

CVR Global



ENGINEER: L. Crenshaw		TITLE: CSS1 Charge Controller	
PCB DESIGNER: L. Crenshaw			
DATE: 07/23/18		PART NO.: 01-01210.002	REV: 2.1
FILE NAME: ChargeController		DWG NO.: 0091.03	SCALE: 1:1

1

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2

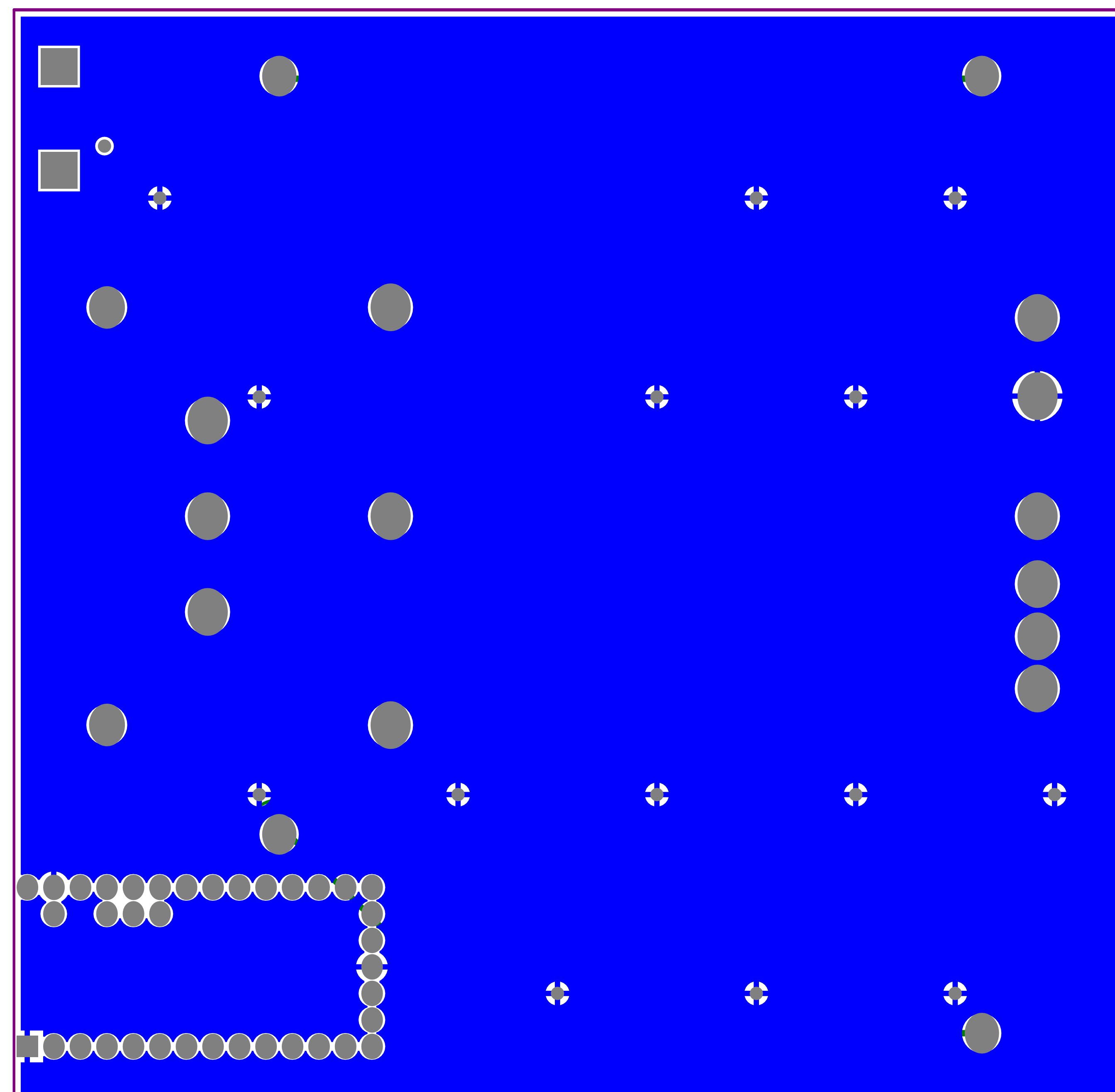
3

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4

A

A



B

B

C

C

D

D

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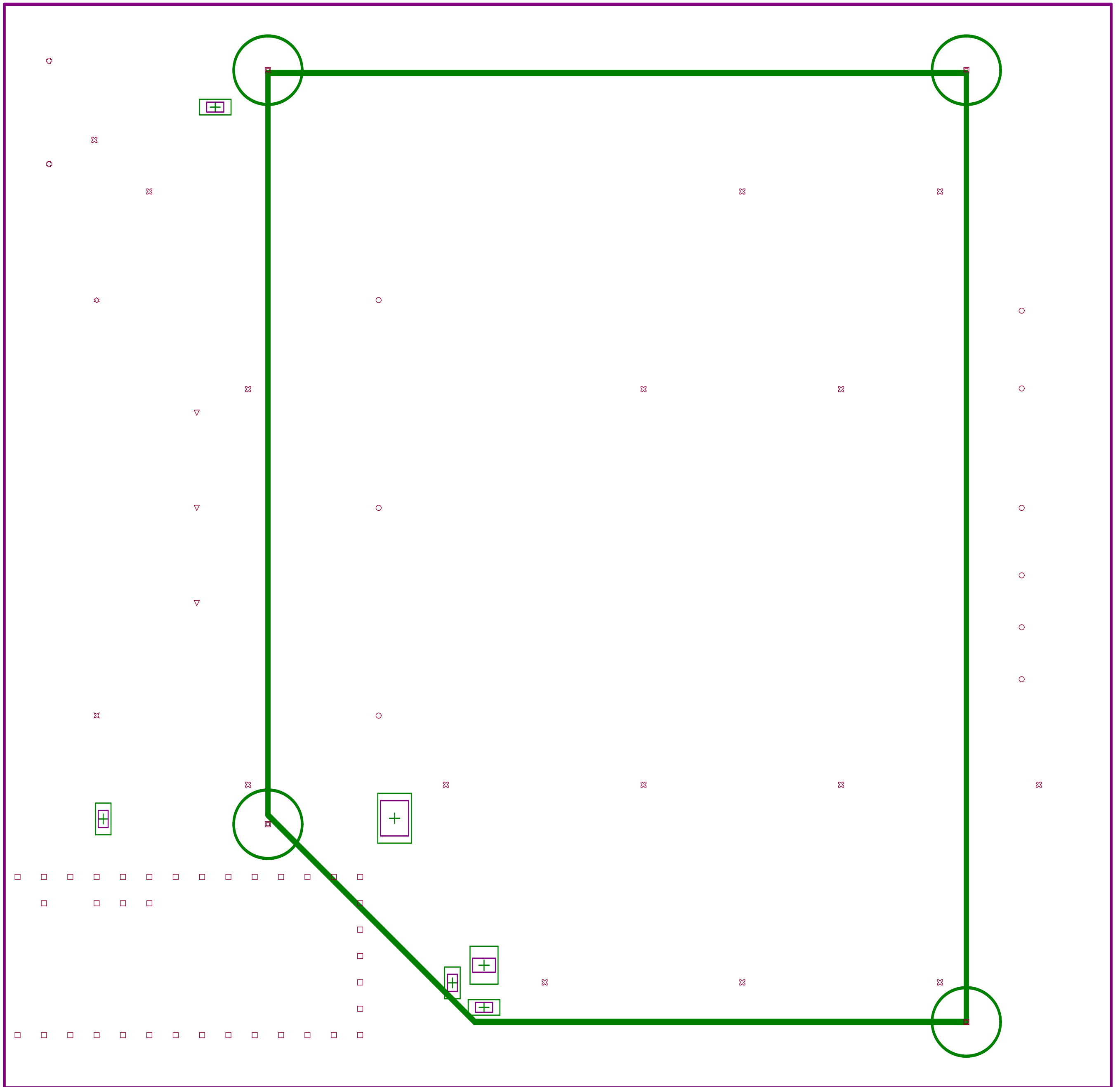

