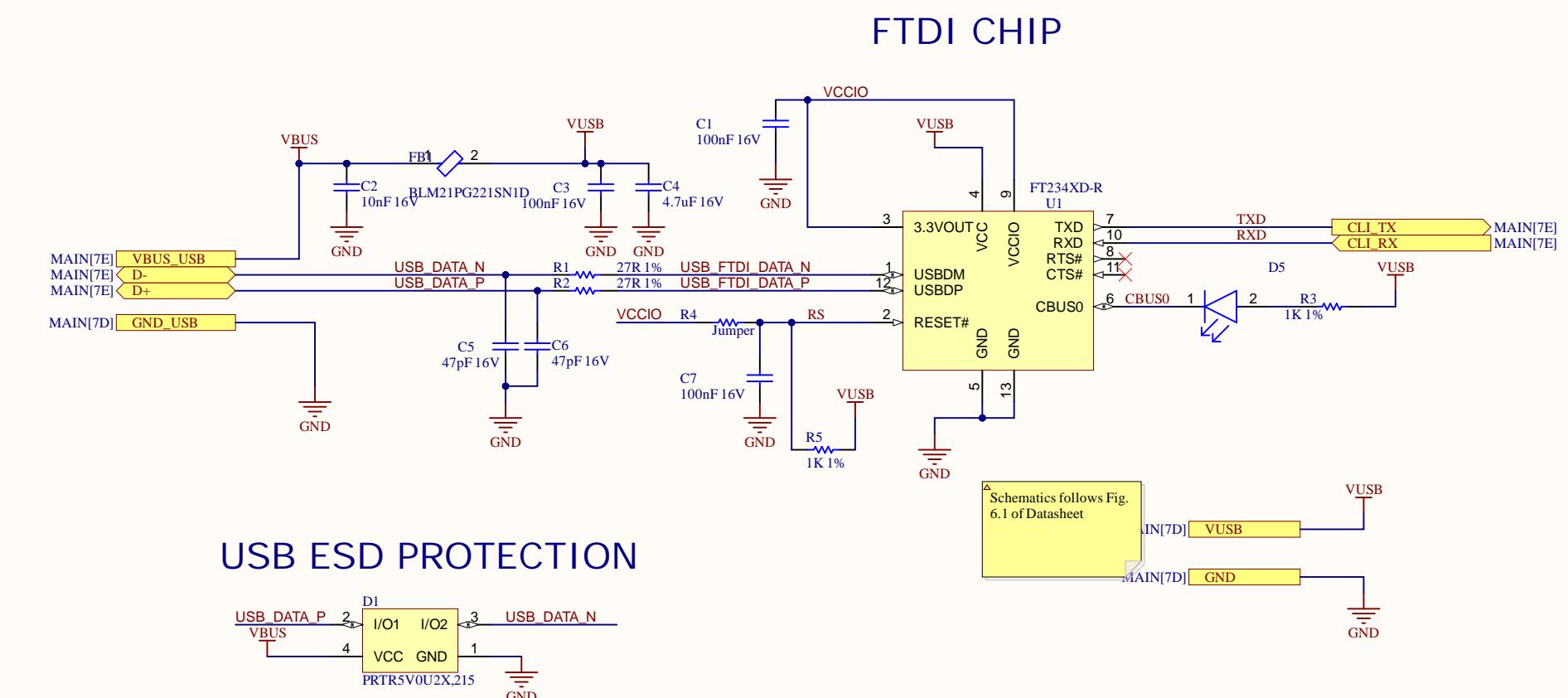


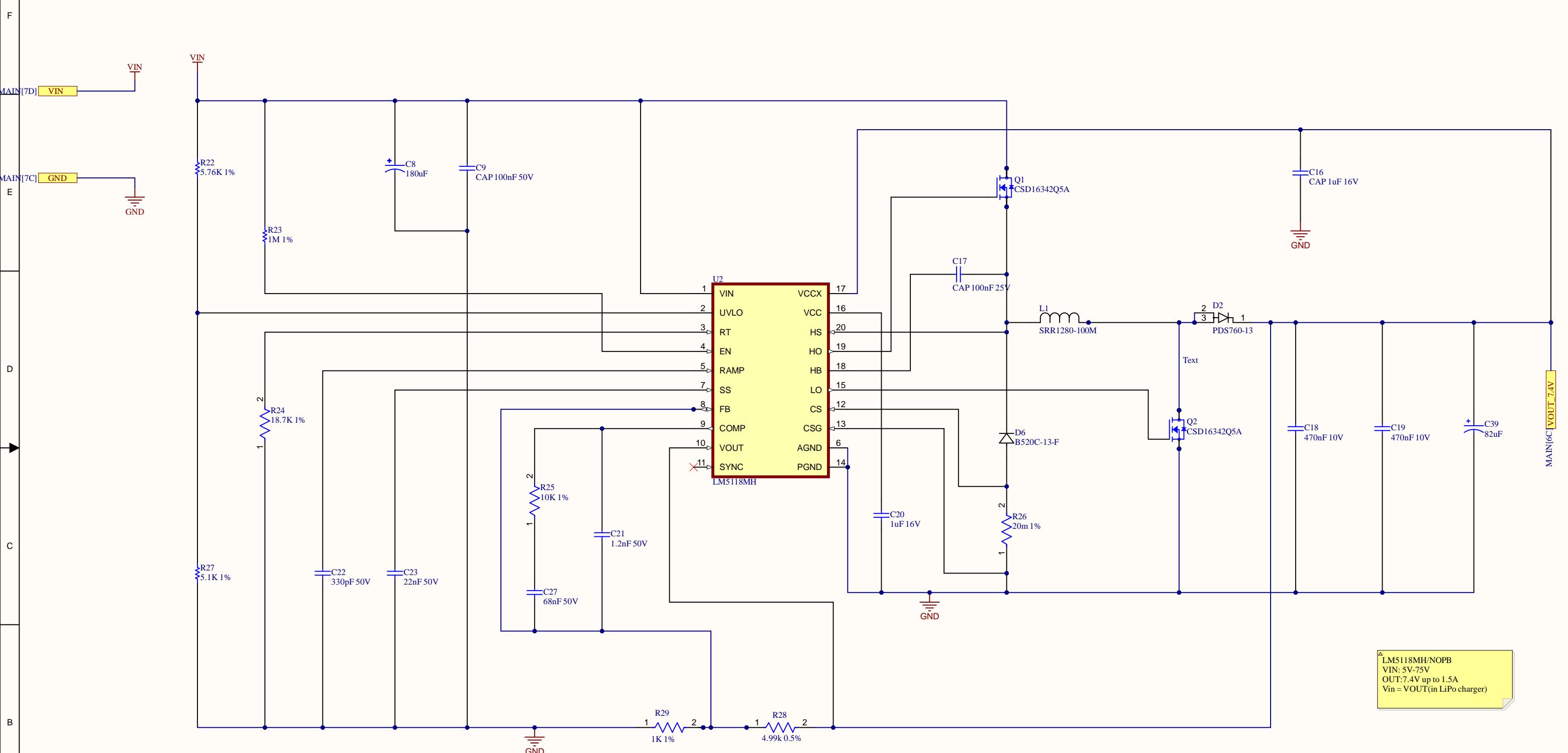
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REVISION	DESCRIPTION	DATE	APPROVED



APPROVALS	DATE	PROJECT	Penn Engineering	200 S 33 St Moore Building, Rm 101 Philadelphia, PA 19104
ENG: Xinyang Tan; Yuxin Wang		PROJECT REVISION:	DOCUMENT REVISION:	DESIGN ITEM:
DSN: Xinyang Tan; Yuxin Wang		* * * * *		
CHK: *		TITLE: Printer		
REFERENCE DOCUMENTS				
BOM:				
ASSY DWG:		SIZE	CAGE CODE	DWG NO.
FAB DWG:		B		REV 1.0
PCB DWG:		SCALE:	FILE NAME	FTDI.SchDoc
				SHEET 2 OF 9

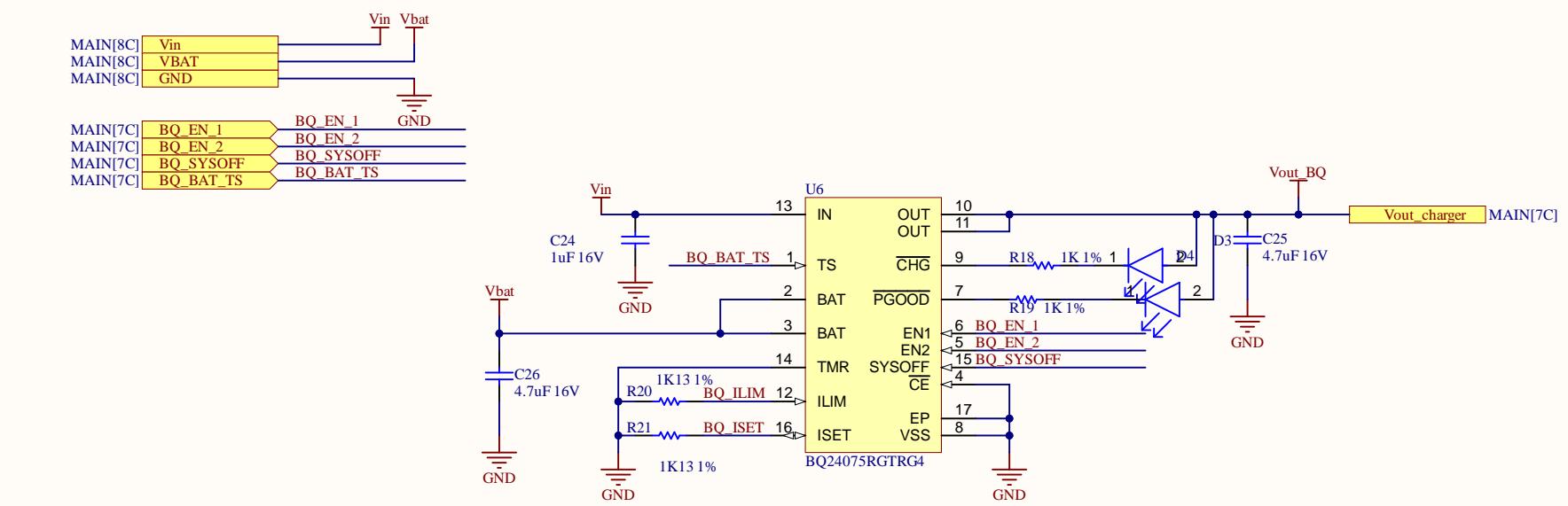
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ENG: Xinyang Tan; Yuxin Wang		PROJECT REVISION:	DOCUMENT REVISION: DESIGN ITEM:		
DSN: Xinyang Tan; Yuxin Wang		TITLE	Printer		
Printer					
BOM:	SIZE	CAGE CODE	DWG NO.		REV
ASSY DWG:	B				1.0
FAB DWG:					
PCB DWG:	SCALE:	FILE NAME	7.4v BOOST.schdoc	SHEET	3 OF 9

