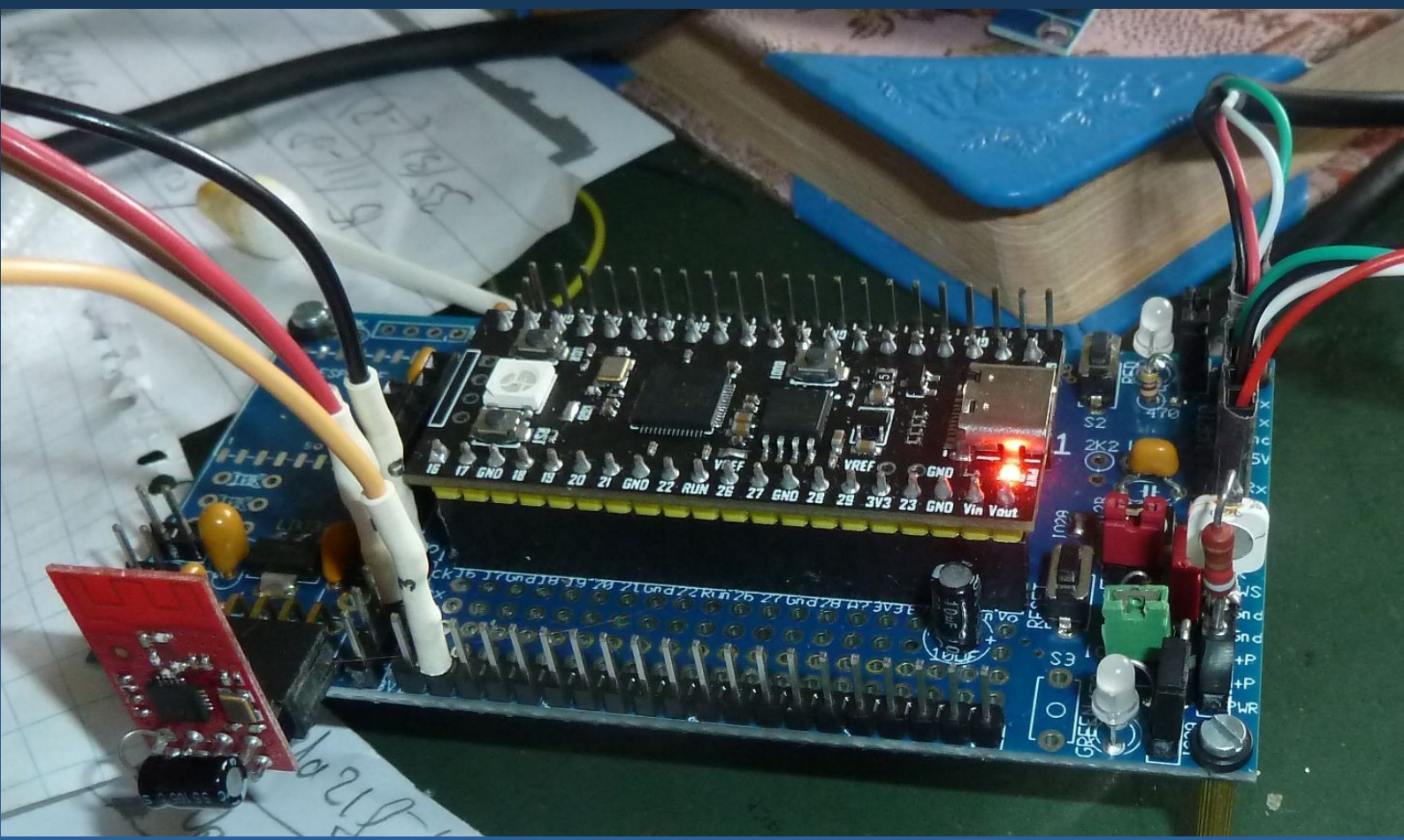
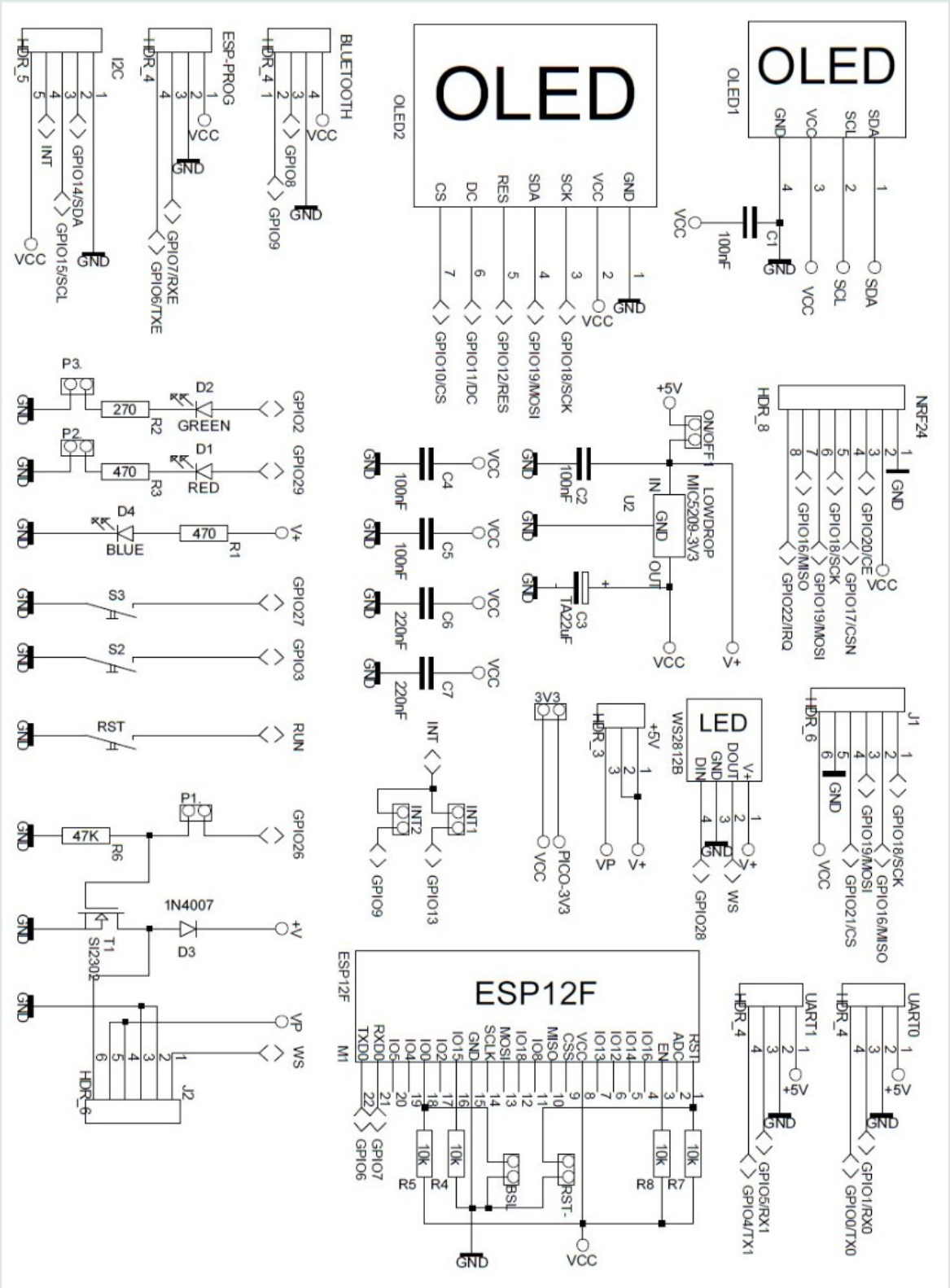
Pico-kit 1 manual



