ECN	REV	DESCRIPTION
DCN 104	01	Initial Release. Never Build by SBI
-----	02	Removed text over traces on internal flex layer 3. Never released
DCN 110	03	Updated manufacturing notes, PCB layer stack, and drill tolerances on drill chart
DCN 120	04	- Updated layer stack - Updated Notes - Deleted duplicate Note 1E, (Same as Note 1B) - Moved Drill Files Chart from page3 to Page 2 - Added Gerber File Chart

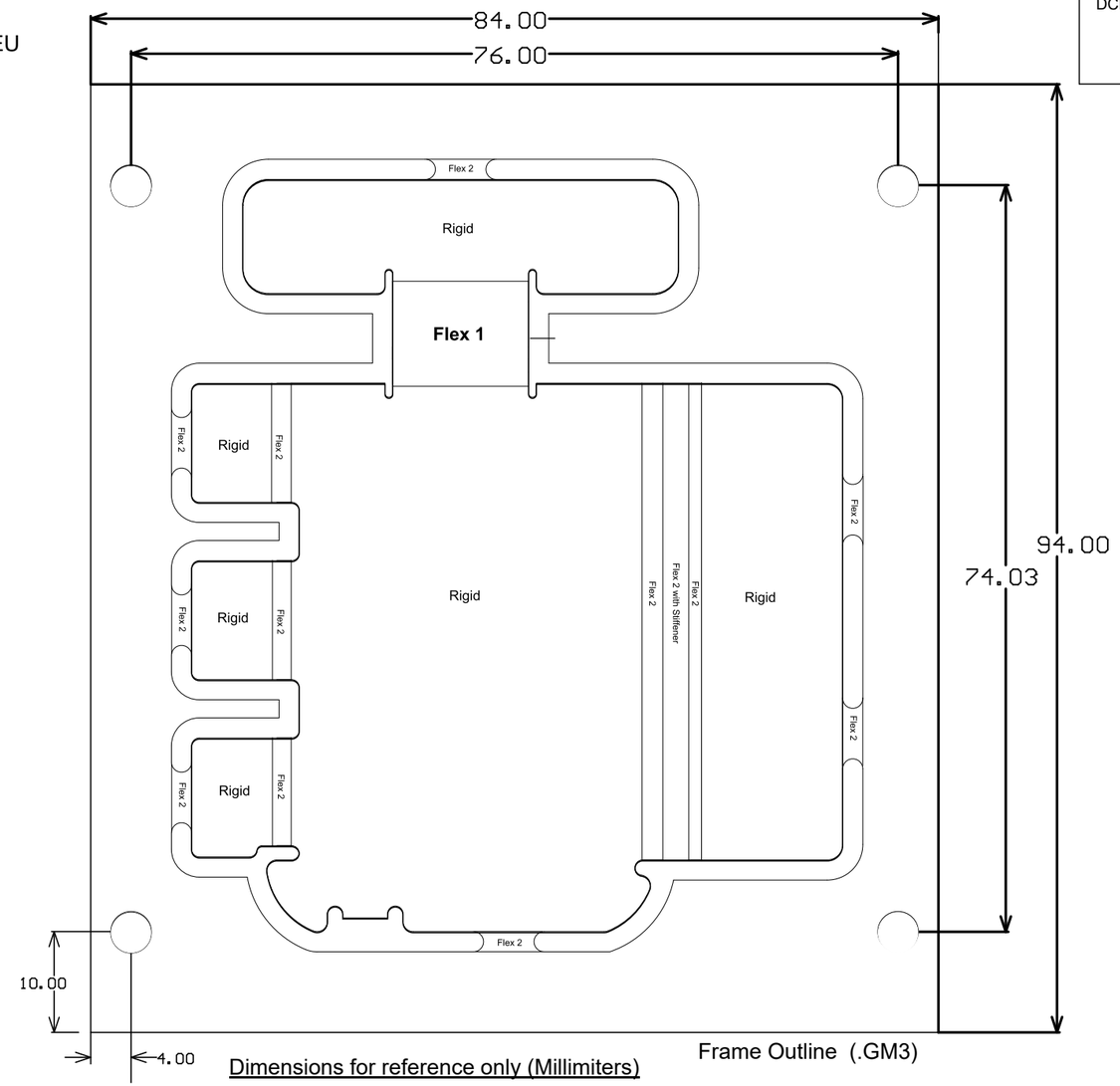
1. Board Technology
A. Fabricate Rigid-Flex PCB in accordance with IPC-6013 and IPC 2223, Type 4, Class 3
B. All materials must be compliant with the European Union RoHS 2 directive, 011/65/EU
C. Maximum overall rigid thickness shall not exceed 925um. This is measured over finished plated surfaces.
D. Finished hole size unless noted should be +/- 3 mil (0.076mm)
2011/65/EU
E. Finish shall be ENIG
1. Electroless nickel thickness in accordance with IPC-4552
2 Immersion Gold thickness in accordance with IPC-4552
F. Soldermask shall be Blue on both sides in accordance with IPC-SM-840 Class H.
G. Silkscreen - No silkscreen on either side.
H. Supplier must notify and receive approval from Synapse Biomedical Inc. before making any modifications to the design process or any changes to the materials used during the manufacturing of this assembly.

