

## Features

- Output current selection for each Channel (350mA,700mA,1000mA)
- Fully customizable 1W, 3W, 5W LED configurations
- Possible to connect up to 18W per channel
- Programmable via Arudino
- 3 Channels capable of providing PWM
- 4 Digital outputs
- 1 Analog/Digital Input can be switch/trimmer/sensor

## Application

- Room light controller
- RGB light controller
- Powerful strobe light controller
- Scene light controller
- Aquarium light controller
- DIY Police, Fire, EMS Light controller
- UV PCB exposure box controller



## Description

4 CH LED Driver is based on PnP(plug and play) principle, every LED connection is easy to manipulate over the proper connector. Current selection for each channel is separated and need to be set manually on every channel. It can be done before power on but it's possible to change it while running. PCB provides additional 2 pads (VCC, GND) for directly soldering power supply to the board.

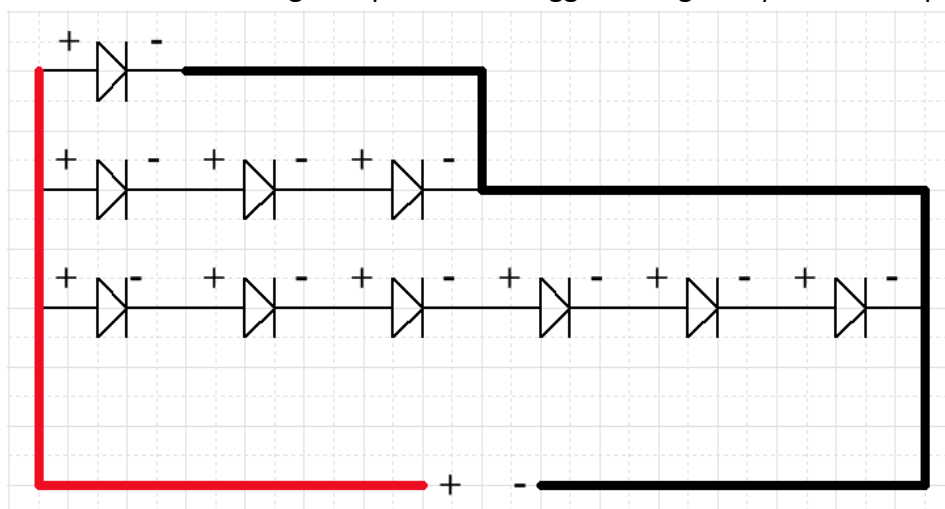
On the bottom side of PCB are 4 thermal pad for heat dissipation. Mount PCB on heatsink if needed