Pico-kit I/O

GPIO	Function on Pico-kit and CPU boards
0	RS232 TX0
1	RS232 RX0
2	Red LED
3	Switch S2
4	RS232 TX1
5	RS232 RX1
6	ESP-12F TX
7	ESP-12F RX
8	Bluetooth TX
9	Bluetooth RX/I^2C interrupt input
10	SPI OLED CS
11	SPI OLED DC
12	SPI OLED RES(et)
13	I^2C interrupt input
14	I^2C SDA
15	I^2C SCL
16	SPI0 Miso
17	NRF24L01 CSN
18	SPI0 Clk
19	SPI0 Mosi
20	nRF24L01 CE
21	SPI header CS
22	NRF24L01 IRQ
23	WS2812 (on YD-RP2040) or Power save (on Pico board)
24	USR switch (on YD-RP2040) or VBUS ADC in (on Pico board)
25	LED on Pico (compatible) board
26	Power out to MOSFET
27	Switch S3
28	WS2812
29	VSYS ADC in (on Pico board) or green LED

Pico-kit schematics



Bill of present materials

Number	Component
1	PCB board
1	220 Ω
1	470 Ω
1	2.2 kΩ
1	47 kΩ
3	100nF
2	220nF
1	22µF tant.
1	10µF elco
2	3mm LED gr/rd
1	3mm LED blue
1	1N4007
1	Mosfet SI2302
1	WS2812B LED
1	MIC5209-3.3ys
3	Switch
5	2 pins male header
1	3 pins male header
3	4 pins male header
1	5 pins male header
2	6 pins male header
2	20 pins male header
1	4 pins female header
1	7 pins female header
2	20 pins female header
1	2x4 pins square female header
5	jumper
4	Female jumper wire

