

License: CERN-OHL-P

Author: Nikolai Zoller

Company: ElektroNik Zoller

Sheet: Root

File: ESP-Wordclock.kicad\_sch

**Title: Wordclock – Top**

Size: A4

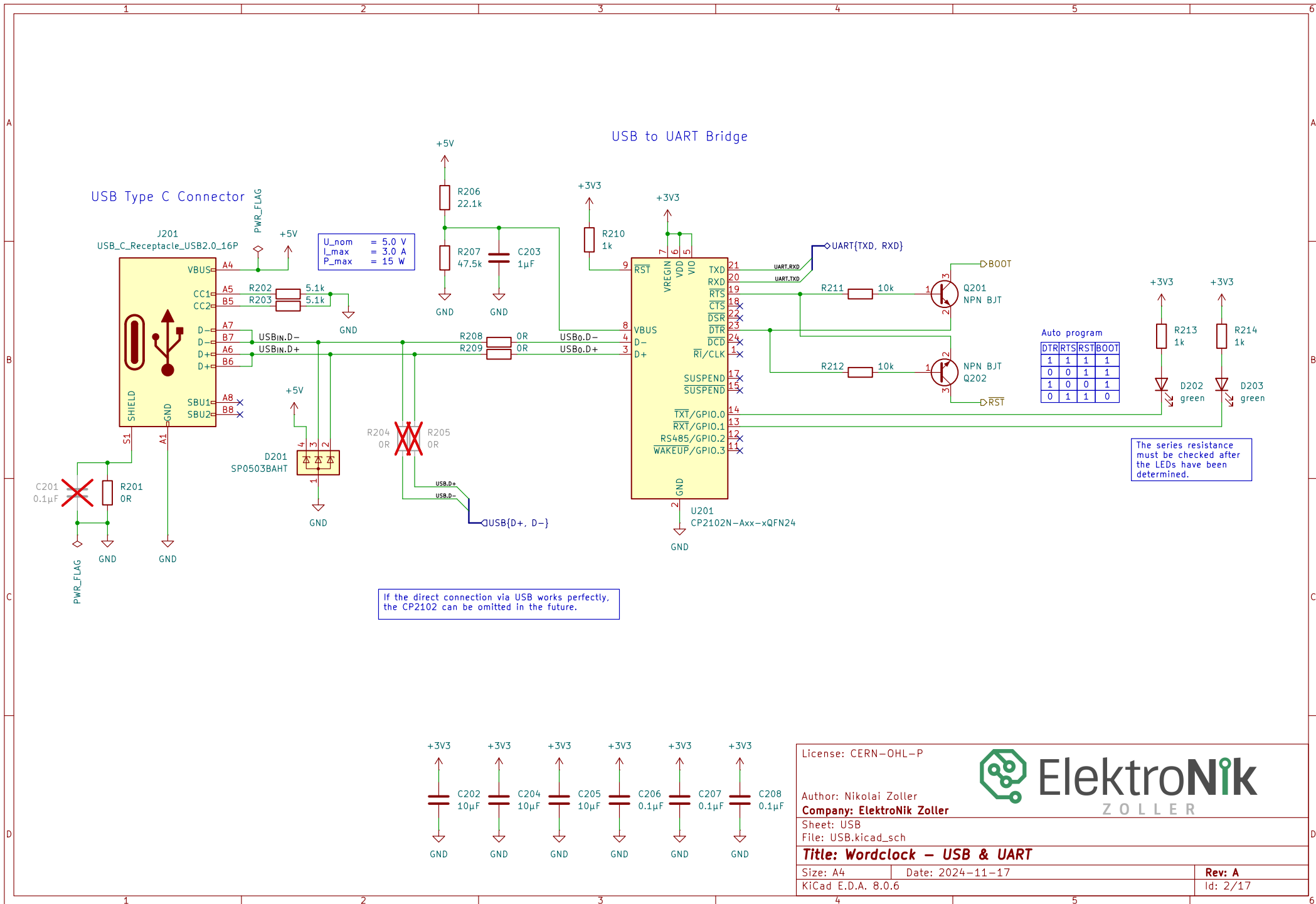
Date: 2024-11-17

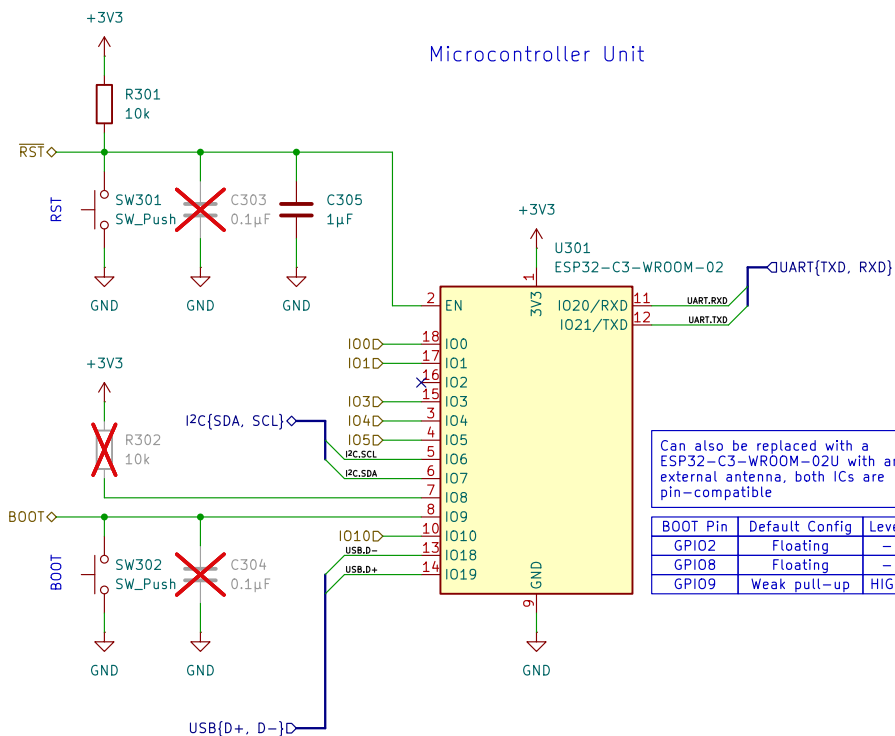
Rev: A

KiCad E.D.A. 8.0.6

Id: 1/17

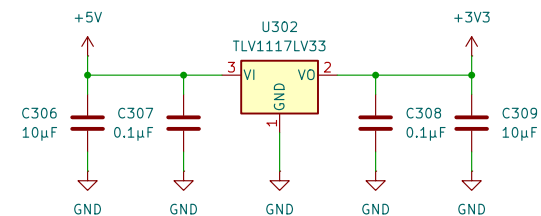




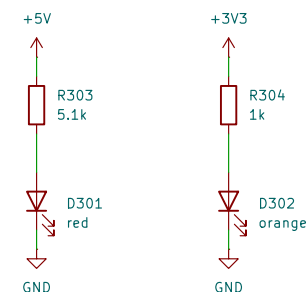


### +3V3 Power Supply

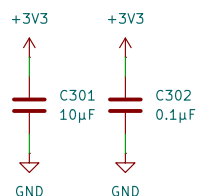
U<sub>nom</sub> = 3.3 V  
I<sub>max</sub> = 1.0 A  
P<sub>max</sub> = 3.3 W



Can also be replaced with a weaker standard TLV1117, both ICs are pin-compatible



The series resistance must be checked after the LEDs have been determined.



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Author: Nikolai Zoller

Company: ElektroNik Zoller

Sheet: MCU

File: MCU.kicad\_sch

**Title: Wordclock – Microcontroller Unit & Power Supply**

Size: A4

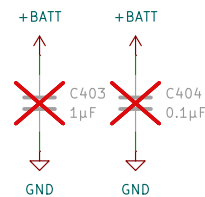
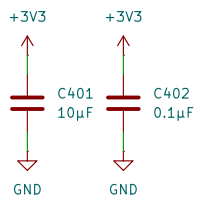
