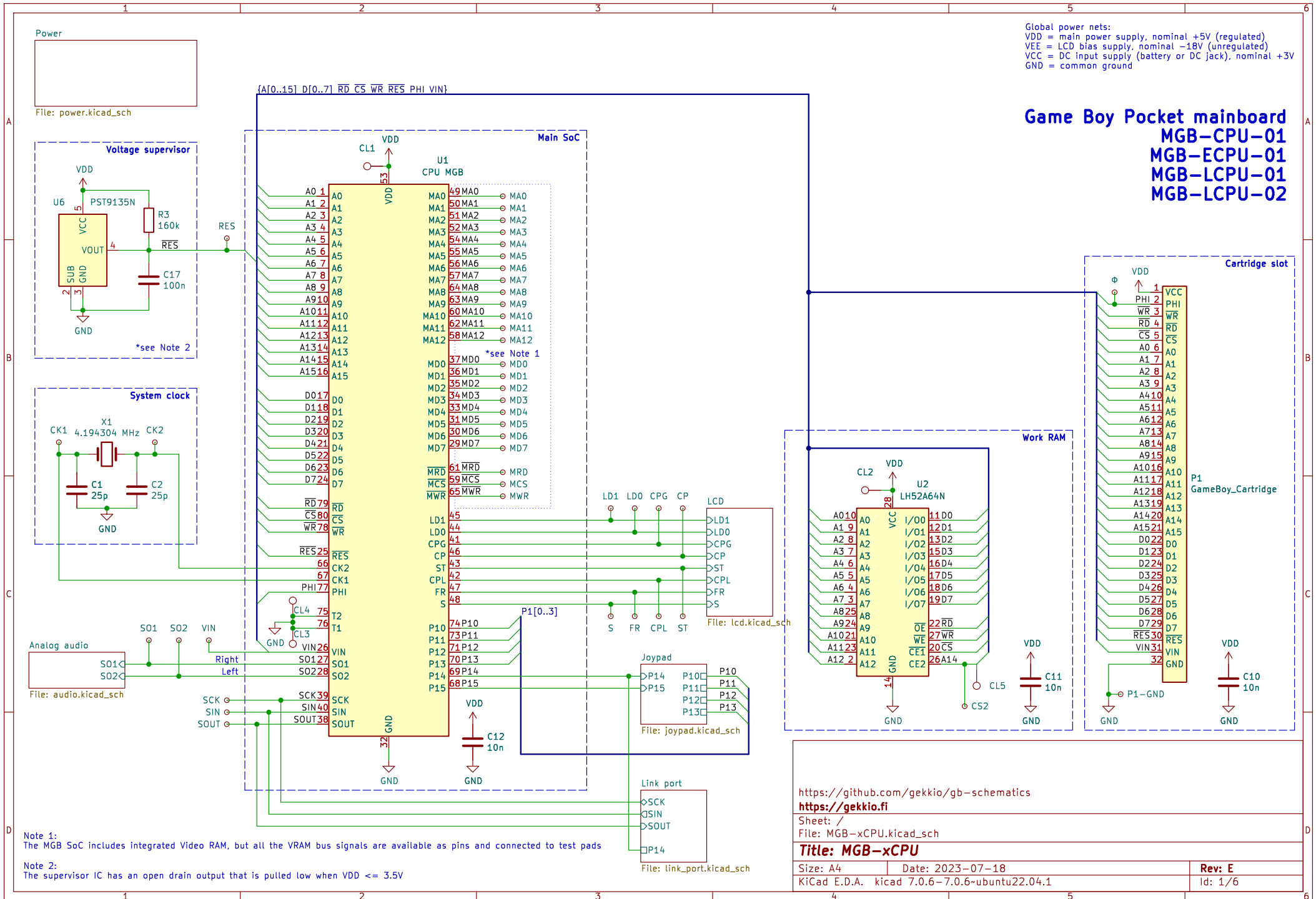


Global power nets:  
 VDD = main power supply, nominal +5V (regulated)  
 VEE = LCD bias supply, nominal -18V (unregulated)  
 VCC = DC input supply (battery or DC jack), nominal +3V  
 GND = common ground