Bill of optional parts

4	10 kΩ
2	2 pins male header
1	4 pins female header
3	jumper
1	2 pins square male header
1	Bluetooth module (HC-05/HC-06)
1	ESP-12F wifi module
1	SSD1306 or SSD1351 OLED with I^2C or SPI bus

Pico-kit Assembly

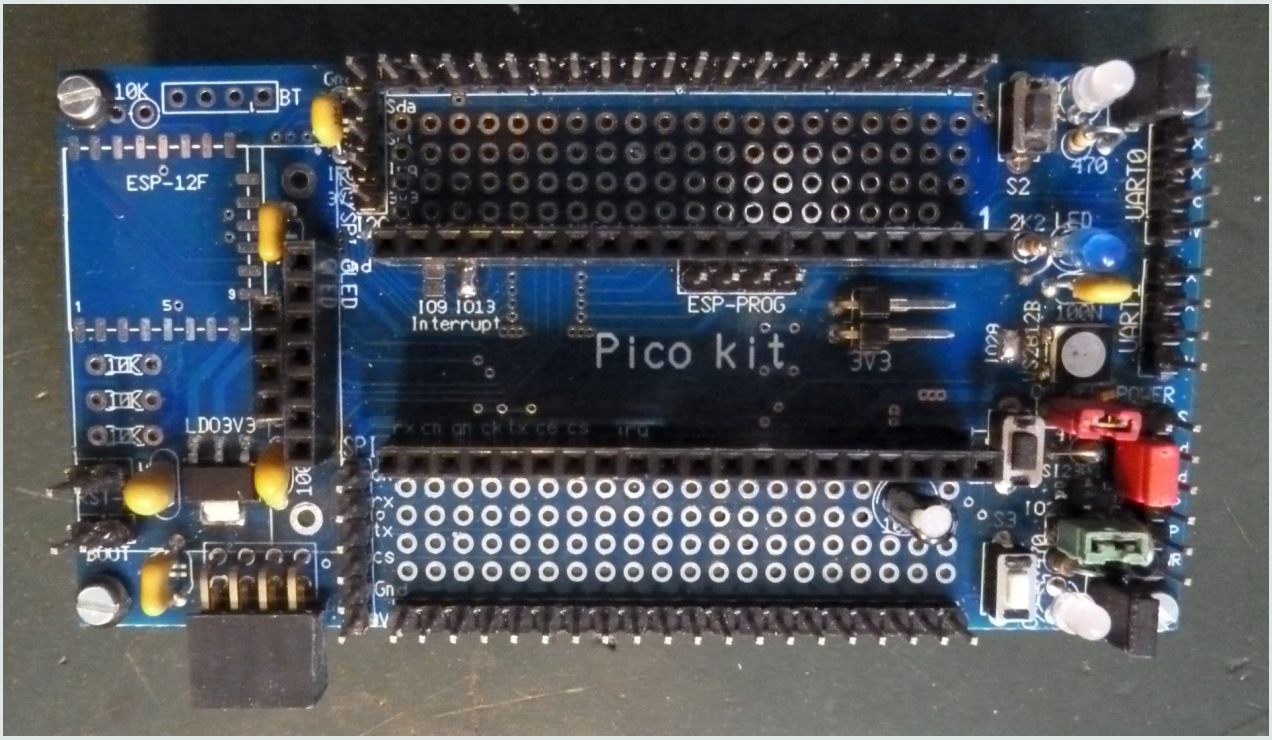
1) Build the solder jumpers

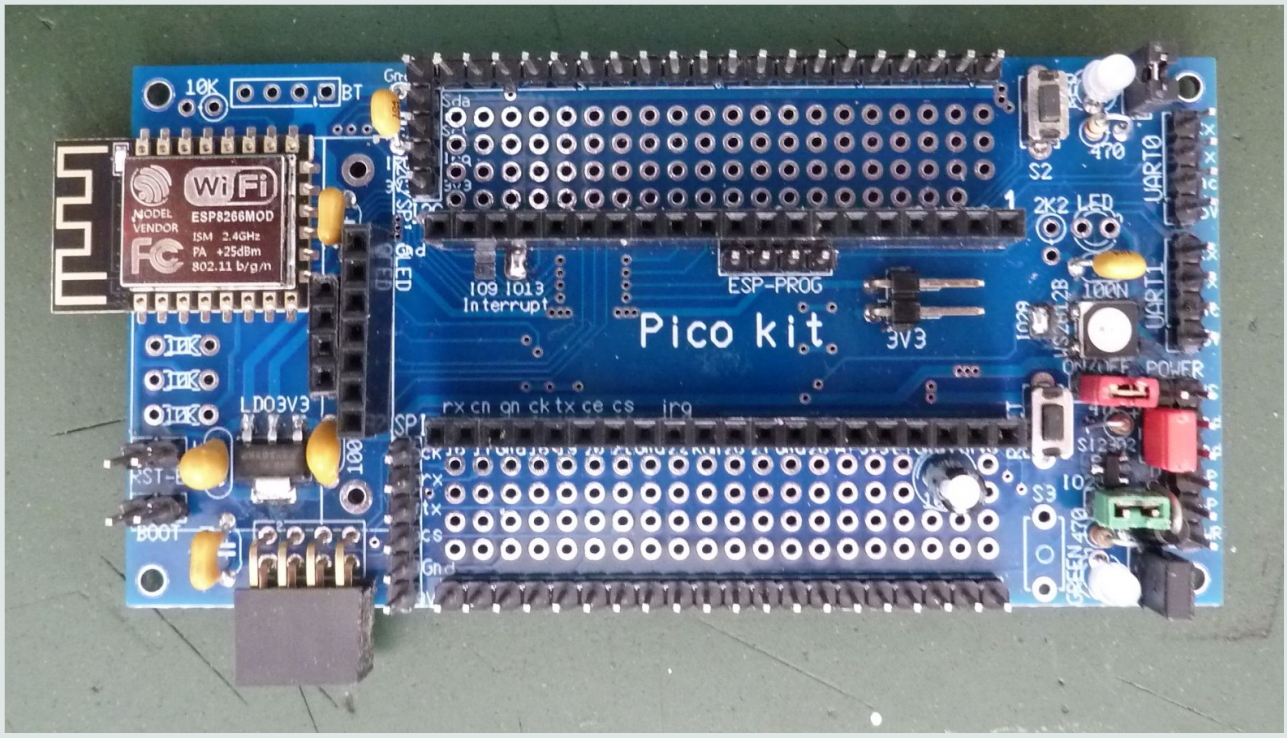
