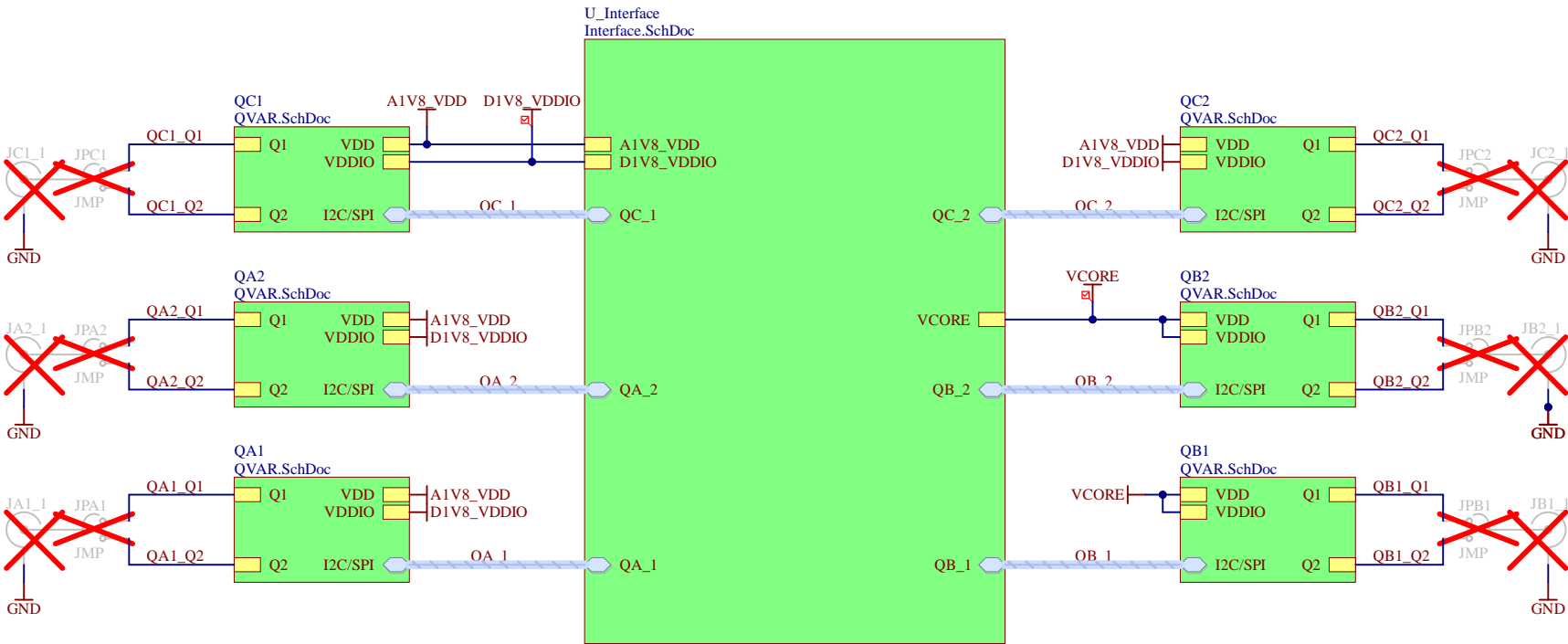
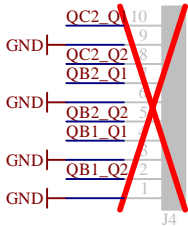
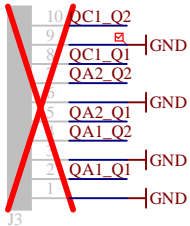


the 2 QVAR attached to I2CB have to be supplied by VCORE!



