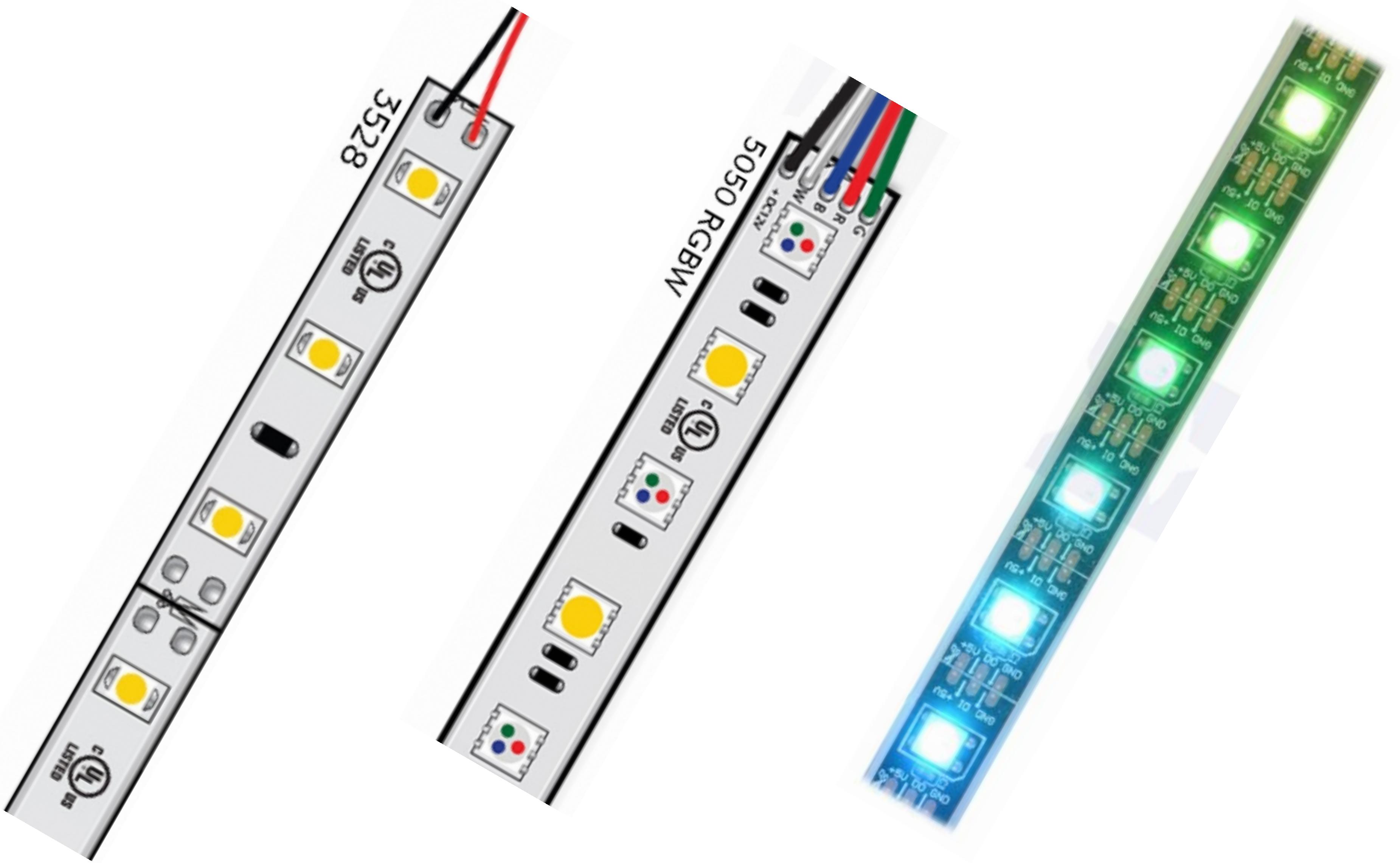


Workshop s ESP8266

Ing. Gabriel Války, PhD.

