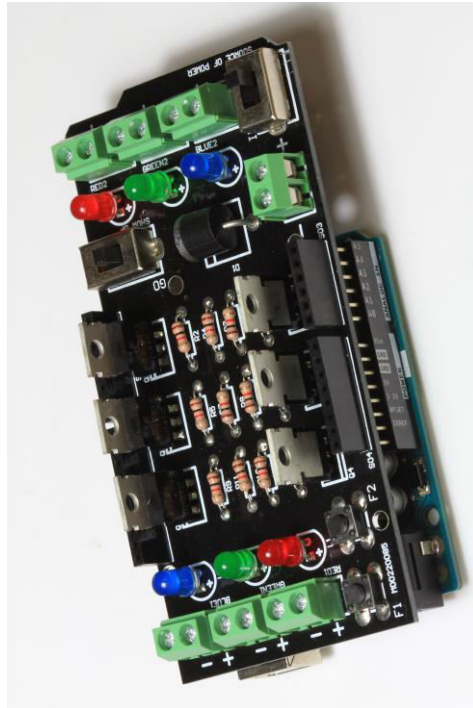


RGBRGB SHIELD

(ARDUINO COMPATIBLE)
PRODUCT CODE: M00270050

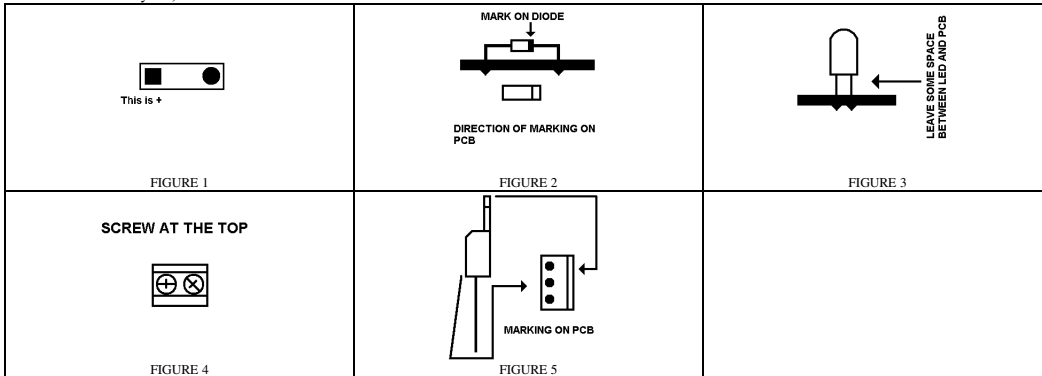
FEATURE:

- 6 channels transistor output (Control 2 sets of RGB ribbon)
- Switch for choices of Vin or external INPUT
- Switch for real output on RGB ribbon before this is ok for showing up.
- Two independent push button switches (Propose is set by Sketch writer)
- Assembly is needed.
- Arduino Sketch example for showing how to run two independent RGB output.
- Requires 1 Arduino UNO (not included).



READ BEFORE INSTALLATION:

- Put the component on the side of screen printing and solder on the back of PCB without printing.
- Placing direction of component.
 1. On component, longer leg is "+".
 2. On PCB marking, square pad as Figure 1 is always "+".
 3. For diode, please install as Figure 2.
 4. Do not put the LED to very bottom, just install as Figure 3.
- For each set of RGB ribbon, please do not work more than 3A. For each transistor output, each RED (There is RED1 and RED 2), each GREEN (There is Green1 and Green2) and each BLUE (There is BLUE1 and BLUE2) please do not work more than 1A. Totally 6A for whole shield (This is limited by D1).



DESCRIPTION:

The circuit design is based on the Arduino UNO. Of course, this can be used on any brand of Microcontroller or external circuit if the pin location and voltage is matched. If this is not matched, just route this yourself.

The two switches work independent and the proposes is totally dependent on Sketch writer. I use F1 and F2 as example. You can write the Sketch with 10 kind of flashing mode. F1 work as increasing the mode number and F2 work as decreasing mode number without writing the new Sketch, every mode is always installed on the Arduino board when writing the Sketch.

The connecting of RGB ribbon or individual LED is shown on FIGURE 6.

If you want to connect to external power source (Fully working current of 6A of whole shield), please take a look to FIGURE 6. Connecting to external voltage source is needed when you find the max supply current of Vin of Arduino (Please find the specification of Arduino board) is not enough. After connecting, you need to change mode on "SOURCE OF POWER" to "IN".

If you do not turn the "SHOW UP" switch to "GO", the output on RGB ribbon or LED would show nothing. The attached Sketch shows how to run two sets of RGB output at the same time.