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Date: 21/07/2025 14:18:02

Rev: 1.0

Variation: Fabrication

File: main.SchDoc

Project: Qvar 6 Channel Vitalcore Backpack

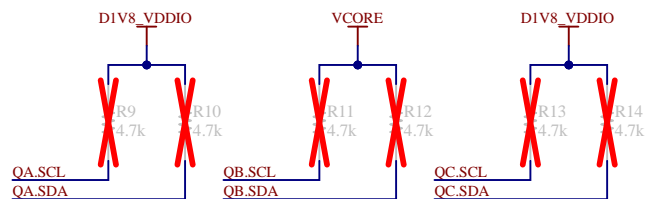
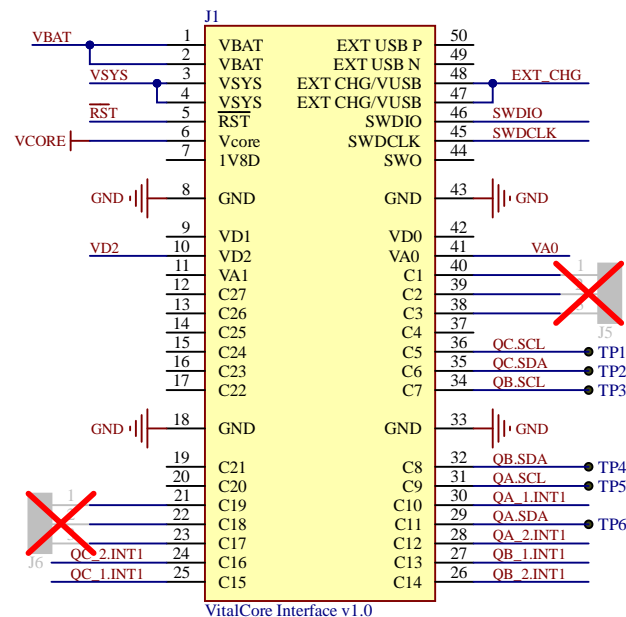
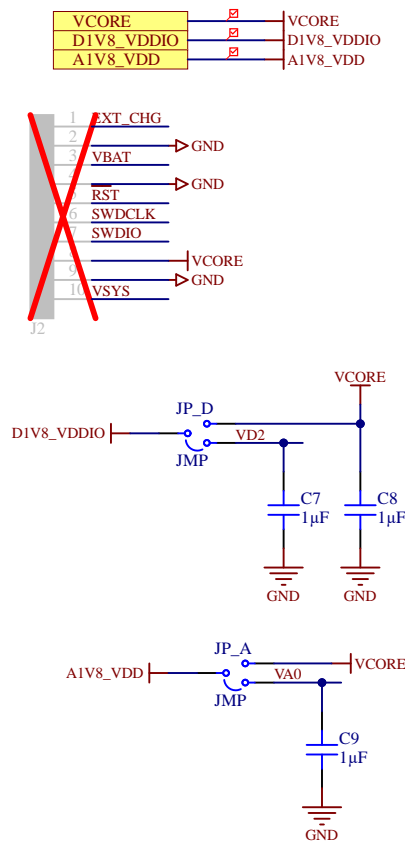
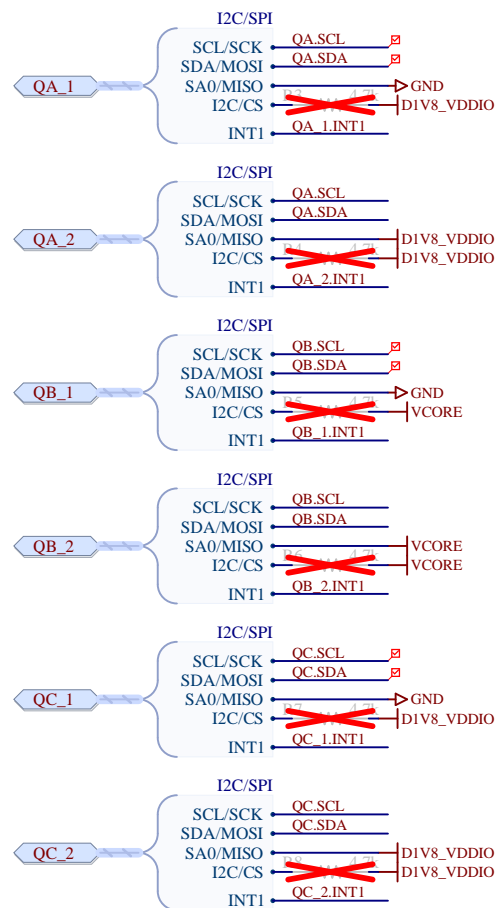
Main

Drawn By: villanif

Checked By: topononelli, nschae, peterste

the 2 QVAR attached to I2CB have to be supplied by VCORE, as the I2CB interface is used by the PMIC for configuration on the vitalcore

SWDIO and SWDCLK have to be connected externally in an ideal case. For emergency requirements a solderpad is supplied



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Rev: 1.0

Variation: Fabrication

File: Interface.SchDoc

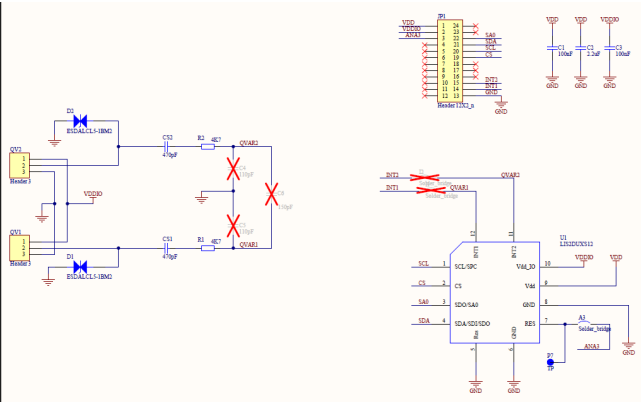
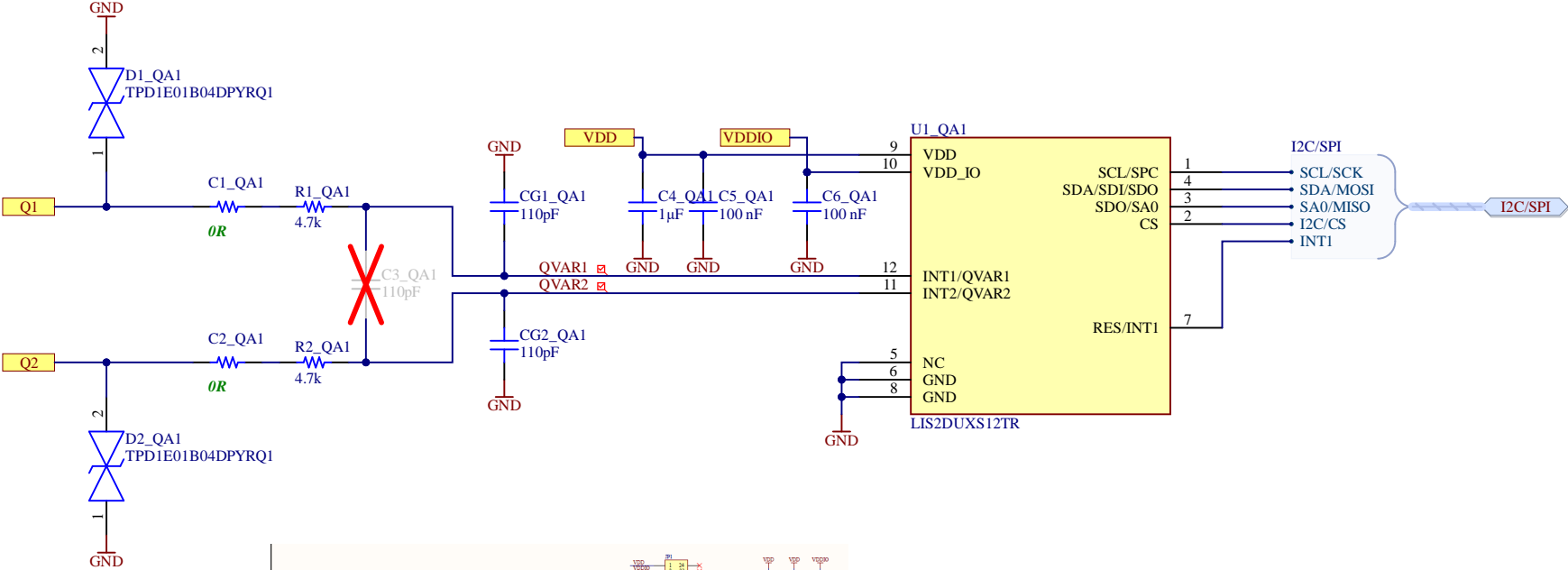
Project: Qvar 6 Channel Vitalcore Backpack

