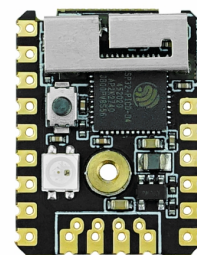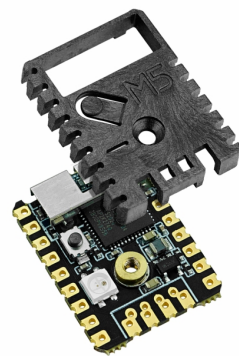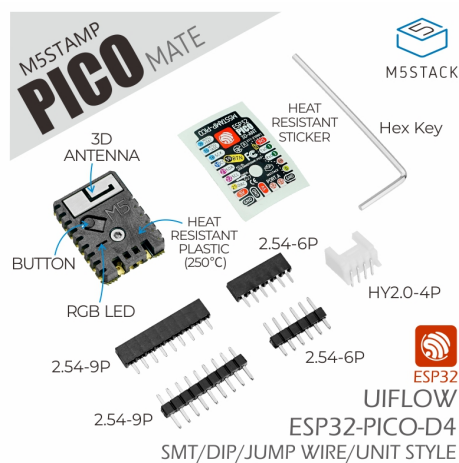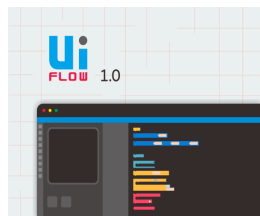# Stamp-Pico Mate

SKU:K051

Description

Stamp-Pico Mate is an accessory kit for the Stamp-Pico minimum core board. The kit includes a Stamp-Pico along with female headers, male headers, a HY2.0-4P female socket and other practical accessories, allowing you to integrate the Stamp-Pico into your circuit quickly and easily.

Stamp-Pico is a cost-effective **Wi-Fi minimum core board** powered by the **ESP32** SoC with two low-power **Xtensa® 32-bit LX6** microprocessors running at up to 240 MHz. Thanks to its compact size and outstanding performance, Stamp-Pico can be effortlessly embedded into your application circuit to build IoT solutions.

Tutorial

UIFlow

This tutorial shows you how to control the Stamp-Pico with the UIFlow graphical programming platform.
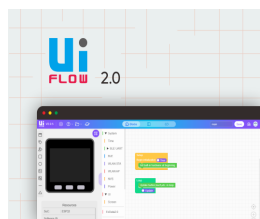
UiFlow2

This tutorial shows you how to control the Stamp-Pico with the UiFlow2 graphical programming platform.

Arduino IDE

This tutorial shows you how to program the Stamp-Pico with the Arduino IDE.

Features

- ESP32-PICO-D4 (2.4 GHz Wi-Fi)
- Multiple I/O breakouts supporting various mounting methods (SMT, DIP, flying leads)
- Integrated programmable RGB LED and button
- ESP32 minimum system board
- High-temperature plastic armor for better protection of the 3D antenna and components
- On-board 5 V → 3.3 V DC/DC circuit, 12 × GPIO, 1 × programmable RGB LED, 1 × button
- Professionally tuned RF circuit for stable and reliable wireless communication
- Development Platform
  - UiFlow1
  - UiFlow2
  - Arduino IDE
  - ESP-IDF
  - PlatformIO

Includes

- 1 × Stamp-Pico
- 1 × 2.54-9P Male Header
- 1 × 2.54-9P Female Header
- 1 × 2.54-6P Male Header

- 1 × 2.54-6P Female Header
- 1 × High-temperature Sticker
- 1 × HY2.0-4P Female Socket (90°)
- 1 × Hex Key L-Shape 1.5 mm (For M2 Screw)