2) Then solder the MOSFET, WS2812 & MIC5209 and optional ESP-12F
We do not need the 3V3 jumper now!

3) Then the three switches all resistors, capacitors
and the diode and the right-angle header for the nRF24

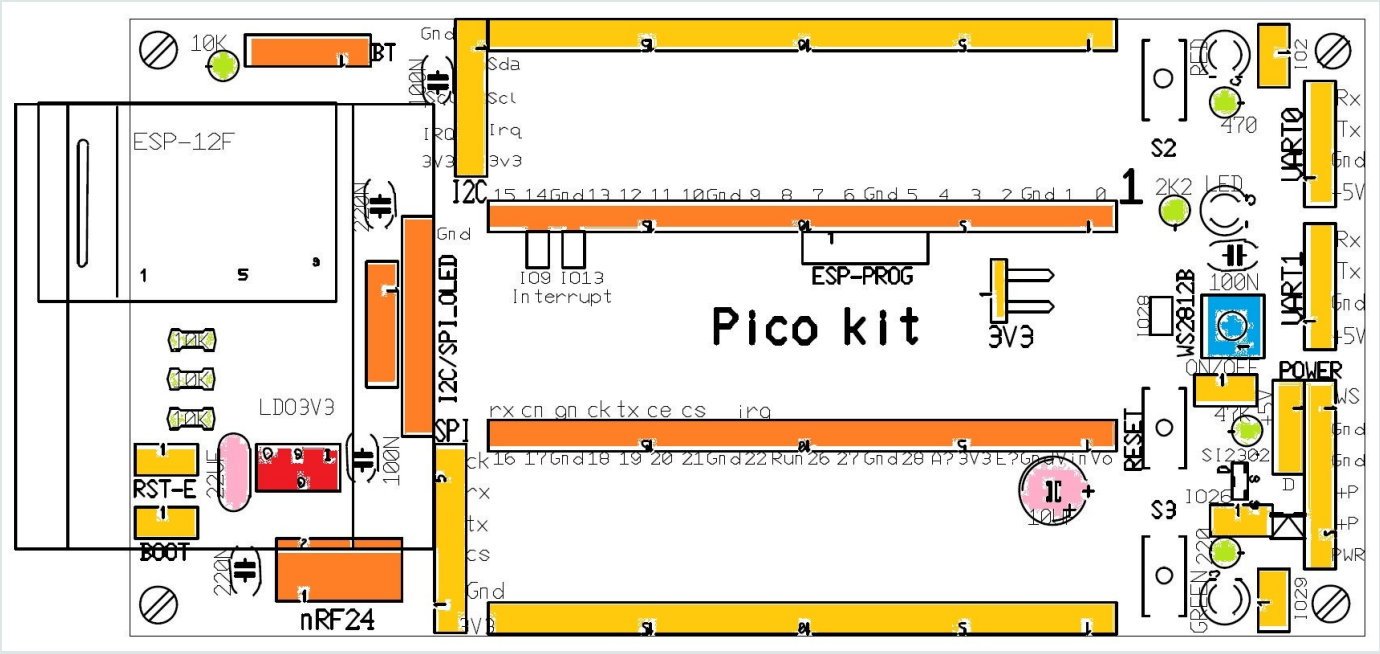
4) The three LEDs, not too high otherwise the headers will be
difficult to place.