2. Certificate of Conformity:
A. Complete description of the item with revision
B. Number of lot and Date Code
C. Delivered quantity
D. RoHS compliance
E. Remark/Exception as concession note
F. Name of the responsible with signature and date

3. Inspection Report:
A. Type of used base material and metallizations processes
1. Brand, reference and lot number of used base material
2. Used metallization and processes (chemical/galvanic) on Cu, Ni and Au
B. Visual checks and results:
1. Aspect (contamination, color, asperities, residues, mark, scraping, repair, etc.)
2. Open, short-circuit, etching non-conformities
3. Metallization adherence in accordance with IPC-TM-650 -- Method 2.4.1
4. Solder mask adherence in accordance with IPC-TM-650 -- Method 2.4.28.1
C. Dimensional checks and results:
1. Length and width of Strip
2. Length, width and total thickness of circuit
3. Diameter of index holes.
4. The thickness of nickel and gold metallizations shall be measured in accordance with IPC-4552 and a report of the measurements shall be provided.
D. Electrical Test:
1. Continuity and shorts 100% tested.

4. Micro section report:
A. Configuration of stack-up with measurements of different thicknesses
B. Thickness of Copper metallization.

5. Solderability test report:
A. Result of the solderability test according to ANSI/J-STD-003 -- Category 2 Test A -Hand Dipped



Dimensions for reference only (Millimiters)

Frame Outline (.GM3)

BY	DATE
DRAWN R. Yoder	10-4-2018
CHECKED A. Zbrzeski	10-4-2018
MATERIAL SEE NOTES	
FINISH SEE NOTES	

SYNAPSE Biomedical Inc.

DOCUMENT NAME
NNP Power Module PCB, Unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2001	04

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Layer Stack

Flex Area 1	Rigid Area	Flex Area 2	Flex Area 2 with Stiffener
	Paste Mask, GTP Solder Mask, 1.0mil, GTS		
	Layer 1, 0.5 oz base, 0.7mil, Copper, GTL		
	Dielectric, 2.75mil, Prepreg 1080NF IT 180A		
	Layer 2, 0.7mil, Copper, G1		
	Dielectric, 6.0mil, FR4 0.006 IT 180A		Core, 12.0mil, 0.012 IT 180A
	Layer 3, 0.7mil, Copper, G2		Flex Bond-Ply, 1.0mil, PSA
Flex Coverlay Top, 2.0mil, MCL Plus 110	Dielectric, 5.5mil, Prepreg 1080NF IT 180A	Flex Coverlay, 2.0mil, MCL Plus 110	Flex Coverlay Top, 2.0mil, MCL Plus 110
Layer 4, 0.7mil, Copper	Layer 4, 0.7mil, Copper, G3	Layer 4, 0.7mil, Copper	Layer 4, 0.7mil, Copper
Dielectric (Core), 2.0mil, Polyimide RF775 0.002 H/H	Dielectric (Core), 2.0mil, Polyimide RF775 0.002 H/H	Dielectric (Core), 2.0mil, Polyimide RF775 0.002 H/H	Dielectric (Core), 2.0mil, Polyimide RF775 0.002 H/H
Layer 5, 0.7mil, Copper	Layer 5, 0.7mil, Copper, G4	Flex Coverlay, 2.0mil, MCL Plus 110	Flex Coverlay Bottom, 2.0mil, MCL Plus 110
Flex Coverlay Bottom, 2.0mil, MCL Plus 110	Dielectric, 5.5mil, Prepreg 1080NF IT 180A		Flex Bond-Ply, 1.0mil, PSA
	Layer 6, 0.7mil, Copper, G5		Core, 12.0mil, 0.012 IT 180A
	Dielectric, 6.0mil, FR4 0.006 IT 180A		
	Layer 7, 0.7mil, Copper, G6		
	Dielectric, 2.75mil, Prepreg 1080 NFIT 180A		
	Layer 8, 0.5 oz base, 0.7mil, Copper, GBL		
	Paste Mask, GBP Solder Mask, 1.0mil, GBS		

