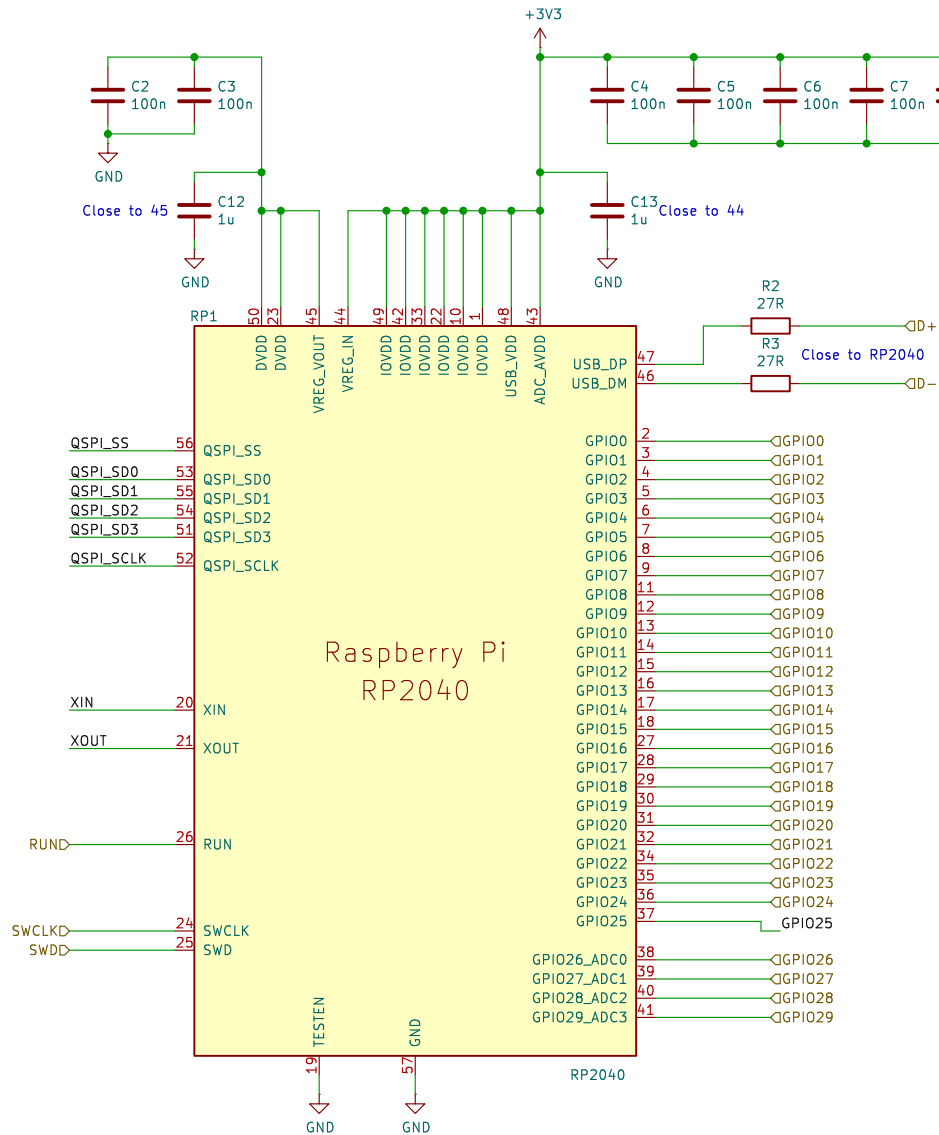
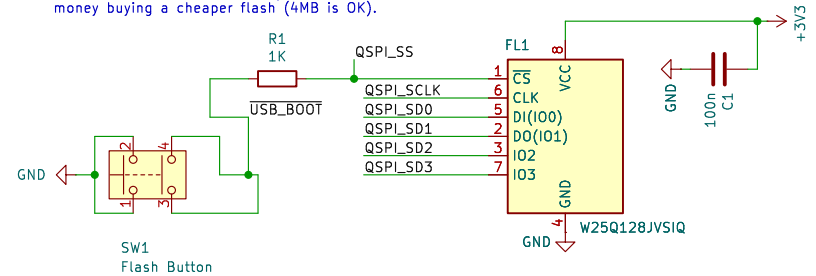


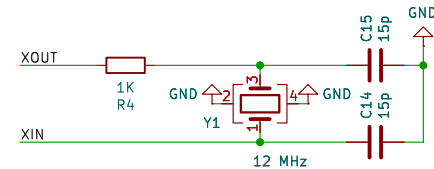
This is the main schematics of RP2040.  
Note that all 3V3 capacitors shall be kept close to the RP2040,  
especially pins 45 and 44.