5) Finally the female headers and then the male headers,
place them carefully vertically!



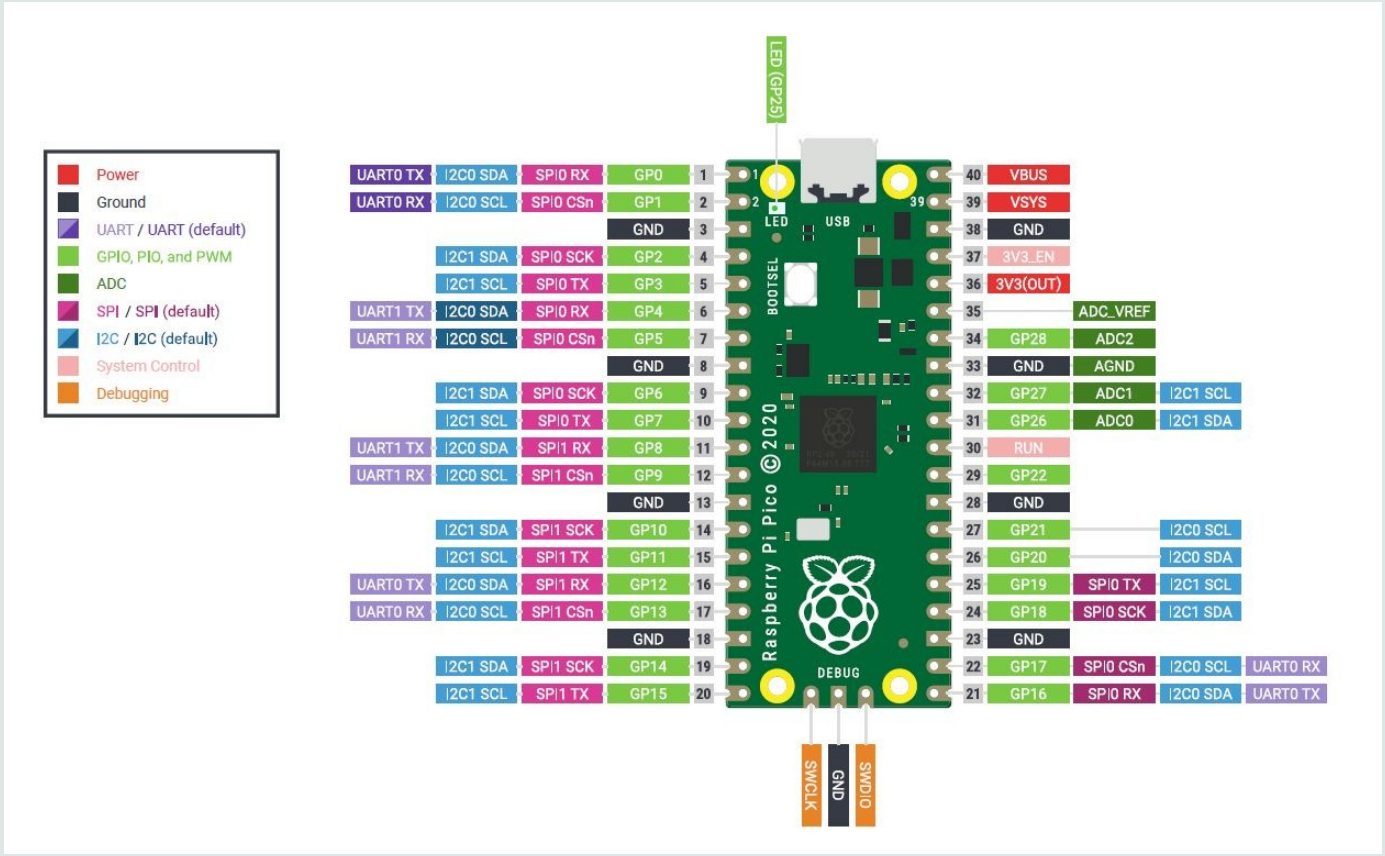


Pico kit with the optional ESP-12F placed

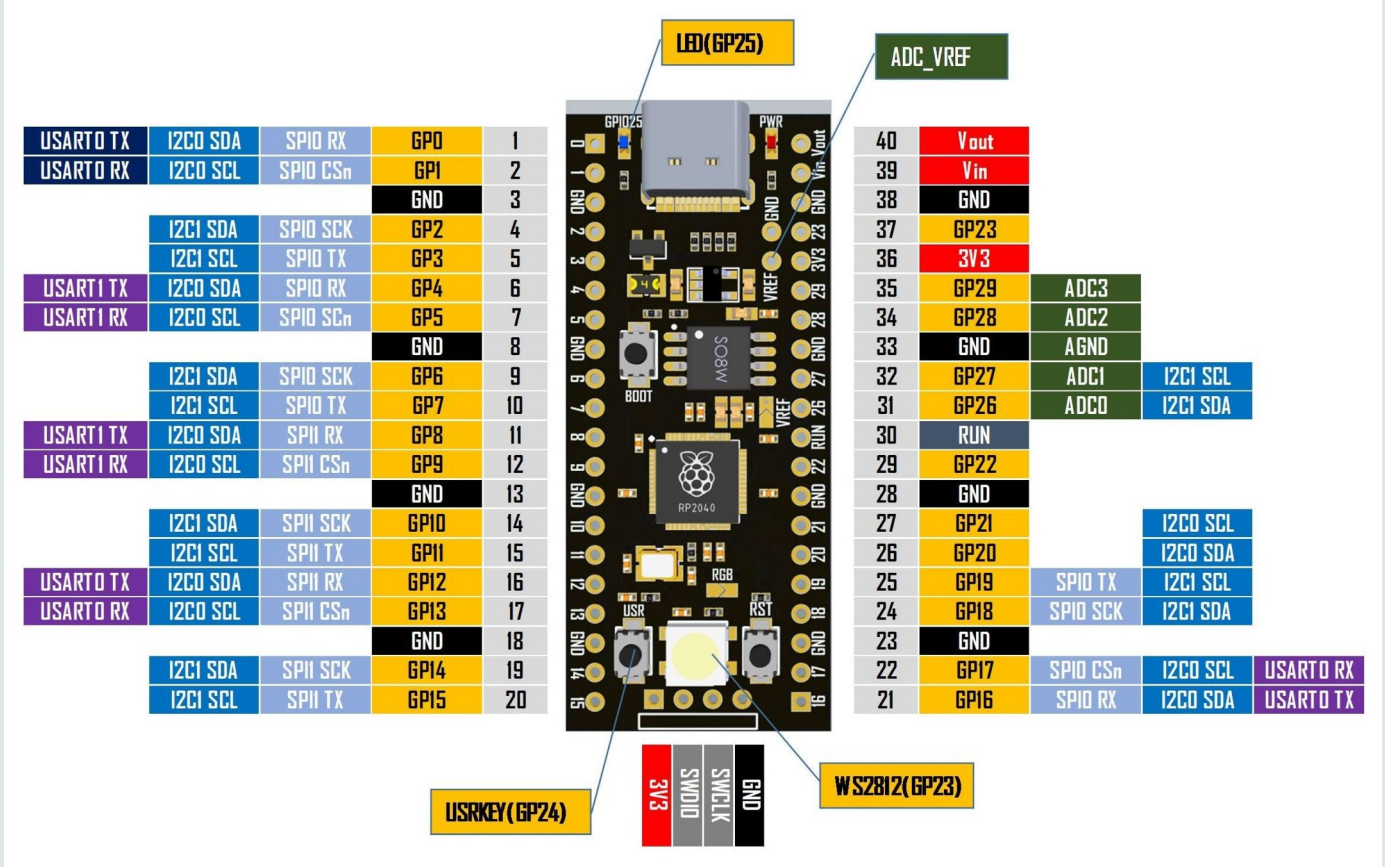