Applications

- Smart home
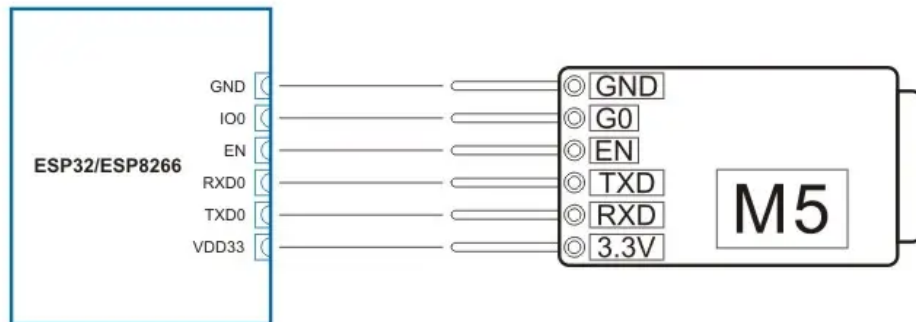- Wearable devices
- Medical equipment

Specifications

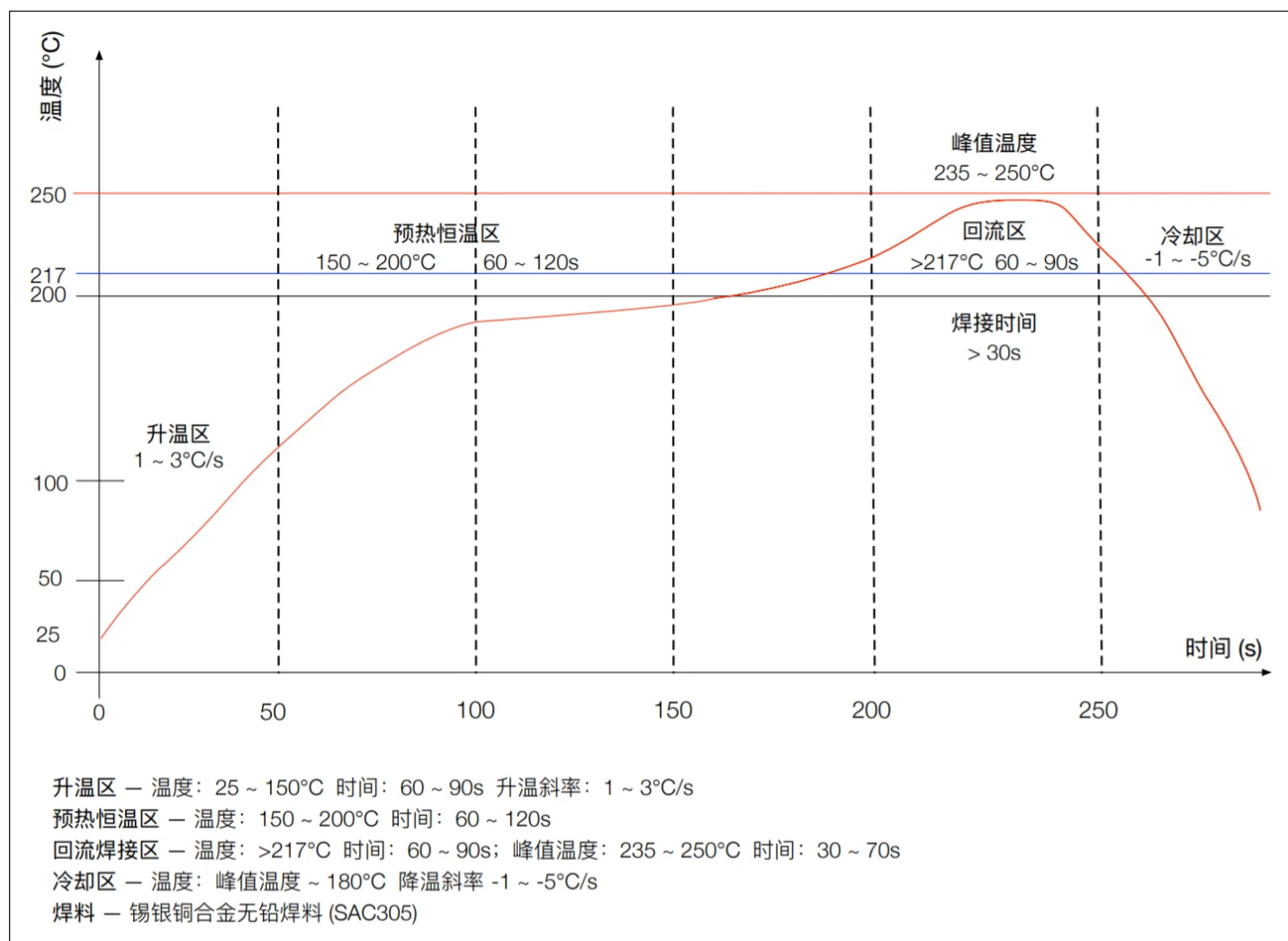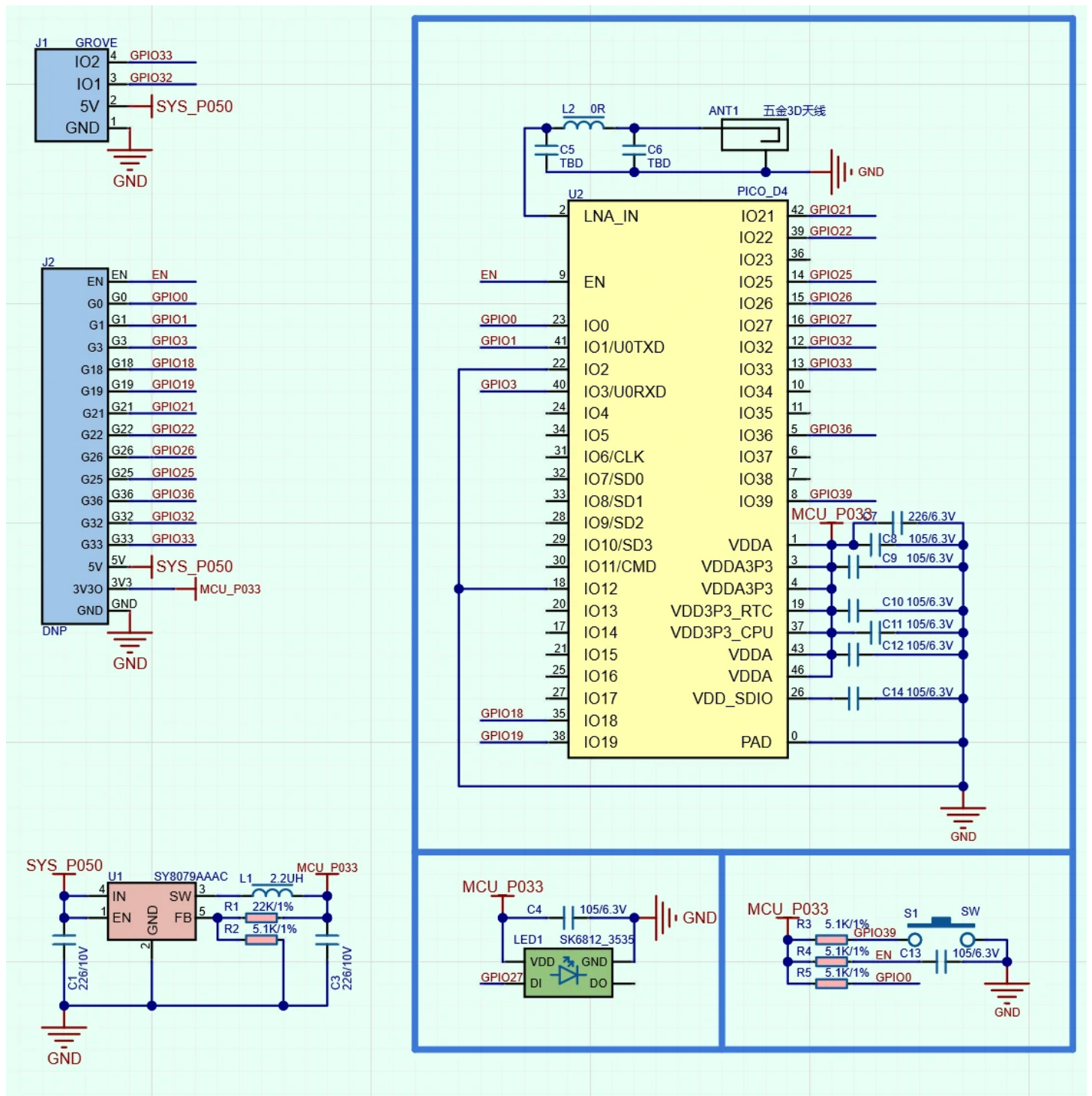| Specification	Parameter
SoC	ESP32-PICO-D4@dual-core processor, 240MHz
Package	LGA48 (7×7mm)
Flash	4MB
Wi-Fi	2.4 GHz Wi-Fi
DMIPS	600
SRAM	520KB
Input Voltage	5V@500mA
Power Consumption	Normal standby: 5 V@29 mA / Wi-Fi STA mode: 5 V@60 mA / Classic Bluetooth TX: 5 V@84 mA / DeepSleep: 5 V@0.35 mA
Wireless Range	AP mode: 16 m / BLE mode: 110 m / Classic Bluetooth mode: 90 m
HMI	1 × Programmable physical button, 1 × Programmable RGB LED (SK6812)
Antenna Type	2.4 G 3D antenna
Wi-Fi	802.11 b/g/n (up to 150 Mbps with 802.11 n), spectrum range: 2.4 GHz ~ 2.5 GHz
Peripheral Interface	ADC, DAC, Touch Sensor, SD/SDIO/MMC Host Controller, SPI, SDIO/SPI Slave Controller, EMAC, Motor PWM, LED PWM, UART, I2C, I2S, IR Remote Controller, GPIO, PCNT
IO (12 pins)	G0, G1, G3, G26, G36, G18, G19, G21, G22, G25, G32, G33
IO Pitch	2.54 mm
Operating Temp.	0 ~ 60 °C
Mounting Screws	M2 × 4 Countersunk Hex Socket Machine Screws
Product Size	24.0 × 18.0 × 4.6 mm
Product Weight	2.6 g
Package Size	138.0 x 93.0 x 7.0mm
Gross Weight	7.6 g