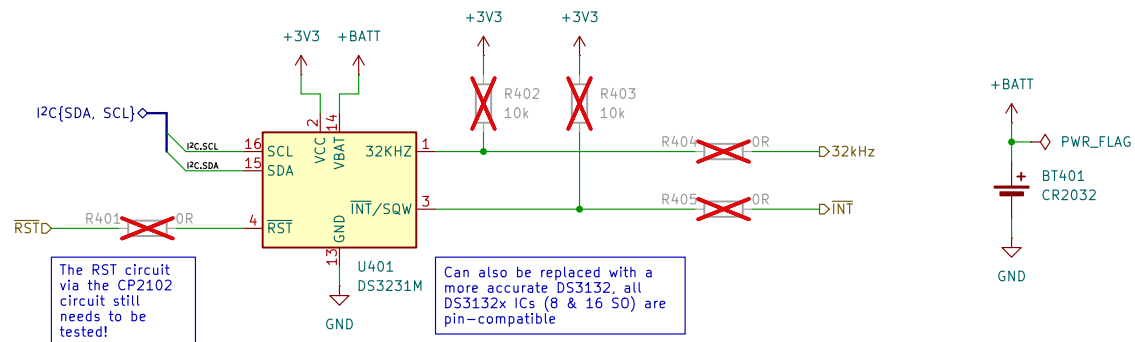
Date: 2024-11-17

Rev: A

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Id: 3/17

# Real Time Clock



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Author: Nikolai Zoller  
Company: ElektroNik Zoller

Sheet: RTC  
File: RTC.kicad\_sch

**Title: Wordclock – Real Time Clock**

Size: A4 Date: 2024-11-17

KiCad E.D.A. 8.0.6

Rev: A  
Id: 4/17

The diagram shows a voltage divider circuit. A green line from the +3V3 supply passes through a resistor labeled R501 (10k). After the resistor, the line splits: one path goes to the LDR sensor (labeled LDR07) and the other path goes to the LDR pin of the sensor. The LDR sensor is connected to GND. The output of the voltage divider is labeled LDR.

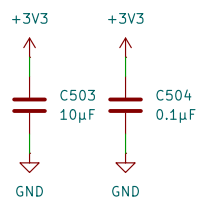
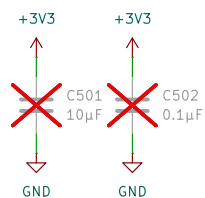
The RST circuit via the CP2102 still needs to be tested!

The RST circuit via the CP2102 circuit still needs to be tested!

```
ADDR = 'H': 0x5C
ADDR = 'L': 0x23
```

