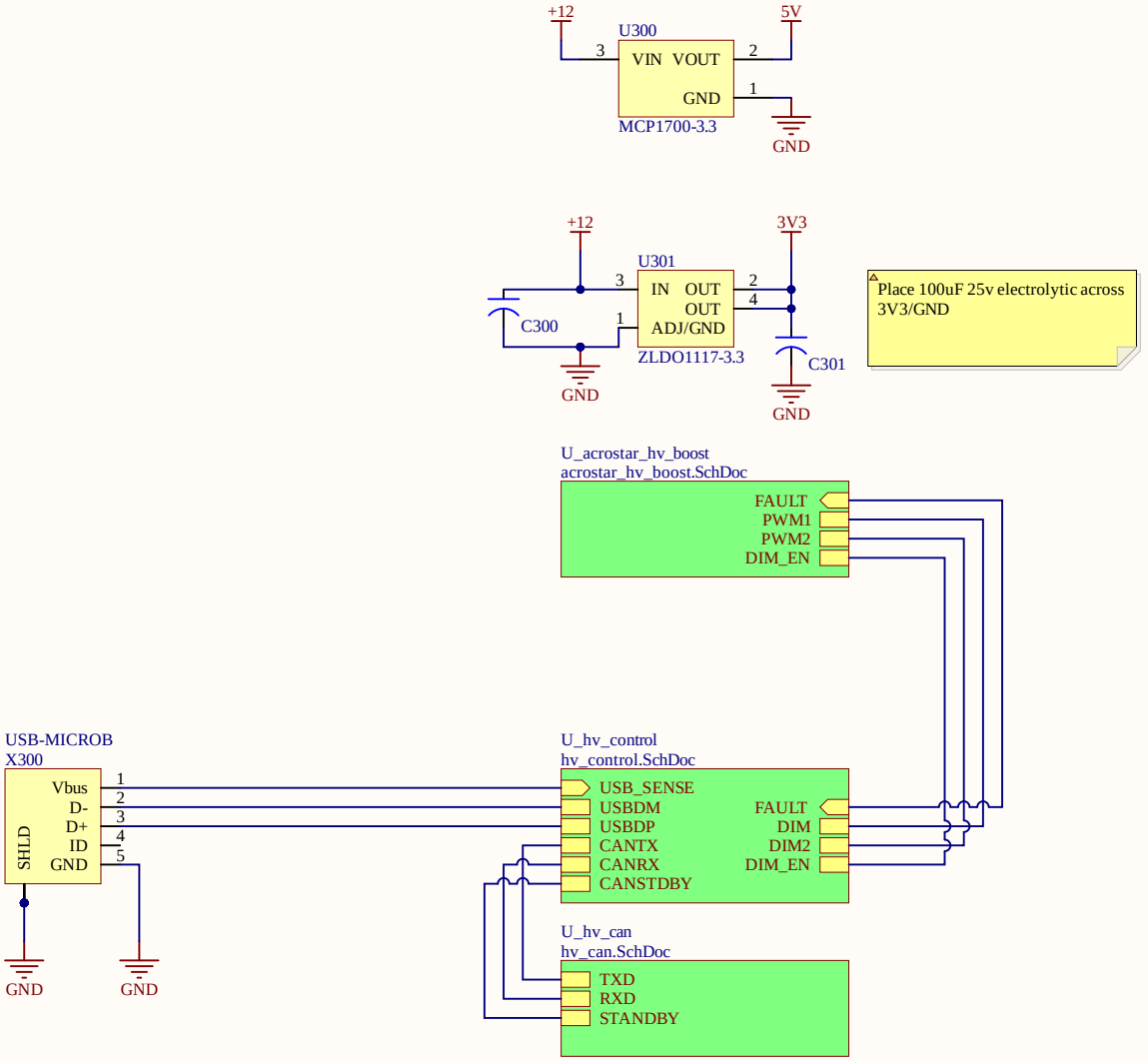
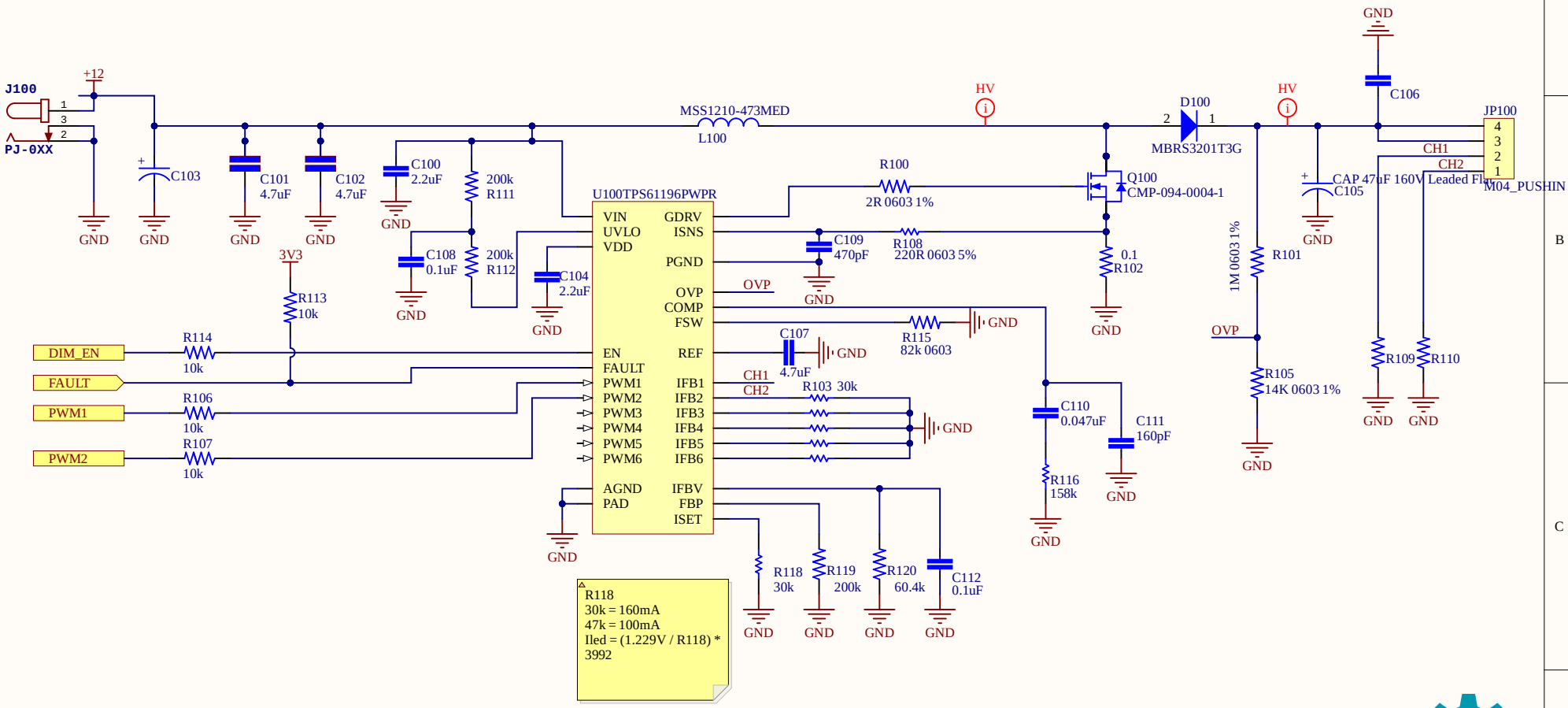



blueacro

open source hardware

| | | | |
|---|---|---|---|
| Title | *AcroIQ HV LED: Top Level* | | Made available under the CERN OHL v1.2 |
| Size: A4 | Number: 1 | Revision: C | blueacro.com |
| Date: 7/17/2021 | Time: 11:07:57 PM | Sheet 1 of 4 | github.com/blueacro |
| File: hv_top.SchDoc | | | |

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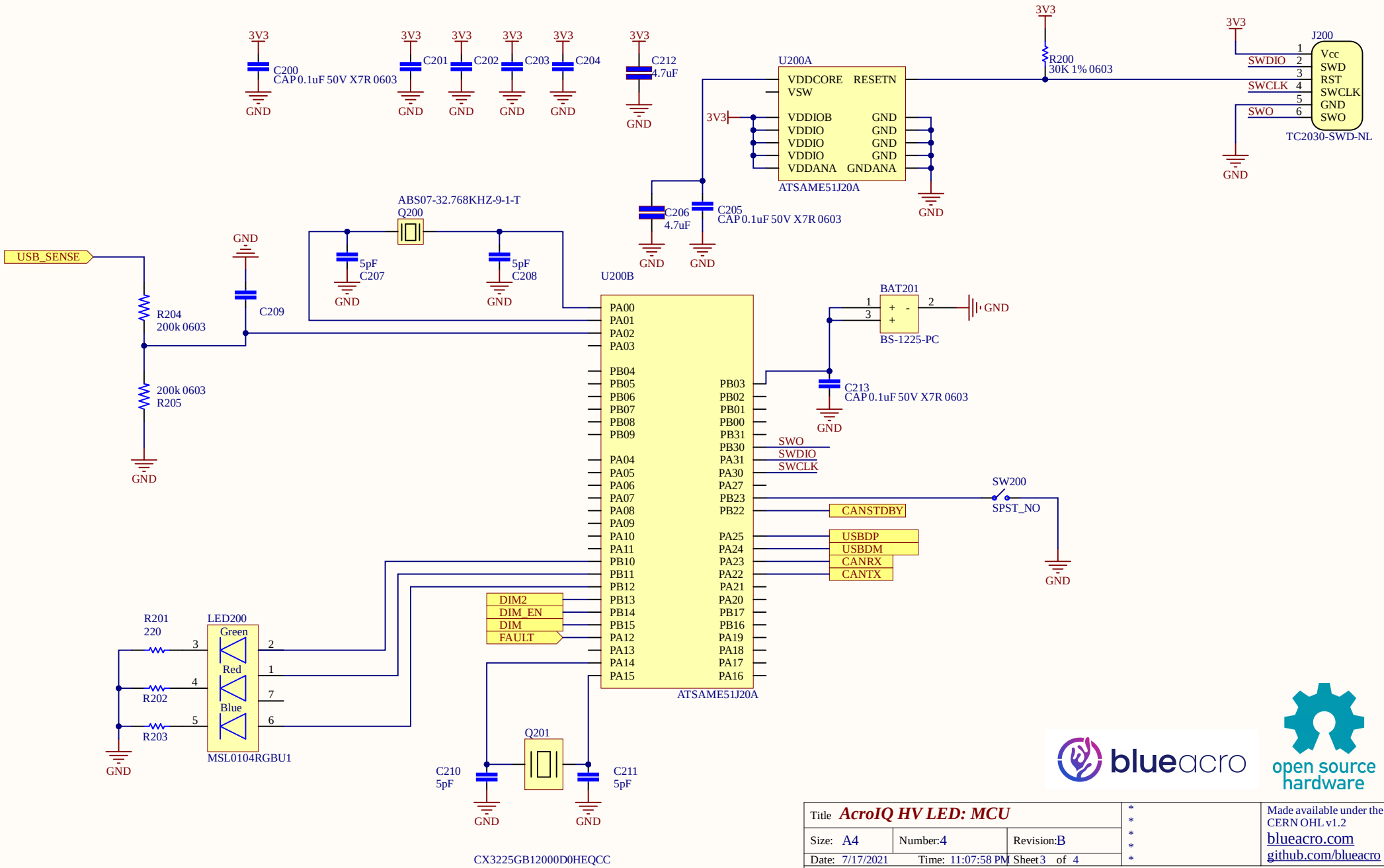
open source hardware

| | | | |
|---|---|---|---|
| Title | *AcroIQ HV LED: Boost Controller* | | Made available under the CERN OHL v1.2 |
| Size: A4 | Number:2 | Revision:C | blueacro.com |
| Date: 7/17/2021 | Time: 11:07:58 PM | Sheet 2 of 4 | github.com/blueacro |
| File: acrostar_hv_boost.SchDoc | | | |


3V3
C200
CAP 0.1uF 50V X7R 0603
GND
C201
C202
C203
C204
C212
4.7uF
U200A
VDDCORE
RESETN
VSW
VDDIOB
VDDIO
VDDANA
GND
GNDANA
ATSAME51J20A
R200
30K 1% 0603
J200
SWDIO
SWCLK
SWO
Vcc
SWD
RST
SWCLK
GND
SWO
TC2030-SWD-NL
ABS07-32.768KHZ-9-1-T
Q200
C206
4.7uF
C205
CAP 0.1uF 50V X7R 0603
USB_SENSE
R204
200k 0603
C209
5pF
C207
C208
U200B
PA00
PA01
PA02
PA03
PB04
PB05
PB06
PB07
PB08
PB09
PA04
PA05
PA06
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PA09
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PB03
PB02
PB01
PB00
PB31
PB30
PA31
PA30
PA27
PB23
PB22
PA25
PA24
PA23
PA22
PA21
PA20
PB17
PB16
PA19
PA18
PA17
PA16
ATSAME51J20A
BAT201
BS-1225-PC