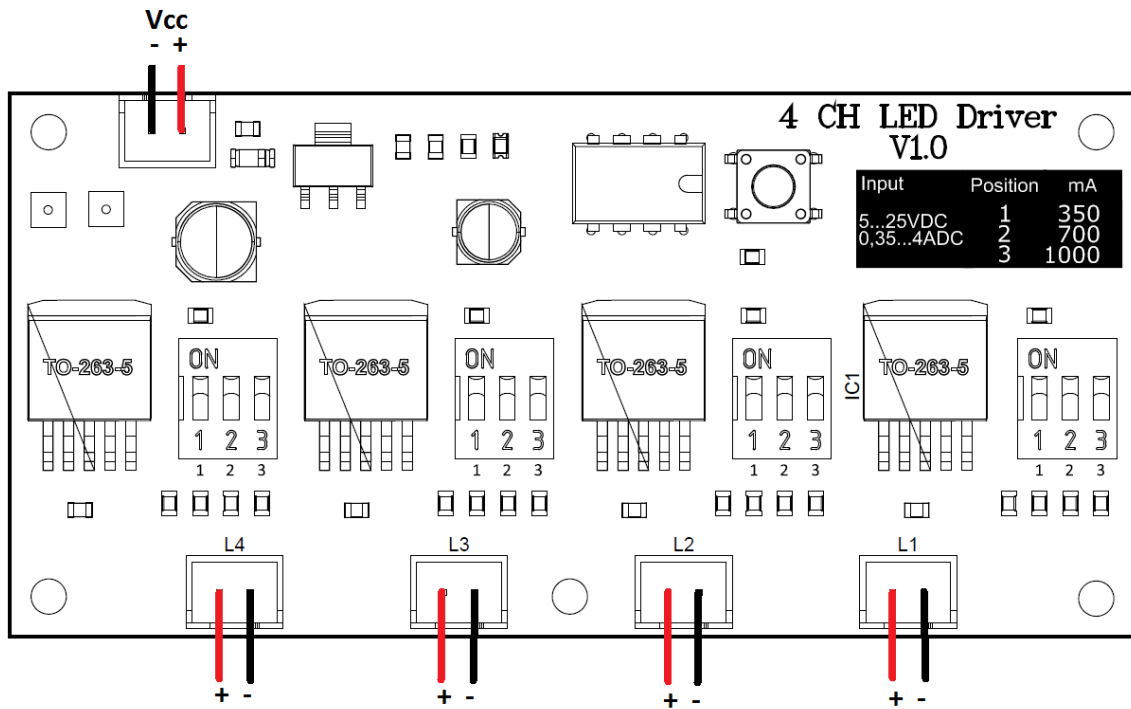
## Technical specifications

Power supply[V]	5-25
Max current[A]	4
Standby consumption[mA]	<5
Number of LEDs per CH	1-6

## LED Setup

LED in each channel should be connected in series from 1 up to 6 LED at 24V. When placing LED in series consider forward voltage drop on 1 LED. Bigger voltage drop less LED is possible to connect.





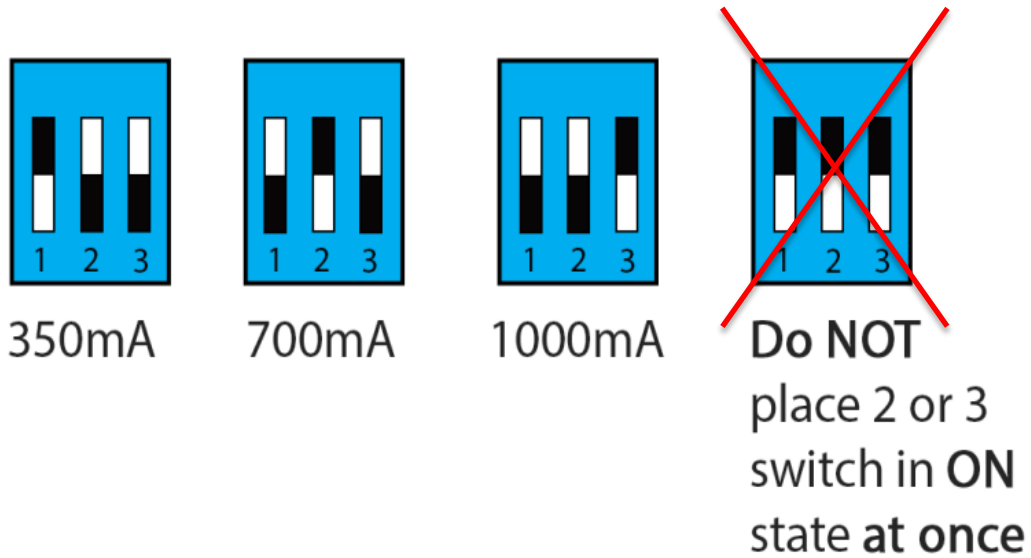
### Typical LED specifications

Color	1W LED		3W LED		5W LED	
	Voltage[V]	Current[mA]	Voltage[V]	Current[mA]	Voltage[V]	Current[mA]
White	3.0-3.5	350	3.0-3.6	700	6.5-7.5	800-1000
Red	1.5-2.5	350	2.0-2.6	700	4.0-4.5	800-1000
Green	3.2-4.0	350	3.0-3.6	700	6.5-7.5	800-1000
Blue	3.2-4.0	350	3.2-4.0	700	6.5-7.5	800-1000
UV	3.2-3.6	350				

**Note these are NOT standard values they can differ depends on LED and manufacturer.**



### Current selection via DIP SWITCH



### CAUTION!

**DO NOT place 2 or 3 switch in ON state AT ONCE, IC will blow up!!!**

### ATTINY 45/85 Pin out

Designator	ATTINY pin	Pin for Arduino IDE	Pin capable of PWM	A - Analog D - Digital I- Input O - Output
L1	6	1	PWM	A/D/O
L2	5	0	PWM	A/D/O
L3	2	3	-	D/O
L4	3	4	PWM	A/D/O
SW	7	A1	-	A/D/I/O

For writing software code use pins defined in column pin for Arduino IDE



## How to set Arduino for programming ATTINY45/85

1. Download ATTINY files
2. Copy ATTINY folder to destination C:\Program Files (x86)\Arduino\hardware
3. Open Arduino IDE software
4. Go to **File**→**Examples** →**Arduino ISP**→**Arduino ISP**
5. Select **Tools**→**Board**→ [Your board] **Arduino UNO, MEGA, etc.,**
6. **Upload Arduino ISP**
7. **Connect ATTINY45/85** according to the **Figure 1**
8. Select **Tools**→**Board**→**ATtiny**→**Processor**→**ATTINY 45 or 85**
9. Select **Tools**→ **Programmer** → **ARDUINO AS ISP**
10. **READY TO UPLOAD YOUR CODE!**

Place you programmed ATTINY on the PCB and plug power supply.

