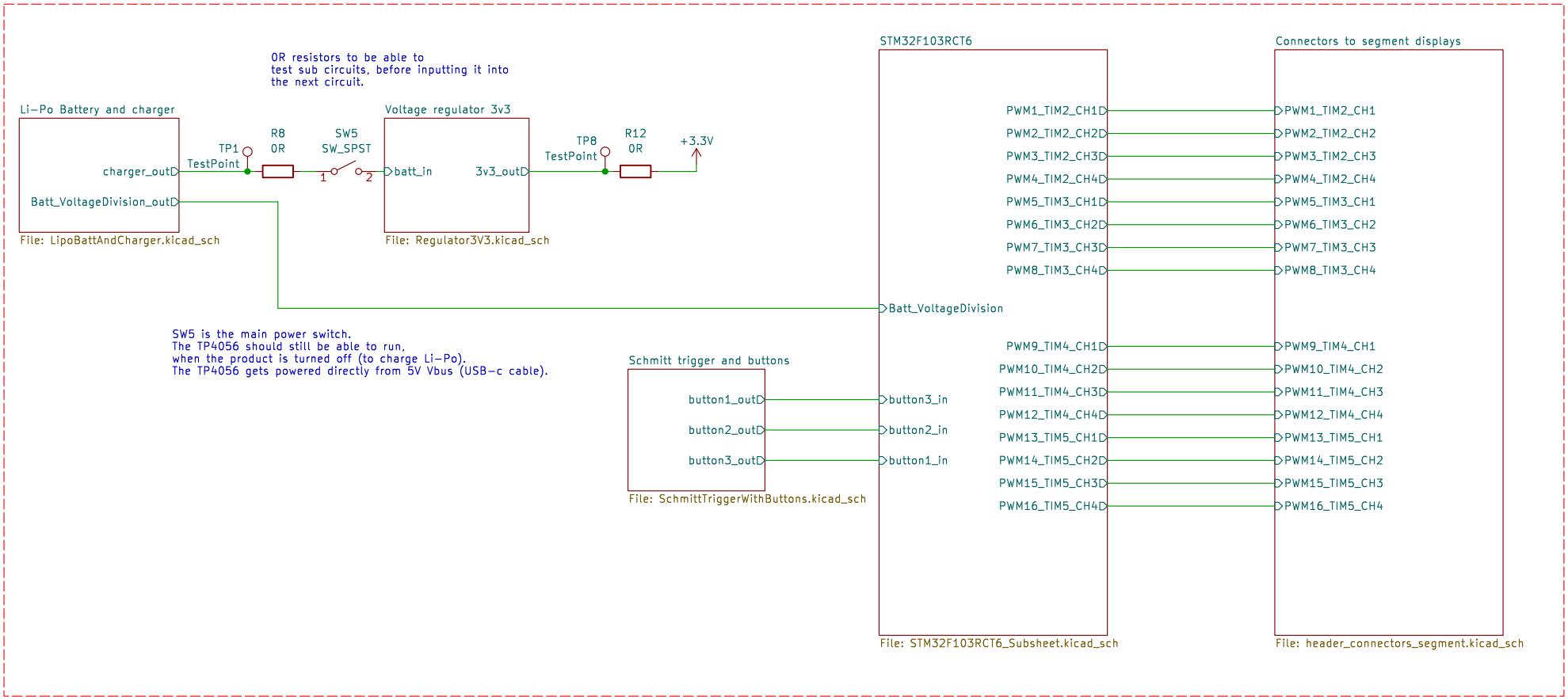
'Shotclock mainboard' root page

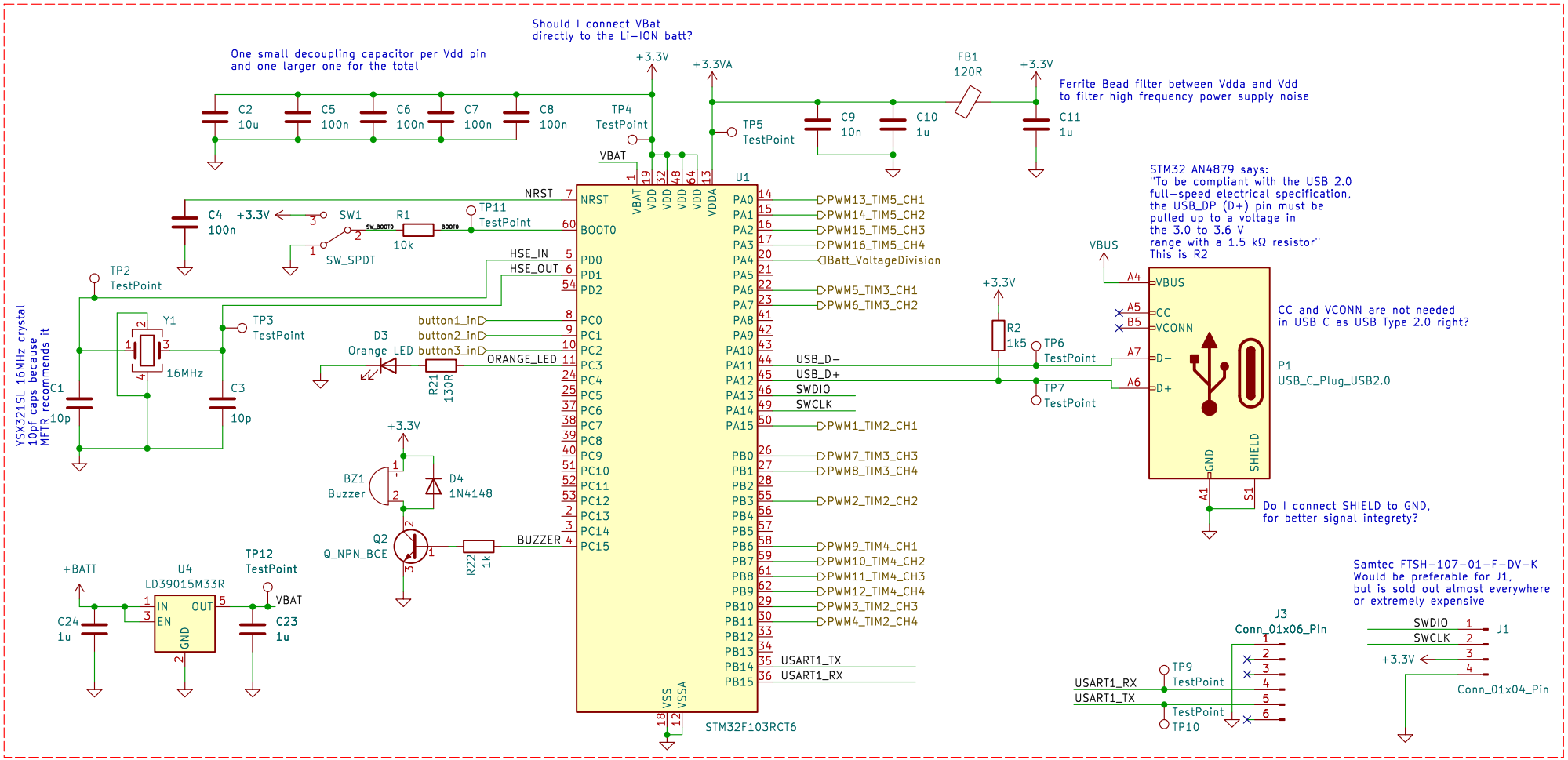


Sheet: /
File: ShotClockProject.kicad_sch

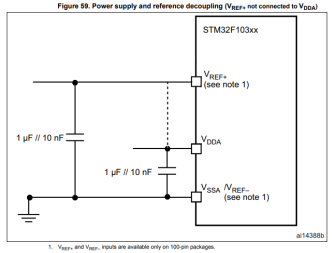
Title: Shotclock Mainboard

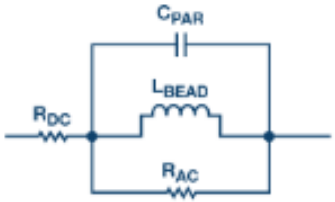
Size: A4	Date: 2023-06-28	**Rev: 1**
KiCad E.D.A.	eeschema 7.0.5-4d25ed1034~172~ubuntu22.04.1	Id: 1/6