Gerber Files

.GTO Rev. 04	Top Overlay
.GTP Rev.04	Top Paste
.GTS Rev. 04	Top Mask
.GTL Rev. 04	Top Copper
.G1 Rev. 04	Layer 2 GND, Plane
.G2 Rev.04	Layer 3 Rigid, Singal 1
.G3 Rev. 04	Layer 4 Flex, Singal 2
.G4 Rev. 04	Layer 5 Flex, Signal3
.G5 Rev. 04	Layer 6 3.3V, Plane
.G6 Rev. 04	Layer 7 GND, Plane
.GBL Rev. 04	Bottom Copper
.GBS Rev. 04	Bottom Mask
.GBP Rev. 04	Bottom Paste
.GBO Rev. 04	Bottom Overlay
.GM3 Rev. 04	Frame Outline

Drill Files

.GD1 Rev. 04	Drill Table 1, L1 Top - L8 Bottom
.GD2 Rev. 04	Drill Table 2, L1 Top - L2 Ground 1
.GD3 Rev. 04	Drill Table 3, L8 Bottom - L7 Ground 2
.GG1 Rev. 04	Drill Guide 1, L1 Top - L8 Bottom
.GG2 Rev. 04	Drill Guide 2, L1 Top - L2 Ground 1
.GG3 Rev. 04	Drill Guide 3, L8 Bottom - L7 Ground 2
.TXT Rev. 04	NC Drill 1, L1 Top - L8 Bottom
.TXT1 Rev. 04	NC Drill 2, L1 Top - L2 Ground 1
.TXT2 Rev. 04	NC Drill 3, L8 Bottom - L7 Ground 2
.apr Rev. 04	Aperture APR File

BY	DATE
DRAWN R. Yoder	10-4-2018
CHECKED A. Zbrzeski	10-4-2018

MATERIAL: See Notes

FINISH: See Notes

SYNAPSE Biomedical Inc.

DOCUMENT NAME: NNP Power Module PCB,

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Drill Table

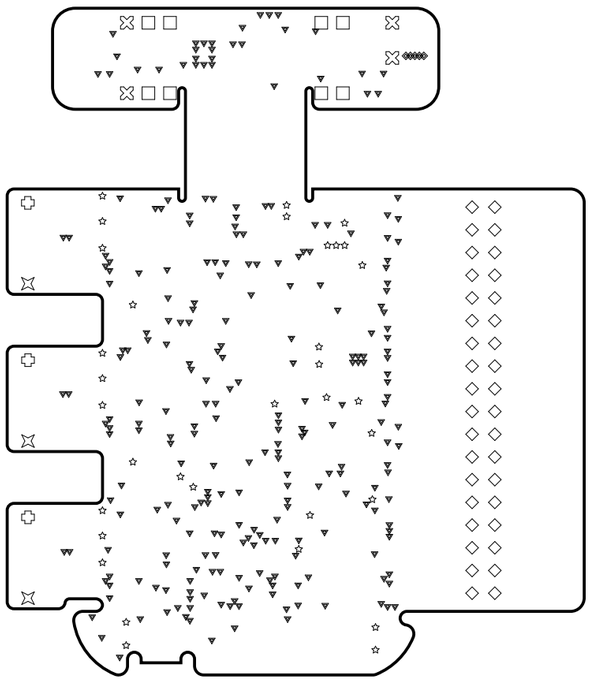
Symbol	Count	Hole Size	Plated	Hole Tolerance
◆	5	0.10mm	Plated	
▼	260	0.20mm	Plated	
☆	33	0.40mm	Plated	
☒	4	0.64mm	Plated	
□	8	0.76mm	Plated	
◇	36	0.90mm	Plated	
⛝	3	1.17mm	Plated	
✣	3	1.52mm	Plated	
○	4	4.01mm	Non-Plated	
	356 Total			