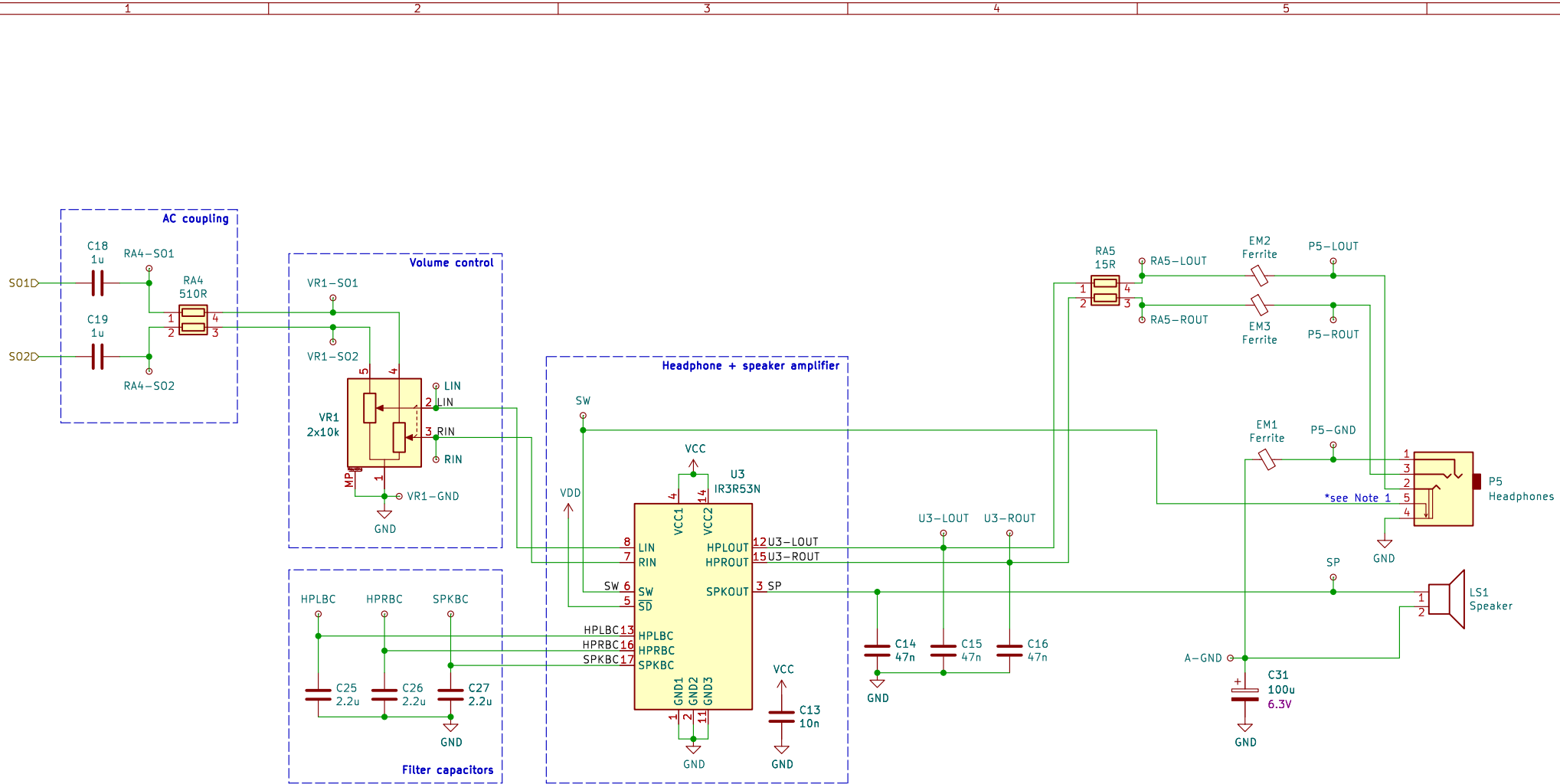
# Game Boy Pocket mainboard

MGB-CPU-01  
 MGB-ECPU-01  
 MGB-LCPU-01  
 MGB-LCPU-02



**Note 1:**  
 The MGB SoC includes integrated Video RAM, but all the VRAM bus signals are available as pins and connected to test pads

**Note 2:**  
 The supervisor IC has an open drain output that is pulled low when VDD <= 3.5V



Note 1:  
Pins 4 (GND) and 5 (SW) are normally connected, and inserting a plug disconnects SW from GND.

<https://github.com/gekkio/gb-schematics>

<https://gekkio.fi>

Sheet: /Analog audio/

File: audio.kicad\_sch

