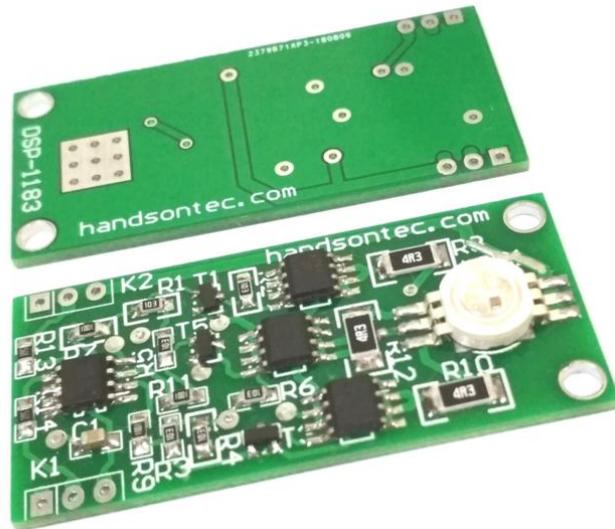




## 3W High Power RGB Neopixel LED

These chainable smart RGB LEDs are not only smart, they are super bright with 3W power, compared to 0.2W of a 'standard' NeoPixel! Fully compatible with Neopixel & FastLED Arduino Library. This RGB Module capable of emitting average Luminous Flux of 50-Lumens. These are the ultimate in high brightness RGB LEDs for decorative, advertisement, full color mixing and mood lighting application.

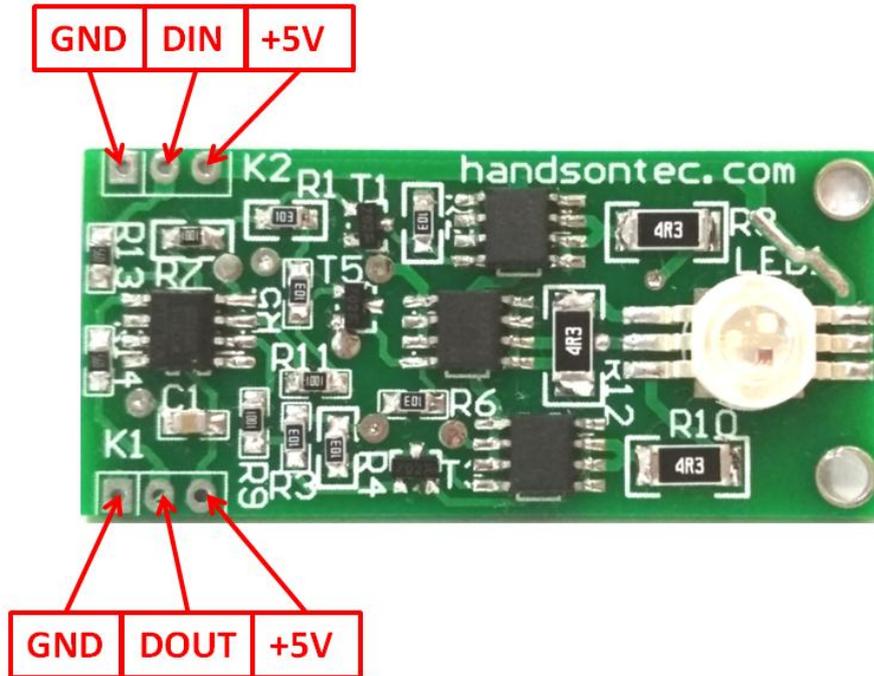


SKU: [DSP-1183](#)

