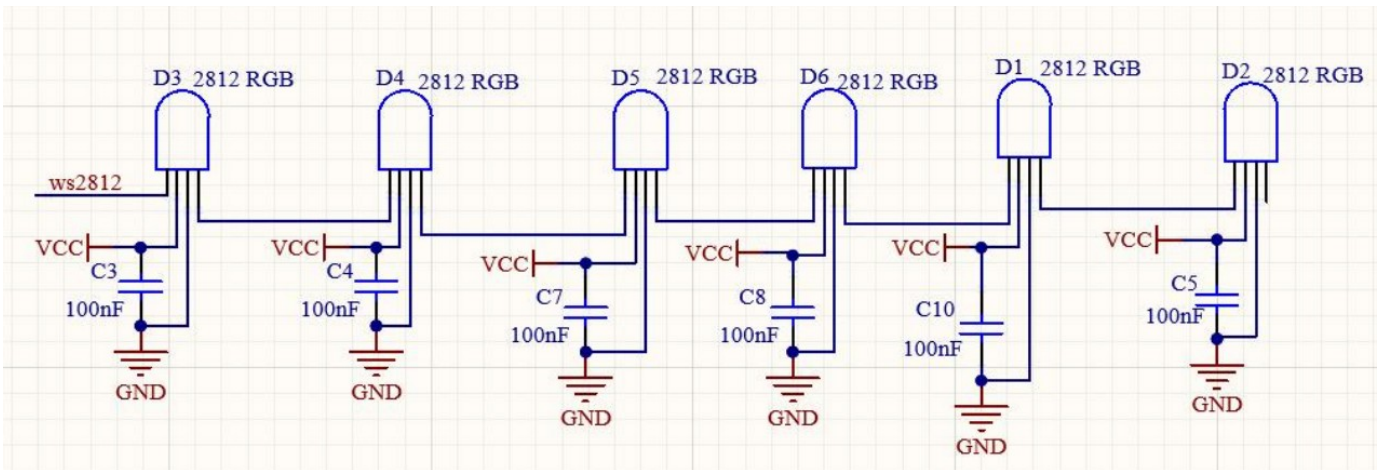
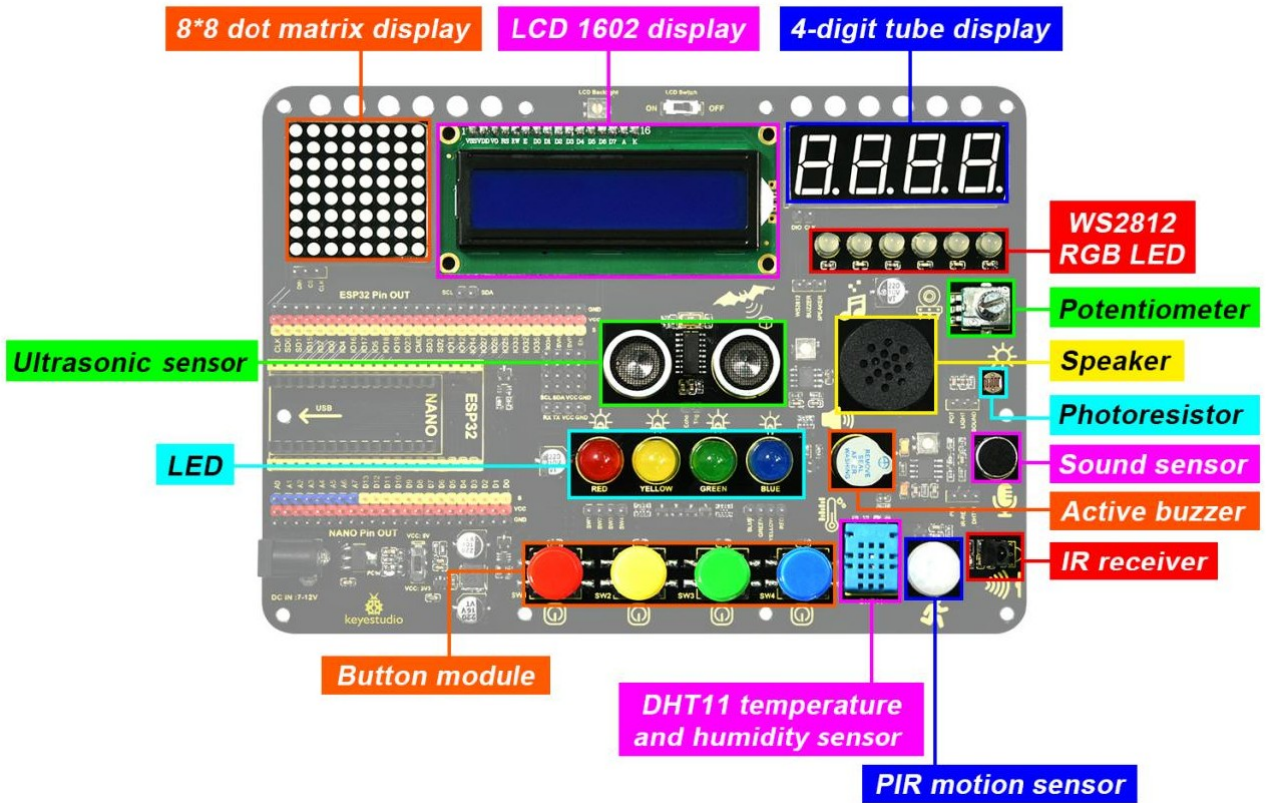
