

TA0076 RGB LED Module

1. Introduction

SMD RGB LED module consists of a full-color LED made by R, G, B three pin PWM voltage input can be adjusted. Primary colors (red / blue / green) strength in order to achieve full color mixing effect. Control of the module with the Arduino can be achieved Cool lighting effects.

Specification

- Red Vf: 1.8 to 2.1V
- Green Vf: 3.0 to 3.2V
- Blue Vf: 3.0 to 3.2V
- Red color: 620-625 nm
- Green color: 520-525 nm
- Blue color: 465-470 nm
- Red brightness @ ~20mA: 600-800 mcd
- Blue brightness @ ~20mA: 800-1000 mcd
- Green brightness @ ~20mA: 1500-2000mcd

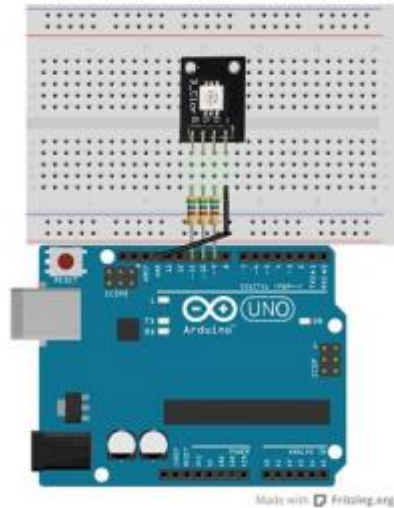
2. Pin Instructions

Pin Name	Description
"R"	Red light
"G"	Green light
"B"	Blue light
"_"	Ground

3. Example

In this example, we blink an LED and using an RGB LED we can generate any color our heart desires.

Here is the physical connection:



Code:

```
*****Code begin*****
```

```
//RGB LED pins
```

```
int ledDigitalOne[] = {10, 11, 9}; //the three digital pins of the digital LED
```

```
//10 = redPin, 11 = greenPin, 9 = bluePin
```

```
const boolean ON = HIGH; //Define on as LOW (this is because we use a common
```

```
//Anode RGB LED (common pin is connected to +5 volts)
```

```
const boolean OFF = LOW; //Define off as HIGH
```

```
//Predefined Colors
```

```
const boolean RED[] = {ON, OFF, OFF};
```

```
const boolean GREEN[] = {OFF, ON, OFF};
```

```
const boolean BLUE[] = {OFF, OFF, ON};
```

```
const boolean YELLOW[] = {ON, ON, OFF};
```

```
const boolean CYAN[] = {OFF, ON, ON};
```

```
const boolean MAGENTA[] = {ON, OFF, ON};
```

```
const boolean WHITE[] = {ON, ON, ON};
```

```
const boolean BLACK[] = {OFF, OFF, OFF};
```

```
//An Array that stores the predefined colors (allows us to later randomly display a color)
```

```
const boolean* COLORS[] = {RED, GREEN, BLUE, YELLOW, CYAN, MAGENTA, WHITE, BLACK};
```

```
void setup(){
```

```
  for(int i = 0; i < 3; i++){
```

```
    pinMode(ledDigitalOne[i], OUTPUT); //Set the three LED pins as outputs
```

```
  }
```

```
}
```

```

void loop(){

/* Example - 1 Set a color
   Set the three LEDs to any predefined color
*/
   setColor(ledDigitalOne, YELLOW);    //Set the color of LED one

/* Example - 2 Go through Random Colors
   Set the LEDs to a random color
*/
   //randomColor();

}

void randomColor(){
   int rand = random(0, sizeof(COLORS) / 2); //get a random number within the range of colors
   setColor(ledDigitalOne, COLORS[rand]); //Set the color of led one to a random color
   delay(1000);
}

/* Sets an led to any color
   led - a three element array defining the three color pins (led[0] = redPin, led[1] = greenPin,
led[2] = bluePin)
   color - a three element boolean array (color[0] = red value (LOW = on, HIGH = off), color[1] =
green value, color[2] =blue value)
*/
void setColor(int* led, boolean* color){
   for(int i = 0; i < 3; i++){
      digitalWrite(led[i], color[i]);
   }
}

/* A version of setColor that allows for using const boolean colors
*/
void setColor(int* led, const boolean* color){
   boolean tempColor[] = {color[0], color[1], color[2]};
   setColor(led, tempColor);
}

*****Code End*****

```