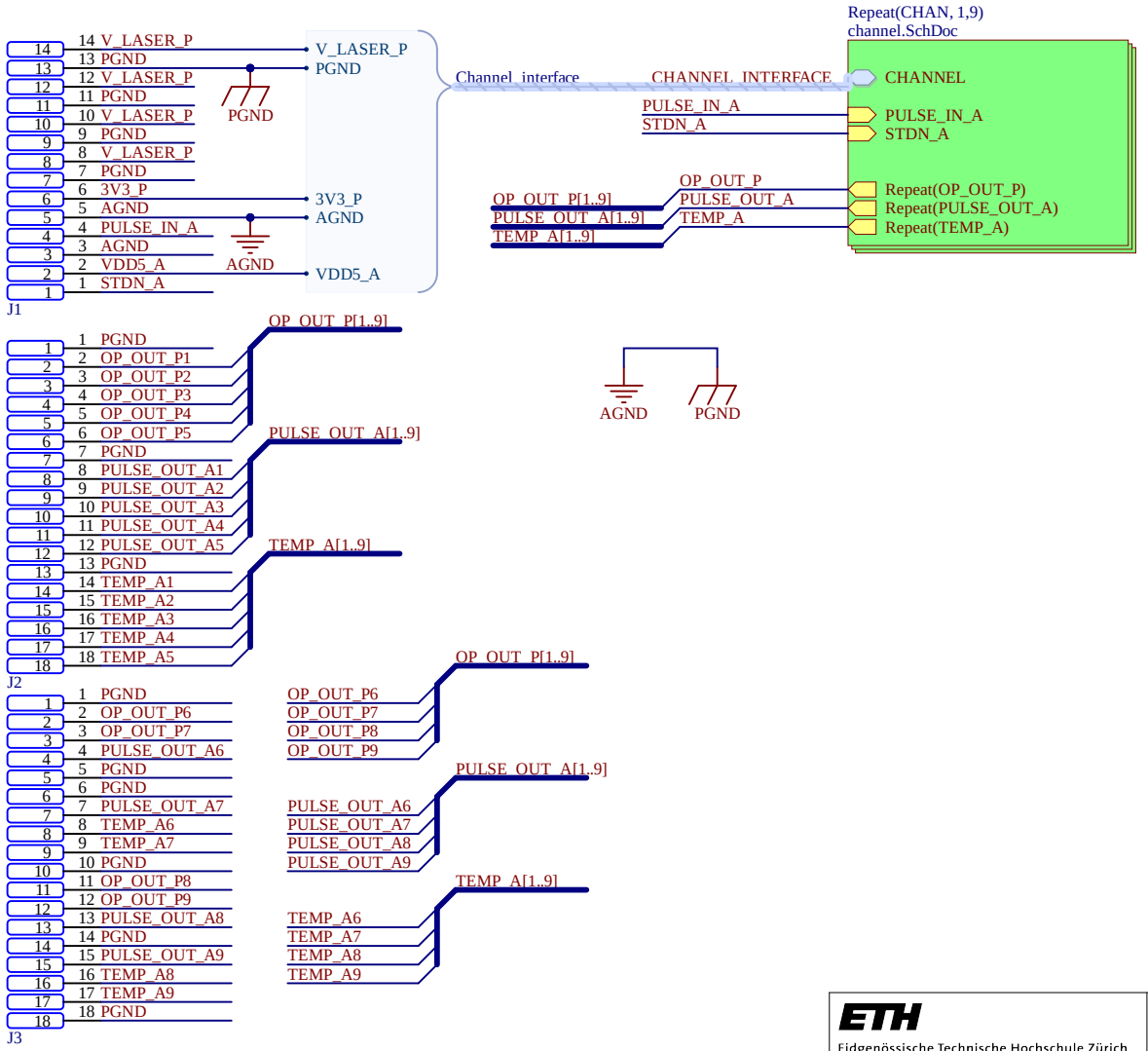


ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Project: HELIOS-R

LD_Harness

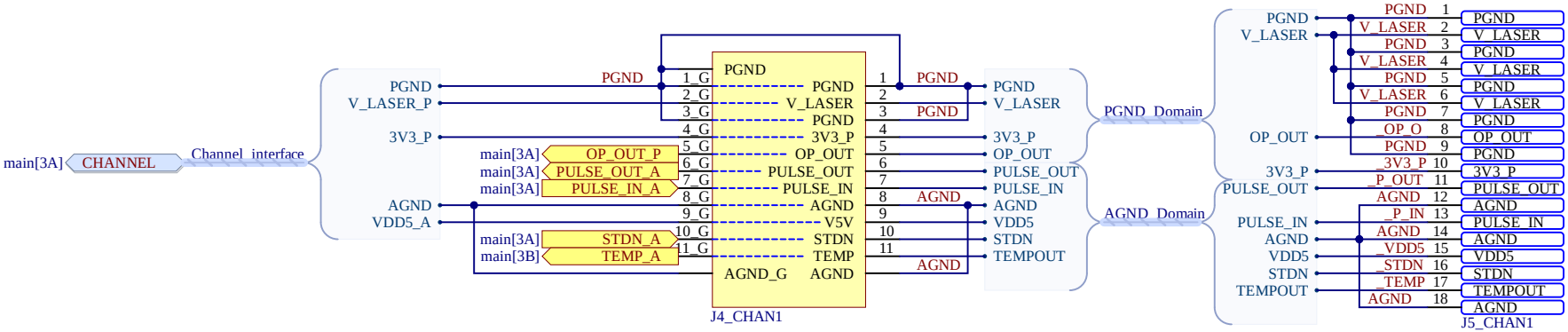
Laboratory: IIS
Date: 17/07/2025 15:19:43
Rev: 1
Variation: [No Variations]