**Title: MGB-xCPU**

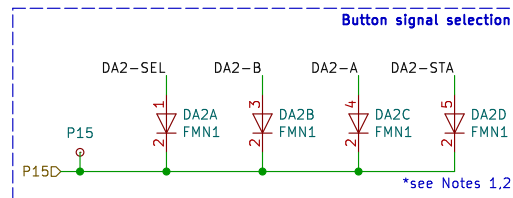
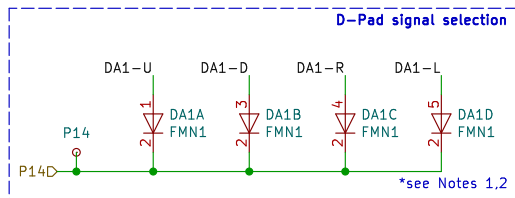
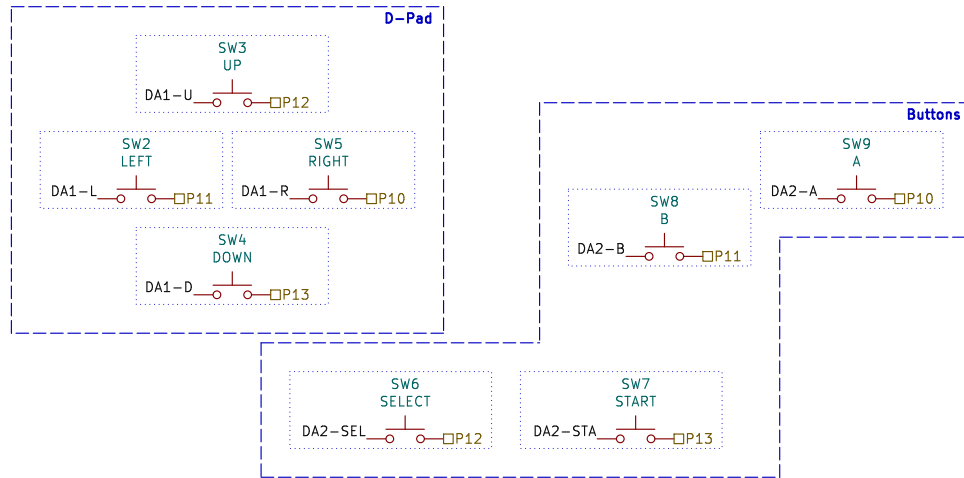
Size: A4

Date: 2023-07-18

KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: E

Id: 2/6



Note 1:  
 Earlier boards use Panasonic MA6X124 (SOT-23-6 footprint) instead of Rohm FMN1 (SOT-23-5 footprint)  
 The SOT-23-6 footprint on the board is compatible with both

Note 2:  
 Warning: MA6X124 and FMN1 datasheets use non-standard pin numbering!  
 This schematic uses standard SOT-23-5/SOT-23-6 numbering