STM32F103RCT6 with crystal, Vbat LDO, buzzer, status_led, USB connector, GPIO, UART and SWD



STM32F103RCT6 Typical application schematics & global notes





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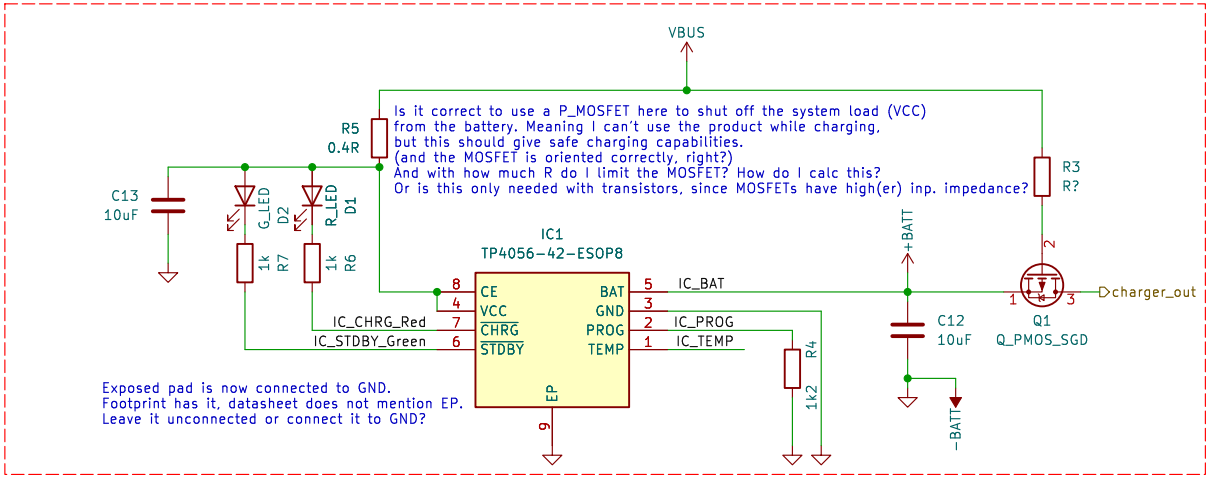
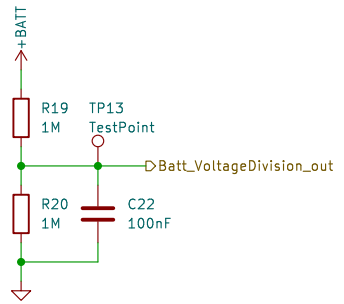
File: STM32F103RCT6_Subsheet.kicad_sch		
Title: Shotclock Mainboard		
Size: A4	Date: 2023-06-28	**Rev: 1**
KiCad E.D.A. eeschema 7.0.5-4d25ed1034~172~ubuntu22.04.1		Id: 2/6

