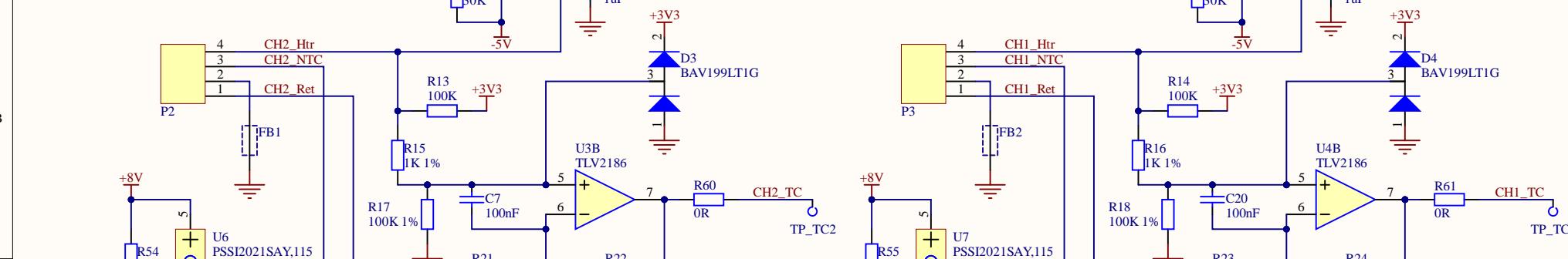


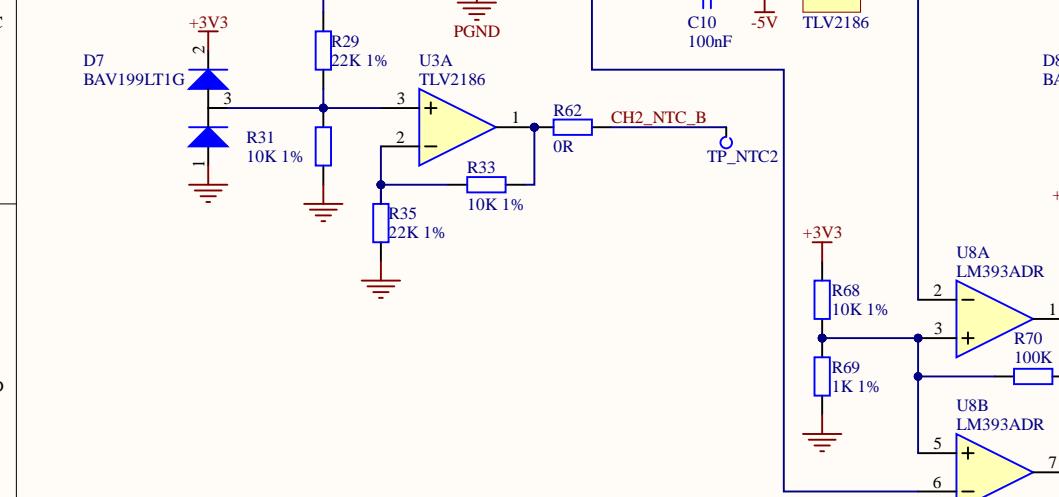
A



B



C



## Title: SolderingStation\_Control.SchDoc

| Size   | Number    | Revision |
|--|-----------|----------|
| A4   |           | 2.0      |
| Date: 6/06/2020                                    | Sheet of  |          |
| File: C:\Users\...\SolderingStation_Control.SchDoc | Drawn By: |          |