Drawn By: villanif
Checked By: liuxian

File: main.SchDoc
Sheet: 1 / 2

_P_IN_CHAN1 has to be set to an i

Note: the connectors ar on opposite sides of the pcb to make space for cooling



Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Laboratory: IIS
Date: 17/07/2025 15:19:43
Rev: 1
Variation: [No Variations]

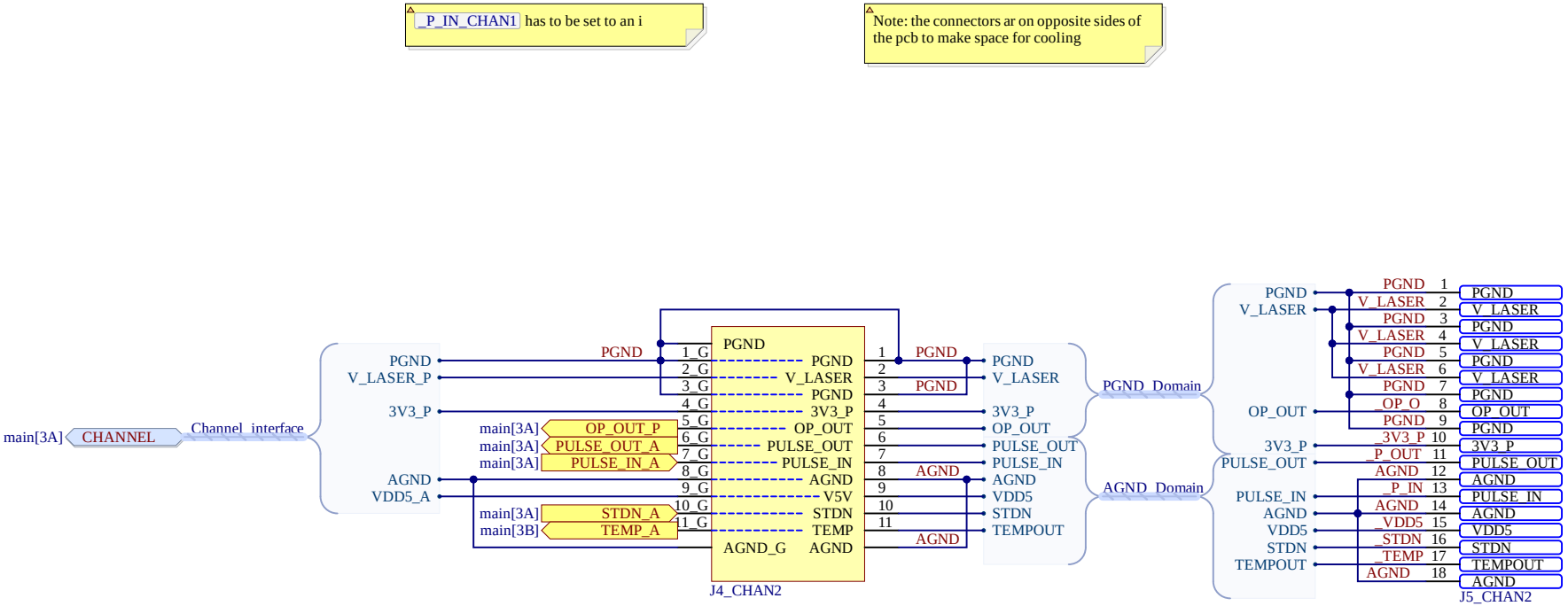
Project: HELIOS-R

Pulser Harness Channel

Drawn By: villanif
Checked By: liuxian

File: channel.SchDoc

Sheet: 2 / 2



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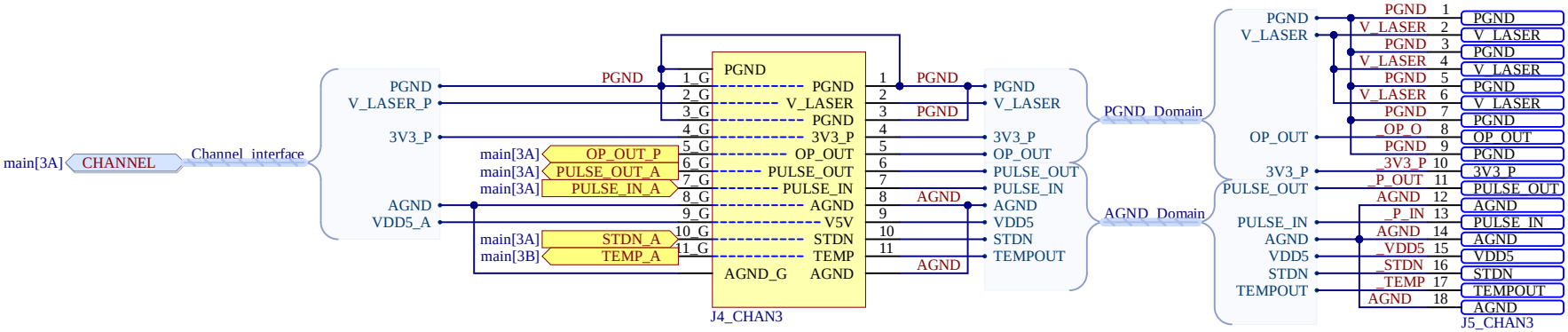

ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: HELIOS-R Pulser Harness Channel
Laboratory: IIS Date: 17/07/2025 15:19:43 Rev: 1 Variation: [No Variations]	Drawn By: villanif Checked By: liuxian
File: channel.SchDoc	Sheet: 2 / 2

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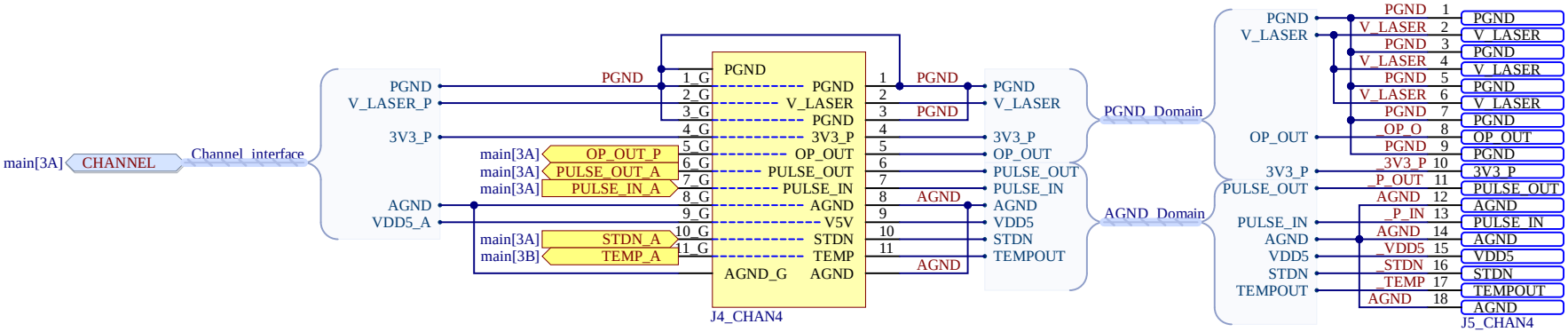

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Pulser Harness Channel

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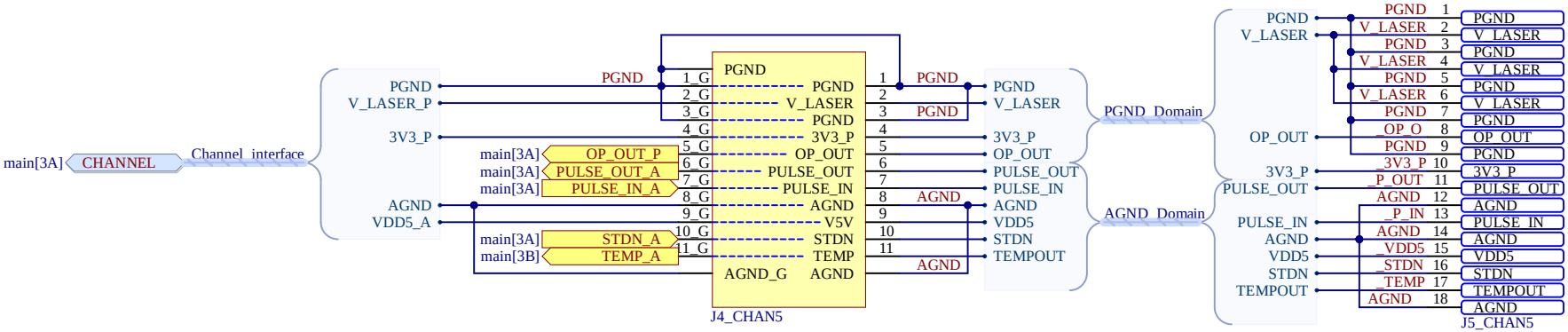

