ESP32 WROOM

Development Board

Data Sheet

The ESP32 Development Board is a board created around ESP32 WROOM 32 chip, containing voltage regulator and USB programmer circuit for ESP32 chip, and a few many other features. For application development there is a choice between Arduino IDE or ESP-IDF (Native platform). Mostly users choose the Arduino IDE because of its simplicity and compatibility. ESP32 Development Board comes with a pre-installed firmware which allows to work with the interpreted language, sending commands through the serial port (CP2102 USB to Serial chip).

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The ESP32 Development board is specially designed to work on breadboard. It has a voltage regulator that allows it to feed directly from the USB port. The input/output pins work at 3.3V. The CP2102 chip is responsible for USB to serial communication.

Features:

- Power supply voltage (USB) 5V DC
- Input/Output voltage 3.3V DC
- Operating current required min. 500mA
- SoC ESP32-WROOM 32
- CPU Xtensa® single-dual-core 32-bit LX6
- Clock frequency range 80MHz / 240MHz
- RAM 512kB
- External flash memory 4MB
- I/O pins 34
- ADC channels 18
- ADC Resolution 12-bit
- DAC channels 2
- DAC Resolution 8-bit
- Communication interfaces SPI, I2C, I2S, CAN, UART
- Wi-Fi protocols 802.11 b/g/n (802.11n up to 150 Mbps)
- Wi-Fi frequency 2.4 GHz - 2.5 GHz
- Bluetooth V4.2 - BLE and Classic Bluetooth
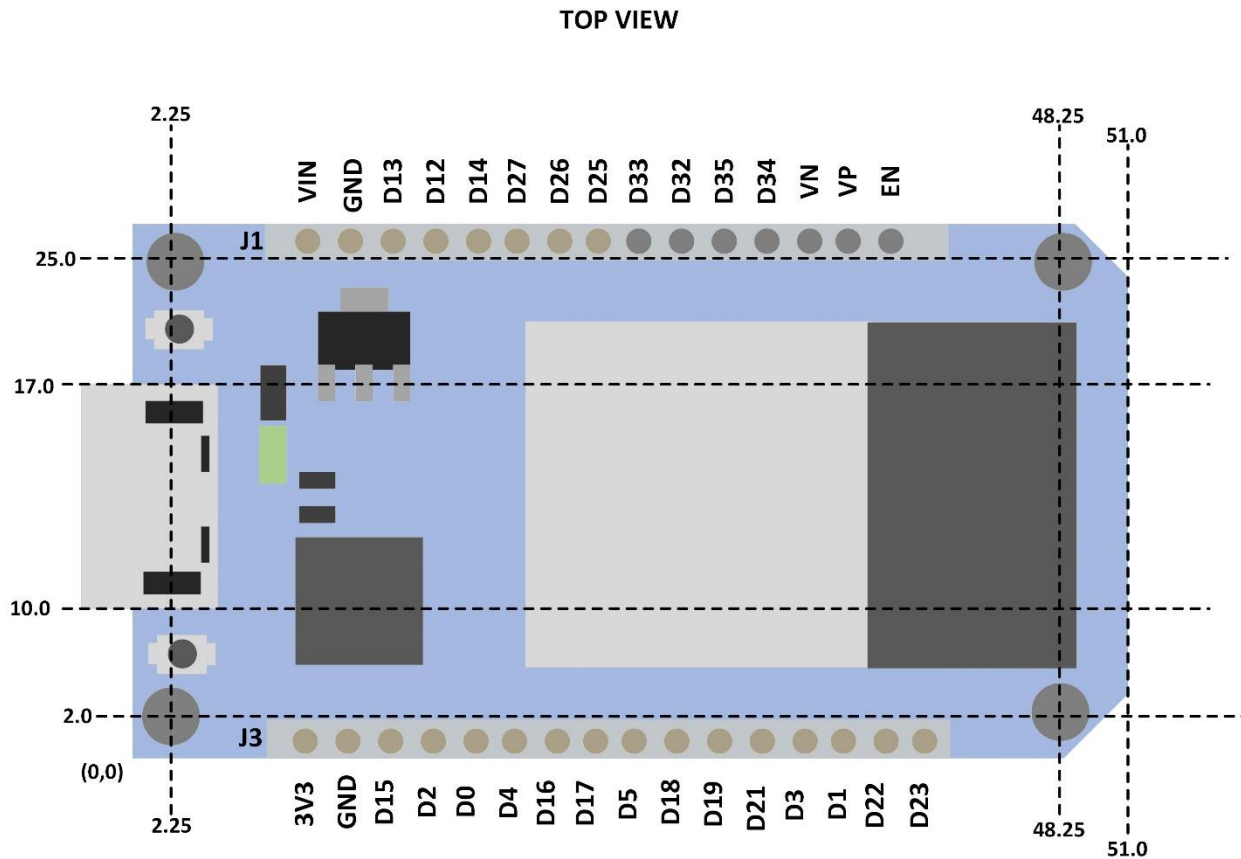- Wireless antena PCB
- Dimensions 56x28x13mm(2.2x1.1x0.5in)