A

B

C

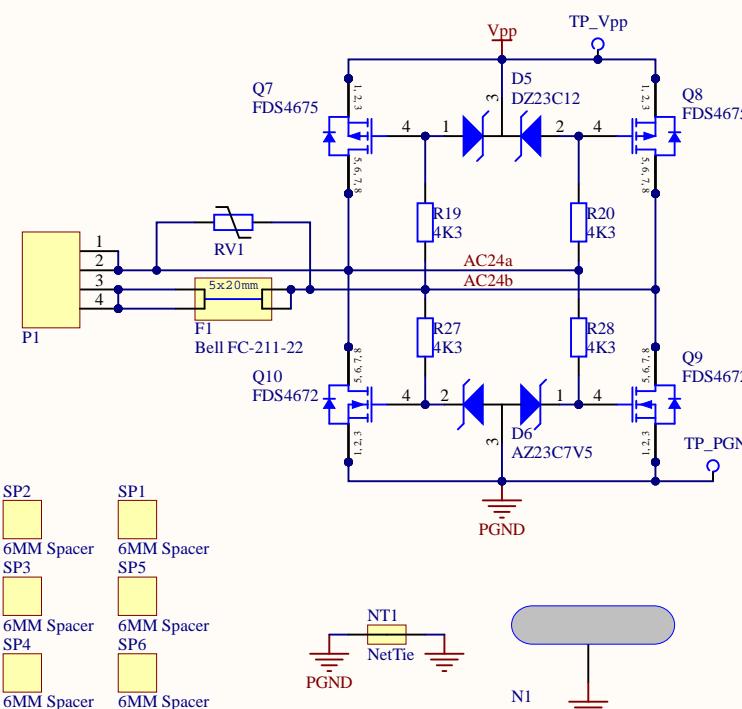
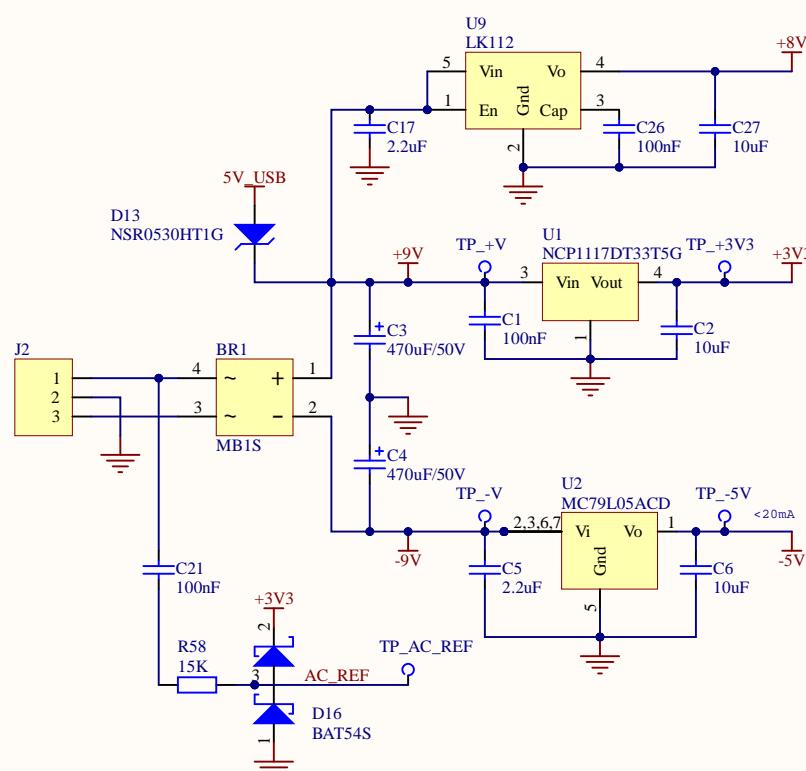
D