LED pásky



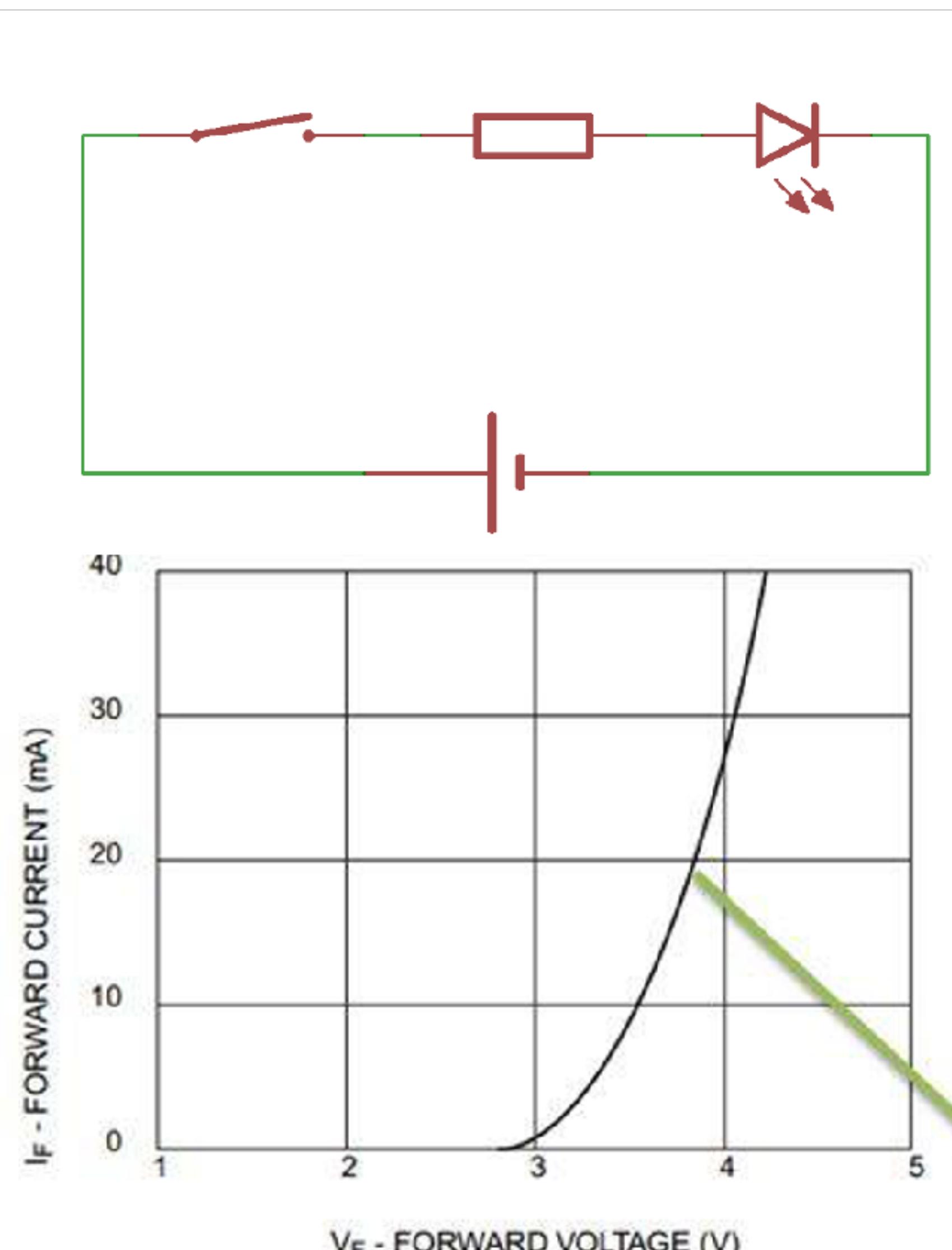
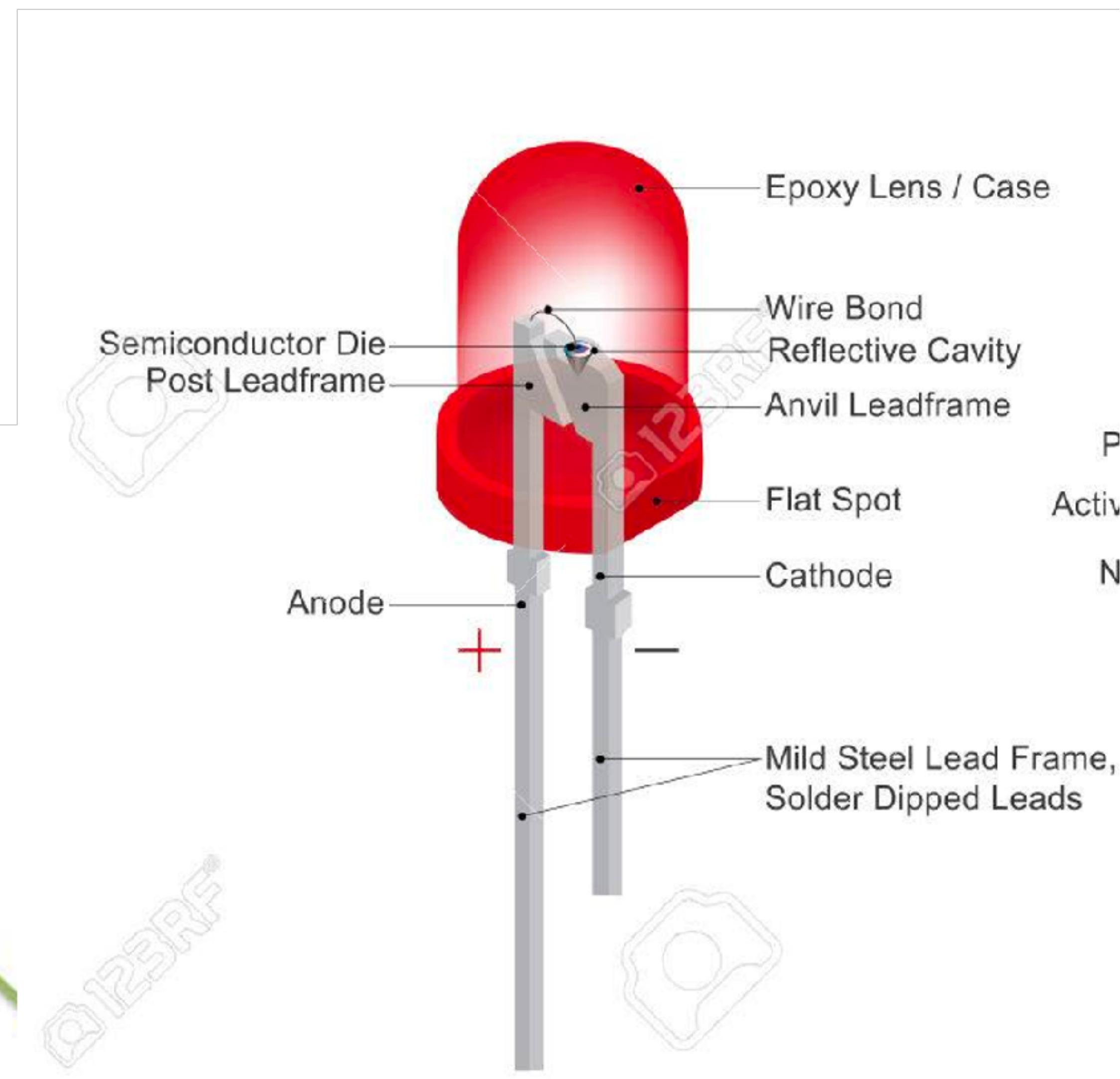
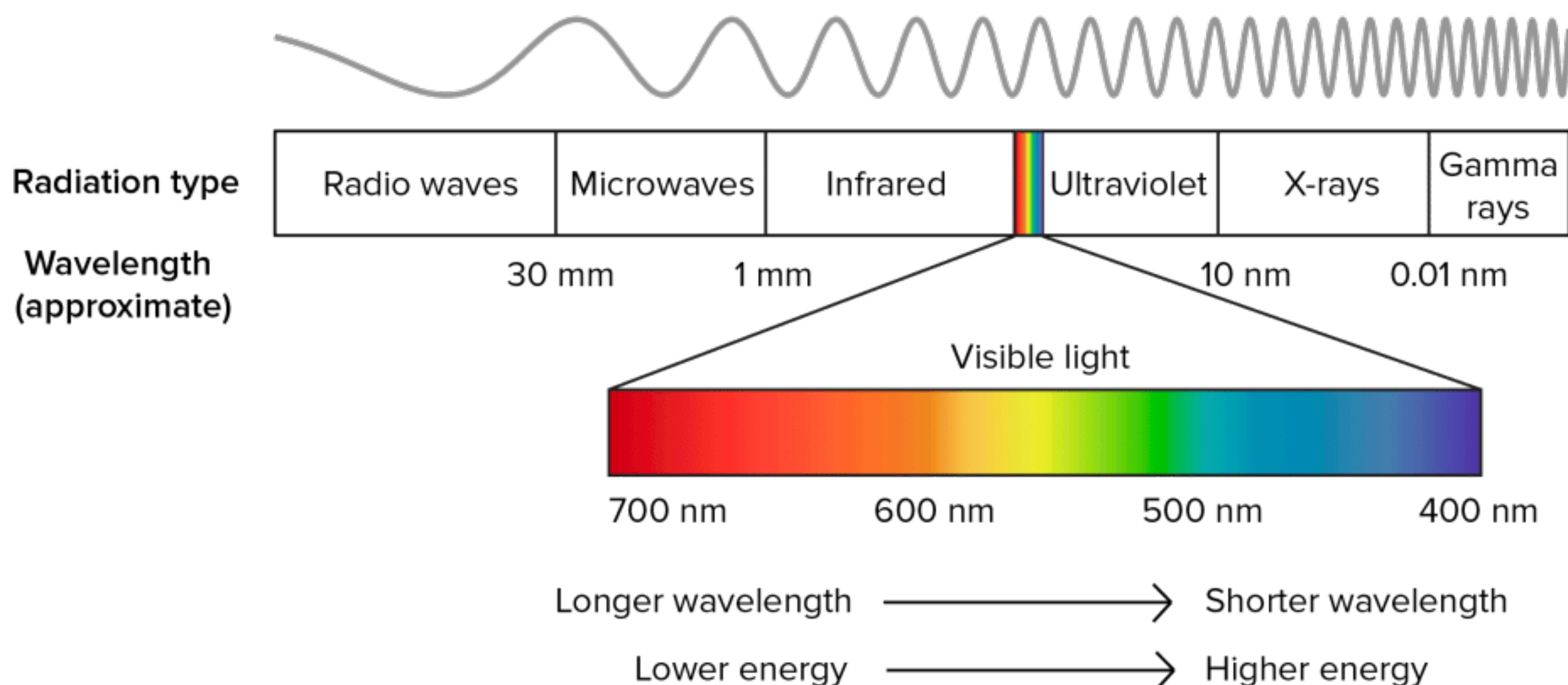


