Sheet: PeripheralBoard

File: PeripheralBoard.sch

Sheet: MainBoard

File: MainBoard.sch

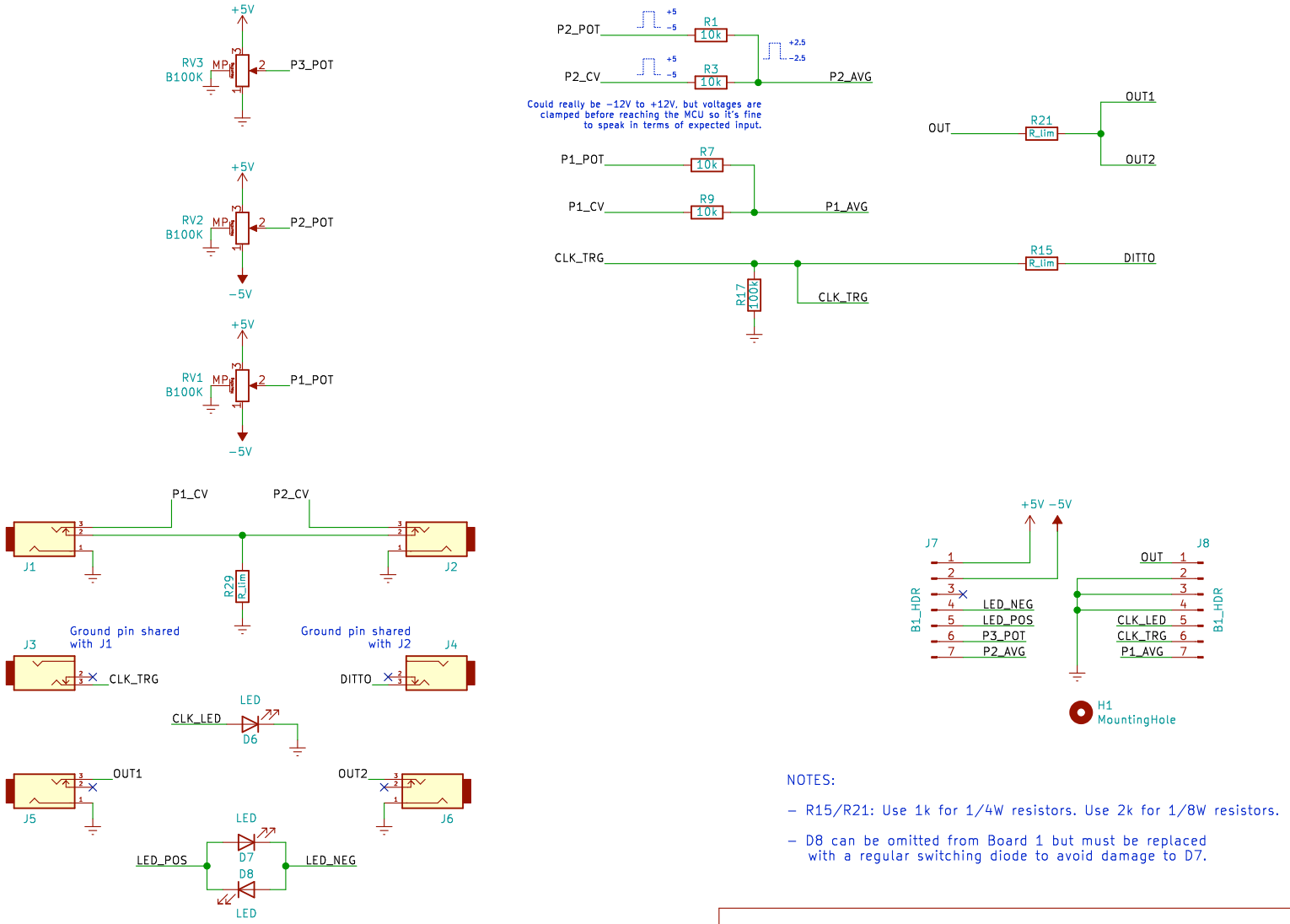
Created by Ben Reeves

Sheet: /

File: JNTUB.sch

Title: JoyfulNoise Tiny Utility Board

Size: USLetter	Date: 2021-02-06	**Rev: 0.3**
KiCad E.D.A. kicad (5.1.9-0-10_14)		Id: 1/3



NOTES:

- R15/R21: Use 1k for 1/4W resistors. Use 2k for 1/8W resistors.
- D8 can be omitted from Board 1 but must be replaced with a regular switching diode to avoid damage to D7.