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DWG. NO.	1.0	REV. SHT.	1
REVISION	DESCRIPTION	DATE	APPROVED



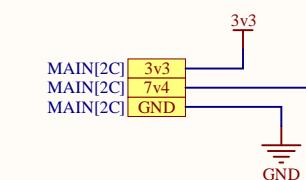
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ENG:	Xinyang Tan; Yuxin Wang	PROJECT REVISION:	DOCUMENT REVISION:	DESIGN ITEM:
DSN:	Xinyang Tan; Yuxin Wang	TITLE: Printer		
CHK:	*			
REFERENCE DOCUMENTS				
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ASSY DWG:		SIZE	CAGE CODE	DWG NO.
FAB DWG:		B		1.0
PCB DWG:		SCALE:	FILE NAME	LiPo_Charger.SchDoc

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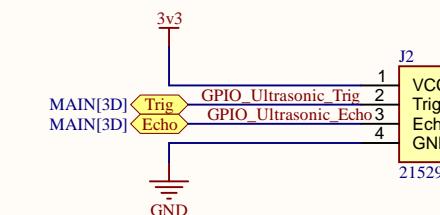
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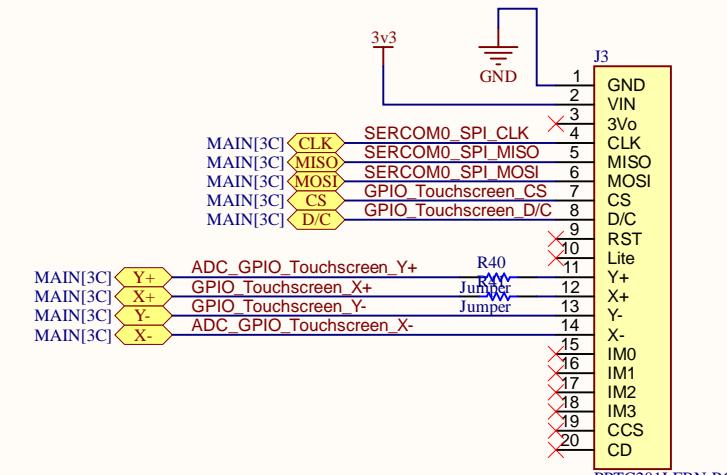
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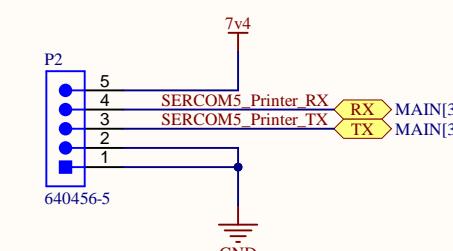
ULTRASONIC SENSOR CONNECTOR



TOUCHSCREEN CONNECTOR



THERMAL PRINTER CONNECTOR

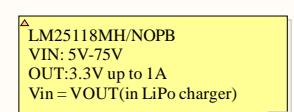
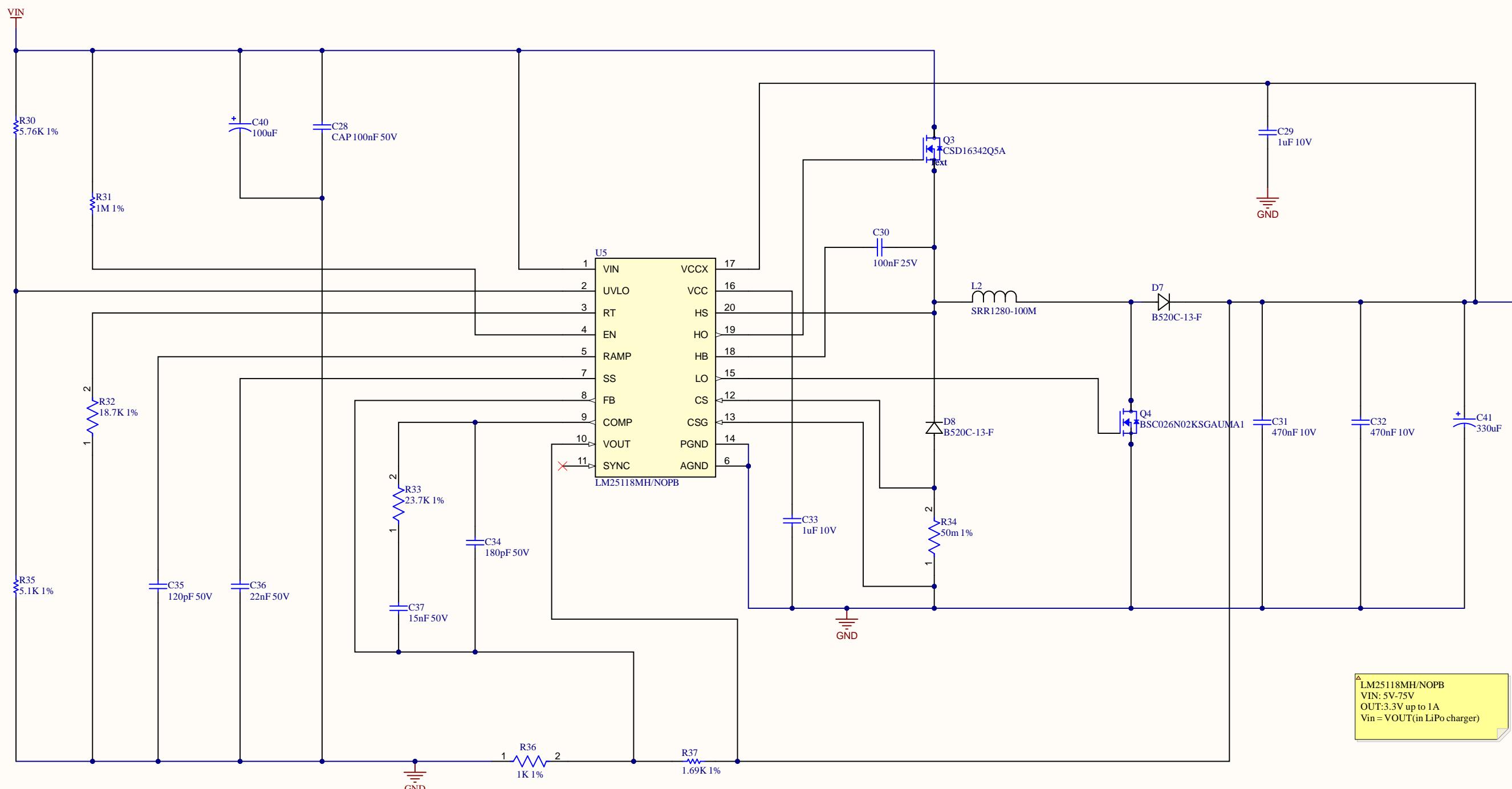


△ Thermal Printer needs 7.4v

APPROVALS	DATE	PROJECT	Penn Engineering	200 S 33 St Moore Building, Rm 101 Philadelphia, PA 19104
ENG:	Xinyang Tan; Yuxin Wang	PROJECT REVISION:	DOCUMENT REVISION:	DESIGN ITEM:
DSN:	Xinyang Tan; Yuxin Wang	*		
CHK:	*	TITLE		
REFERENCE DOCUMENTS		Printer		
BOM:	ASSY DWG:			SIZE
FAB DWG:	PCB DWG:			CAGE CODE
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	SCALE:	FILE NAME	Connector_circuit.SchDoc	REV
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REVISION	DESCRIPTION	DATE	APPROVED

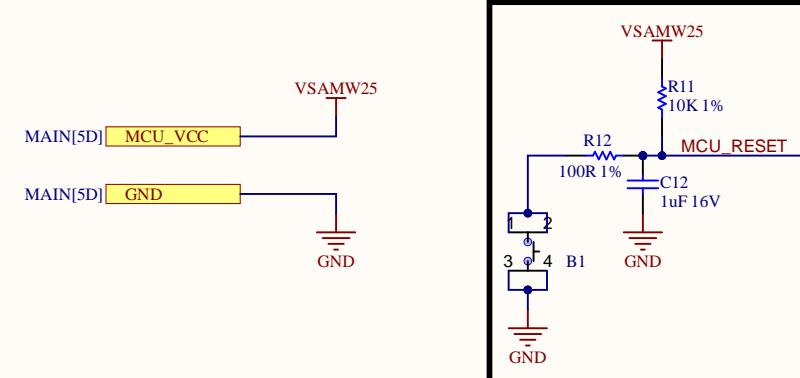


APPROVALS	DATE	PROJECT	200 S 33 St Moore Building, Rm 101 Philadelphia, PA 19104		
ENG: Xinyang Tan; Yuxin Wang			* UNIVERSITY OF PENNSYLVANIA		
DSN: Xinyang Tan; Yuxin Wang		PROJECT REVISION:	DOCUMENT REVISION:	DESIGN ITEM:	
CHK: *		TITLE			
REFERENCE DOCUMENTS					
BOM:					
ASSY DWG:		SIZE	CAGE CODE	DWG NO.	REV
FAB DWG:		B			1.0
PCB DWG:		SCALE:	FILE NAME	3.3_buck.schdoc	SHEET 6 OF 9

