ESP32-C3 E301 Wifi

Module Datasheet

Version	Issue date	Changes	Remark
0.1	2022/6/8	Initial Version	
0.2	2022/9/12	Update ME drawing and pin out.	
0.3	2022/11/14	Update 11b mode output power	

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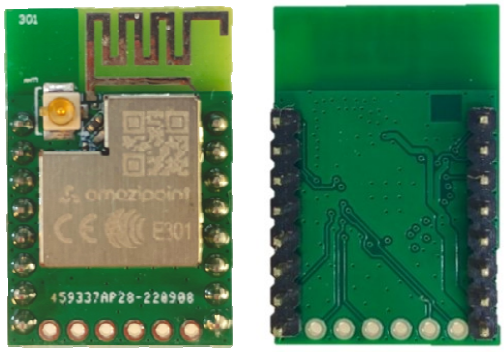
ESP32-C3 E301 Wifi Module Datasheet

1. Introduction

E301 Wifi module is small and low power consumption Wifi module with following features :

- 802.11 b/g/n (HT20 and HT40 mode for 802.11n)
- 3.3V single power supply
- Low power consumption
- Small size 16*24*3.2 mm



2. Pin out/Dimension/Operation Modes

1	GPIO2		15	GND	Power ground
2	GPIO1		16	GPIO18	
3	CHIP_EN	Power on reset	17	GPIO8	
4	GPIO6		18	GPIO9	
5	GPIO7		19	GPIO4	
6	GPIO0		20	GPIO5	
7	GPIO19		21	RXD	UART RXD
8	3.3V IN	Power in	22	TXD	UART TXD

- **Dimension :** 16*24*3.2 mm
- Vcc : 3.3V typical.
- UART
  - TXD : UART tx signal
  - RXD : UART rx signal
  - baud rate ： 115200 bps
  - 8 data bit, No parity and 1 stop bit

3. Technical Specifications

VCC	3.0~3.6V
Average Working current	90mA
Peak Working current	350mA
Working temperature	-40 ~ +80 deg. C
Wifi **Tx power**	
11b	19.5 dBm
11g	19 dBm
11n	18.5 dBm
Wifi **Receiver sensitivity**	
11b	-88 dBm
11g	-76 dBm
11n	-71 dBm
Wifi **Operation Mode**	
	Station
	SoftAP
	Station + SoftAP
Wifi **Security Mode**	WPA/WPA2
Wifi **Encryption**	WEP/AES/TKIP
GPIO max in/out current	40mA source, 28mA sink typ.

Table 16: Current Consumption Depending on RF Modes

Work mode	Description		Peak (mA)
Active (RF working)	TX	802.11b, 1 Mbps, @21 dBm	335
		802.11g, 54 Mbps, @19 dBm	285
		802.11n, HT20, MCS7, @18.5 dBm	276
		802.11n, HT40, MCS7, @18.5 dBm	278
	RX	802.11b/g/n, HT20	84
		802.11n, HT40	87

Work mode	Description		Typ	Unit
Modem-sleep[1, 2]	160 MHz[3]	All peripheral clocks disabled	23	mA
		All peripheral clocks enabled[4]	28	mA
	80 MHz[3]	All peripheral clocks disabled	17	mA
		All peripheral clocks enabled[4]	22	mA
Light-sleep	—		130	μA
Deep-sleep	RTC timer + RTC memory		5	μA
Power off	CHIP_PU is set to low level, the chip is powered off		1	μA

[1] The current consumption figures in Modem-sleep mode are for cases where the CPU is powered on and the cache idle.

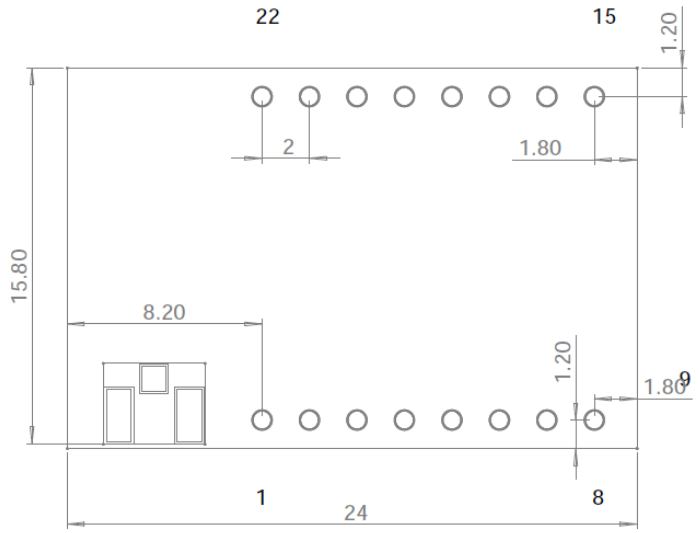
[2] When Wi-Fi is enabled, the chip switches between Active and Modem-sleep modes. Therefore, current consumption changes accordingly.

[3] In Modem-sleep mode, the CPU frequency changes automatically. The frequency depends on the CPU load and the peripherals used.

[4] In practice, the power consumption might be different depending on which peripherals are enabled.

4. Detailed dimension :

Detailed dimension is as following :



5. Application Notes about GPIO

Because the states of follwoing GPIOs are used module boot up configuration. They should be kept in associated state during module power on :

GPIO	State
GPIO9	High : Normal boot, Low : Flash programming
GPIO8	High