

## ESP8266EX Small Modules – Comparison

				UA RT		J T A G											
ESP-01	Built-in (on PCB)	2x4 header 0.1"	14.3 x 24.8	✓	✓	✓	✓	✓	✓					✓		✓	The most common module with printed PCB antenna
ESP-02 a	External (U.FL conn.)	DIP <sup>1</sup> 8-pin 0.1"	14.7 x 14.2	✓	✓	✓	✓	✓	✓						✓	✓	A less common module, may be compatible with breadboards
ESP-02 b			14.2 x 14.2	✓	✓	✓	✓	✓	✓				✓			✓	New version?
ESP-02de			?	✓	✓	✓	✓	✓	✓						✓	✓	Alternate pinout version of "a"?
ESP-03	Built-in (ceramic)+pin	SMT <sup>2</sup> 14-pin 2mm	12.2 x 17.4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Surface mount, many I/O (voted most wanted)
ESP-04	External (pin)	SMT 14-pin 2mm	12.0 x 15.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Same as ESP-03 without built-in antenna
ESP-05 a	External (U.FL conn.)	1x4 header 0.1"	14.2 x 14.2	✓	✓	✓	✓										Simple UART-only module with antenna connector
ESP-05 b		1x5 header	14.2 x 14.2	✓	✓	✓	✓								✓		New version?
ESP-06	External (pin)	bot. mount 2.6/2.9mm	13.1 x 16.3	✓	4	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		FCC CE metal shield
ESP-07	U.FL + Built-in (ceramic)+pin	semi-hole 2mm	16.0 x 20.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		FCC CE metal shield
ESP-08	External (pin)	semi-hole 2mm	16.0 x 17.0	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Like ESP-07 minus built-in antenna
ESP-09	External (pin)	bot. mount 1.9mm	10.0 x 10.0	✓	4	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	Ultra-small footprint, 4-layer, 1MB flash
ESP-10	External (extra hole)	1x5 edge?	10.0 x 14.2	✓	✓	✓	✓								✓		Narrow body, for light w/controller
ESP-11	Built-in (ceramic)	1x8 edge?	13.0 x 18.0	?	✓	?	?	✓	✓					?	?		Small size

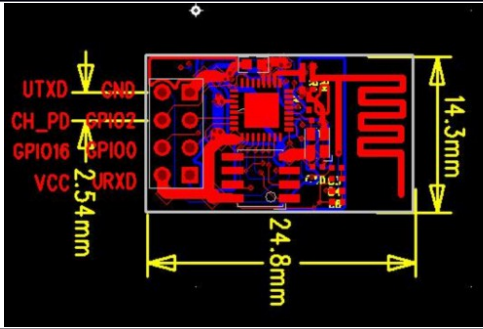
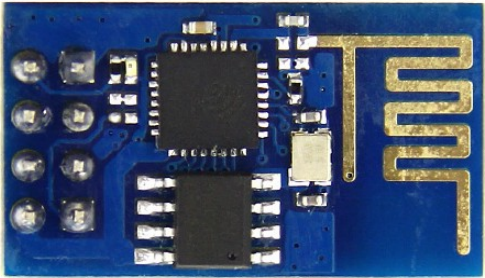
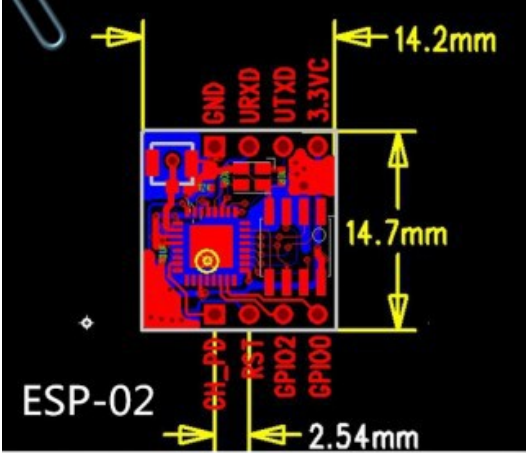
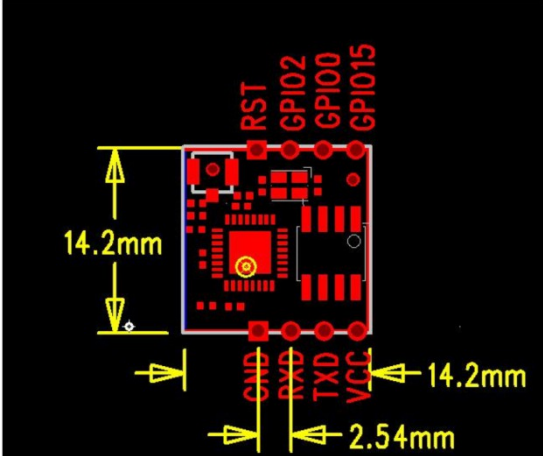
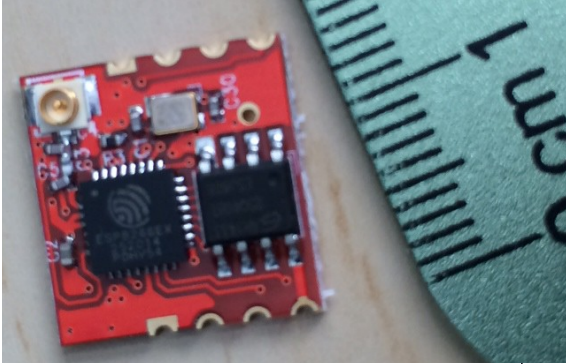
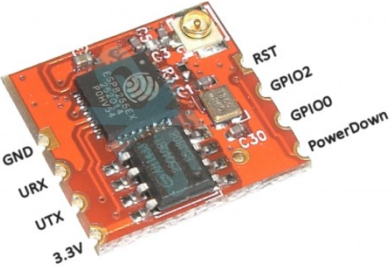
CH\_PD = Chip Powerdown = CHIP\_EN (tied also to reset if no separate reset line ???)