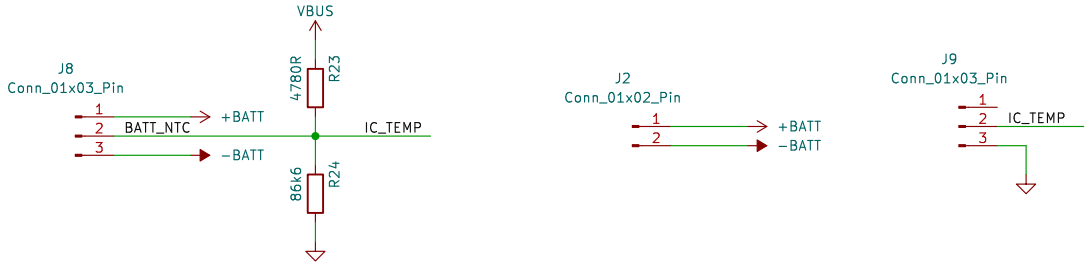
TP4056 Li-Po Charging Circuit



ADC Voltage readout

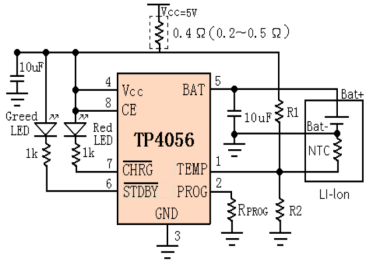


Battery Connections & jumper to disable/enable TEMP sensing of batt.



TP4056 Typical application schematic & global notes

TYPICAL APPLICATIONS



Rprog Current Setting

R_{PROG} (k)	I_{BAT} (mA)
10	130
5	250
4	300
3	400
2	580
1.66	690
1.5	780
1.33	900
1.2	1000

R4 is 1k2, because that is the max value the datasheet shows (or should I be able to extrapolate the R values to get a higher charge current?)
The batteries I want to use (and have at home), are 1500mAh. But charging 1500mAh with 0.66C should also be fine I guess?

R1 and R2 calculations are in attached PDF file.

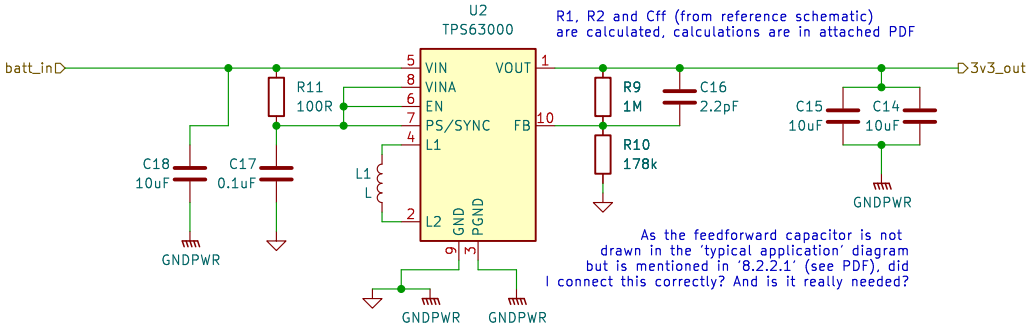
Make sure to add to silkscreen to never connect a battery to both connectors at the same time.
Jumper is only used to pull TEMP pin to GND. So adding two batteries would result in them unloading into each other

Sheet: /Li-Po Battery and charger/
File: LipoBattAndCharger.kicad_sch

Title: Shotclock Mainboard

Size: A4	Date: 2023-06-28	**Rev: 1**
KiCad E.D.A.	eeschema 7.0.5-4d25ed1034~172~ubuntu22.04.1	Id: 3/6

TPS63000 Variable Output Voltage Regulator



TPS63000 Typical application schematic & global notes

VLF4012-2R2 is recommended by datasheet for L1.
VLS3012HBX-2R2M seems to roughly have the same characteristics,
and is available. What is important to look for in this inductor?