C213
CAP 0.1uF 50V X7R 0603
SWO
SWDIO
SWCLK
SW200
SPST_NO
CANSTDBY
USBDP
USBDM
CANRX
CANTX
DIM2
DIM_EN
DIM
FAULT
R201
220
R202
R203
LED200
Green
Red
Blue
MSL0104RGBU1
Q201
C210
5pF
C211
5pF
CX3225GB12000D0HEQCC
blueacro
open source hardware
Title AcroIQ HV LED: MCU
Size: A4
Number:4
Revision:B
Date: 7/17/2021
Time: 11:07:58 PM
Sheet 3 of 4
File: hv_control.SchDoc
Made available under the CERN OHL v1.2
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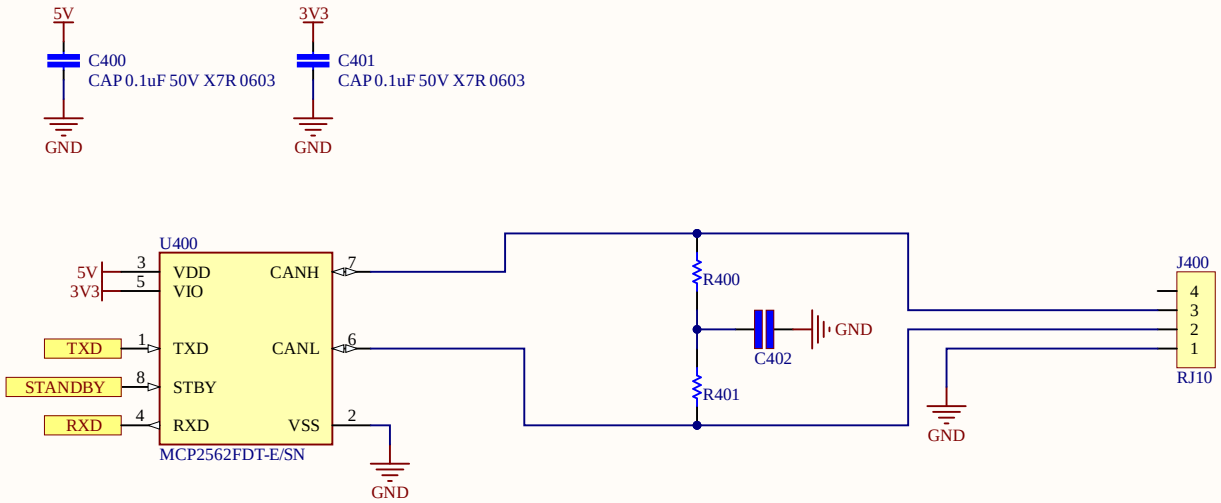


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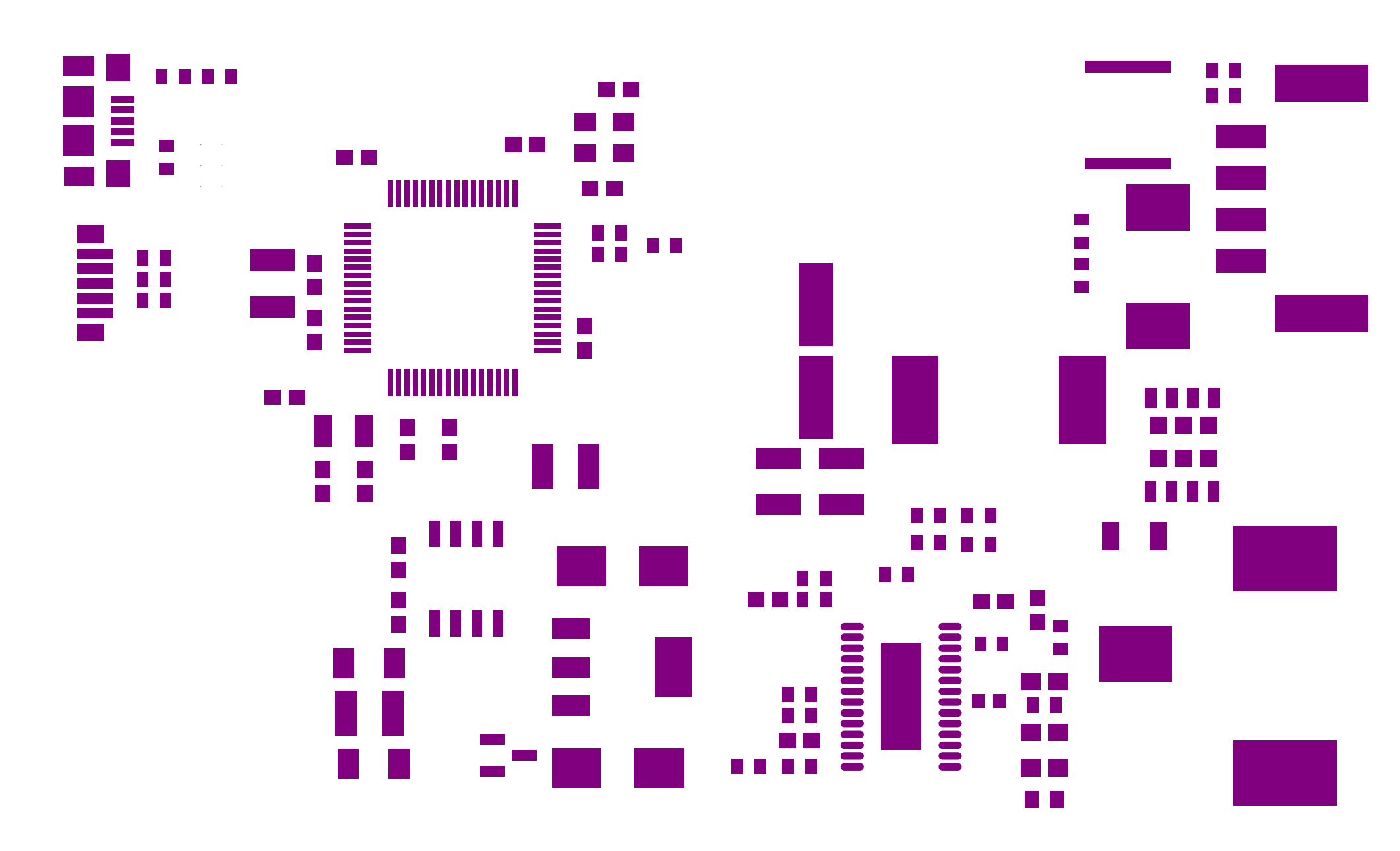
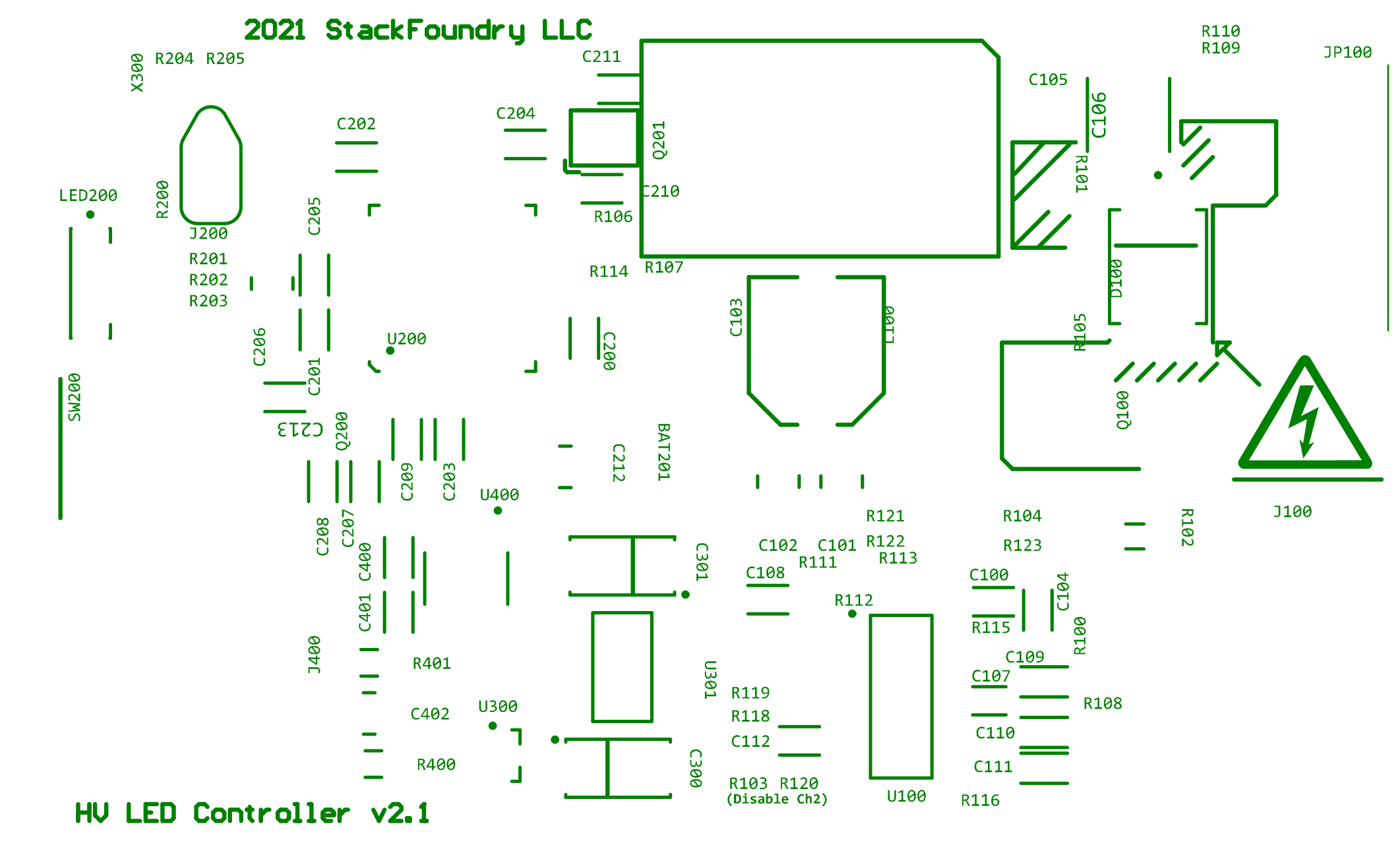
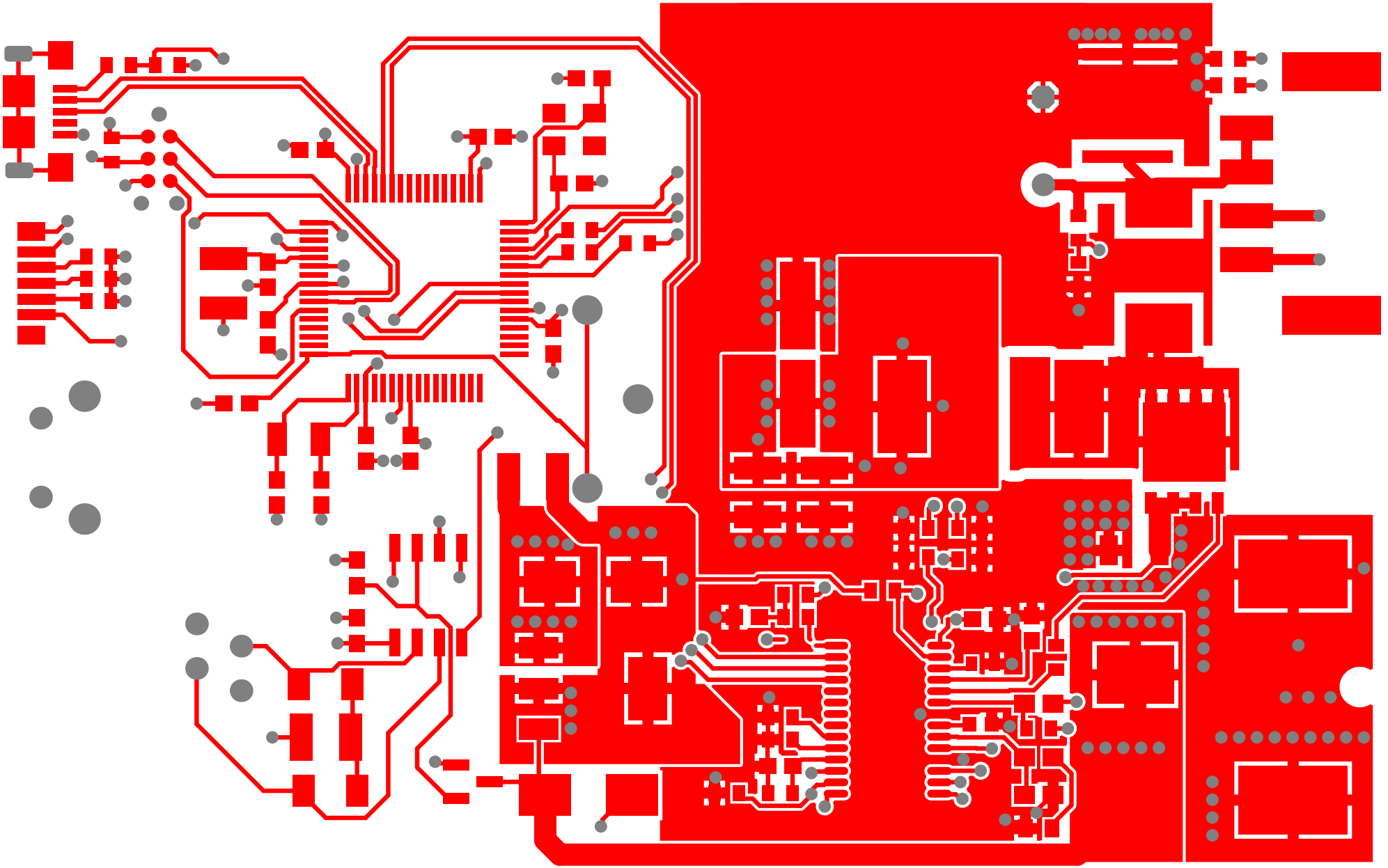
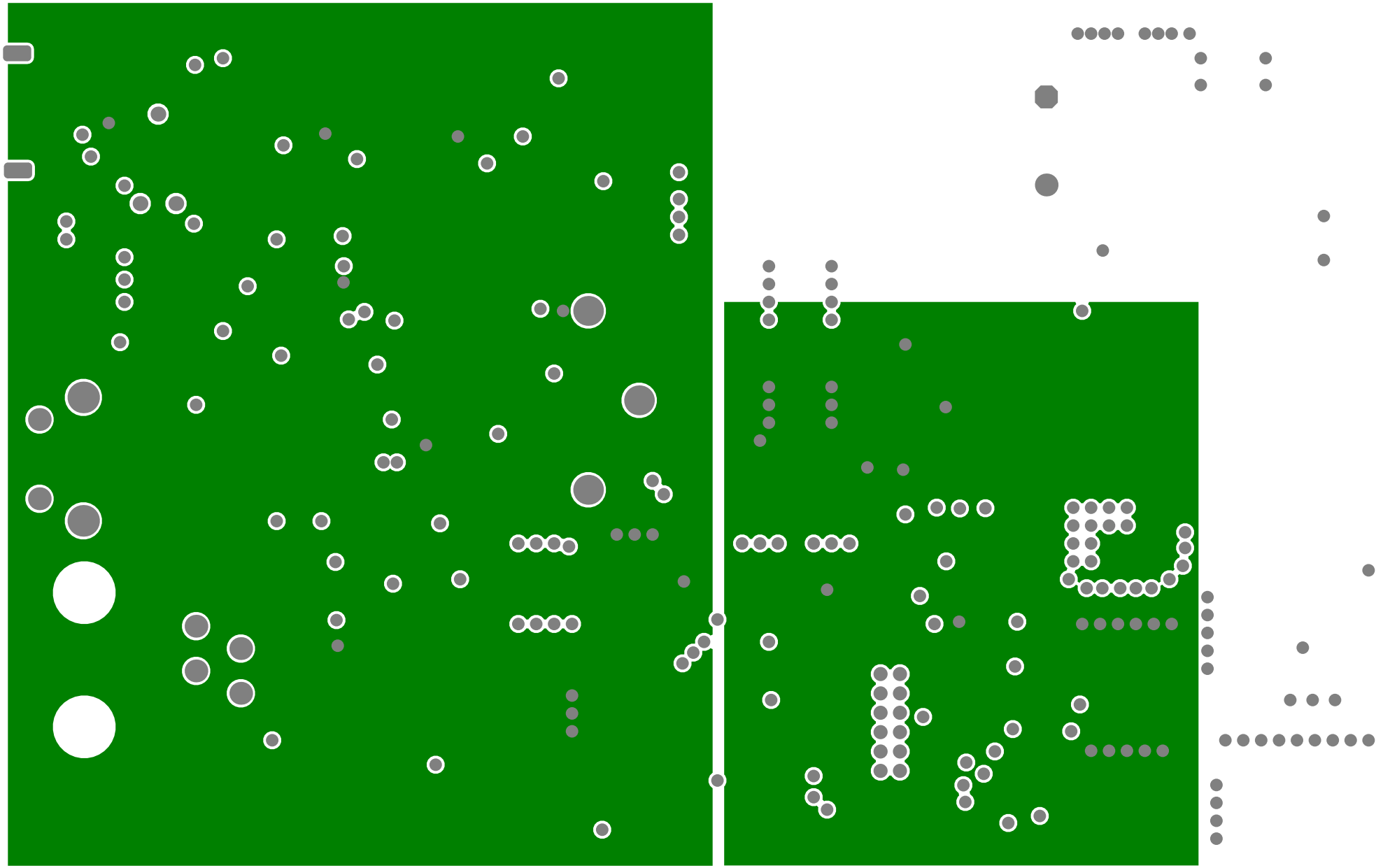
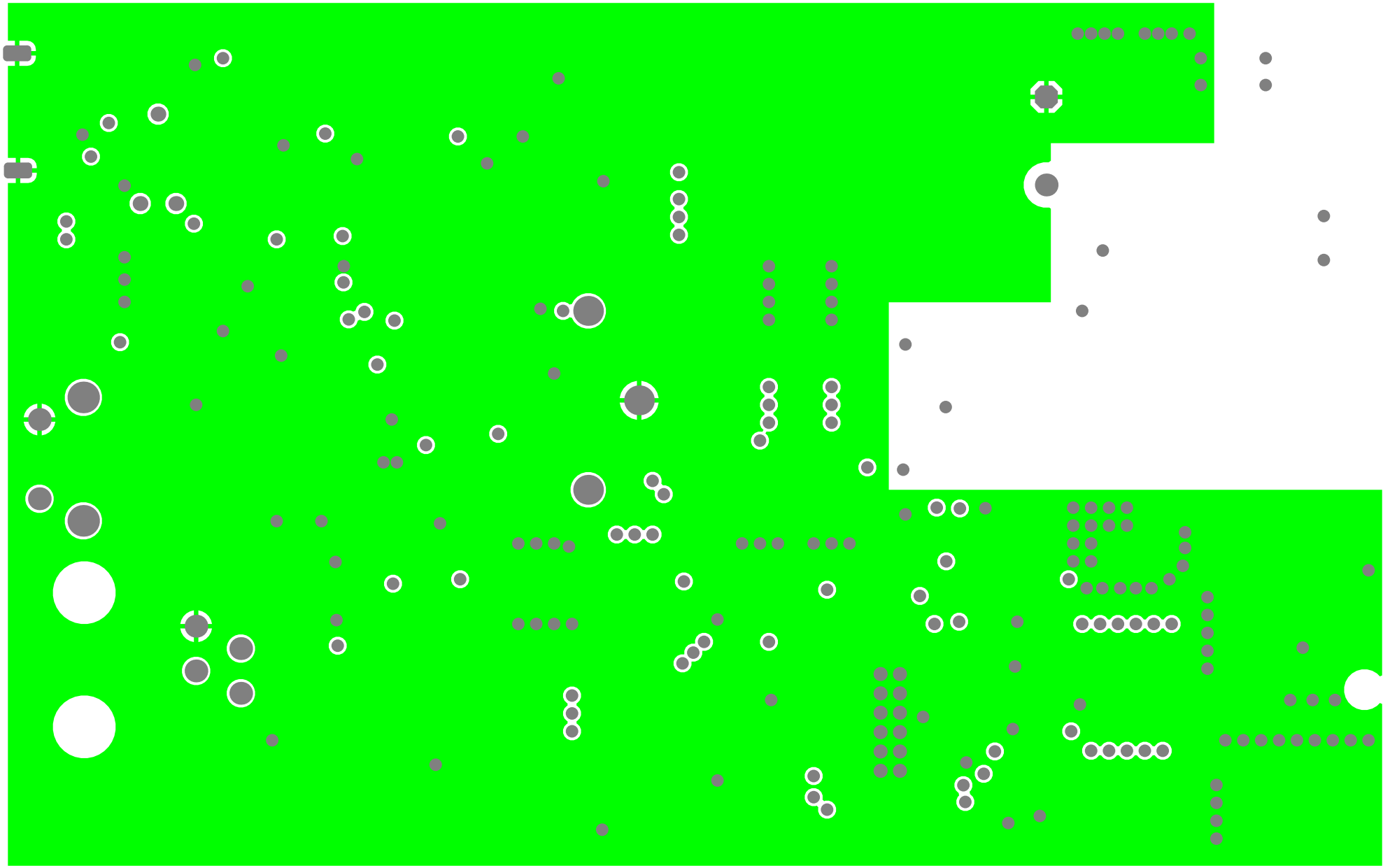
|---|---|---|---|
| Title | ***AcroIQ HV LED: CAN Interface*** | | Made available under the CERN OHL v1.2 |
| Size: A4 | Number: 3 | Revision: A | blueacro.com |
| Date: 7/17/2021 | Time: 11:07:58 PM | Sheet 4 of 4 | github.com/blueacro |
| File: hv_can.SchDoc | | | |

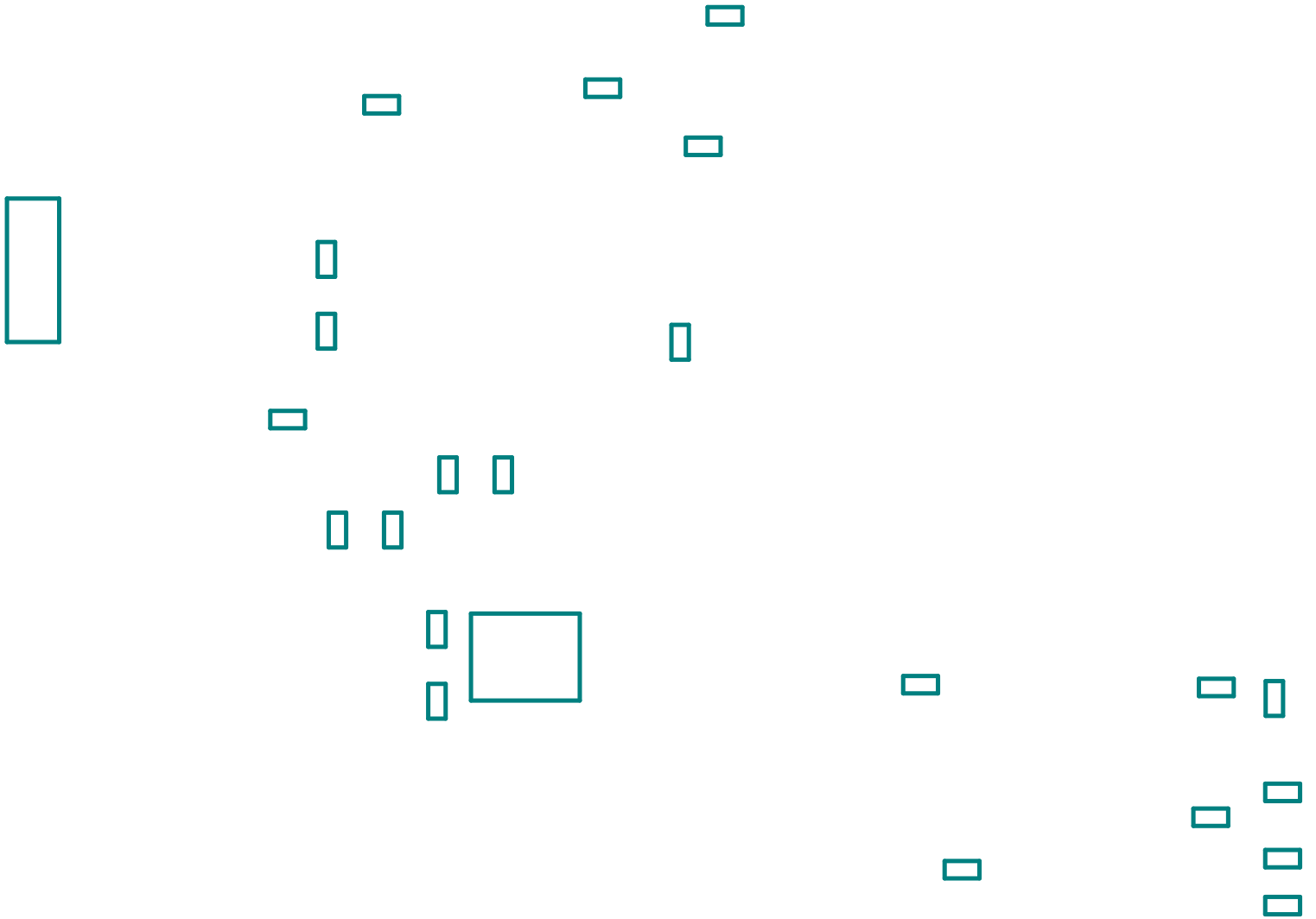


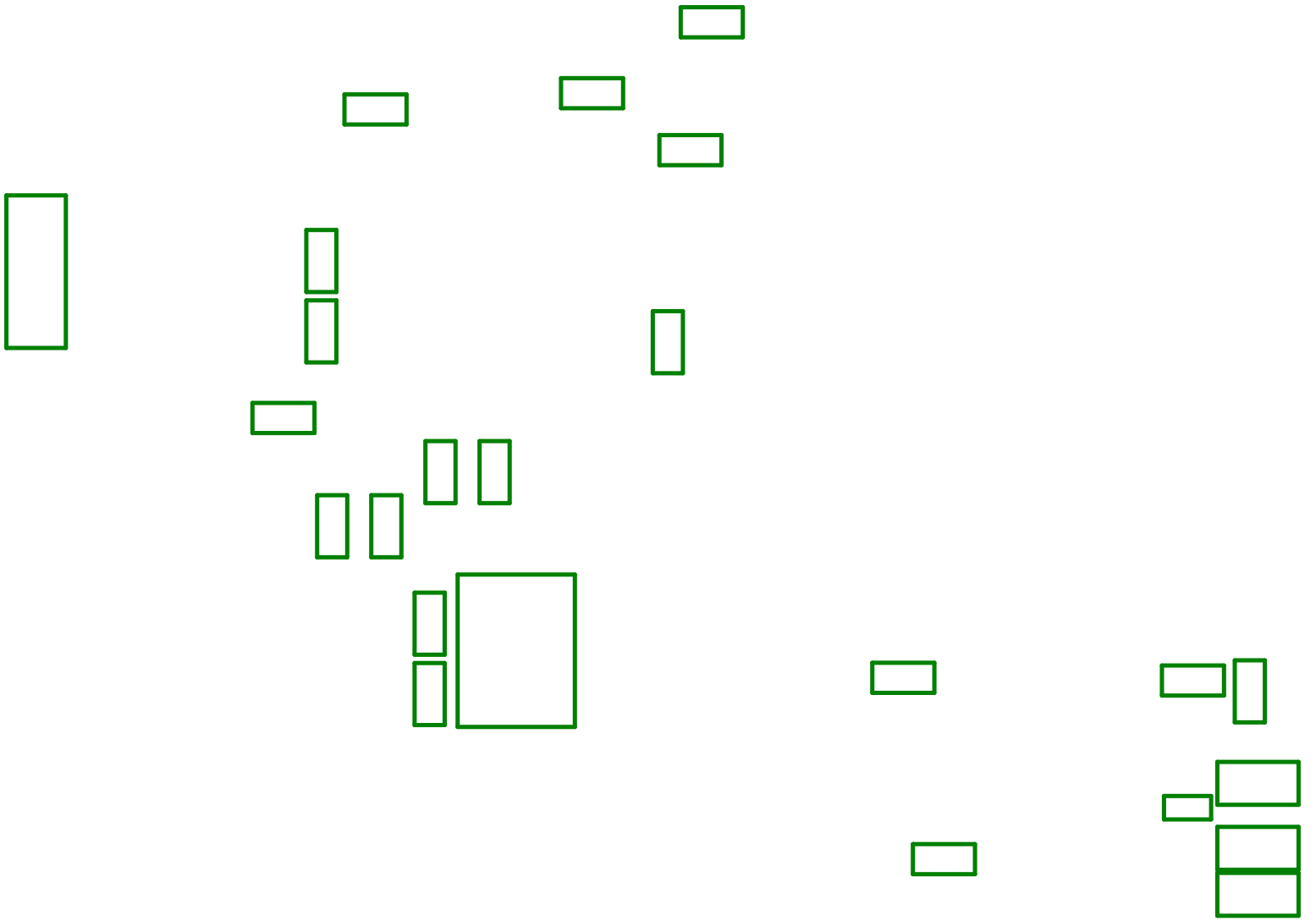

2021 StackFoundry LLC
X300
R204
R205
C211
C204
C202
Q201
C210
R106
R114
R107
C105
C106
R101
R110
R109
JP100
LED200
R200
J200
C205
R201
R202
R203
C206
C201
U200
C200
C103
L100
D100
R105
Q100
SW200
C213
Q200
C209
C203
C212
BAT201
U400
J100
R121
R104
R102
R123
C208
C207
C400
C102
C101
R122
R111
R113
C301
C108
R112
C100
C104
C401
J400