Is this meaningful to mention?: ESP-09 impedance matching through the bottom mount technology

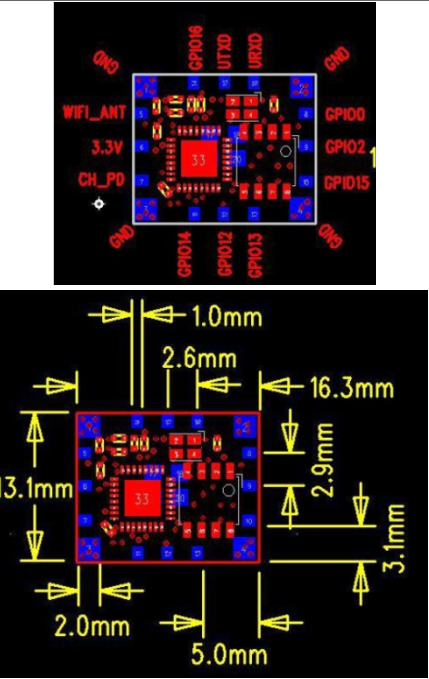

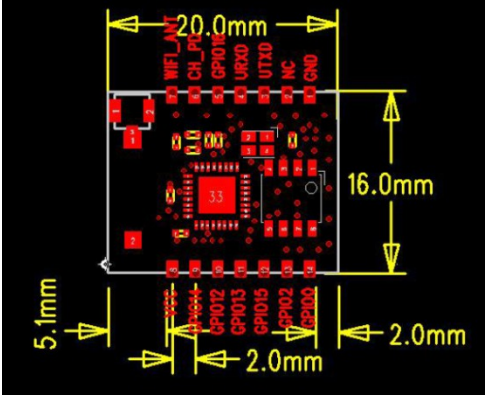

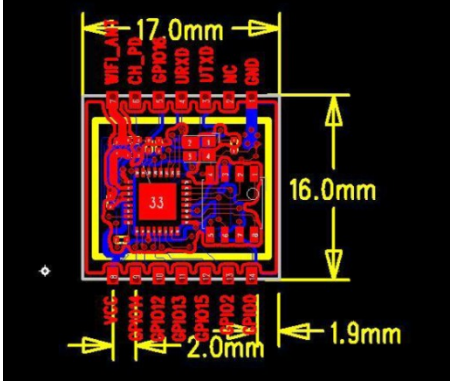

1Dual Inline Package, two rows of pins, on both sides of module

2Surface Mount Technology, with pins as castellated pads, on both sides of module