Flash memory is required as RP2040 doesn't have it's own. You may save some money buying a cheaper flash (4MB is OK).



This is the 12Mhz external crystal.  
RP2040 has it's own, but the external crystal is more robust and is recommended.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /RP2040/

File: rp2040.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

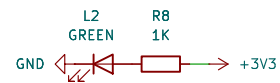
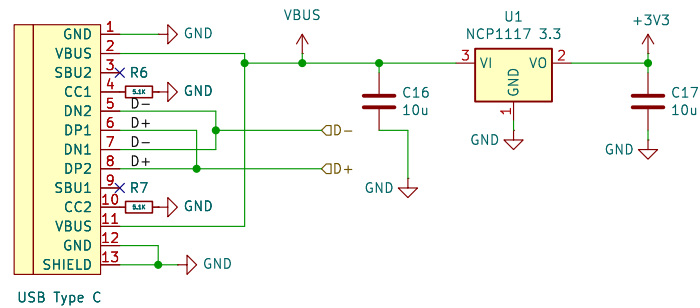
Date: 2025-03-04

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**Rev: 2.01**

Id: 2/12

The power source is USB-C connector.  
The NCP1117 transforms +5V to +3V3.



The LED indicates +3V power availability.  
Usually it's green, but you decide ;-)

<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /Power/

File: power.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

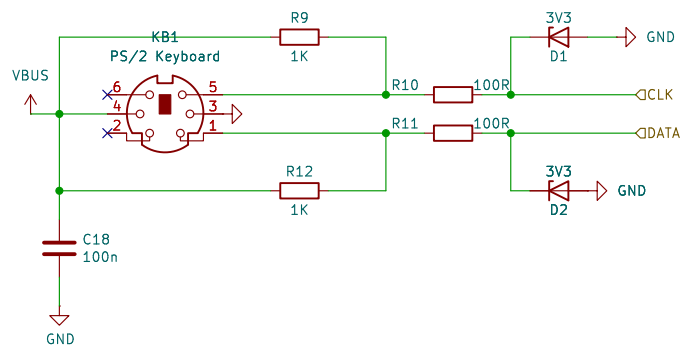
Date: 2025-03-04

**Rev: 2.01**

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Id: 3/12

PS/2 Keyboard is used here. You can connect  
USB>PS/2 Adapter in order to use USB keyboards.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /PS2/

File: ps2.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

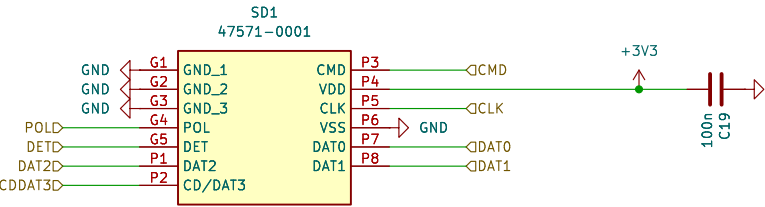
Date: 2025-03-04

**Rev: 2.01**

KiCad E.D.A. 9.0.0

Id: 4/12

Short TF Card slot is used to save some space on the PCB.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /Micro SD/

File: sd.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

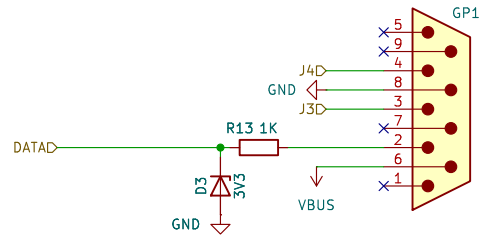
Date: 2025-03-04

**Rev: 2.01**

KiCad E.D.A. 9.0.0

Id: 5/12

The gamepad uses standard DB9 male socket.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /Gamepad 1/