R401
R115
R100
C109
C107
U301
R119
R108
R118
C110
C112
C111
C402
U300
R103
R120
(Disable Ch2)
U100
R116
C300
R400
HV LED Controller v2.1

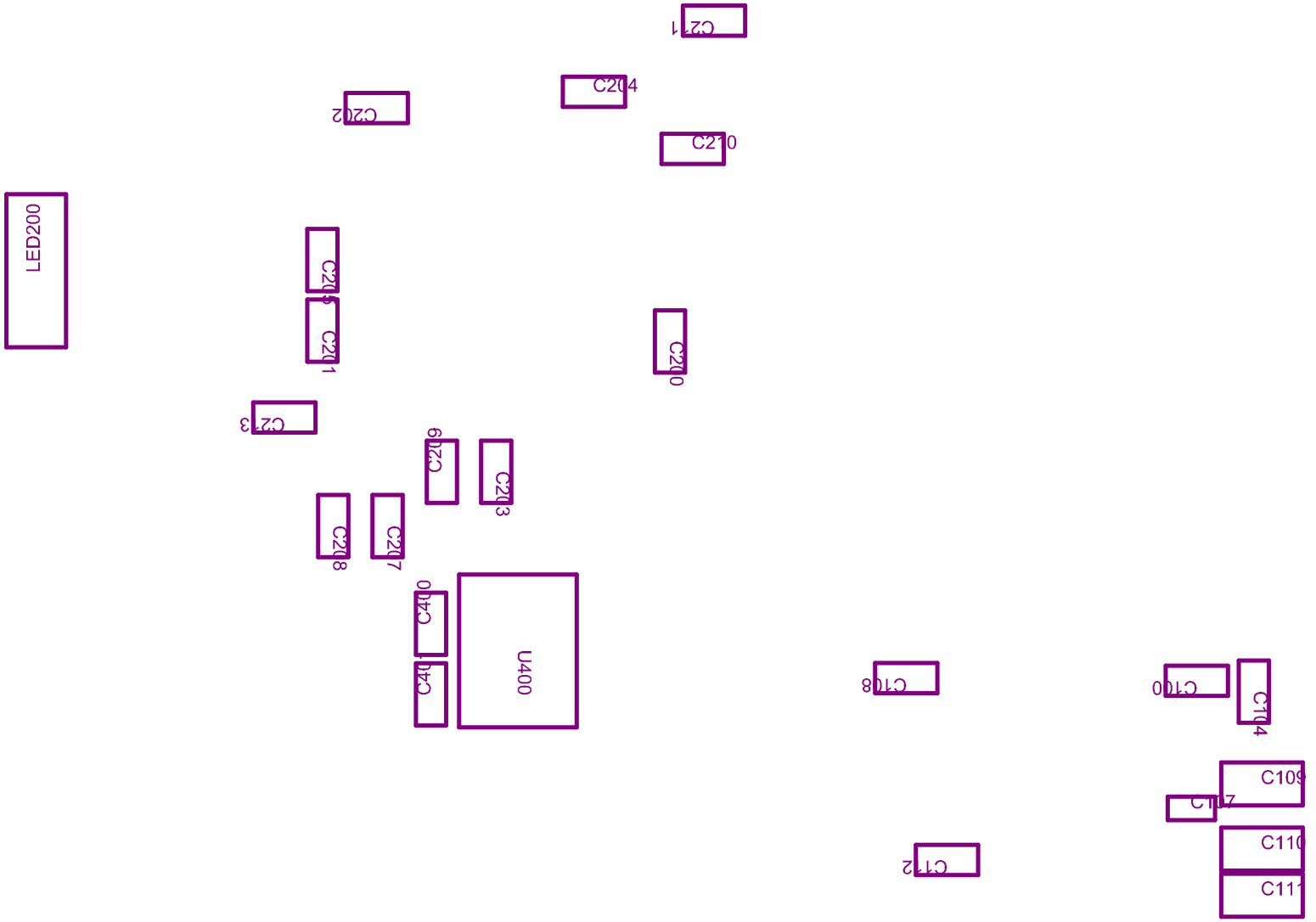











C211
C204
C202
C210
LED200
C205
C201
C200
C213
C209
C203
C208
C207
C400
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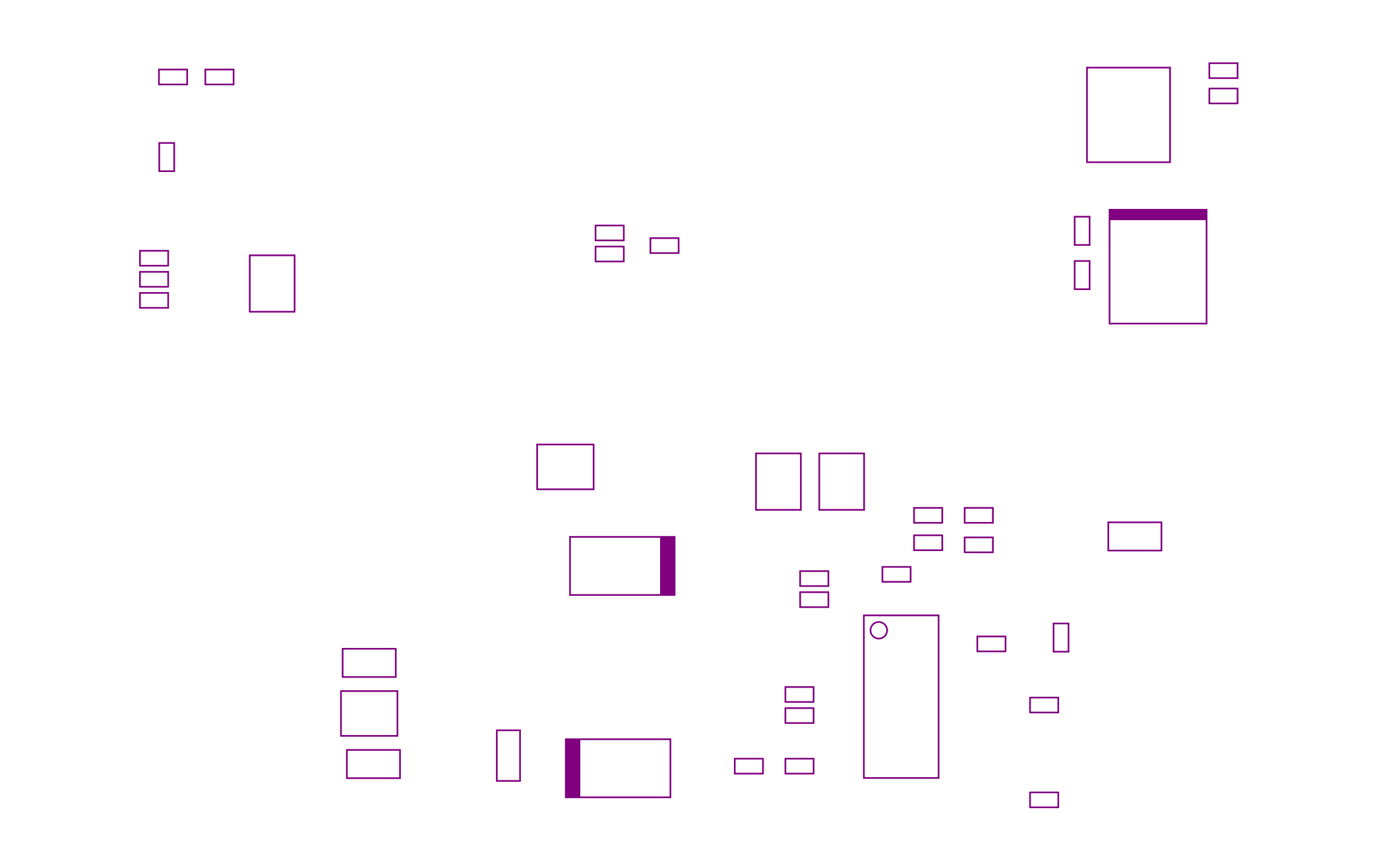
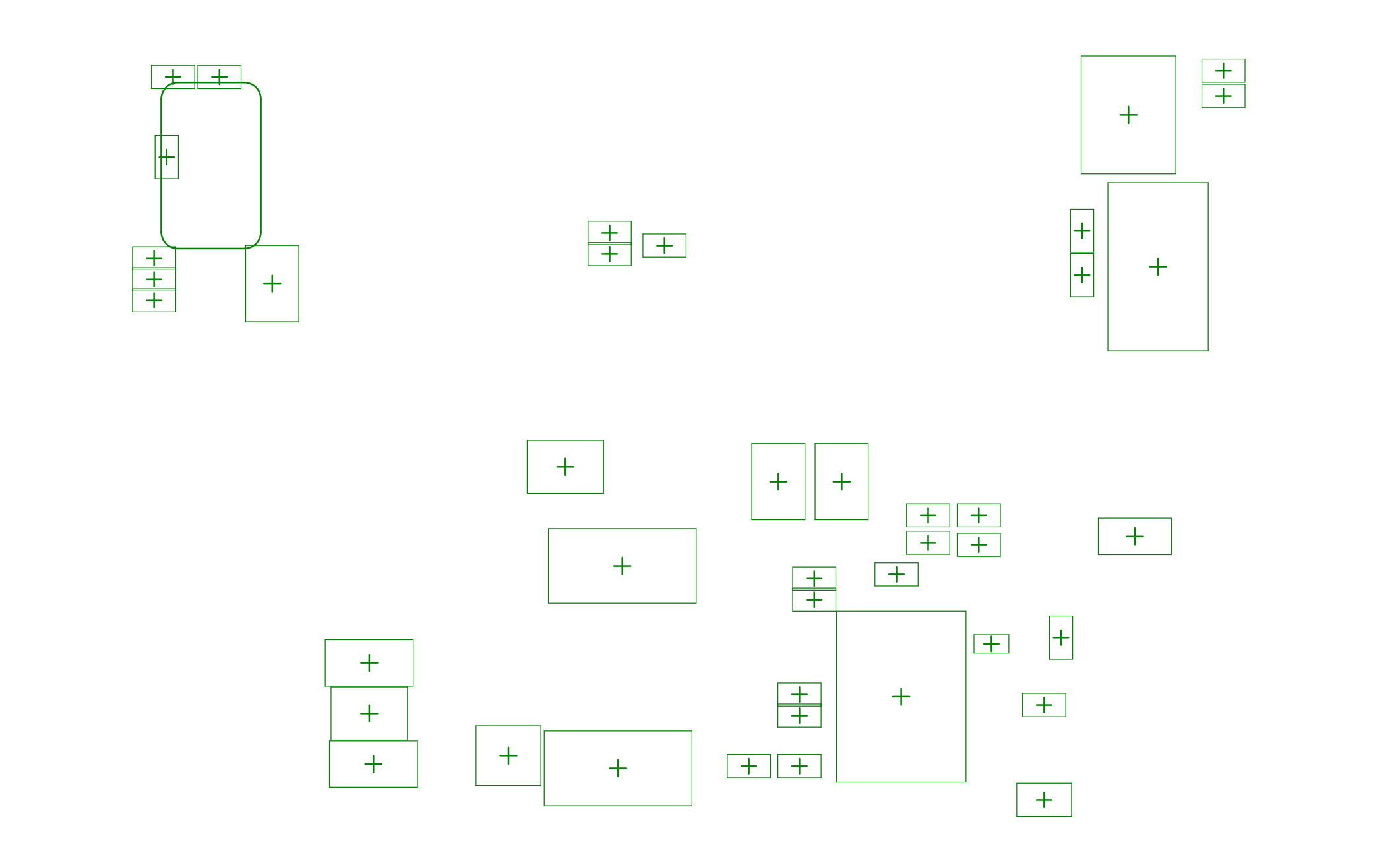
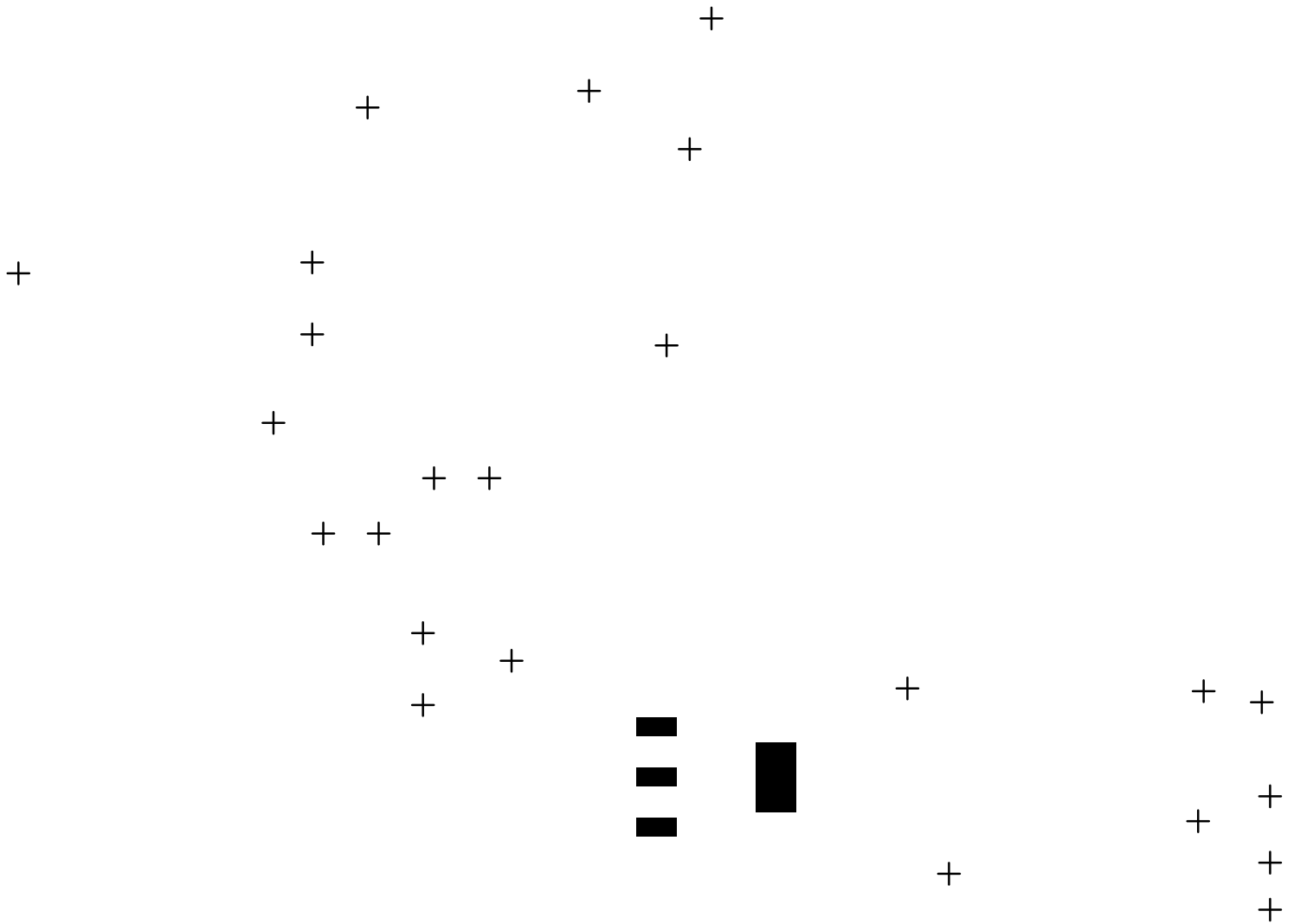
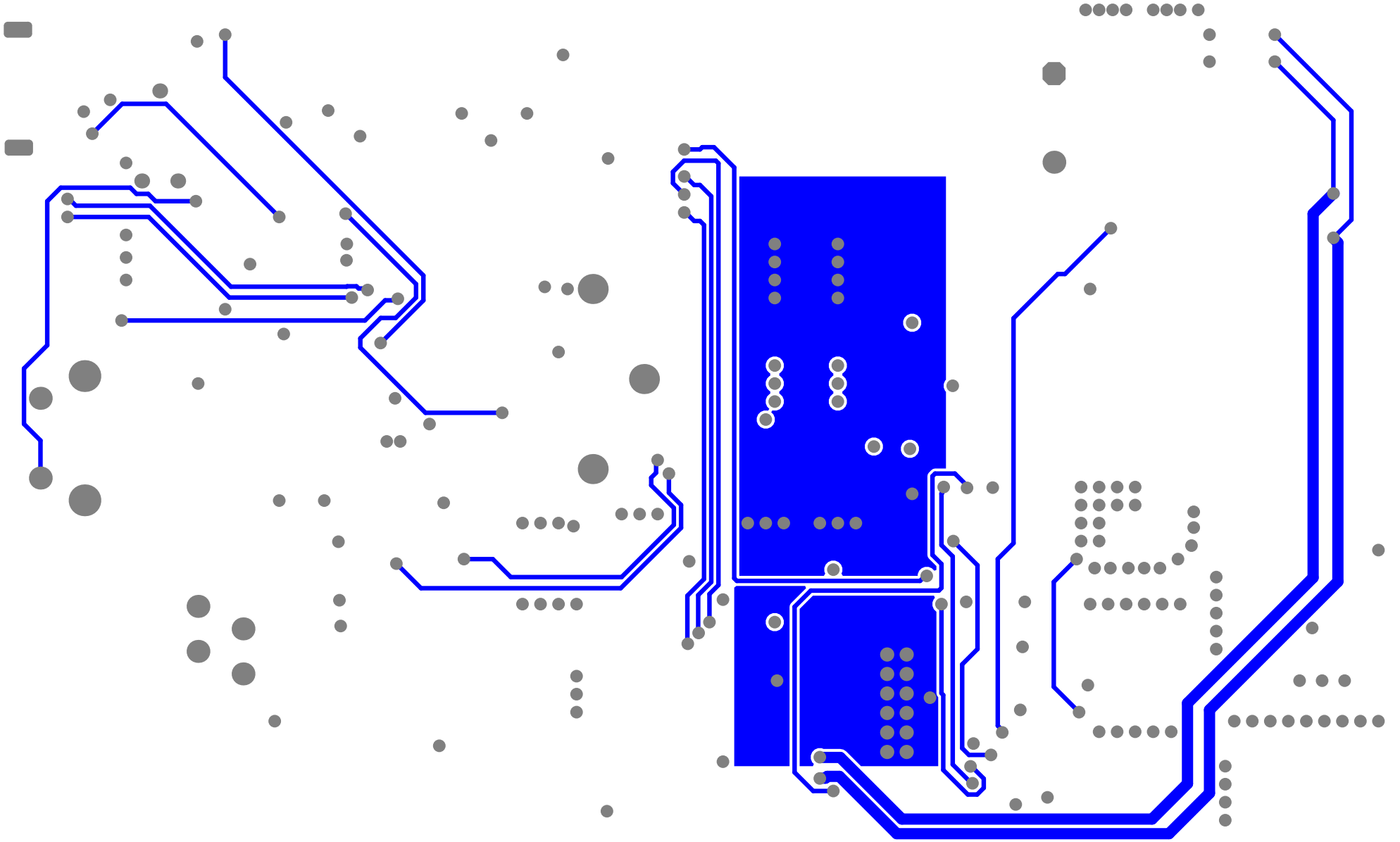
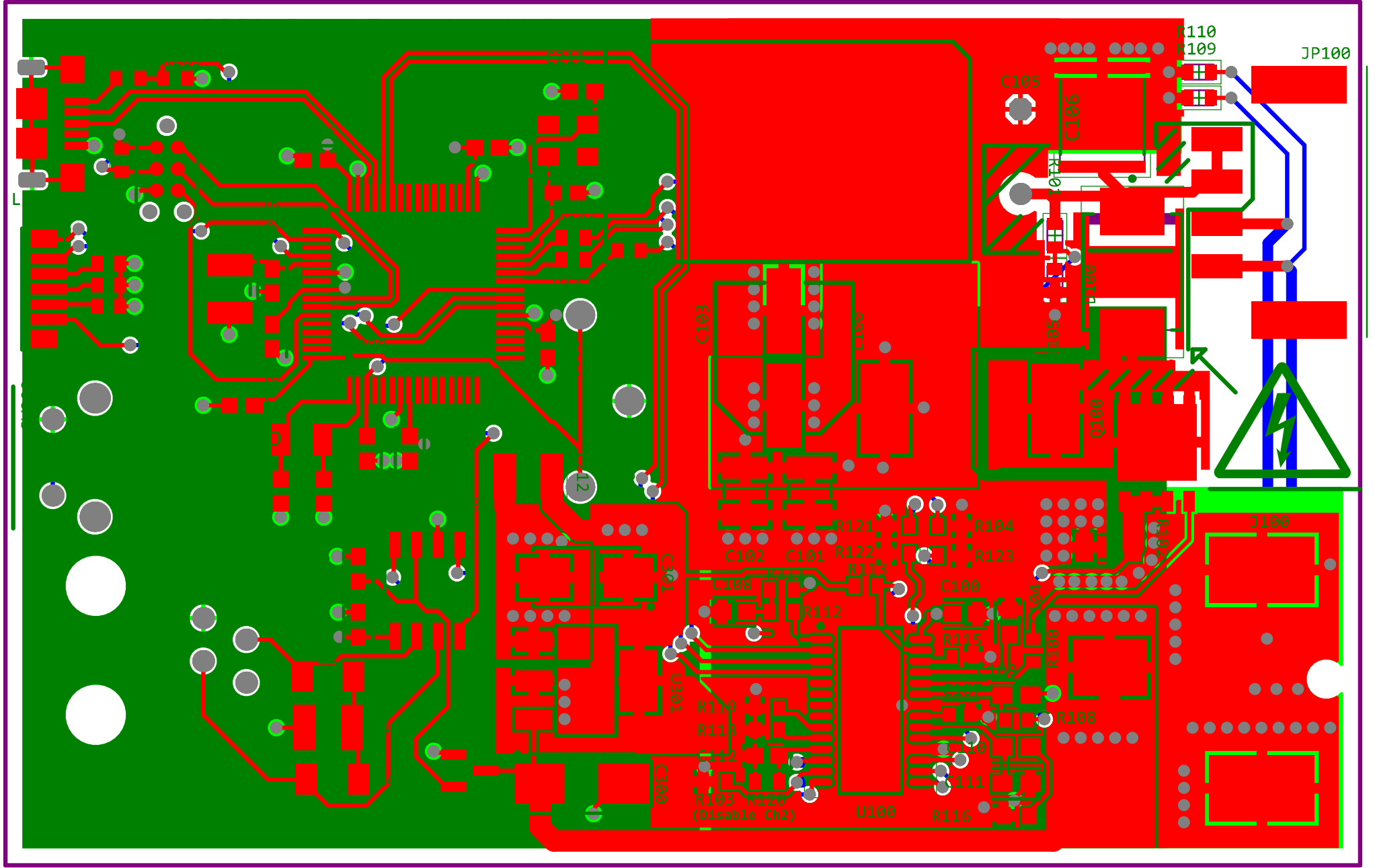
C401
C108
C100
C104
C109
C107
C110
C112
C111










R110
R109
JP100
C105
C103
C102
C101
C108
C100
R121
R122
R123
R104
R113
R112
R115
R108
R119
R118
C112
C111
R103
(Disable Ch2)
U100
R116
J100
L

| Ref # | Name | Description | Designator | Footprint ID | Revision Status | Quantity | Manufacturer 1 | Manufacturer Part Number 1 | Manufacturer Lifecycle 1 | Supplier 1 | Supplier Part Number 1 | Supplier Unit Price 1 | Supplier Subtotal 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 4u1_CAP_C | BATTERY HOLDER COIN 20 MM | BAT201 | CMP-031-00007-2 | Up to date | | Memory Protection Devices | MH-1225-PC | Volume Production | | | | |
| | CAP 4.7uF 16V 10% X5R 0402 | CERAMIC CAPACITOR 4.7UF, 16V, X5R, 0402 | C100, C104 | CMP-031-00066-4 | Up to date | 2 | KEMET | C0603C225K4PACTU | Volume Production | Digi-Key | 399-7886-6-ND | 0.13 | 0.26 |