VitalCore Interface

Drawn By: villanif

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Sheet: 2 / 3



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Variation: Fabrication

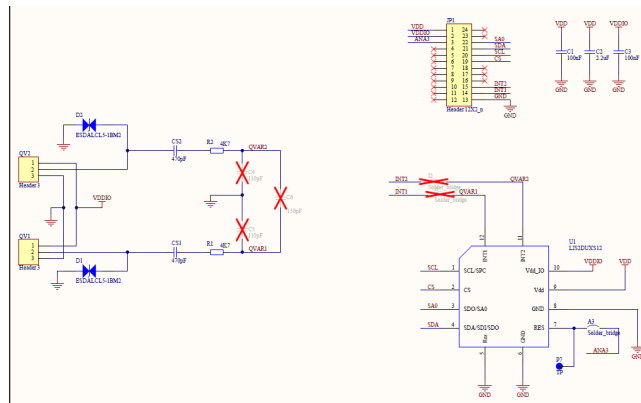
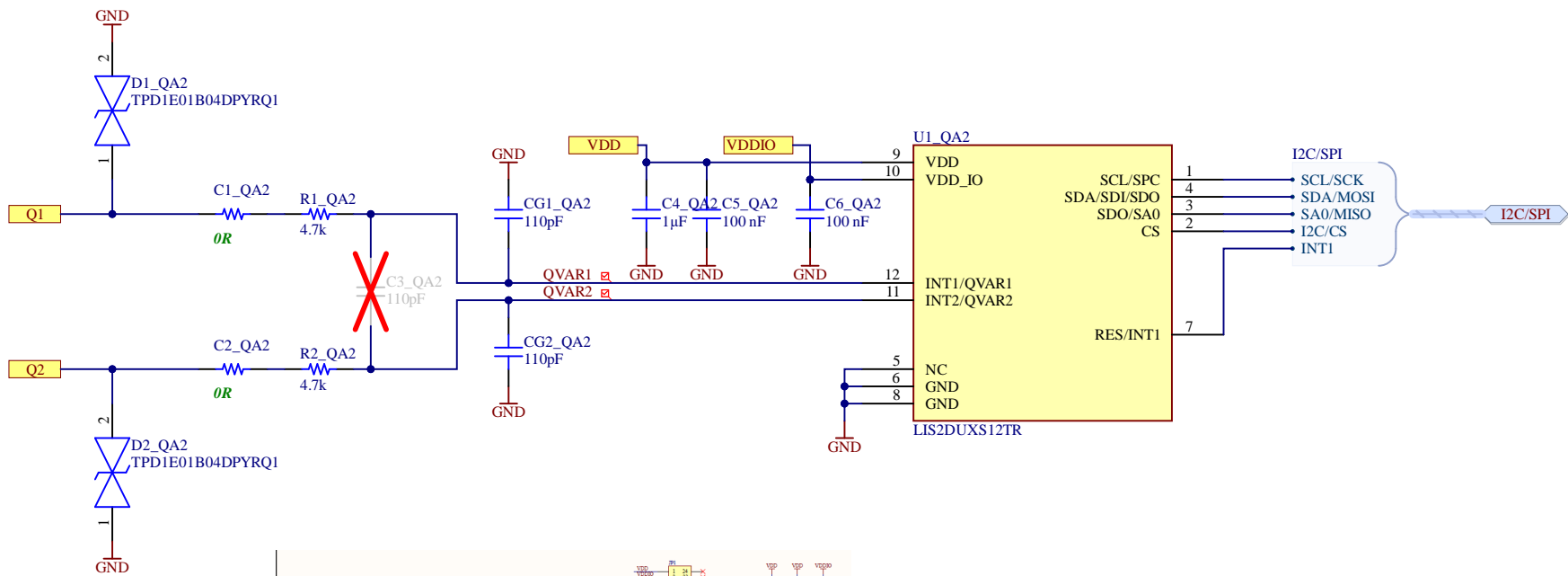
File: QVAR.SchDoc

