ECN	REV	DESCRIPTION
---	01	Equivalent to CWRU VT901002
DCN 101	02	Build for BP2C Verification
---	03	- Updated Drill Chart and Flex PCB dimensions - Never Released
DCN 107	04	- Changed VIA annular rings and drill sizes to meet IPC Class 3. - Updated drill charts to match drill files and note 1D. - Added teardrop traces to all VIA connections on all layers. - Updated Fabrication Notes to better define PCB build. - Deleted VIA on the middle rigid PCB that was to close to the PCB edge. - Deleted open trace on Resistor R5 pin 2. - Updated Layer Stack. - Deleted Inspection Ciriteria. - Removed Material description from manufacture notes. - Changed text in Material and Finish blocks from "See Notes and Stack-up" to "See Stack-up, Pg. 9". - Changed PCB footprint for U15 and U18 from DFN8 to TI-DRB83
DCN 121	05	- Updated Notes: 1A, 1E, 1F, 1G. (See DCN121 for additional information) - Deleted Notes: 4B, 4D - Note 4C changed to 4B - Updated drawing of each layer - Updated Gerber file name of each layer - Removed Layer Stack Drawing - Addded note designating Innovative Circuits as an approved manufacturer/supplier. - Removed Drill File Chart on Page 3 of 8.

1. Approved Manufacture/Supplier
   Innovative Circuits Inc
2. Board Technology
A. Fabricate Rigid-Flex PCB in accordance with IPC-6013 and IPC 2223, Type 4, Class 3
B. Maximum overall rigid thickness shall not exceed 18 mil. This is measured over finished plated surfaces. The maximum overall flexible thickness shall not exceed 5.0 mil
C. Finished hole size unless noted should be +/- 3 mil (0.076mm)
D. All materials must be compliant with the European Union RoHS 2 directive, 2011/65/EU
E. Finish shall be ENIG
   1. Electroless nickel thickness inaccordance 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:
   Primary Side (Top) - No silkscreen
   Secondary Side (Bottom) - Manufacture ID and date code
H. Print Manufacture ID and Date Code on Bottom Layer, see page 4 of 8 for location.
I. 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.

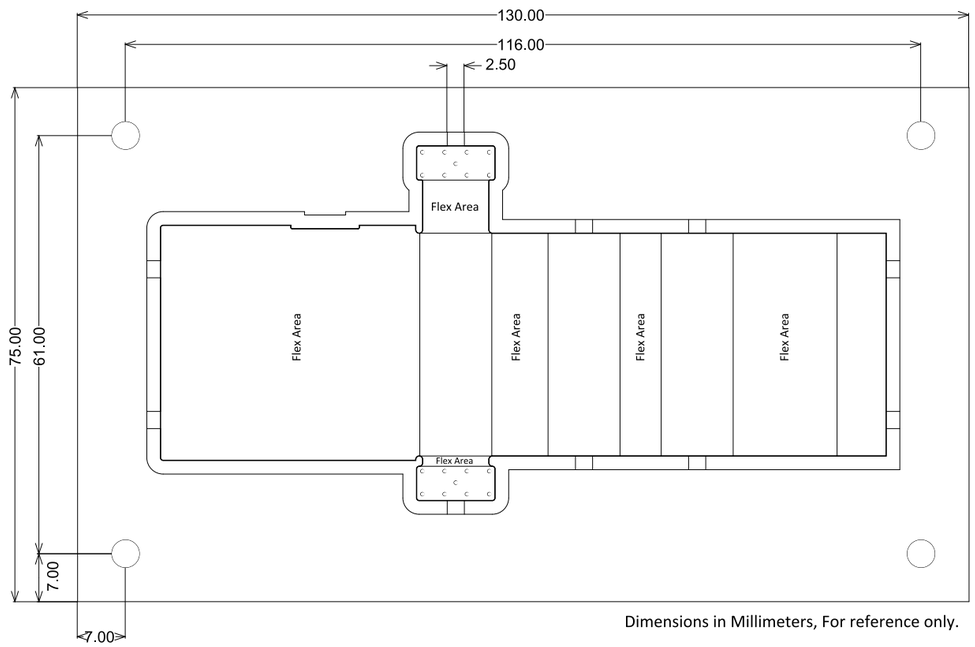
3. Certificate of Conformity:
A. Complete description of the item with revision
B. Number of lot and Date Code
C. Delivered quantity
D. RoHS compliance
E. Remark/Exception as concession note
F. Name of the responsible with signature and date

4. 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.

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

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

Top Side View



Dimensions in Millimeters, For reference only.

