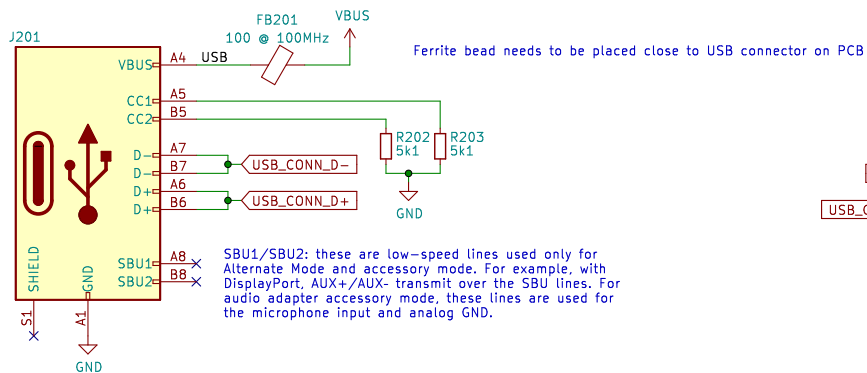
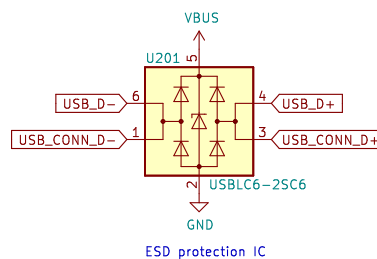


The device must have 5.1k pull-down on the its port CC pin (on both pins).

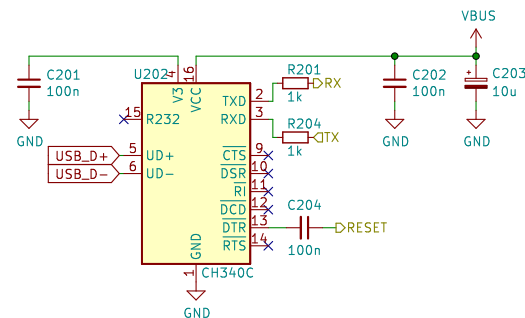
Once the C-C cable is connected between two link partners, the DFP (host) will sense the drag by 5.1k resistor (from device side). As result, it will turn the VBUS on. This is how a host recognizes that a connection has been made. The connect event is essentially controlled by sink side having 5.1k Rd.



Shield is grounded at the host side (PC) so NC here.



CH340C USB-UART IC



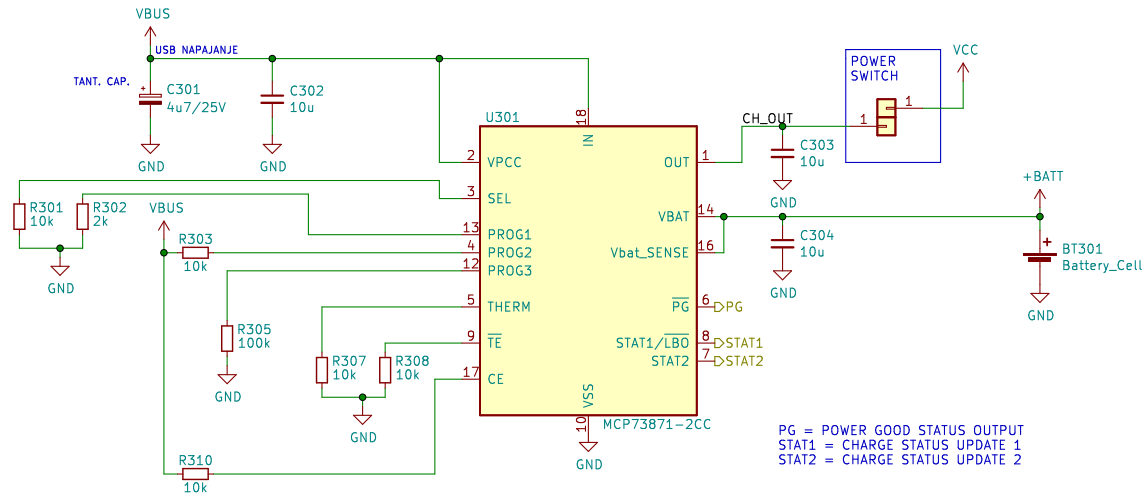
Sheet: /USB/
File: USB.kicad_sch

Title: BoardGame

Size: A4 Date: 2022-09-21
KiCad E.D.A. kicad 7.0.2

Rev: 1
Id: 2/13

MCP73871



For optimum voltage regulation, it is recommended to place the battery pack closest to the device's VBAT and VSS pins to minimize voltage drops along the high current-carrying PCB traces. If the PCB layout is used as a heat sink, adding many vias in the heat sink pad can help conduct more heat to the PCB backplane, thus reducing the maximum junction temperature.