Project: Qvar 6 Channel Vitalcore Backpack

**QVAR sensor**

Drawn By: villanif

Checked By: topononelli, nschae, peterste



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Variation: Fabrication

File: QVAR.SchDoc

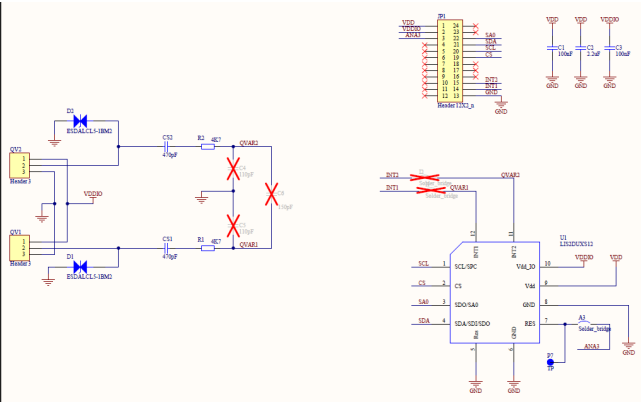
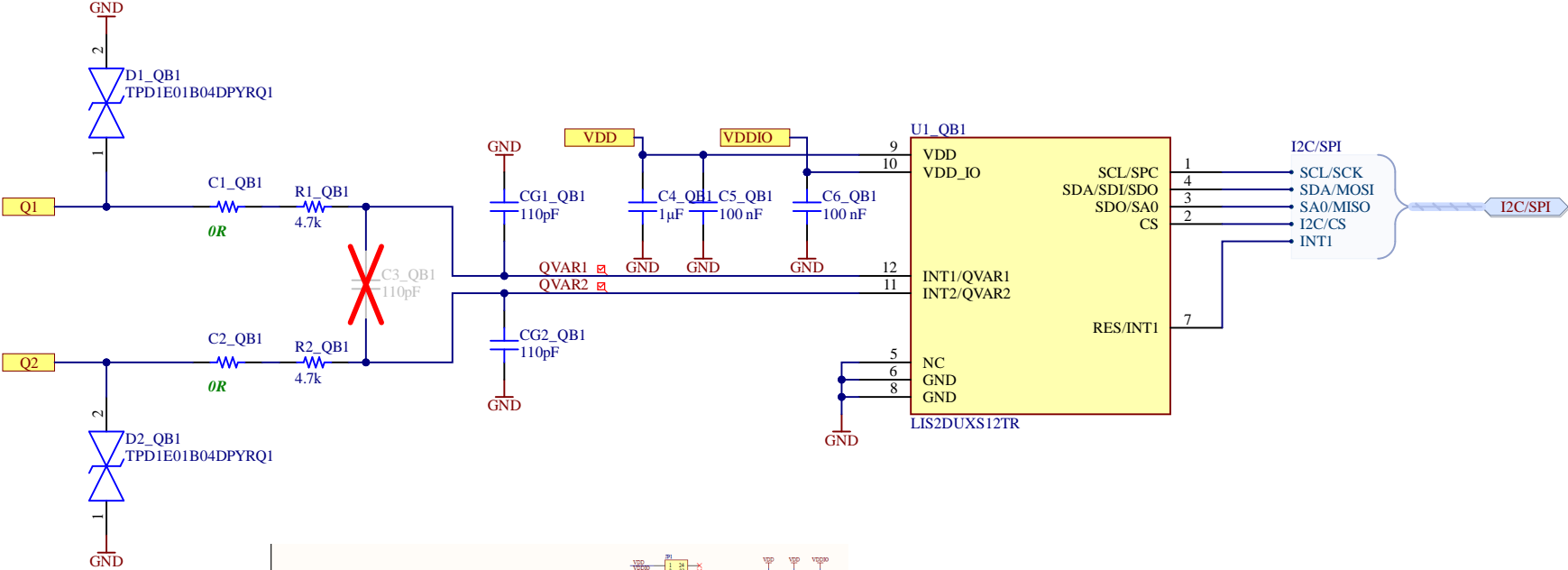
Project: Qvar 6 Channel Vitalcore Backpack