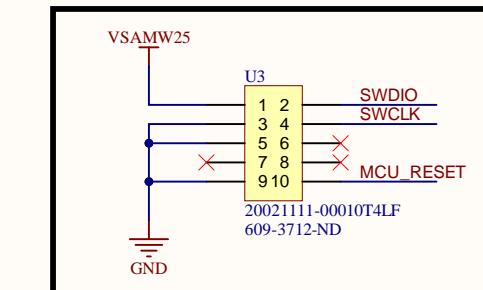
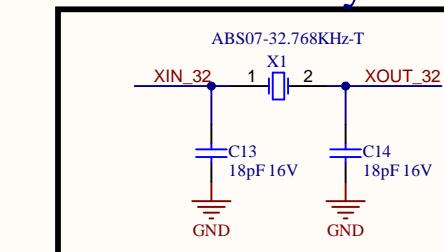
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REVISION	DESCRIPTION	DATE	APPROVED
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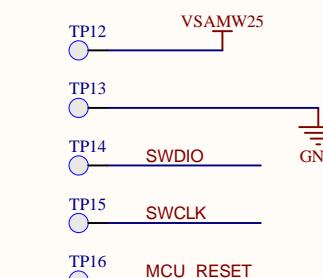
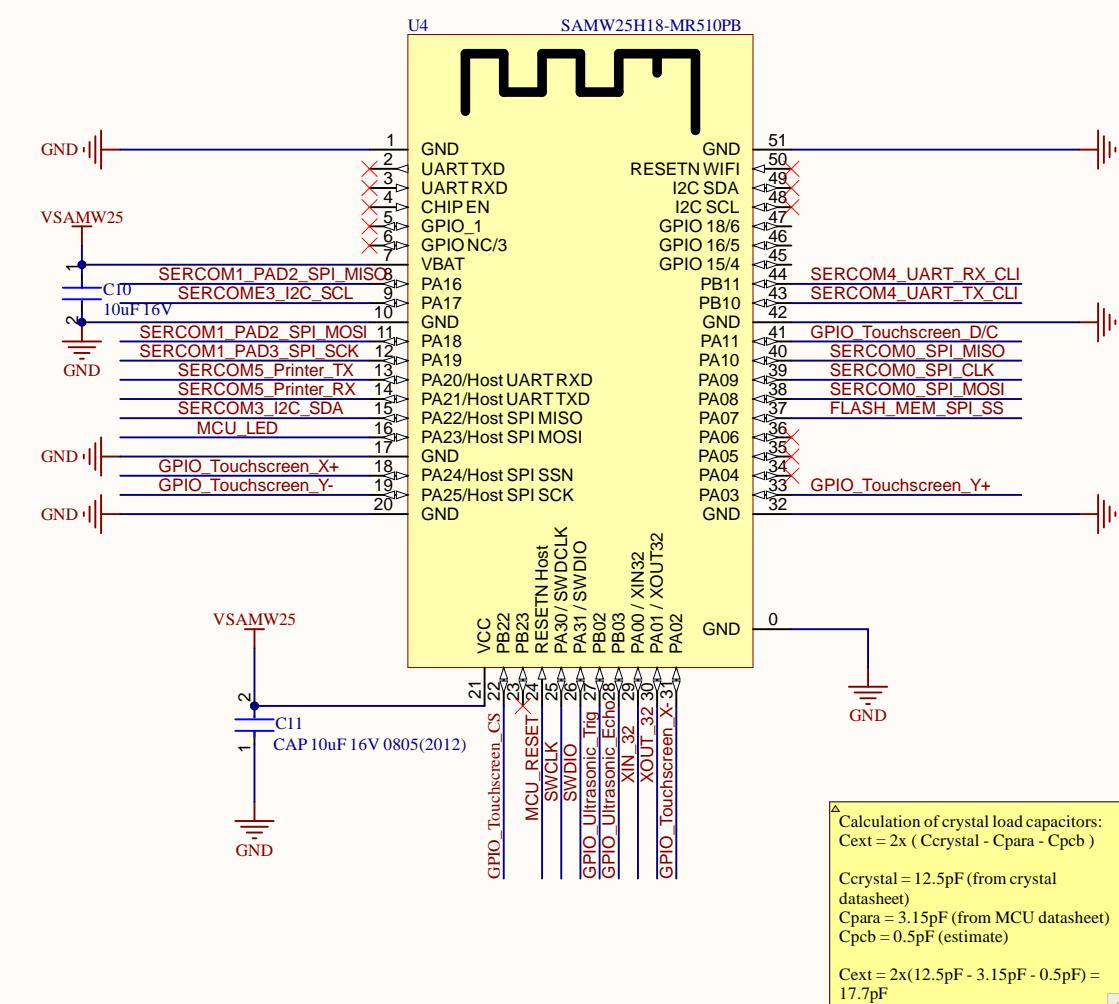
Reset Button



32.768 Crystal



DEBUGGER PORT



- SERCOM3_I2C_SDA tem_SDA MAIN[4E] MAIN[4E] This connects to the Temperature Sensor(in the board)
- GPIO_Ultrasonic_Trig Ult_Trig MAIN[4E] MAIN[4E] This connects to the Ultrasonic Sensor's Connector (Ultrasonic Sensor is out of board)
- SERCOM5_Printer_RX Prit_RX MAIN[4E] MAIN[4E] This connects to the Thermal Printer's Connector (Thermal Printer is out of the board)
- SERCOM0_SPI_CLK Touch_CLK MAIN[4C] MAIN[4C]
- SERCOM0_SPI_MISO Touch_MISO MAIN[4C] MAIN[4C]
- SERCOM0_SPI_MOSI Touch_MOSI MAIN[4C] MAIN[4C]
- GPIO_Touchscreen_CS Touch_CS MAIN[4C] MAIN[4C]
- GPIO_Touchscreen_D/C Touch_D/C MAIN[4C] MAIN[4C]
- GPIO_Touchscreen_Y+ Touch_Y+ MAIN[4C] MAIN[4C]
- GPIO_Touchscreen_X+ Touch_X+ MAIN[4C] MAIN[4C]
- GPIO_Touchscreen_Y- Touch_Y- MAIN[4C] MAIN[4C]
- GPIO_Touchscreen_X- Touch_X- MAIN[4C] MAIN[4C]

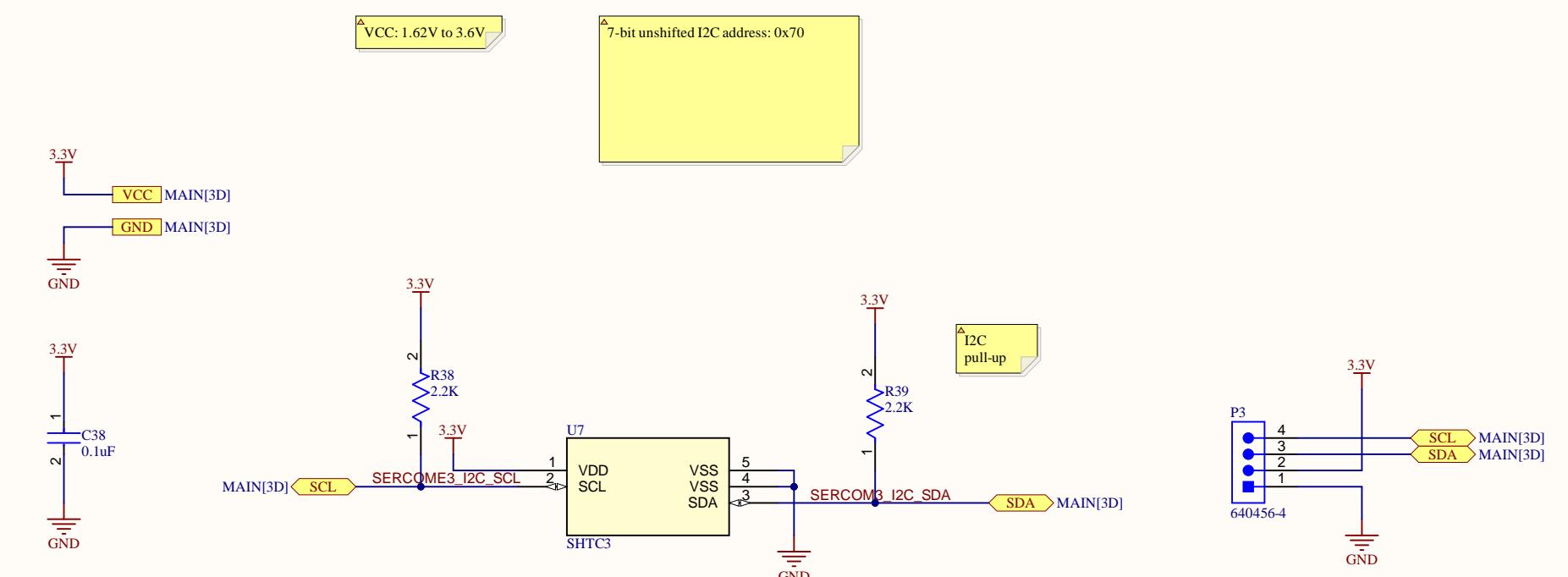
APPROVALS	DATE	PROJECT	Penn Engineering
ENG: Xinyang Tan; Yuxin Wang		200 S 33 St	Moore Building, Rm 101
DSN: Xinyang Tan; Yuxin Wang		University of Pennsylvania	Philadelphia, PA 19104
CHK: *		*	
REFERENCE DOCUMENTS		TITLE	
BOM:		Printer	
ASSY DWG:		SIZE	CAGE CODE
FAB DWG:		DWG NO.	
PCB DWG:		REV	1.0
SCALE:	FILE NAME	MCU.SchDoc	SHEET 7 OF 9

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DWG. NO.	1.0	REV. SHT.	1
REVISION	DESCRIPTION	DATE	APPROVED

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Temperature Sensor



APPROVALS	DATE	PROJECT	Penn Engineering	
ENG: Xinyang Tan; Yuxin Wang		200 S 33 St	Moore Building, Rm 101	
DSN: Xinyang Tan; Yuxin Wang		Philadelphia, PA 19104	*	
CHK: *		REFERENCE DOCUMENTS		
BOM:		ASSY DWG: []		
ASSY DWG:		FAB DWG: []		
FAB DWG:		PCB DWG: []		
PCB DWG:		SIZE	CAGE CODE	DWG NO.
		B		REV 1.0
SCALE:	FILE NAME	Temperature Sensor.SchDoc		SHEET 8 OF 9

PROJECT REVISION: DOCUMENT REVISION: DESIGN ITEM:
TITLE: Printer
BOM: ASSY DWG: FAB DWG: PCB DWG: SIZE CAGE CODE DWG NO. REV 1.0
SCALE: FILE NAME Temperature Sensor.SchDoc SHEET 8 OF 9

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REVISION	DESCRIPTION	DATE	APPROVED