If temperature monitoring is not required, place a standard 10k resistor from THERM to VSS.

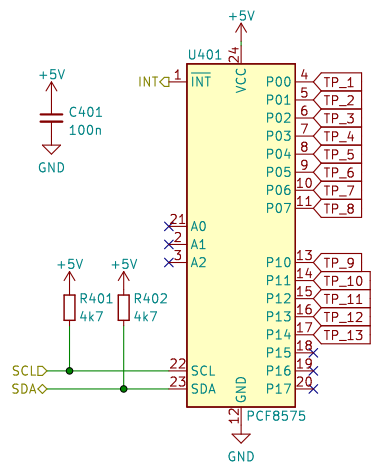
Sheet: /Battery charger/
File: Battery charger.kicad_sch

Title: BoardGame

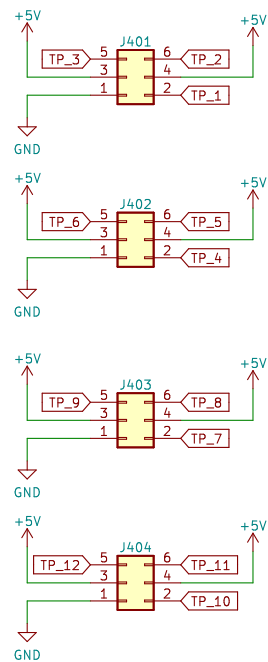
Size: A4 Date: 2022-09-21
KiCad E.D.A. kicad 7.0.2

Rev: 1
Id: 3/13

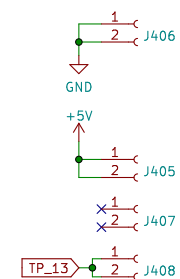
PCF8575 I/O Expander



Touchpad connectors



Dice touchpad connectors



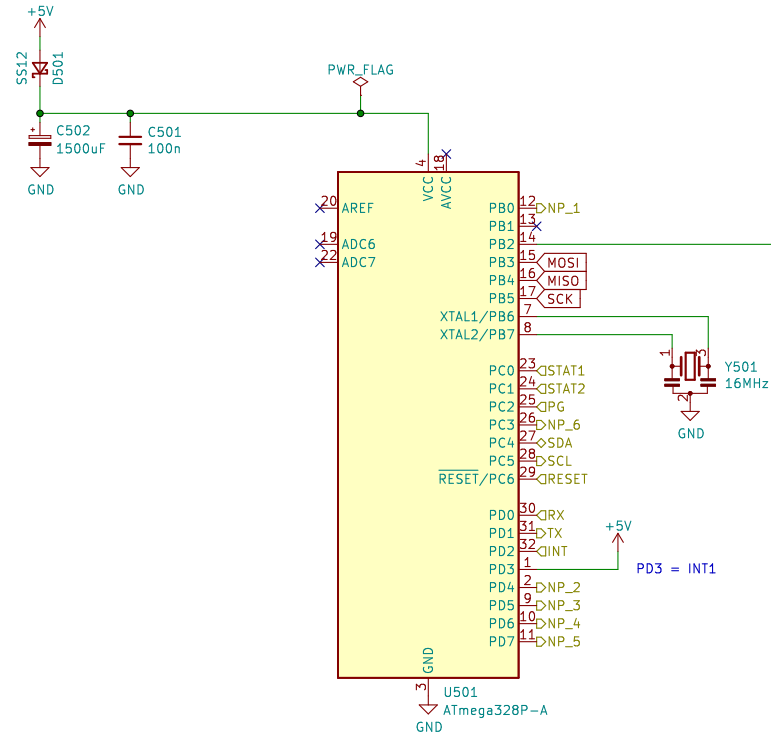
Sheet: /IO Expander/
File: IO Expander.kicad_sch