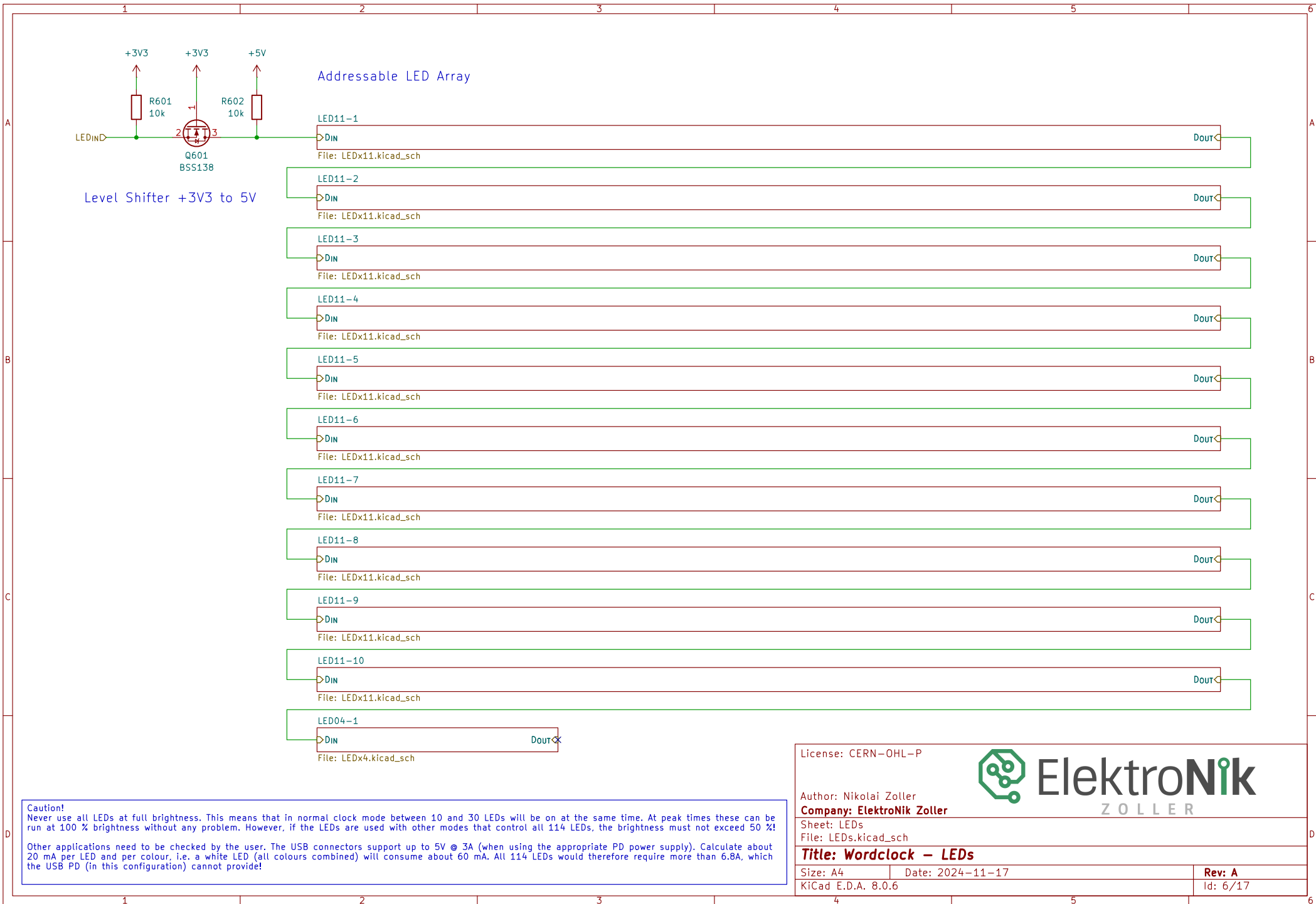
U501  
BH1750xxx-xx

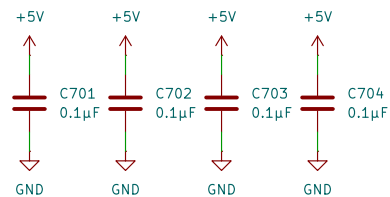
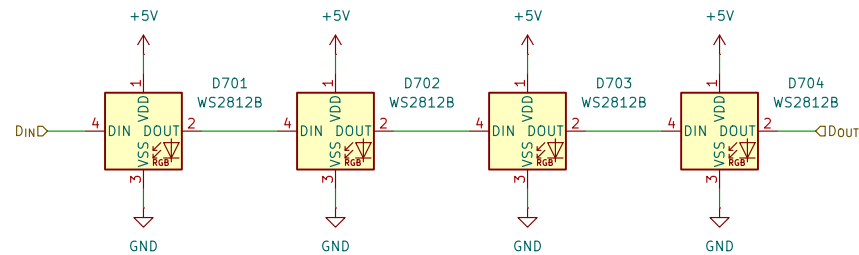
Only one brightness sensor can be used, which is why only one should be populated. The LDR has been added for legacy support.



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Id: 5/17







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**ElektroNik**  
ZOLLER

Author: Nikolai Zoller

Company: **ElektroNik Zoller**

Sheet: LED04-1

File: LEDx4.kicad\_sch

**Title: Wordclock – LED Row with 4 pcs.**

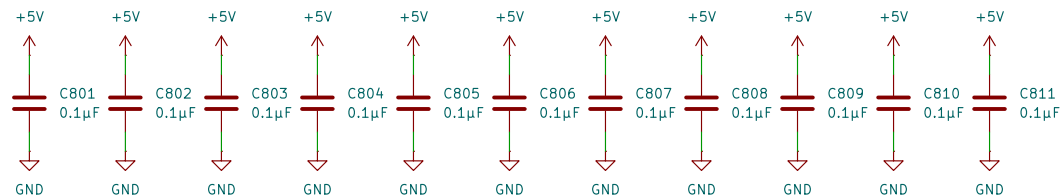
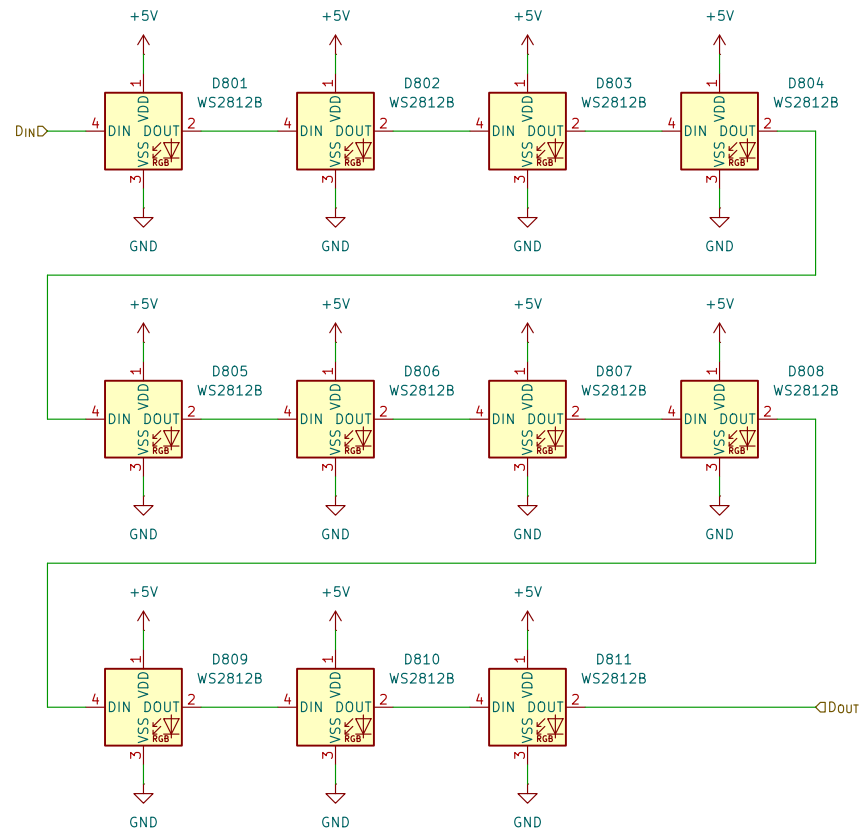
Size: A4