**QVAR sensor**

Drawn By: villanif

Checked By: topononelli, nschae, peterste

Sheet: 3 / 3



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Rev: 1.0

Variation: Fabrication

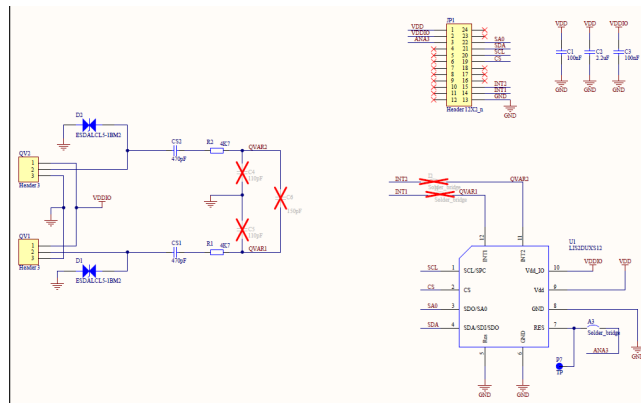
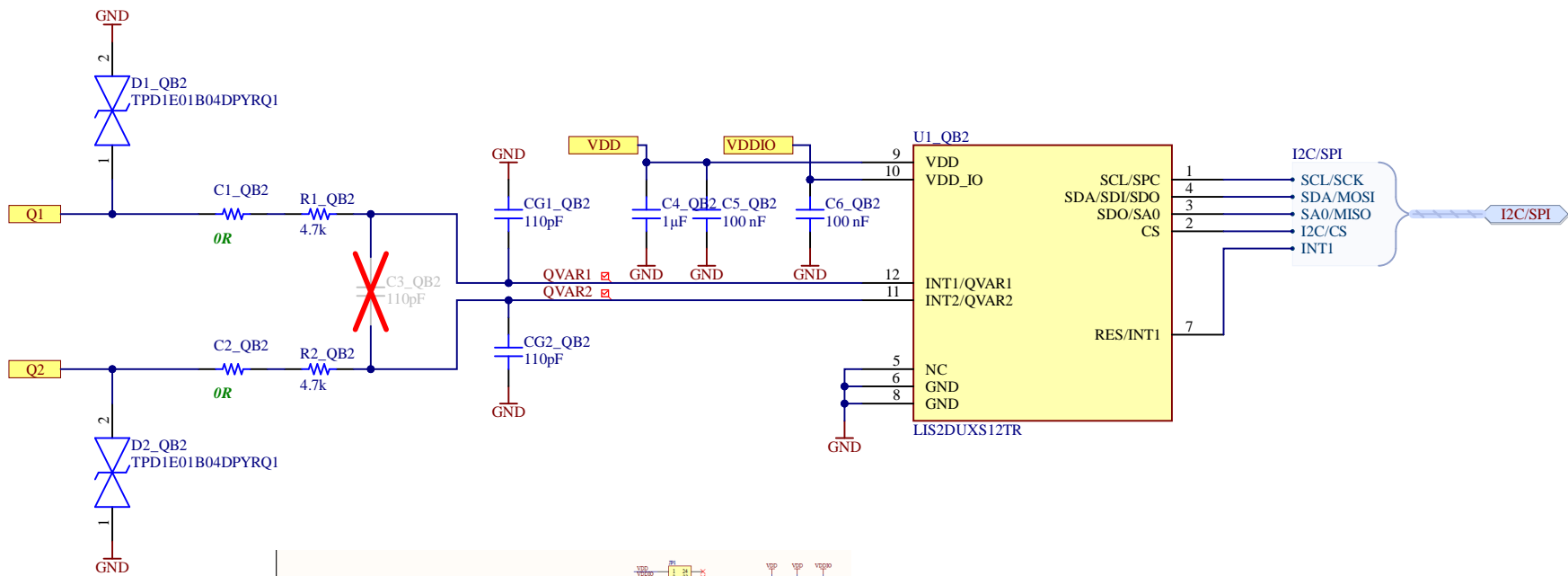
File: QVAR.SchDoc