<https://github.com/gekkio/gb-schematics>

<https://gekkio.fi>

Sheet: /Joypad/  
 File: joypad.kicad\_sch

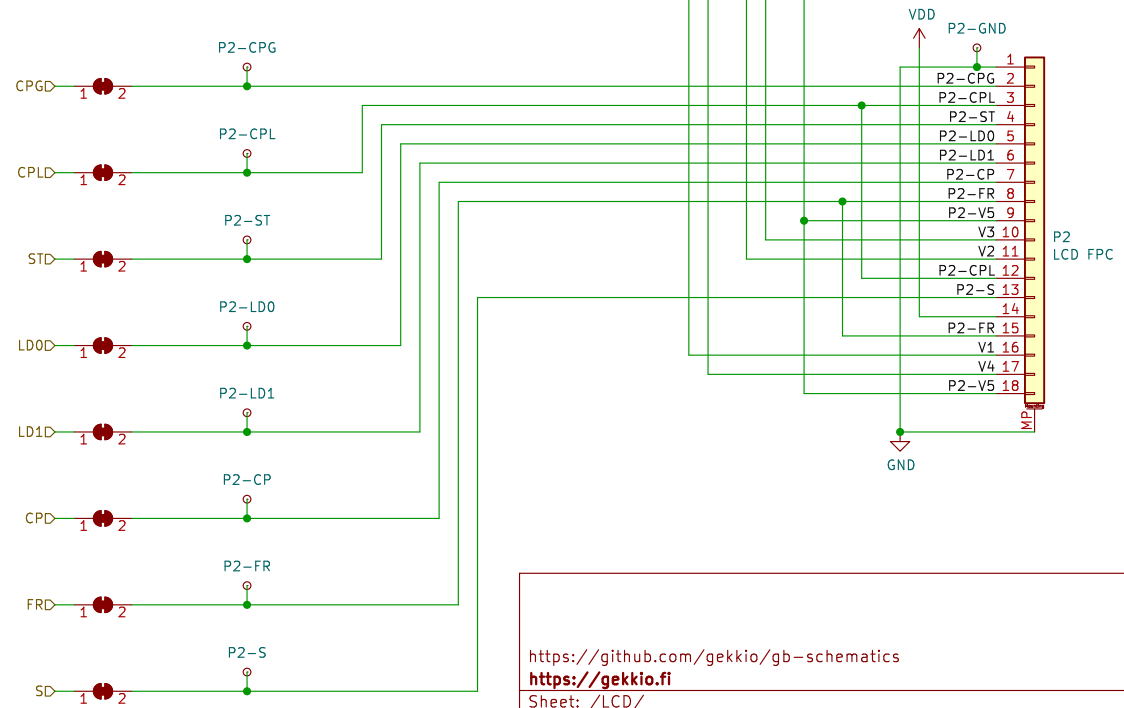
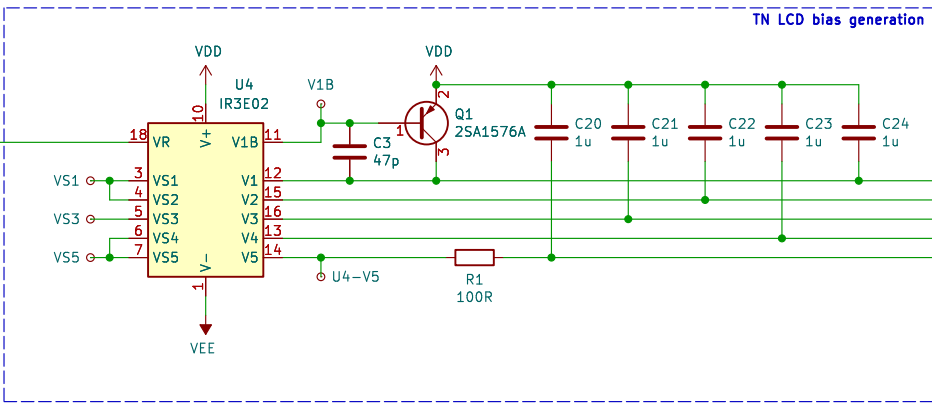
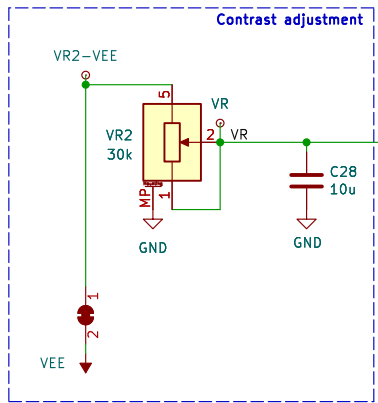
**Title: MGB-xCPU**