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1   Block Diagram
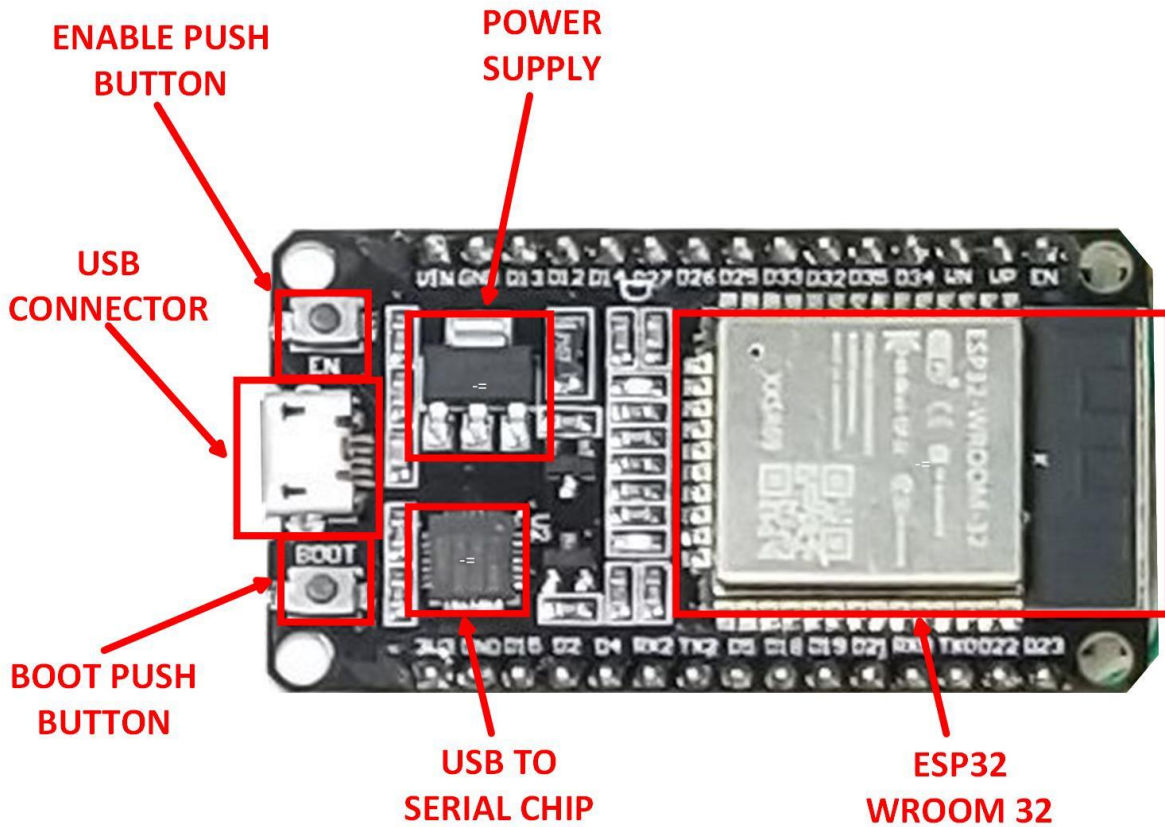
2   Mechanical Dimensions