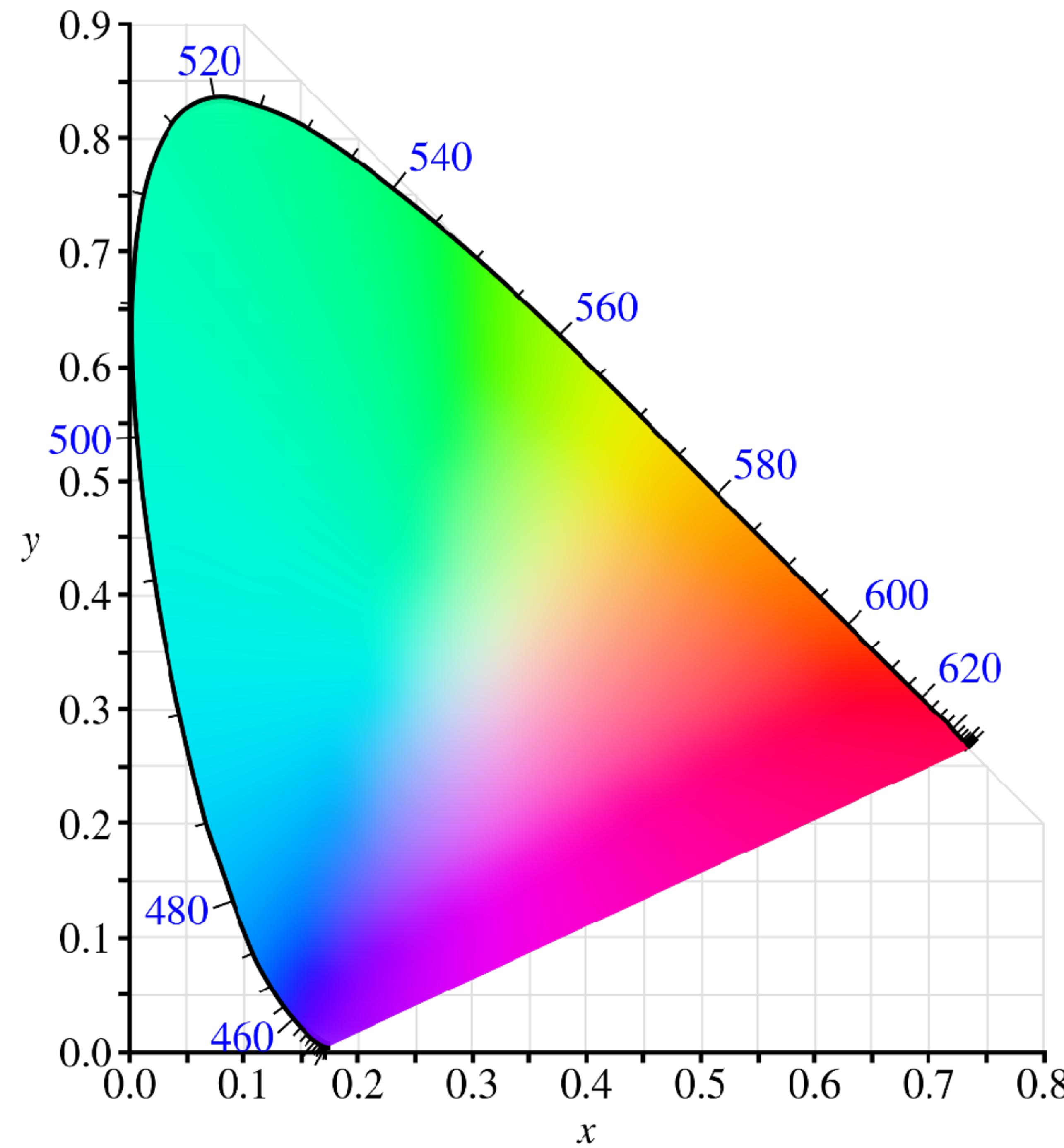
Fig.1 Forward Current vs. Forward Voltage