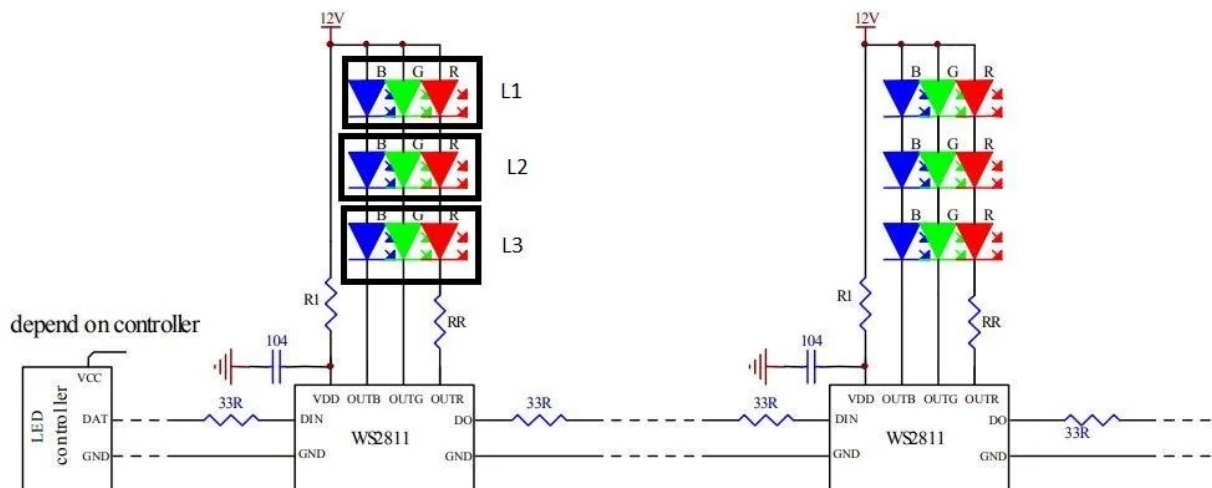