Project: Qvar 6 Channel Vitalcore Backpack

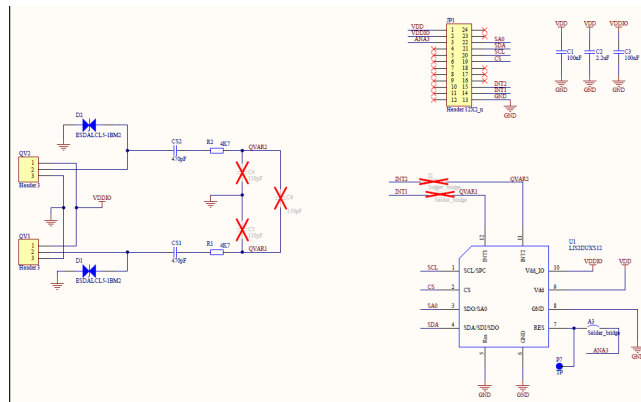
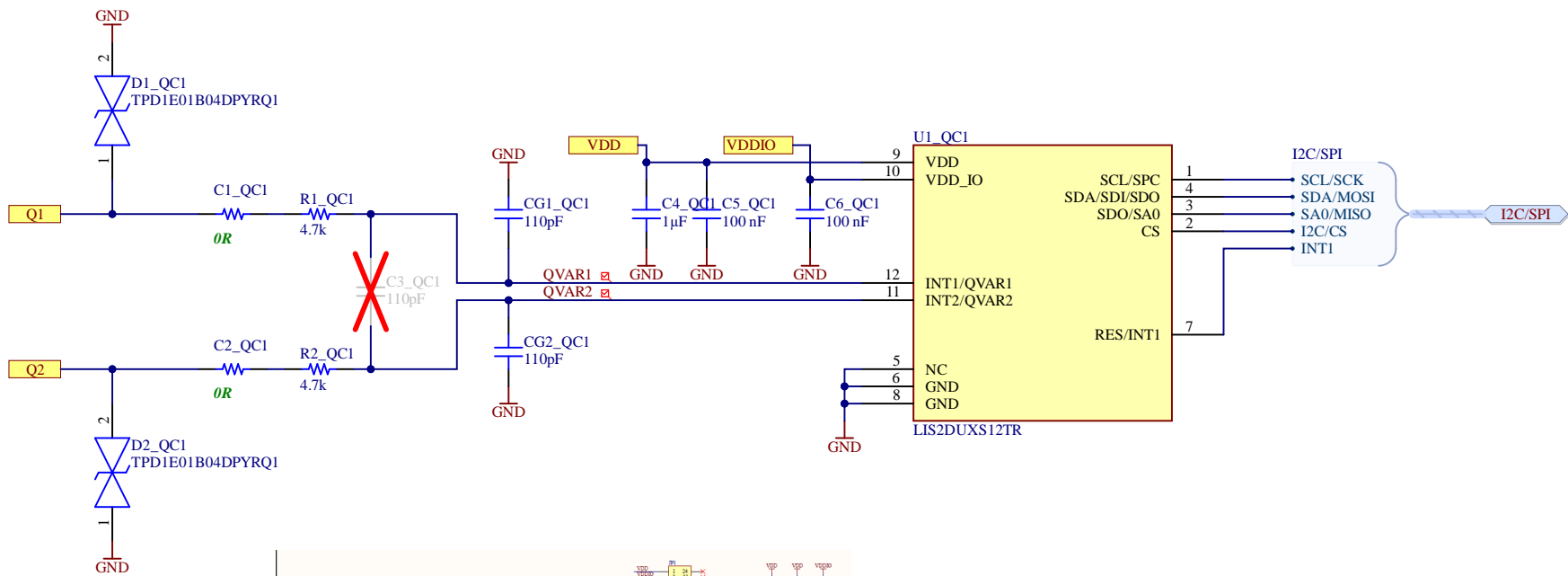
QVAR sensor

Drawn By: villanif

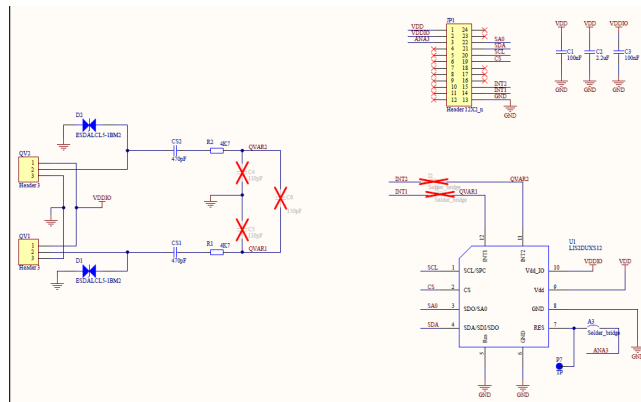
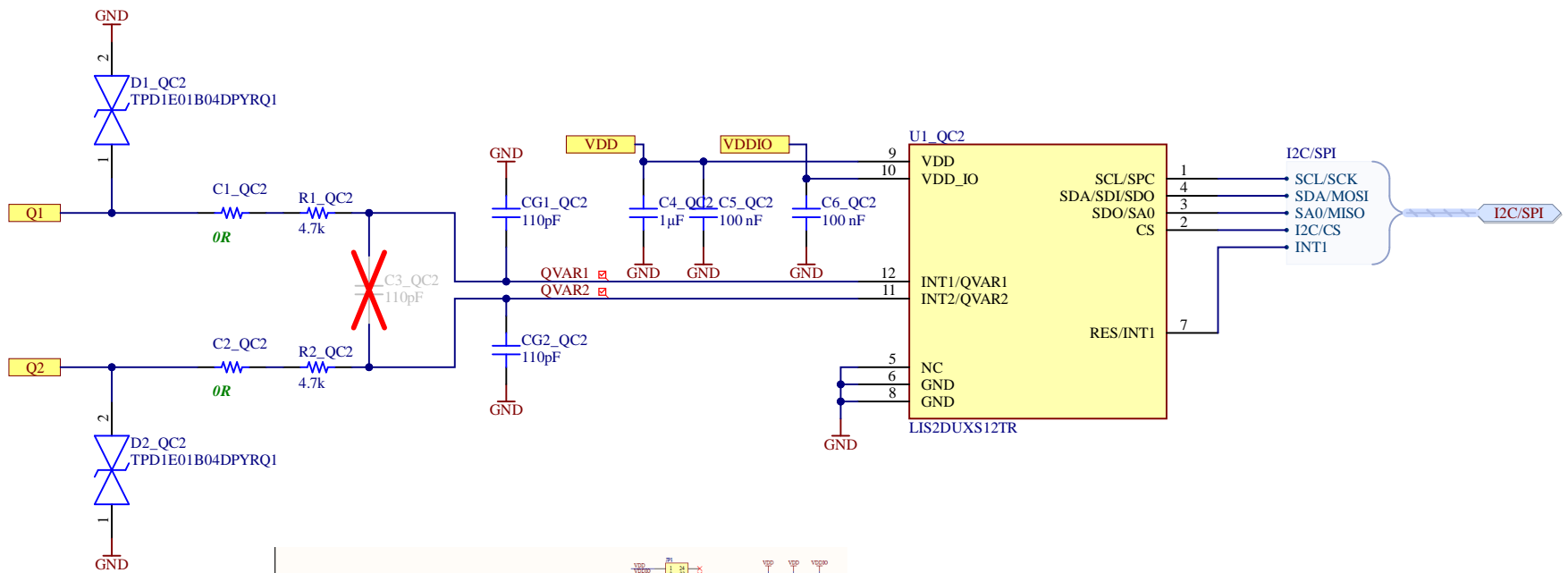
Checked By: topononelli, nschae, peterste



