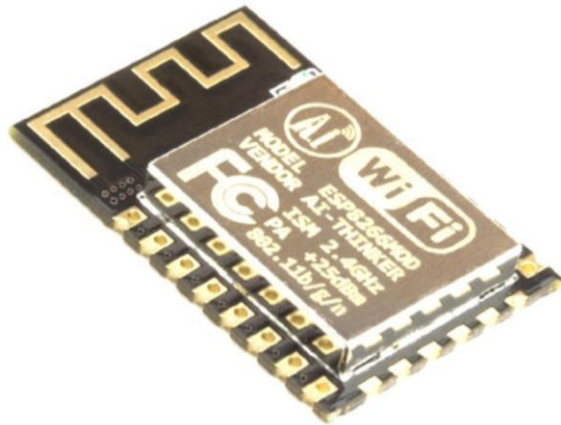


ESP8266 ESP-12E WiFi Module



ESP-12E is a miniature Wi-Fi module present in the market and is used for establishing a wireless network connection for microcontroller or processor. The core of ESP-12E is ESP8266EX, which is a high integration wireless SoC (System on Chip). It features ability to embed Wi-Fi capabilities to systems or to function as a standalone application. It is a low cost solution for developing IoT applications.

SPECIFICATIONS:

- Wireless Standard: IEEE 802.11 b/g/n protocol
- Power Transmission:

802.11b	+16 ± 2 dBm
802.11g	+14 ± 2 dBm
802.11n	+13 ± 2 dBm

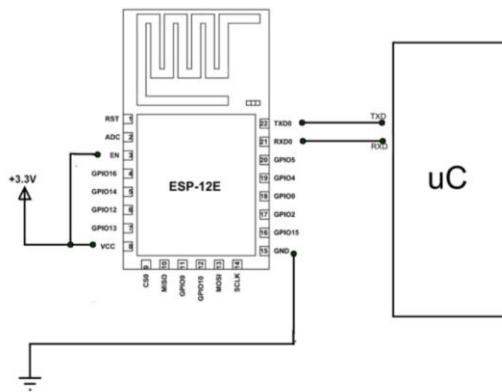
- Frequency Range: 2.412 - 2.484 GHz
- Serial Transmission: 110 - 921600 bps, TCP Client 5
- SDIO 2.0, SPI and UART Interface available

- PWM available
- One ADC channel available
- Programmable GPIO available
- Wireless Network Type: STA / AP / STA + AP
- Security Type: WEP / WPA-PSK / WPA2-PSK
- Encryption Type: WEP64 / WEP128 / TKIP / AES
- Network Protocol: IPv4, TCP / UDP / FTP / HTTP
- Operating Voltage: 3.3V
- Maximum current allowed to draw per pin: 15mA
- Power down leakage current of < 10uA
- Integrated low power 32-bit MCU
- Onboard PCB Antenna
- Wake up and transmit packets in < 2ms
- Standby power consumption of < 1.0mW
- Operating Temperature: -40°C to +125 °C

FUNCTIONAL DESCRIPTION:

- This module does not have complex circuitry or programming so using this module is very easy. We will construct a simple application circuit for understanding the module working.
- Connect positive +3.3V power to the module.
- Interface module to a microcontroller or ARDUINO using UART (Connect RXD of ESP to RXD of μ C & TXD of ESP to TXD of μ C).
- Download the libraries for the module from the internet. For ARDUINO, the IDE will have pre-installed libraries. If you do not have them just update the libraries from ARDUINO website.
- Write the program for setting up the baud rate and data exchange.

- Send data to the module for transmitting through Wi-Fi or Receive data from the module that was transmitted via Wi-Fi.
- There is another way for setting up the module which is to bypass microcontroller and directly connect the module to PC using FTDI. After interface you can use serial monitor to communicate with the module.



PIN FUNCTION:

Pin No	Pin Name	Description
1	RST	Reset Pin of the module
2	ADC	Analog Input Pin for 10-bit ADC (0V to1V)
3	EN	Module Enable Pin (Active HIGH)
4	GPIO16	General Purpose Input Output Pin 16
5	GPIO14	General Purpose Input Output Pin 14
6	GPIO12	General Purpose Input Output Pin 12
7	GPIO13	General Purpose Input Output Pin 13
8	VDD	+3.3V Power Input
9	CS0	Chip selection Pin of SPI interface
10	MISO	MISO Pin of SPI interface
11	GPIO9	General Purpose Input Output Pin 9
12	GPIO10	General Purpose Input Output Pin 10
13	MOSI	MOSI Pin of SPI interface
14	SCLK	Clock Pin of SPI interface
15	GND	Ground Pin
16	GPIO15	General Purpose Input Output Pin 15
17	GPIO2	General Purpose Input Output Pin 2
18	GPIO0	General purpose Input Output Pin 0

19	GPIO4	General Purpose Input Output Pin 4
20	GPIO5	General Purpose Input Output Pin 5
21	RXD0	UART0 RXD Pin
22	TXD0	UART0 TXD Pin

APPLICATIONS:

- Weather station
- IoT applications
- Home appliances
- Toys and Gaming applications
- Wireless control systems
- Home automation
- Security ID tags

DIMENSION:

