

Tudo Sobre

JS

ARDUINO DAY

A close-up photograph of a man with short, light-colored hair and glasses, wearing a dark shirt and a strap across his chest. He is holding a small, glowing blue sphere in his right hand. The background is dark and out of focus.

1962

NICK HOLONYAK

A black and white portrait of Nick Holonyak Jr. He is an older man with glasses, a mustache, and receding hairline. He is wearing a dark suit jacket over a light-colored shirt. In his left hand, he holds a thick book or folder. The background is dark and out of focus.

1962

NICK HOLONYAK

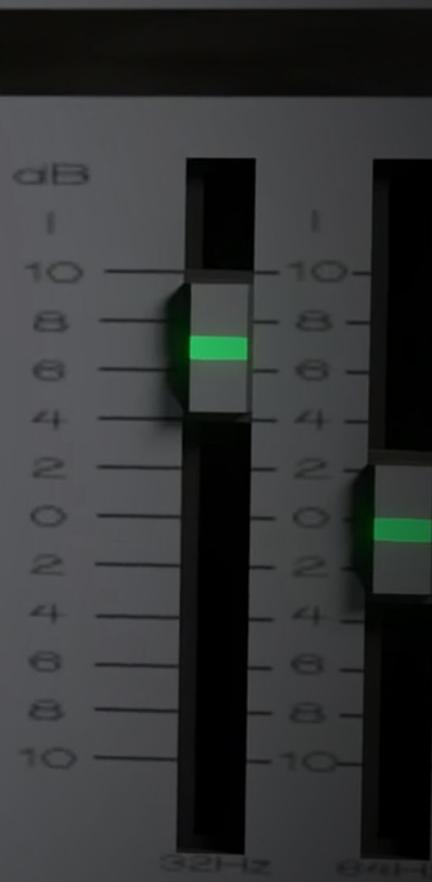


## SPECTRUM ANALYZER



POWER MEASURING ANALIZER EQUALIZER LINE  
MIC LEVEL

- ON SOURCE
- OFF TAPE













175 °C

20 °C



LIGHT

EMITTING

HOPE

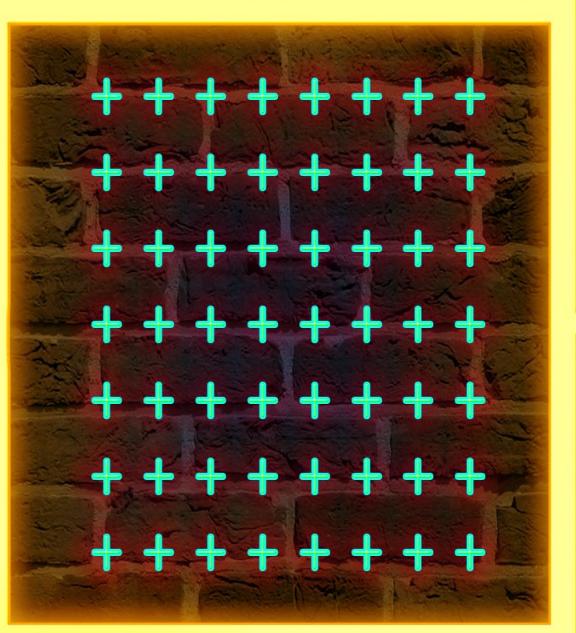
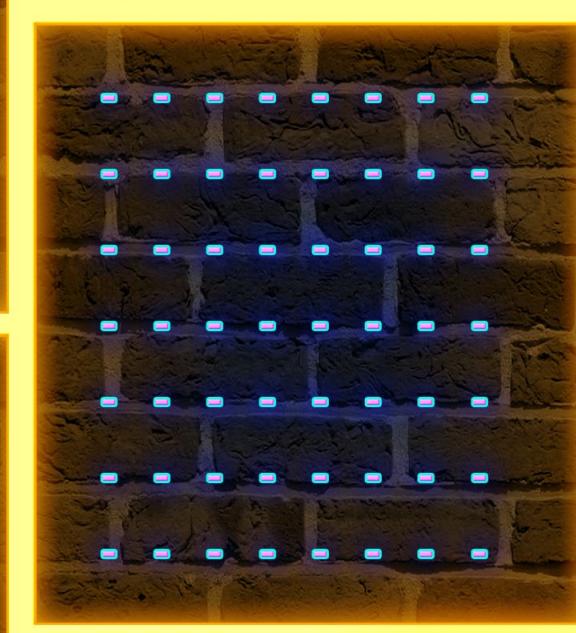
LIGHT

EMITTING

DEVICE

P

N

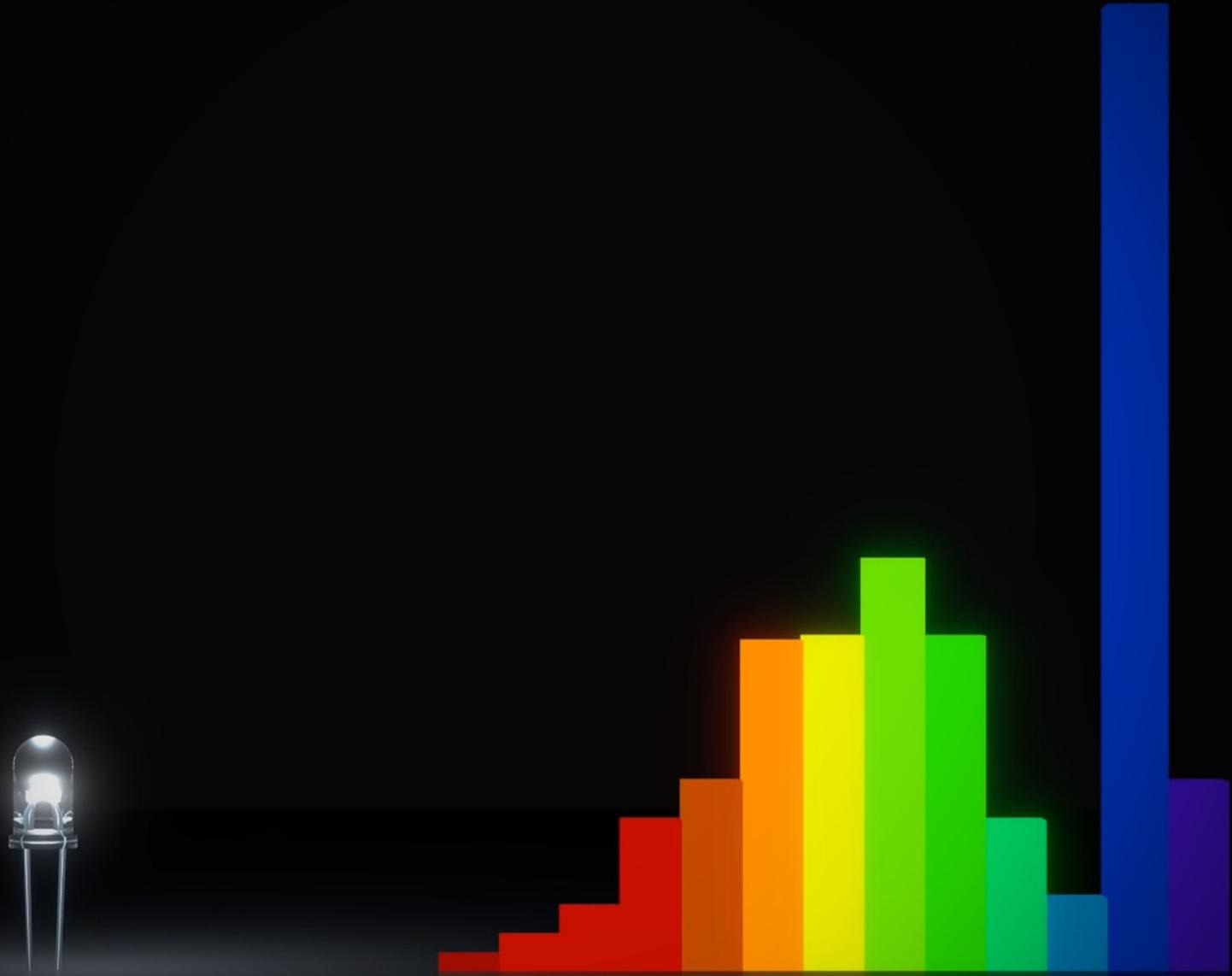


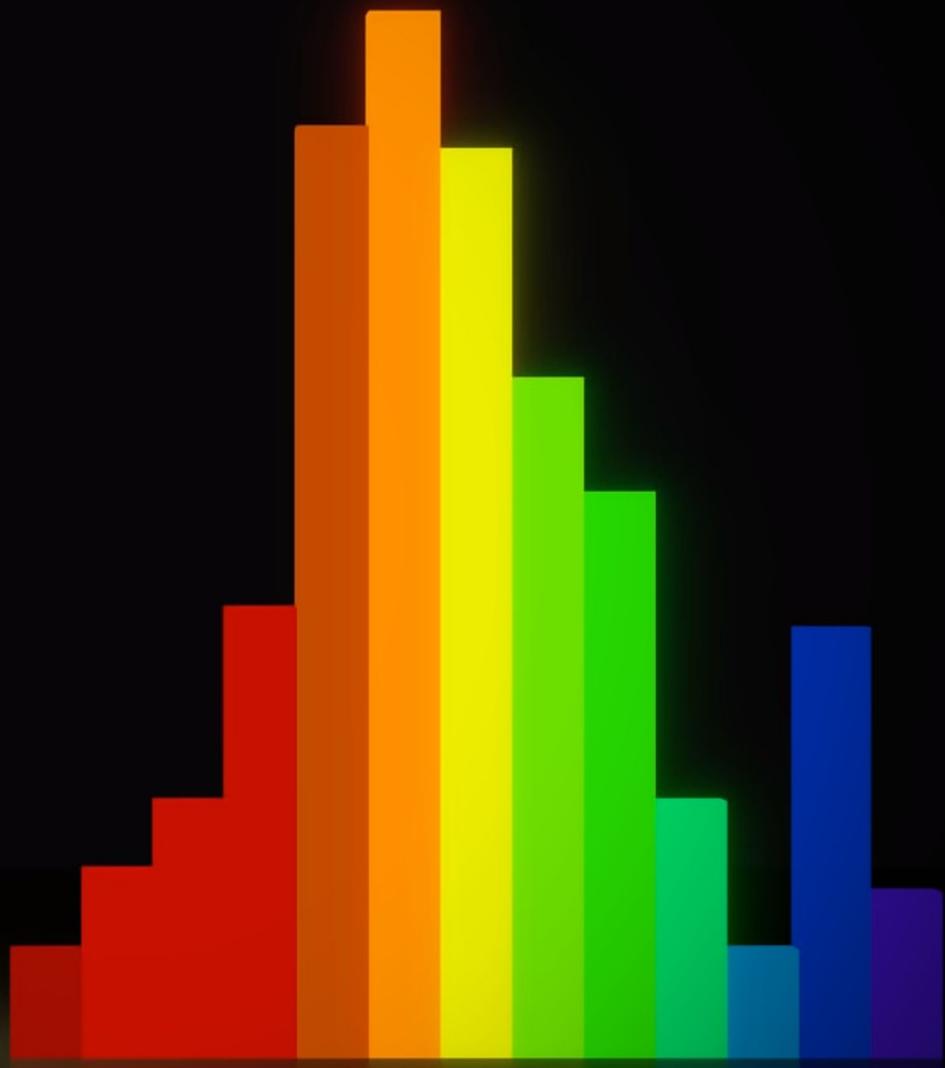
Anodo

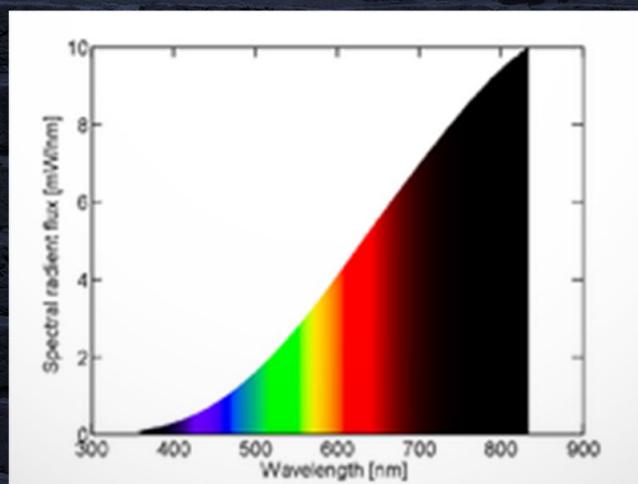
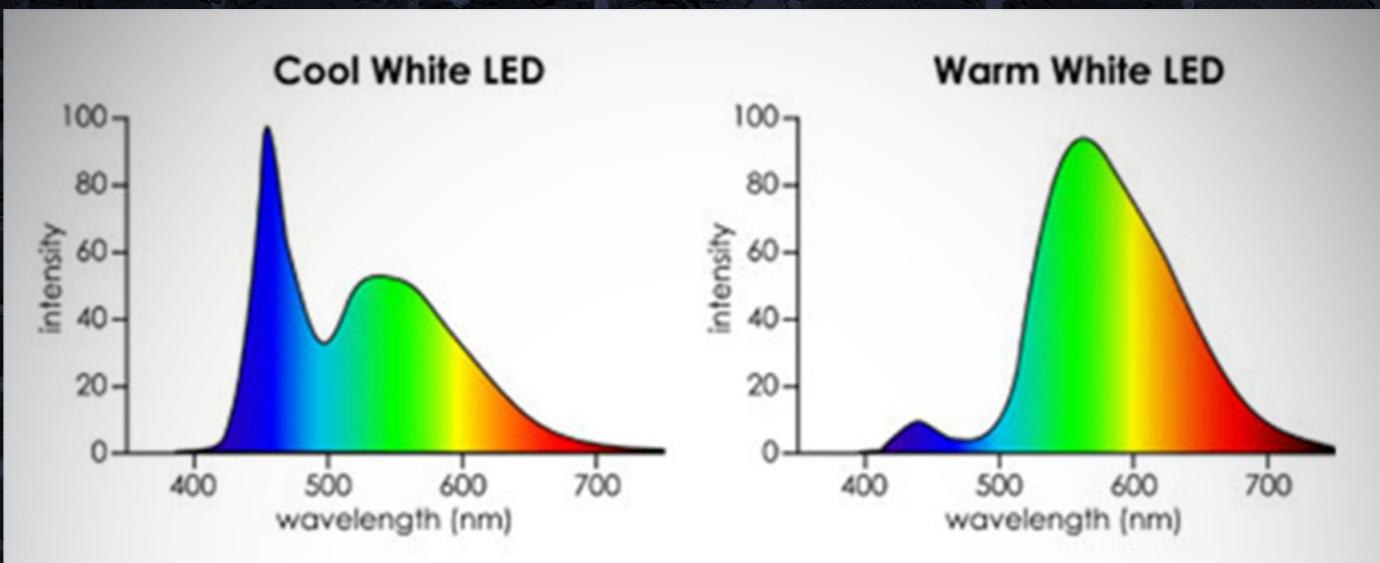


Catodo

Color	Wavelength [nm]	Voltage drop [ $\Delta V$ ]	Semiconductor material
Infrared	$\lambda > 760$	$\Delta V < 1.63$	Gallium arsenide (GaAs) Aluminium gallium arsenide (AlGaAs)
Red	$610 < \lambda < 760$	$1.63 < \Delta V < 2.03$	Aluminium gallium arsenide (AlGaAs) Gallium arsenide phosphide (GaAsP) Aluminium gallium indium phosphide (AlGaNp) Gallium(III) phosphide (GaP)
Orange	$590 < \lambda < 610$	$2.03 < \Delta V < 2.10$	Gallium arsenide phosphide (GaAsP) Aluminium gallium indium phosphide (AlGaNp) Gallium(III) phosphide (GaP)
Yellow	$570 < \lambda < 590$	$2.10 < \Delta V < 2.18$	Gallium arsenide phosphide (GaAsP) Aluminium gallium indium phosphide (AlGaNp) Gallium(III) phosphide (GaP)
Green	$500 < \lambda < 570$	$1.9^{[70]} < \Delta V < 4.0$	<b>Traditional green:</b> Gallium(III) phosphide (GaP) Aluminium gallium indium phosphide (AlGaNp) Aluminium gallium phosphide (AlGaP) <b>Pure green:</b> Indium gallium nitride (InGaN) / Gallium(III) nitride (GaN)
Blue	$450 < \lambda < 500$	$2.48 < \Delta V < 3.7$	Zinc selenide (ZnSe) Indium gallium nitride (InGaN) Silicon carbide (SiC) as substrate Silicon (Si) as substrate—under development
Violet	$400 < \lambda < 450$	$2.76 < \Delta V < 4.0$	Indium gallium nitride (InGaN)
Purple	Multiple types	$2.48 < \Delta V < 3.7$	Dual blue/red LEDs, blue with red phosphor, or white with purple plastic
Ultraviolet	$\lambda < 400$	$3.1 < \Delta V < 4.4$	Diamond (235 nm) <sup>[71]</sup> Boron nitride (215 nm) <sup>[72][73]</sup> Aluminium nitride (AlN) (210 nm) <sup>[74]</sup> Aluminium gallium nitride (AlGaN) Aluminium gallium indium nitride (AlGaNiN)—down to 210 nm <sup>[75]</sup>
Pink	Multiple types	$\Delta V \sim 3.3^{[76]}$	Blue with one or two phosphor layers: yellow with red, orange or pink phosphor added afterwards, or white phosphors with pink pigment or dye over top. <sup>[77]</sup>
White	Broad spectrum	$\Delta V = 3.5$	Blue/UV diode with yellow phosphor







blink

circuit

fade

arduino nano

transistor arduino

pin

resistor

potentiometer

led matrix

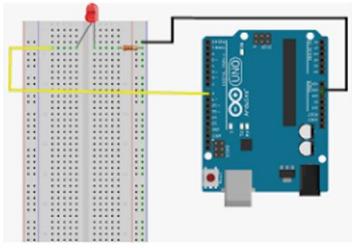
arduino uno

arduino blinking led

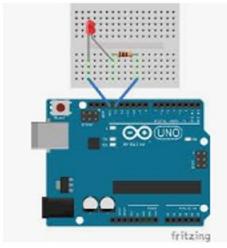
pwm

breadboard

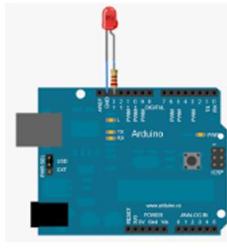
button



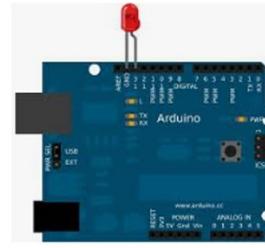
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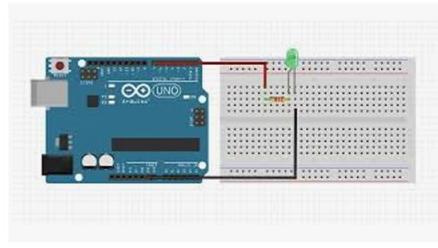
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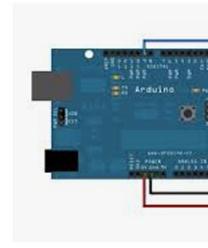
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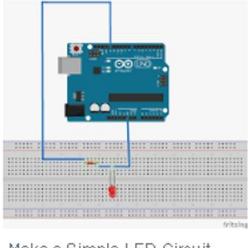
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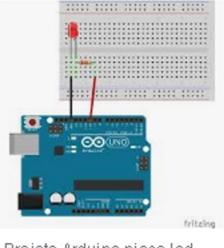
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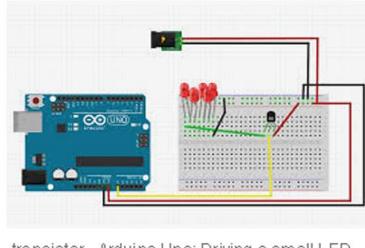
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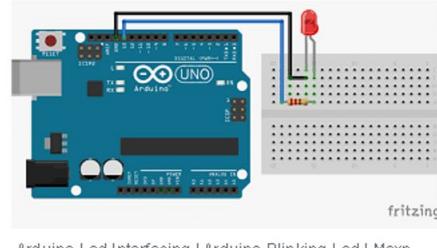
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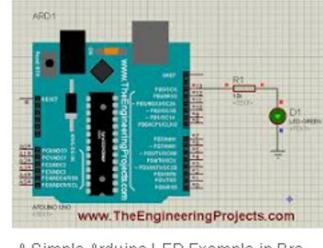
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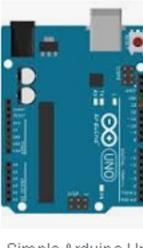
transistor - Arduino Uno: Driving a small LED ...  
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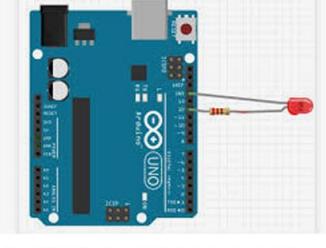
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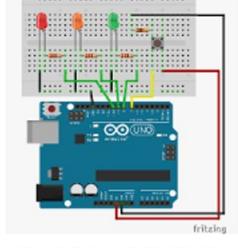
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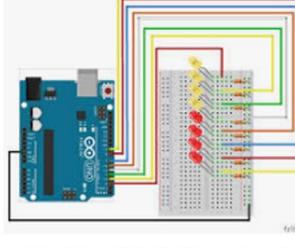
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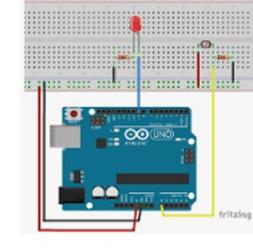
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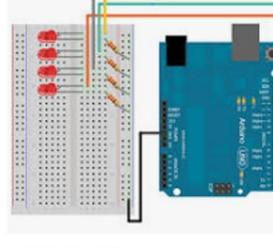
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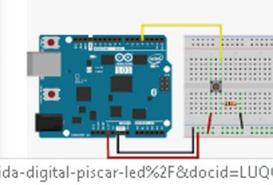
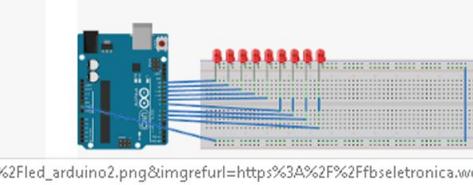
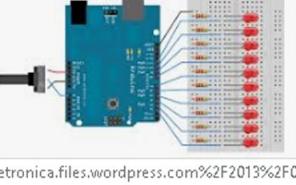
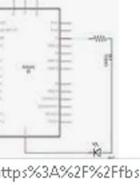
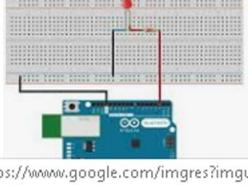
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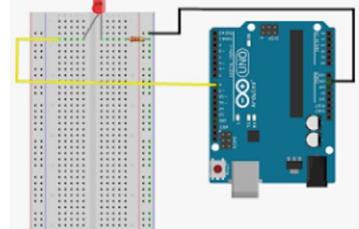


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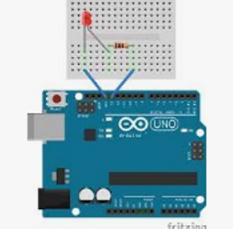


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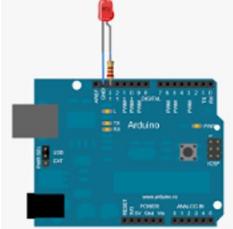




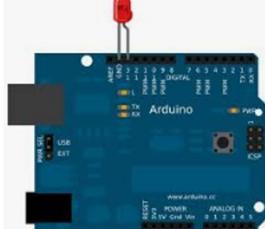
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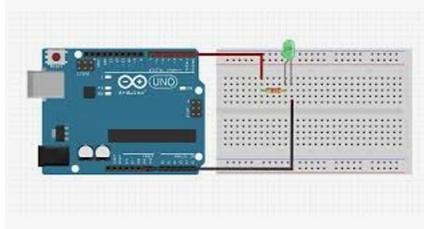
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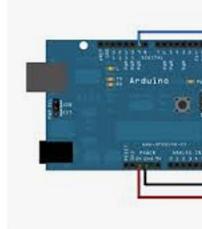
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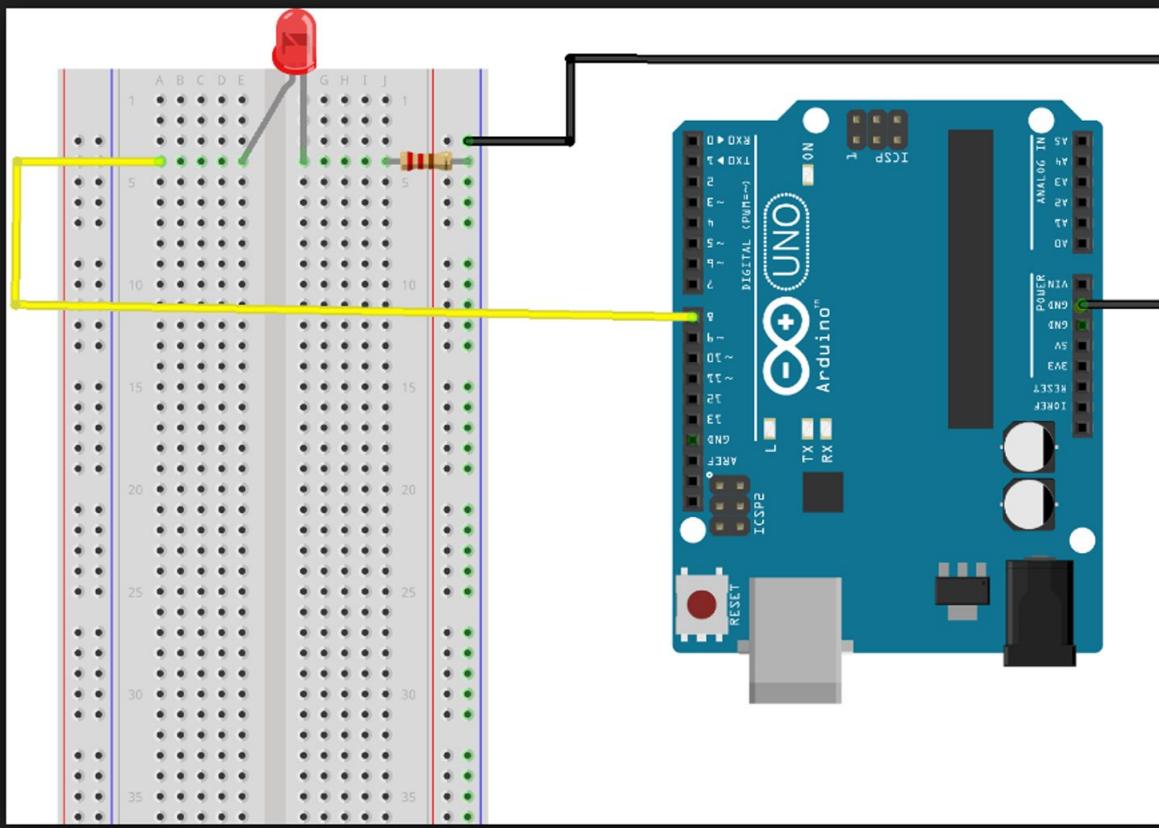
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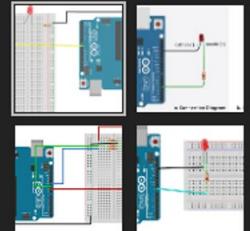


The Arduino LED  
Core Electronics  
LED Blink Fritzing Sketch

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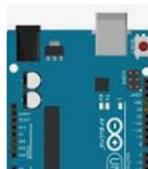
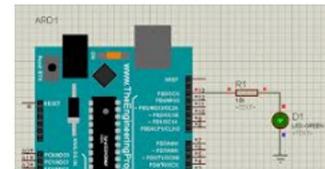
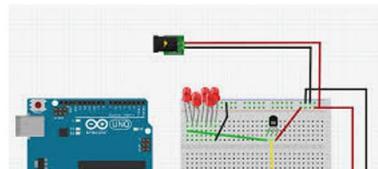
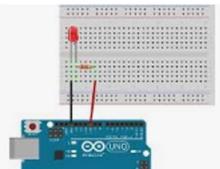
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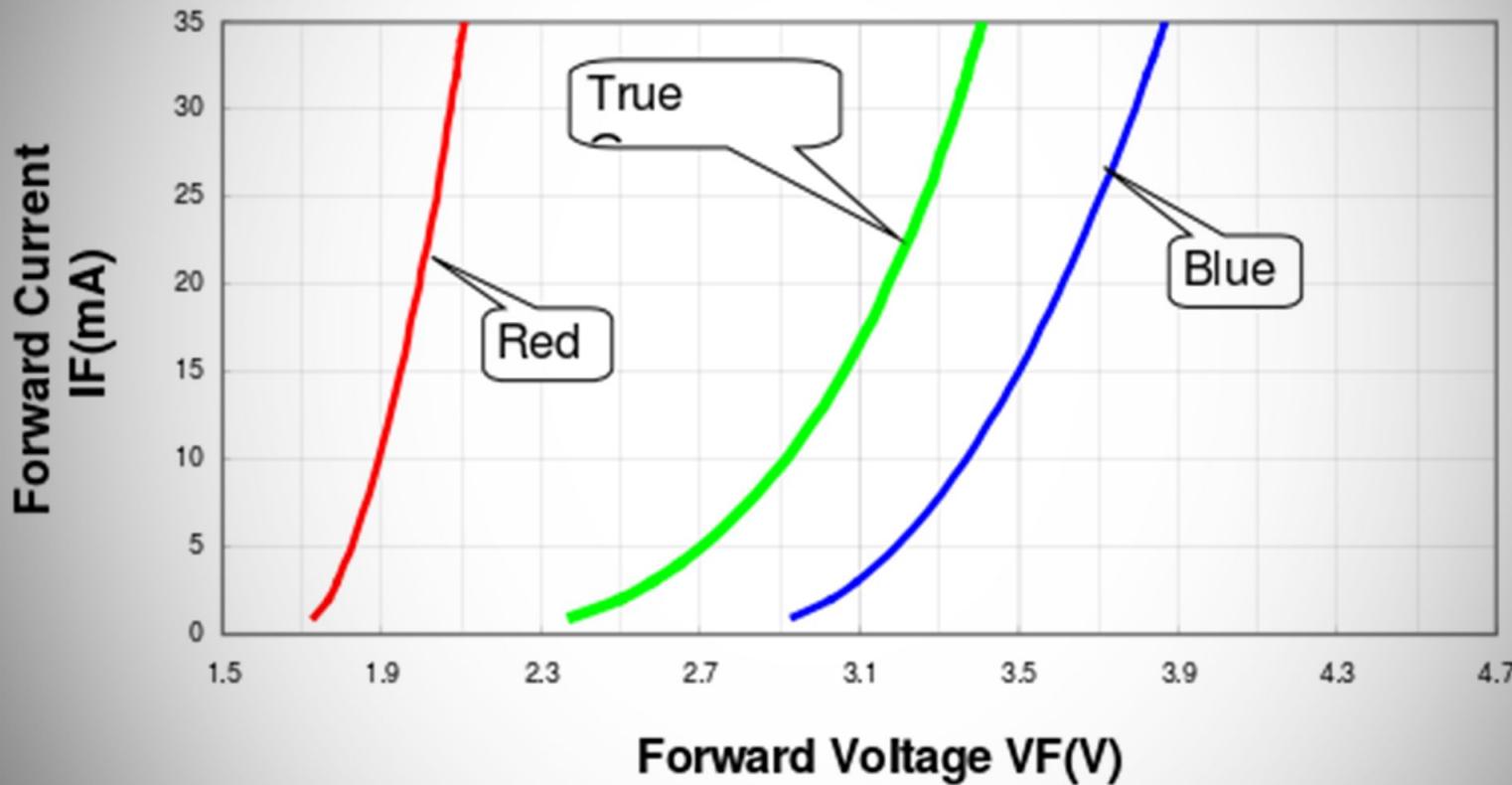


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## Forward Current vs Forward Voltage

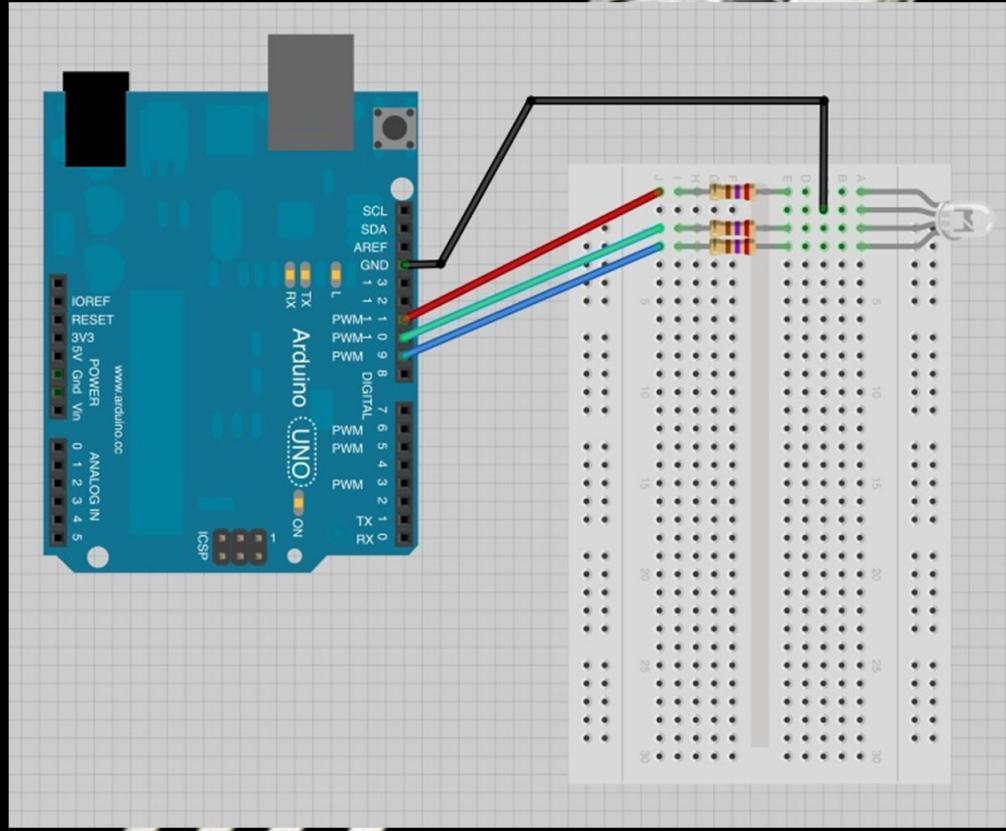




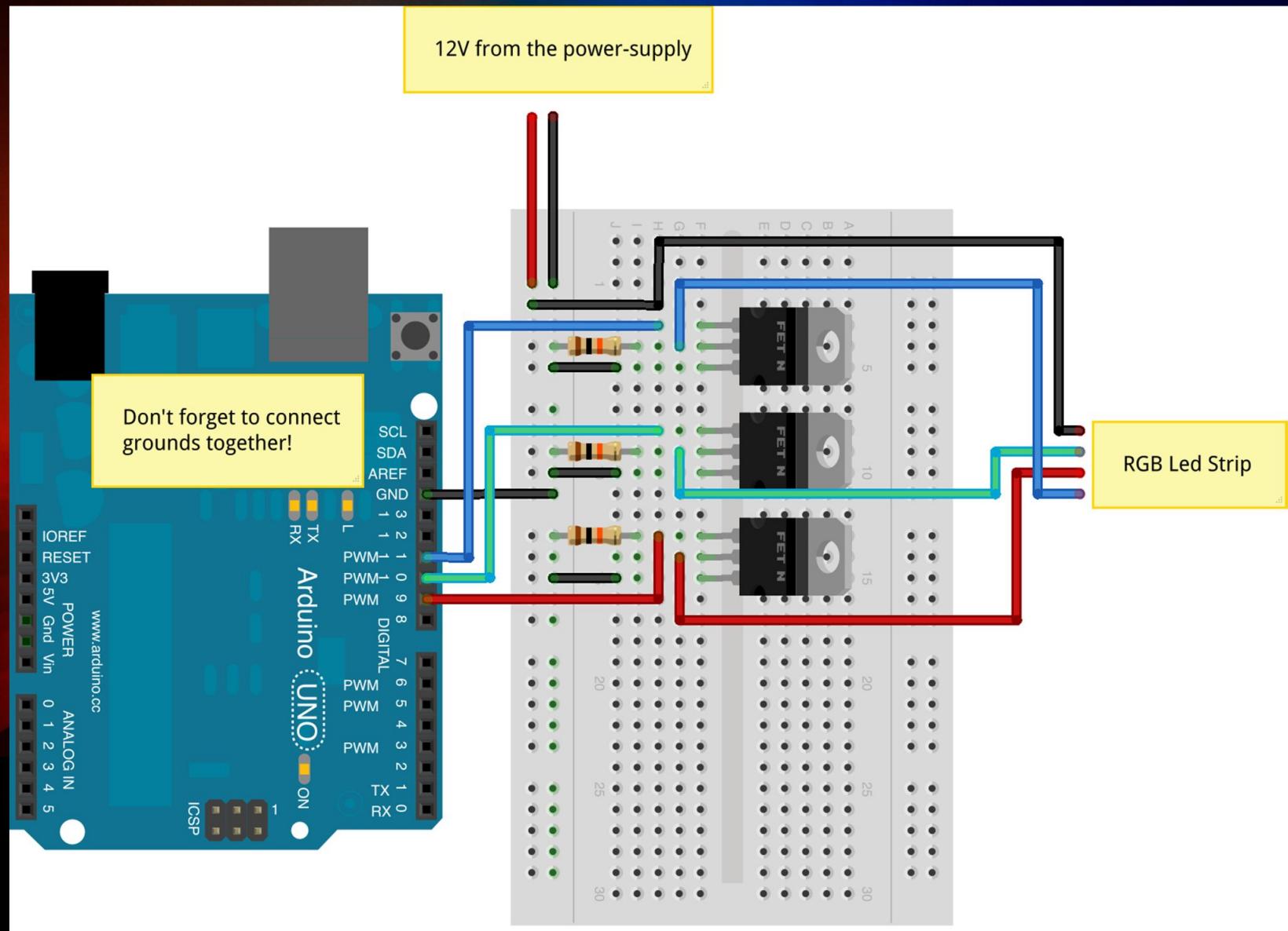


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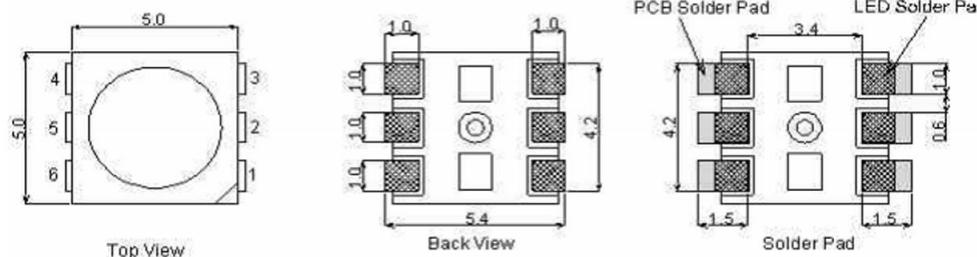




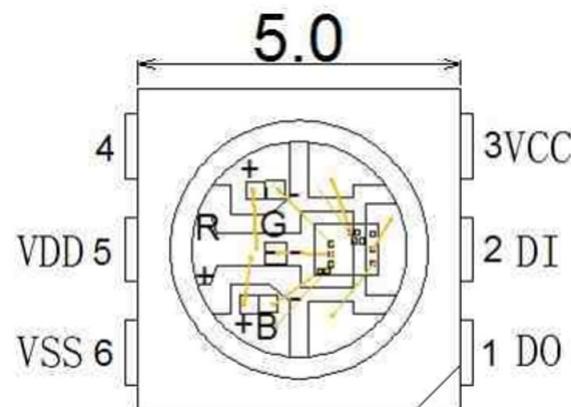




### Mechanical Dimensions



### PIN configuration



### PIN function

NO.	Symbol	Function description
1	DOUT	Control data signal output
2	DIN	Control data signal input
3	VCC	Power supply control circuit
4	NC	
5	VDD	Power supply LED
6	VSS	Ground

### Absolute Maximum Ratings

See page 11 for details

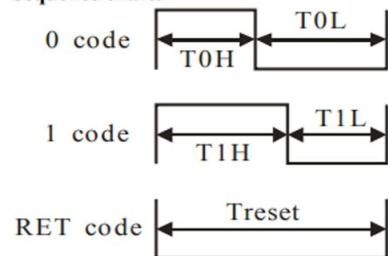
### LED characteristic parameter

Emitting color	Wavelength(nm)	Luminous intensity(mcd)	Current(mA)	Voltage(V)
Red	620-630	550-700	20	1.8-2.2
Green	515-530	1100-1400	20	3.0-3.2
Blue	465-475	200-400	20	3.2-3.4

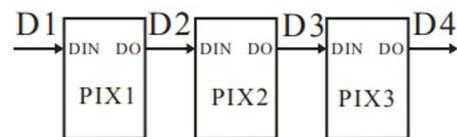
**Data transfer time( TH+TL=1.25μs±600ns)**

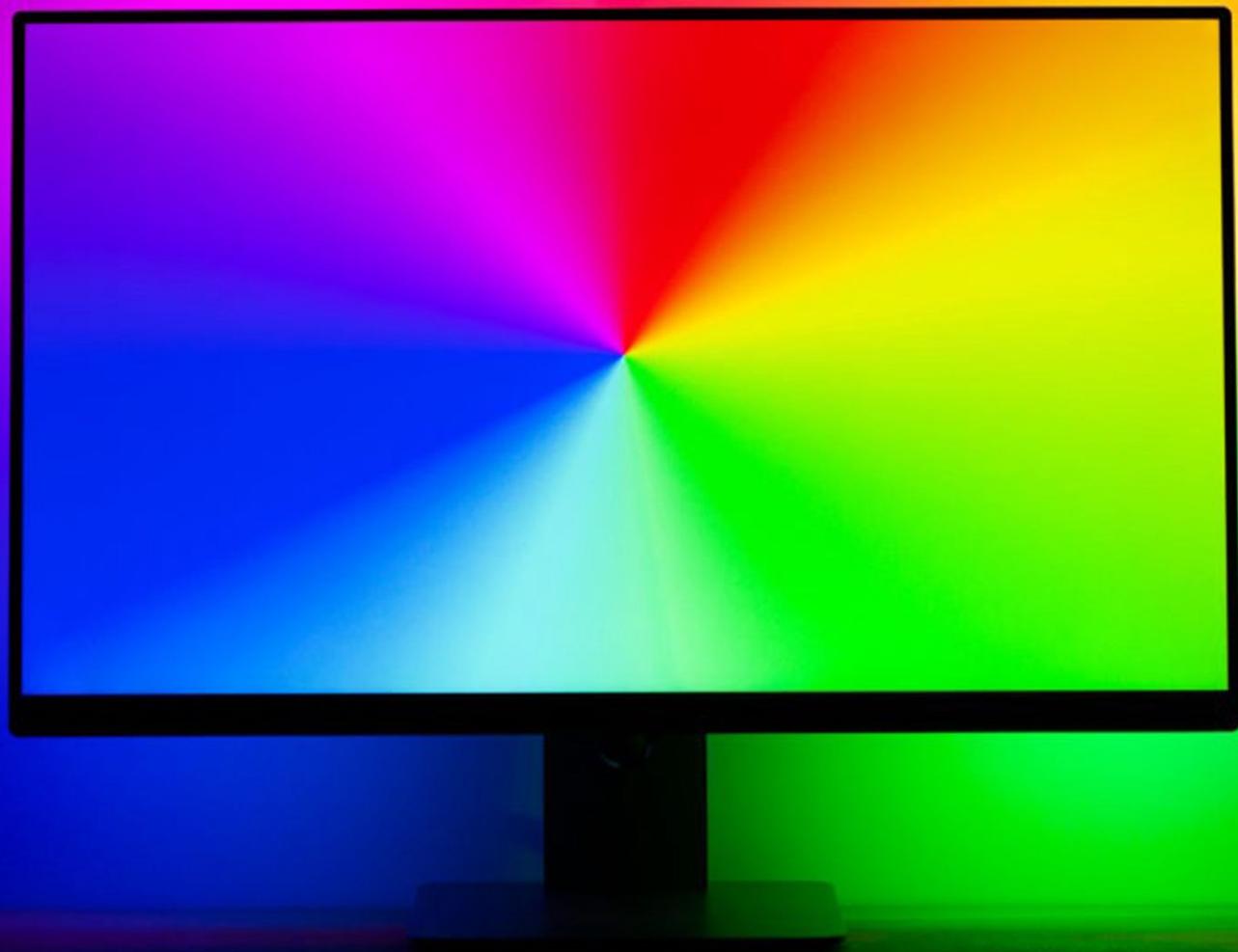
T0H	0 code ,high voltage time	0.35us	±150ns
T1H	1 code ,high voltage time	0.7us	±150ns
T0L	0 code , low voltage time	0.8us	±150ns
T1L	1 code ,low voltage time	0.6us	±150ns
RES	low voltage time	Above 50μs	