1

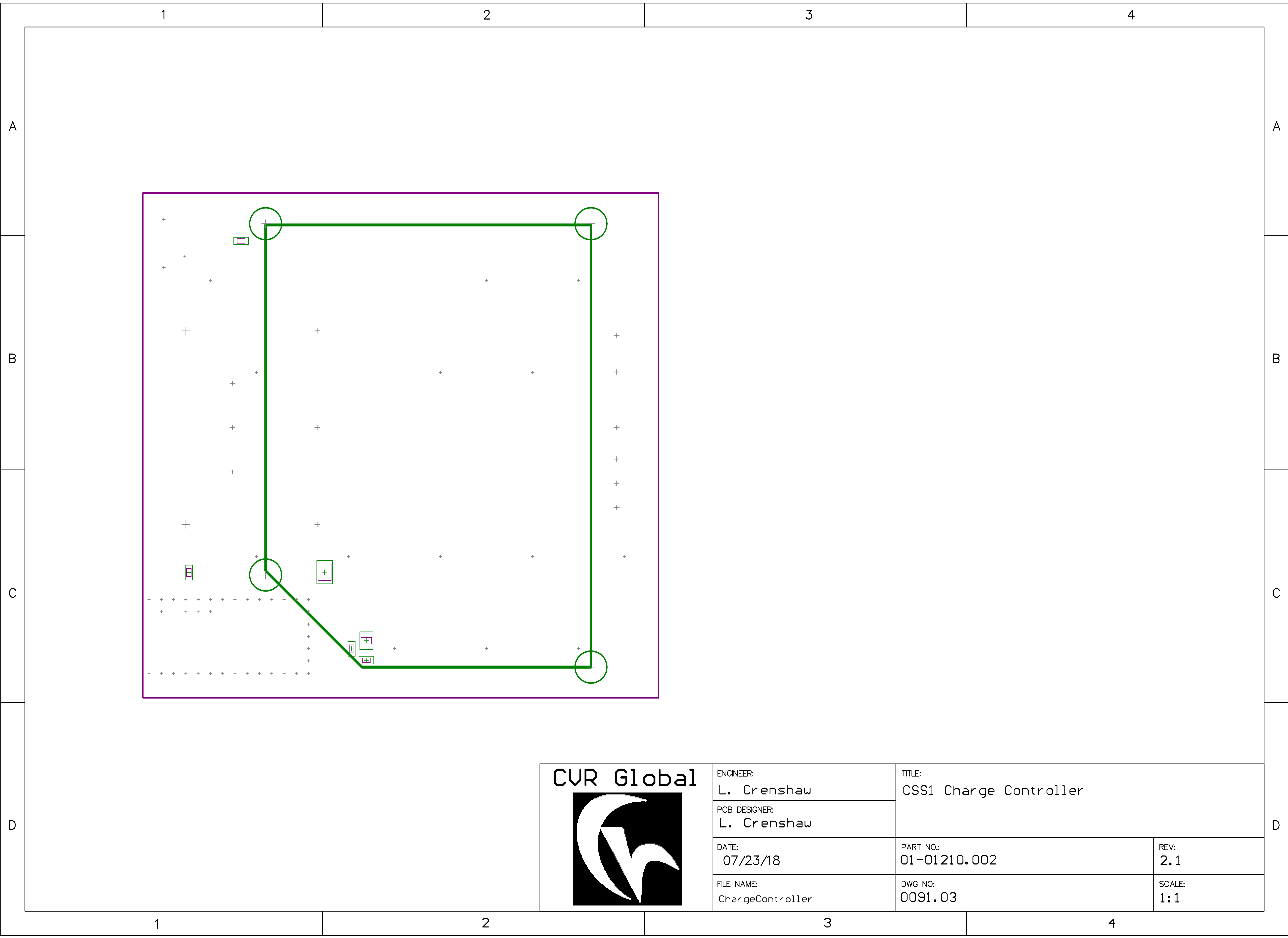
2


3

4

Symbol	Count	Hole Size	Plated	Hole Type	Drill Layer Pair	Via/Pad	Pad Shape	Template	Description	Hole Tolerance (+)	Hole Tolerance (-)
✕	1	133.86mil (3.400mm)	NPTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c340hn340			
☆	1	133.86mil (3.400mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c340h340			
⊕	2	50.00mil (1.270mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rectangle	s350h127			
▽	3	64.17mil (1.630mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c381h163			
▣	4	128.00mil (3.251mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c325h325			
○	9	80.00mil (2.032mm)	PTH	Round	Top Layer - Bottom Layer	Pad	Rounded	c381h203			
⊗	15	20.00mil (0.508mm)	PTH	Round	Top Layer - Bottom Layer	Via	Rounded	(Mixed)			
□	37	40.00mil (1.016mm)	PTH	Round	Top Layer - Bottom Layer	Pad	(Mixed)	(Mixed)			
	72 Total										