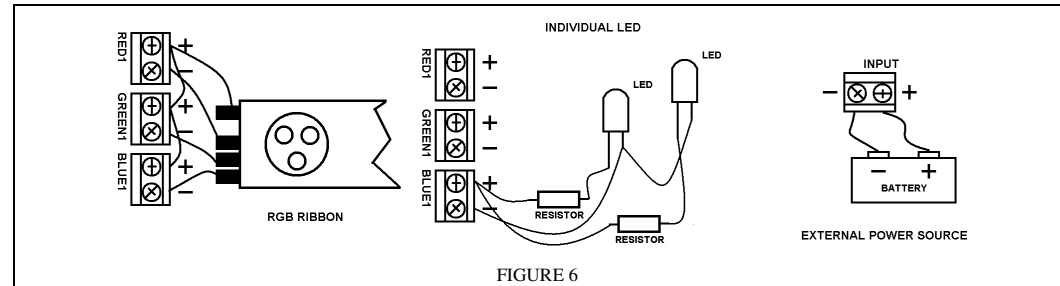
INSTALLATION:

Just install the component to the PCB M00260085 according to below table

ITEM	SYMBOL ON PCB	DESCRIPTION	OUTLOOK	DIRECTION IS IMPORTANT?
1	R1	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
2	R2	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
3	R3	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
4	R4	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
5	R5	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
6	R6	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
7	R7	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
8	R8	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
9	R9	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
10	R10	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
11	R11	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
12	R12	RESISTOR, 1K ohms	BROWN, BLACK, RED	NO
13	L1	LED	RED	YES
14	L2	LED	GREEN	YES
15	L3	LED	BLUE	YES
16	L4	LED	RED	YES
17	L5	LED	GREEN	YES
18	L6	LED	BLUE	YES
19	Q1	TRANSISTOR, NPN	FIGURE 5, MARK WITH TIP41	FIGURE 5
20	Q2	TRANSISTOR, NPN	FIGURE 5, MARK WITH TIP41	FIGURE 5
21	Q3	TRANSISTOR, NPN	FIGURE 5, MARK WITH TIP41	FIGURE 5
22	Q4	TRANSISTOR, NPN	FIGURE 5, MARK WITH TIP41	FIGURE 5
23	Q5	TRANSISTOR, NPN	FIGURE 5, MARK WITH TIP41	FIGURE 5
24	Q6	TRANSISTOR, NPN	FIGURE 5, MARK WITH TIP41	FIGURE 5
25	D1	6A 10	FIGURE 2 (MOSTLY BLACK)	FIGURE 2
26	F1	PUSH BUTTON SWITCH	FOUR LEGS	NO
27	F2	PUSH BUTTON SWITCH	FOUR LEGS	NO
28	SHOW UP	SLIDE SWITCH	SIX LEGS	NO
29	SOURCE OF POWER	SLIDE SWITCH	SIX LEGS	NO
30	SO1	STACKABLE HEADER – 8PIN	LONG 8 PIN	NO
31	SO2	STACKABLE HEADER – 10PIN	LONG 10 PIN	NO
32	SO3	STACKABLE HEADER – 6PIN	LONG 6 PIN	NO
33	SO4	STACKABLE HEADER – 8PIN	LONG 8 PIN	NO
34	RED1	OUTPUT FOR FIRST SET OF RGB	FIGURE 4	NOTE 1
35	GREEN1	OUTPUT FOR FIRST SET OF RGB	FIGURE 4	NOTE 1
36	BLUE1	OUTPUT FOR FIRST SET OF RGB	FIGURE 4	NOTE 1
37	RED2	OUTPUT FOR SECOND SET OF RGB	FIGURE 4	NOTE 1
38	GREEN2	OUTPUT FOR SECOND SET OF RGB	FIGURE 4	NOTE 1
39	BLUE2	OUTPUT FOR SECOND SET OF RGB	FIGURE 4	NOTE 1
40	INPUT	INPUT FOR EXTERNAL POWER	FIGURE 4	NOTE 1

NOTE 1. Metal terminal is facing outside the PCB.

