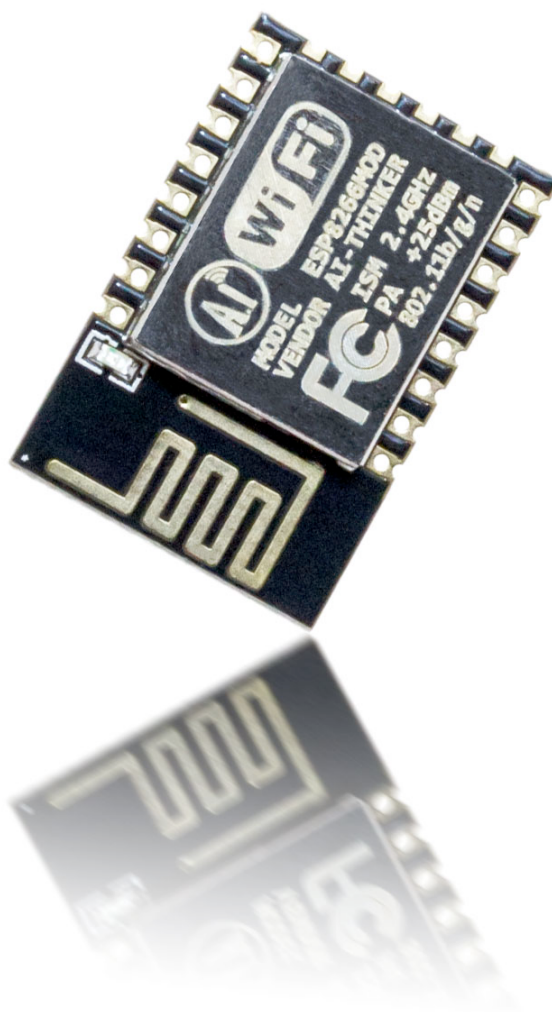


ESP8266 ESP-12E Extended Version



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Technical Informations:

ESP-01 Version 2016 with 8M-bit / 1024 K-Byte 120 MHz SPI Flash.

Features:

- ✓ 802.11 b/g/n protocol
- ✓ Wi-Fi Direct (P2P), soft-AP
- ✓ Integrated TCP/IP protocol stack
- ✓ +19.5dBm output power in 802.11b mode
- ✓ Power down leakage current of < 10uA
- ✓ Integrated low power 32-bit MCU
- ✓ A-MPDU & A-MSDU aggregation & 0.4µs guard interval
- ✓ Wake up and transmit packets in < 2ms
- ✓ Standby power consumption of < 1.0mW (DTIM3)

Dimensions:

length	24 mm
width	14 mm
height	13 mm
weight	4 gr.

Electrical Features:

Parameter	Symbol	min.	max.	Unit
InputLow voltage	Vil	-0.3	0.25xViO	Volt
InputHighVoltage	Vih	0.75xVio	3,3	Volt
InputLeakageCurrent	Iil		50	nA
OutputLowVoltage	Vol		0.1 xVio	Volt
OutputHighVoltage	Voh	0.8xVio		Volt
InputPinCapacitance Cpad VDDIO			5 pF	Farad
	Vio	1.8	3.3	Volt
MaximumDriveCapability	I _{max}		12 mA	Ampere
Temperature	Tamb	-40	+125	°Celsius

Processor:

Parameter	Symbol
CPU / MPU	Vil
Frequency	80 / 160 MHz.
Risk	32-bit
Instruction Ram	64 Kb
Data Ram	96 Kb

SPI Flash:

Parameter	Symbol
Flash memory	8Mb
clock frequency	120 MHz. max.
Supply Voltage	2.7 - 3.6 Volt
Page program	up to 256 bytes in 0.7ms (TYP)
Sector erase	512Kb in 150ms
Block erase	0.5 - 1.5 s
Hardware write protection	protected area size defined by nonvolatile bits BP0, BP1, BP2
Deep power-down	1 μ A (TYP)
Electronic signature	JEDEC-standard 2-byte signature (2016h)
	Unique ID code (UID) and 16 bytes of common Flash interface (CFI)
	RES command, one-byte signature (15h) for backward-compatibility
Write Cycles	> 100,000 write cycles per sector
Data retention	> 20 Years
RoHS-compliant Packages	SO8W (MW) 208 mils
	SO16 (MF) 300 mils
	VFQFPN8 (MP) MLP8 6mm x 5mm
	VFDFPN8 (MP) MLP8 8mm x 6mm