| | CAP 4.7uF 35V 10% 1210 | CAP CER 4.7UF 35V 10% 1210 | C101, C102, C201, C212, C401 | CMP-031-00053-2 | Up to date | 5 | Samsung | CL32B475KBJYNNE | Volume Production | Digi-Key | 1276-1292-1-ND | 0.43 | 2.1 |
| | CAP 10uF 50V 20% X5R 0603 | CAP 4532M 10UF 50V X5R 0603 | C103 | CMP-031-00100-1 | Up to date | 1 | Panasonic | EEJVF100M | Unknown | Farnell | 2799066 | 1.4 | 1.4 |
| | CAP 47uF 160V Leaded Rel | Aluminum Electrolytic Capacitors - Leaded 47uF 160V 95c 10.5x20 | C105 | CMP-031-00060-4 | Out of date | 1 | Nichicon | UVR2C473MHD1TD | Volume Production | Arrow Electronics | UVR2C473MHD1TD | 0.6336 | 0.6336 |
| | 1uF 2000 X7R 2220 | CAP CER 1UF 2000V 10% X7R 2220 | C104 | CMP-031-00058-1 | Up to date | 1 | TDK | C5750X7R2J105K230KA | Volume Production | Arrow Electronics | C5750X7R2J105K230KA | 1.032 | 1.032 |
| | CAP 4.7uF 6.3V X7R 0603 | CAP CER 4.7UF 6.3V X7R 0603 | C107 | CMP-031-00101-1 | Up to date | 1 | Samsung | CL10B475KAJNNNC | Volume Production | | | | |
| | CAP 1.1uF 50V 0603 | 1uF Ceramic 1.1uF 50V X7R 20% SMD 0603 125C Paper T/R | C108, C112, C200, C201, C202, C205, C206, C210, C400, C401 | CMP-031-00054-4 | Up to date | 11 | Samsung | CL10B115MB8NNNC | Volume Production | Digi-Key | 1276-1041-1-ND | 0.0256 | 0.3 |
| | CAP 47pF 50V 0603 | MLCC - SMD/SMT 0A - SMD Multilayer Ceramic Capacitors, 47P F 50V 0603 1% C0G AEC-Q200 Qualified | C109 | CMP-031-00098-1 | Up to date | 1 | Kyocera AVX | 06031C473KAT2A | Volume Production | Newark | 99M1353 | 0.013 | 0.013 |
