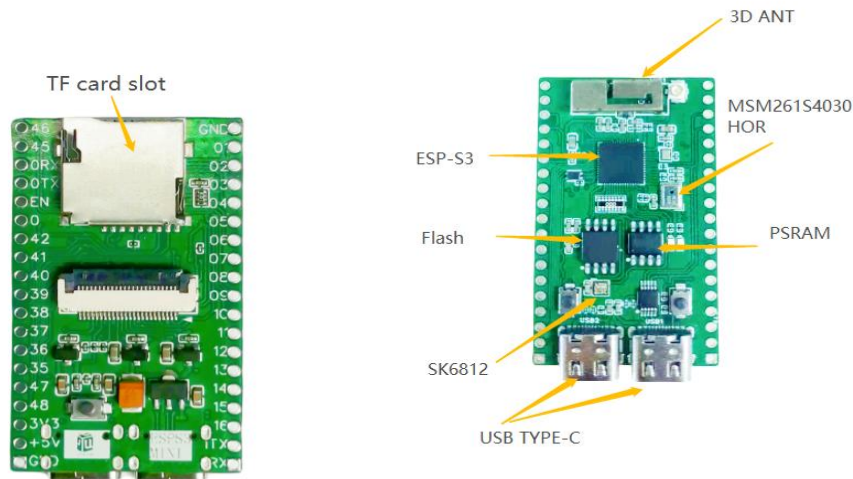


ESP32-S3 MINI product specification

Features:

The ESP32-S3 Mini is a feature-rich, compact and portable iot development board. The development version is powered by a Tensilica Xtensa LX7 core processor with up to 240 MHz and a MSM261S4030HOR microphone. Equipped with 512 KB on-chip RAM (SRAM) to store program code and data as well as external flash memory and external PSRAM extensions to meet larger capacity storage requirements. Supports Wi-Fi and Bluetooth communication, and provides rich peripheral interfaces, including multiple general serial buses (SPI, I2C, UART), GPIO pins, ADC, DAC. These interfaces can be used to connect various sensors, actuators, and external devices. This development version supports programming using the Arduino development environment, and also provides an ESP-IDF development framework for lower-level programming and system debugging. Suitable for prototyping and rapid development of various iot applications such as smart home, sensor networks, remote monitoring, etc

Hardware arrangement



Overview of Functions

MCU : ESP32-S3	<ol style="list-style-type: none"> 1. Xtensa® 32 LX 7 dual-core processor, frequency adjustable between 2040 MHz, integrated 2.4 GHz Wi-Fi and Bluetooth dual mode, 40 nm process. 2. internal integration of 512 KB RAM and 384KB ROM storage (for program startup and core function calling) FLASH supports SPI, DualSPIQuadSPI, OctalSPI and RAM peripherals.
USB : CH340X	<ol style="list-style-type: none"> 1. Automatic download circuit, with E8051 kernel compatible with MCS51 instruction set, the average instruction speed is 8~15 times faster than the standard MCS 51. 2. ESP32-CAM module uses CH340X to achieve automatic download circuit, with USB can easily write and debug ESP 32.
MSM261S4030HOR	<ol style="list-style-type: none"> 1 The built-in complete 24bit I2S audio interface, without additional Codec, can be directly connected with DSP or MCU full digital signal. 2. microphone acquisition audio signal and converted into analog voltage signal output, converted into digital signal by codec ADC

	and coding for audio processing by the main control chip.
TF card slot	1.The module onboard TF card slot can be compatible with most standard TF cards on the market, up to 16GB, with the camera can achieve photography, storage and other functions.
SK6812-EC20	1. The SK6812-EC20 is a digital programmable color LED that integrates LED and control circuits. It uses the surface mount technology (SMD) packaging, with a small size and reliable performance. 2. The SK6812-EC20 LED is a digitally programmable RGB LED.
OV2640 Camera	1.Provide the full functionality of the single-chip JXGA (1632x1232) camera and image processor, and the YUV (422 / 420) / YCbCr422 via the serial camera control bus (SCCB) interface. The best image distance is 20 – 250CM.
TYPE-C 16PIN 2MD	1.Electrical connectors for two Type-C interface devices, with high-speed transmission, reversible plugging and multi-function expansion. Among them, USB2 and CH340 connection automatic download. The USB1 is connected to the ESP32-S3 chip.