Date: 2024-11-17

Rev: **A**

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Id: 7/17



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Author: Nikolai Zoller  
Company: ElektroNik Zoller

Sheet: LED11-1  
File: LEDx11.kicad\_sch

**Title: Wordclock – LED Row with 11 pcs.**

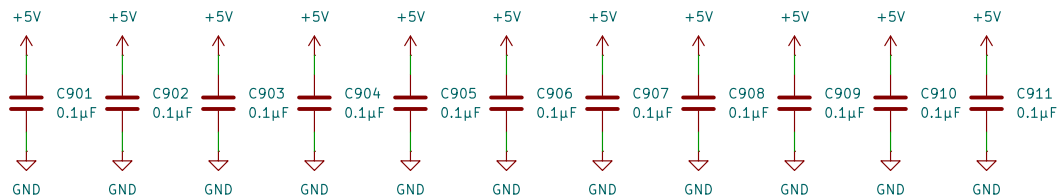
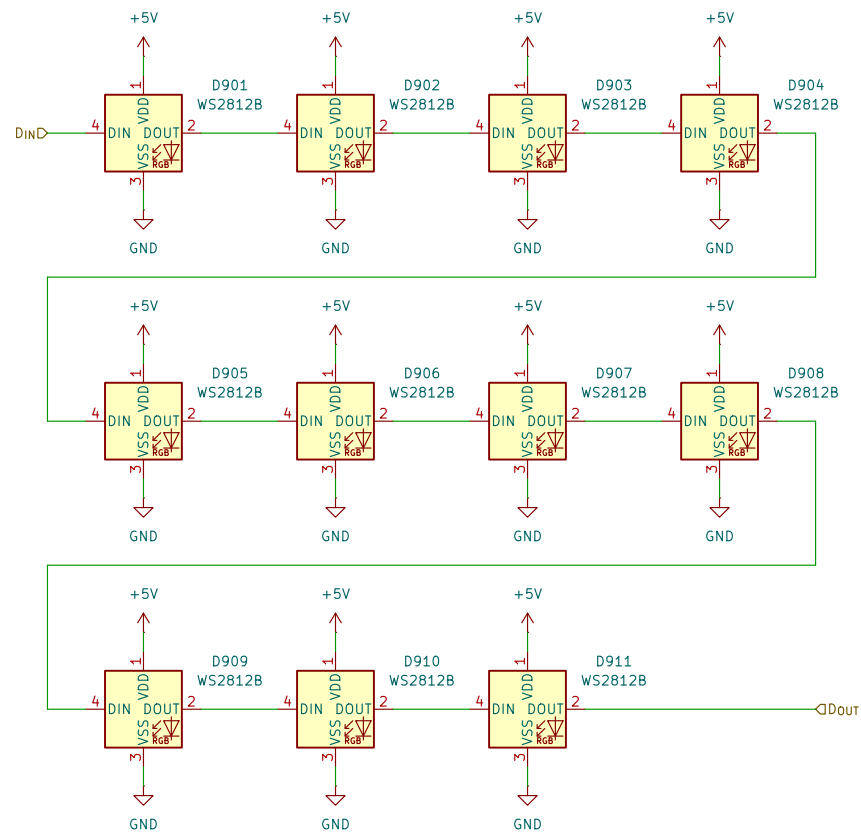
Size: A4 Date: 2024-11-17

KiCad E.D.A. 8.0.6

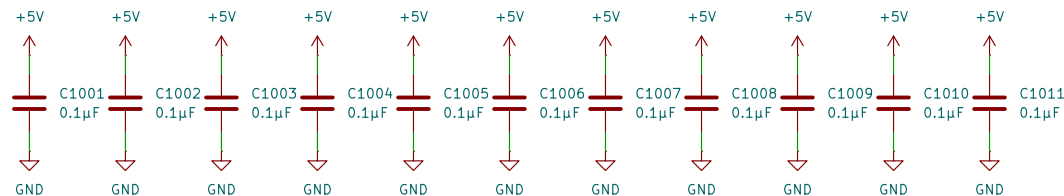
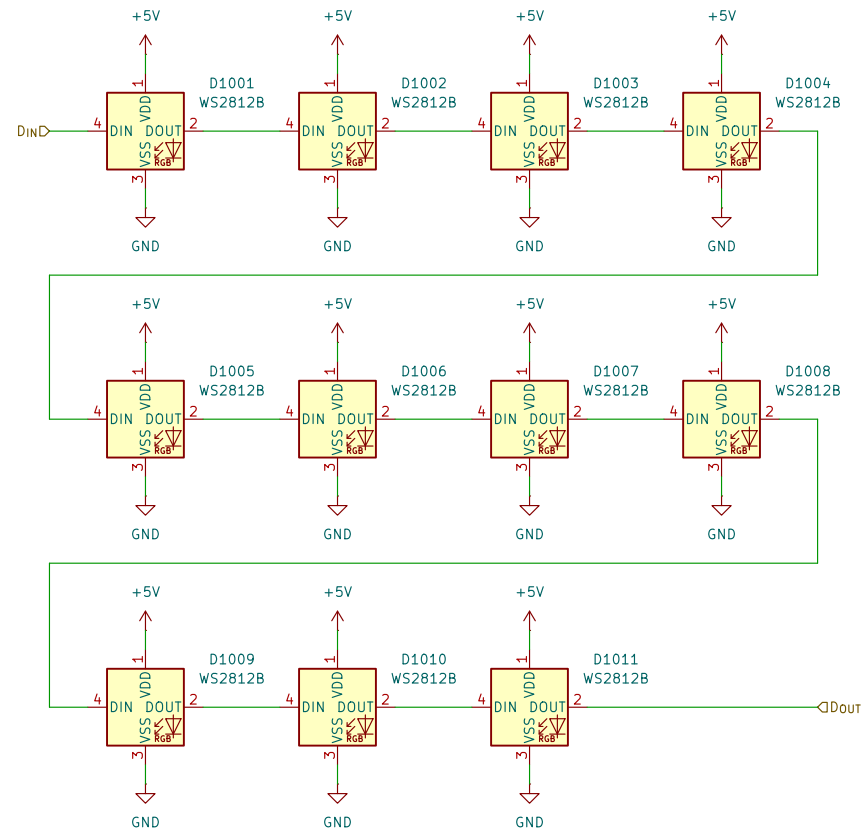
Rev: A