A

B

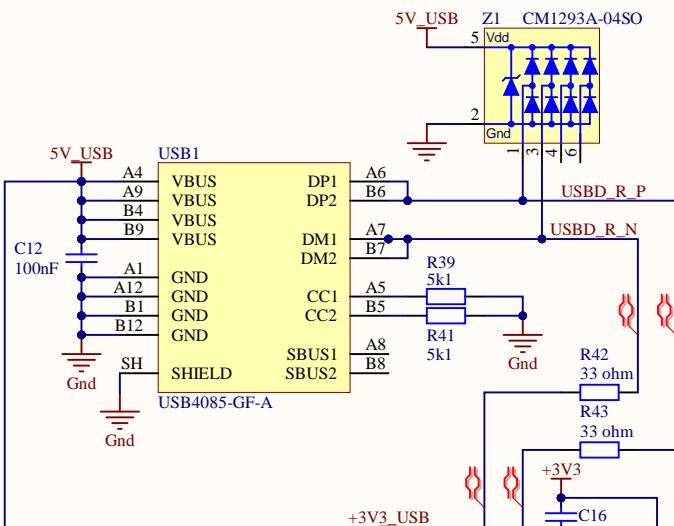
C

D



Title  
SolderingStation\_Power.SchDoc

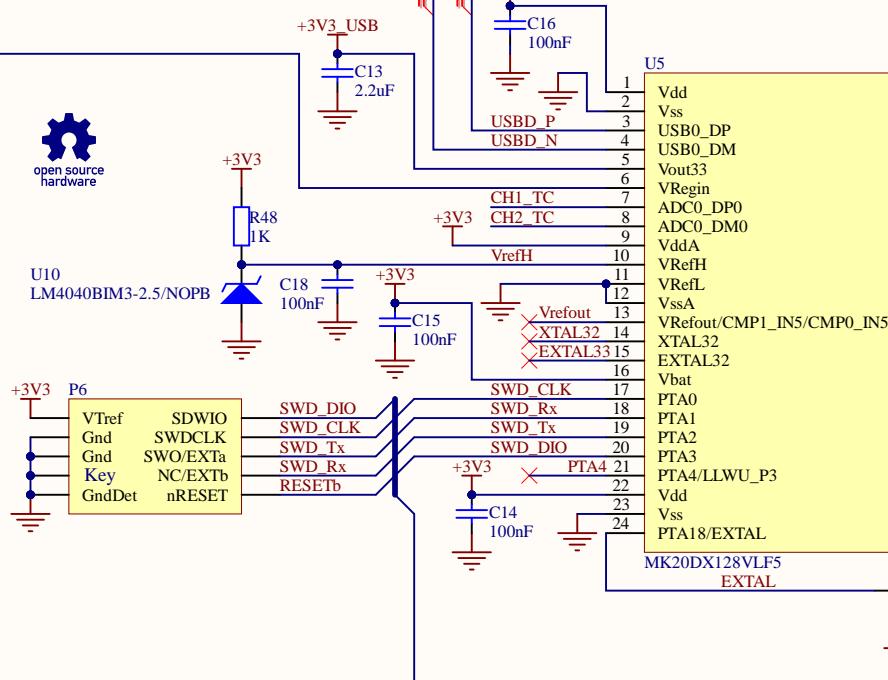
| Size  | Number                                    | Revision  |
|-------|---|-----------|
| A4    |   | 2.0       |
| Date: | 6/06/2020                                 | Sheet of  |
| File: | C:\Users...\SolderingStation_Power.SchDoc | Drawn By: |



V1  
- Initial release  
V2  
- Added Setback  
- Changed current source IC etc.  
- Added voltage reference for ADC



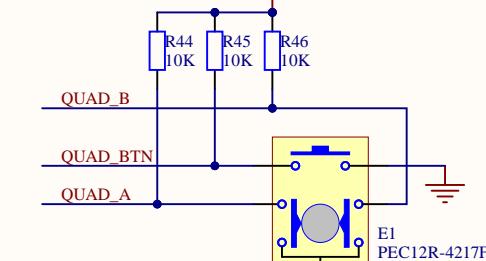
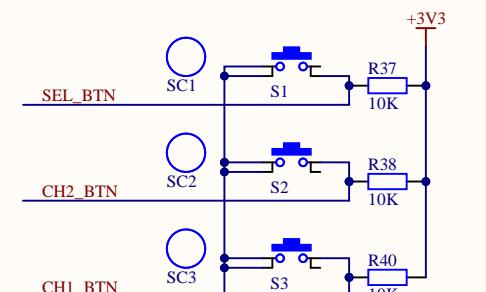
open source  
hardware



|                |              |
|----------------|--------------|
| PTD7           | OVER_CURRENT |
| PTD6/LLWU_P15  | CH2_SEL      |
| PTD5           | SEL_BTN      |
| PTD4/LLWU_P14  | CH1_BTN      |
| PTD3           | CH2_BTN      |
| PTD2/LL_WU_P13 | QUAD_BTN     |
| PTD1           | PTDI         |
| PTD0/LLWU_P12  | CH1_ACT      |
| PTC7           | AC_REF       |
| PTC6/LLWU_P10  | CH1_SEL      |
| PTC5/LLWU_P9   | CH2_ACT      |
| PTC4/LLWU_P8   | CH2_DRV      |
| PTC3/LLWU_P7   | CH1_DRV      |
| PTC2           | PTC2         |
| PTC1/LLWU_P6   | CH1_NTC_B    |
| PTC0           | CH2_NTC_B    |
| PTB17          | CH1_SB       |
| PTB16          | CH2_SB       |
| PTB2           | SDA          |
| PTB3           | SCL          |
| PTB1           | QUAD_A       |
| PTB0/LLWU_P5   | QUAD_B       |
| RESETb         | RESETb       |
| PTA19/XTAL     | Xtal         |