Pico-kit placing

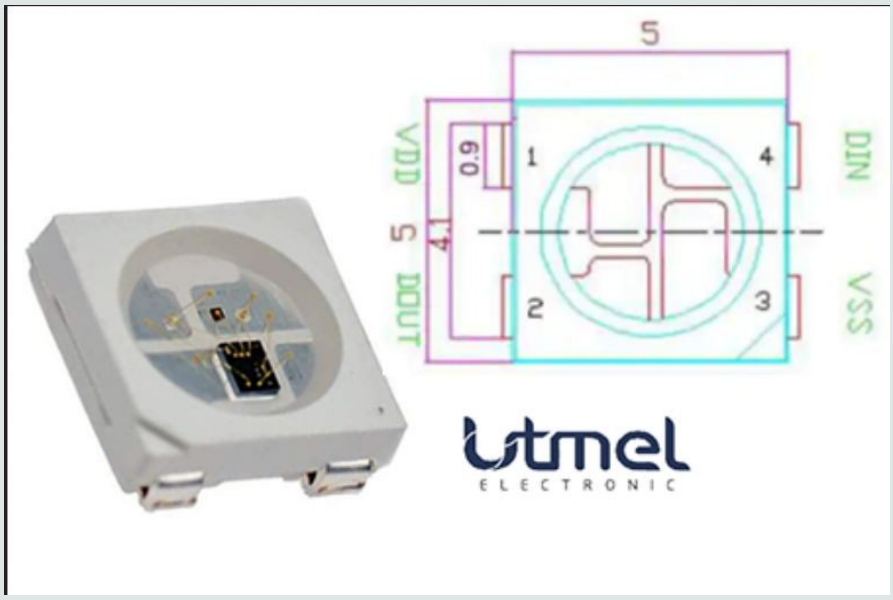
- Green = resistors
- Blue = WS2812
- Red = MIC5209
- Pink = Electrolytic capacitators
- Yellow = male headers
- Orange = female headers