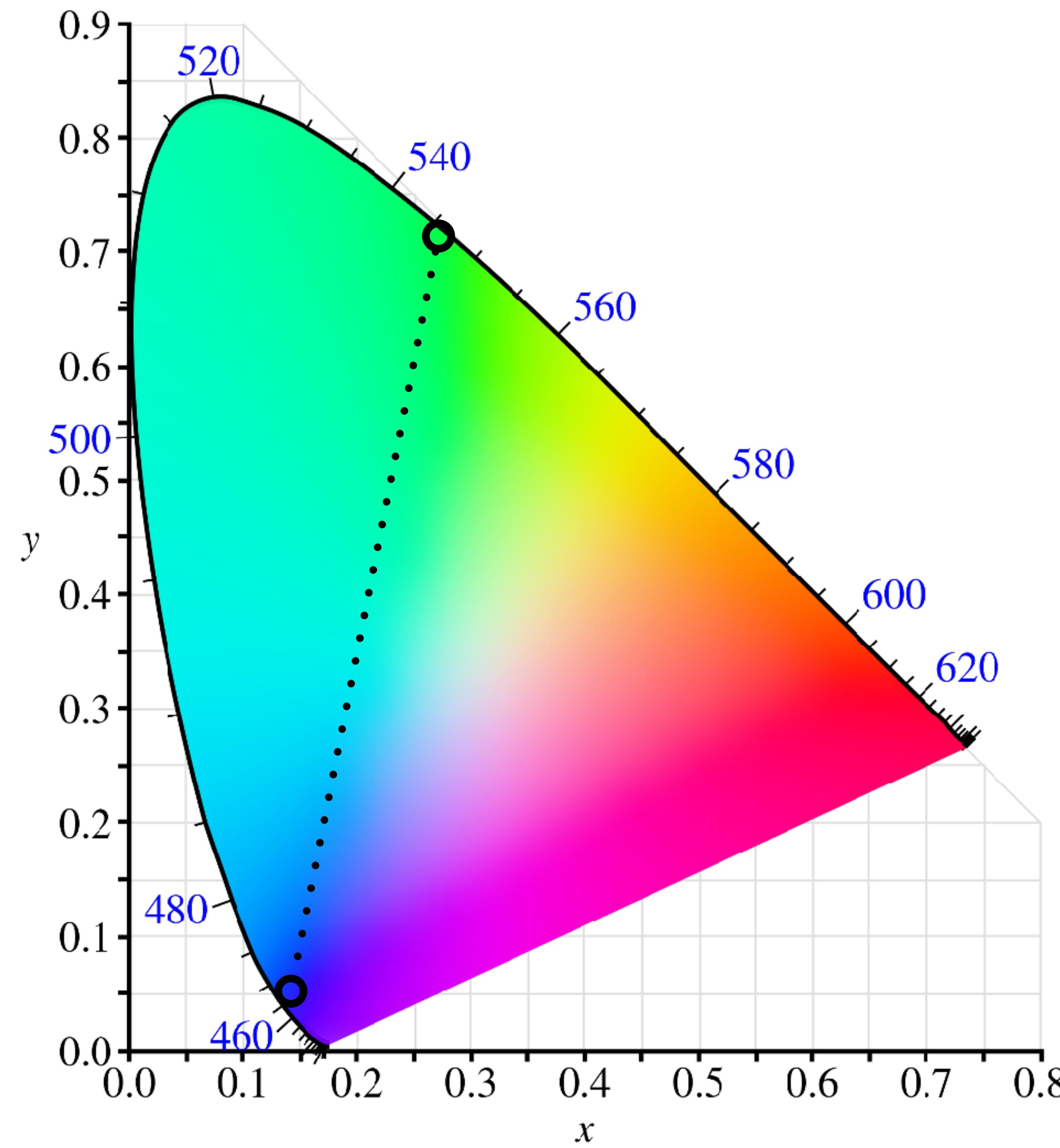


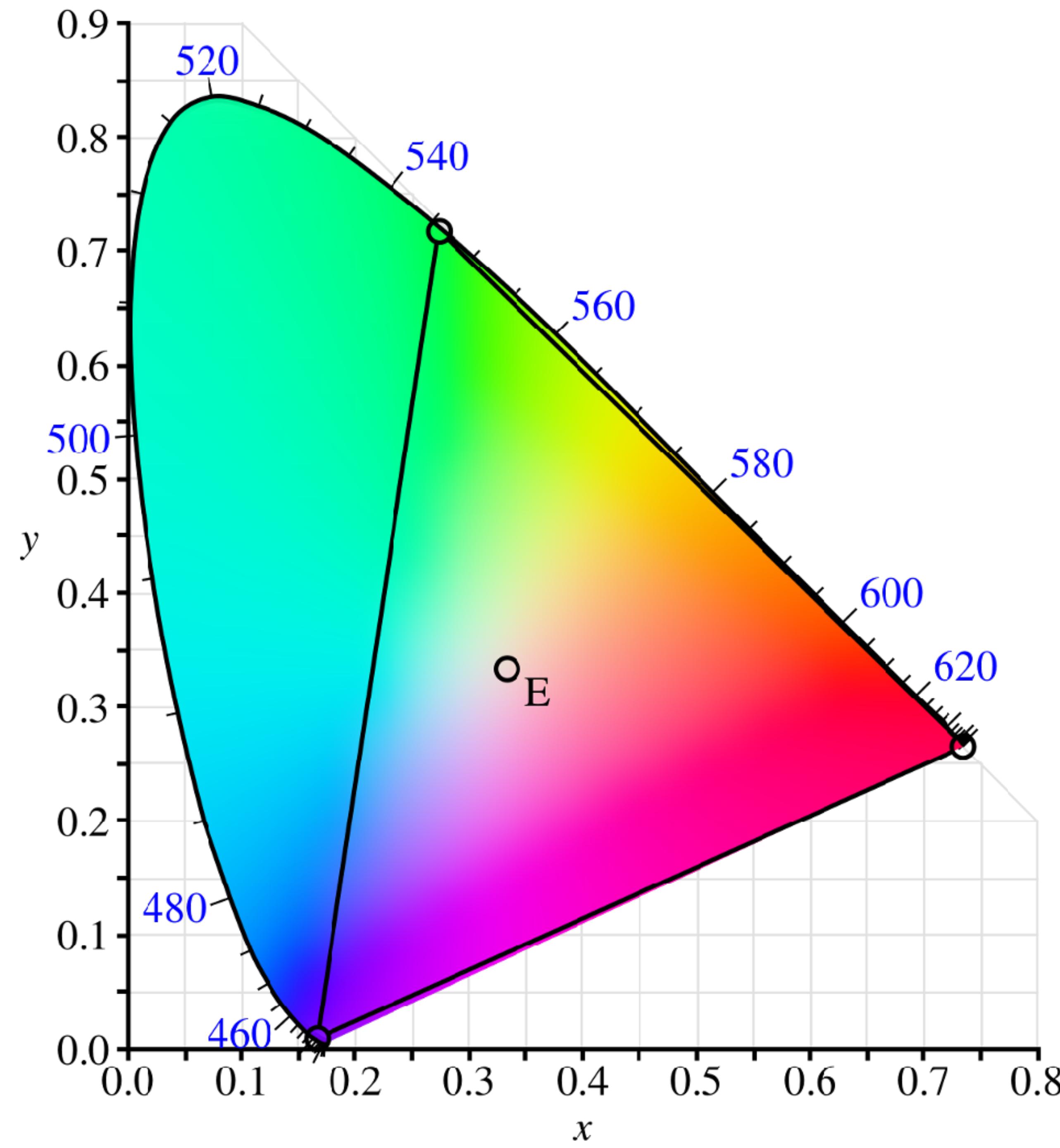
Electromagnetic spectrum



Svetlo







Arduino

Blink | Arduino 1.8.15

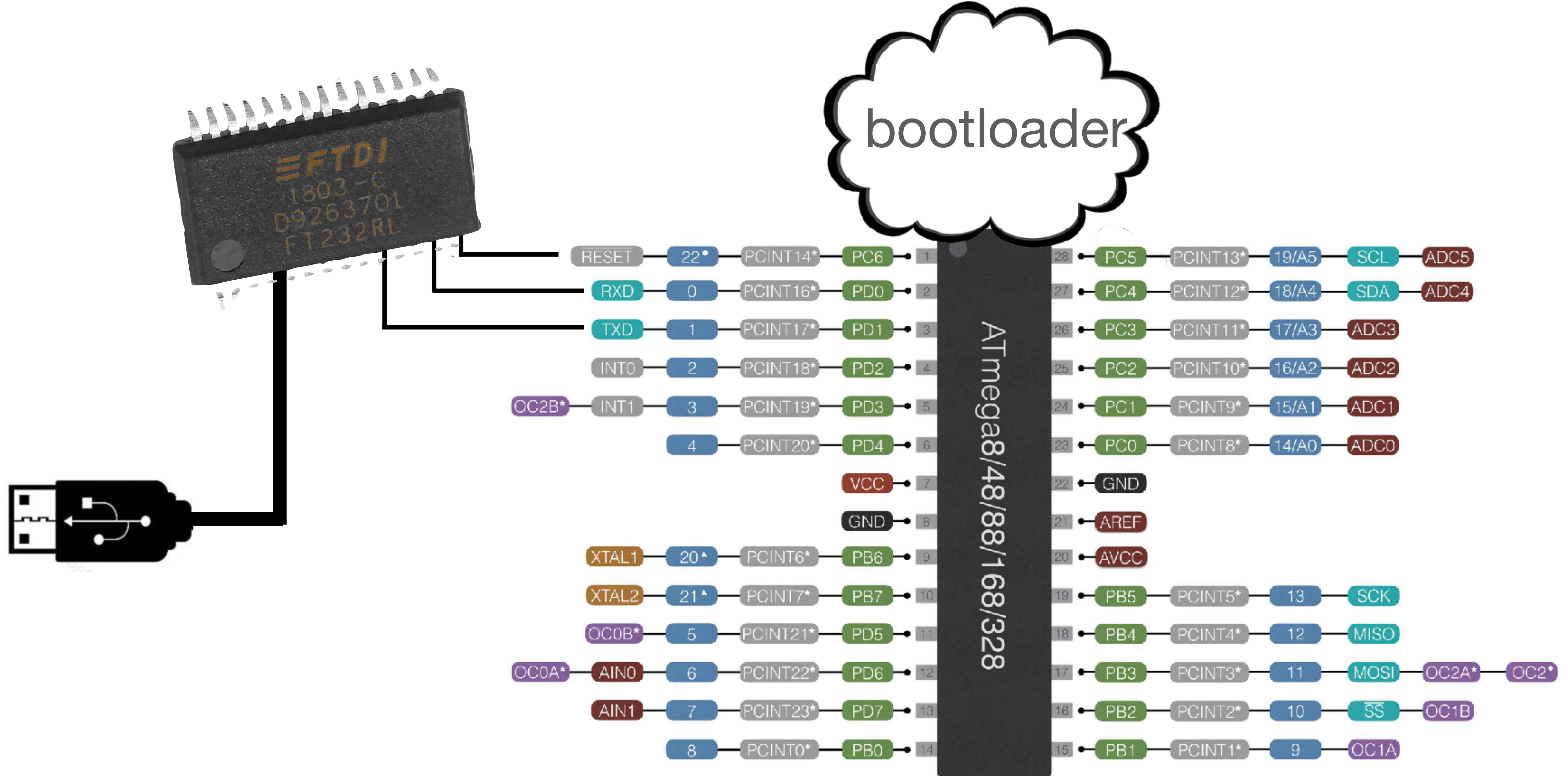
```
// the setup function runs once when you press reset or power the board
void setup() {
  // initialize digital pin LED_BUILTIN as an output.
  pinMode(LED_BUILTIN, OUTPUT);
}

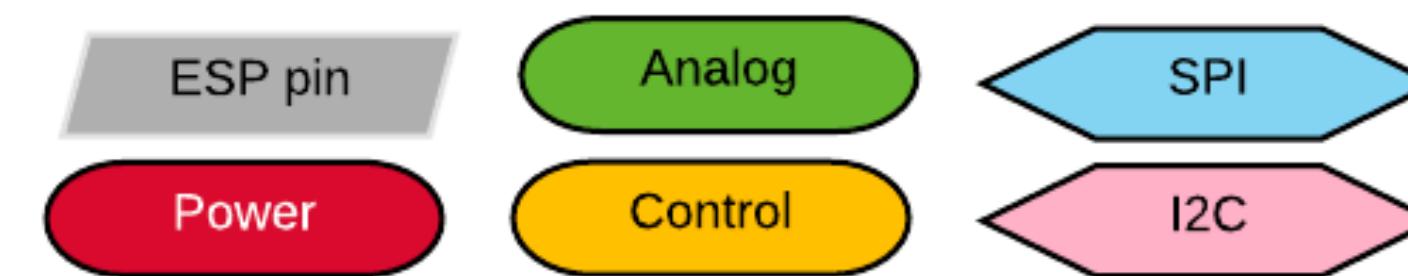