Title: BoardGame

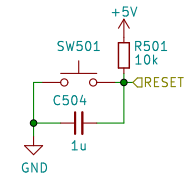
Size: A4 Date: 2022-09-21
KiCad E.D.A. kicad 7.0.2

Rev: 1
Id: 4/13

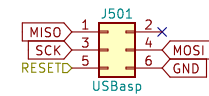
MICROCONTROLLER



RESET SWITCH



USBasp connector



Sheet: /Microcontroller/
File: Microcontroller.kicad_sch

Title: BoardGame

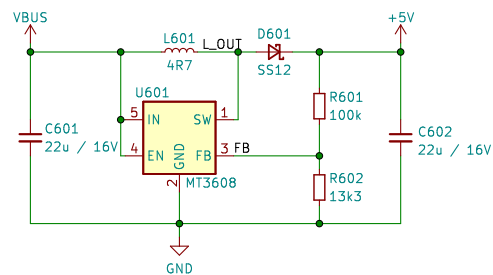
Size: A4 Date: 2022-09-21
KiCad E.D.A. kicad 7.0.2

Rev: 1
Id: 5/13

The recommended values of inductor are 4.7 to 22μH.
The inductor should have low core loss at 1.2MHz and low DCR for better efficiency.

Schottky diode is a good choice for MT3608 because of its low forward voltage drop and fast reverses recovery.

Input and output ceramic capacitors of 22μF are recommended.
For better voltage filtering, ceramic capacitors with low ESR are recommended (X7R).



The internal reference V_{REF} is 0.6V (Typical).

$$V_{OUT} = V_{REF} * (1 + R_1/R_2)$$
$$V_{OUT} = 0.6 * (1 + 100k/13.3k) = 5.11V$$

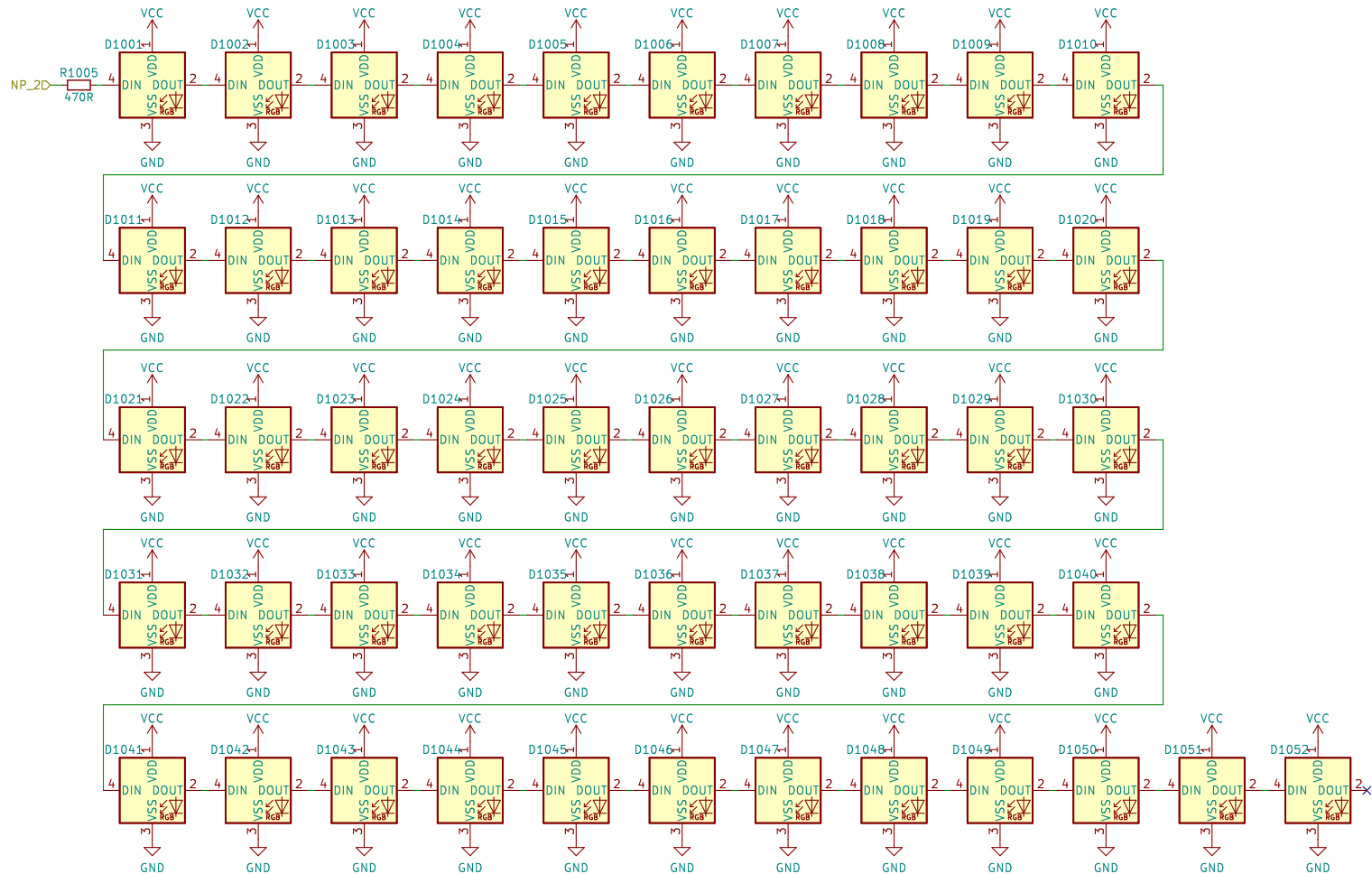
Sheet: /Boost Converter/
File: Boost Converter.kicad_sch