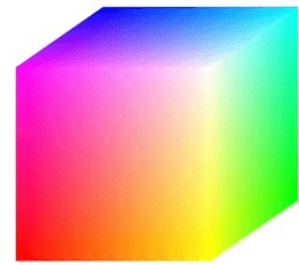
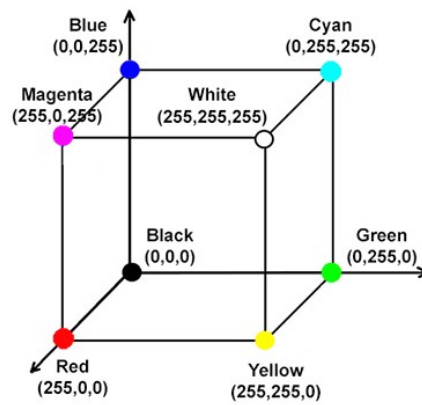
**WS2812 x 6**



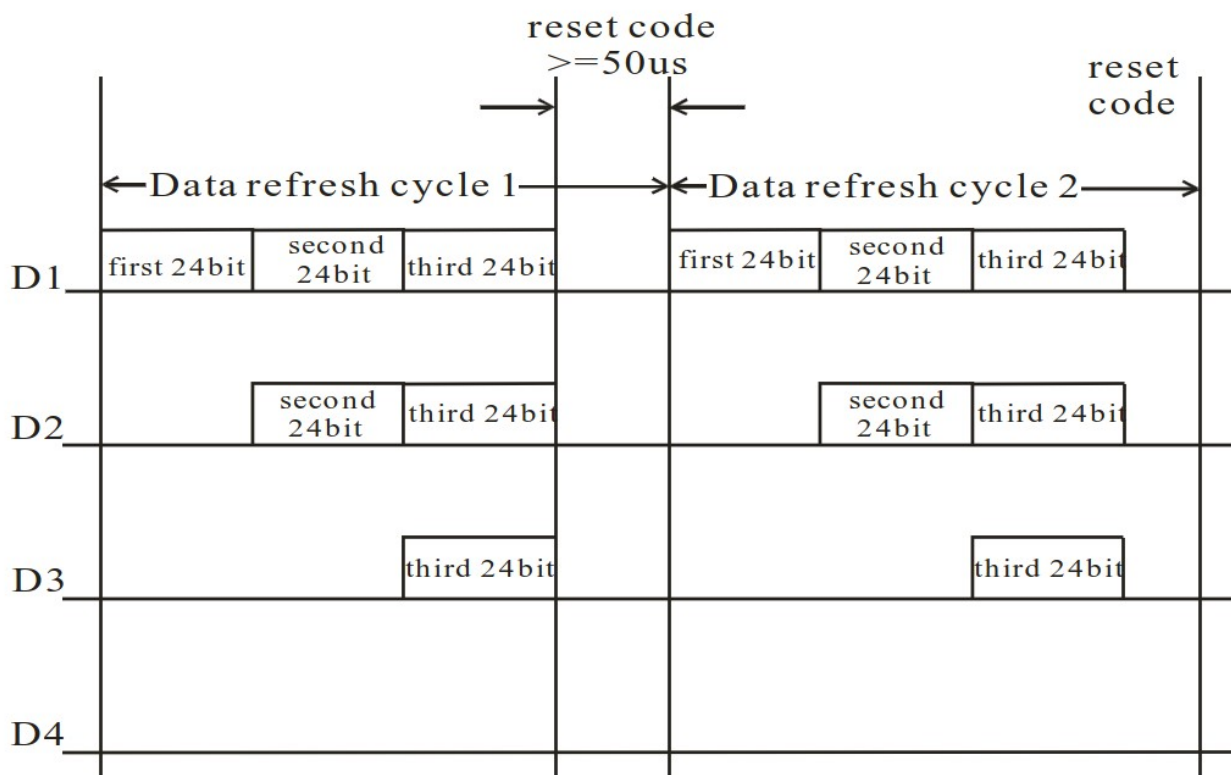
**2. power supply is 12V with 3 LED and constant current(18.5mA) driving**