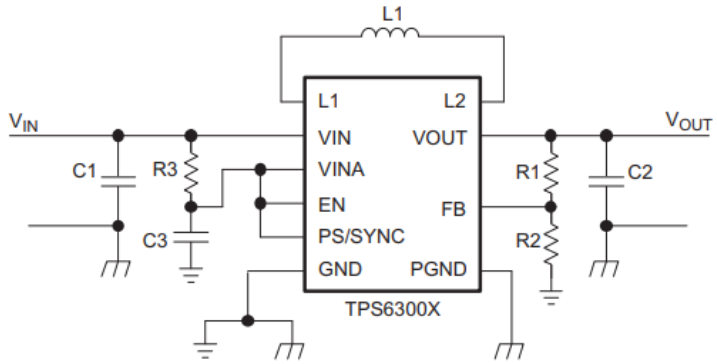
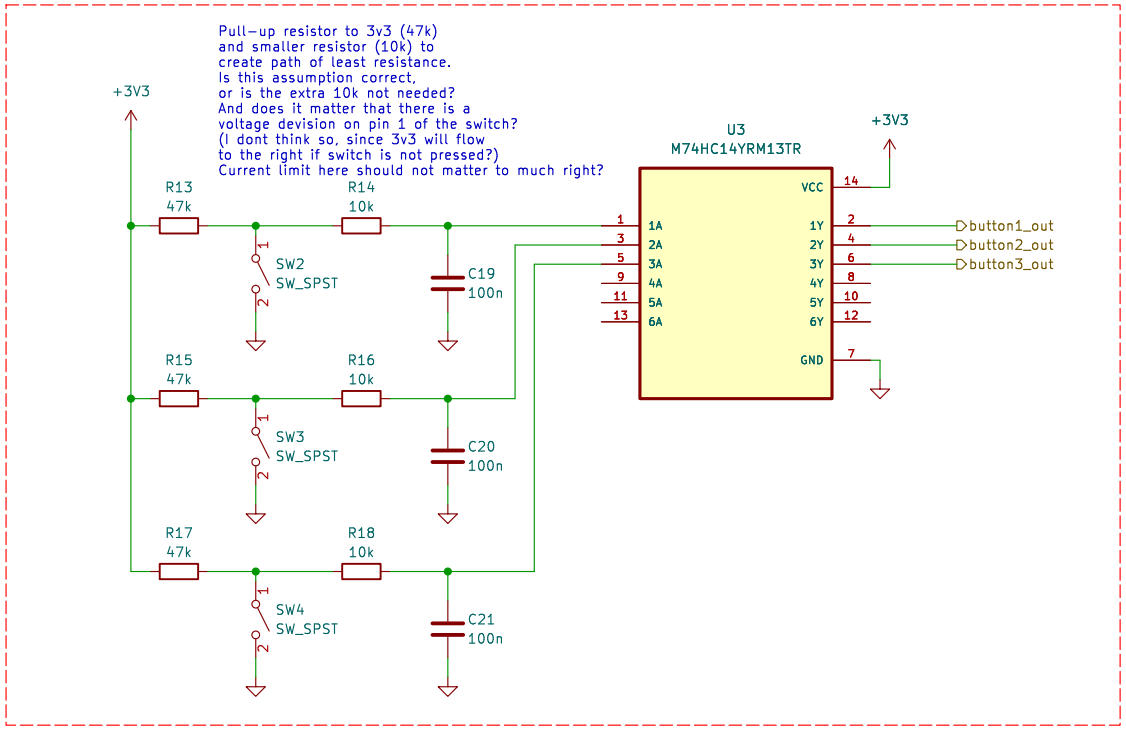