Size: A4 Date: 2023-07-18

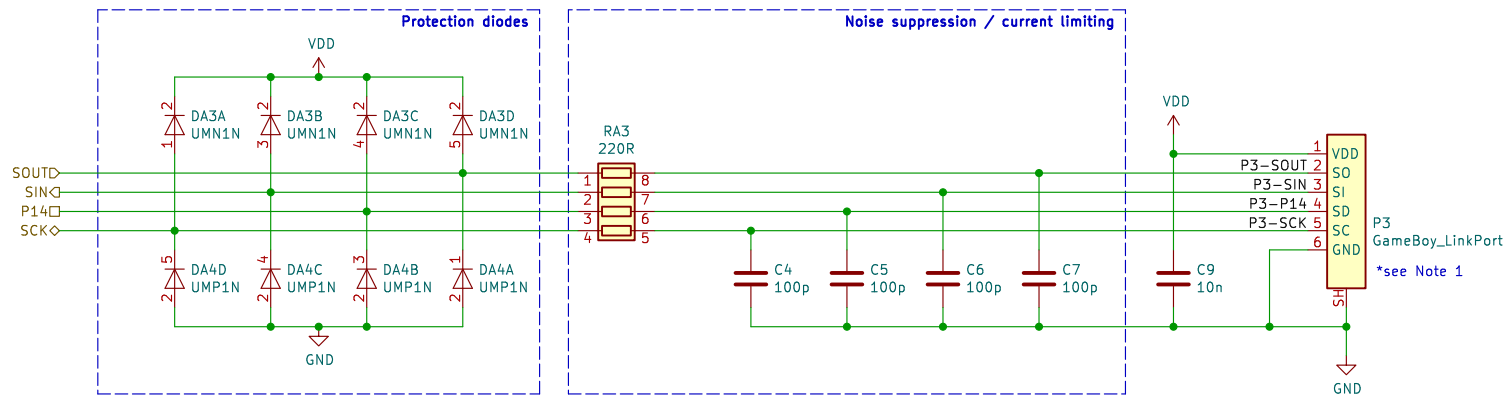
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: E

Id: 3/6



<https://github.com/gekkio/gb-schematics>  
<https://gekkio.fi>  
 Sheet: /LCD/  
 File: lcd.kicad\_sch  
**Title: MGB-xCPU**  
 Size: A4 | Date: 2023-07-18  
 KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1 | Rev: E  
 Id: 4/6



Note 1:  
Official link cables omit pin 1 (VDD) and pin 4 (P14/SD), but unofficial cables usually have all 6 signals with VDD/SD crossed