ETH Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: HELIOS-R Pulser Harness Channel
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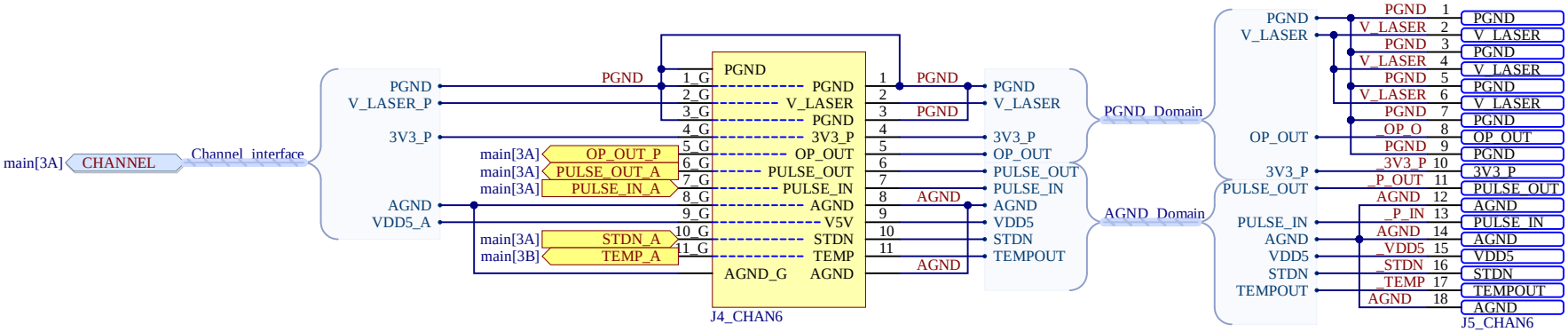

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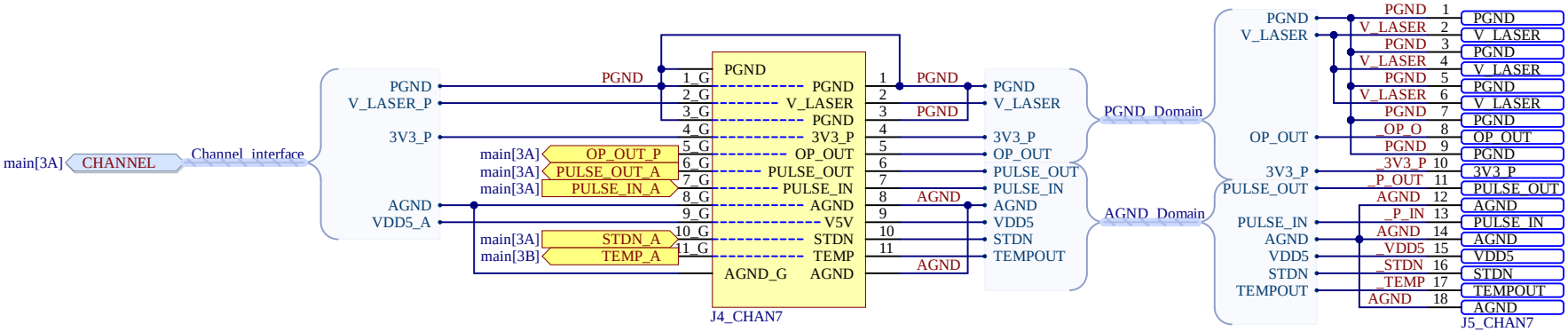

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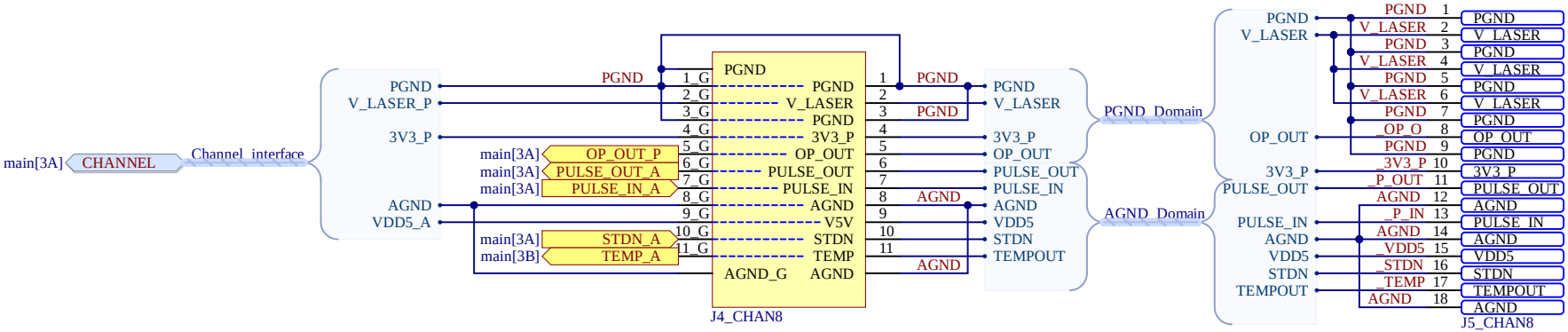