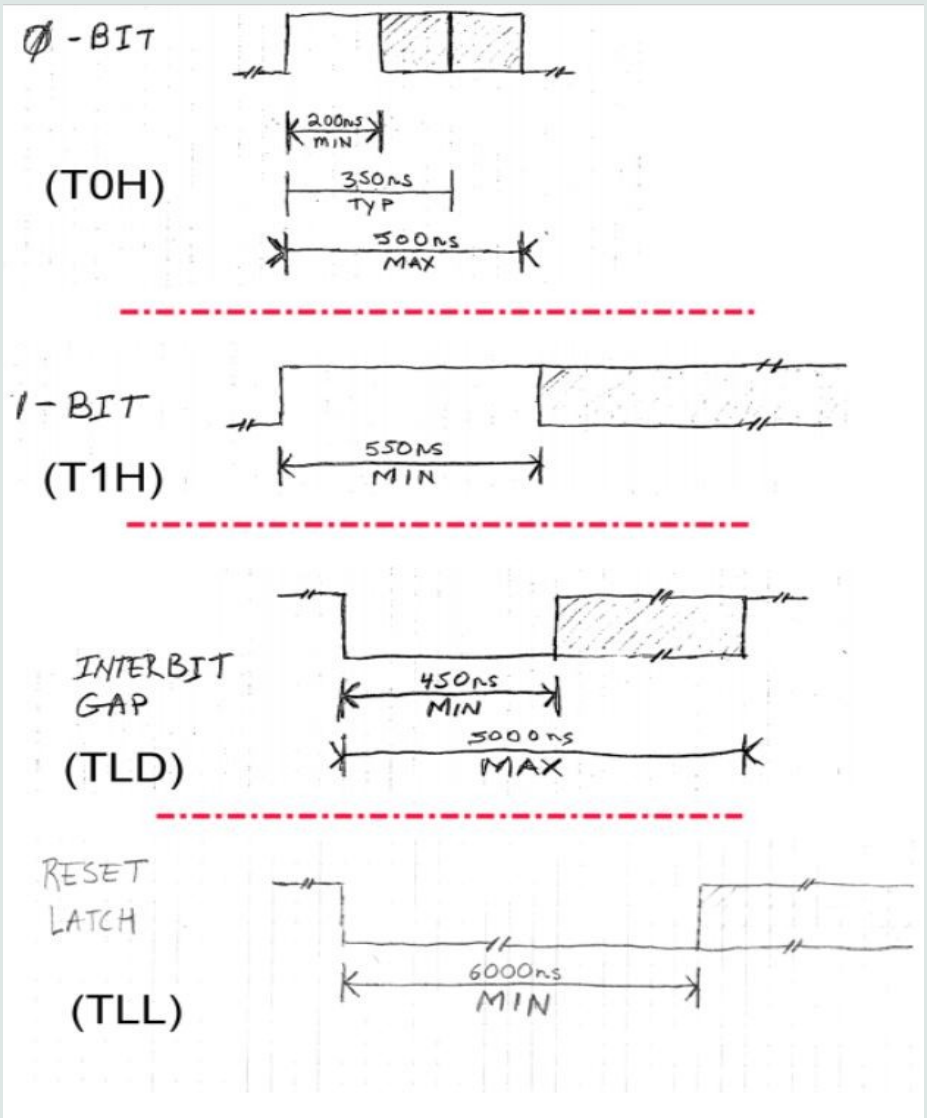
Original Pico board



(VCC-GND) YD-RP2040 board



WS2812B



WS2812B signals

1. Introduction E01-ML01D

E01-ML01D is a 1mW , industrial-grade wireless transceiver module, operates at 2.4GHz with high air data rate (2Mbps maximum). SPI interface, inline pin, high stability, cost-effective and Batch production, which makes the module is suitable for various applications.