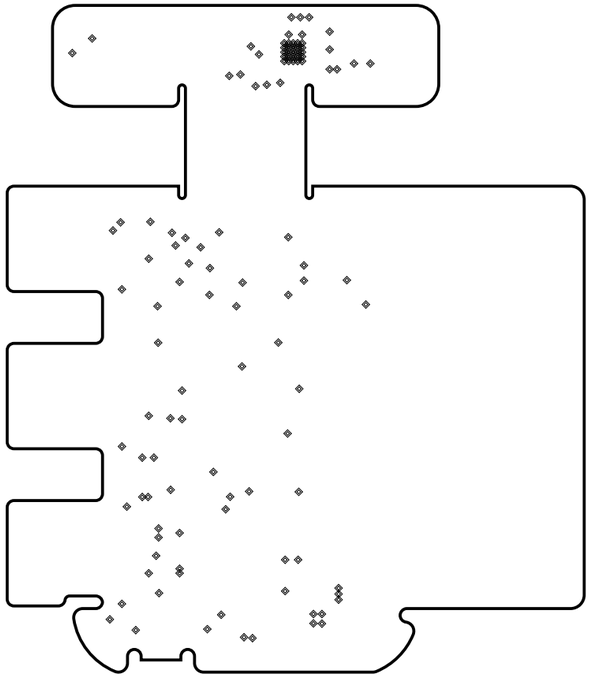
Drill Table - L1 Top - L2 Gnd

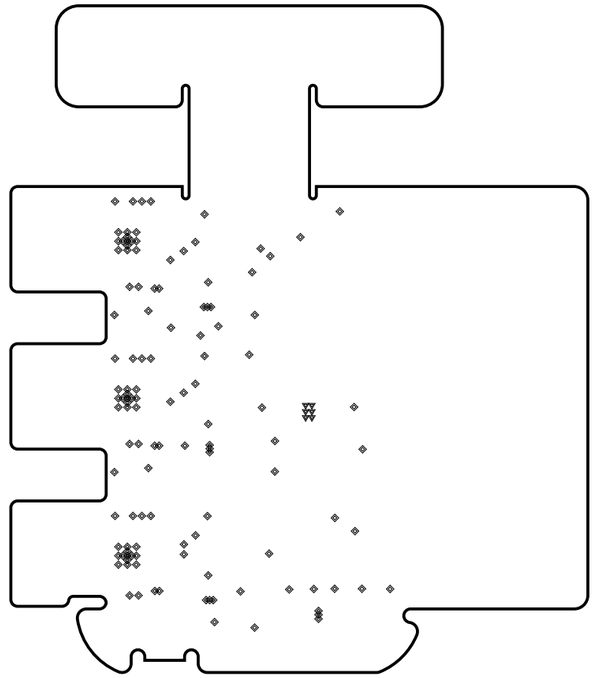
Symbol	Count	Hole Size	Plated	Hole Tolerance
◆	114	3.937mil(0.100mm)	Plated	
	114 Total			

Drill Table - L7 Gnd - L8 Bottom

Symbol	Count	Hole Size	Plated	Hole Tolerance
◆	121	3.937mil(0.10mm)	Plated	
▼	6	7.874mil(0.20mm)	Plated	
	127 Total			







BY	DATE
DRAWN R. Yoder	10-4-2018
CHECKED A. Zbrzeski	10-4-2018
MATERIAL See Notes	
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SYNAPSE Biomedical Inc.

