

INDUSTRIAL PRODUCT DATASHEET

Seeed Studio XIAO ESP32-S3

Seeed Studio XIAO ESP 32 S 3 leverages 240 MHz Xtensa 32-bit LX 7 dual-core processor, supporting both Wi Fi and BLE 5.0 wireless connectivities, a 2.4 GHz Rod antenna, allows for deep sleep mode with power consumption as low as 14µA while supporting lithium battery charging management. Ideal for the Internet of Things, Smart Homes, Wireless wearable devices, Robotics, etc.

SKU

113991114

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PRICE

\$7.49(Excl. VAT)



Overview



Figure 1. 113991114 Xiao Esp32S3 Font 1

Seed Studio XIAO ESP 32 S 3 leverages 240 MHz Xtensa 32-bit LX 7 dual-core processor, supporting both Wi Fi and BLE 5.0 wireless connectivities, a 2.4 GHz Rod antenna, allows for deep sleep mode with power consumption as low as 14µA while supporting lithium battery charging management. Ideal for the Internet of Things, Smart Homes, Wireless wearable devices, Robotics, etc.

Key Features

01

Powerful MCU Board

Incorporate the ESP32-S3 32-bit, dual-core, Xtensa processor running at up to 240MHz, mounted multiple development ports, Arduino / MicroPython supported

02

Outstanding RF performance

Supports 2.4GHz WiFi and BLE 5.0 dual wireless communication, support 100m+ remote communication when connected with U.FL antenna

03

Elaborate Power Design

Lithium battery charge management capability, offer 4 power consumption model which allows for deep sleep mode with power consumption as low as 14µA

04

Thumb-sized Compact Design

21 x 17.8mm, adopting the classic form factor of XIAO, suitable for space limited projects like wearable devices

05

Perfect for Production

Breadboard-friendly & SMD design, no components on the back

06

Production-Ready Design with Fusion PCBA Support

07

We already have 15 XIAO products based on different solutions in the XIAO family, to help you better understand the differences and choose the most suitable part for your projects, please refer to the Seed Studio XIAO Series Page.