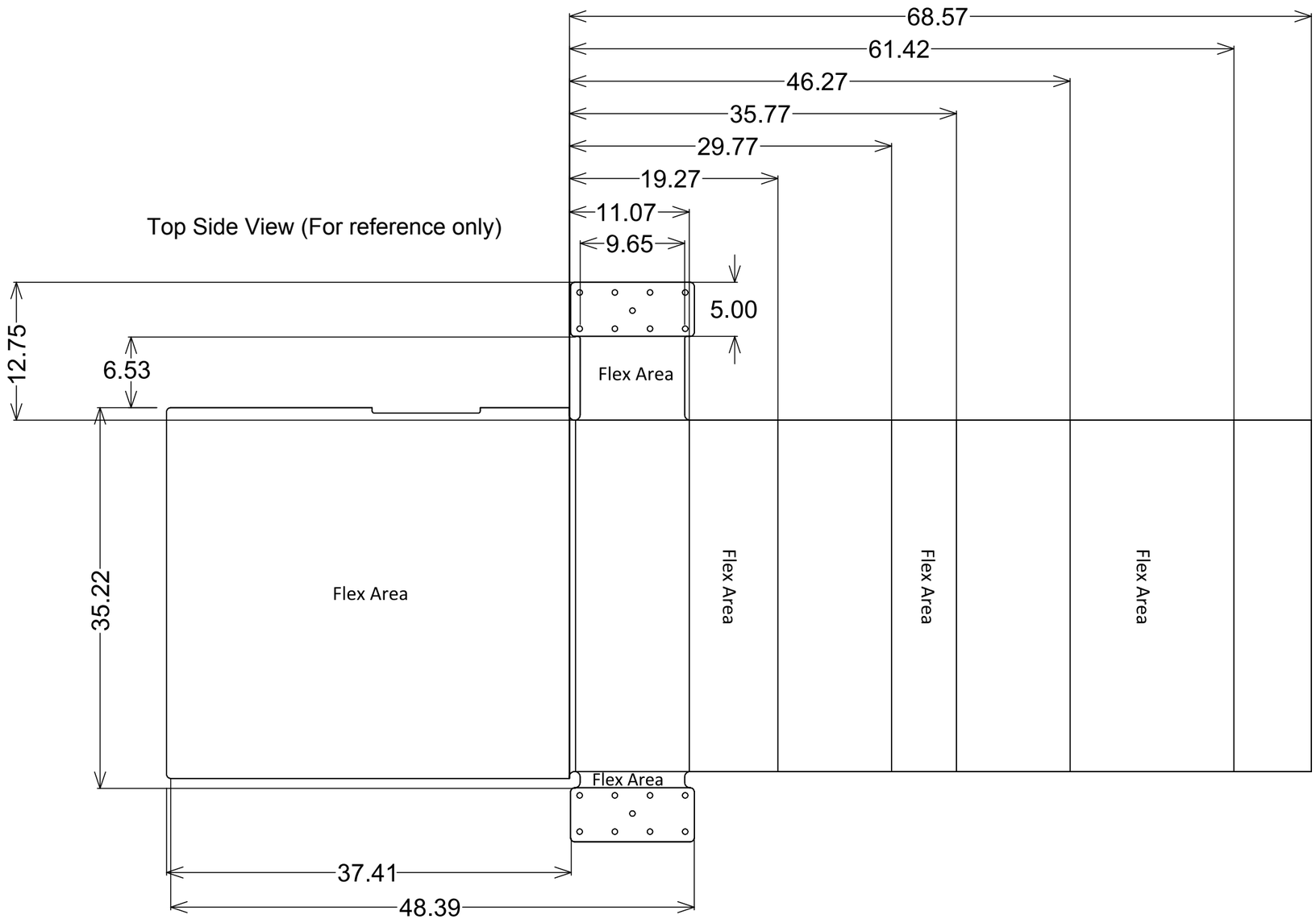
BY	DATE
DRAWN R. Yoder	10/17/18
CHECKED A. Zbrzeski	10/17/18
MATERIAL See Notes	
FINISH See Notes	

SYNAPSE Biomedical Inc.

DOCUMENT NAME
NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

SCALE: N/A | NEXT ASSY 51-2003 | SHEET 1 OF 8



Top Side View (For reference only)

Dimensions in Millimeters, For reference only.

BY	DATE
DRAWN R. Yoder	10/17/18
CHECKED A. Zbrzeski	10/17/18
MATERIAL See Notes	
FINISH See Notes	

SYNAPSE Biomedical Inc.

DOCUMENT NAME

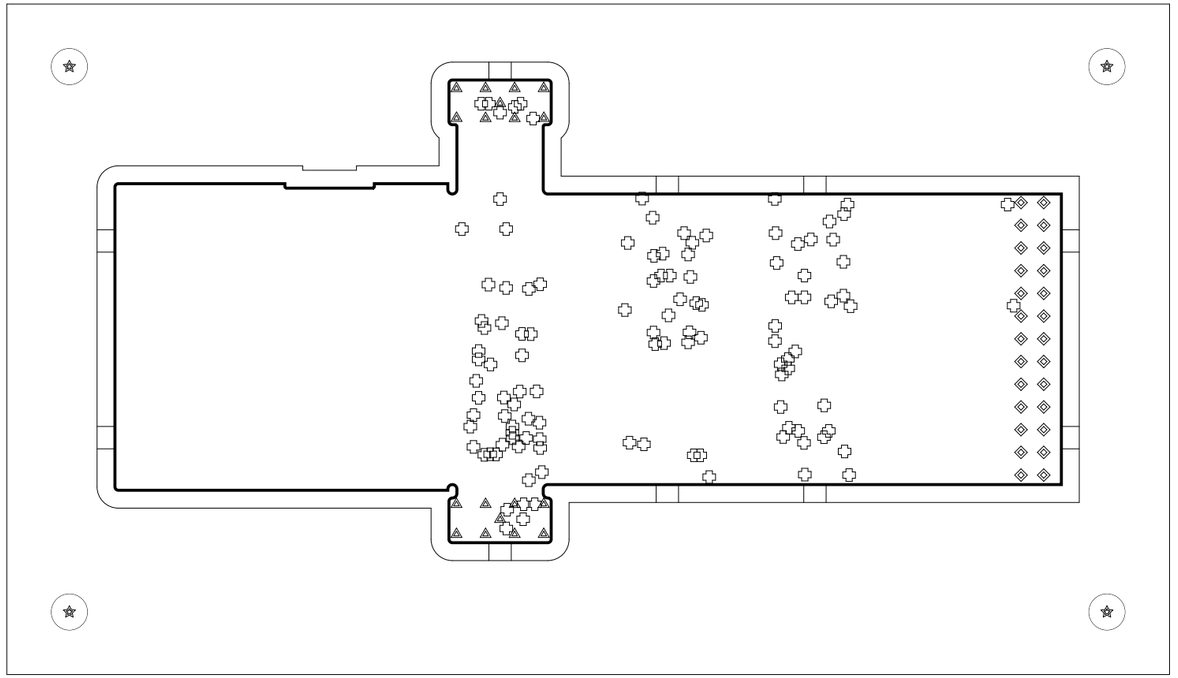
NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