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NNP Power Module PCB,

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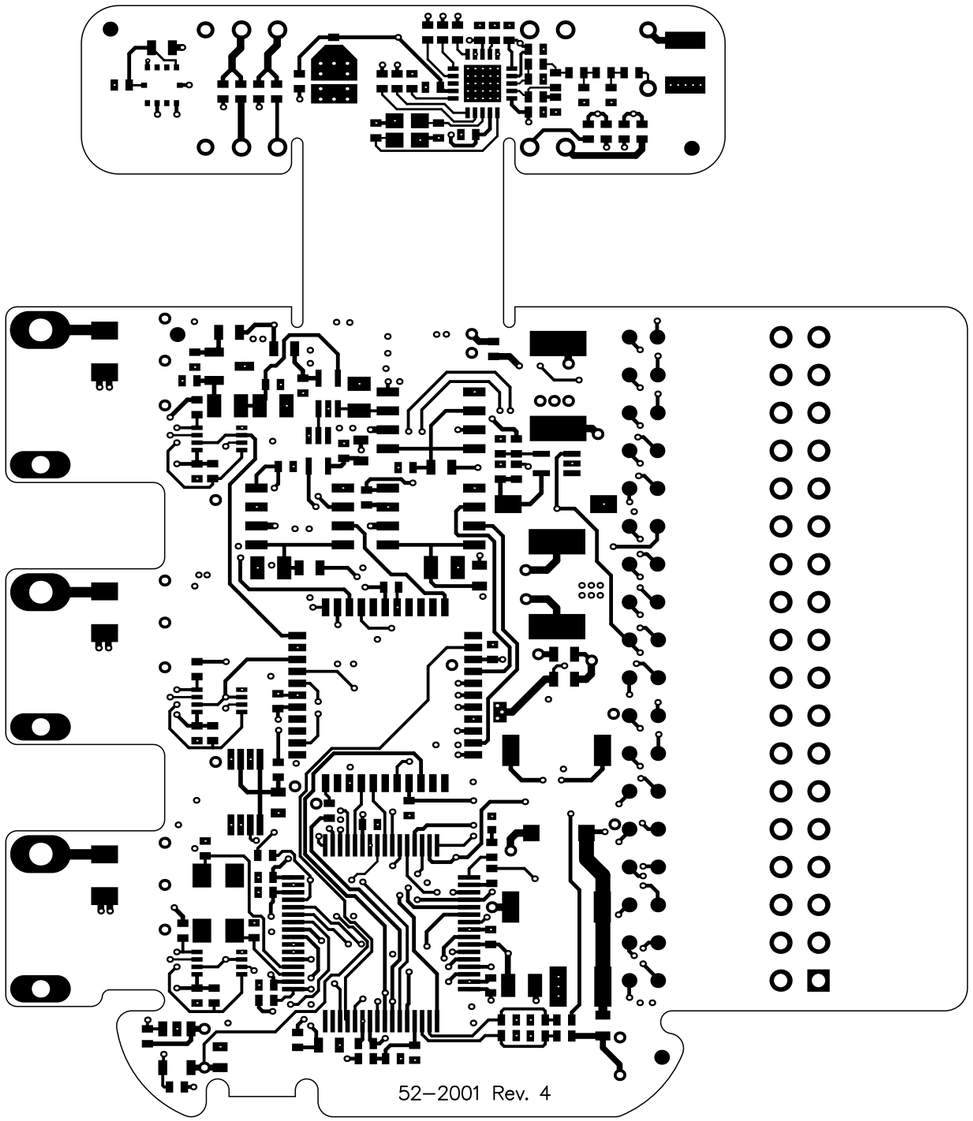
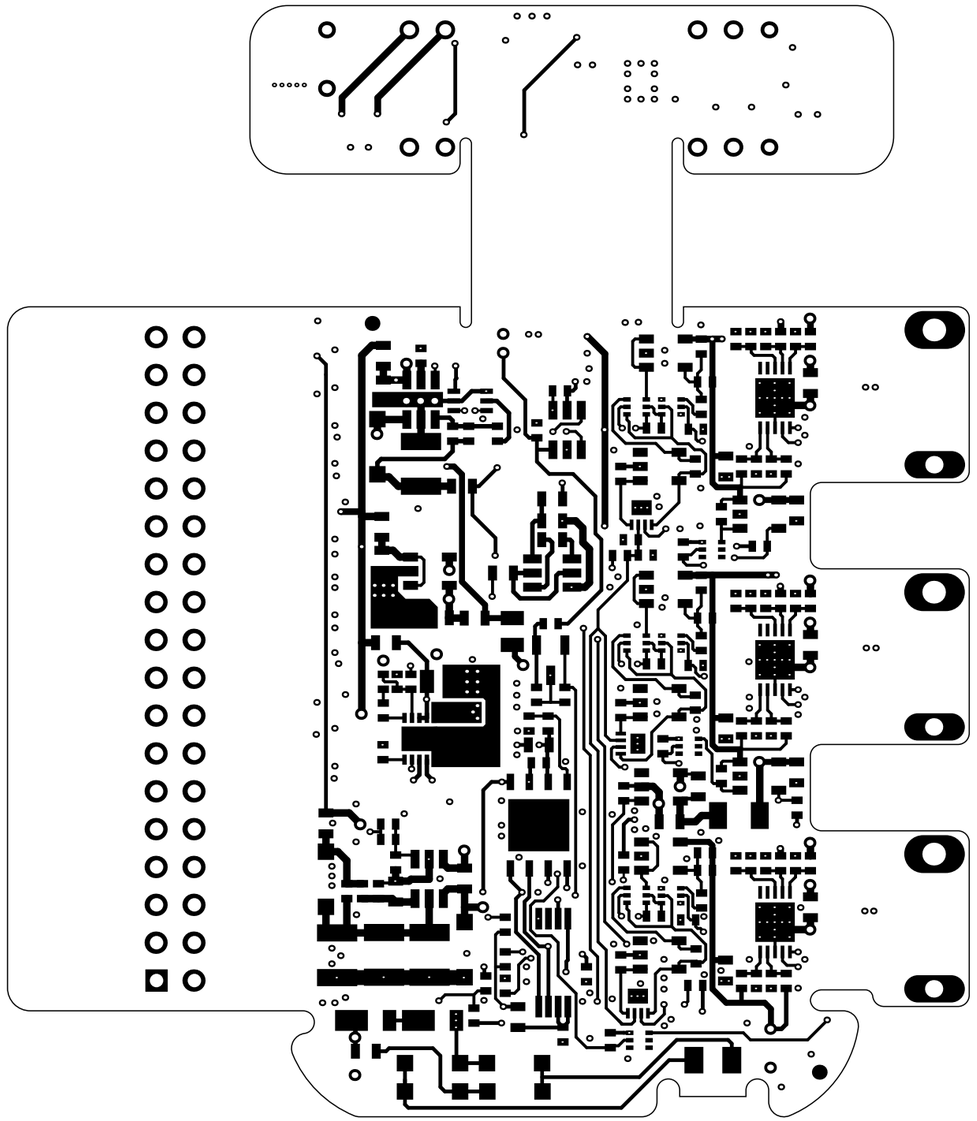
L1 - Top Copper (.GTL)



L8 - Bottom Copper (.GBL)