Id: 8/17





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Author: Nikolai Zoller Company: ElektroNik Zoller			
Sheet: LED11-2 File: LEDx11.kicad_sch			
Title: Wordclock – LED Row with 11 pcs.			
Size: A4	Date: 2024-11-17	Rev: A	
KiCad E.D.A. 8.0.6		Id: 9/17	



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**ElektroNik**  
ZOLLER

Author: Nikolai Zoller

Company: ElektroNik Zoller

Sheet: LED11-3

File: LEDx11.kicad\_sch

**Title: Wordclock – LED Row with 11 pcs.**

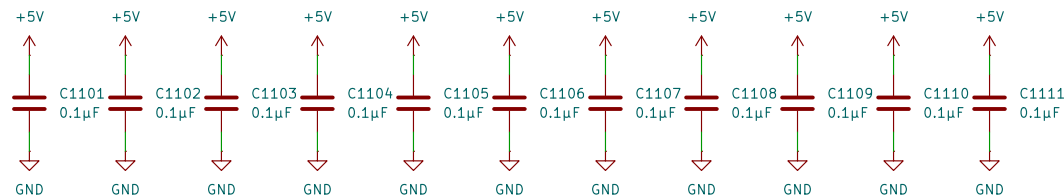
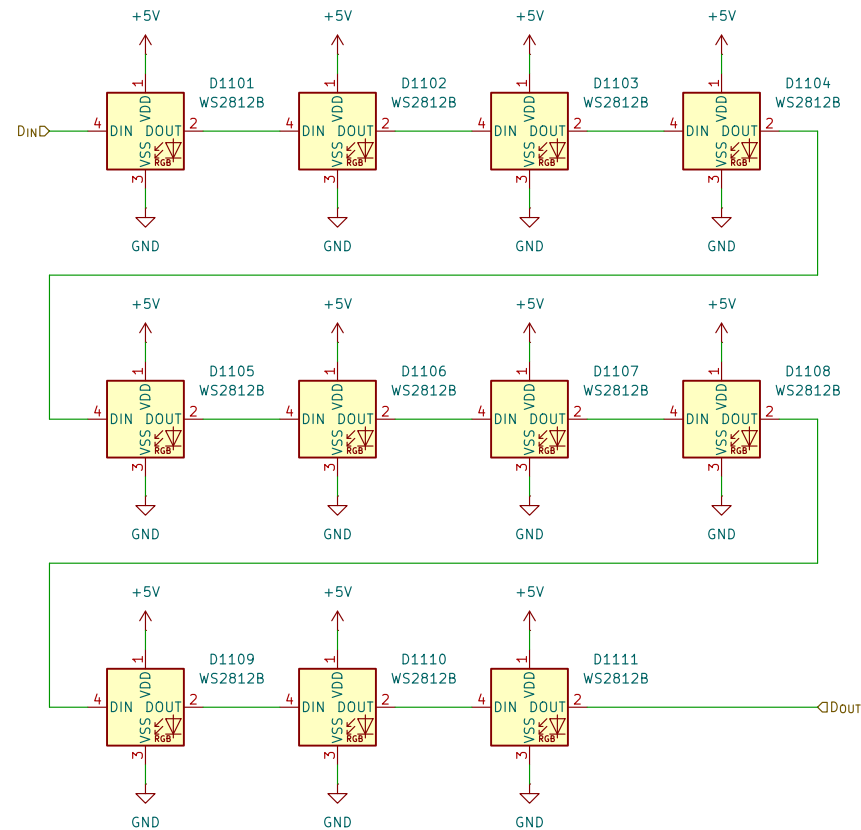
Size: A4

Date: 2024-11-17

Rev: A

KiCad E.D.A. 8.0.6

Id: 10/17



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Author: Nikolai Zoller  
Company: ElektroNik Zoller

Sheet: LED11-4  
File: LEDx11.kicad\_sch

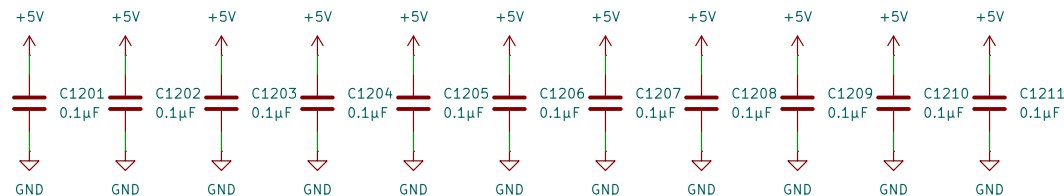
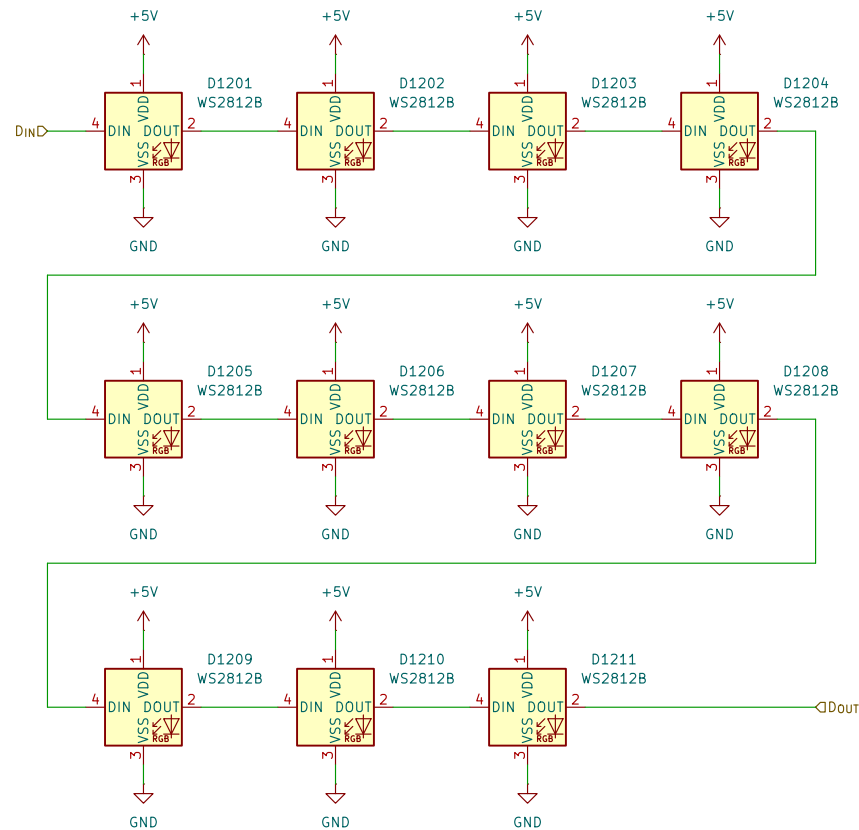
**Title: Wordclock – LED Row with 11 pcs.**