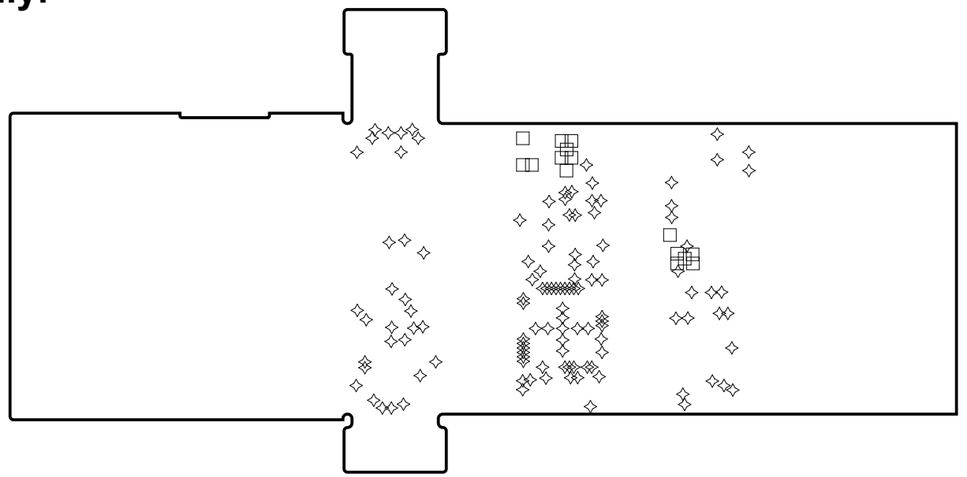
SCALE: N/A | NEXT ASSY 51-2003 | SHEET 2 OF 8

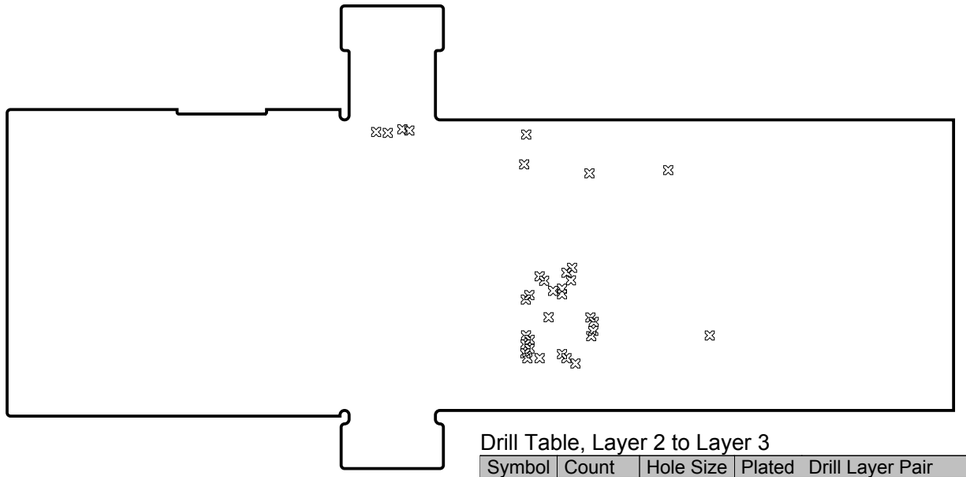
Drill Table, Top to Bottom

Symbol	Count	Hole Size	Plated	Drill Layer Pair	Hole Tolerance
	117	8mil	Plated	Layer 1, Plated Cu - Layer 4, Plated Cu	None
	18	20mil	Plated	Layer 1, Plated Cu - Layer 4, Plated Cu	None
	26	35mil	Plated	Layer 1, Plated Cu - Layer 4, Plated Cu	None
	4	158mil	Non-Plated	Layer 1, Plated Cu - Layer 4, Plated Cu	None
	165 Total				



PCB Drill Tables and Drawings for reference only.