Product Gallery



Figure 1. Seed Studio Xiao Esp32S3



Figure 2. 113991114 Xiao Esp32S3 Font 11

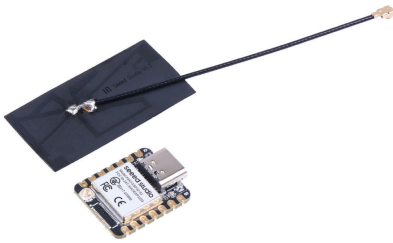


Figure 3. 113991114 Xiao Esp32S3 45Fontall 1

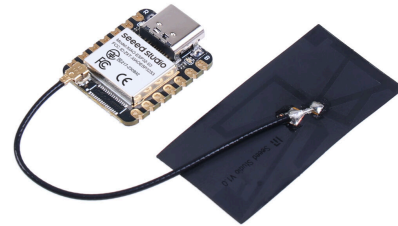


Figure 4. 113991114 Xiao Esp32S3 Feature 1

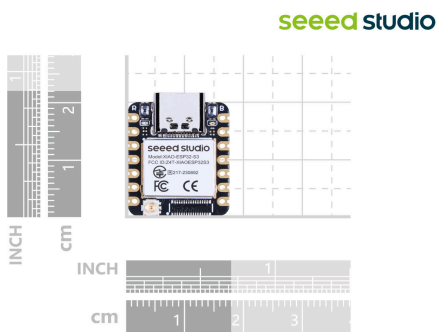


Figure 5. 113991114 Xiao Esp32S3 Size 1

Specification

Seed Studio XIAO ESP32-C3

Parameter	Seed Studio XIAO ESP32-S3	Seed Studio XIAO ESP32-C3
Processor	ESP32-S3R8 SoC	ESP32-C3 SoC
Xtensa LX7 dual-core, 32-bit processor running up to 240 MHz	RISC-V single-core 32-bit chip processor with a four-stage pipeline that operates at up to 160 MHz	
Wireless	Complete 2.4GHz WiFi subsystem	
Bluetooth Low Energy 5.0 / Bluetooth Mesh		
On-chip Memory	8MB PSRAM & 8MB Flash	400KB SRAM & 4MB Flash
Interface	1x UART1x IIC1x SPI11x GPIO(PWM)9x ADC1x User LED1x Charge LED	1x UART1x IIC1x SPI11x GPIO(PWM)4x ADC1x Charge LED
1x Reset button1x Boot button		
Dimensions	21 x 17.8mm	
Power (Typ.)	Input voltage (Type-C): 5VInput voltage (BAT): 3.7V	Input voltage (Type-C): 5VInput voltage (BAT): 3.7V
Circuit operating Voltage:- Type-C: 5V@19mA- BAT: 3.8V@22mA	Circuit operating Voltage:- USB:5V@9mA- BAT:3.8V@9mA	
Charging current:50mA(Fast) / 3.8mA(Trickle)	Charging current: 380mA(Fast) / 40mA(Trickle)	
Low Power Consumption Mode (Typ.) (Supply Power: 3.8V)	Modem-sleep Model: 27 mALight-sleep Model: 2mADeep Sleep Model: 14 μ A	Modem-sleep Model: 24 mALight-sleep Model: 3 mADeep Sleep Model: 44 μ A
WiFi Enabled Power Consumption (Typ.)	Active Mode: 220 mA	Active Mode: 103 mA
BLE Enabled Power Consumption (Typ.)	Activex Mode: 217 mA	/
Working Temperature	-40°C ~ 65°C	-40°C ~ 85°C

Visual Reference



Figure 1. XIAO 1



Figure 2. Seed Studio XIAO ESP32-S3

Hardware Overview

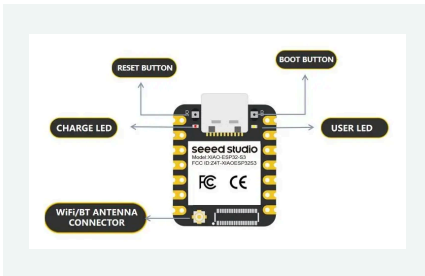


Figure 1. Onb

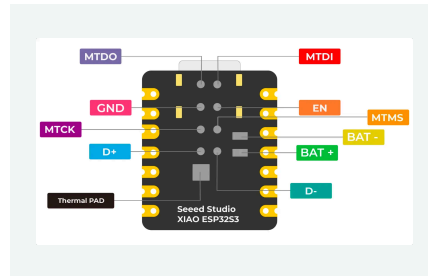


Figure 2. 61Cb86Ac 8585 4Ceb Af4B E8Ec6E71A079

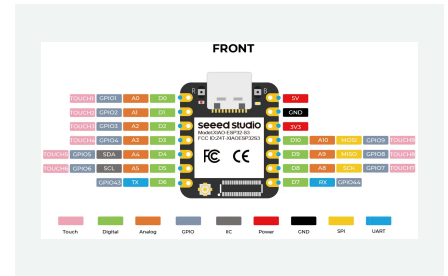


Figure 3. Image 18

Applications

Internet of Things

Wearable devices

Smart Homes

Robotics

Health monitoring

Education

Low-Power(LP) networking

Rapid prototyping

Part List

XIAO ESP32S3	x1
Antenna	x1
7 Pin Header	x2
Note	Starting from September 2024, the overseas warehouses are shipping a mix of old and new stock of Seeed Studio XIAO ESP32S3. Note that the new stock from the CN warehouse comes with Pin Header, while the old doesn't.

We are putting the spotlight on Seeed's self-developed Home Assistant-compatible products, offering affiliates 10% commission on referred sales. Sign up to earn more today!

Compliance & Logistics

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USHSCODE	8517180050
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Logistics	Value
ECCN	5A992.c
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USHSCODE	8517180050
EUHSCODE	8543709099
COO	CHINA

Resource Links

- <https://www.seeedstudio.com/XIAO-ESP32S3-p-5627.html>
- [ESP32-S3 Datasheet](#)
- [TinyML Case Studies](#)
- [XIAO Reference Design](#)
- [3D Printing "Case" Studies](#)
- [PCN-XIAO Series Packaging Upgrade.pdf](#)

Seeed Technology Co.,Ltd.

9F, Building G3, International E City,
Zhongshanyuan Road, Nanshan, Shenzhen, China

Tel: +86 0755-80695676

Web: www.seeed.cc

Shop: www.seeedstudio.com