File: gamepad.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

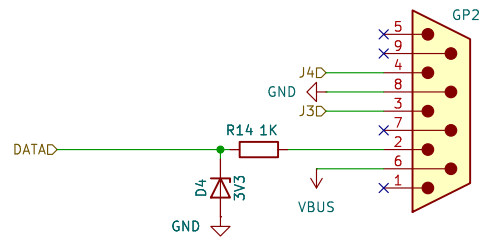
Date: 2025-03-04

**Rev: 2.01**

KiCad E.D.A. 9.0.0

Id: 7/12

The gamepad uses standard DB9 male socket.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /Gamepad 2/

File: gamepad.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

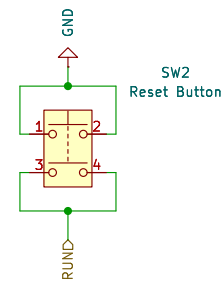
Date: 2025-03-04

**Rev: 2.01**

KiCad E.D.A. 9.0.0

Id: 8/12

This button connects RUN pin of RP2040 and GND.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /Reset/

File: reset.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

Date: 2025-03-04

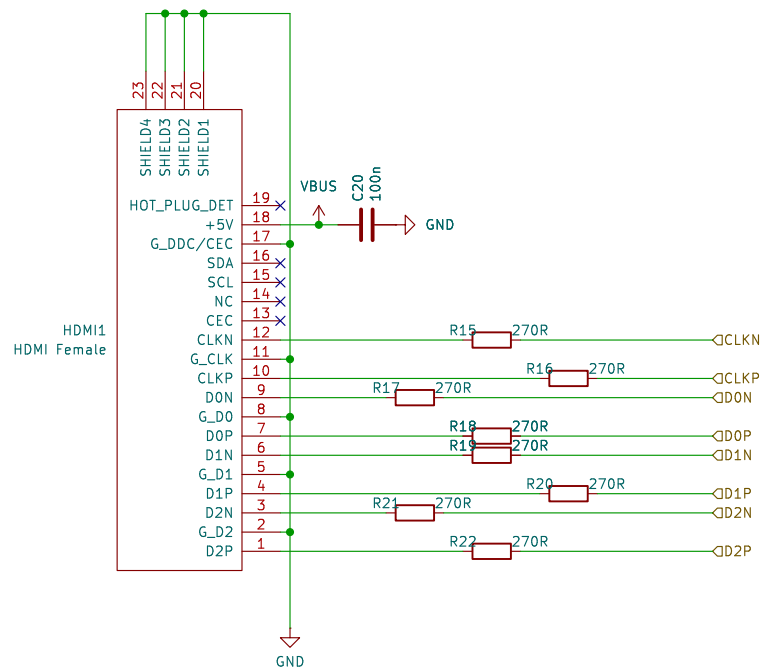
**Rev: 2.01**

KiCad E.D.A. 9.0.0

Id: 9/12



HDMI video output requires the resistors to be close to the HDMI socket in order to work properly.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /HDMI/

File: hdmi.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

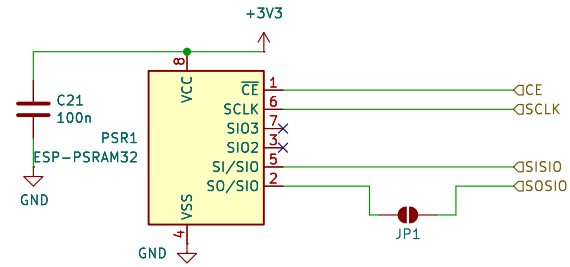
Date: 2025-03-04

**Rev: 2.01**

KiCad E.D.A. 9.0.0

Id: 10/12

As PSRAM is optional, you need to solder JP1  
if you are going to use it.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /PSRAM/