Title: BoardGame

Size: A4 Date: 2022-09-21
KiCad E.D.A. kicad 7.0.2

Rev: 1
Id: 6/13

Path LEDs



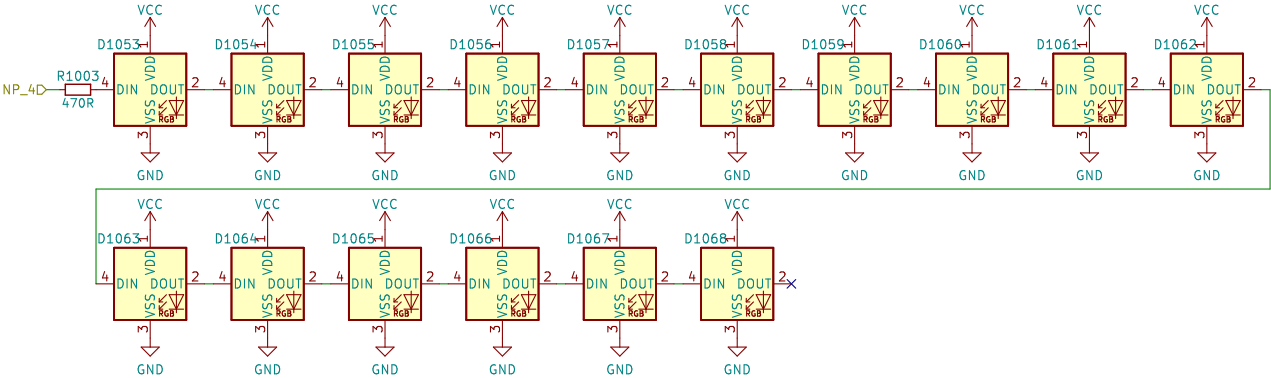
Sheet: /Path LEDs/
File: Path LEDs.kicad_sch

Title:

Size: A4 Date:
KiCad E.D.A. kicad 7.0.2

Rev:
Id: 8/13

Safehouse LEDs



Sheet: /Safehouse LEDs/
File: Safehouse LEDs.kicad_sch

Title:

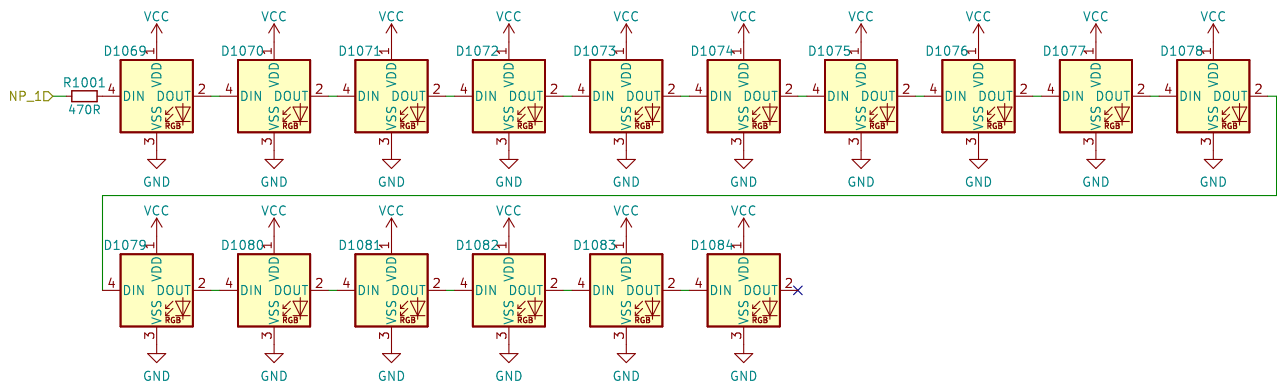
Size: A4
KiCad E.D.A. kicad 7.0.2

Date:

Rev:

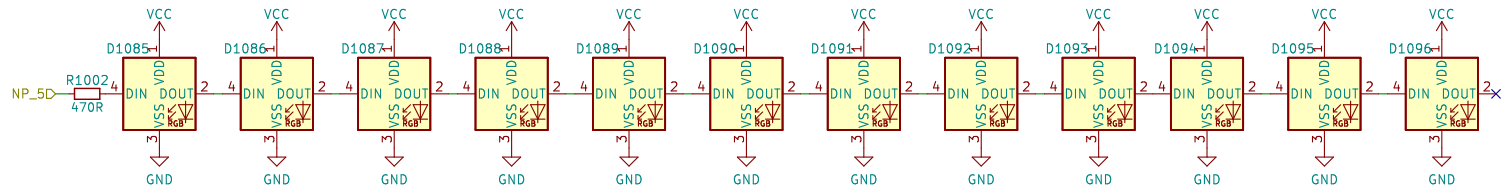
Id: 9/13

Finish LEDs



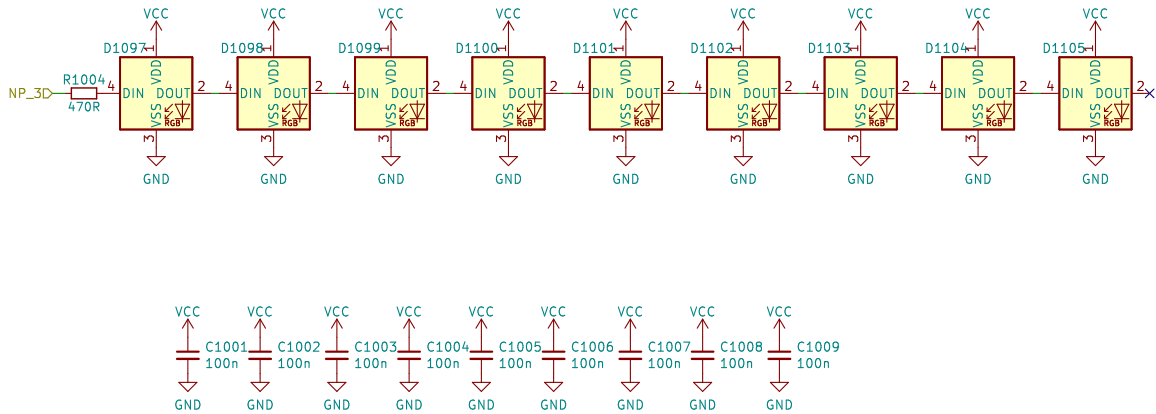
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Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad 7.0.2		Id: 10/13

Touchpads LEDs



Sheet: /Touchpad LEDs/		
File: Touchpad LEDs.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad 7.0.2		Id: 11/13