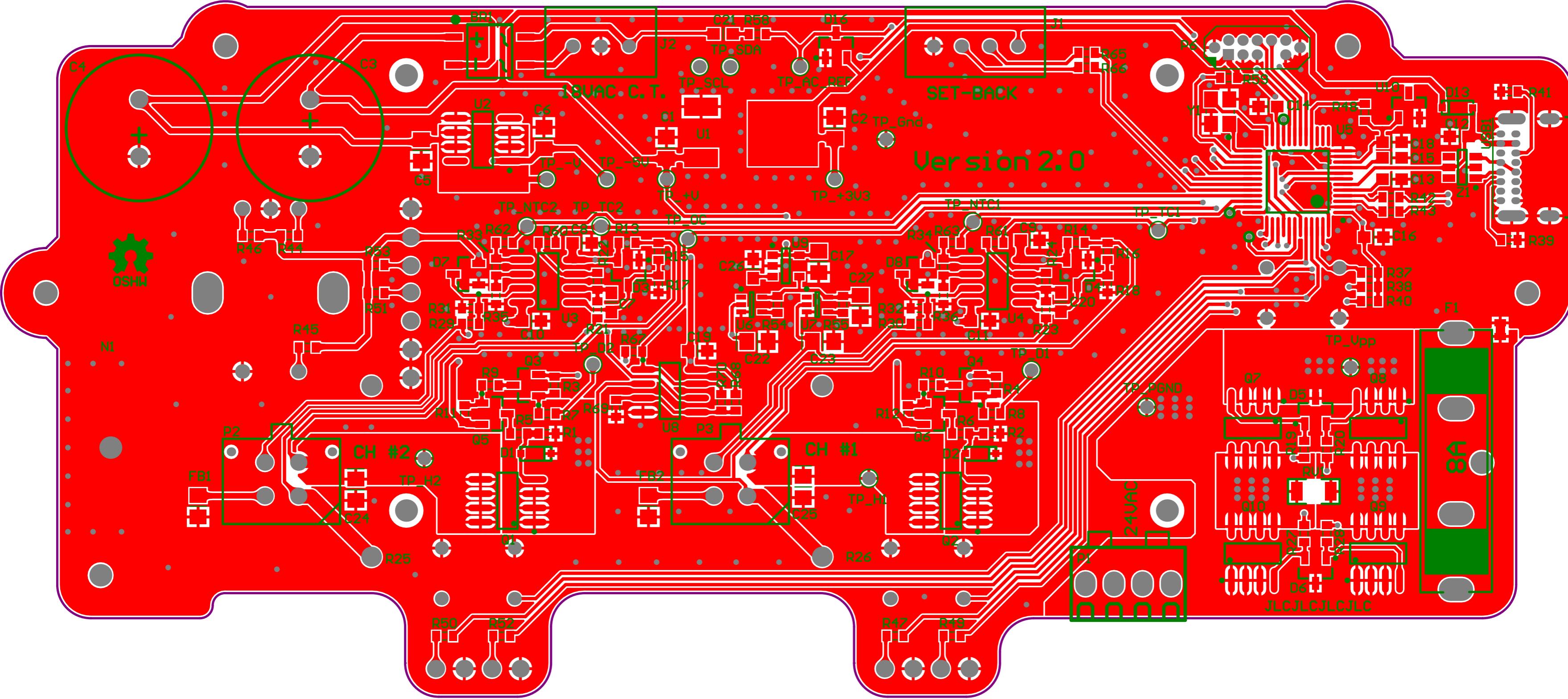
Y1  
16 MHz

XTAL



**D**

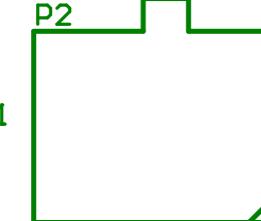
| Title                             |  |           |
|-----------------------------------|--|-----------|
| SolderingStation_Processor.SchDoc |  |           |
| Size                              | Number   | Revision  |
| A4                                |  | 2.0       |
| Date:                             | 6/06/2020                                      | Sheet of  |
| File:                             | C:\Users\...\SolderingStation_Processor.SchDoc | Drawn By: |





N1

FB1

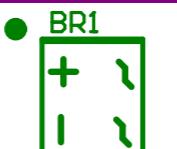


TP\_H2

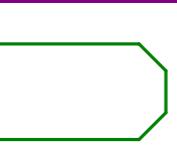
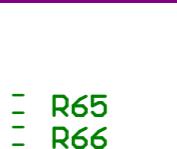
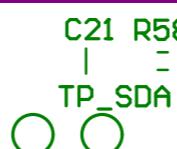
R25

R50

R52



18VAC C.T.