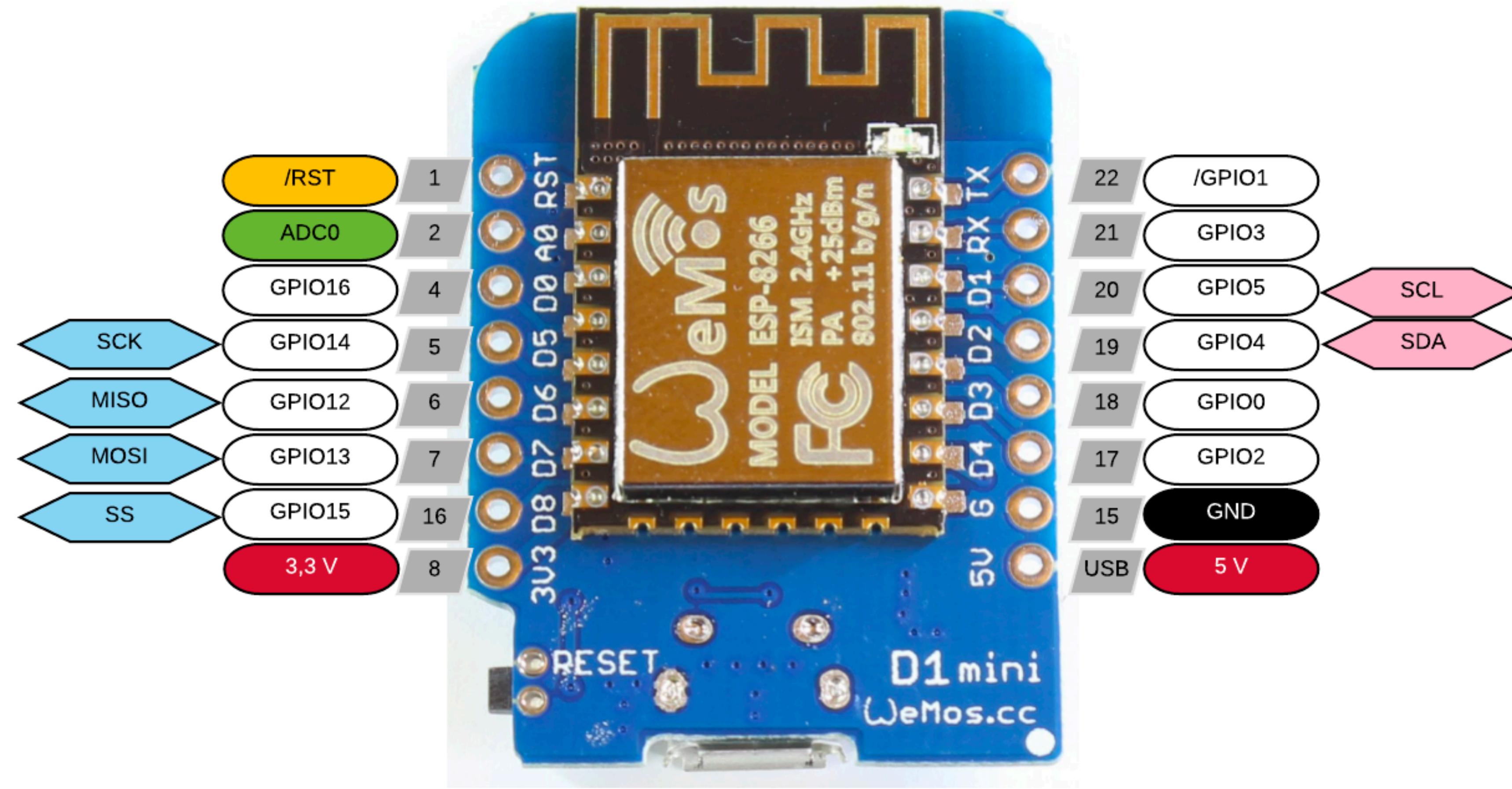
// the loop function runs over and over again forever
void loop() {
  digitalWrite(LED_BUILTIN, HIGH);      // turn the LED on (HIGH is the voltage level)
  delay(1000);                         // wait for a second
  digitalWrite(LED_BUILTIN, LOW);       // turn the LED off by making the voltage level
  delay(1000);                         // wait for a second
}
```