Learn

Download Program

Stamp-Pico adopts an ultra-simplified circuit design and therefore does not include an onboard download circuit. To burn firmware, connect a USB-TTL downloader as shown below.
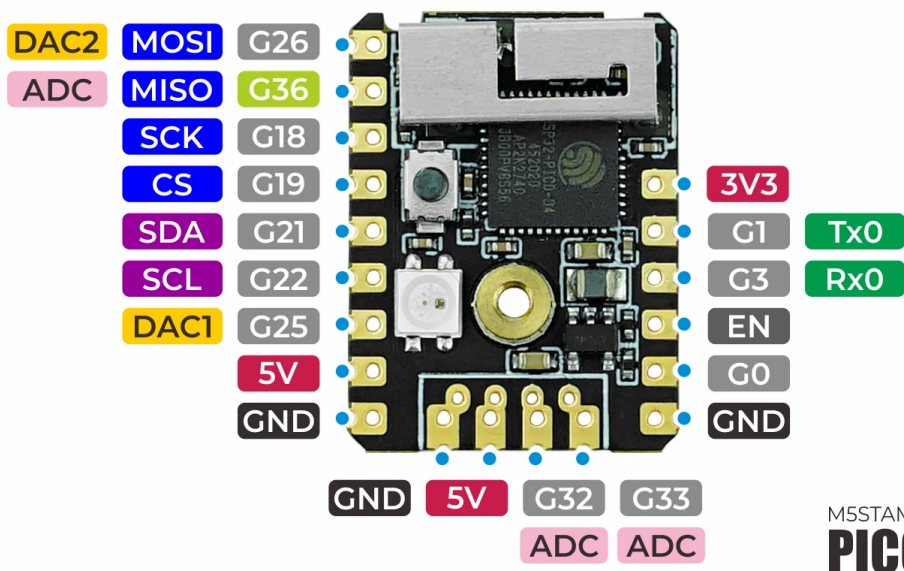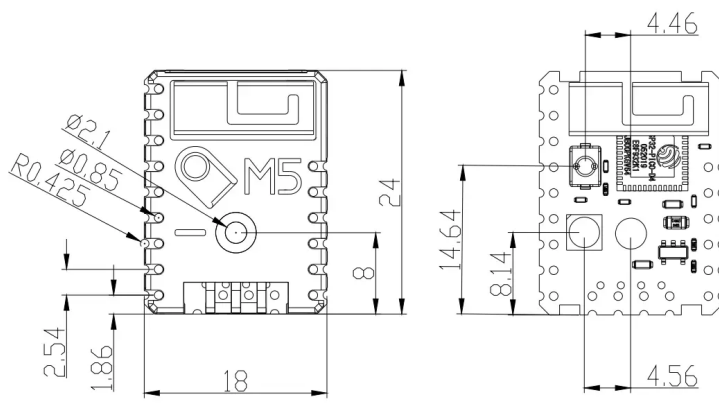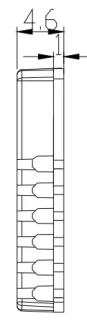