### Brief Data:

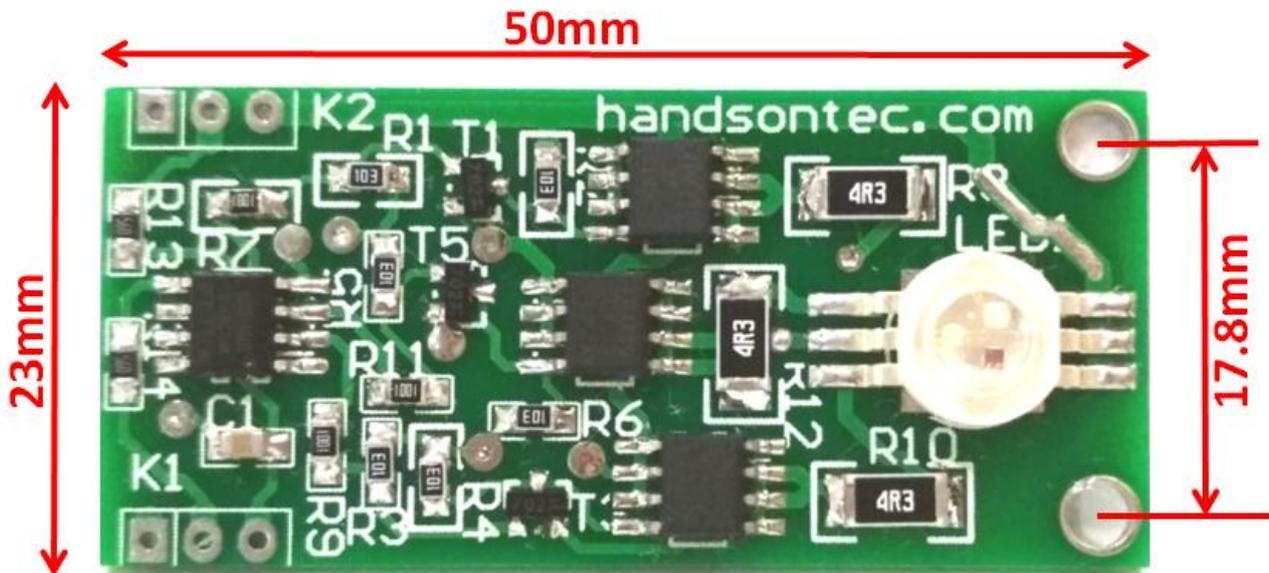
- Power Supply: 5VDC.
- 3W High power high brightness Red, Green and Blue (RGB) LEDs.
- Viewing Angle: 140°.
- Each LED element is individually addressable with 24-bit color (8 bits each for R, G & B), 16 million colors.
- 3-Wires easy connection: 2-power supply lines and 1 data line.
- Luminous Flux  $\Phi$ :
  - Red: 45Lm @ IF=350mA.
  - Green: 65Lm @ IF=350mA.
  - Blue: 20Lm @ IF=350mA.
- Interface: Serial (Shift Register).
- Compatible with Neopixel & FastLED Arduino Library.
- Data Speed: 800Kbps.
- Mounting Hole: 2-position M3 Screw.