File: psram.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

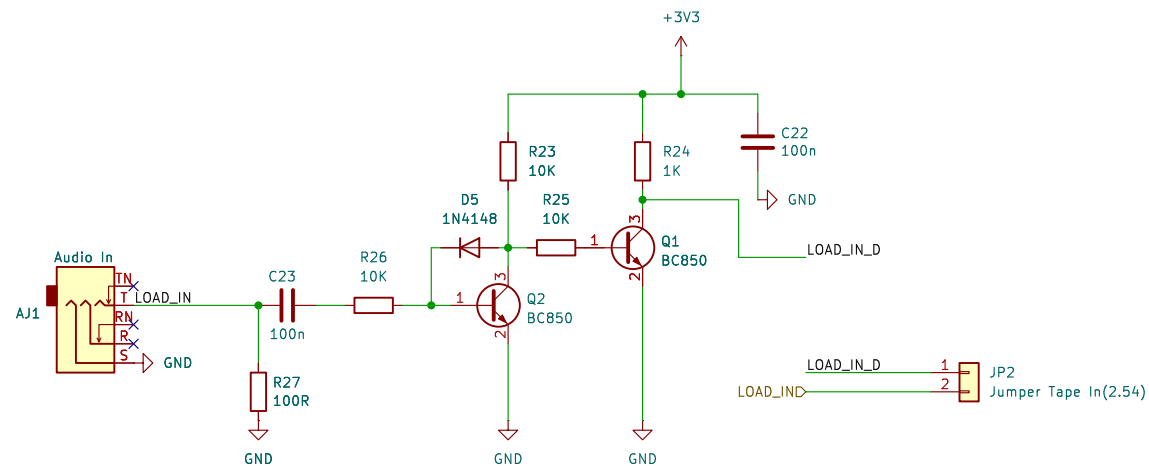
Date: 2025-03-04

**Rev: 2.01**

KiCad E.D.A. 9.0.0

Id: 11/12

This schematics is used to load data from external audio source, e.g. tape.



<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /Tape In/

File: tape.kicad\_sch

**Title: MiniFRANK RM1**

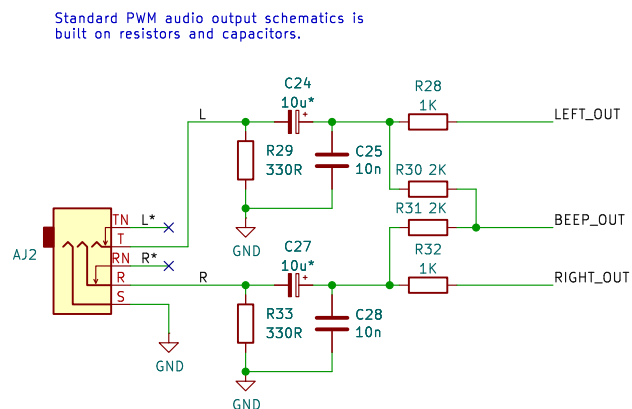
Size: A4

Date: 2025-03-04

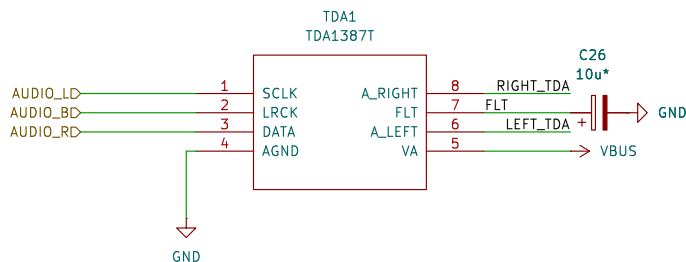
**Rev: 2.01**

KiCad E.D.A. 9.0.0

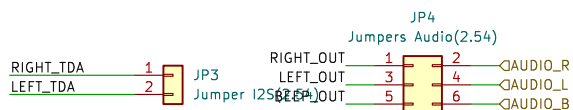
Id: 12/12



TDA1378T is optional, you will need to set the proper jumper configuration in order to use it.



Connect 1 of JP3 to 1 of JP4 and 2 of JP3 to 3 of JP4 to make TDA work.



Connect 1-2, 3-4 and 5-6 to make PWM work.

<https://github.com/xtremespb/frank>

**Mikhail Matveev**

Sheet: /Audio Out/

File: audio.kicad\_sch

**Title: MiniFRANK RM1**

Size: A4

Date: 2025-03-04

Rev: 2.01

KiCad E.D.A. 9.0.0

Id: 12/12