Version 2.0

R46

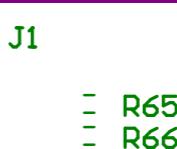
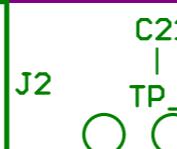
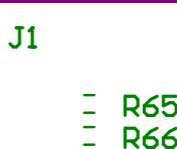
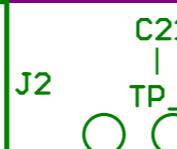
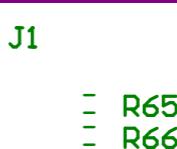
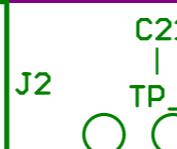
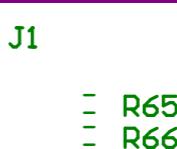
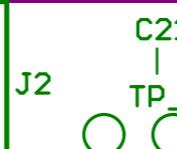
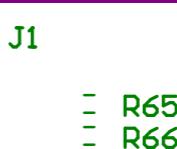
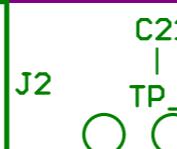
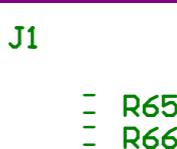
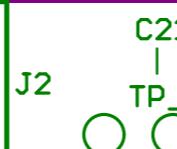
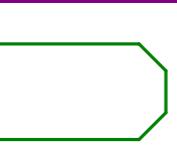
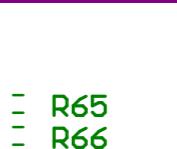
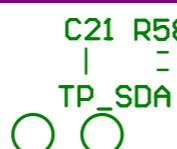
R44