**Pin Assignment:**



**Mechanical Dimension:**

Unit: mm

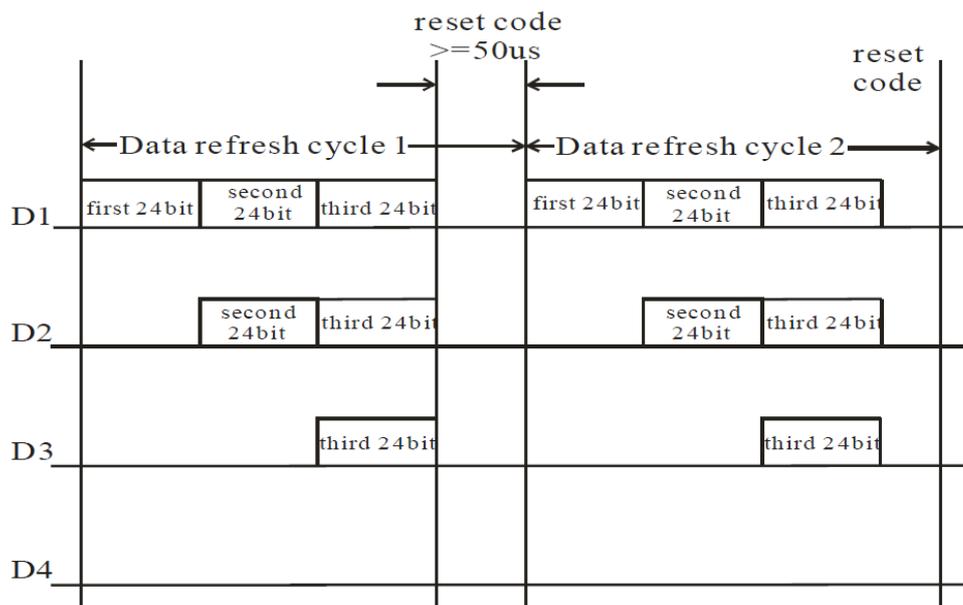
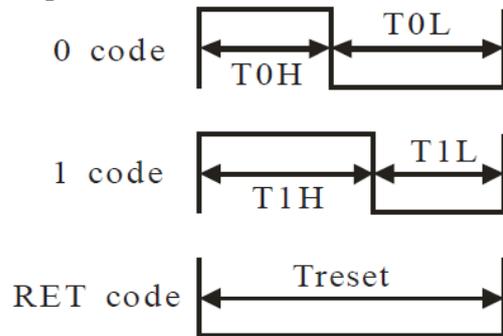


## Data Transmission Protocol:

**Data transfer time**(  $T_H+T_L=1.25\mu s\pm 150ns$ )

T0H	0 code ,high voltage time	0.35us	$\pm 150ns$
T1H	1 code ,high voltage time	0.9us	$\pm 150ns$
T0L	0 code , low voltage time	0.9us	$\pm 150ns$
T1L	1 code ,low voltage time	0.35us	$\pm 150ns$
RES	low voltage time	Above 50 $\mu s$	

**Sequence chart:**



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.



Upload the following sketch to the Arduino board after installing the FastLED Library:

```
/*
Name : 3W High Power NeoPixel Demo
Description: Control of NeoPixel Smart RGB LED
using FastLED Library.
Website: www.handsontec.com
Email: techsupport@handsontec.com
Sketch Name: HP-NeoPixel-1.ino
*/

#include <FastLED.h>

#define LED_PIN 7
#define NUM_LEDS 5

CRGB leds[NUM_LEDS];

void setup() {
    FastLED.addLeds<WS2812, LED_PIN, GRB>(leds, NUM_LEDS);
}

void loop() {
    leds[0] = CRGB(255, 0, 0);
    FastLED.show();
    delay(500);
    leds[1] = CRGB(0, 255, 0);
    FastLED.show();
    delay(500);
    leds[2] = CRGB(0, 0, 255);
    FastLED.show();
    delay(500);
    leds[5] = CRGB(150, 0, 255);
    FastLED.show();
    delay(500);
    leds[9] = CRGB(255, 200, 20);
    FastLED.show();
    delay(500);
    leds[14] = CRGB(85, 60, 180);
    FastLED.show();
    delay(500);
    leds[19] = CRGB(50, 255, 20);
    FastLED.show();
    delay(500);
}
```

You can try out different lighting pattern and color mixing effect from the examples folder on FastLED Library. Try one of lighting examples below:

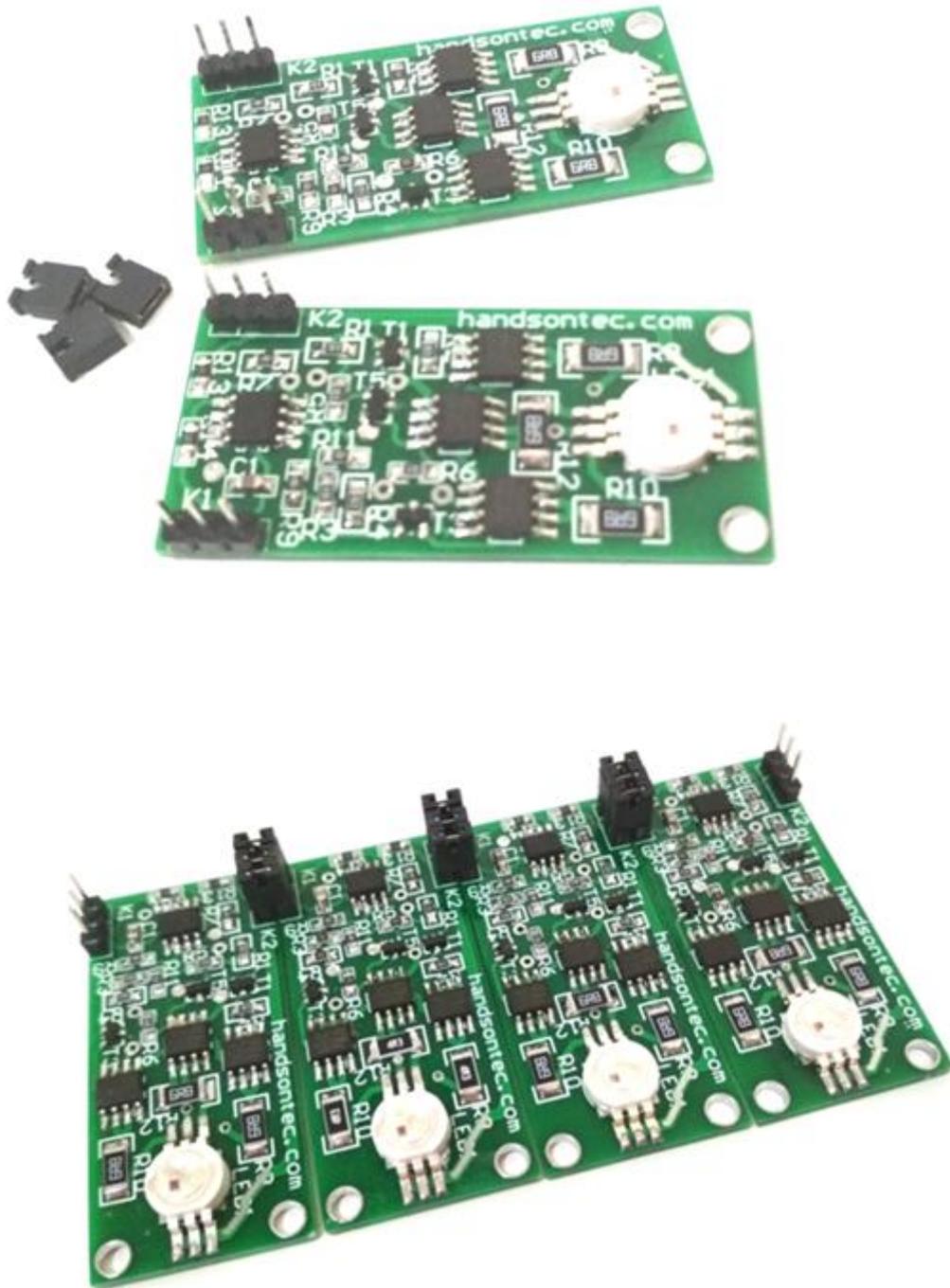
Go to File > Examples > FastLED > ColorPalette .

Remember to change the following code if you connect the NeoPixel Data-In to difference Arduino pin and number of module cascaded:

```
#define LED_PIN 7
#define NUM_LEDS 5
```

## Cascading High Power NeoPixel Modules:

This high power RGB modules can be easily daisy chain using commonly available shorting jumper link. The 3-pins edge header connector is design such way that fit nicely side by side using 2.54mm shorting link as shown below picture.



## **Web Resources:**

1. FastLED Wiki > <https://github.com/FastLED/FastLED/wiki>
2. [Adafruit NeoPixel Userguide.](#)
3. [Adafruit NeoPixel Library.](#)



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