| | CAP 0.47uF 6V 0603 | MLCC - SMD/SMT 6.3V 0.47uF 10% X5R 0603 | C110 | CMP-031-00167-1 | Up to date | 1 | Murata | GRM188R71C473KA01D | Not Recommended for New Design | | | | |
| | CAP 100pF 50V 0603 | CAP CER 100PF 50V C0G/NP0 0603 | C111 | CMP-031-00096-1 | Up to date | 1 | Murata | GRM1885C1H101JA01D | Volume Production | Arrow Electronics | GRM1885C1H101JA01D | 0.1153 | 0.1153 |
| | C1.1U.50V.0603 | CAP CER 1UF 50V 10% X5R 0603 | C207, C208, C210, C211 | CMP-031-00068-3 | Up to date | 4 | Samsung | CL10C510QC8NNNC | Volume Production | | | | |
| | CAP 0.1uF 16V X7R 0603 | SAMSUNG ELECTRO-MECHANICS - CL10B223KB8NNNC - SMD Multilayer Ceramic Capacitor, 0.022 µF, 50 V, 0603 [1608 Metric], ± 10%, X7R, CL Series | C209 | CMP-031-00066-6 | Up to date | 1 | Samsung | CL10B223KB8NNNC | Volume Production | Digi-Key | 1276-1016-1-ND | 0.1 | 0.1 |
| | CAP 4.7uF 35V X5R 0603 | CAPACITOR CAP, 4.7UF, 35V, 10%, X5R, | C300, C301 | CMP-031-00058-1 | Up to date | 2 | KEMET | C0G1C475M035AT | Volume Production | Digi-Key | 399-3755-1-ND | 0.64 | 1.28 |
| | MBRS320T3G | ON SEMICONDUCTOR - MBRS320T3G - Schottky Rectifier, 100 V, 3 A, Single, SMC, 2 Pins, 680 mV | D100 | CMP-034-00036-1 | Up to date | 1 | ON Semiconductor | MBRS320T3G | Volume Production | Newark | 10N8422 | 0.231 | 0.23 |
| | D-SS3 | | D200 | CMP-037-00003-1 | Up to date | 1 | Vishay | SS16FA-M3/I-TR | Volume Production | Digi-Key | SF-S16AAFSCT-ND | 1.248 | 1.38 |