Drill Table, Top to Layer 2

Symbol	Count	Hole Size	Plated	Drill Layer Pair	Hole Tolerance
	121	6mil	Plated	Layer 1, Plated Cu - Layer 2, Cu	-6mil
	15	6mil	Plated	Layer 1, Plated Cu - Layer 2, Cu	None
	136 Total				

Drill Table, Layer 2 to Layer 3

Symbol	Count	Hole Size	Plated	Drill Layer Pair	Hole Tolerance
	34	8mil	Plated	Layer 2, Cu - Layer 3, Cu	-8mil
	34 Total				

BY	DATE
DRAWN R. Yoder	10/17/18
CHECKED A. Zbrzeski	10/17/18
MATERIAL See Notes	
FINISH See Notes	

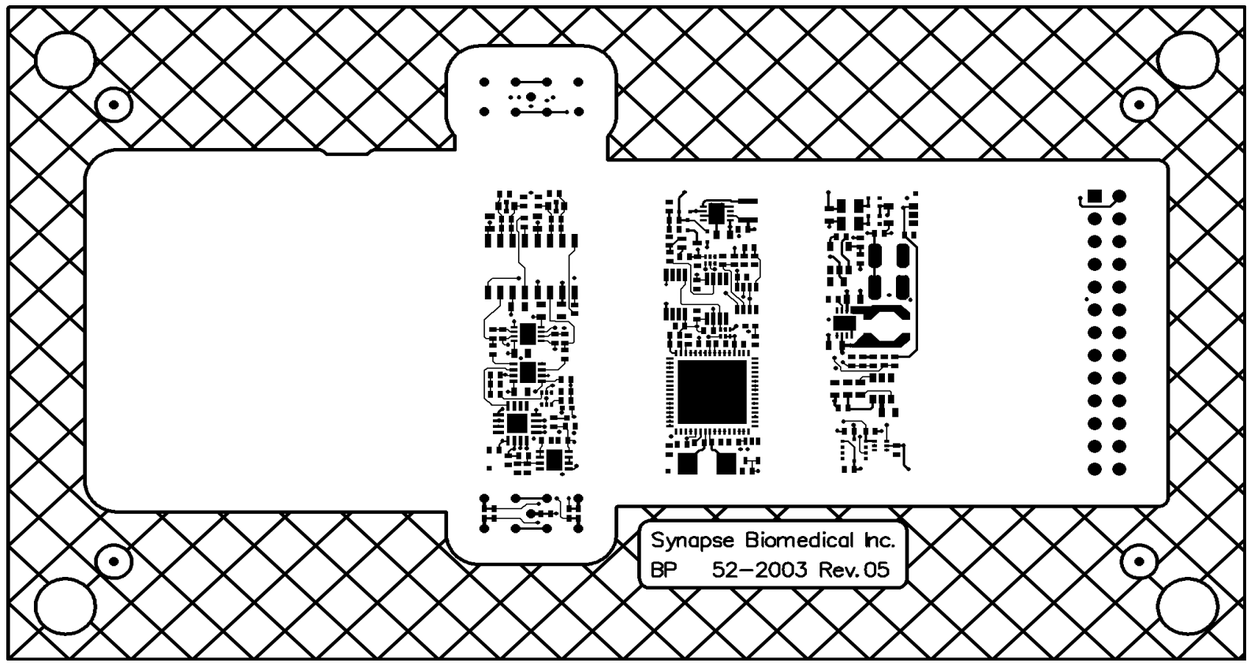
SYNAPSE Biomedical Inc.

DOCUMENT NAME

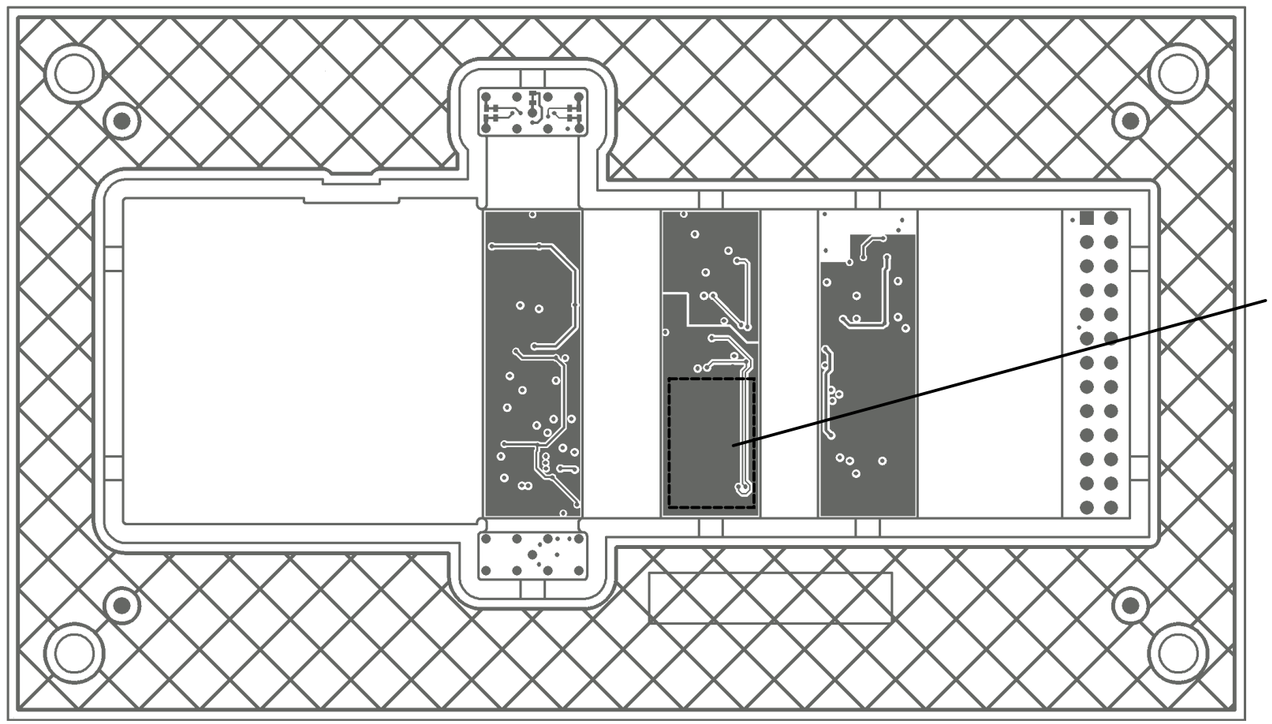
NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

SCALE: N/A | NEXT ASSY 51-2003 | SHEET 3 OF 8



Top Layer (02_Top.gbr)



Bottom Layer (05_Bot.gbr)

Print Manufacture ID and Date Code here.

