Sipeed M0S DataSheet

V1.0
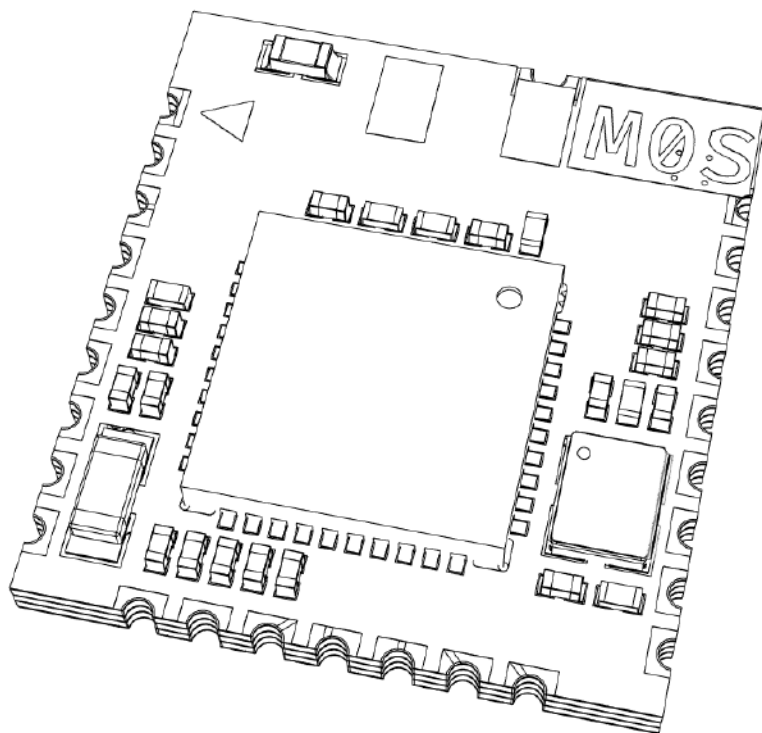
Revision History

Date	Revision	Description
2023-01-12	1.0	Initial Release
2023-01-30	1.1	Modify the pin number

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Contents

Overview

The M0S is a very small module measuring 10x11 mm using the BL616 as the main control chip, with the following excellent features.

1. tri-mode wireless: WiFi6 / Bluetooth 5.2 / Zigbee

2. high mains frequency: 320MHz silent, up to 384MHz

3. Low power consumption: WiFi6 low power consumption on network current down to 100uA or less (DTIM10)

4. DSP acceleration: support for RISC-V P extended instruction set for nearly double acceleration in the TinyMaix inference framework

5. High-speed USB: Supports USB2.0 HS OTG up to 480Mbps

6. Rich peripheral interfaces: RGB LCD, DVP Camera, Ethernet RMII, SDIO, etc.

7. Small footprint: integrated ceramic antenna on 10x11mm area with full pin-out.

1   Key Specifications

Parameter	Description
BL616 Chip	**CPU:** Single-Core 32-bit RISC-V CPU, Up to 320MHz With FPU, DSP,High Speed Cache and Memory 2 x 32-bit universal timers 4 x DMA channels JTAG Support
	Memory: 480KB SRAM 4MB Flash
	Wireless: 2.4G RF transceiver Wi-Fi 6 (IEEE 802.11 b/g/n/ax) Bluetooth ® 5. 2 Dual-Mode (BT+BLE) Zigbee / IEEE 802.15.4
	Audio codec: 1 x Audio ADC(MIC, SNR>92dB) 1 x Audio DAC(Speaker, SNR>95dB) Support 8/12/16/22.05/24/32/44.1/48KHz
	Video/Image: Camera Sensor DVP Video Codec MJPEG encoding LCD display (QSPI, DBI interface)
	Peripheral: USB 2.0 HS OTG (High-Speed 480MHz) SD Card Interface and SDIO 2.0 Slave 2 x UARTs (Support 5V IO) 2 x I2C, Host Mode Support SPI Master/Slave I2S master/slave 1 x PWM controller (4-channel with complementary outputs) 12-bit~16-bit general-purpose ADC 10-bit general-purpose DAC General-purpose analog comparator (ACOMP)
Parameter	**Description**
OnBoard Components	On-board 2.4G Antenna
	Elicit all GPIOs
PCBA Size	10*11*1.8mm