OTHER USEFUL PICTURE:



CIRCUIT DIAGRAM:

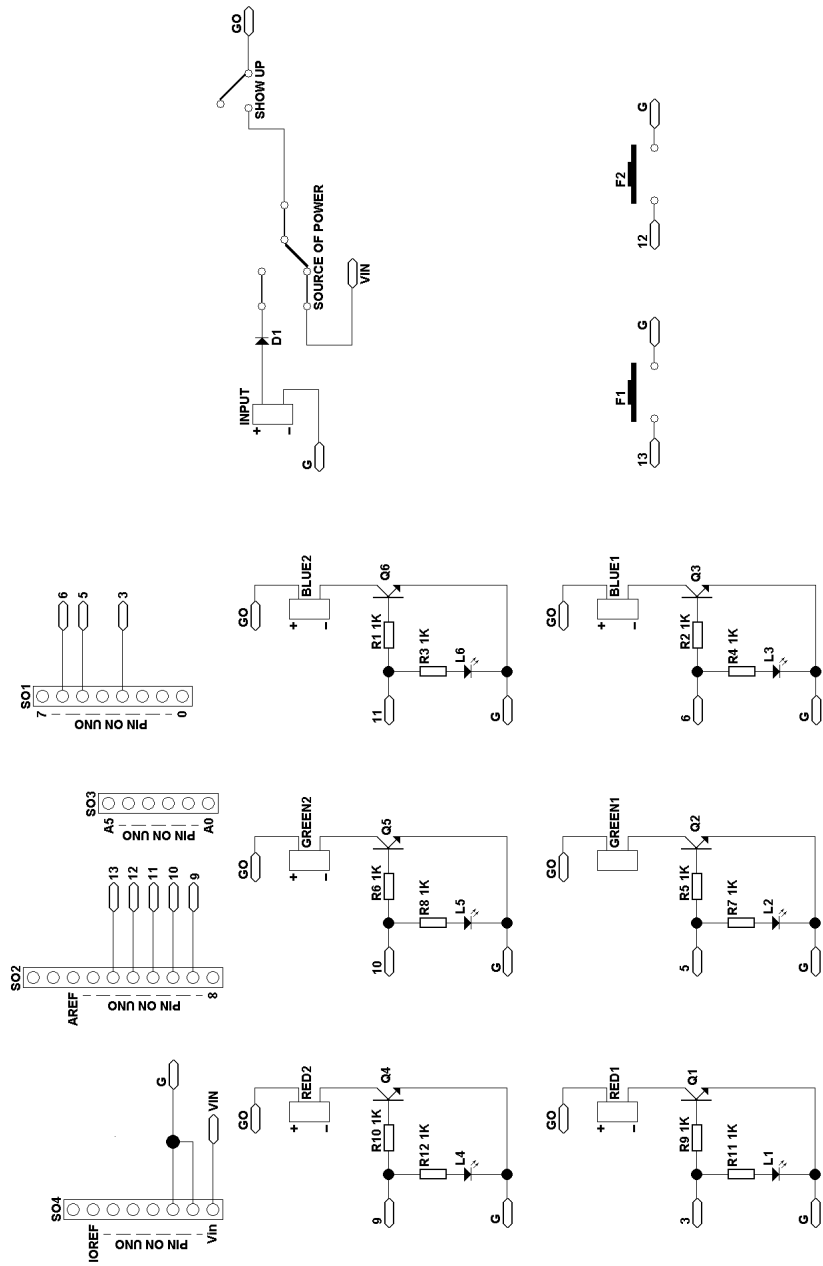


FIGURE 7

SKETCH:

/ This Sketch show you how to run two sets of RGB individually. */*

```
int RED1 = 3;  int GREEN1 = 5;
int BLUE1 = 6;  int RED2 = 9;
int GREEN2 = 10;  int BLUE2 = 11;
int count1 = 0;  int count2 = 0;
```

```
void setup() {
  pinMode(RED1, OUTPUT);
  pinMode(GREEN1, OUTPUT);
  pinMode(BLUE1, OUTPUT);
  pinMode(RED2, OUTPUT);
  pinMode(GREEN2, OUTPUT);
  pinMode(BLUE2, OUTPUT);
}
```

```
void loop() {
  /* Information (count1 and count2) using at RGB1 and RGB2 */
  counting();
  /* Running of first set of RGB */
  RGB1();
  /* Running of second set of RGB */
  RGB2();
}
```

```
void counting() {
  count1 = count1 + 1;
  count2 = count2 + 1;
  delay(1);
  if(count1 == 2000) {
    count1 = 0;
  }
  if(count2 == 3000) {
    count2 = 0;
  }
}
```

```
void RGB1() {
  if (count1 < 1500) {
    digitalWrite(RED1, HIGH);
    digitalWrite(GREEN1, HIGH);
    digitalWrite(BLUE1, HIGH);
  }
  else {
    digitalWrite(RED1, LOW);
    digitalWrite(GREEN1, LOW);
    digitalWrite(BLUE1, LOW);
  }
}
```

```
void RGB2() {
  if (count2 < 200) {
    digitalWrite(RED2, HIGH);
    digitalWrite(GREEN2, HIGH);
    digitalWrite(BLUE2, HIGH);
  }
  else {
    digitalWrite(RED2, LOW);
    digitalWrite(GREEN2, LOW);
    digitalWrite(BLUE2, LOW);
  }
}
```