PCB Layers are Top View for reference only.

BY	DATE
DRAWN R. Yoder	10/17/18
CHECKED A. Zbrzeski	10/17/18
MATERIAL See Notes	
FINISH See Notes	

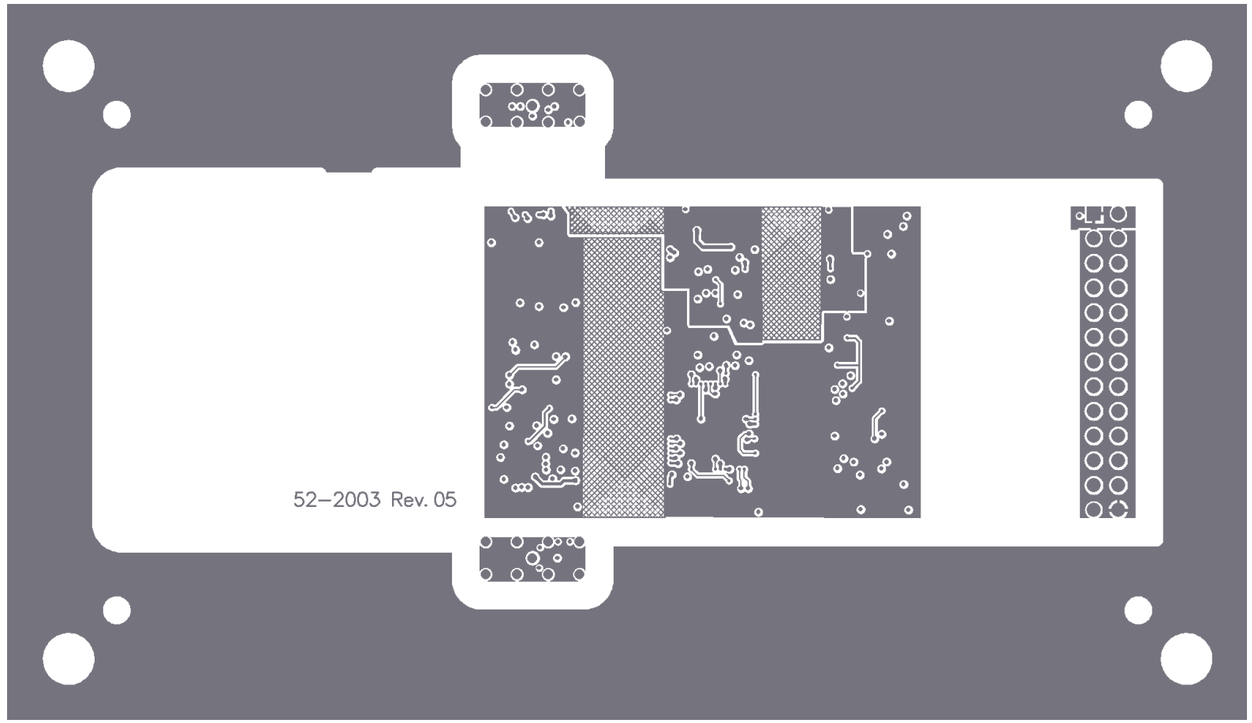
SYNAPSE Biomedical Inc.

