ESP-32 NodeMCU
Developmentboard
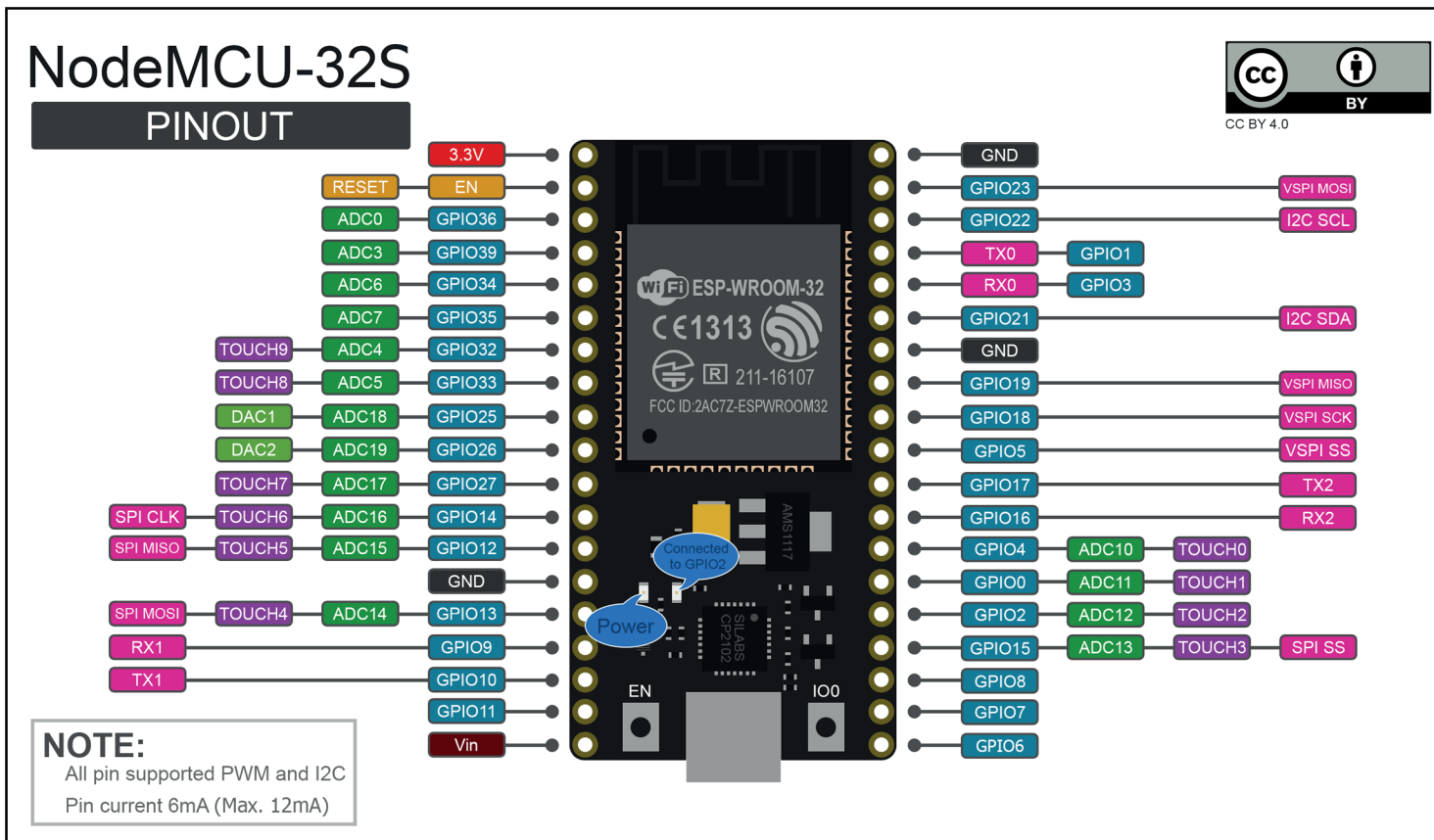