TOP VIEW

J1 AND J3 ARE LOCATED ON THE BOTTOM OF THE BOARD

3   Pin Mapping

The ESP32 WROOM Development Board includes two 20 Pin 0.1 Inch Headers on either side of the board. Each pin has multiple functions such as Analog, Digital I/O or serial bus. The table below maps out the pins to the functions of the ESP32 Module

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CONNECTOR	PIN #	FUNCTION 1	FUNCTION 2	FUNCTION 3	FUNCTION 4
J3	3V3				
	GND				
	D15	GPIO15	RTC	ADC2_3	HSPI_SS
	D2	GPIO2	RTC	ADC2_2	
	D0	GPIO0	RTC	ADC2_1	BOOT
	D4	GPIO4	RTC	ADC2_0	
	D16	GPIO16			
	D17	GPIO17			
	D5	GPIO5	VSPI_SS	DSIO	
	D18	GPIO18	VSPI_SCK		
	D19	GPIO19	VSPI_MISO		
	D21	GPIO21	WIRE_SDA		
	D3	GPIO3	U0RXD	SERIAL_RX	
	D1	GPIO1	U0TXD	SERIAL_TX	
	D22	GPIO22	WIRE_SCL		
	D23	GPIO23	VSPI_MOSI	SPI_MOSI	

CONNECTOR	PIN #	FUNCTION 1	FUNCTION 2	FUNCTION 3	
J1	VIN				

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|	GND				
	D13	GPIO13	RTC	ADC2_4	HSPI_MOSI
	D12	GPIO12	RTC	ADC2_5	HSPI_MISO
	D14	GPIO14	RTC	ADC2_6	HSPI_SCK
	D27	GPIO27	RTC	ADC2_7	
	D26	GPIO26	RTC	ADC2_9	DAC_2
	D25	GPIO25	RTC	ADC1_8	DAC_1
	D33	GPIO33	RTC	ADC1_5	32K_XN
	D32	GPIO32	RTC	ADC1_4	32K_XP
	D35	GPIO35	RTC	ADC1_7	VDET_2
	D34	GPIO34	RTC	ADC1_6	VDET_1
	VN	GPIO39	RTC	ADC1_3	S_VN
	VP	GPIO36	RTC	ADC1_0	S_VP
	EN				

4   Reset Pushbutton

The Reset Push Button is used to manually reset the target MCU.

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BOOT PUSH BUTTON
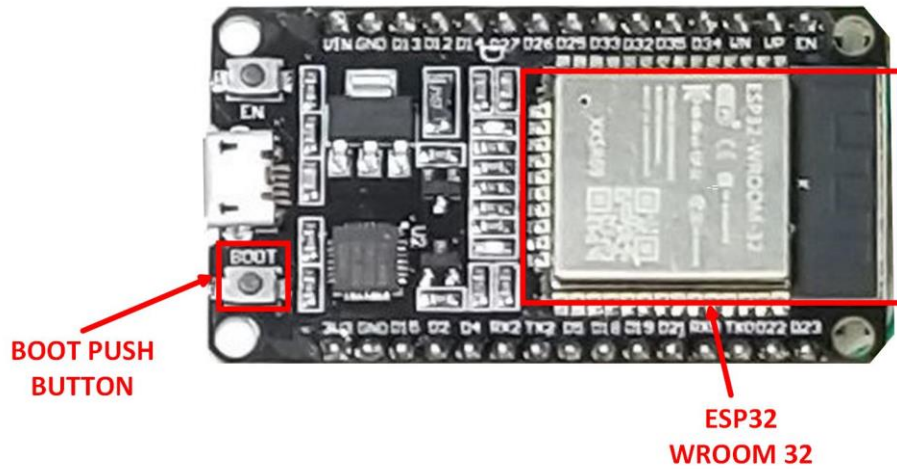
ESP32 WROOM 32

5   USB Connection

The ESP32 WROOM Development Board communicates with a PC via the USB Micro-B connector. Connect the cable to any USB 2.0 or higher compliant port.