DOCUMENT NAME

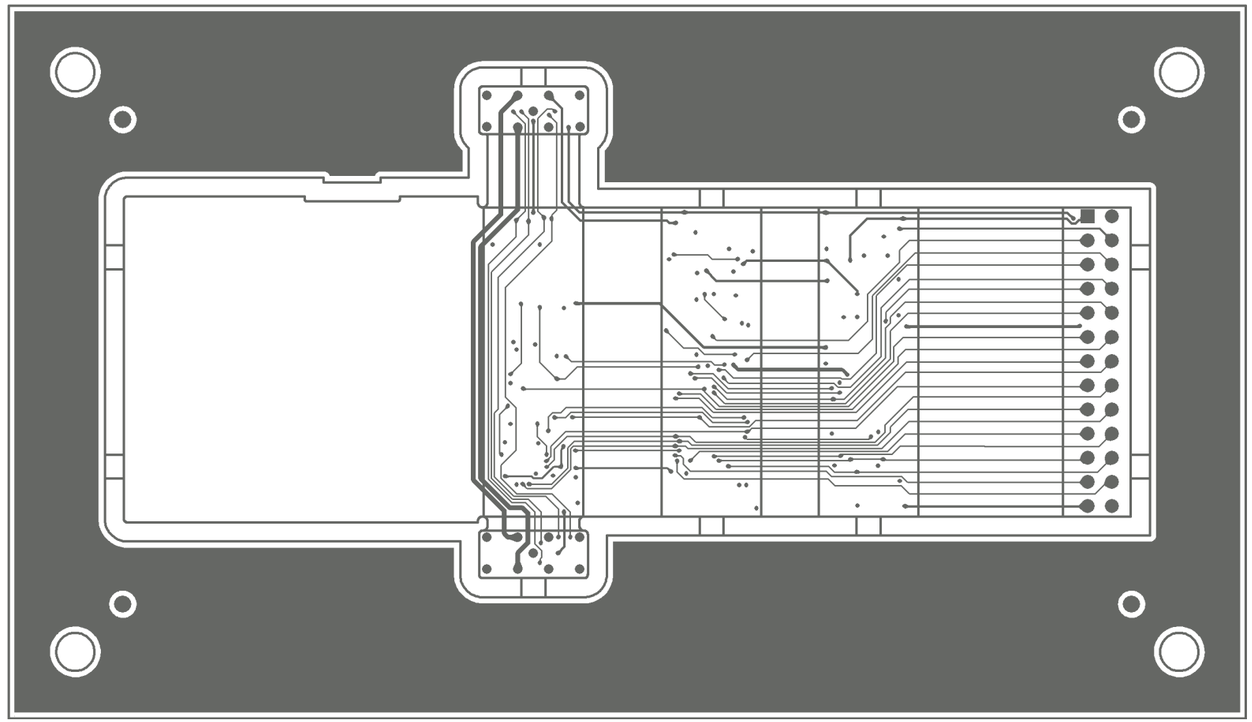
NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

SCALE: N/A	NEXT ASSY 51-2003	SHEET 4 OF 8



Layer 2, cu (03_LY2(P).gbr)



Layer 3, cu (04_LY3.gbr)

PCB Layers are Top View for reference only.

BY	DATE
DRAWN R. Yoder	10/17/18
CHECKED A. Zbrzeski	10/17/18
MATERIAL See Notes	
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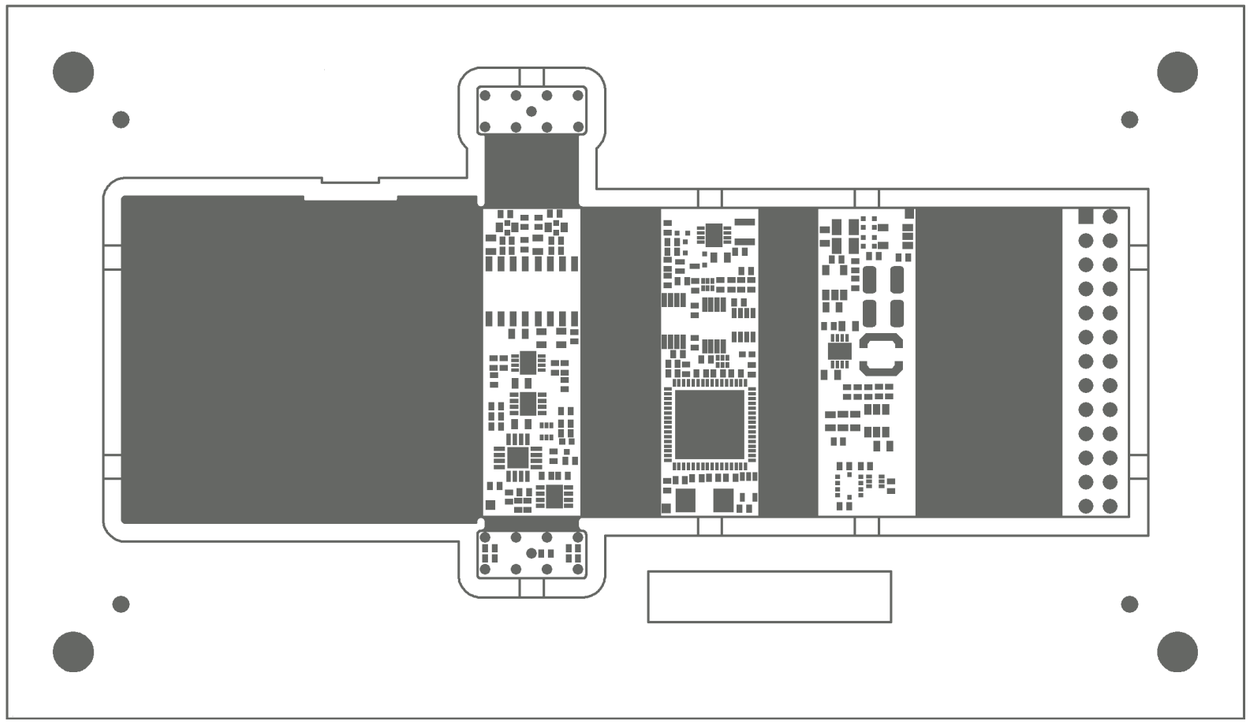
SYNAPSE Biomedical Inc.