E01-ML01D is based on original imported nRF24L01P form Nordic in Norway. The module uses industrial component with sufficient transmitting power, good spectral characteristics and small volumes. With high-performance PCB antenna and impedance matching precision, there is no need for an external antenna for embedded development.

2. Electrical parameter E01-ML01D

No.	Parameter item	Parameter details	Description
1	RF IC	nRF24L01P	Nordic
2	Size	12.6 * 22.6 mm	
3	Production process	Machine	Lead-free
4	Connector	2 * 4 * 2.54mm	Plug-in
6	Supply voltage	1.9 ~ 3.6V DC	Notes: the voltage higher than 3.6V is forbidden
3	Frequency	2400 ~ 2525MHz	Adjustable
7	Communication level	0.7VCC ~ 3.6V	VCC refers to the supply voltage
8	Operation Range	100m	Test condition: Clear and open area, 0dBm , antenna gain: 5dBi , height: 2m , Air date rate: 250Kbps
9	Max Power	Maximum 0dbm	About 1mW
10	Air data rate	3 level adjustable	250kbps、1Mbps、2Mbps
11	Sleep current	1.0uA	nRF24L01P sets as power-down
12	Transmitting current	13mA@0dBm	The largest emission current
13	Receiving current	13mA	CE=1
14	Communication interface	SPI	Data rate: up to 10Mbps
15	Transmitting length	3 level FIFO.	32 bytes (maximum) for one package
16	Receiving length	3 level FIFO.	32 bytes (maximum) for one package
17	RSSI support	N/A	Support simple data packet loss statistics
18	Antenna type	PCB	50 ohm characteristic impedance
19	Sensitivity	-106dBm	250kbps
20	Operating temperature	-40 ~ +85℃	Industrial-grade
21	Operating humidity	10% ~ 90%	Relative humidity, without condensation
22	Storage temperature	-40 ~ +125℃	Industrial-grade

nRF24L01+ module

HC-08 BLUETOOTH UART COMMUNICATION MODULE USER MANUAL

Version

Software:HC-08 V3.1, Hardware: V2.0

Date

2017-07-07

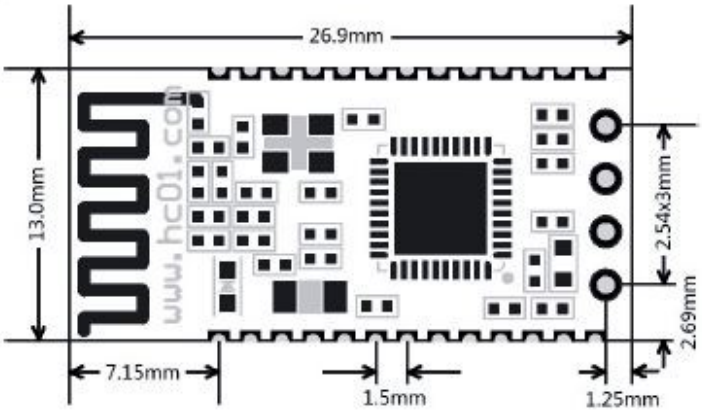
Product introduction

HC-08 Bluetooth UART communication module is a new generation of Bluetooth specification V4.0 BLE Bluetooth protocol based on the transmission module. Wireless working frequency is 2.4GHz ISM, modulation is GFSK. The maximum transmit power module 4dBm, the receiving sensitivity is -93dBm, and iphone4s can achieve 80 meters of super long distance communication under open environment.

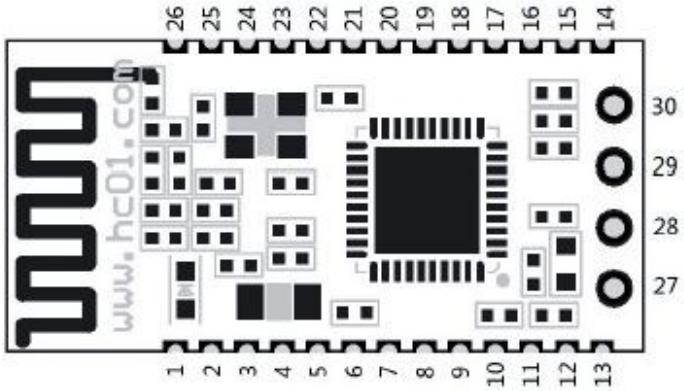
The module uses the stamp hole encapsulation, can patch welding, module size is 26.9mm * 13mm * 2.2mm, very convenient to the customer within the embedded application system.

The module uses the CC2540 chip, the configuration of the 256K Byte space, supports AT command, the user can according to need to change role and the serial baud rate, equipment name and other parameters, the use of flexible.

Product size



Pin definition



HC05 to HC08 Bluetooth module