<div><b>ETH</b></div> <div>Eidgenössische Technische Hochschule Zürich</div> <div>Swiss Federal Institute of Technology Zurich</div>	Project: Qvar 6 Channel Vitalcore Backpack
	QVAR sensor
Laboratory: ETHZ D-ITET PBL, IIS	
Date: 21/07/2025 14:18:03	
Rev: 1.0	Drawn By: villanif
Variation: Fabrication	Checked By: toponelli, nschae, peterste
File: QVAR.SchDoc	Sheet: 3 / 3



<b>ETH</b> Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich	Project: Qvar 6 Channel Vitalcore Backpack	
	<b>QVAR sensor</b>	
	Laboratory: ETHZ D-ITET PBL, IIS Date: 21/07/2025 14:18:03 Rev: 1.0 Variation: Fabrication	
	Drawn By: villanif Checked By: topononelli, nschae, peterste	
File: QVAR.SchDoc	Sheet: 3 / 3	



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File: QVAR.SchDoc

Project: Qvar 6 Channel Vitalcore Backpack

**QVAR sensor**

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Sheet: 3 / 3



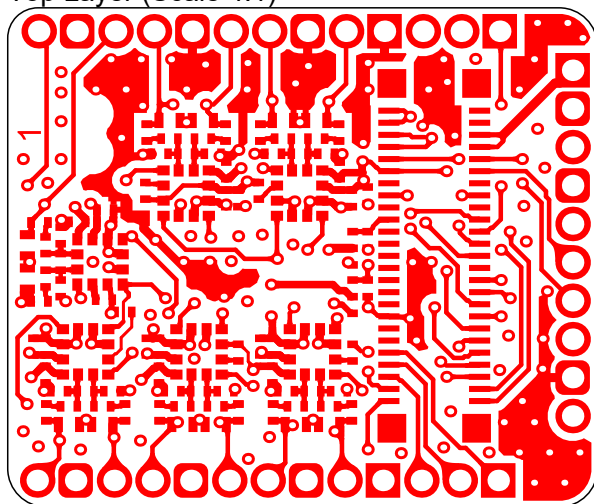
A

B

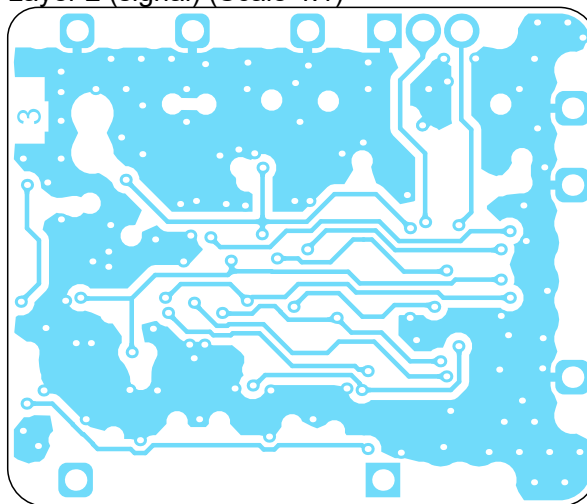
C

D

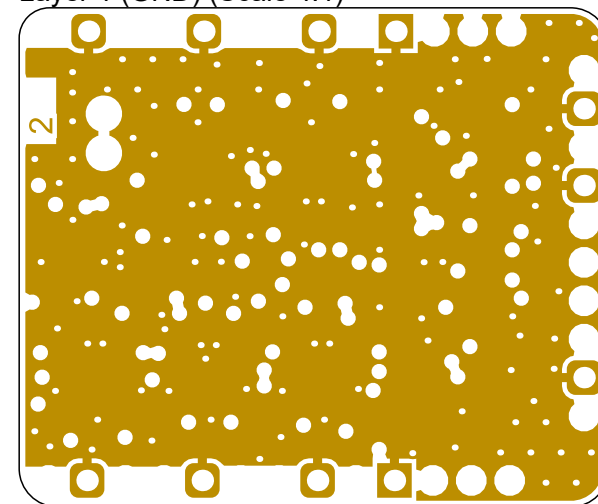
Top Layer (Scale 4:1)



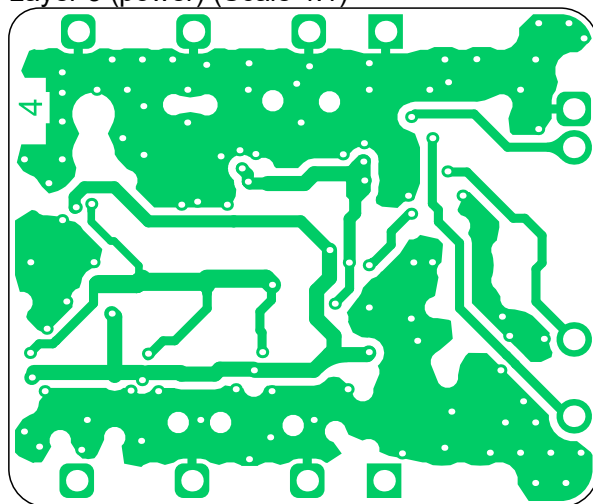
Layer 2 (signal) (Scale 4:1)