Operating Principle

Output Model Category: Digital sensor	How it works: Biosensors
Sensor Category: Optical sensor	Working current: 0.15A Working voltage: 5V

Support Software Development

C++ / Esp-IDF / Ardiuno-IDE / Vscode / Microphython

application scenarios

Second development of monitoring, video, photography and other Aolt applications

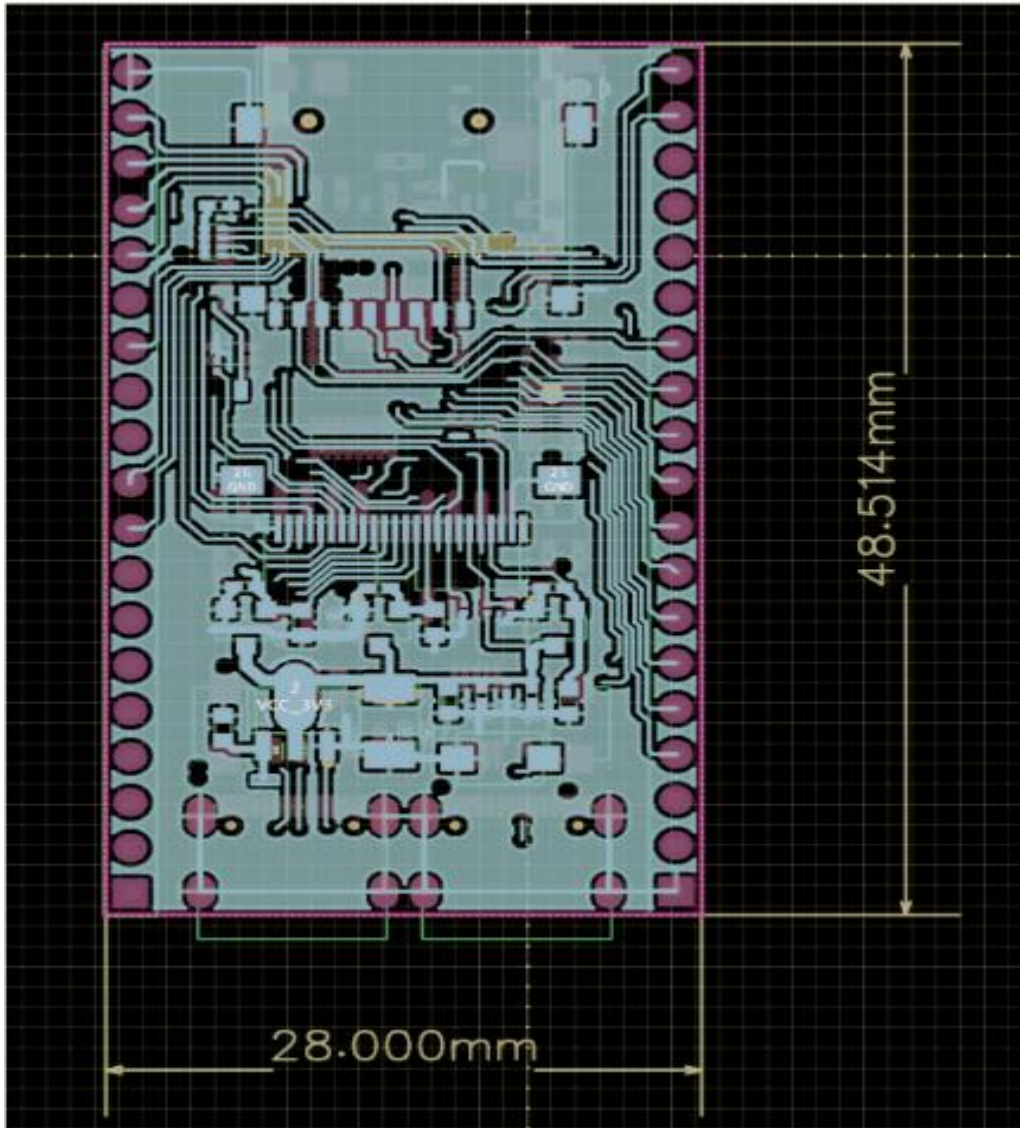
Low cost camera solution

lot node devices

Size

28.00X48.514X10mm

size diagram



Unit: mm

Document Update Record		
Version	Time	Mark
V1.0	2023-08-11	first release