USB CONNECTOR
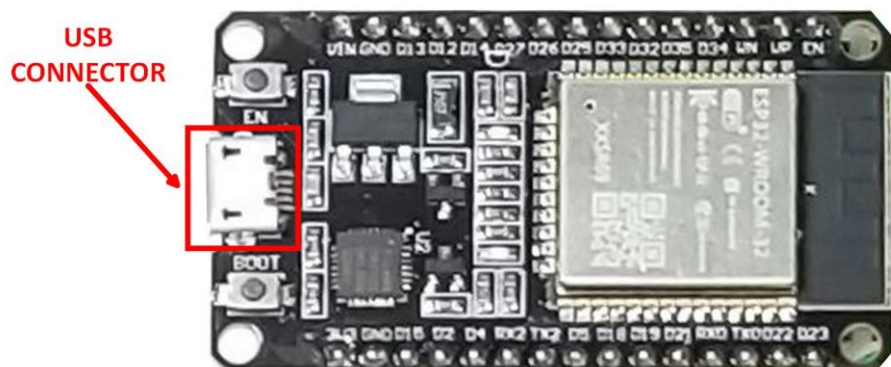
6   Connection and Status LEDs

The STATUS LED is used to indicate that the ESP32 WROOM Development Board has been appropriately powered from the Host USB. It will light up green. It is connected to pin 11 of the IOBM and driven with sink from the module.
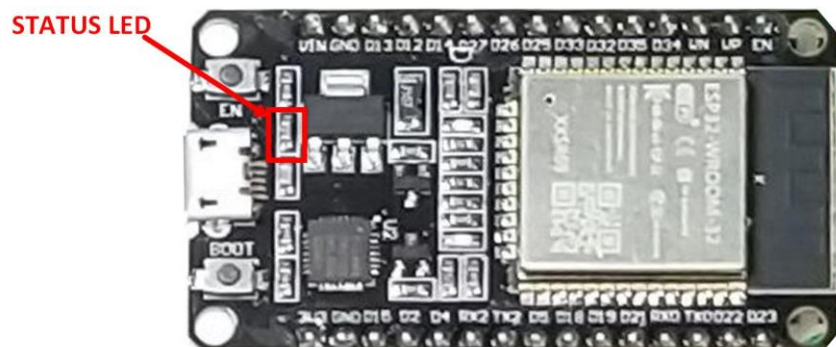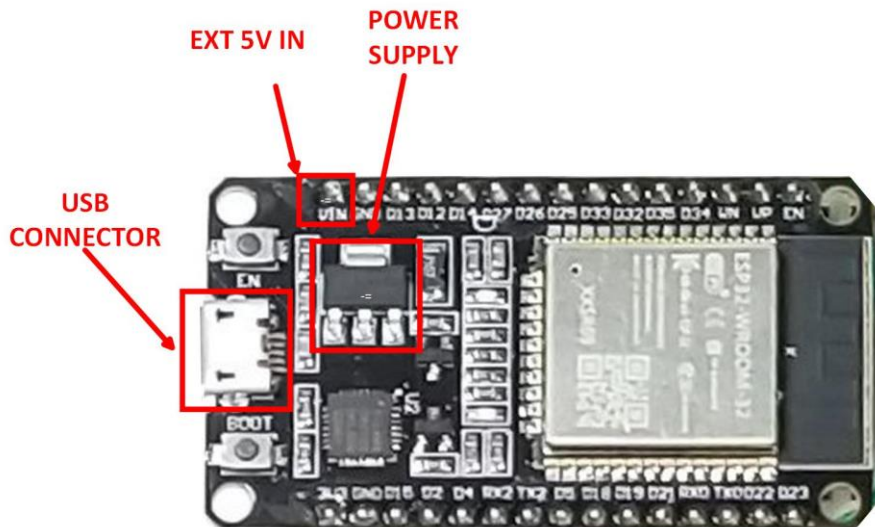

7   ESP32 WROOM Development Board Power

The ESP32 WROOM Development Board is powered from the USB bus of a Host/PC. The USB supplies a maximum of +5V @ 500mA's.

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7.1 Core Board Power Budget

TBD