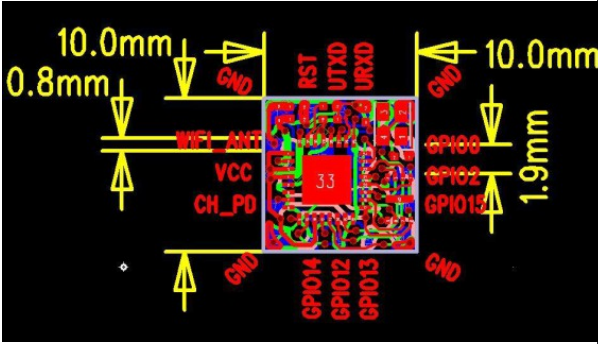

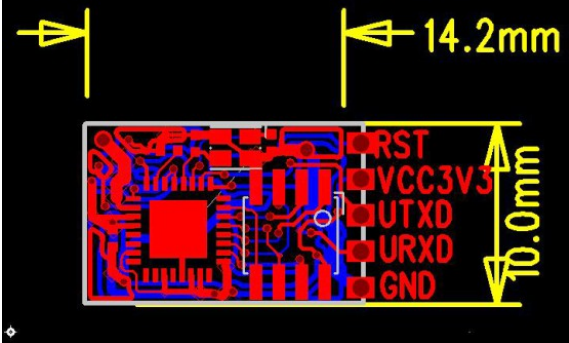

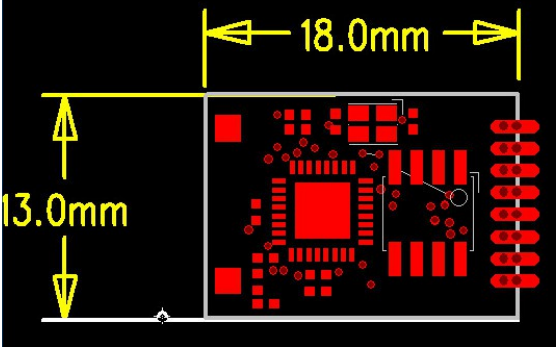

And some pictures:

Module	Module Pinout	Picture
ESP-01		
ESP-02 "a" ("a" and "b" and "de" are not official; added to distinguish)		?
ESP-02 "b"		
ESP-02 "de"	<p>(see picture on right)</p> <p>From <a href="https://ex-store.de/Funk/Wireless-Netzwerk/ESP8266-ESP-02-Version-2-WIFI-Wlan2Serial::161.html">https://ex-store.de/Funk/Wireless-Netzwerk/ESP8266-ESP-02-Version-2-WIFI-Wlan2Serial::161.html</a></p>	 <p>©2014 ex-store.de</p>

Module	Module Pinout	Picture
ESP-03		
ESP-04		
ESP-05 “a” (“a” and “b” are not official; added to distinguish)		
ESP-05 “b”		<p>?</p>

Module	Module Pinout	Picture
ESP-06	 <p>The diagram shows the pinout and dimensions for the ESP-06 module. The pinout includes: GND, WIFI_ANT, 3.3V, CH_PD, GND, GPIO14, GPIO12, GPIO13, GPIO16, UARTD, UARTD, GND, GPIO0, GPIO2, and GPIO15. The dimensions are: 1.0mm, 2.6mm, 16.3mm, 3.1mm, 2.9mm, 3.1mm, 2.0mm, and 5.0mm.</p>	 <p>ESP-06</p>
ESP-07	 <p>The diagram shows the pinout and dimensions for the ESP-07 module. The pinout includes: WIFI_ANT, CH_PD, GPIO16, UARTD, UARTD, GND, GPIO12, GPIO13, GPIO15, GPIO2, and GPIO0. The dimensions are: 20.0mm, 16.0mm, 5.1mm, 2.0mm, and 2.0mm.</p>	 <p>ESP-07</p>
ESP-08	 <p>The diagram shows the pinout and dimensions for the ESP-08 module. The pinout includes: WIFI_ANT, CH_PD, GPIO16, UARTD, UARTD, GND, GPIO12, GPIO13, GPIO15, GPIO2, and GPIO0. The dimensions are: 17.0mm, 16.0mm, 2.0mm, and 1.9mm.</p>	 <p>ESP-08</p>



Module	Module Pinout	Picture
ESP-09	 <p>Pinout diagram for ESP-09 module. Dimensions: 10.0mm (width), 0.8mm (height), 10.0mm (width), 1.9mm (height). Pins: RST, VCC, CH_PD, GND, TXD, RXD, GPIO0, GPIO2, GPIO12, GPIO13, GPIO14.</p>	 <p>ESP-09</p>
ESP-10	 <p>Pinout diagram for ESP-10 module. Dimensions: 14.2mm (width), 10.0mm (height). Pins: RST, VCC3V3, TXD, RXD, GND.</p>	 <p>ESP-10</p>
ESP-11	 <p>Pinout diagram for ESP-11 module. Dimensions: 18.0mm (width), 13.0mm (height). Pins: RST, VCC3V3, TXD, RXD, GND.</p>	 <p>ESP-11</p>