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FINISH See Notes	

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NNP Power Module PCB,

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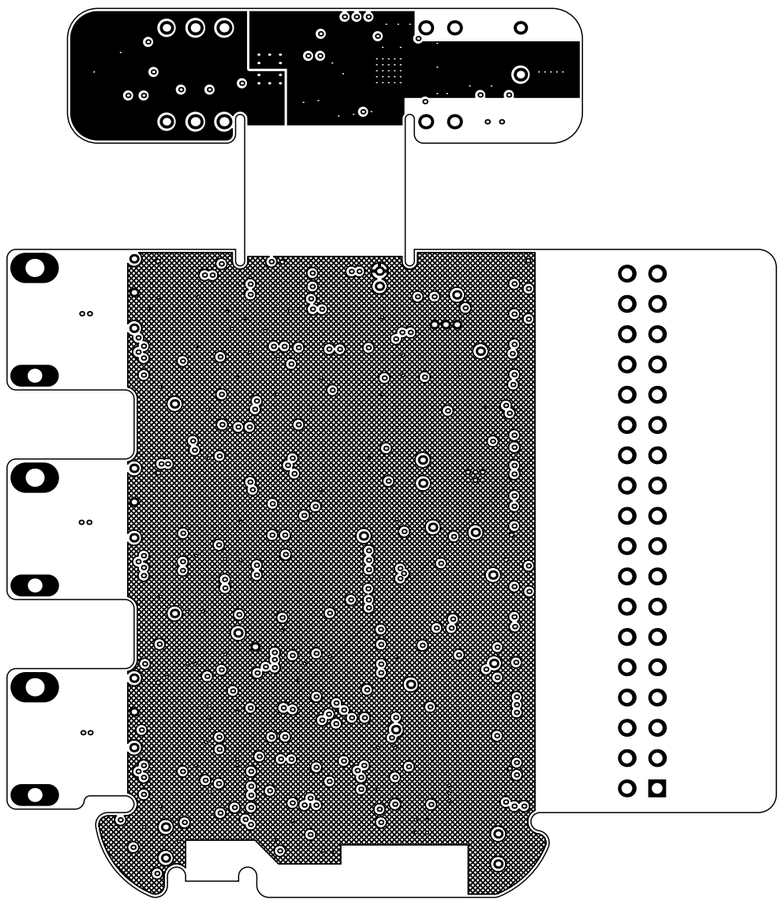
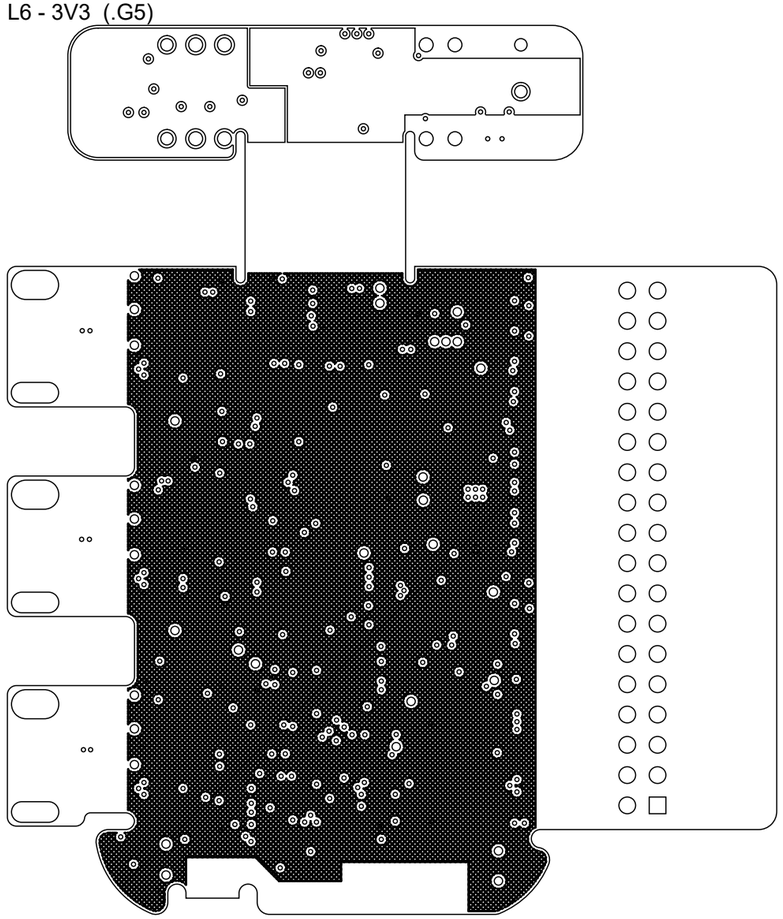
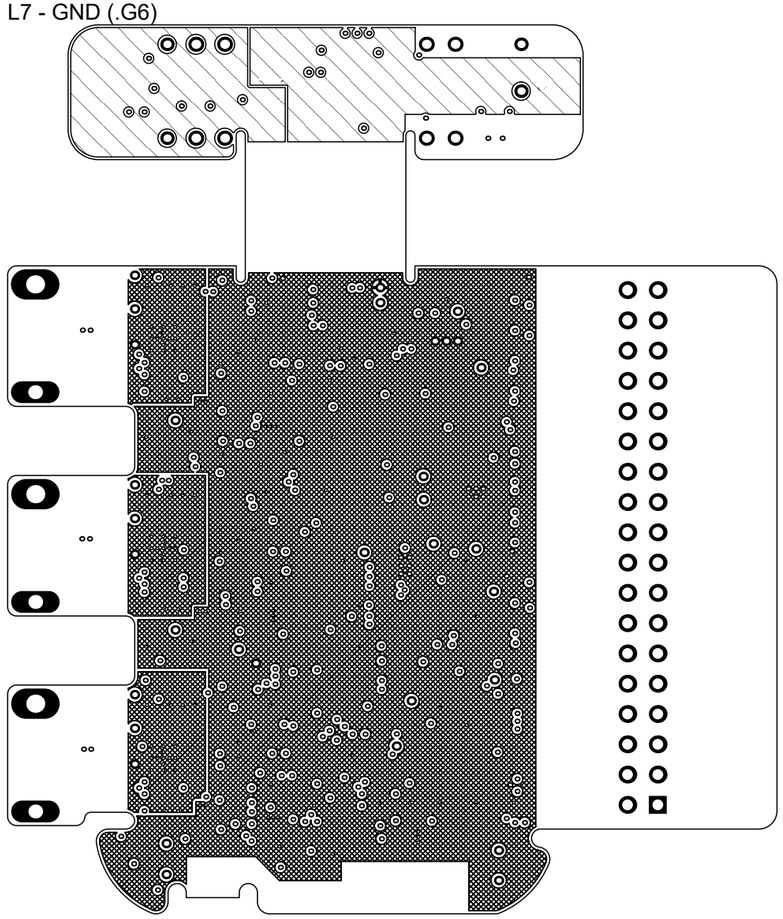
L2 - GND (.G1)