Figure 2. Typical Application Circuit for Adjustable Output Voltage Option

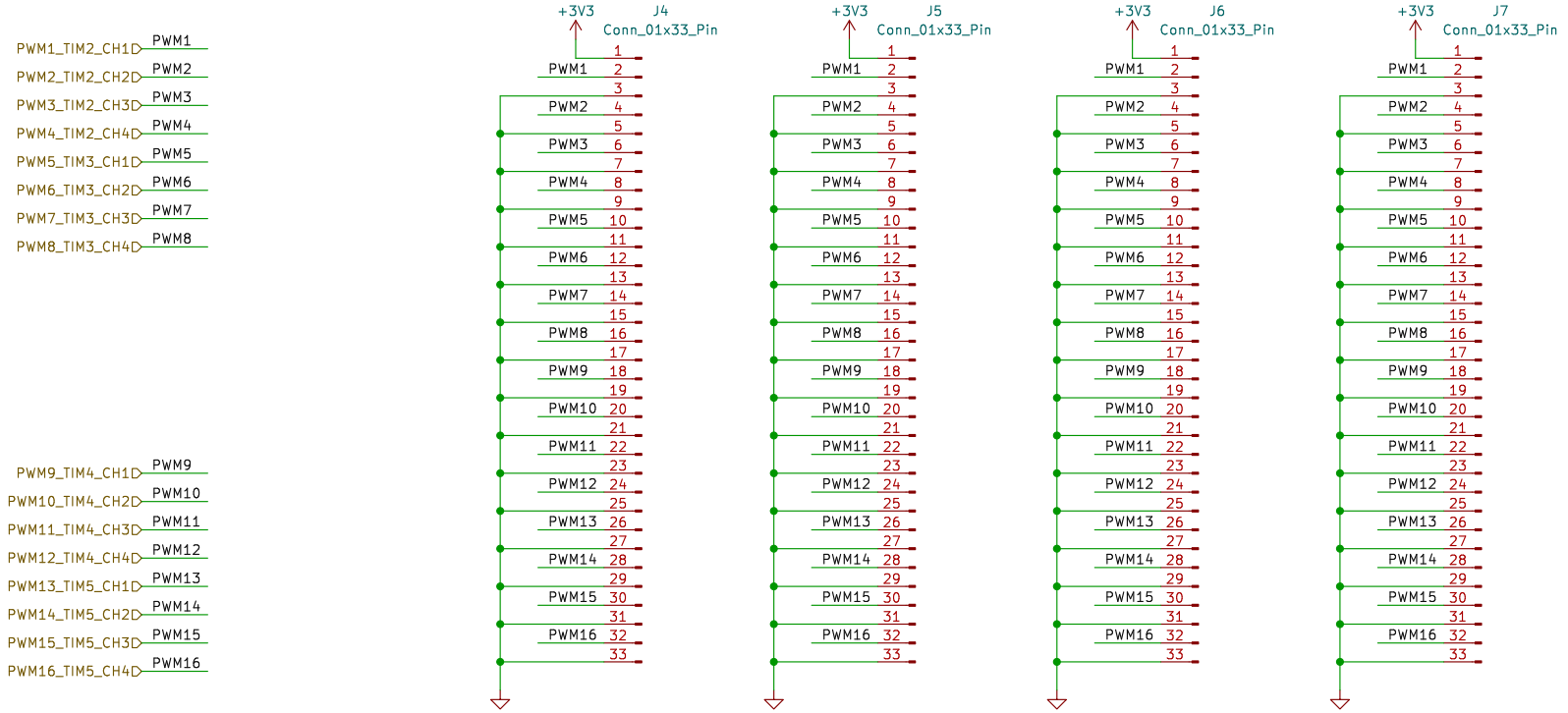
Sheet: /Voltage regulator 3v3/		
File: Regulator3V3.kicad_sch		
Title: Shotclock Mainboard		
Size: A4	Date: 2023-06-28	**Rev: 1**
KiCad E.D.A. eeschema 7.0.5-4d25ed1034~172~ubuntu22.04.1		Id: 4/6

Schmitt trigger with buttons



Sheet: /Schmitt trigger and buttons/		
File: SchmittTriggerWithButtons.kicad_sch		
Title: Shotclock Mainboard		
Size: A4	Date: 2023-06-28	**Rev: 1**
KiCad E.D.A. eeschema 7.0.5-4d25ed1034~172~ubuntu22.04.1		Id: 5/6

Connections to the seven (eight) segment display PCB's (4 connectors, each rotated 90° in the end product)



Sheet: /Connectors to segment displays/		
File: header_connectors_segment.kicad_sch		
Title:		
Size: A4	Date:	**Rev:**
KiCad E.D.A. eeschema 7.0.5-4d25ed1034~172~ubuntu22.04.1		Id: 6/6