<https://github.com/gekkio/gb-schematics>  
<https://gekkio.fi>

Sheet: /Link port/  
File: link\_port.kicad\_sch

**Title: MGB-xCPU**

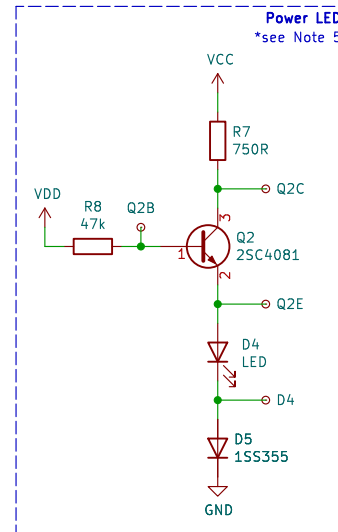
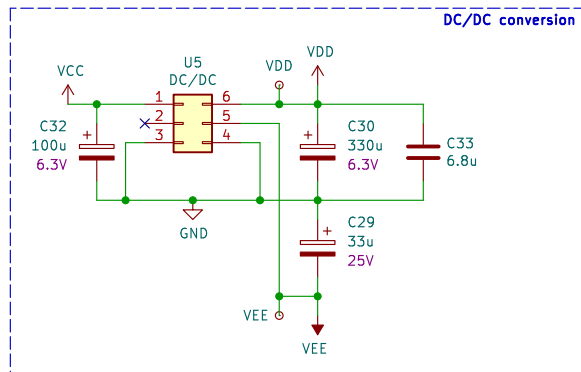
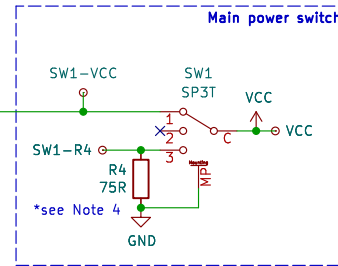
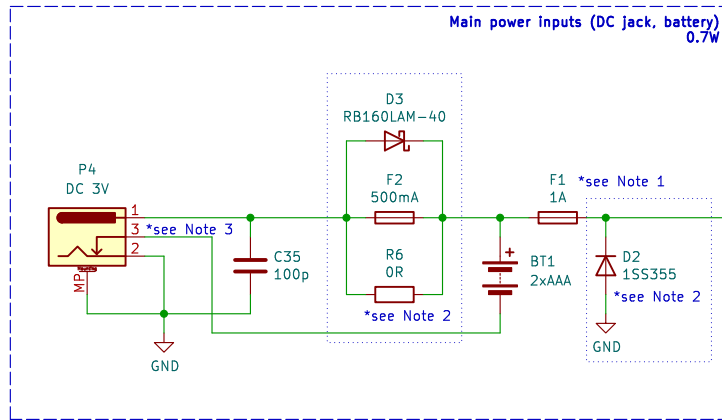
Size: A4 Date: 2023-07-18  
KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: E  
Id: 5/6

Global power nets:  
 VDD = main power supply, nominal +5V (regulated)  
 VEE = LCD bias supply, nominal -18V (unregulated)  
 VCC = DC input supply (battery or DC jack), nominal +3V  
 GND = common ground



Plug: 2.35 mm x 0.75 mm  
Center positive polarity



Note 1:  
F1 is 600mA on earlier boards

Note 2:  
D3/F2/R6 share the same footprint, and the actual device can be only one of them  
D2 is also optional and not used in all cases.

Known combinations:  
 1) only D2 populated, no D3/F2/R6  
 2) D2 + R6 populated  
 3) D2 + F2 populated  
 4) only D3 populated, no D2

Note 3:  
Pins 2 (GND) and 3 (BT-) are normally connected, and inserting a DC plug disconnects GND from BT-

Note 4:  
R4 provides a discharge path from VCC to GND when the power switch is in the off position

Note 5:  
Power LED circuit is not present on early MGB-CPU-01 boards

<https://github.com/gekkio/gb-schematics>

<https://gekkio.fi>

Sheet: /Power/

File: power.kicad\_sch

**Title: MGB-xCPU**

Size: A4 Date: 2023-07-18

KiCad E.D.A. kicad 7.0.6-7.0.6-ubuntu22.04.1

Rev: E

Id: 6/6