Size: A4 Date: 2024-11-17

KiCad E.D.A. 8.0.6

Rev: A

Id: 11/17



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Author: Nikolai Zoller  
Company: ElektroNik Zoller

Sheet: LED11-5  
File: LEDx11.kicad\_sch

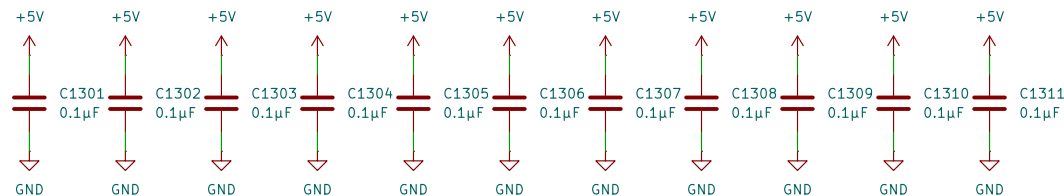
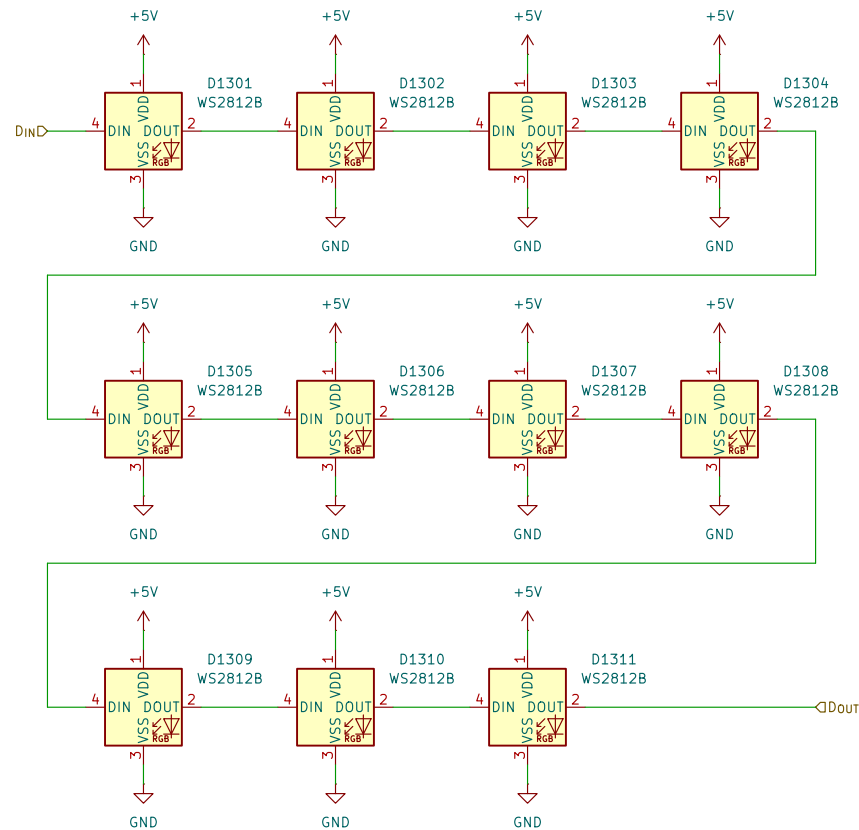
**Title: Wordclock – LED Row with 11 pcs.**