<https://rgbcolorpicker.com>



### Data transmission method:



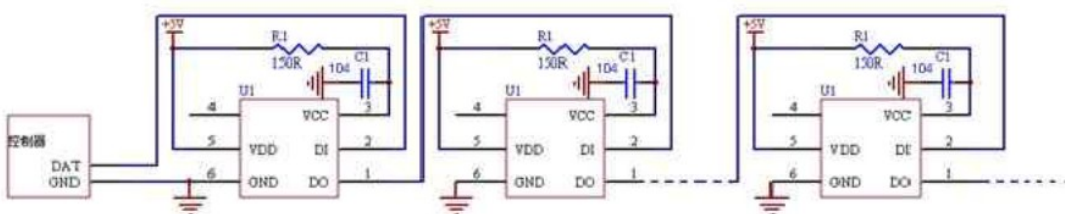
Note: The data of D1 is send by MCU,and D2, D3, D4 through pixel internal reshaping amplification to transmit.

### Composition of 24bit data:

G7	G6	G5	G4	G3	G2	G1	G0	R7	R6	R5	R4	R3	R2	R1	R0	B7	B6	B5	B4	B3	B2	B1	B0
----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Note: Follow the order of GRB to sent data and the high bit sent at first.

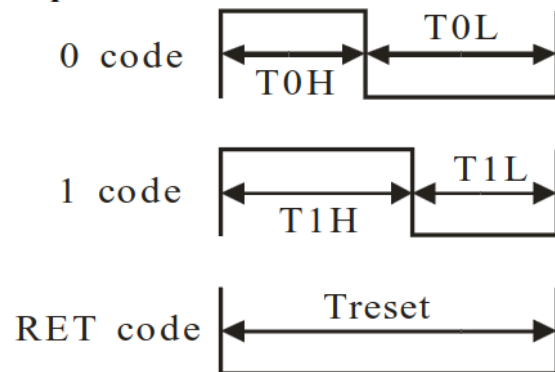
### Typical application circuit:



### Data transfer time( $T_H+T_L=1.25\mu s\pm 600ns$ )

T0H	0 code ,high voltage time	0.35us	$\pm 150ns$
T1H	1 code ,high voltage time	0.7us	$\pm 150ns$
T0L	0 code , low voltage time	0.8us	$\pm 150ns$
T1L	1 code ,low voltage time	0.6us	$\pm 150ns$
RES	low voltage time	Above 50 $\mu s$	

### Sequence chart:



time per Led:  $24 * 1.25 \mu s = 30 \mu s$

@ 30 Hz refresh rate: 1100 leds ( 33 x 33)      moving images      60 A    300 W  
 @ 1 Hz refresh rate: 33300 leds (182 x 182)      static images      1800 A    9 kW  
 @ 0.1 Hz refresh rate: 333000 leds (577 x 577)      max 333k \* 55 mA = 18 kA 92 kW

```

Thonny - /home/ajv/neo_1.py @ 9:1
File Edit View Run Tools Help
Files
  This computer
  / home / ajv / work / merg / python_course / 1_lcd
  docs_kit
  docs_rw2050
  mpy_lcd1602.py
  mpy_lcd1602_test.py
MicroPython device
  boot.py
neo_1.py
1 # mPy - simple neopixel demonstration on ESP32 pin 25
2 # Provided by Anthony Vogelaar, Perth Scotland
3 # rev 0.10 2025-05-20 initial release
4
5 from machine import Pin
6 import neopixel as npx
7
8 # ===== Main =====
9
10 def main():
11     leds = npx.NeoPixel(Pin(25), 6) # Setup for 6 leds on Pin 25
12     leds[0] = [255, 0, 0] # Green
13     leds[1] = [0, 255, 0] # Red
14     leds[2] = [0, 0, 255] # Blue
15     leds[3] = [255, 255, 255] # White
16     leds.write()
17
18
19 main()
20
21 # ===== End =====
22
Shell
>>> %Run -c $EDITOR_CONTENT
MPY: soft reboot
>>>
MicroPython (ESP32) • CP2102 USB to UART Bridge Controller @ /dev/ttyUSB0

```