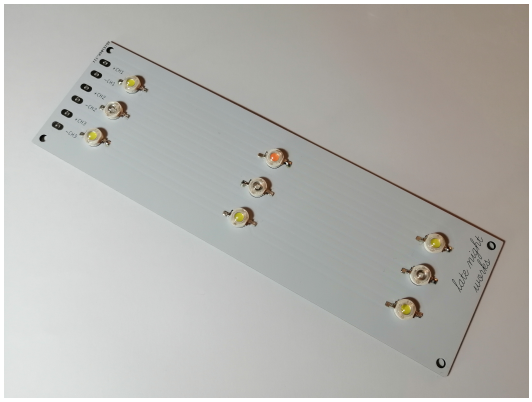
Late Night Works

LED Grow Light ver.1

1 Overview



- 3 indepentend channels
- Large plane on back for maximum heat remove
- Practical terminals for power supply
- 4 holes of 3.5mm diameter for easy mount
- Compact design
- More than 6000 hours duration
- 1355 lumens, 27 Watt

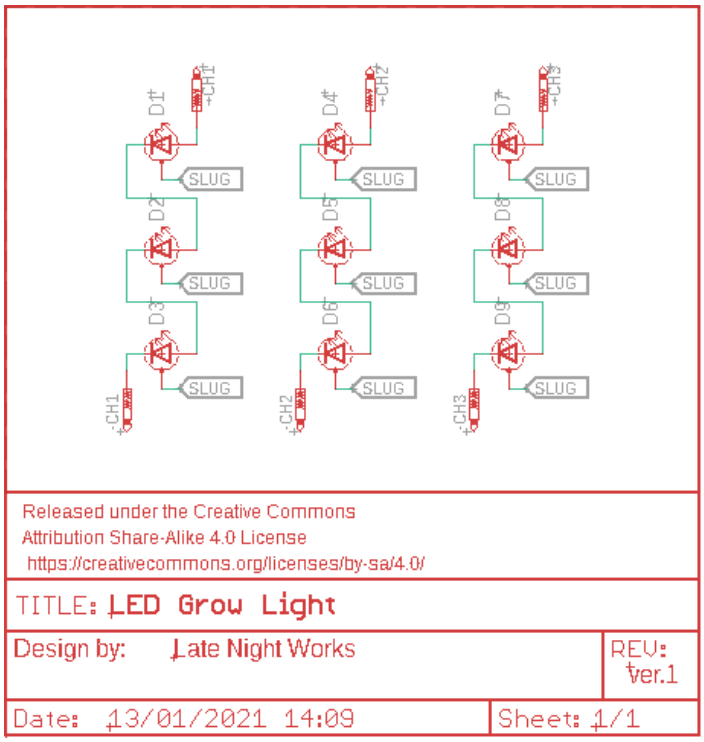
2 Description

- LED Grow Light 27W dimmerable pcb LED light for vivarium and aquarium applications;
- LED applications for DIY lights are usually an intricate web of wires. LED Grow Light has all the wirings routed on the printed circuit board and requires only to be wired to the supply circuit through practical headers;
- the back of the printed circuit board is a large plane of exposed conductive material suitable for heatisnk application with thermal paste. Every LED's slug is connected by thermal paste to this conductive plane through vias in order to maximise the elimination of excess heat and ensure long life of the light;
- This light implement different LEDs with different wavelenght in order to ensure, as well as a good grow spectrum, a great color rendering. This makes those lights great for application where color grading is as important as the plant mass growth like for example, aquariums. In addition to this, there are even blue LEDs with attinic components in order to cover the whole light spectrum;
- 120 degrees angle lens for an uniform and diffuse light emission;
- Rated power of 27W is obtained from 9 LEDs by 3W each one for a total of 1355 lumens:

number of LEDs	wavelenght/color temperature	lumens	power
5	6500K	230	3W
1	$full\ spectrum$, 380-480nm	100	3W
3	646nm	35	3W