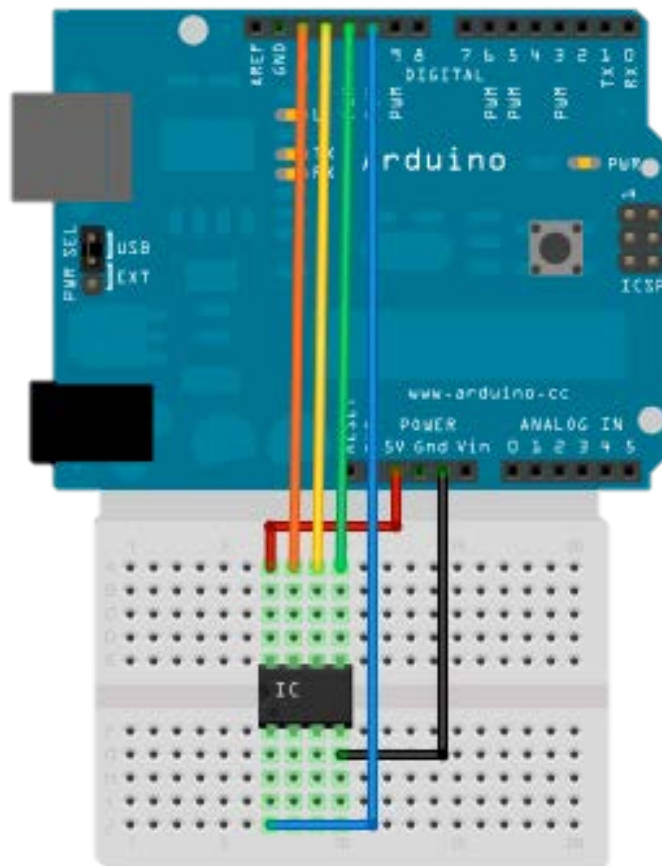


Figure 1

**DEFAULT program on ATTINY 45/85****Police lightbar** with keeping last pattern

```
#include <EEPROM.h>
int LED1=1,LED2=0,LED3=3,LED4=4,SW=A1;
int swLoop,n=5,adr=0,del=75;
int val=LOW;

void setup() {
pinMode(LED1,OUTPUT);
pinMode(LED2,OUTPUT);
pinMode(LED3,OUTPUT);
pinMode(LED4,OUTPUT);
pinMode(SW,INPUT);
if(EEPROM.read(adr)>0 && EEPROM.read(adr)<=n)
    swLoop=EEPROM.read(adr);
}
void loop() {
val=digitalRead(SW);
if(val==HIGH)
{
swLoop++;
EEPROM.write(adr,swLoop);
}
if(swLoop==n)
swLoop=0;
switch(swLoop)
{
case 1:
    digitalWrite(LED1,HIGH);
    digitalWrite(LED2,HIGH);
    delay(del);
    digitalWrite(LED1,LOW);
    digitalWrite(LED2,LOW);
    delay(del);
    digitalWrite(LED1,HIGH);
    digitalWrite(LED2,HIGH);
    delay(del);
    digitalWrite(LED1,LOW);
    digitalWrite(LED2,LOW);
    delay(del);
    digitalWrite(LED3,HIGH);
    digitalWrite(LED4,HIGH);
    delay(del);
    digitalWrite(LED3,LOW);
    digitalWrite(LED4,LOW);
    delay(del);
    digitalWrite(LED3,HIGH);
    digitalWrite(LED4,HIGH);
    delay(del);
    digitalWrite(LED3,LOW);
    digitalWrite(LED4,LOW);
    break;
}
```



```
case 2:
digitalWrite(LED1,HIGH);
digitalWrite(LED3,HIGH);
delay(del);
digitalWrite(LED1,LOW);
digitalWrite(LED3,LOW);
delay(del);
digitalWrite(LED1,HIGH);
digitalWrite(LED3,HIGH);
delay(del);
digitalWrite(LED1,LOW);
digitalWrite(LED3,LOW);
delay(del);
digitalWrite(LED2,HIGH);
digitalWrite(LED4,HIGH);
delay(del);
digitalWrite(LED2,LOW);
digitalWrite(LED4,LOW);
delay(del);
digitalWrite(LED2,HIGH);
digitalWrite(LED4,HIGH);
delay(del);
digitalWrite(LED2,LOW);
digitalWrite(LED4,LOW);
break;
```

```
case 3:
digitalWrite(LED1,HIGH);
digitalWrite(LED2,HIGH);
digitalWrite(LED3,HIGH);
digitalWrite(LED4,HIGH);
delay(200);
digitalWrite(LED1,LOW);
digitalWrite(LED2,LOW);
digitalWrite(LED3,LOW);
digitalWrite(LED4,LOW);
delay(200);
digitalWrite(LED1,HIGH);
digitalWrite(LED2,HIGH);
digitalWrite(LED3,HIGH);
digitalWrite(LED4,HIGH);
delay(200);
digitalWrite(LED1,LOW);
digitalWrite(LED2,LOW);
digitalWrite(LED3,LOW);
digitalWrite(LED4,LOW);
delay(200);
digitalWrite(LED1,HIGH);
digitalWrite(LED2,HIGH);
digitalWrite(LED3,HIGH);
digitalWrite(LED4,HIGH);
delay(90);
digitalWrite(LED1,LOW);
```



```
digitalWrite(LED2,LOW);
digitalWrite(LED3,LOW);
digitalWrite(LED4,LOW);
delay(90);
digitalWrite(LED1,HIGH);
digitalWrite(LED2,HIGH);
digitalWrite(LED3,HIGH);
digitalWrite(LED4,HIGH);
delay(90);
digitalWrite(LED1,LOW);
digitalWrite(LED2,LOW);
digitalWrite(LED3,LOW);
digitalWrite(LED4,LOW);
delay(90);
break;

case 4:
{
for(i=0;i<255;i++)
{
analogWrite(LED1,i);
delay(1);
}
for(i=254;i>=0;i--)
{
analogWrite(LED1,i);
delay(1);
}

for(i=0;i<255;i++)
{
analogWrite(LED4,i);
delay(1);
}
for(i=254;i>=0;i--)
{
analogWrite(LED4,i);
delay(1);
}
}
break;

case 5:
{
digitalWrite(LED1,LOW);
digitalWrite(LED2,LOW);
digitalWrite(LED3,LOW);
digitalWrite(LED4,LOW);
}
break;
}
}
```