2 Technical Specifications

(Scenario: TA = 25°C, object reflectivity 90% if not otherwise specified)

| Parameter	Description	Min	Typ	Max	Unit
Module Supply Voltage		3.0	3.3	3.4	V
Supply Electric Current		-	-	-	A
Operating Electric Current		-	-	-	A
Temperature Rise		-	--	30K	
Operating Temperature		-10	-	65	°C

3 Software Overview

Parameter	Description
Operating System	FreeRTOS
Firmware download method	USB virtual serial port download, or USB virtual disk drag and drop update
Development method	Development method C SDK, pikascript scripted programming

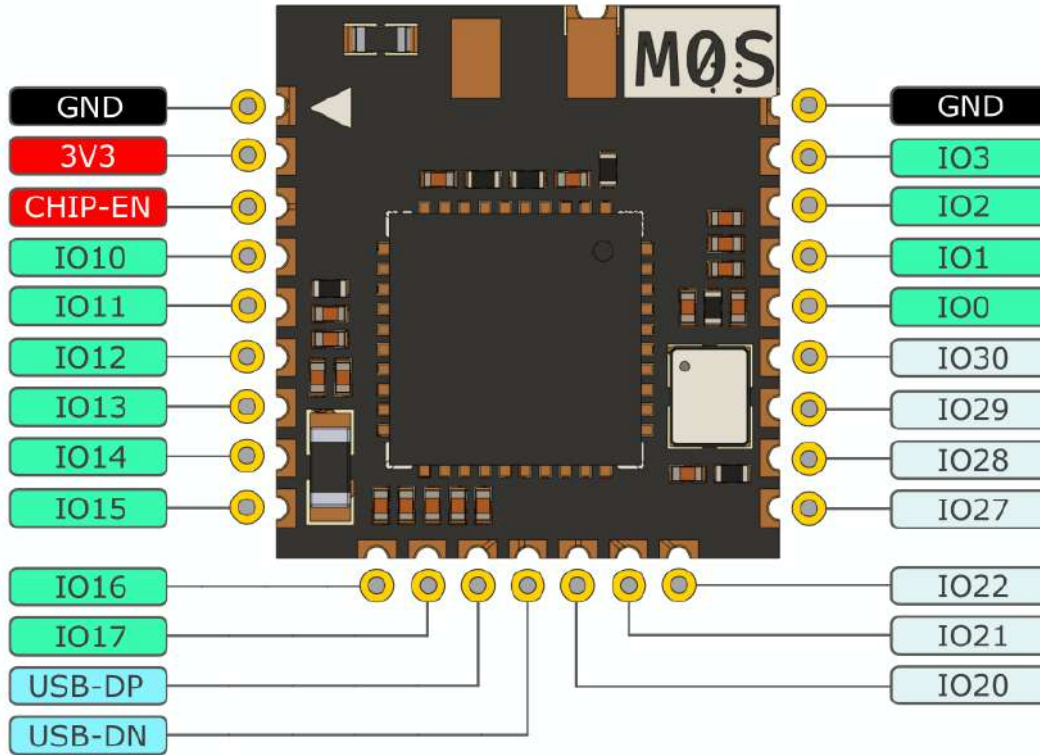# 4   Dimensions and interfaces

4.1   Module size and structure
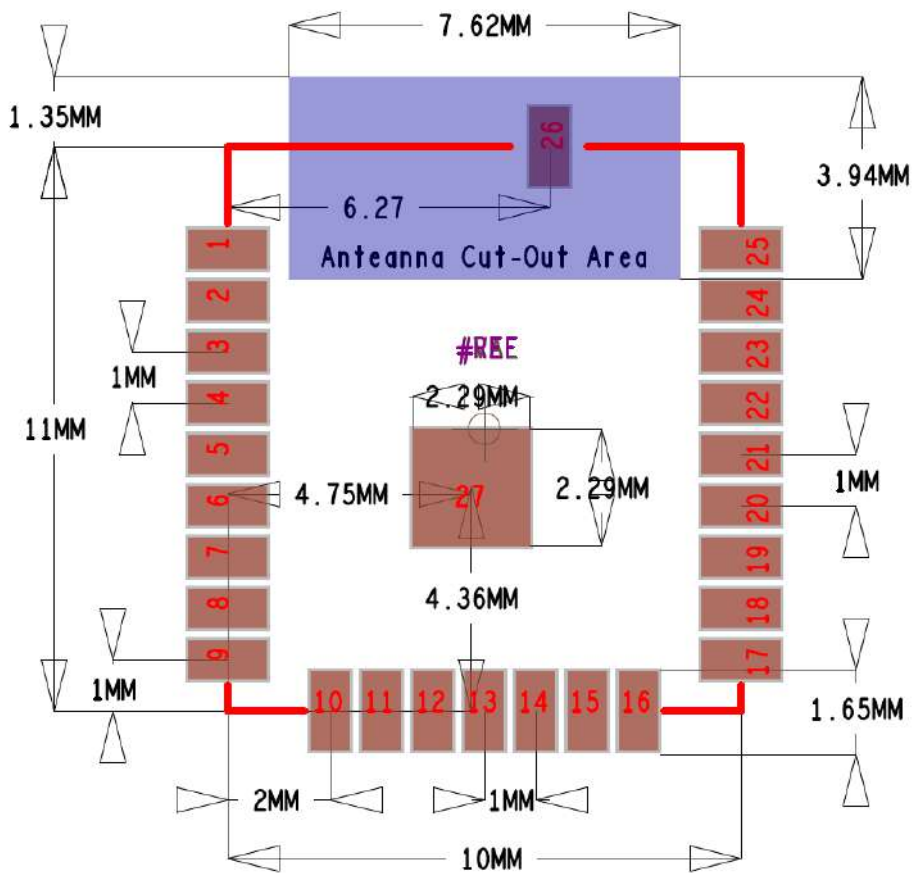
4.2 Physical picture of camera
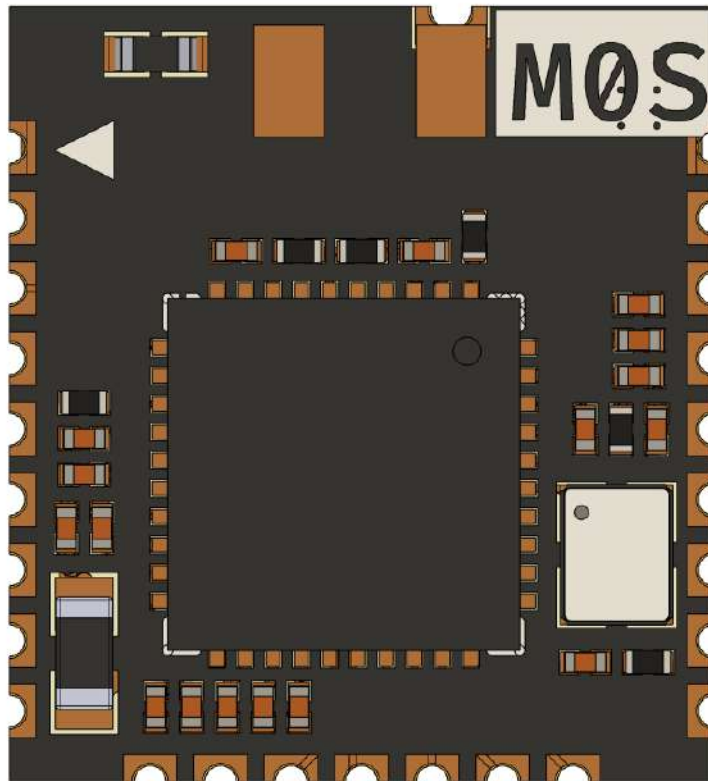
4.3   Pin description

5   Product related Executive Standards

6 Operating precautions

During the use of this product, attention must be paid to operation safety and maintenance, otherwise it may cause damage to the product, shorten its service life, and even endanger personal safety. For safe use and maintenance, attention should be paid to the following aspects:

- This product is a high-precision electronic product. Please do not collide or fall.
- Although the Class1 laser used in this product meets the safety standards for human eyes, it is not recommended to look directly at the laser for a long time to avoid discomfort.
- Do not place this product in a place with high temperature or direct sunlight.
- Do not disassemble or modify this product without permission to prevent damage to the components of the product.
- Do not touch the camera of this product to avoid leaving fingerprints and other pollutants affecting the image effect.
- Please keep this product out of the reach of children to prevent accidents.
- Please follow the manual for correct and safe operation.

7   Related Information

Parameter	Description
Official Website	www.sipeed.com
Github	https://github.com/Sipeed
BBS	http://bbs.sipeed.com
Wiki	wiki.sipeed.com
Sipeed Modeling Platform	https://maixhub.com/
SDK/HDK related information	https://dl.sipeed.com/
Official documentation of bouffalolab	https://dev.bouffalolab.com/home/
E-mail (technical support and business cooperation)	support@sipeed.com