1

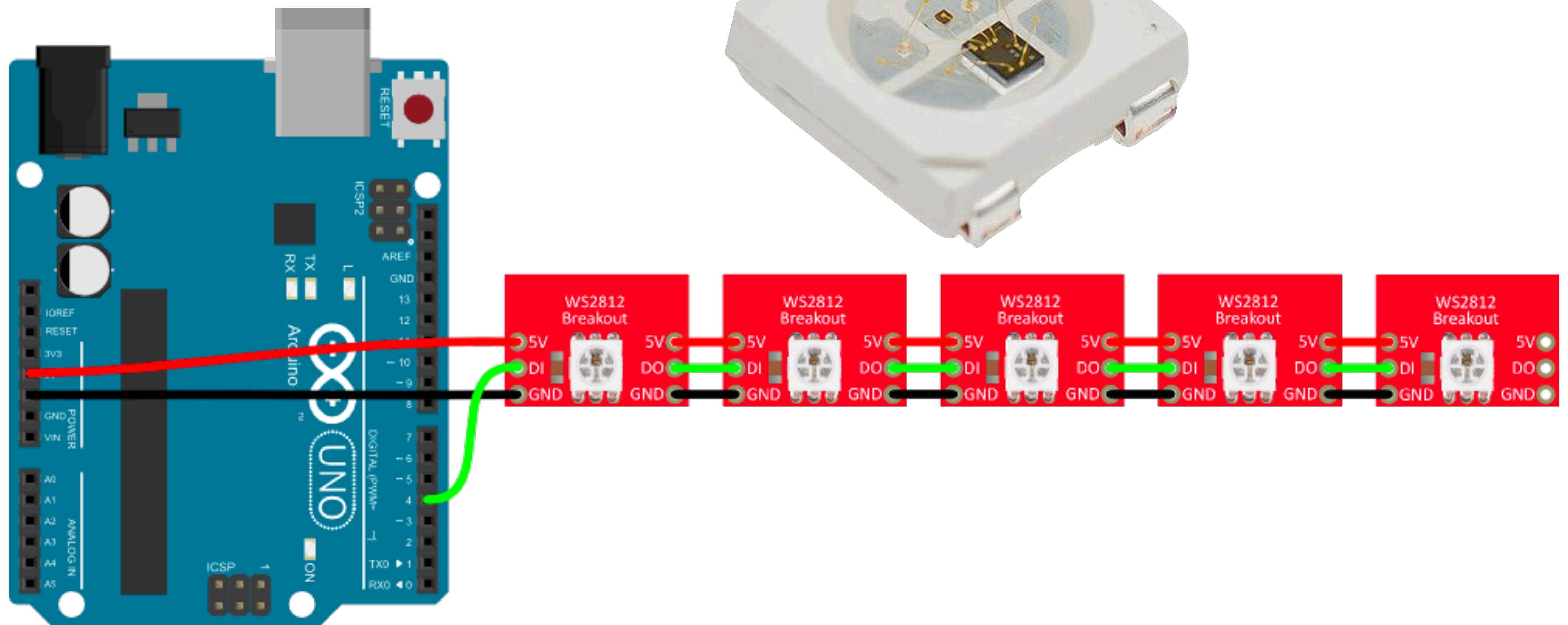
Arduino Pro or Pro Mini, ATmega328P (3.3V, 8 MHz) on /dev/cu.usbserial-10