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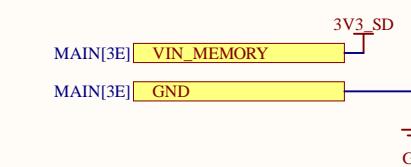
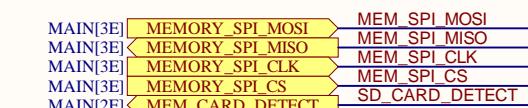
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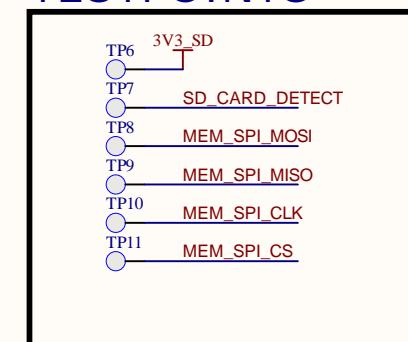
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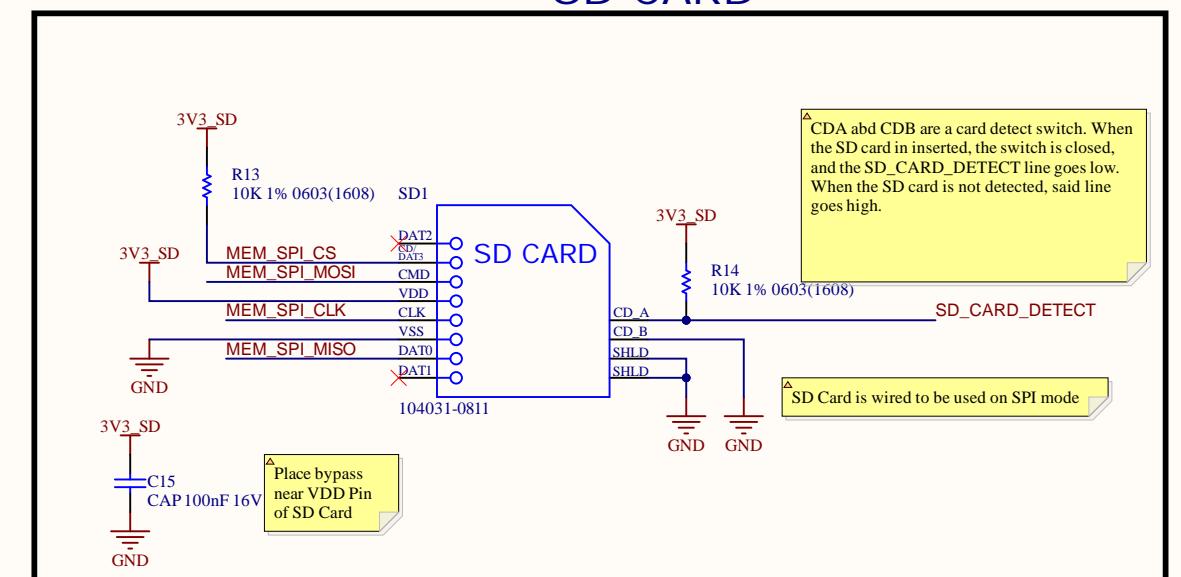
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TESTPOINTS



SD CARD



APPROVALS	DATE	PROJECT	Penn Engineering	200 S 33 St Moore Building, Rm 101 Philadelphia, PA 19104
ENG:	Xinyang Tan; Yuxin Wang	PROJECT REVISION:	DOCUMENT REVISION:	DESIGN ITEM:
DSN:	Xinyang Tan; Yuxin Wang	*		
CHK:	*	TITLE		
REFERENCE DOCUMENTS		Printer		
BOM:				
ASSY DWG:		SIZE	CAGE CODE	DWG NO.
FAB DWG:		B		REV 1.0
PCB DWG:		SCALE:	FILE NAME	Memory.SchDoc
		SHEET	9	OF 9

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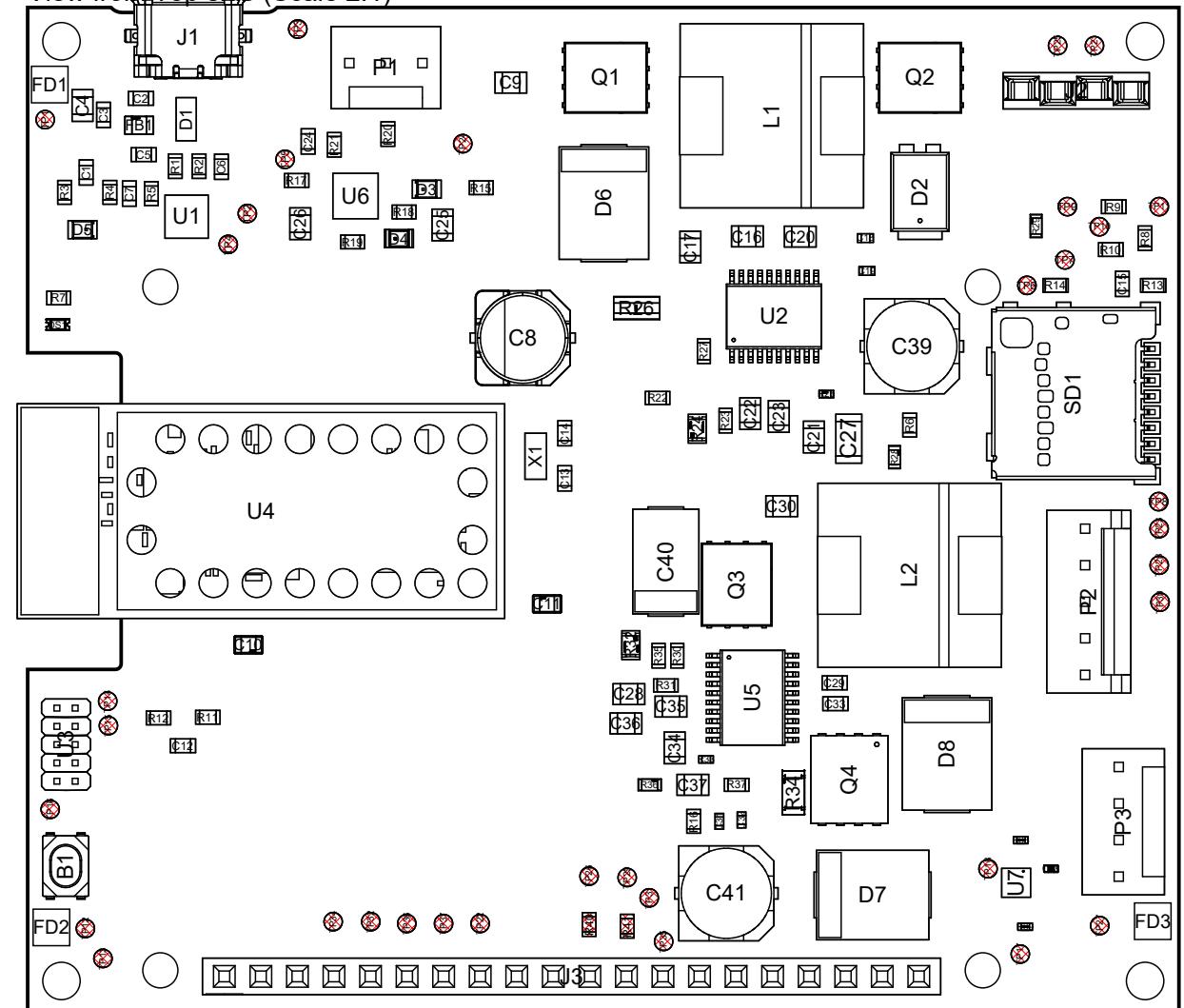
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Manufacturing Notes:

Four (4) Layers
Dimensions: 70.05mm x 80mm
Thickness: 0.062"
Material: FR4
All layers are unmirrored - should be able to "see straight through"
Scoring: none

Finished Thickness : 0.062 inches
Surface Finish : ENEPIG
Gold Fingers : No
Outer Layer Finish Copper : 1 Oz
Inner Copper : 0.5 oz Inners
Number of Holes Per Board: 267
Minimum Hole Size : 0.008 Inches or more
Minimum Trace (Outer layer) : 0.006 Inches
Minimum Space (Outer layer) : 0.006 Inches
Minimum Trace (Inner layer) : 0.006 Inches
Minimum Space (Inner layer) : 0.006 Inches
Solder Mask : Yes, Solder Mask Sides : Top and Bottom
Solder Mask Color : Green
Solder Mask Type : LPI
Solder Mask Finish : Standard (Semi-Gloss)
Silk Screen : Yes
Silk Screen Sides : Both
Silk Screen Color : White
Internal Slots : None
Counter Sink : No
Counter Bore : No
Edge Plating : No
Route and Retain : Yes
Scoring : Yes
Controlled Impedance : None
Controlled Dielectric : No
Thru-Hole Via in Pad : No
Thickness Tolerance : Plus or Minus 10%
Logo Allowed : In copper or silk screen
UL Marking Required : Yes
RoHS Marking : Yes
ITAR? : No

View from Top side (Scale 2:1)



REV STATUS
OF SHEETS

REV
SHEET

REV
ZONE

REV
E

REVISIONS		DESCRIPTION	DATE	APPROVED

Layer Stack Legend

Material	Layer	Thickness	Dielectric Material	Type	Gerber
Surface Material	Top Overlay			Legend	GTO
Copper	Top Solder	0.03mm	Solder Resist	Solder Mask	GTS
Copper	Top Layer	0.04mm		Signal	GTL
Prepreg		0.33mm	PP-006	Dielectric	
CF-004	GroundPlane	0.02mm		Signal	G1
Core		0.71mm	Core-009	Dielectric	
CF-004	PowerPlane	0.02mm		Signal	G2
Prepreg		0.33mm	PP-006	Dielectric	
Copper	Bottom Layer	0.04mm		Signal	GBL
Surface Material	Bottom Solder	0.03mm	Solder Resist	Solder Mask	GBS
	Bottom Overlay			Legend	GBO

Total thickness: 1.53mm

PART NO: =PCB_PART_NUMBER

APPROVALS DATE

ENGINEER: =PCB_ENGINEER

DESIGNER: =PCB_DESIGNER

CHECKER: =PCB_CHECKER

PCB CHECKER

Reference Documents

BOM DOC: =DOC_NO_BOM

ASSY DOC: =DOC_NO_FAB_DWG

SCH DOC: =DOC_NO_SCH_DWG

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APPLICATION

Altium
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=Address2

=Address3

=Address4

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DESIGN ITEM REVISION: .ItemRevision

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SIZE: CAGE CODE: DWG NO:

B =CAGE_CODE

SCALE:

FILE NAME:

PrinterBoardFabrication.PCBDwf

.lt
DWG NO:
=DOC_NO_ASSY_DWG

REV:

1 OF 12

1

Drill Drawing View (Scale 5:2)



1

Drill Tab

Symbol	Count	Hole Size	Plated	Hole Toler
X	213	0.20mm	Plated	
☆	10	0.65mm	Plated	
+	4	0.90mm	Plated	
☒	20	1.25mm	Plated	
□	12	1.27mm	Plated	
○	4	2.54mm	Plated	
▽	4	2.70mm	Plated	
267 Total				