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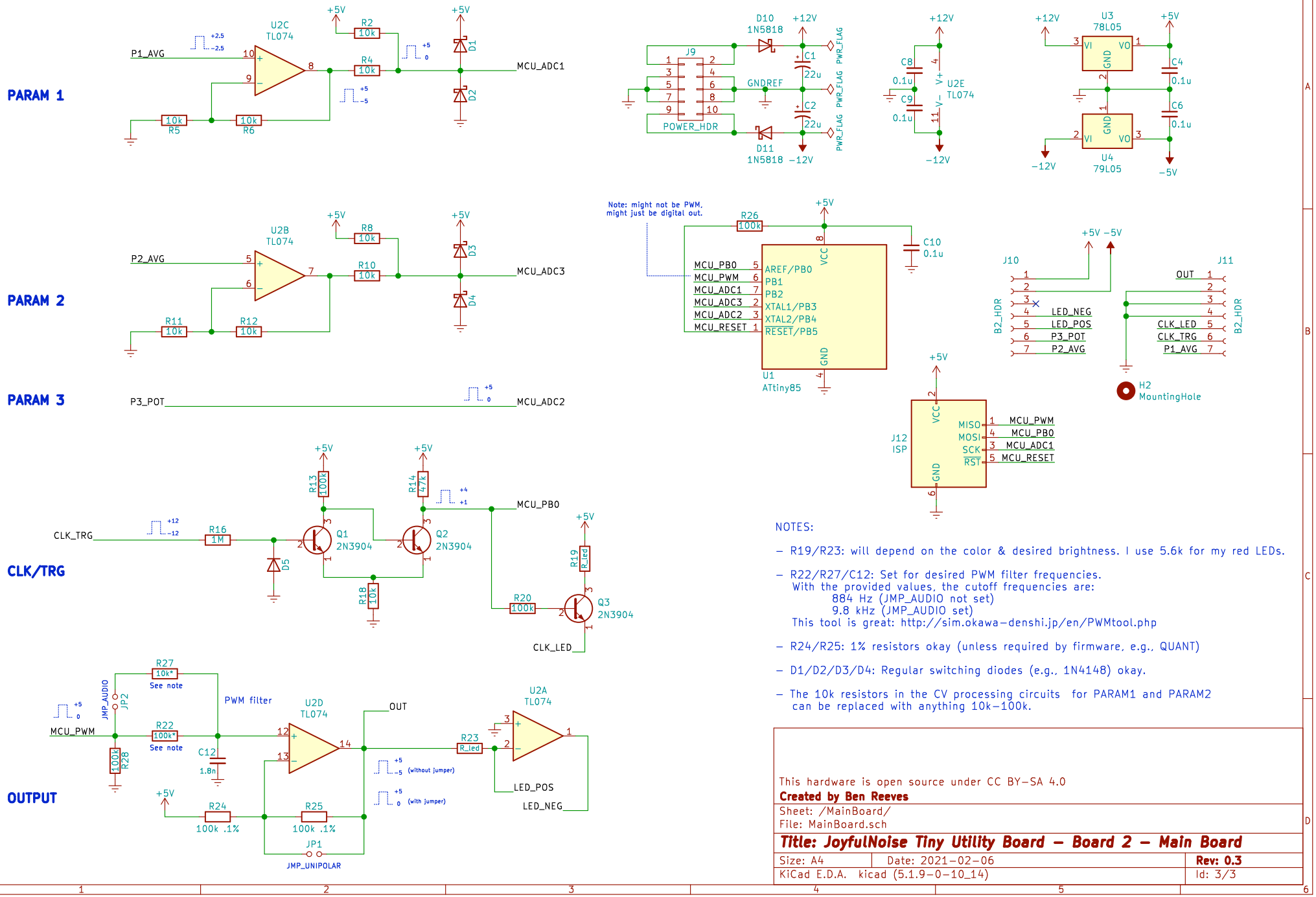
Sheet: /PeripheralBoard/
File: PeripheralBoard.sch

Title: JoyfulNoise Tiny Utility Board – Board 1 – Peripheral Board

Size: USLetter	Date: 2021-02-06	**Rev: 0.3**
KiCad E.D.A. kicad (5.1.9-0-10_14)		Id: 2/3



NOTES:

- R19/R23: will depend on the color & desired brightness. I use 5.6k for my red LEDs.
- R22/R27/C12: Set for desired PWM filter frequencies.
  With the provided values, the cutoff frequencies are:
  884 Hz (JMP_AUDIO not set)
  9.8 kHz (JMP_AUDIO set)
  This tool is great: http://sim.okawa-denshi.jp/en/PWMtool.php
- R24/R25: 1% resistors okay (unless required by firmware, e.g., QUANT)
- D1/D2/D3/D4: Regular switching diodes (e.g., 1N4148) okay.
- The 10k resistors in the CV processing circuits for PARAM1 and PARAM2 can be replaced with anything 10k–100k.

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Sheet: /MainBoard/
File: MainBoard.sch

Title: JoyfulNoise Tiny Utility Board – Board 2 – Main Board

Size: A4	Date: 2021-02-06	**Rev: 0.3**
KiCad E.D.A. kicad (5.1.9-0-10_14)		Id: 3/3