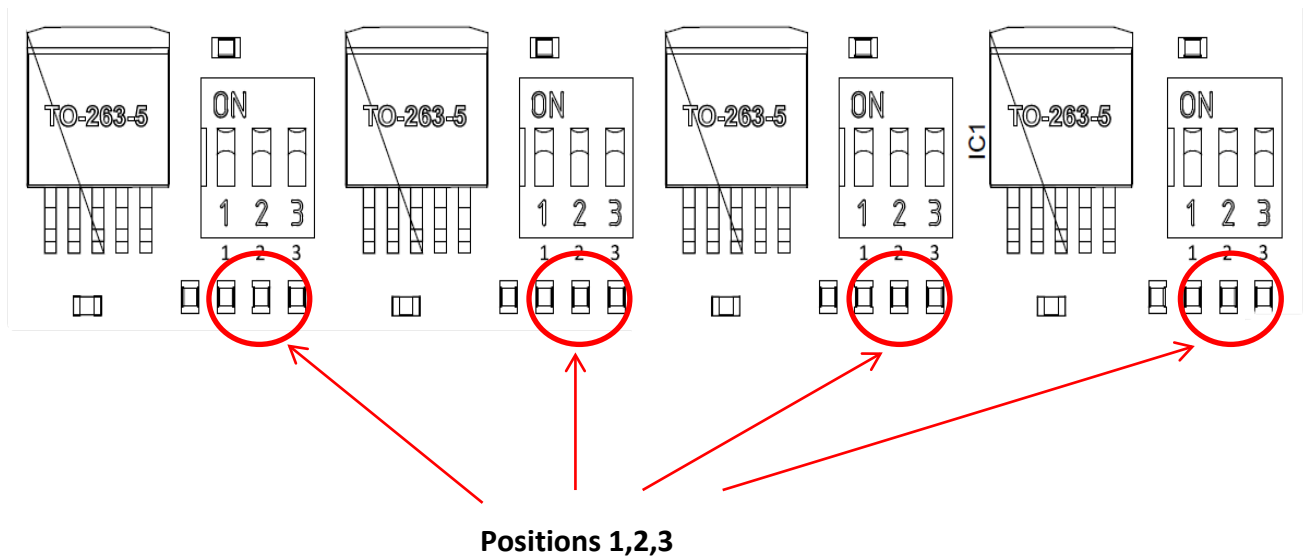


### Additional current selection

It's possible to change Current limit according to the table 1 or even better steps if you do some math and measurements. You can do it by changing **Resistors at position 1, 2, 3**

LED Current [mA]	RSET [ $\Omega$ ]
100	4990
200	2490
300	1690
400	1270
500	1050
600	866
700	768
800	680
900	604
1000	549

**Table 1**





Physical dimension