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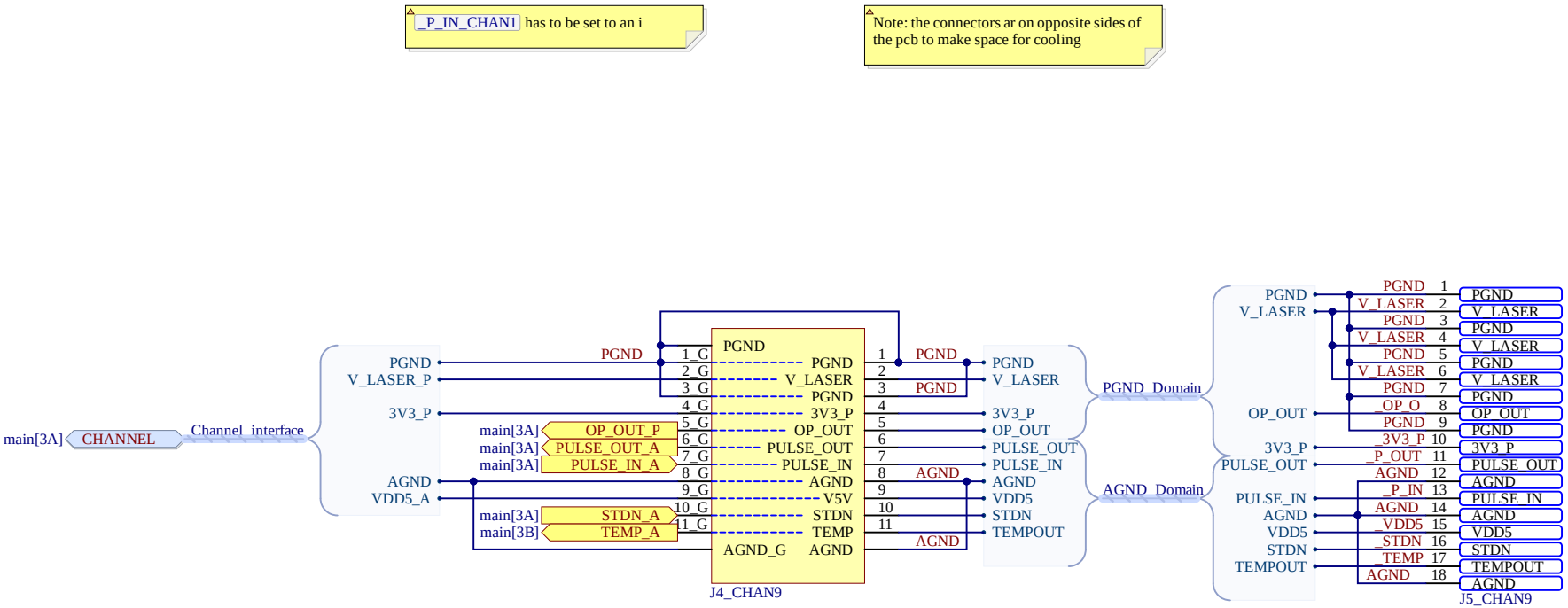
File: channel.SchDoc	Sheet: 2 / 2



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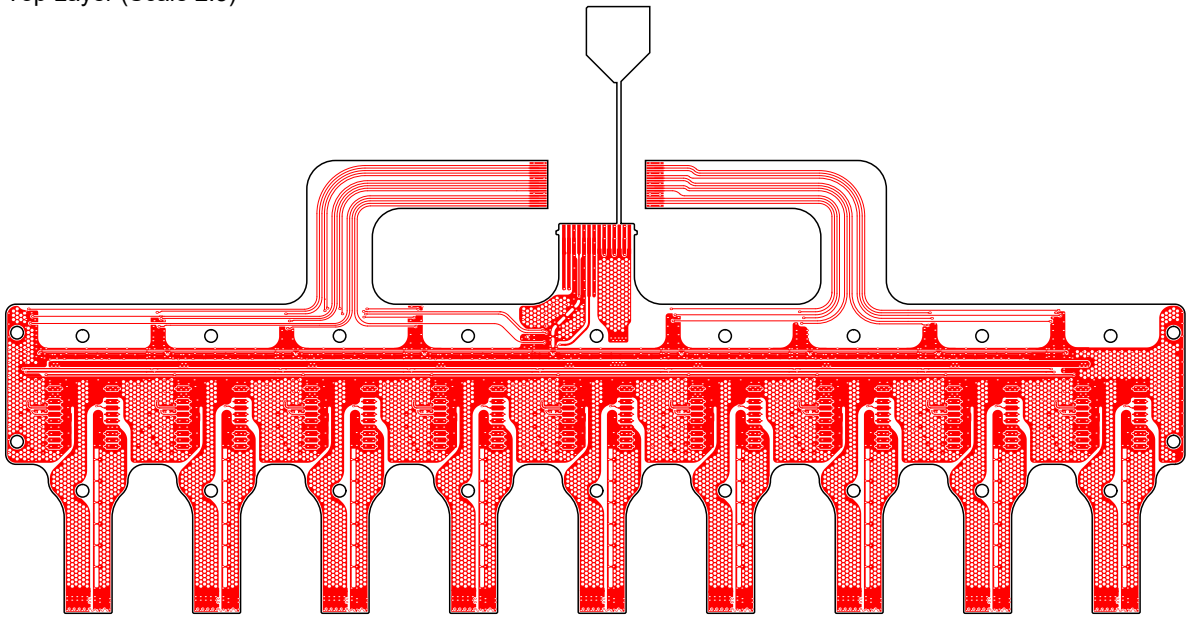
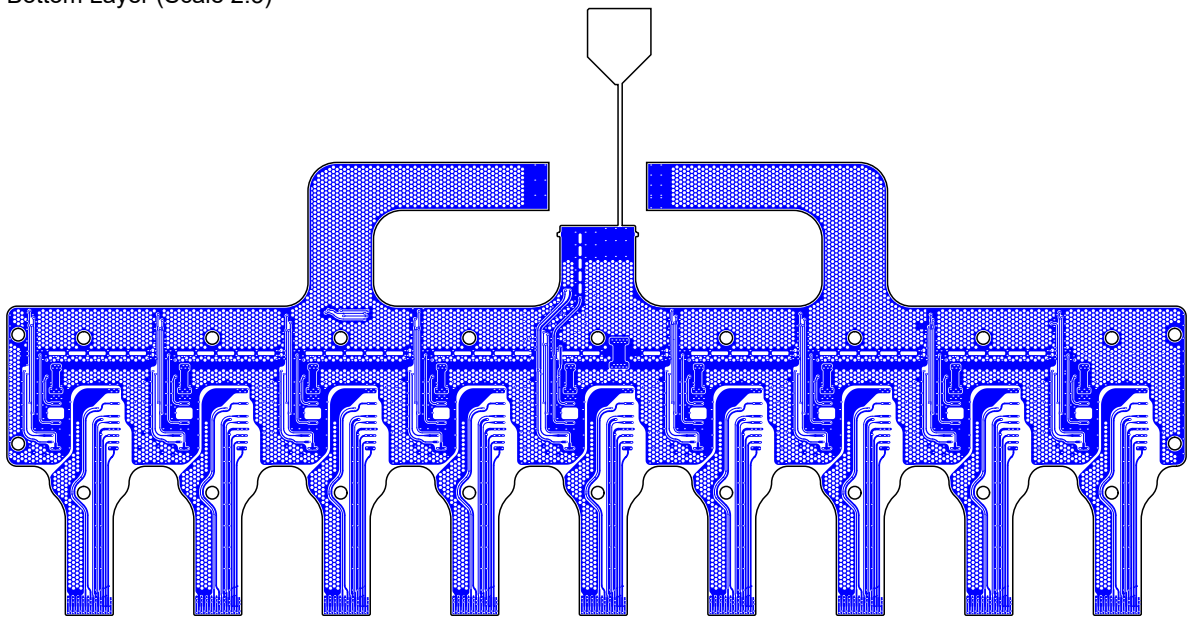
Sheet: 2 / 2