Size: A4 Date: 2024-11-17

KiCad E.D.A. 8.0.6

Rev: A

Id: 12/17



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Author: Nikolai Zoller

Company: ElektroNik Zoller

Sheet: LED11-6

File: LEDx11.kicad\_sch

**Title: Wordclock – LED Row with 11 pcs.**

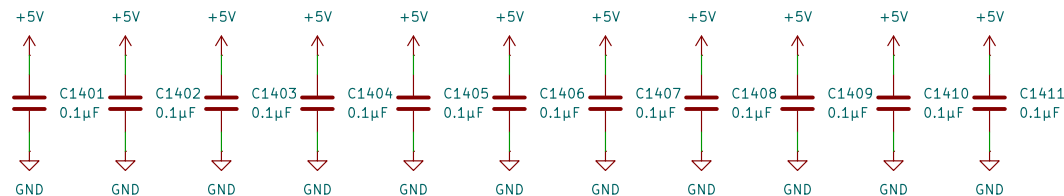
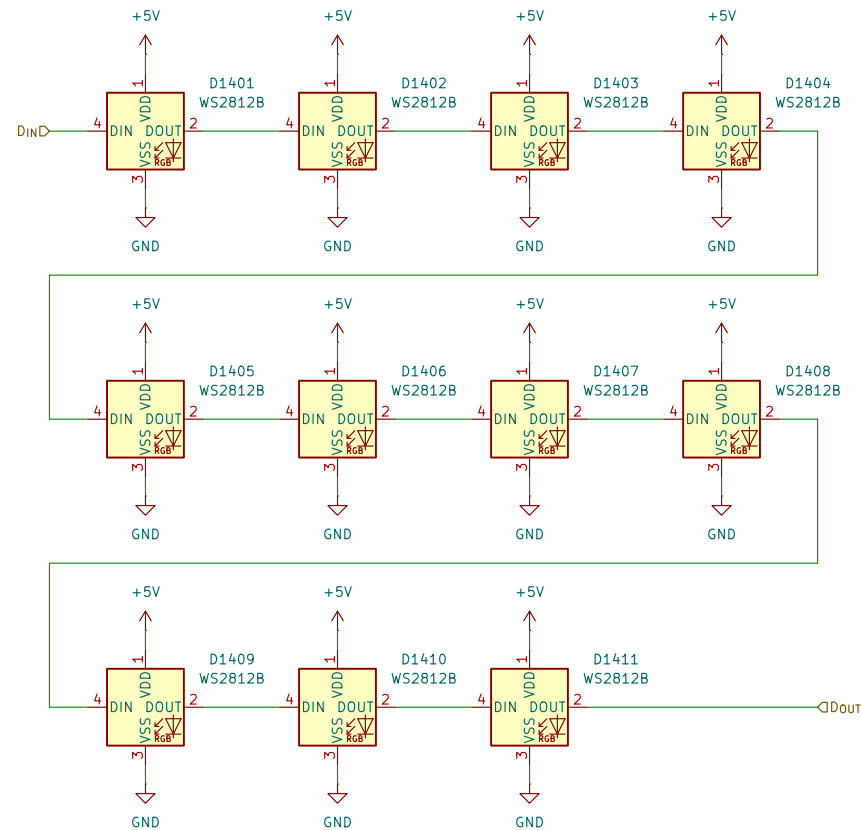
Size: A4

Date: 2024-11-17

Rev: A

KiCad E.D.A. 8.0.6

Id: 13/17



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**ElektroNik**  
ZOLLER

Author: Nikolai Zoller

Company: ElektroNik Zoller

Sheet: LED11-7

File: LEDx11.kicad\_sch

**Title: Wordclock – LED Row with 11 pcs.**

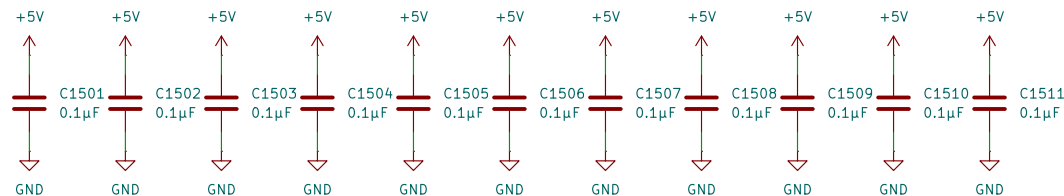
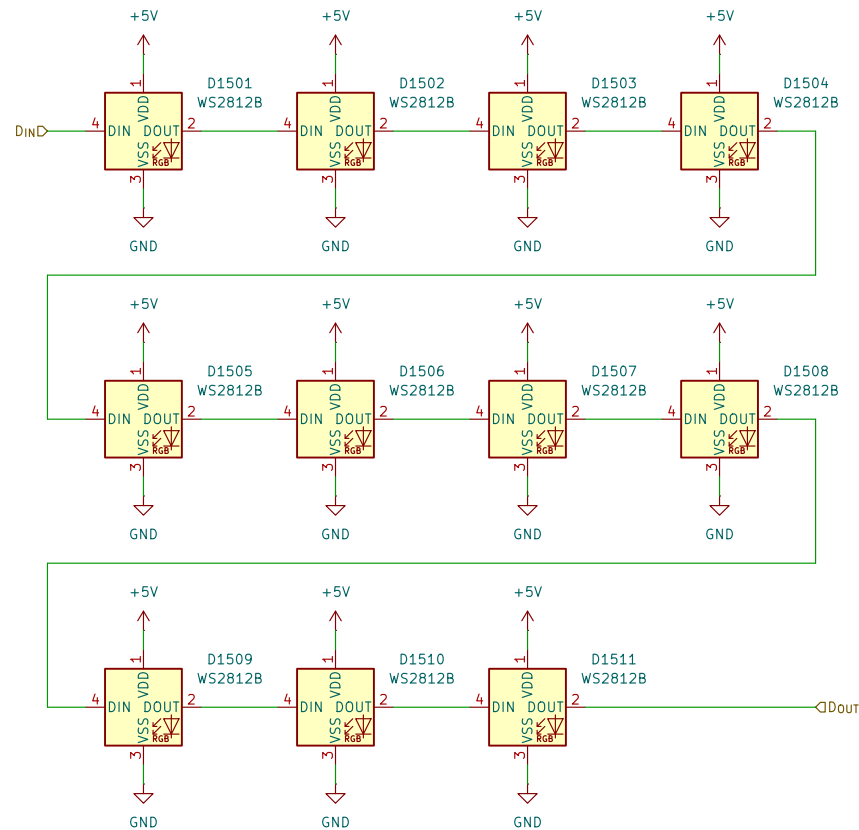
Size: A4

Date: 2024-11-17

Rev: A

KiCad E.D.A. 8.0.6

Id: 14/17



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Author: Nikolai Zoller  
Company: ElektroNik Zoller