| | RJ45 | Modular Connectors / Ethernet Connectors RA 8 POSIT 1 GLD SHIELD | J600 | CMP-167-00002-3 | Up to date | 1 | Molex | 43202-4101 | Volume Production | Digi-Key | WM5418-ND | 1.52 | 1.52 |
| | MH1.5x2.5mm | | P100 | CMP-158-00005-1 | Up to date | 0 | | | | | | | |
| | MS51210-K73MED | CSILON/T-MS51210-K73MED INDUCTOR, FWR, ATLAS, 10UH, 20%, SMD | L100 | CMP-039-00031-2 | Up to date | 1 | Coilcraft | MS51210-473MED | Volume Production | | | | |
| | MSU1040-R68EX | SOMNIT - MSU1040-R68EX - L - UIO SOT-23/SOS3L Rel TR/13/2015/01 SOS, 3 Pins | L2/2200 | CMP-037-00038-2 | Up to date | 1 | Bohm | MSU1040R68EX | Volume Production | Mouser | 791-MSU1040R68EX | 1.38 | 1.38 |
| | NHY_1R_L | | Q100 | CMP-158-00007-1 | Up to date | 1 | Infineon | IAUS300N04S5 | Volume Production | RS Components | 1145311 | 3.55 | 3.55 |
| | RN4020-V/RM123 | MICROCHIP - RN4020-V/RM123 - BLUETOOTH SMART READY MODULE | Q200 | CMP-033-00070-1 | Up to date | 1 | Infineon | IMBF17-32.768KHZ-9-1-T | Volume Production | Digi-Key | 535-13477-9-ND | 0 | 0 |
| | 2-102-0000-THHQTC | Crystal 12MHz ±20ppm (TH) ±30ppm Stability(-tp)/-tr/ND 2500/Reel 4-Pin SMD T/R | Q201 | CMP-033-00030-1 | Up to date | 1 | Murata | CSMD333C1H8R9W0S1D | Unknown | Mouser | 81-CSMD333C1H8R9W0S1D | 0.34 | 0.18 |
| | 10K 0603 1% | RES SMD 0 OHM 1% 1/10W 0603 | R103 | CMP-039-00160-3 | Up to date | 1 | Vishay Dale | CRCW06030000P0EA | Volume Production | Digi-Key | 541-0.0MHCT-ND | 0.1 | 0.1 |