Wifi Receiver Sensitivity

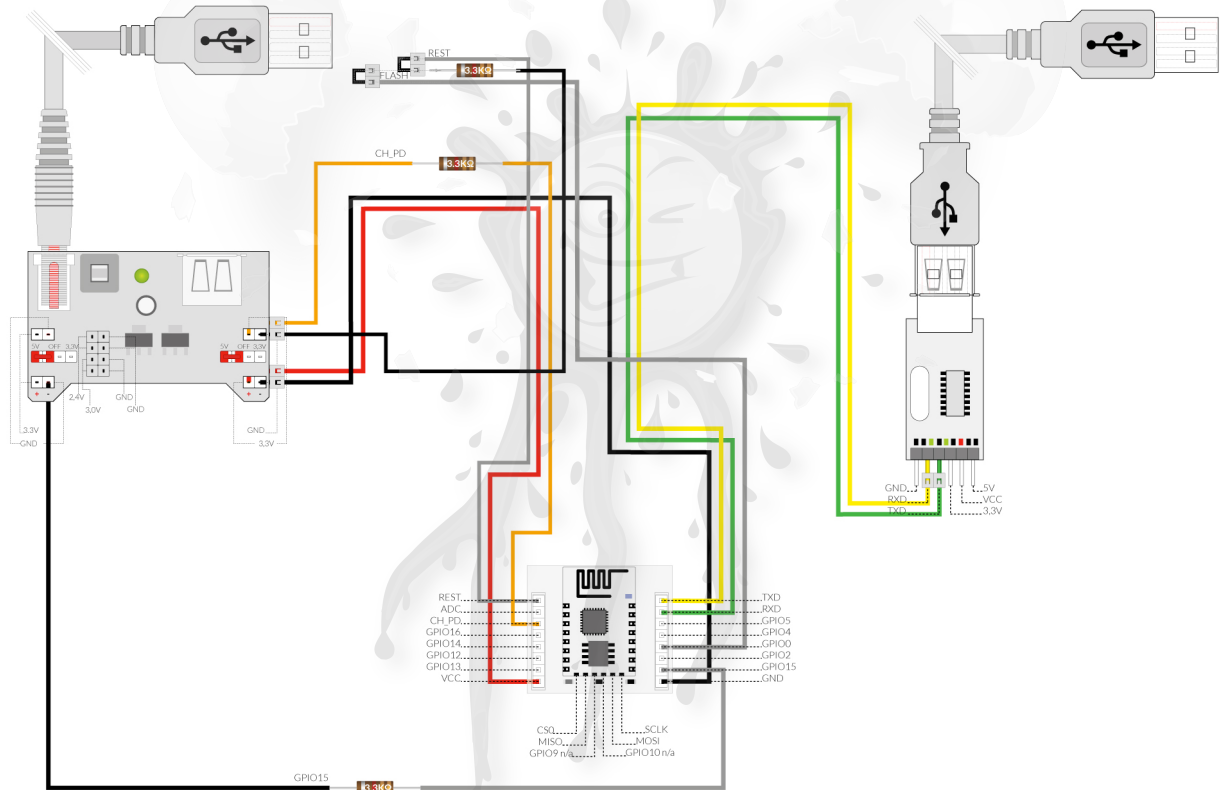
Parameter	MIN:	TYP.	MAX.	Unit
Input frequency	2412		2484	MHz.
Input impedance		50		Ω
Input reflection			-10	dB
Output power of PA for 72.2Mbps	14	15	16	dBm
Output power of PA for 11b mode	17.5	18.5	19.5	dBm
Sensitivity				
CCK 1Mbps		-98		dBm
CCK 11Mbps		-91		dBm
6Mbps(1/2BPSK)		-93		dBm
54Mbps(3/4 64-QAM)		-75		dBm
HT20, MCS7 (65Mbps, 72.2Mbps)		-71		dBm
Adjacent Channel Rejection				
OFDM, 6Mbps		37		dB
OFDM, 54Mbps		21		dB
HT20, MCS0		37		dB
HT20, MCS7		20		dB
Current Consumption				
Send 802.11b, CCK 1Mbps, Pout=+19.5dBm		215		mA
Send 802.11b, CCK 11Mbps, Pout=+18.5dBm		197		mA
Send 802.11g, OFDM54 Mbps, Pout=+16dBm		145		mA
Send 802.11n, MCS7, Pout=+14dBm		135		mA
Receive 802.11b, Length 1024 Byte, -80dBm		100		mA
Receive 802.11g, Length 1024 Byte, -70dBm		100		mA
Receive 802.11n, Length 1024 Byte, -65dBm		102		mA
Standby		70		mA
Power Down		0.5		μ A

Pinout Table Function Espressif NodeMCU

PIN ID	Function	Description / Mode		
1	VDD	3,3 Volt input		
2	RST	Reset (10 K Ω Resistor to Ground)	NC / external MCU Control	
3	EN	Module / Chip (10 K Ω Resistor to 3,3 Volt recommended)		
4	TXD0	TXD0	GPIO1 Low / High Level	SPI CS1
5	RXD0	RXD0	GPIO5 Low / High Level	
6	GPIO0	GPIO Low / High Level	Flash	SPI CS2
7	GPIO2	GPIO Low / High Level	U1 TXD	
8	GND	Ground		

Wiring Schematic ESP-12E Adapterplate

ESP8266 ESP-12E Wiring Schematic with typical Adapter



Wiring Schematic ESP-12E

ESP8266 ESP-12E Wiring Schematic without I/O Adapter