Sheet: LED11-8  
File: LEDx11.kicad\_sch

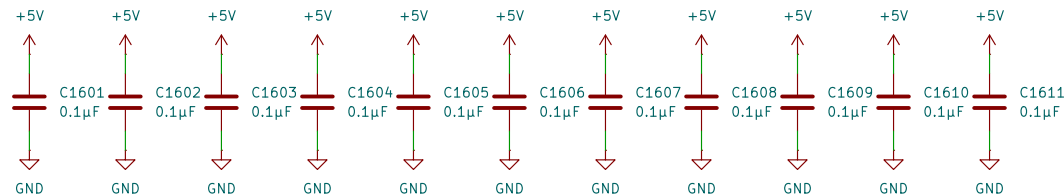
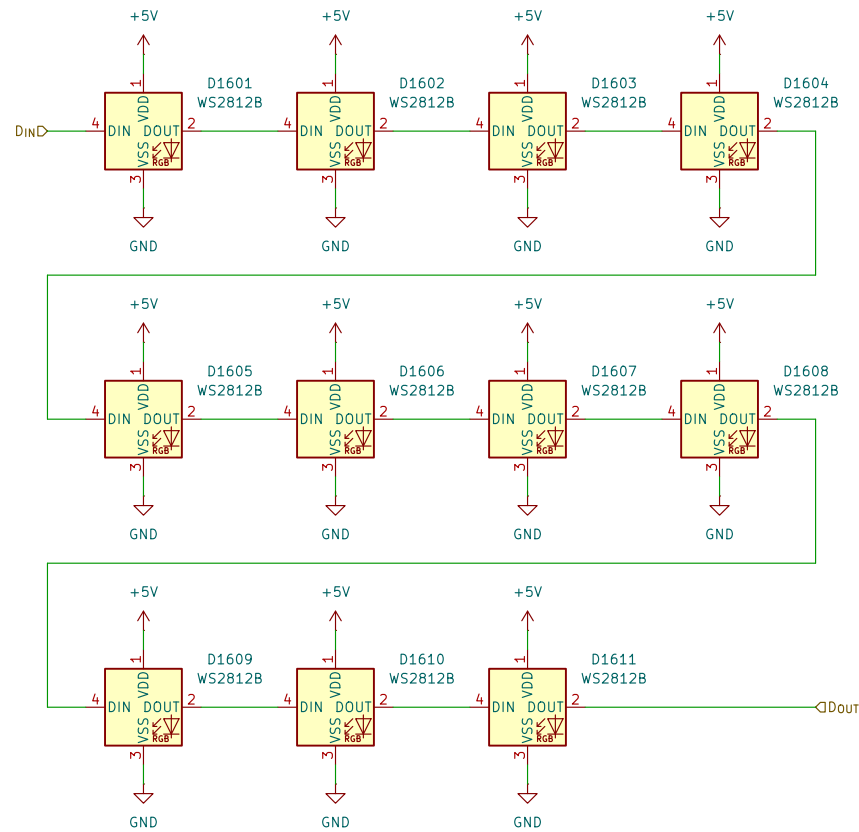
**Title: Wordclock – LED Row with 11 pcs.**

Size: A4 Date: 2024-11-17

KiCad E.D.A. 8.0.6

Rev: A

Id: 15/17



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Author: Nikolai Zoller  
Company: ElektroNik Zoller

Sheet: LED11-9  
File: LEDx11.kicad\_sch

**Title: Wordclock – LED Row with 11 pcs.**

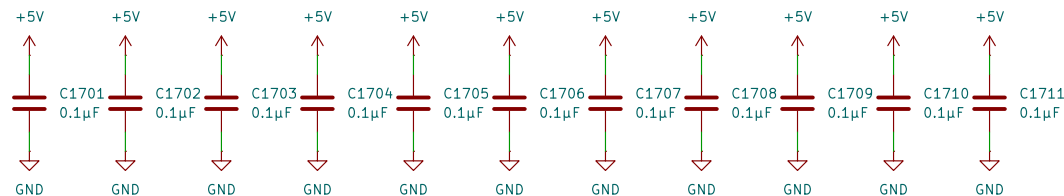
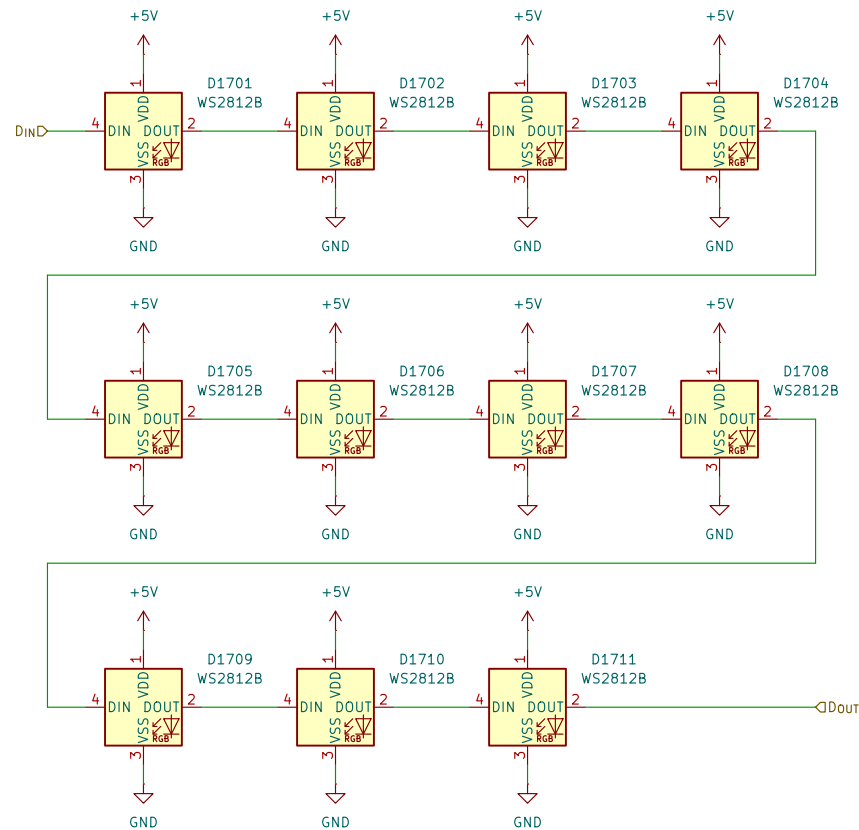
Size: A4 Date: 2024-11-17

KiCad E.D.A. 8.0.6

Rev: A

Id: 16/17





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Author: Nikolai Zoller

Company: ElektroNik Zoller

Sheet: LED11-10

File: LEDx11.kicad\_sch

**Title: Wordclock – LED Row with 11 pcs.**

Size: A4

Date: 2024-11-17

Rev: A

KiCad E.D.A. 8.0.6

Id: 17/17