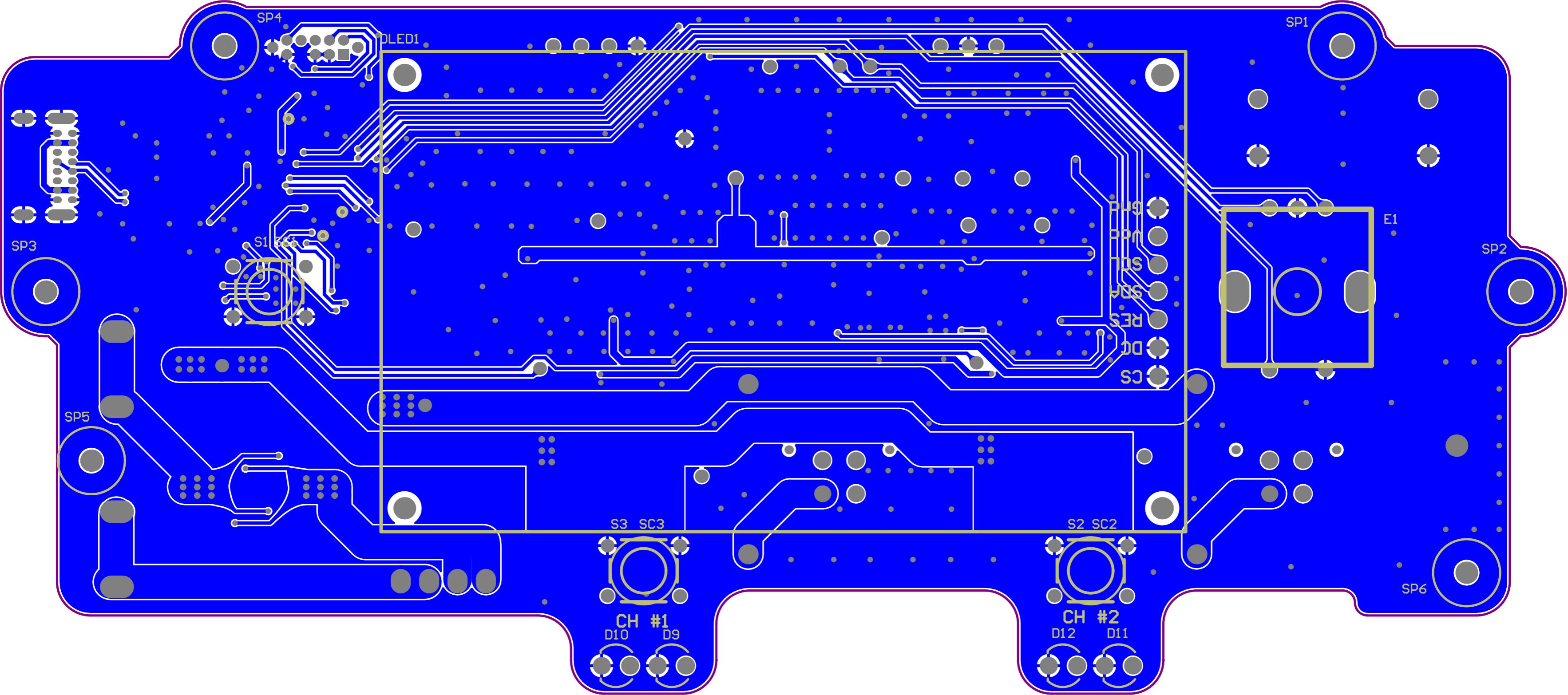
R53

R51

R45

BR1





| Bill of Materials           |                         | Formatted BOM for Project [SolderingStation.PrjPcb] (No PCB Document Selected) |                      |                    |                                 |   |          |  |
|-----------------------------|-------------------------|--|----------------------|--------------------|---------------------------------|---|----------|--|
| Source Data From:           |                         |  |                      |                    |                                 |   |          |  |
| Project:                    | SolderingStation.PrjPcb |  |                      |                    |                                 |   |          |  |
| Variant:                    | None                    |  |                      |                    |                                 |   |          |  |
| Creation Date:              | 6/06/2020               | 10:04 PM   |                      |                    |                                 |   |          |  |
| Print Date:                 | 06-Jun-20               | 10:04:49 PM  |                      |                    |                                 |   |          |  |
| Footprint                   | Comment                 | Farnell PN   | Digikey              | LCSC               | Designator                      | Description   | Quantity |  |
| MB1S                        | MB1S                    |  |                      | C232821            | BR1                             | Bridge Rectifier Diode, Single Phase, 100 V, 800 mA, SOIC, 1.1 V, 4               | 1        |  |
| CCNP2012-0805               | 100nF                   |  |                      | C49678             | C1                              | Capacitor non-polar SMT 0805  | 1        |  |
| CCNP2012-0805               | 10uF                    |  |                      | C15850             | C2, C6, C27                     | Capacitor   | 3        |  |
| PB5/13x21mm                 | 470uF/50V               | 9451439  |                      |                    | C3, C4                          |   | 2        |  |
| CCNP2012-0805               | 2.2uF                   |  |                      | C49217             | C5, C17                         | Capacitor non-polar SMT 0805  | 2        |  |
| CCNP1608-0603               | 100nF                   |  |                      | C14663             | C7, C8, C9, C10, C11, C12, C14, | Capacitor non-polar SMT 0603  | 14       |  |
| CCNP1608-0603               | 2.2uF                   |  |                      | C23630             | C13                             | Capacitor   | 1        |  |
| CC2012-0805                 | 1uF                     |  |                      | C28323             | C22, C23, C24, C25              | Capacitor SMT 0805  | 4        |  |
| SOD-323                     | BZT52C12S-7-F           |  |                      | C124208            | D1, D2                          | Surface Mount Zener Diode, 12-13 V, -65 to 150 degC, 2-Pin SMD (                  | 2        |  |
| SOT23_N                     | BAV199LT1G              | 1431115  | BAV199LT1GOSCT-ND    | C145516            | D3, D4, D7, D8                  | Dual Series low-leakage switching diodes, 3-Pin SOT-23                            | 4        |  |
| SOT23_N                     | DZ23C12                 |  |                      |                    | D5                              | Dual silicon planar Zener diodes  | 1        |  |
| SOT23_N                     | AZ23C7V5                |  |                      | C151460            | D6                              | Dual silicon planar Zener diodes  | 1        |  |
| LED3MM-RED - 10mm Proud     | LED                     |  |                      |                    | D9, D11                         | 3mm Red LED   | 2        |  |
| LED3MM-GREEN - 10mm Proud   | LED                     |  |                      |                    | D10, D12                        | 3mm Green LED   | 2        |  |
| SOD-323                     | NSR0530H1T1G            | 2508350  |                      |                    | D13                             | Schottky Rectifier, 30 V, 500 mA, Single, SOD-323, 2 Pins, 620 mV                 | 1        |  |
| SOT23_N                     | BAT54S                  | 2675347  |                      | C47546             | D16                             | Dual Series Schottky Diodes, SOT23  | 1        |  |
