SPI:** JST 1mm connector (Power + SPI lines)
- **GPIO:** 2x 4-pin headers for general-purpose I/O
- **SWD:** Dedicated pins for programming and debugging...
```

BOARD DIMENSIONS

Dimensions

```
...
```

BOARD TOPOLOGY

Topology

```
| Ref.  | Description                                                                 |
|-------|-----------------------------------------------------------------------------|
| IC1   | PY32f003L24D6TR Microcontroller                                             |
                            | U1    | AP2112K 3.3V Re...
```

PA13 v1.0
Professional Technical Datasheet

Date: 2025-09-24
For commercial distribution