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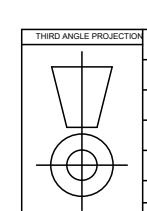
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APPROVALS	DATE
ENGINEER:	

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=Address1
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Altium

1



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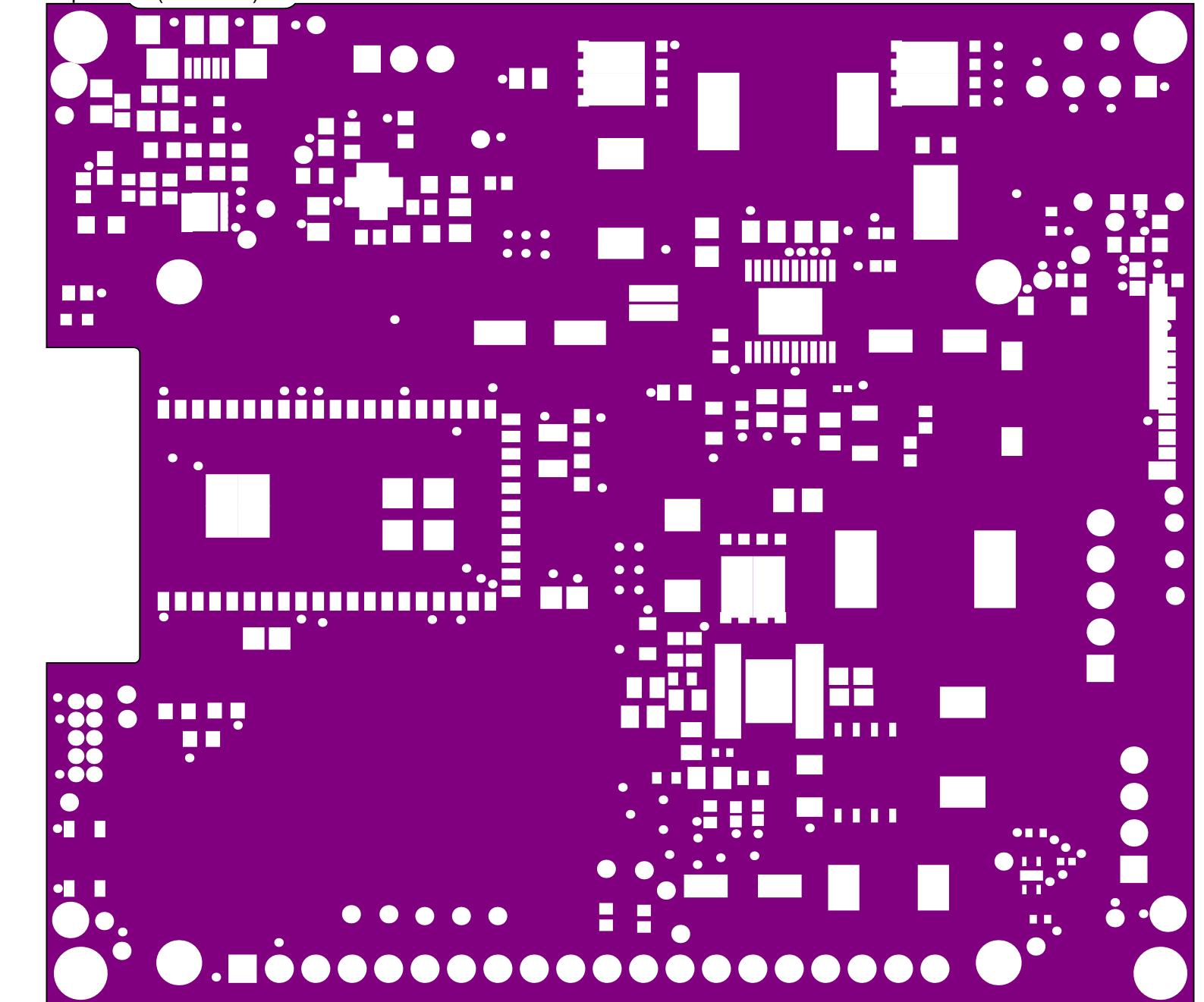
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DWG NO. =DOC_NO_ASSY_DWG		DWG NO. =DOC_NO_ASSY_DWG		REV							
ZONE		REV									

REVISIONS		
DESCRIPTION	DATE	APPROVED

Top Solder (Scale 5:2)



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APPROVALS DATE

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DESIGNER: =PCB_DESIGNER PCB_DESIGNER

CHECKER: =PCB_CHECKER PCB_CHECKER

Reference Documents

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ASSY DOC: =DOC_NO_FAB_DWG

SCH DOC: =DOC_NO_SCH_DWG

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=Address3
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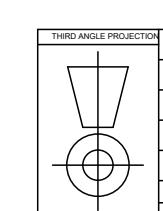
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=DOC_NO_ASSY_DWG

THIRD ANGLE PROJECTION											

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DWG NO.
=DOC_NO_ASSY_DWGDWG NO:
B =CAGE_CODE

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DWG NO.
=DOC_NO_ASSY_DWGDWG NO:
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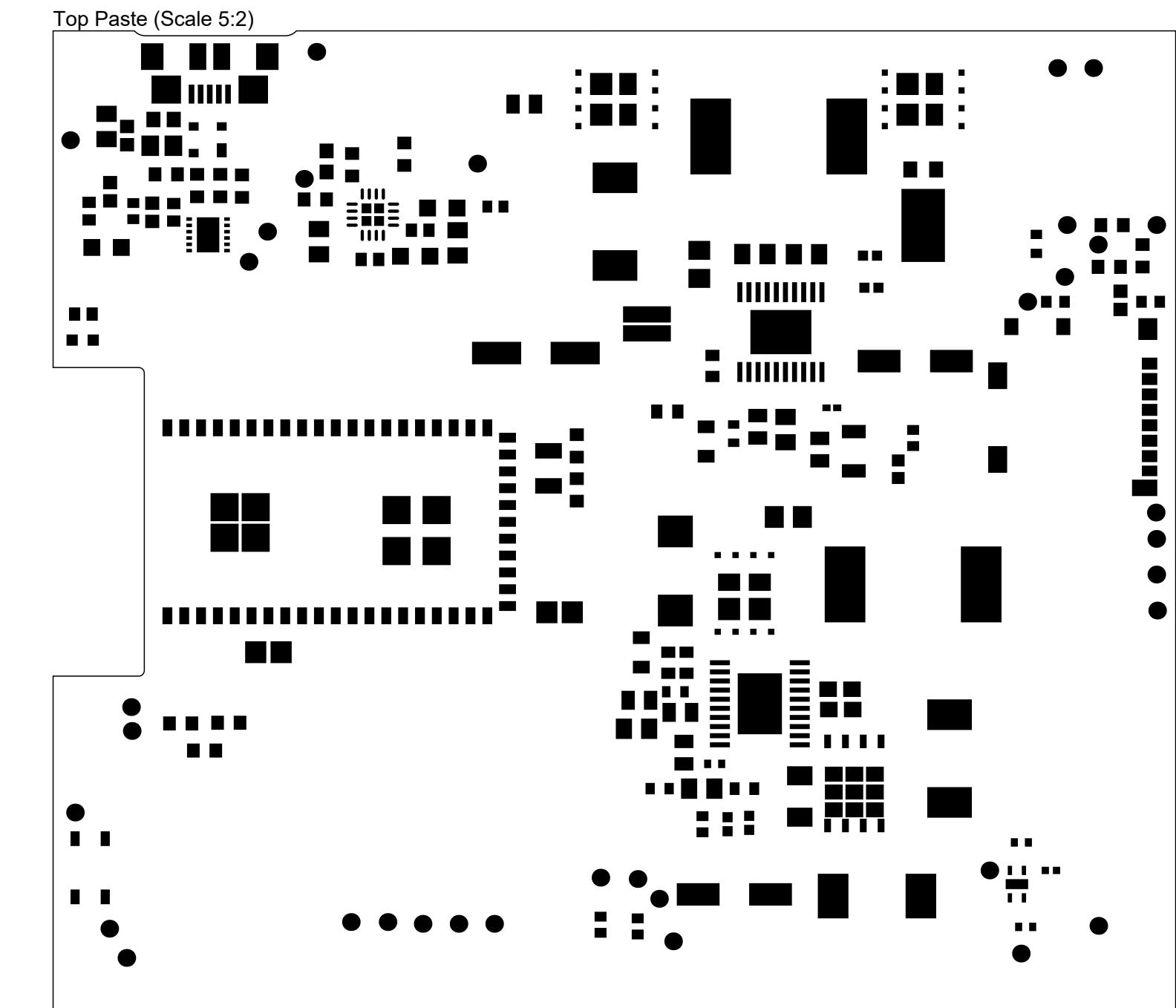
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REV STATUS OF SHEETS	SHEET	

REVISIONS		
DESCRIPTION	DATE	APPROVED



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APPROVALS DATE

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DESIGNER: =PCB_DESIGNER

CHECKER: =PCB_CHECKER

REFERENCE DOCUMENTS

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Altium
 TM

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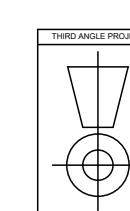
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REV:



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5 OF 12

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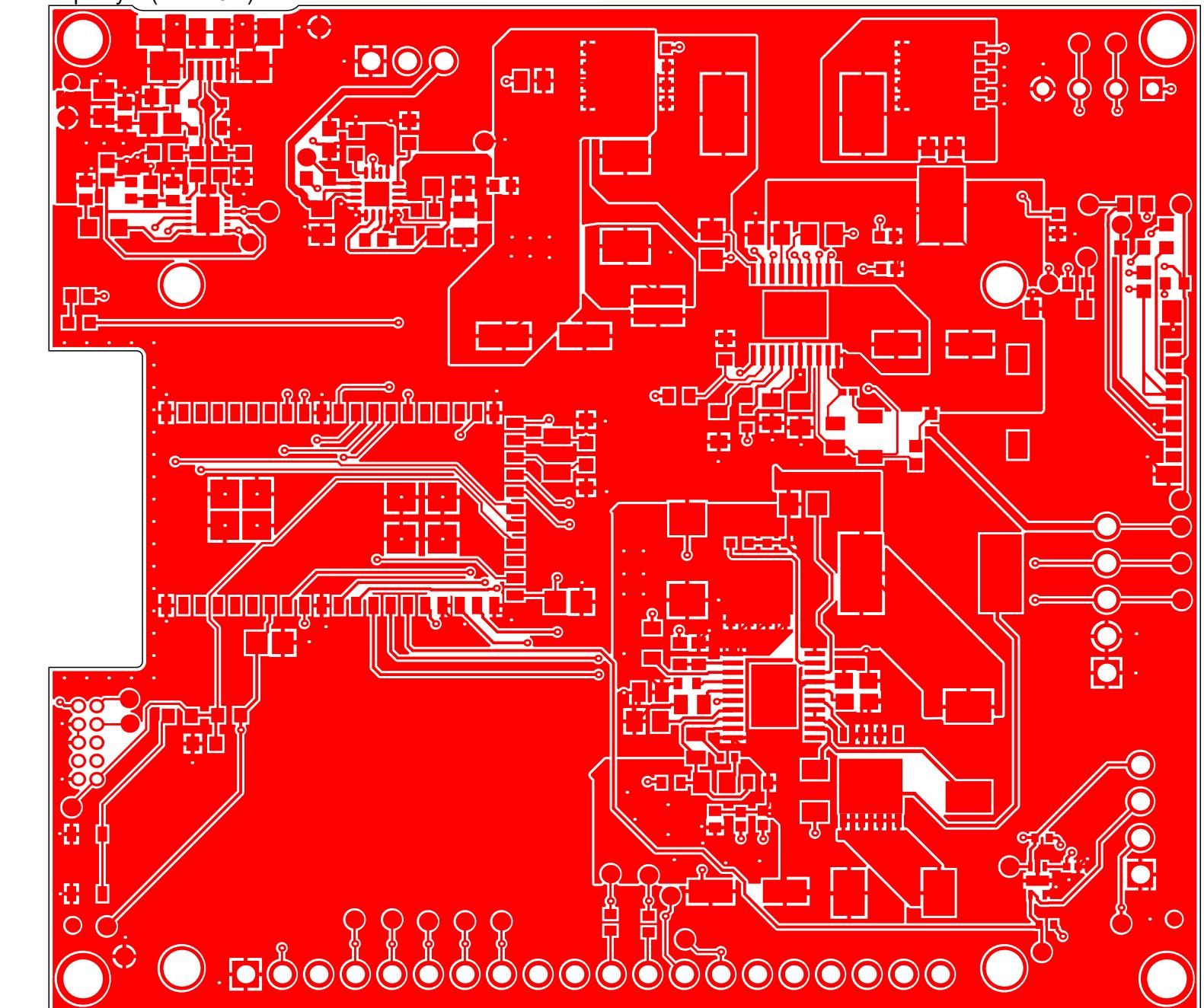
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SHEET							

REVISIONS		DESCRIPTION	DATE	APPROVED

Top Layer (Scale 5:2)



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DESIGNER:	=PCB_DESIGNER	=PCB_DESIGNER		
CHECKER:	=PCB_CHECKER	=PCB_CHECKER		
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		SIZE: CAGE CODE: DWG NO: B =CAGE_CODE	REV:	
		SCALE: FILE NAME: PrinterBoardFabrication.PCBDwf	6 OF 12	

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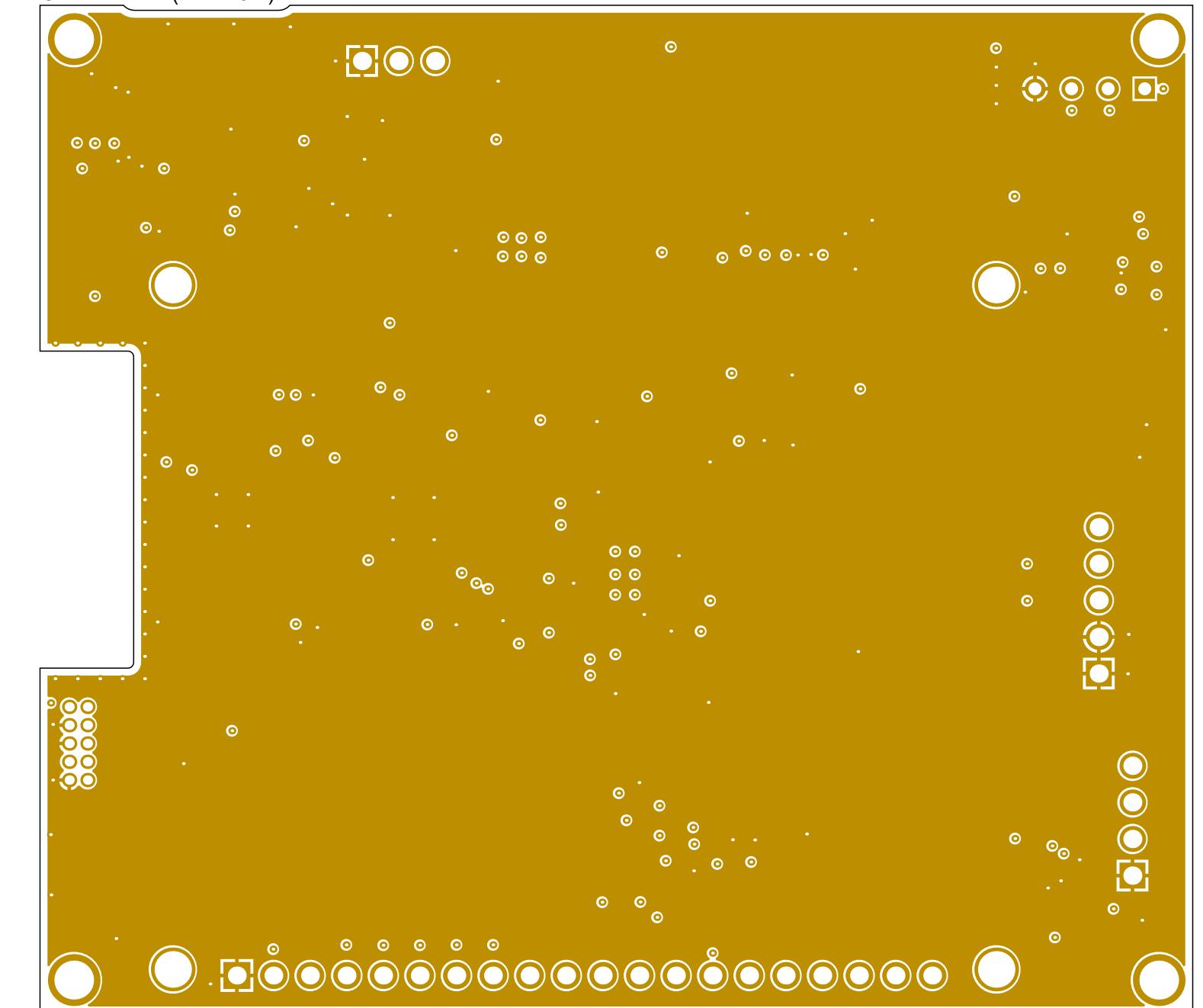
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REV STATUS OF SHEETS	SHEET		

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

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GroundPlane (Scale 5:2)