| RotaryEncoder - PEC12R      | PEC12R-4220F-N0024-     |  |                      |                    | E1                              | Rotary Encoder Bourns   | 1        |  |
| FUSE_CLIP_5x20              | Bell FC-211-22          |  | 507-1415-ND          |                    | F1                              | 5x20mm fuse clip PCB Mount  | 1        |  |
| FB2012-0805                 | Ferrite Bead            | 1669733  |                      | C17477             | FB1, FB2                        | Ferrite Bead SMT 0805, TDK MPZ2012S102AT, 0.15OHM, 1.5A                           | 2        |  |
| jst-b4b-xh-ax               | JST XH Connector, 4-Pin | 1516278  | 455-2249-ND          |                    | J1                              | JST XH Connector, 4-Pin   | 1        |  |
| jst-b3b-xh-ax               | JST XH Connector, 3-Pin | 1516277  | 455-2248-ND          |                    | J2                              | JST XH Connector, 3-Pin   | 1        |  |
| OLED_Display_128x64_2.4inch | OLED_Display            |  |                      |                    | OLED1                           | OLED Display 128x64 pixels,   | 1        |  |
| TYCO-282834-4               | Terminal4_BUCHANAN      | 2396253  |                      |                    | P1                              | 2.54mm Terminal Block   | 1        |  |
| MOLEX-43045-0412            | MOLEX-43045-0412        |  |                      |                    | P2, P3                          | Wire-To-Board Connector, With Polarizing Peg, 3 mm, 4 Contacts, H                 | 2        |  |
| SO-8_N                      | FDS4675                 |  |                      |                    | Q1, Q2, Q7, Q8                  | P-Channel Power MOSFET, 11 A, 40 V, RDS(ON) = 0.013 Ω @ VGS = 4V                  | 4        |  |
| SOT23_N                     | MMBT3906LT1G            |  |                      | C53444             | Q3, Q4                          | General Purpose Transistor, PNP Silicon, 3-Pin SOT-23, Pb-Free, T <sub>2</sub>    | 2        |  |
| SOT23_N                     | MMBT3904LT1G            |  |                      | C81464             | Q5, Q6                          | General Purpose Transistor, NPN Silicon, 3-Pin SOT-23, Pb-Free, T <sub>2</sub>    | 2        |  |
| SO-8_N                      | FDS4672                 |  |                      | C14903             | Q9, Q10                         | N-Channel Power MOSFET, 11 A, 40 V, RDS(ON) = 13 mΩ @ VGS = 2V                    | 2        |  |
| CR1608-0603_N               | 75K                     |  |                      | C23242             | R1, R2                          | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 15K                     |  |                      | C22809             | R3, R4, R58                     | Resistor SMT 0603   | 3        |  |
| CR1608-0603_N               | 7k5                     |  |                      | C23234             | R5, R6                          | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 39K                     |  |                      | C23153             | R7, R8                          | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 43K                     |  |                      | C23172             | R9, R10                         | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 30K                     |  |                      | C22984             | R11, R12                        | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 100K                    |  |                      | C25803             | R13, R14, R70                   | Resistor SMT 0603   | 3        |  |
| CR1608-0603_N               | 1K 1%                   |  |                      | C21190             | R15, R16, R21, R23, R69         | Resistor SMT 0603   | 5        |  |
| CR1608-0603_N               | 100K 1%                 |  |                      | C25803             | R17, R18, R22, R24              | Resistor SMT 0603   | 4        |  |
| CR1608-0603_N               | 4K3                     |  |                      | C23159             | R19, R20, R27, R28              | Resistor SMT 0603   | 4        |  |
| OAR3-R050FI                 | OAR3-R050FI             |  |                      |                    | R25, R26                        | Current Sense Resistor, 0.05 ohm, OAR Series, 3 W, Metal Strip, R                 | 2        |  |
| CR1608-0603_N               | 22K 1%                  |  |                      | C31850             | R29, R30, R35, R36              | Resistor SMT 0603   | 4        |  |