**Sequence chart:**



**Cascade method:**











## Fast, easy LED library for Arduino

FastLED is a fast, efficient, easy-to-use Arduino library for programming addressable LED strips and pixels such as WS2810, WS2811, LPD8806, Neopixel and [more](#). FastLED is used by thousands of developers, in countless art and hobby projects, and in numerous commercial products.

We build FastLED to help you get started faster, develop your code faster, and make your code run faster.

### Great compatibility

FastLED supports popular LEDs including Neopixel, WS2801, WS2811, WS2812B, LPD8806, TM1809, and [more](#). The library runs on [a wide range](#) of Arduino and compatible boards, including both AVR- and ARM- based microcontrollers.

### Great features

In addition to fast, efficient, compatible LED driver code, FastLED also provides features that get your animations up and running fast:

- [Full HSV color support](#) as well as classic RGB
- [Master brightness setting](#) (nondestructive) controls brightness, power use, and battery life
- [Fast math and memory functions](#) up to 10X faster than standard Arduino libraries
- [User community](#) of thousands, who share tips, ideas, and help
- [Multi-year history](#) of active development and evolution
- [Ruthless efficiency](#), an almost fanatical devotion to performance, and nice RGB uniforms.

### Get started...

[Download the library](#) and [get started](#) coding!

- [Documentation](#)
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- [Blog](#)
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## Adafruit NeoPixel Überguide

[The Magic of NeoPixels](#)

► [Form Factors](#)

[Basic Connections](#)

[Best Practices](#)

[Powering NeoPixels](#)

▼ [Software](#)

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LEDS



## Arduino Library Use

by Phillip Burgess

It's assumed at this point that you have the [Adafruit\\_NeoPixel library for Arduino](#) installed and have run the `strandtest` example sketch successfully. If not, return to the prior page for directions to set that up.

To learn about writing your own NeoPixel sketches, let's begin by [dissecting the strandtest sketch...](#)

All NeoPixel sketches begin by including the header file:

[Download: file](#)

[Copy Code](#)

```
1. #include <Adafruit_NeoPixel.h>
```

The block of code that follows is mostly descriptive comments. Only the last line is really doing any work:

[Download: file](#)

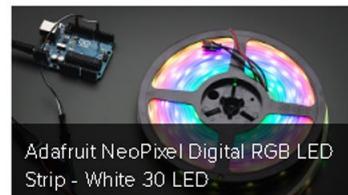
[Copy Code](#)

```
1.      #define PIN 6
2.
3.      // Parameter 1 = number of pixels in strip
4.      // Parameter 2 = pin number (most are valid)
5.      // Parameter 3 = pixel type flags, add together as needed:
6.      // NEO_KHZ800 800 KHz bitstream (most NeoPixel products w/WS2812 LEDs)
7.      // NEO_KHZ400 400 KHz (classic 'v1' (not v2) FLORA pixels, WS2811 drivers)
8.      // NEO_GRB     Pixels are wired for GRB bitstream (most NeoPixel products)
9.      // NEO_RGB     Pixels are wired for RGB bitstream (v1 FLORA pixels, not v2)
10.     Adafruit_NeoPixel strip = Adafruit_NeoPixel(60, PIN, NEO_GRB + NEO_KHZ800);
11.
```

The first line assigns a number to the symbol "PIN" for later reference. It doesn't *need* to be done this way, but makes it easier to change the pin where the NeoPixels are connected without digging deeper into the code.

The last line declares a NeoPixel *object*. We'll refer to this by name later to control the strip of pixels. There are three parameters or *arguments* in parenthesis:

1. The number of sequential NeoPixels in the strip. In the example this is set to 60, equal to 1 meter of medium-density strip. Change this to match the actual number you're using.
2. The pin number to which the NeoPixel strip (or other device) is connected. Normally this would be a number, but we previously declared the symbol PIN to refer to it by name here.



Adafruit NeoPixel Digital RGB LED Strip - White 30 LED

\$84.75

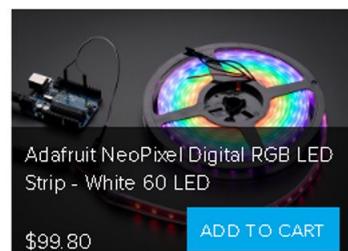
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Adafruit NeoPixel Digital RGB LED Strip - Black 30 LED

\$84.75

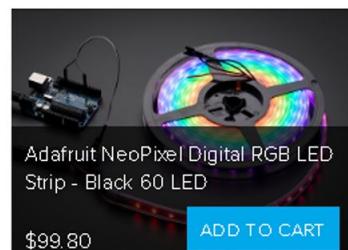
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DAY