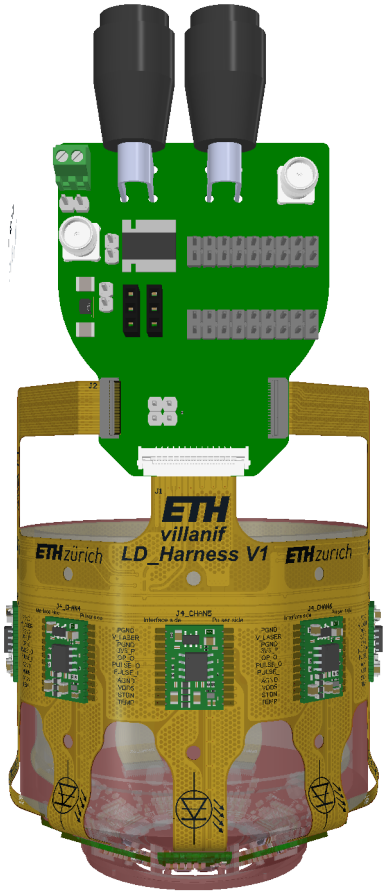
Top Layer (Scale 2:3)



Bottom Layer (Scale 2:3)



Realistic View



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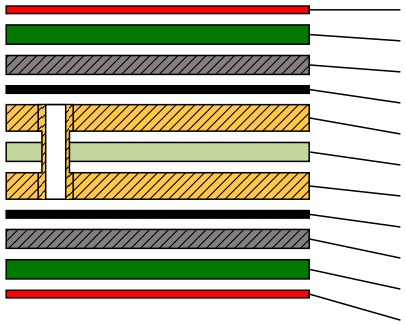
Laboratory: IIS Date: 17/07/2025 15:19 Rev: 1.0 Variation: [No Variations]	Drawn By: villanif Checked By: *
File: PULSER_LAY.PCBDwf	Sheet: 1 / 1

Layer Stack Legend



Material	Layer	Thickness	Type	Gerber	Weight
	Top Overlay		Legend		
Surface Material	Top Coverlay	0.025mm	Solder Mask	GCT1	
PP-006	Adhesive 1	0.025mm	Adhesive		
Nickel, Gold	Top Surface Finish	0.004mm	Surface Finish		
Copper	**Top Layer**	**0.035mm**	**Signal**	**GTL**	**1oz**
Prepreg		*0.025mm*	*Dielectric*		
Copper	**Bottom Layer**	**0.035mm**	**Signal**	**GBL**	**1oz**
Nickel, Gold	Bottom Surface Finish	0.004mm	Surface Finish		
PP-006	Adhesive 2	0.025mm	Adhesive		
Surface Material	Bottom Coverlay	0.025mm	Solder Mask	GCB1	
	Bottom Overlay		Legend		