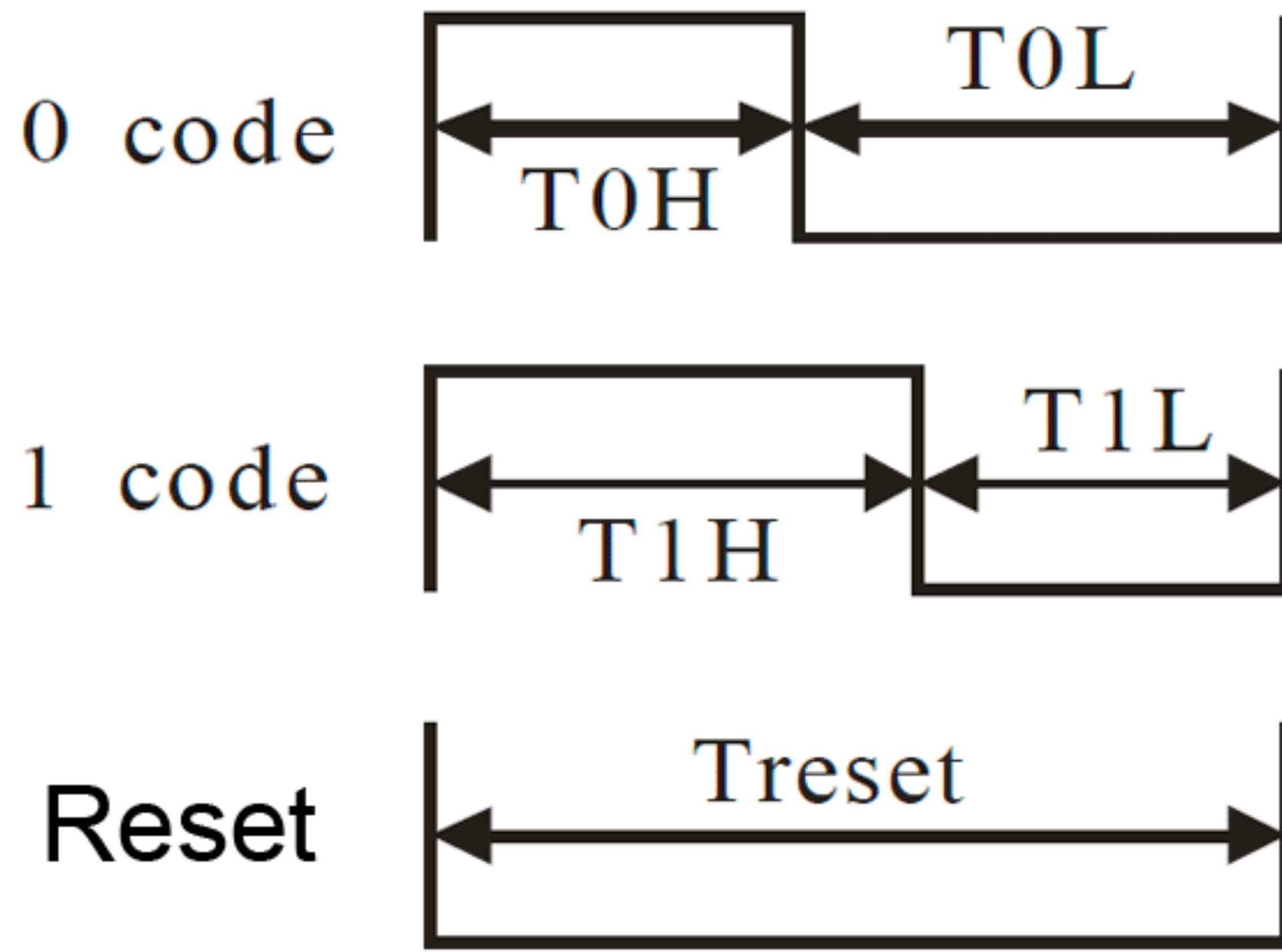




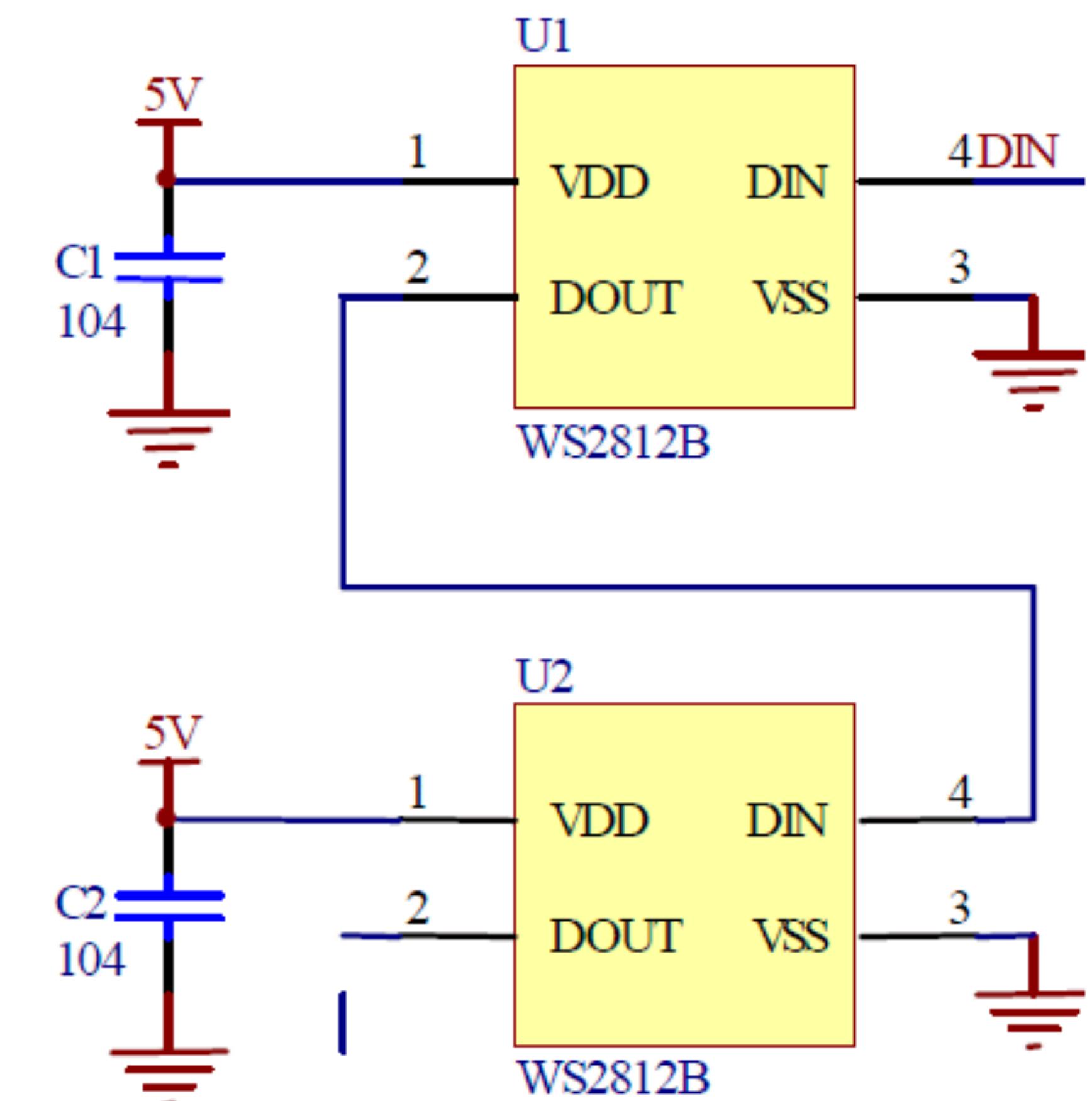
WS2812

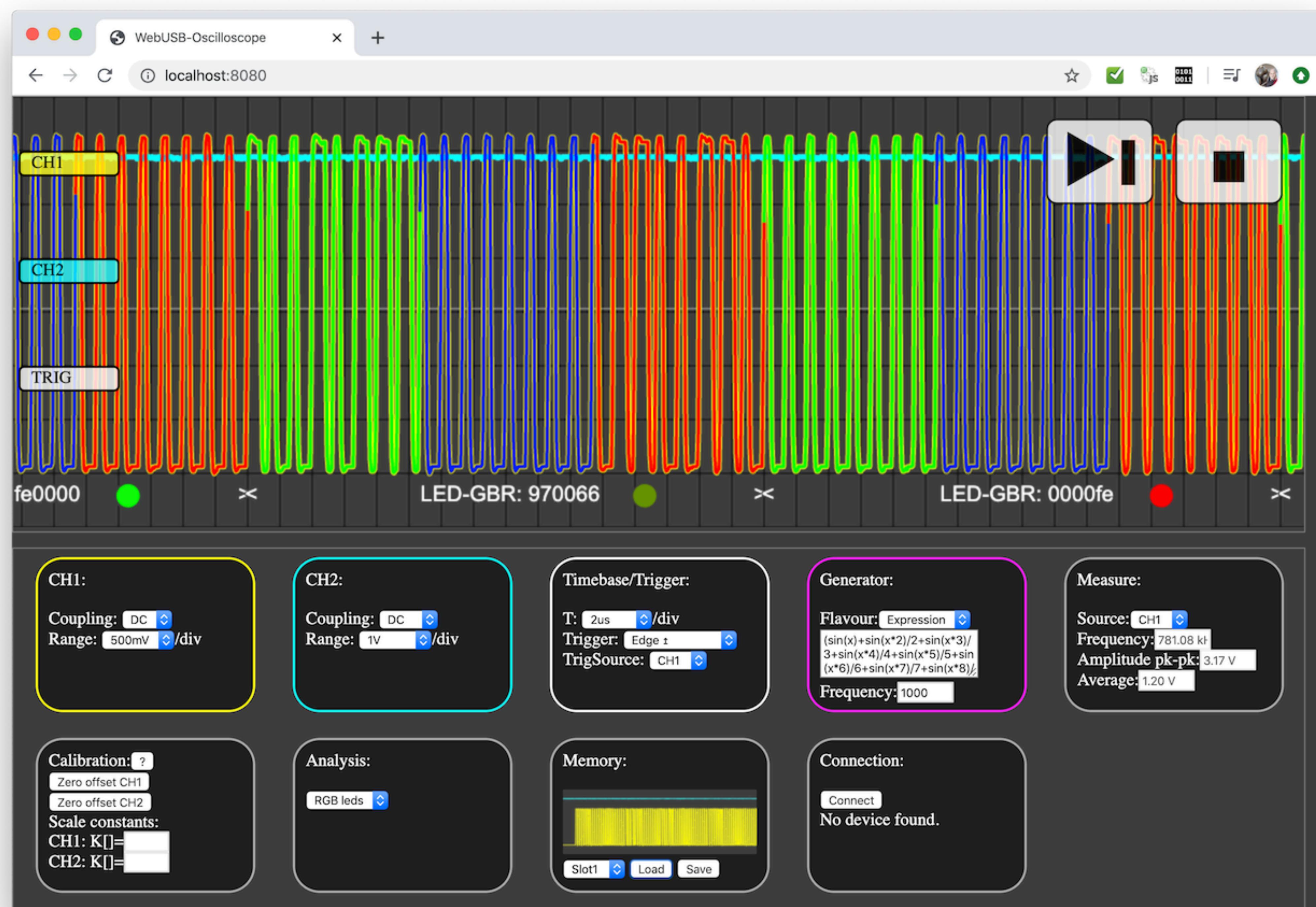


WS2812 Protocol



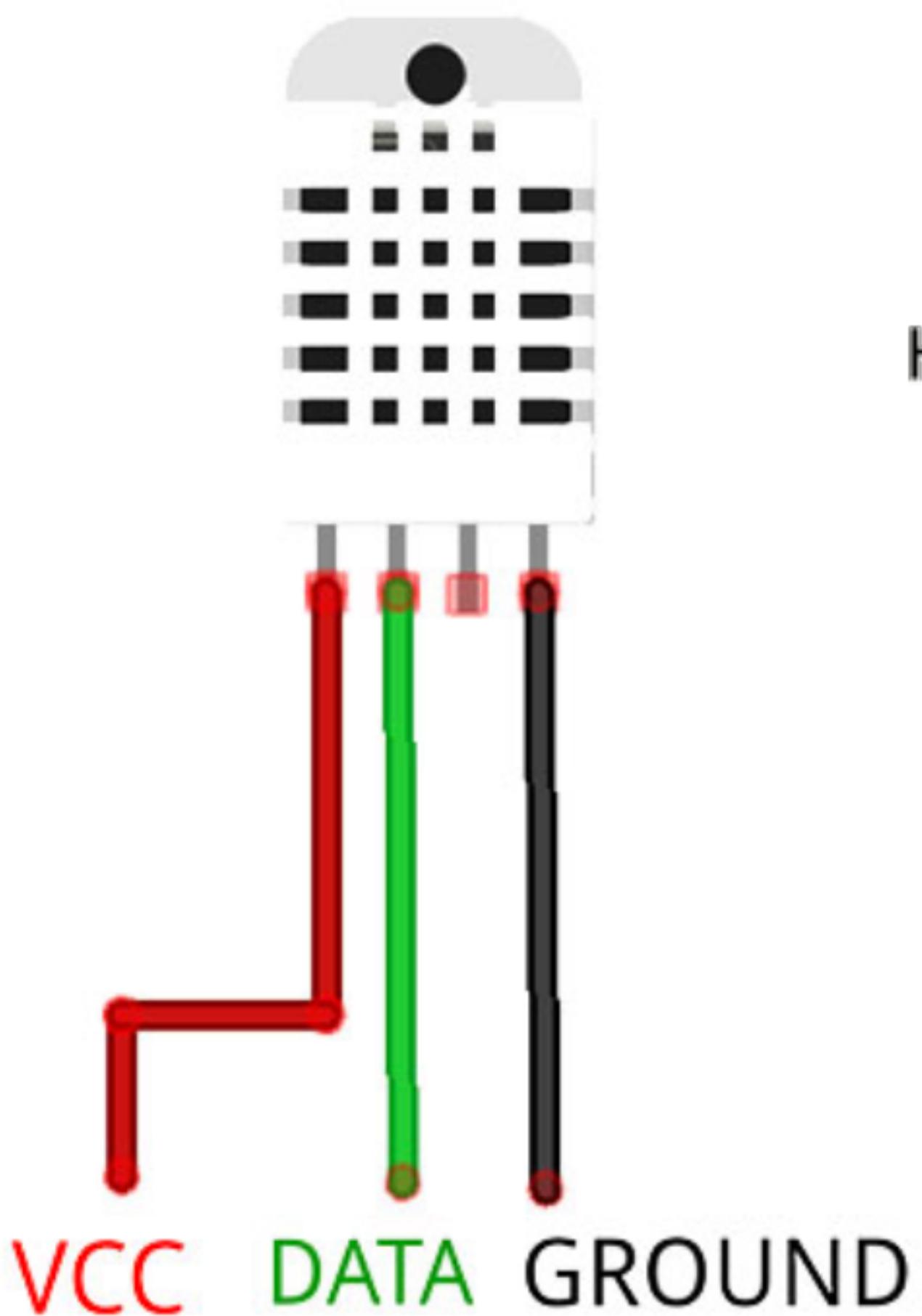
LED-Chain



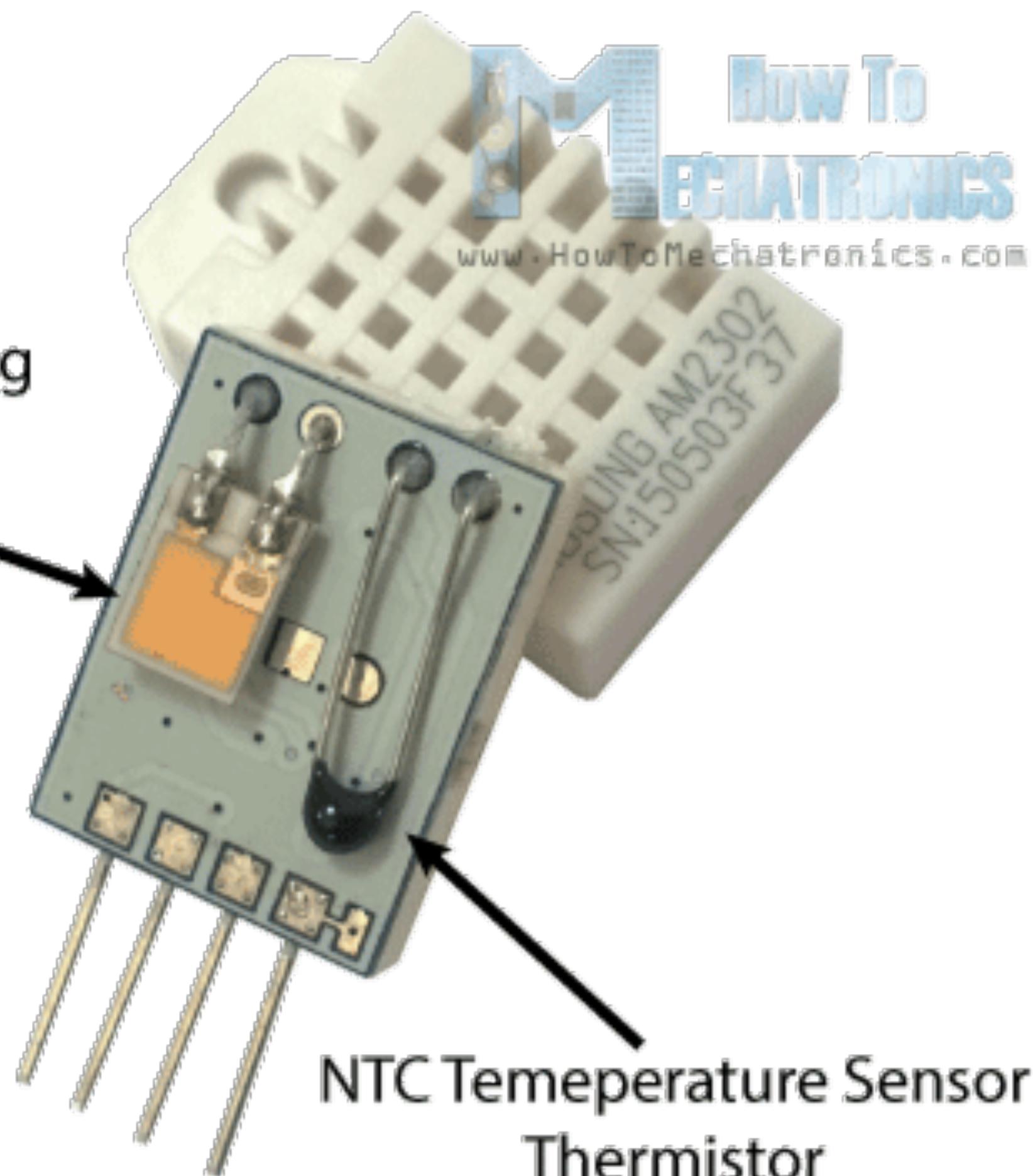


DHT22

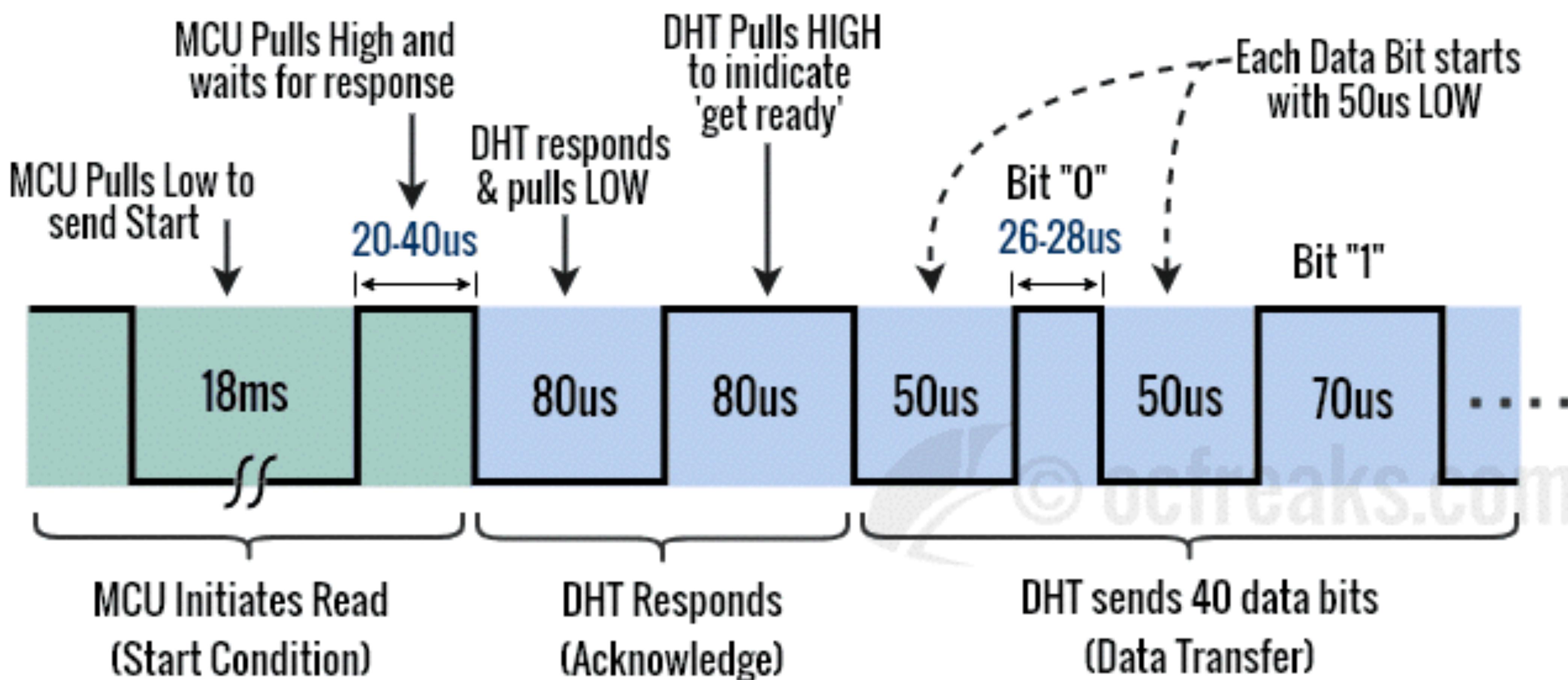
DHT22



Humidity Sensing Component



DHT11 / DHT22 Protocol



DATA=16 bits RH data+16 bits Temperature data+8 bits check-sum

Example: MCU has received 40 bits data from AM2302 as

0000 0010 1000 1100 0000 0001 0101 1111 1110 1110
16 bits RH data 16 bits T data check sum

Here we convert 16 bits RH data from binary system to decimal system,

0000 0010 1000 1100 → 652
Binary system Decimal system

RH=652/10=65.2%RH

Here we convert 16 bits T data from binary system to decimal system,

0000 0001 0101 1111 → 351
Binary system Decimal system

T=351/10=35.1°C

When highest bit of temperature is 1, it means the temperature is below 0 degree Celsius.

Example: 1000 0000 0110 0101, T= minus 10.1°C

16 bits T data

Sum=0000 0010+1000 1100+0000 0001+0101 1111=1110 1110

Check-sum=the last 8 bits of Sum=1110 1110

Ideme na to!