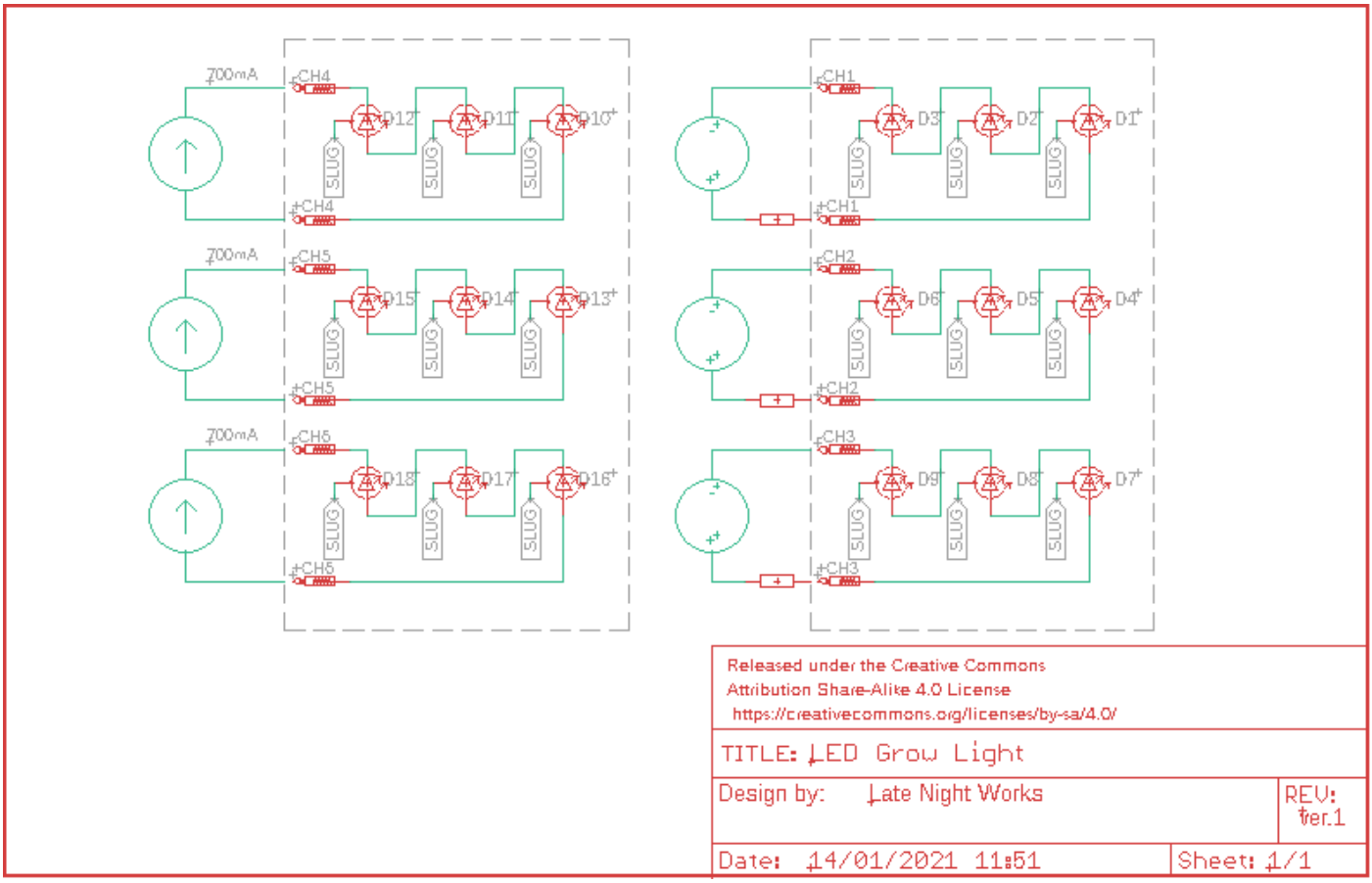
3 Wiring

In order to turn on a single LED, you must provide 700mA (at least 300mA) and a voltage across it at least of 3.3V.
The 9 LEDs mounted on the light are grouped in three fully indepentend channels, composed each one by three LEDs in series like in the schematic below.



In order to turn on a single channel you need to provide 10V (or more) and 700mA and this can be done in two ways:

- with a constant current power supply that matches the carachteristics above;
- with a constant voltage power supply (at least of 10V), applying a current limiting resistor in series to the channel calculated with Ohm's law: $(V_{supply} - 3.3 \times 3)/0.7$.



This particular configuration of the lights is deliberately intended user friendly in order to guarantee the maximum flexibility of the light. In this way you can combine more channel as you like and even use an external PWM supply to dim the LEDs.

4 Technical specification

	Unit	Value
$V_{forward}$ (channel)	V	9.9
Maximum current through channel	A	0.7
Minimum current through channel	A	0.3
Rated Power	W	27
Rated lumens	lm	1355
Dimensions	$mm * mm * mm$	7*60*200
Weight	g	46
n° of channels	$--$	3

5 Pinout

Pin	Signal
+CH1	positive supply for CH1
-CH1	negative supply for CH1
+CH2	positive supply for CH2
-CH2	negative supply for CH2
+CH3	positive supply for CH3
-CH3	negative supply for CH3

6 Measures