Dice LEDs

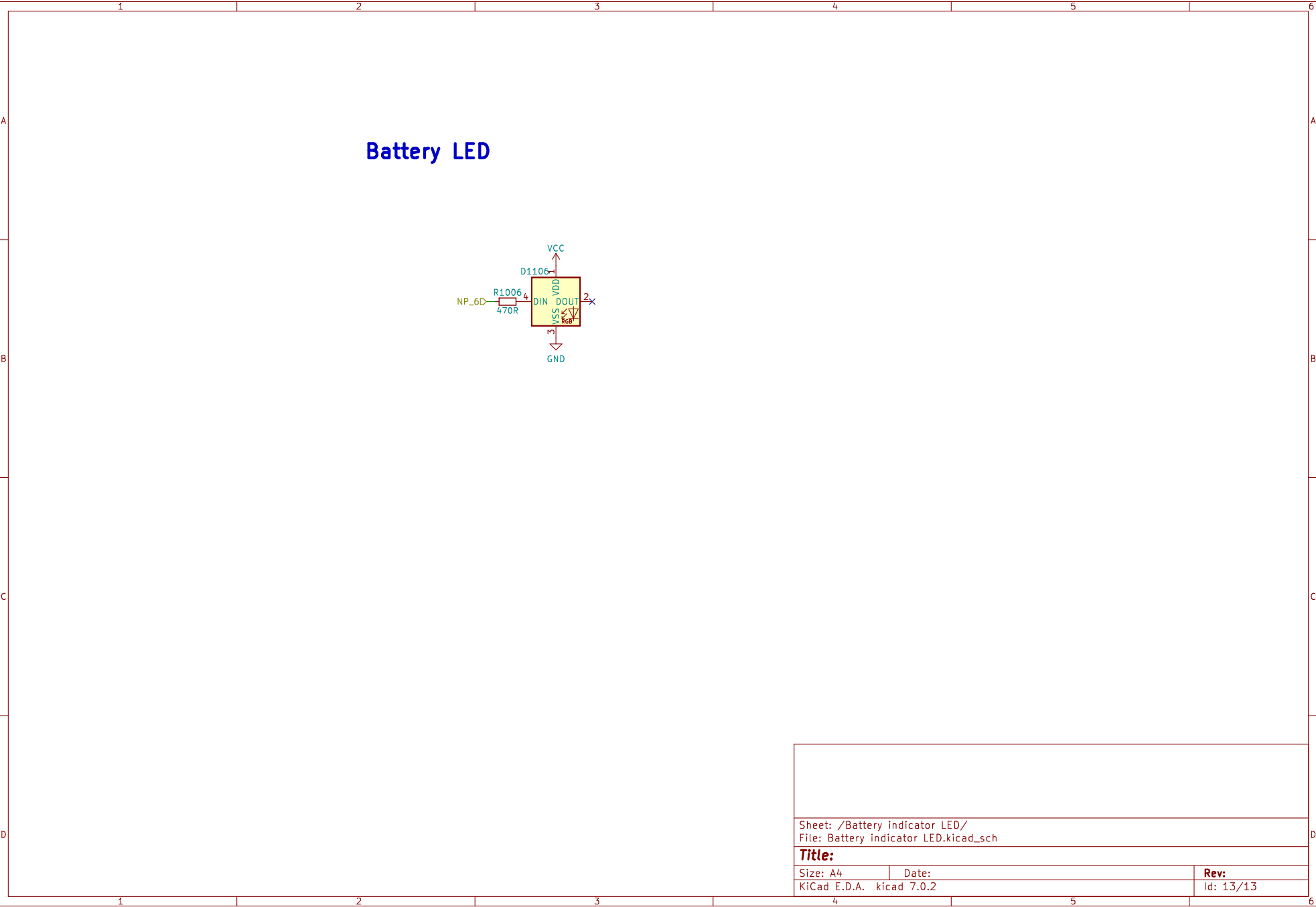


Sheet: /Dice LEDs/		
File: Dice LEDs.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad 7.0.2		Id: 12/13

Battery LED

NP_6D R1006 470R DIN DOUT VSS VDD VCC GND D1106

Sheet: /Battery indicator LED/		
File: Battery indicator LED.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad 7.0.2		Id: 13/13



Battery LED

NP_6D R1006 470R DIN DOUT VSS VDD VCC GND D1106

Sheet: /Battery indicator LED/		
File: Battery indicator LED.kicad_sch		
Title:		
Size: A4	Date:	Rev:
KiCad E.D.A. kicad 7.0.2		Id: 13/13