Total thickness: 0.204mm

Top overlay: black
Coverlay: Yellow
Stiffener to 0.3 mm without coverlay => 0.15 mm/0.2 mm stiffener

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Date: 17/07/2025 15:19
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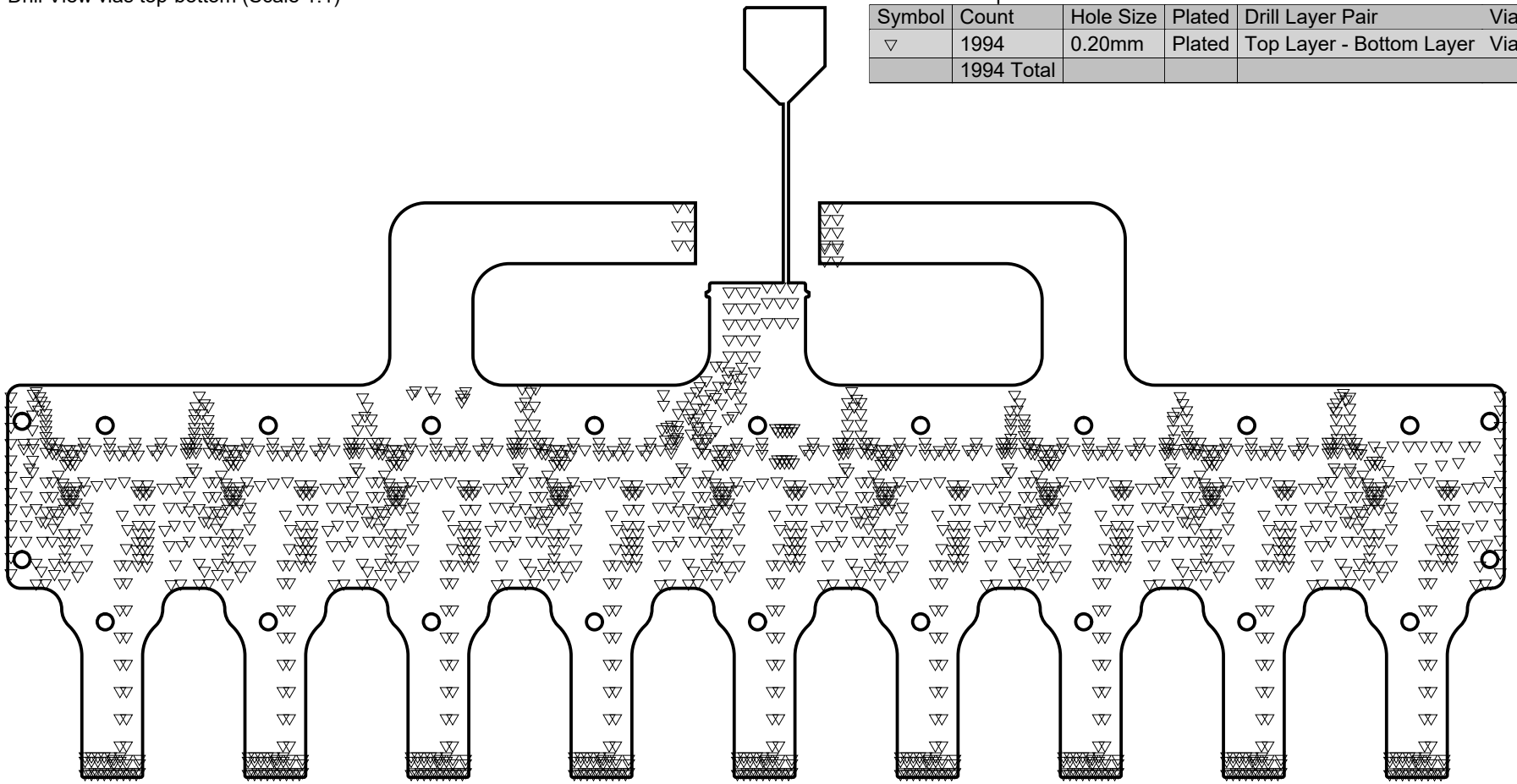
Variation: [No Variations]

Project: HELIOS-R
LD Pulser - Manufacturing Sheet

Drawn By: villanif
Checked By: *

File: PULSER_MAN.PCBDwf

Drill View vias top-bottom (Scale 1:1)



Drill Table - top to bottom

Symbol	Count	Hole Size	Plated	Drill Layer Pair	Via / Pad
▽	1994	0.20mm	Plated	Top Layer - Bottom Layer	Via
	1994 Total				

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Date: 17/07/2025 15:19
Rev: 1.0
Variation: [No Variations]

Project: HELIOS-R
LD Pulser - Manufacturing Sheet

Drawn By: villanif
Checked By: *

File: PULSER_MAN.PCBDwf

NOTES

1. PART COMPOSITION

   HOUSING MATERIAL:LIQUID CRYSTAL POLYMER(LCP),
   GLASS FILLED, UL94V-0, NATURAL(WHITE)