DOCUMENT NAME

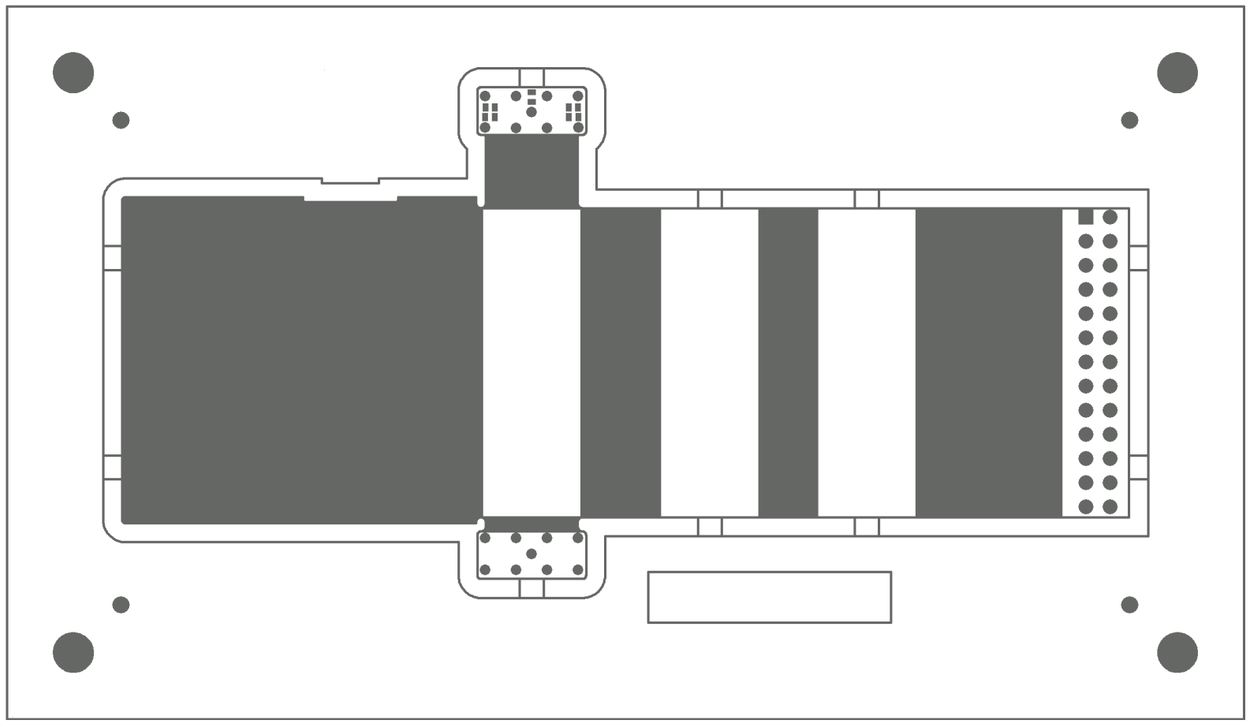
NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

SCALE: N/A | NEXT ASSY 51-2003 | SHEET 5 OF 8



Mask Top, (01_MaskTop.gbr)



Mask Bottom, (06_MaskBottom.gbr)

PCB Layers are Top View for reference only.

	BY	DATE
DRAWN	R. Yoder	10/17/18
CHECKED	A. Zbrzeski	10/17/18
MATERIAL	See Notes	
FINISH	See Notes	

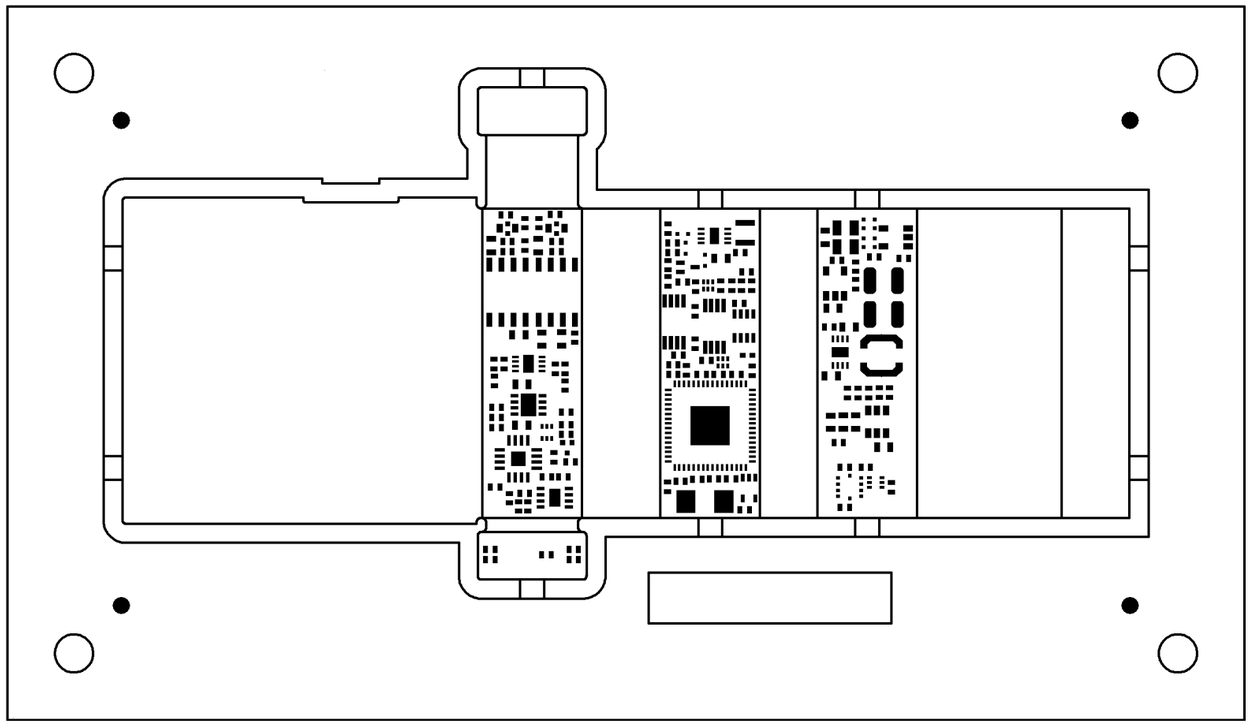
SYNAPSE Biomedical Inc.