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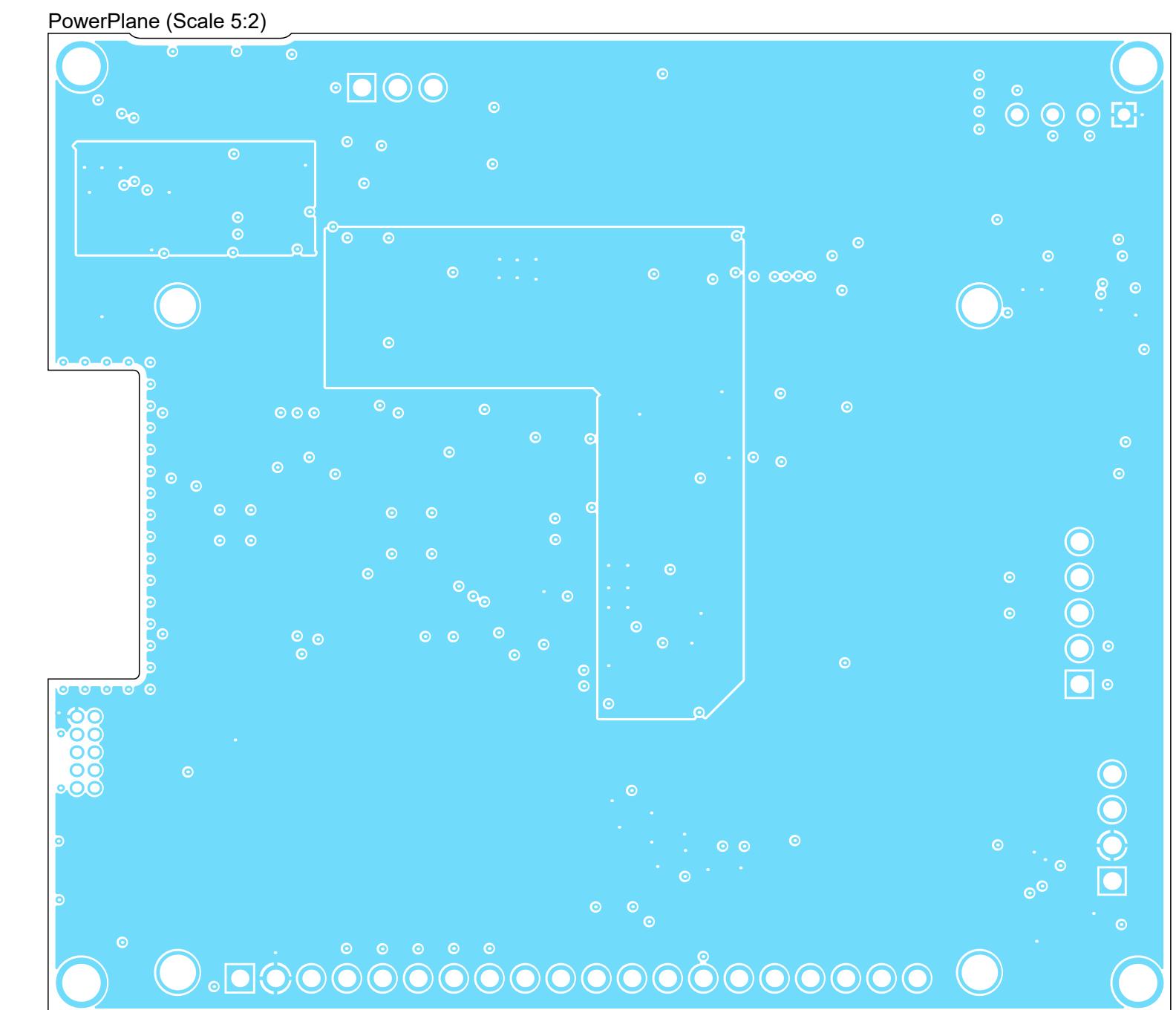
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REV STATUS OF SHEETS		REV									
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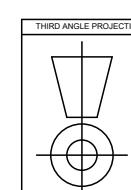
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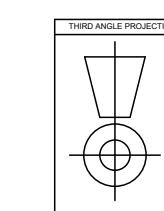
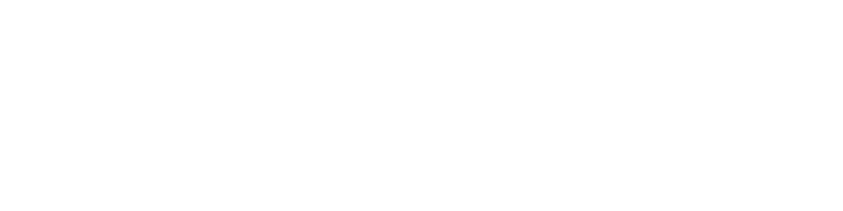
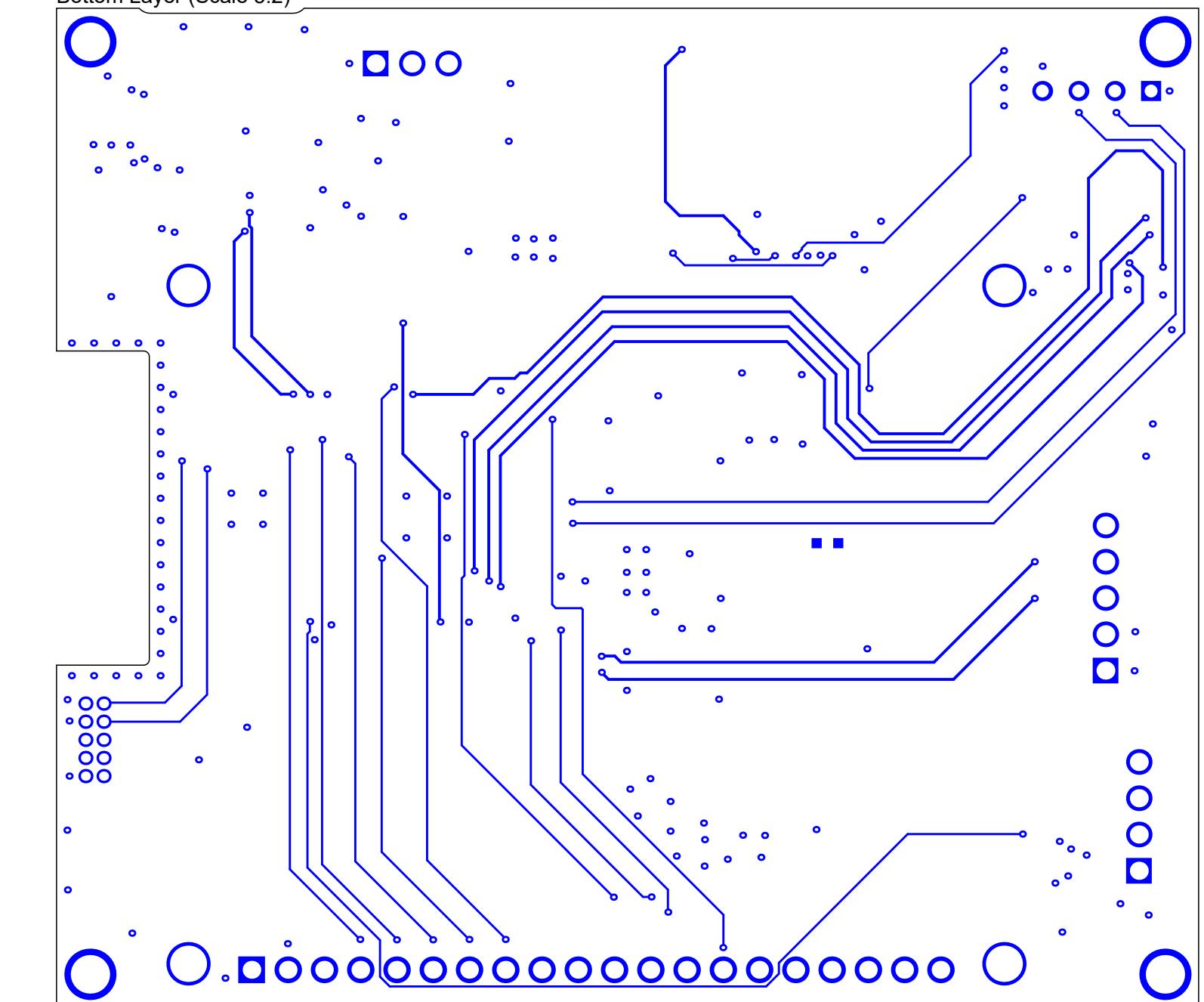
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Bottom Layer (Scale 5:2)



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FILE NAME:

PrinterBoardFabrication.PCBDwf

SHEET:

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OF

12

Bottom Paste (Scale 5:2)



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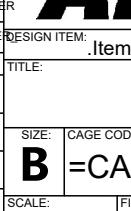
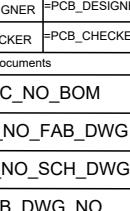
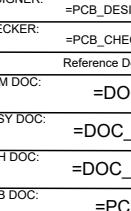
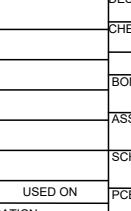
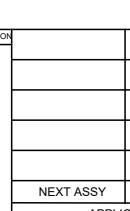
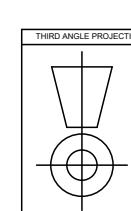
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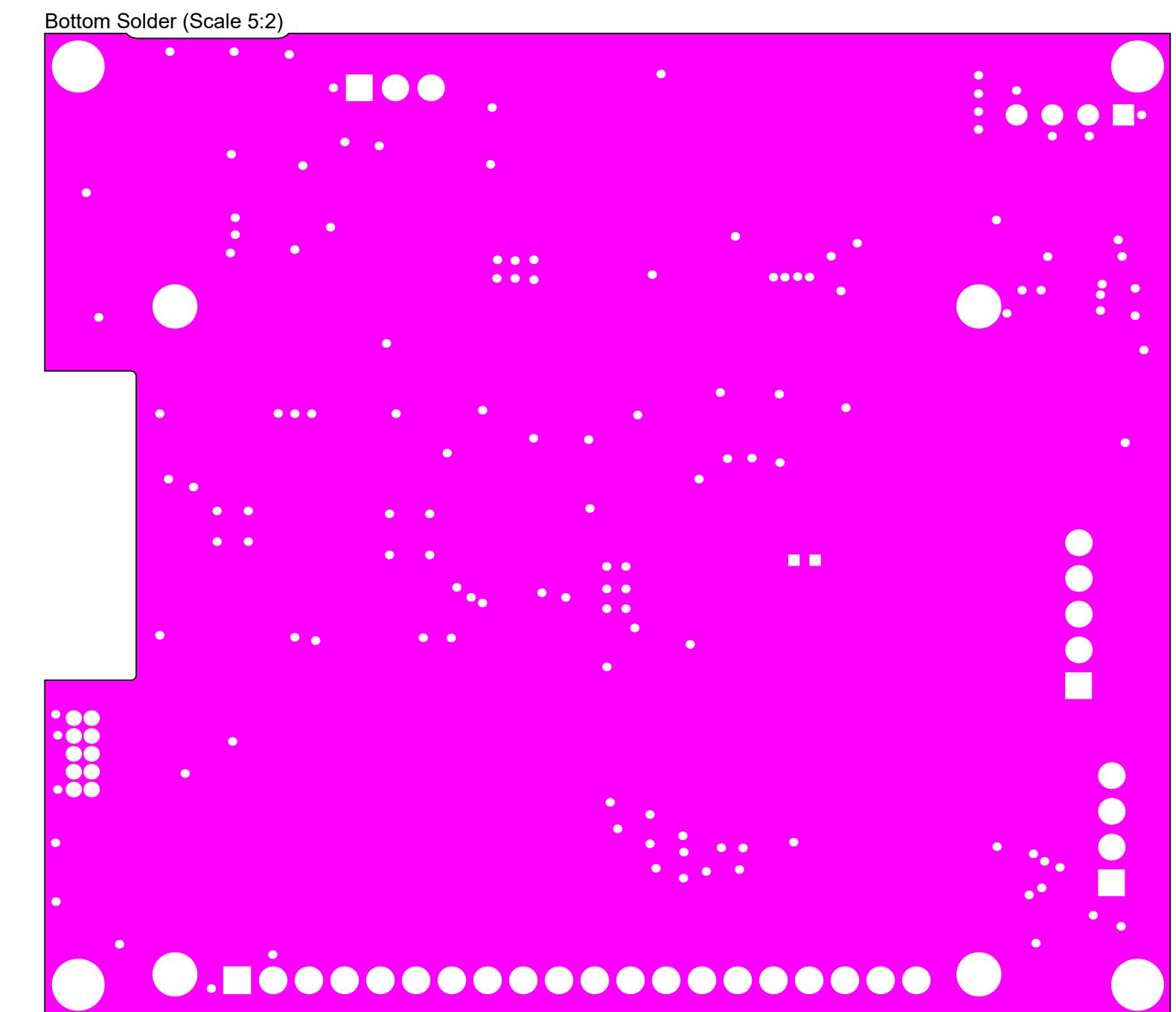
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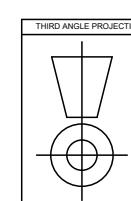
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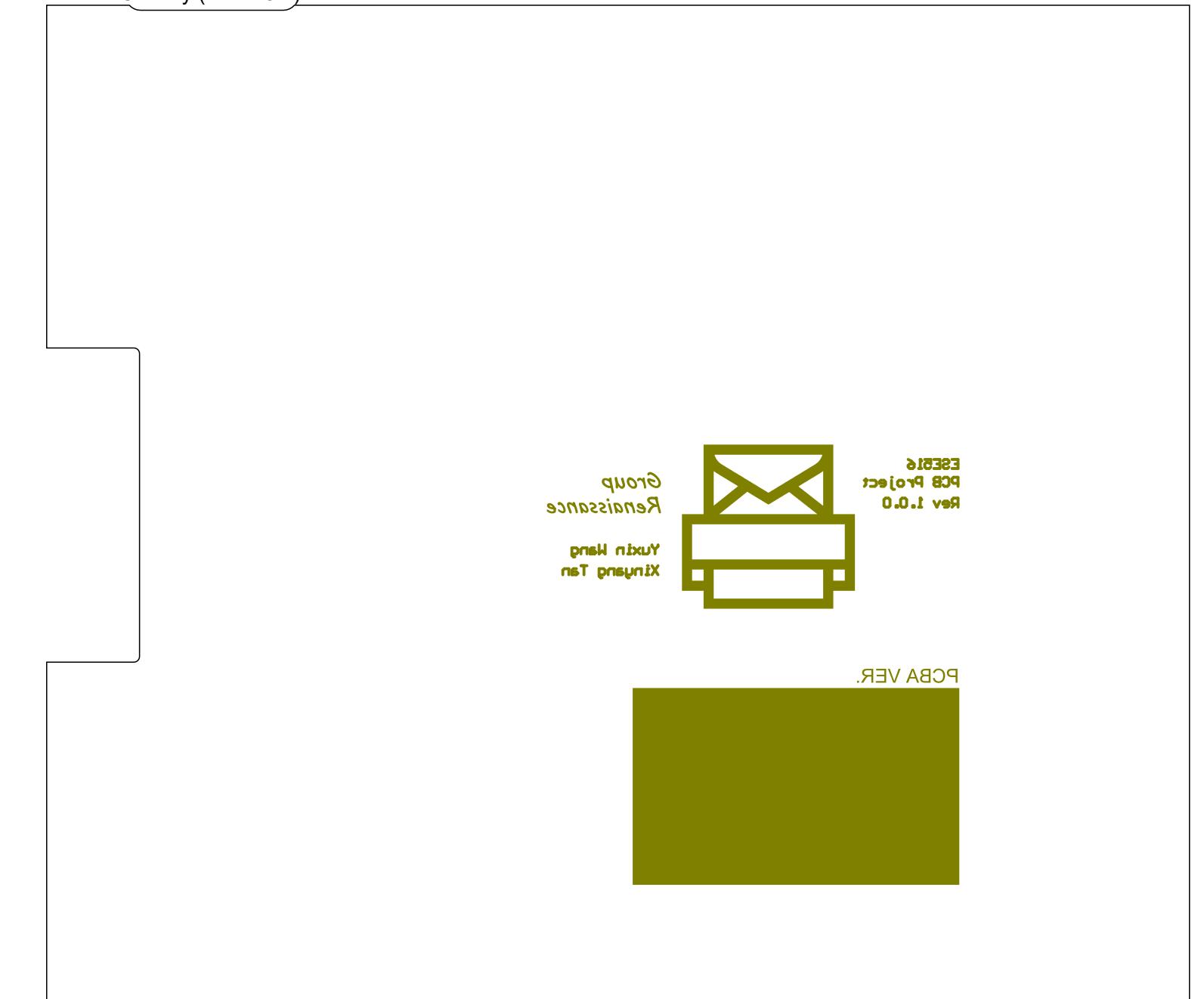
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Bottom Overlay (Scale 5:1)