# Datenblatt
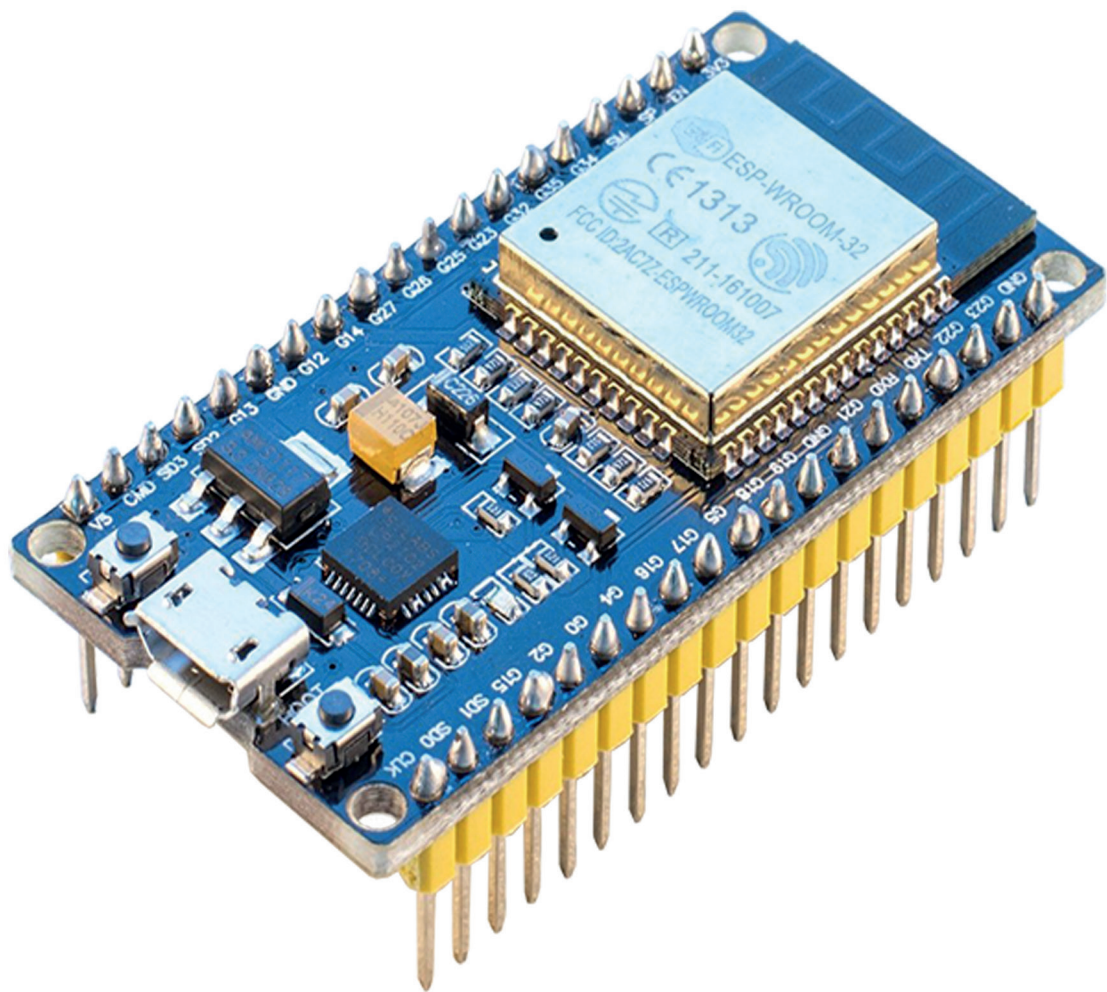
Contents:

1. Features

NodeMCU is an open source IoT platform. ESP32 is a series of low cost, low power system-on-chip (SoC) microcontrollers with integrated Wi-Fi & dual-mode Bluetooth. The ESP32 series employs a Tensilica Xtensa LX6 microprocessor in both dual-core and single-core variations, with a clock rate of up to 240 MHz. ESP32 is highly integrated with built-in antenna switches, RF balun, power amplifier, low-noise receive amplifier, filters, and power management modules.

Features:

• Able to achieve ultra-low power consumption.

• Built-in ESP-WROOM-32 chip.

• Breadboard Friendly module.

• Light Weight and small size.

• On-chip Hall and temperature sensor

• Uses wireless protocol 802.11b/g/n.

• Built-in wireless connectivity capabilities.

• Built-in PCB antenna on the ESP32-WROOM-32

• Capable of PWM, I2C, SPI, UART, 1-wire, 1 analog pin.

• Uses CP2102 USB Serial Communication interface module.

• Programmable with ESP-IDF Toolchain, LuaNode SDK supports Eclipse project (C language).

2. Pinout

NodeMCU-32S
PINOUT

	3.3V		GND
RESET	EN		GPIO23 / VSPI MOSI
ADC0	GPIO36		GPIO22 / I2C SCL
ADC3	GPIO39		TX0 / GPIO1
ADC6	GPIO34		RX0 / GPIO3
ADC7	GPIO35		GPIO21 / I2C SDA
TOUCH9 ADC4	GPIO32		GND
TOUCH8 ADC5	GPIO33		GPIO19 / VSPI MISO
DAC1 ADC18	GPIO25		GPIO18 / VSPI SCK
DAC2 ADC19	GPIO26		GPIO5 / VSPI SS
TOUCH7 ADC17	GPIO27		GPIO17 / TX2
SPI CLK TOUCH6 ADC16	GPIO14		GPIO16 / RX2
SPI MISO TOUCH5 ADC15	GPIO12		GPIO4 ADC10 TOUCH0
	GND		GPIO0 ADC11 TOUCH1
SPI MOSI TOUCH4 ADC14	GPIO13		GPIO2 ADC12 TOUCH2
RX1	GPIO9		GPIO15 ADC13 TOUCH3 / SPI SS
TX1	GPIO10		GPIO8
	GPIO11		GPIO7
	Vin		GPIO6

ESP-WROOM-32
WiFi
CE1313
211-16107
FCC ID:2AC7Z-ESPWROOM32
AMS1117
SILABS CP2102
Connected to GPIO2
Power
EN
IO0

CC BY 4.0

NOTE:
All pin supported PWM and I2C
Pin current 6mA (Max. 12mA)

Safety Precaution:

All GPIO runs at 3.3V !!!

3. Specifications

Wireless Standard	FCC/CE/IC/TELEC/KCC/SRRC/NCC
Wireless Protocol	802.11 b/g/n/d/e/l/k/r
Frequency Range	2.4 - 2.5 GHz
Bluetooth Protocol	Bluetooth v4.2 BR/EDR and BLE specification
Bluetooth Specifications	NZIF Receiver with -98dBm sensitiivity Class-1, Class-2 and Class-3 transmitter AFH, CVSD and SBC
Memory	16MB Flash, 520KB SRAM
Wireless Form	On-board PCB Antenna
IO Capability	UART, I2C, SPI, I2S, PWM, SDIO, GPIO, ADC, DAC
Electrical Characteristic	3.3 V Operated 15 mA output current per GPIO pin 80 mA average working current
Operating Temperature	-40 to +125 ºC
Wireless Network Type	Station / SoftAP / SoftAP + Station / P2P
Security Type	WPA / WPA2 / WPA2-Enterprise / WPS
Encryption Type	AES / RSA / ECC / SHA
Firmware Upgrade	UART Download / OTA / Host
Network Protocol	IPv4, IPv6, SSL, TCP / UDP / FTP / HTTP / MQTT
User Configuration	AT + Order Set, Web Android / iOS, Cloud Server