| | 1M 0805 1% | RES 0.0 OHM 1/8W 0805 | R201 | CMP-039-00167-4 | Up to date | 1 | Vishay Dale | CRCW08010M00FKEAHP | Volume Production | Arrow Electronics | CRCW08010M00FKEAHP | 0.0168 | 0.0168 |
| | 49.9 1206 1% | RES 49.9 OHM 1/4W 1% 1206 SMD | R202 | CMP-039-00096-1 | Up to date | 1 | Yageo | RL1206FR-070R9L | Volume Production | Mouser | 603-RL1206FR070R9L | 0.39 | 0.39 |
| | 33K 1% 0603 | RES SMD 33K OHM 1% 1/10W 0603 | R203, R204, R206, R121, R122, R123, R201 | CMP-039-00178-4 | Up to date | 7 | Yageo | RC0603FR-0733KL | Volume Production | Digi-Key | 311-33.0KHCT-ND | 0.024 | 0.24 |
| | 1uH 0603 1% | Res Thick Film 0603 1uH ohms 1% 1/10W ±200ppm/°C Molded SMD Punched Carrier T/R | R205 | CMP-039-00164-1 | Up to date | 1 | Panasonic | ERJ-3EKF1402V | Volume Production | Digi-Key | P14.0KHCT-ND | 0.1 | 0.1 |
| | 10K 0603 1% | RES SMD 10K OHM 1% 1/10W 0603 | R206, R107, R213, R216 | CMP-039-00161-3 | Up to date | 4 | Yageo | RC0603FR-0710KL | Volume Production | Digi-Key | 311-10.0KHCT-ND | 0.024 | 0.24 |
| | 1206 0603 1% | RES SMD 220R 1% 1/10W 0603 | R208, R201, R202, R203 | CMP-039-00163-2 | Up to date | 4 | Yageo | RC0603FR-07220RL | Volume Production | Digi-Key | 311-220GRCT-ND | 0.02 | 0.2 |
| | 330R 0603 1% | Res Thick Film 0603 330R ohms 1% ±100ppm/°C Molded SMD Paper T/R | R214 | CMP-039-00177-1 | Up to date | 1 | Yageo | RC0603FR-0733RL | Volume Production | Arrow Electronics | RC0603FR-0733RL | 0.0122 | 0.0122 |