| CR1608-0603_N               | 10K 1%                  |  |                      | C25804             | R31, R32, R33, R34, R68         | Resistor SMT 0603   | 5        |  |
| CR1608-0603_N               | 10K                     |  |                      | C25804             | R37, R38, R40, R44, R45, R46    | Resistor SMT 0603   | 8        |  |
| CR1608-0603_N               | 5K1                     |  |                      | C23186             | R39, R41                        | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 33R                     |  |                      | C23140             | R42, R43                        | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 470R                    |  |                      | C23179             | R47, R49, R50, R52              | Resistor SMT 0603   | 4        |  |
| CR1608-0603_N               | 1K                      |  |                      | C21190             | R48, R65, R66                   | Resistor SMT 0603   | 3        |  |
| CR1608-0603_N               | 4K7                     |  |                      | C23162             | R51, R53                        | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 1K2                     |  |                      | C22765             | R54, R55                        | Resistor SMT 0603   | 2        |  |
| CR1608-0603_N               | 0R                      |  |                      | C21189             | R60, R61, R62, R63              | Resistor SMT 0603   | 4        |  |
| VR3216-1206                 | V33MLA1206NHAUTO        | 1816942  | F11298CT-ND          |                    | RV1                             | V33MLA1206NH - TVS Varistor, 26 V, 33 V, MLA Series, 75 V, 1206                   | 1        |  |
| SW_MIN_PB-B3F1052           | SW_PB-FSM4JAH           | 196094202  |                      |                    | S1, S2, S3                      | Switch miniature push-button  | 3        |  |
| SW-CAP-B32-2010             | B32-2010                | 2352313  |                      |                    | SC1, SC2, SC3                   | Switch Cap  | 3        |  |
| Spacer-6mm                  | 6MM Spacer              |  |                      |                    | SP1, SP2, SP3, SP4, SP5, SP6    | 6MM Spacer  | 6        |  |
| TO-252                      | NCP1117DT33T5G          |  |                      | NCP1117DT33T5GOSCT | U1                              | IC REG LINEAR +3V3 1A TO252-3   | 1        |  |
| SOIC127P600-8N              | MC79L05ACD              |  |                      | U479M05CKVURG3     | U2                              | IC REG LINEAR -5V 100MA SOIC-8  | 1        |  |
| SOIC127P600-8N              |                         |  |                      |                    | U3, U4                          | Dual Precision Rail-to-Rail Input and Output, 4.5-24V, Zero-Drift OpAmp           | 2        |  |
| TSOPFP50P900X900-48N        | MK20DX128VLF5           | 2133571  | MK20DX128VLF50-ND    |                    | U5                              | Kinetics K20 50MHz Cortex-M4 Performance MCU, 160KB Flash, 16                     | 1        |  |
| SOT353-5N                   | PSI2021SAY,115          |  |                      |                    | U6, U7                          | Adjustable Current Source, SOT353, Stabilized output current between 2mA and 20mA | 2        |  |
| SOIC127P600-8N              | LM393ADR                |  |                      |                    | U8                              | IC DUAL DIFF COMPARATOR 8-SOIC  | 1        |  |
| SOT23-5_L                   | LK112                   | 3130054  | 497-7810-1-ND        | C155584            | U9                              | LDO Regulator - 8V, 250mA   | 1        |  |
| SOT23_N                     | LM4040BIM3-2.5/NOPB     | 3124419  | LM4040BIM3X-         | C131939            | U10                             | IC 2.5V VREF SHUNT 0.2% SOT23-3   | 1        |  |
| USB4085-GF-A                | USB4085-GF-A            | 2924867  | 2073-USB4085-GF-ACT- |                    | USB1                            | USB-C, USB 2.0 Receptacle Connector 16 Position Through Hole, Right Angle         | 1        |  |
| Crystal_SMD_3.2x2.5         | 16 MHz                  |  |                      | C13738             | Y1                              | Crystal SMD 3.2 x 2.5 x 0.7 mm  | 1        |  |
| SOT457_N                    | CM1293A-04SO            | 2533258  | CM1293A-04SOOSCT-    | C393377            | Z1                              | Ultra low capacitance quadruple rail-to-rail ESD protection                       | 1        |  |