L6 - 3V3 (.G5)



L7 - GND (.G6)



BY	DATE
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FINISH See Notes	

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NNP Power Module PCB,

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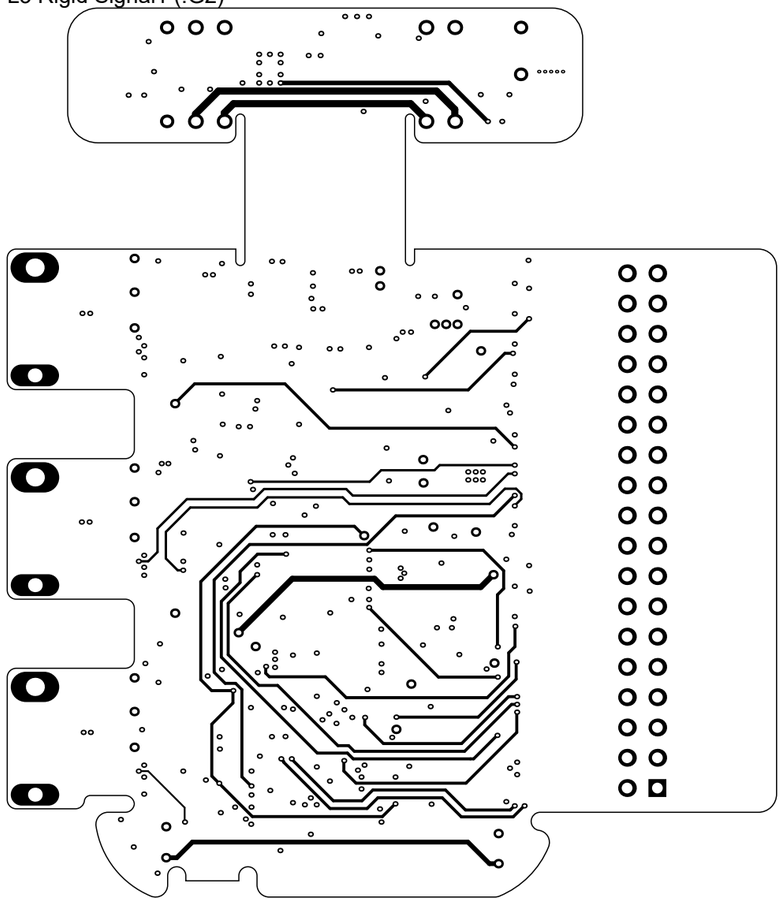
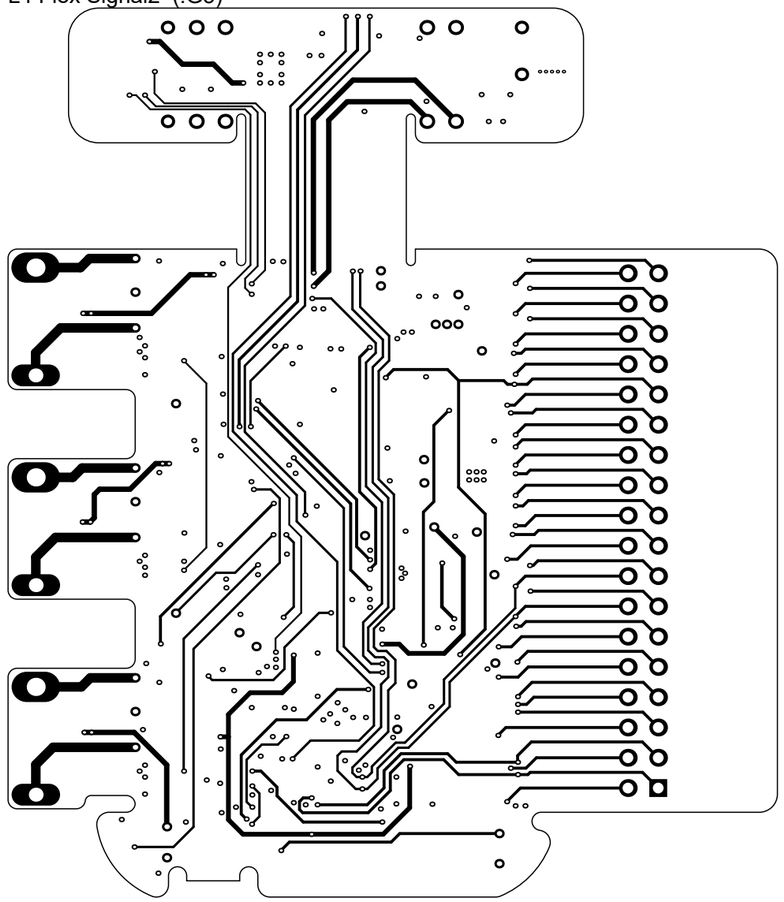
SHEET 5 OF 6