| | 301.0k 0603 1% | Res Thick Film 0603 301k ohms 1% 1/10W ±100ppm/°C Epoxy SMD T/R | R220 | CMP-039-00168-1 | Up to date | 1 | Yageo | RC0603FR-0760KL | Volume Production | Arrow Electronics | RC0603FR-0760KL | 0.0231 | 0.0231 |
| | 100 1% 0603 | RES SMD 100 OHM 1% 1/10W 0603 | R400, R401 | CMP-039-00169-1 | Up to date | 2 | Yageo | RC1206JR-070ZRL | Volume Production | Digi-Key | 311-100HCT-ND | 0.1 | 0.2 |
| | PRT_SW | | SW200 | CMP-158-00007-1 | Up to date | 0 | | | | | | | |
| | TPS61196PWPR | 3A 1MHz Synchronous Buck Boost Converter 16-HTSSOP (0.173", 4.40mm Width) | U100 | CMP-119-00004-4 | Up to date | 1 | Texas Instruments | TPS61196PWPR | Volume Production | Arrow Electronics | TPS61196PWPR | 2.88 | 2.88 |
| | ATSAML21J18A-AUT | IC MCU 32BIT 256KB FLASH 64TQFP | U200 | CMP-120-00015-1 | Up to date | 1 | Microchip | ATSAML21J18A-AUT | Unknown | | | | |
| | MCP1700-3302E/TO | IC REG LDO 3.3V 0.25A TO92-3 | U300 | CMP-110-00004-2 | Up to date | 1 | Microchip | MCP1702T-6003E/CB | Volume Production | RS Components | 7386572 | 0.0401 | 6.41 |
| | 0.1U.0.1.1 | | U301 | CMP-030-00007-1 | Up to date | 1 | Diodes Zetex | DJOD1117S33TA | Volume Production | Digi-Key | DJOD1117S33DICT-ND | 0.53 | 0.53 |
| | MCP1682-50I/CH | 5V/400mA/1MHz Step-Up Regulator SOT-23-6 | U400 | CMP-115-00008-1 | Up to date | 1 | Microchip | MCP1682T-50I/CH | New Product | | | | |
| | 100 | | U500 | CMP-190-00006-1 | Up to date | 0 | | | | | | | |