   TERMINAL MATERIAL:PHOSPOHR BRONZE

   CONTACT AREA : SEPARATED GOLD PLATING
   (0.1 MICROMETER MINIMUM)
   SOLDER TAIL AREA : SEPARATED GOLD PLATING
   UNDERPLATE : NICKEL OVERALL
   (1.0 MICROMETER MINIMUM)

   ACTUATOR MATERIAL : POLYAMIDE(PA), GLASS FILLED,
   UL94 HB, BLACK

   NAIL MATERIAL:PHOSPOHR BRONZE

   SOLDER TAIL AREA : TIN OVERALL(1.0 MICROMETER MINIMUM)
   UNDERPLATE : NICKEL OVERALL(1.0 MICROMETER MINIMUM)

2 . PLEASE DO NOT OPERATE THE ACTUATOR BEFORE MOUNTING.

3. PLEASE OPERATE THE ACTUATOR AFTER INSERTING THE FPC INTO THE CONNECTOR.

4. ABOUT FPC
   RECOMMENDED STIFFENER MATERIAL: POLYIMIDE
   RECOMMENDED BASE FILM THICKNESS: 25 MICROMETER
   RECOMMENDED ADHESIVE: THERMOSETTING ADHESIVE
   NOTE: PLEASE PUT APPROPRIATE AMOUNT OF ADHESIVE
   ON ADHEREND BECAUSE THERE IS A
   POSSIBILITY THAT THE EXTRA ADHESIVE CAUSES
   THE DEFECT IN ELECTRICAL CONTINUITY.

   RECOMMENDED PUNCHER DIRECTION:
   FROM CONDUCTOR SIDE TO STIFFENER FILM SIDE.
   RECOMMENDED CONDUCTOR SPECIFICATION:
   THICKNESS OF SOFT COPPER FOIL: 35MICROMETER

△5 R0.3 MUST NOT BE OVERLAPPED TO PATTERN OF FPC.

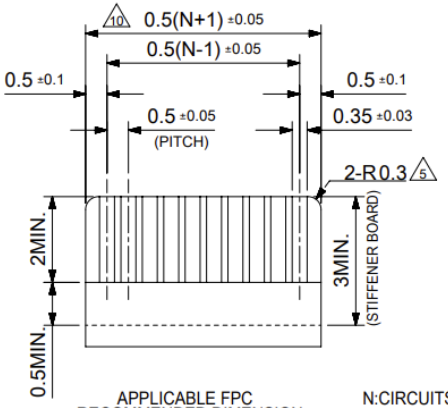
6. COPLANARITY : 0.1 MAXIMUM

7. PLEASE RECOGNIZE A POSSIBILITY TO CHANGE THE SHAPE OF THE PART THAT DOES NOT OBSTRUCT A FUNCTION, BY CIRCUMSTANCES IN OUR PRODUCTION.

8. THIS PRODUCT IS DELIVERED WITH THE ACTUATOR IN THE OPEN POSITION.

9. THIS PRODUCT IS DUAL-CONTACT
   (TOP- AND BOTTOM-CONTACTS) TYPE CONNECTOR.

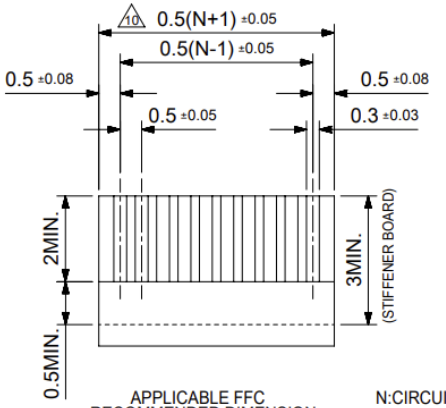
△10 PLEASE CONFIRM TO INSERT FPC IN ADVANCE WHEN FPC WIDTH IS OVER 0.5(N+1)+0.02.



APPLICABLE FPC
RECOMMENDED DIMENSION

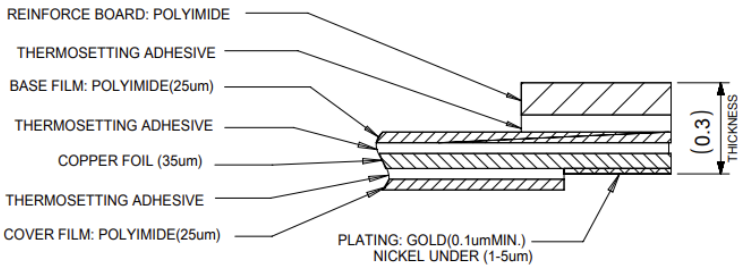
N:CIRCUITS

(THICKNESS : 0.3±0.05) : 30 OR LESS CIRCUITS
(THICKNESS : 0.3±0.03) : 31 OR OVER CIRCUITS



APPLICABLE FFC
RECOMMENDED DIMENSION

N:CIRCUITS



STRUCTURE OF FPC

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Laboratory: IIS Date: 17/07/2025 15:19 Rev: 1.0 Variation: [No Variations]	Drawn By: villanif Checked By: *
File: PULSER_MAN.PCBDwf	Sheet: 3 / 3