DOCUMENT NAME

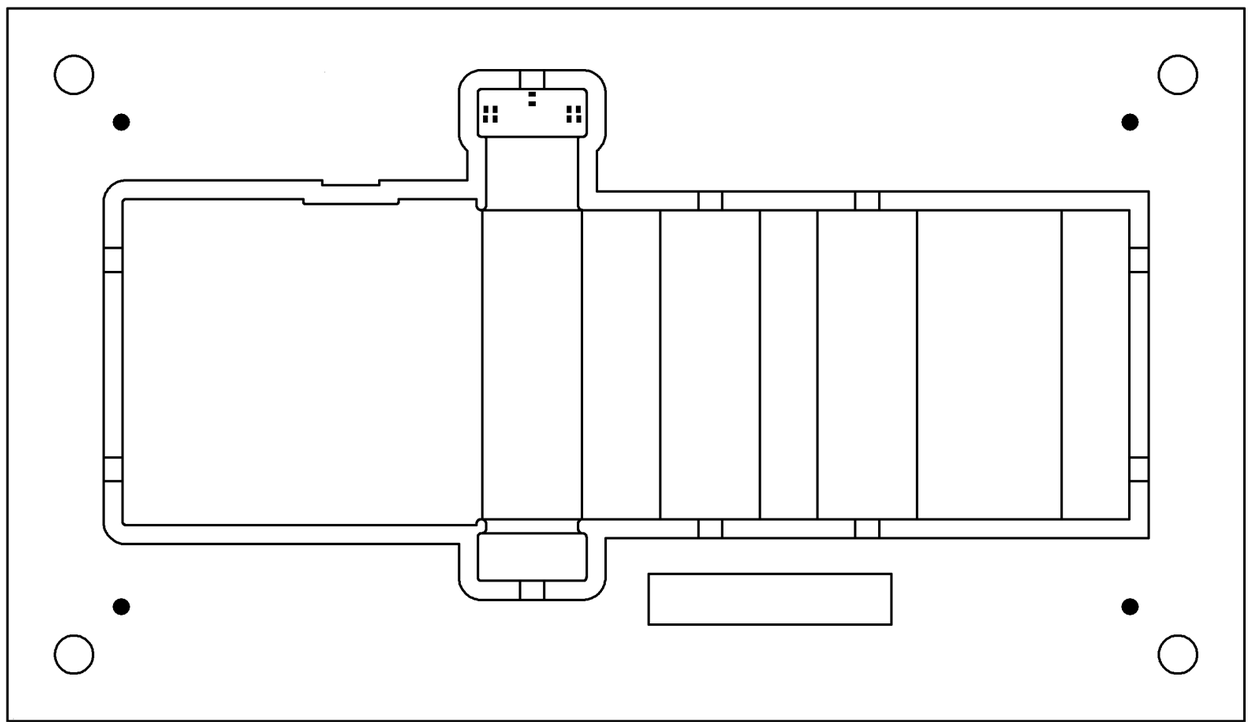
NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

SCALE: N/A	NEXT ASSY 51-2003	SHEET 6 OF 8



Paste Top, (07_PstTop.gbr)



Paste Bottom, (08_PstBottom.gbr)

PCB Layers are Top View for reference only.

BY	DATE
DRAWN R. Yoder	10/17/18
CHECKED A. Zbrzeski	10/17/18

MATERIAL: See Notes

FINISH: See Notes

SYNAPSE Biomedical Inc.

DOCUMENT NAME: NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

SCALE: N/A | NEXT ASSY 51-2003 | SHEET 7 OF 8

Rigid Area	Flex Area
Solder Mask, 0.5mil	
Layer 1, 0.7mil Cu base (0.5 oz), Copper	
Dielectric, 2.0mil, VT-47 FR4 .002 H/0	
Dielectric, 1.9mil, Prepreg 106 FR406 N.F.	Flex Coverlay Top, LF-7001
Layer 2, 0.7mil (0.5 oz), Copper	Layer 2, 0.7mil (0.5 oz), Copper
Dielectric (Core), 1.0mil, Polyimide AP-8515R	Dielectric (Core), 1.0mil, Polyimide AP-8515R
Layer 3, 0.7mil (0.5 oz), Copper	Layer 3, 0.7mil (0.5 oz), Copper
Dielectric, 1.9mil, Prepreg 106 FR406 N.F.	Flex Coverlay Bottom, LF-7001
Dielectric, 2.0mil, VT-47 FR4 .002 H/0	
Layer 4, 0.7mil Cu base (0.5 oz), Copper	
Solder Mask, 0.5mil	

BY	DATE
DRAWN R. Yoder	10/17/18
CHECKED A. Zbrzeski	10/17/18
MATERIAL See Notes	
FINISH See Notes	

SYNAPSE Biomedical Inc.

DOCUMENT NAME

NNP Biopotential PCB, unpopulated

SIZE	DOCUMENT NO.	REV
B	52-2003	05

SCALE: N/A	NEXT ASSY 51-2003	SHEET 8 OF 8