Reflow Soldering Temperature Curve for the Shell

升温区 — 温度：25 ~ 150°C 时间：60 ~ 90s 升温斜率：1 ~ 3°C/s
预热恒温区 — 温度：150 ~ 200°C 时间：60 ~ 120s
回流焊接区 — 温度：>217°C 时间：60 ~ 90s；峰值温度：235 ~ 250°C 时间：30 ~ 70s
冷却区 — 温度：峰值温度 ~ 180°C 降温斜率 -1 ~ -5°C/s
焊料 — 锡银铜合金无铅焊料 (SAC305)

Schematics

PinMap

SK6812, Button

ESP32-PICO-D4	G27	G39
SK6812	DI	/
Button	/	SW

M5STACK

M5STAMP
PICO

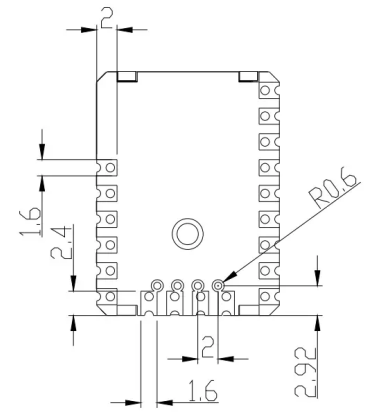| ADC | DAC | I2C | UART | IN-ONLY | IN/OUT | SPI | POWER | GND |