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SCALE:	FILE NAME:	PrinterBoardFabrication.PCBDwf	
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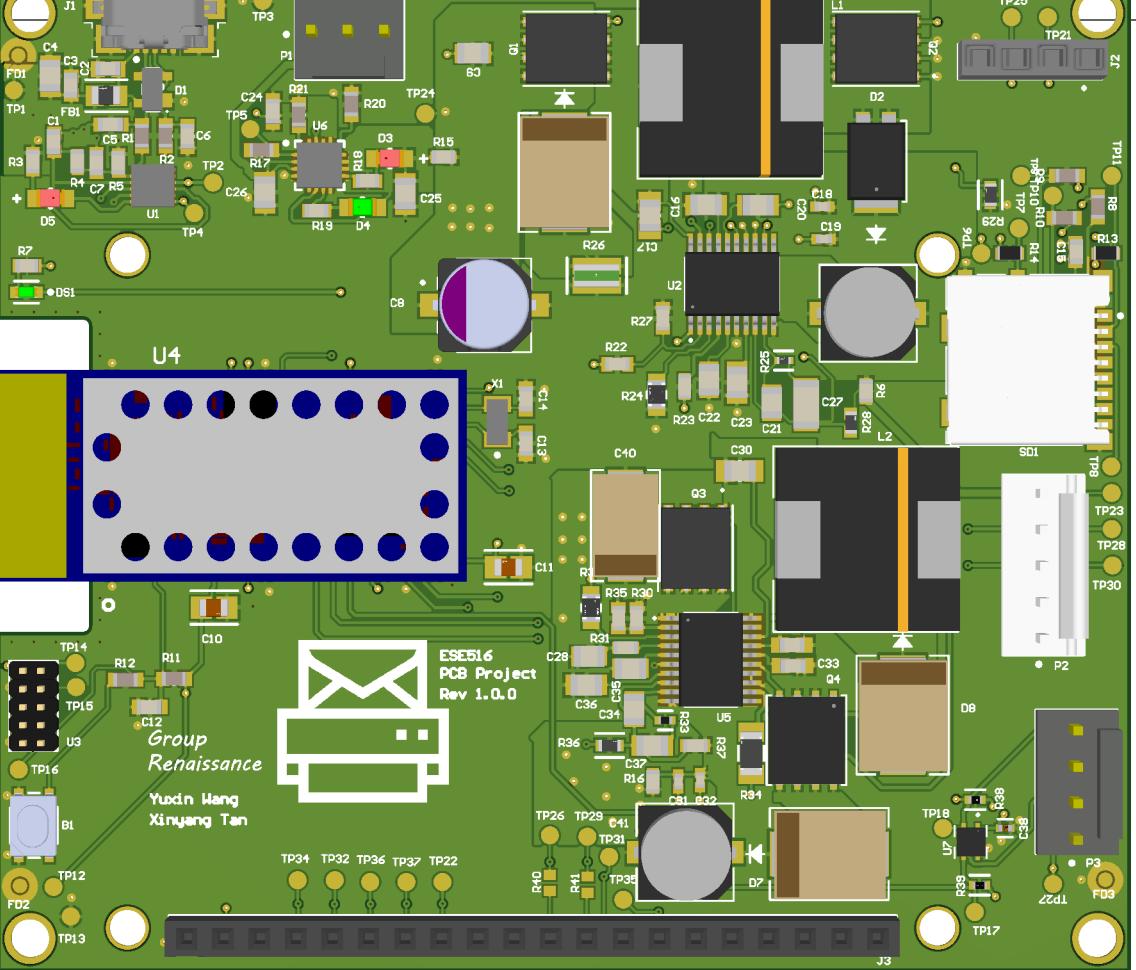
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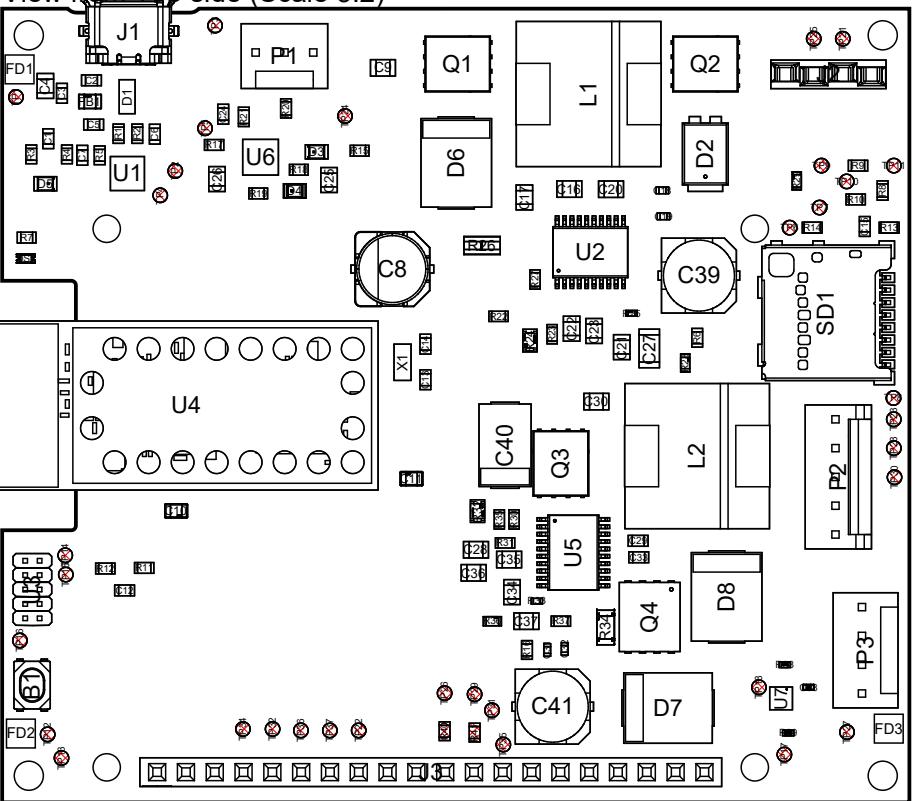
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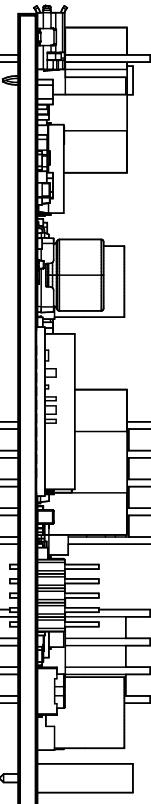
1. THIS ITEM IS ELECTROSTATIC SENSITIVE AND SHALL BE HANDLED ACCORDINGLY
2. WORKMANSHIP WILL CONFORM TO IPC-610 CLASS 2, IPC-7711 WILL APPLY TO ALL REQUIRED REWORK OR MODIFICATION
3. ASSEMBLY IS TO BE IDENTIFIED BY A LABEL INDICATING- SERIAL NUMBER PART NUMBER and REVISION VENDOR DATE CODE
4. THE SUPPLIED INSERTION DATA FOR THIS PCBA IS PROVIDED TO ASSIST PROGRAMMING, COMPONENT OFFSET AND ROTATION ARE RELATIVE TO THE ENGINEERING DESIGN ENVIRONMENT AND MAY NOT MATCH REEL PACKAGING OR FEED ORIENTATION, COMPONENTS, ESPECIALLY POLARIZED PARTS, MUST BE VERIFIED AGAINST THE ACTUAL PCBA DRAWING TO INSURE PROPER INSTALLATION



View from Top side (Scale 3:2)



View from Left side (Scale 3:2)



View from Bottom side (Scale 3:2)