1		2		3		4	
A					<p>Board Part Number: 01-1210</p> <p>Specifications:</p> <p>Fabricate in accordance with IPC-2221 Class 2 specifications unless stated otherwise. Board shall meet the requirements of UL796 with Flammability rating of 94V-0. Remove all burrs and break sharp edges .38mm max. Warp and twist of board shall not exceed 0.75% of diagonal measurement, no crowning. Dimensions: All dimensions are in inches unless specified otherwise.</p> <p>Tolerance is +/- 0.010" unless otherwise noted.</p> <p>Material: 0.062" +/-0.005" thick RoHS compliant FR4 Epoxy Glass Laminate Tg = 150 deg C minimum Td = 280 deg C minimum</p> <p>Plating: Plated holes, Copper min. 1.0 mil thickness Surface mount pads should be within .010 in/in</p> <p>Finish: ENIG Size: 4.11 x 4.20"</p> <p>Minimum Features: Minimum hole size = .020" Minimum trace width = .020" Minimum spacing = .007"</p> <p>Solder Mask: Liquid Photo Imageable (LPI) equivalent over bare copper. Finished solder mask to be free of peeling and other surface imperfections. Both Sides. Color: RED; Do Not Block fine pitch SMD Pads. Soldermask to circuit registration shall be within +/- 0.003".</p> <p>Legend: White Epoxy Ink, Top &amp; Bottom Side. The paint must not chip, smear, rub-off or discolor under normal shipping, handling and manufacturing processes. Silkscreen to circuit registration to be within +/- 0.010". Legend ink Must Not reside on any surface mount pad. Vendor Ident logo and evidence of UL approval and date of manufacture in the EIA standard date code format shall be placed on the Bottom Side of the board. Ink must be able to withstand peak temperature of 260 deg for duration of minimum 10 seconds and at least 4-5 thermal cycles without discoloration.</p> <p>Drilling: All drilled holes to be located from the supplied NC drill data file. See hole legend for finished sizes and quantity. Hole diameter tolerance: &lt;0.100" +/- 0.005" &gt; 0.100" +/- 0.005" except where otherwise specified. All Non-Dimensioned hole locations shall be located within +/- .005".</p> <p>Other: In case of a conflict between specifications, the following order of precedence shall apply: 1. Purchase Order and/or Contract 2. This Drawing 3. Referenced IPC Specifications</p>		A
B							B
C							C
D							D
1		2		3		4	
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Quantity	Designator	Value	Description	Comment	Manufacturer	Manufacturer P/N	Vendor	Vendor P/N
1	J1		RJ11 - CONN MOD JACK 6P6C	Jack-RJ11	TE Connectivity	5406514-1	DigiKey	A124534CT-ND
1	M1		AC Receptacle	AC Receptacle	Bulgin	PX0580/PC		
1	M2		AC/DC Power Supply	MMA-15	Astrodyne TDI	MDMA-15XX		
1	M3		Teensy LC 48 MHz Cortex-M0+	Teensy LC				
1	Q1		NPN General Purpose Transistor	MMBT2222	ON Semiconductor	MMBT2222AWT1G	Digikey	MMBT2222AWT1GOSCT-ND
1	R1	160	Resistor	160	Vishay/Dale	CRCW0603160RJNEA	DigiKey	541-160GCT-ND
2	R2, R3	220	Resistor	220	Vishay/Dale	CRCW0603220RFKEAC	DigiKey	541-4047-1-ND
1	R6	1M	Resistor	1M	Vishay/Dale	CRCW060310K0JNEAC	DigiKey	541-3957-1-ND
1	R7	0.47	Resistor	0.47	Vishay/Dale	WSLT2010R4700FEB18	DigiKey	WSLTA-.470CT-ND

## Electrical Rules Check Report

Class	Document	Message
Warning	ChargeController_r2.1.SchDoc	Off grid Net Label CHARGE at 10630.779mil,4850mil

## Design Rules Verification Report

Filename : C:\Users\lew\Dropbox (Personal)\Altium\CVR Global\Charge Controller\ChargeController\ChargeController\_r2.1.PcbDoc

Warnings 0  
Rule Violations 0

Warnings	
Total	0

Rule Violations	
Clearance Constraint (Gap=15mil) (All),(All)	0
Clearance Constraint (Gap=10mil) (All),(All)	0
Short-Circuit Constraint (Allowed=No) (All),(All)	0
Un-Routed Net Constraint ( (All) )	0
Width Constraint (Min=6mil) (Max=100mil) (Preferred=10mil) (All)	0
Power Plane Connect Rule(Relief Connect )(Expansion=10mil) (Conductor Width=20mil) (Air Gap=20mil) (Entries=4)	0
Minimum Annular Ring (Minimum=7mil) (All)	0
Hole Size Constraint (Min=1mil) (Max=100mil) (All)	0
Hole Size Constraint (Min=16mil) (Max=251mil) (All)	0
Hole Size Constraint (Min=1mil) (Max=100mil) (All)	0
Total	0

Revision History

Date	Engineer	Revision	Comments	Checked
08/22/2018	Terrance Johnson	2.1	R4,R5,R8,R9(Resistors) and U1 (OpAmp) removed	Matt Thoresen
08/22/2018	Terrance Johnson	2.1	J2, J3, and J4 (Pads to Ground) removed	Matt Thoresen