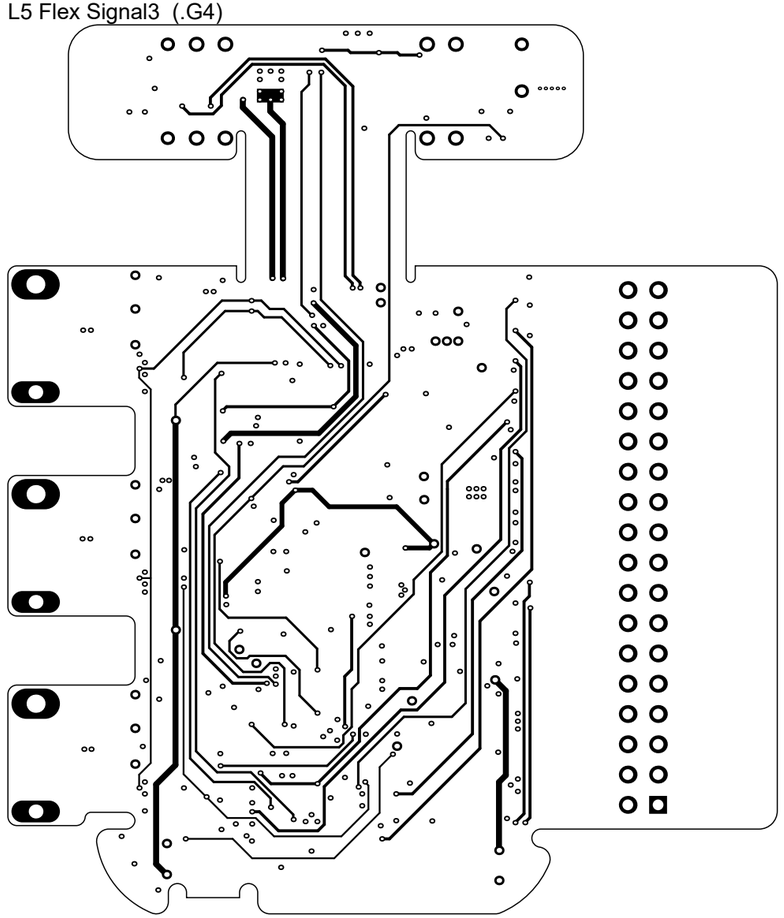
L3 Rigid Signal1 (.G2)



L4 Flex Signal2 (.G3)



L5 Flex Signal3 (.G4)



BY	DATE
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