Model Size

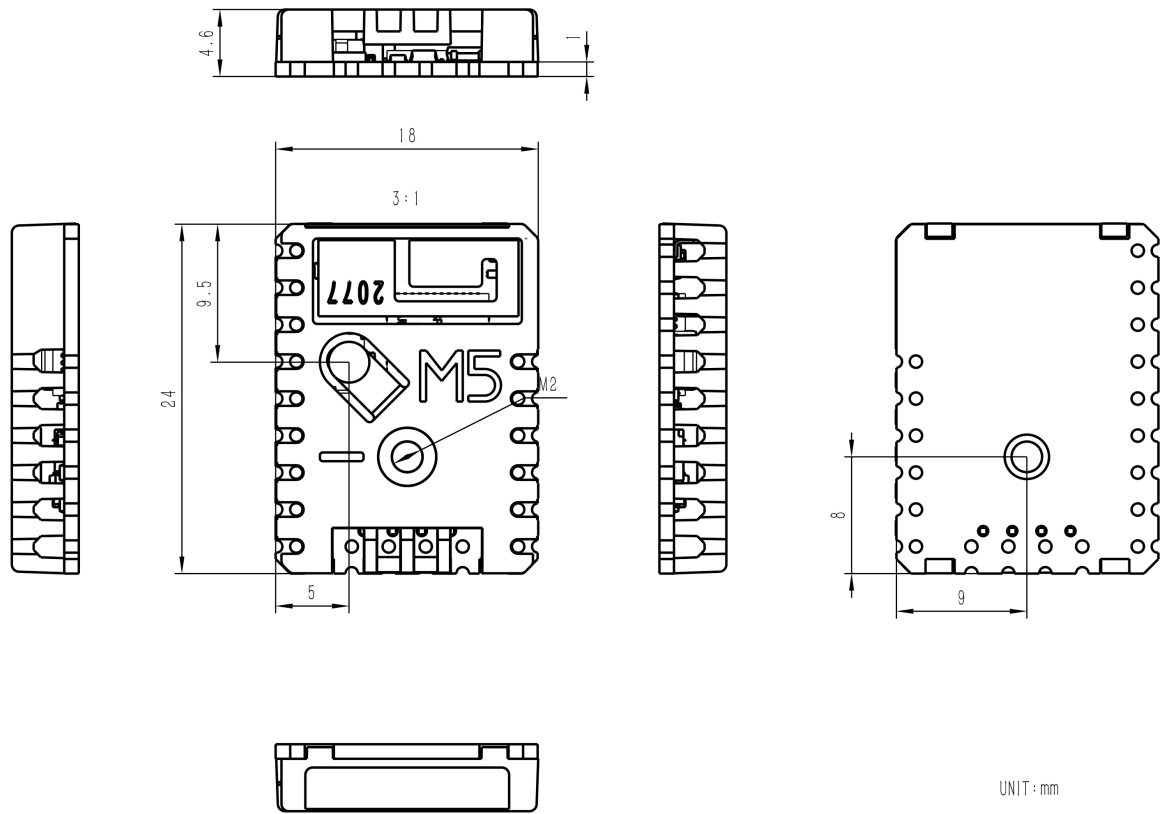Top View   Side View   Bottpm View

UNIT: mm

PCB

- Stamp-Pico PCB Doc
- LCSC EDA Stamp-Pico Footprint

Datasheets

- [ESP32-PICO](#)

Softwares

Arduino

- [Stamp-Pico Arduino Quick Start](#)
- [Stamp-Pico Button Example](#)
- [Stamp-Pico IO Example](#)
- [Stamp-Pico LED Example](#)

UiFlow1

- [Stamp-Pico UiFlow1 Quick Start](#)

UiFlow2

- [Stamp-Pico UiFlow2 Quick Start](#)

USB Driver

Before flashing, you need to connect a [USB-TTL downloader board](#) to the Stamp-Pico according to the silkscreen. Install the corresponding driver for the downloader on your PC.
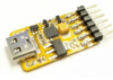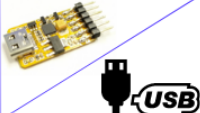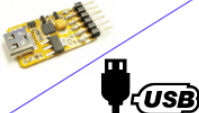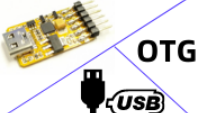
The easiest way is to purchase the Stamp-Pico kit with downloader. The cable order matches STAMP-PICO, allowing direct plug-in flashing without wiring. M5 currently provides downloaders with two driver chips: CP210X (for **CP2104**) / CH9102 (for **CH9102**). After extracting the package, choose the installer matching your OS bitness. (If you are unsure which USB chip your device uses, install both drivers.)

Driver Name	Applicable Chip	Download Link
CP210x_VCP_Windows	CP2104	[Download](#)
CP210x_VCP_MacOS	CP2104	[Download](#)
CP210x_VCP_Linux	CP2104	[Download](#)
CH9102_VCP_SER_Windows	CH9102	[Download](#)
CH9102_VCP_SER_MacOS v1.7	CH9102	[Download](#)

Video

[STAMP_PICO_VIDEO_01.mp4](#)

Product Comparison

COMPARISON	STAMP PICO	STAMP C3U	STAMP C3	STAMP S3
PICTURE				
Number of IO ports	12	14	13	23
FLASH	4M	4M	4M	8M
Serial IC	/	USB CDC	CH9102F	USB CDC
Download method		USB	USB	OTG USB
Pin spacing	2.54mm	2.54mm	2.54mm	2.54mm/ 1.27mm
LCD interface	❌	❌	❌	✔️
CPU frequency	240MHz	160 MHz	160 MHz	240MHz
Size	24 × 18 × 4.6mm	34 × 20 × 4.6mm	34 × 20 × 4.6mm	26 × 18 × 4.6mm