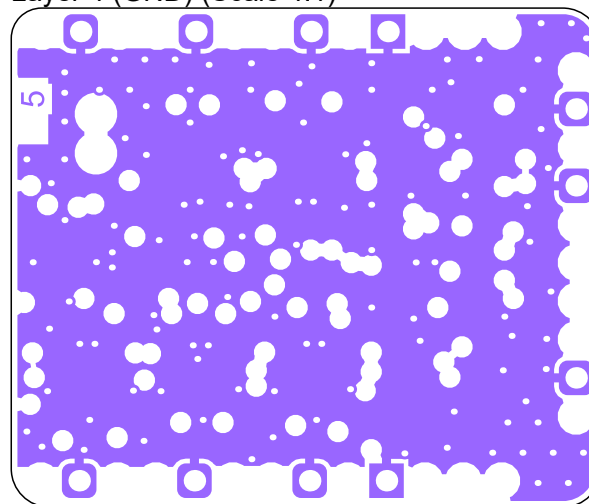
Layer 1 (GND) (Scale 4:1)



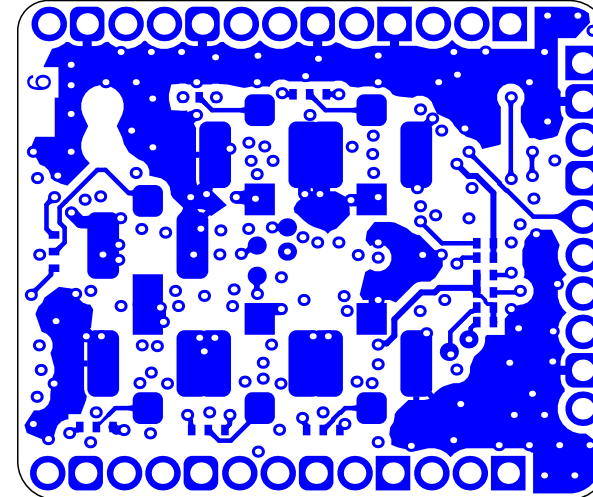
Layer 3 (power) (Scale 4:1)



Layer 4 (GND) (Scale 4:1)



Bottom Layer (Scale 4:1)

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Revision: 1.0

Variant: Fabrication

File: DOC\_ART.PCBDwf

Project: Qvar 6 Channel Vitalcore Backpack

Art

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Checked By: topononelli, nschae, peterste

Sheet: 1/1

A

B

C

D

1

1

2

2

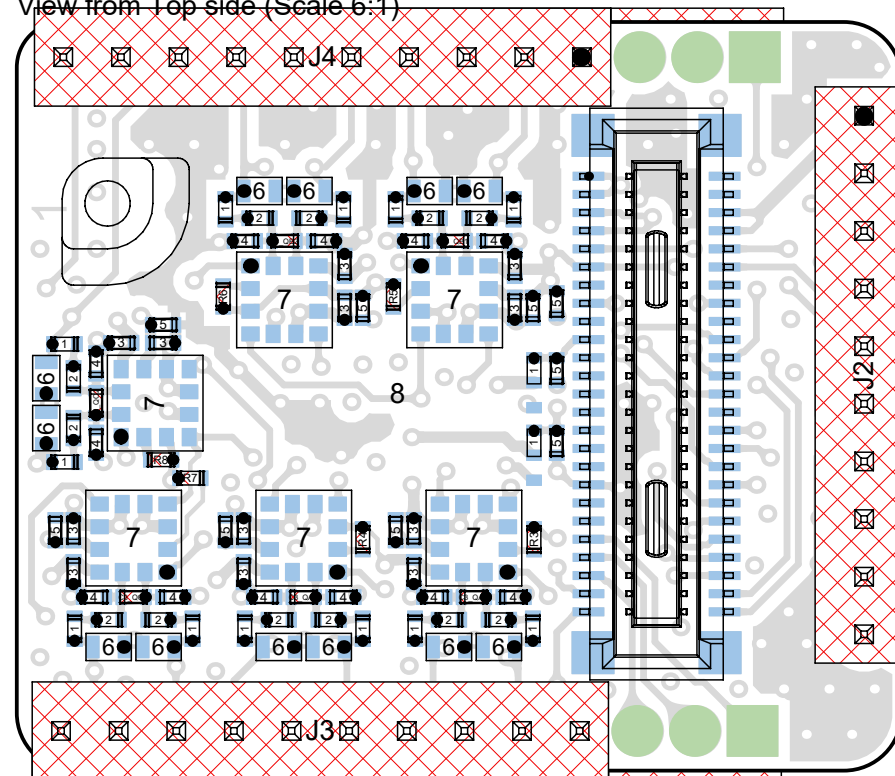
3

3

4

4

View from Top side (Scale 6:1)

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Variant: Fabrication

File: DOC\_ASSEMBLY.PCBDwf

Project: Qvar 6 Channel Vitalcore Backpack

Assembly

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Checked By: toponelli, nschae, peterste

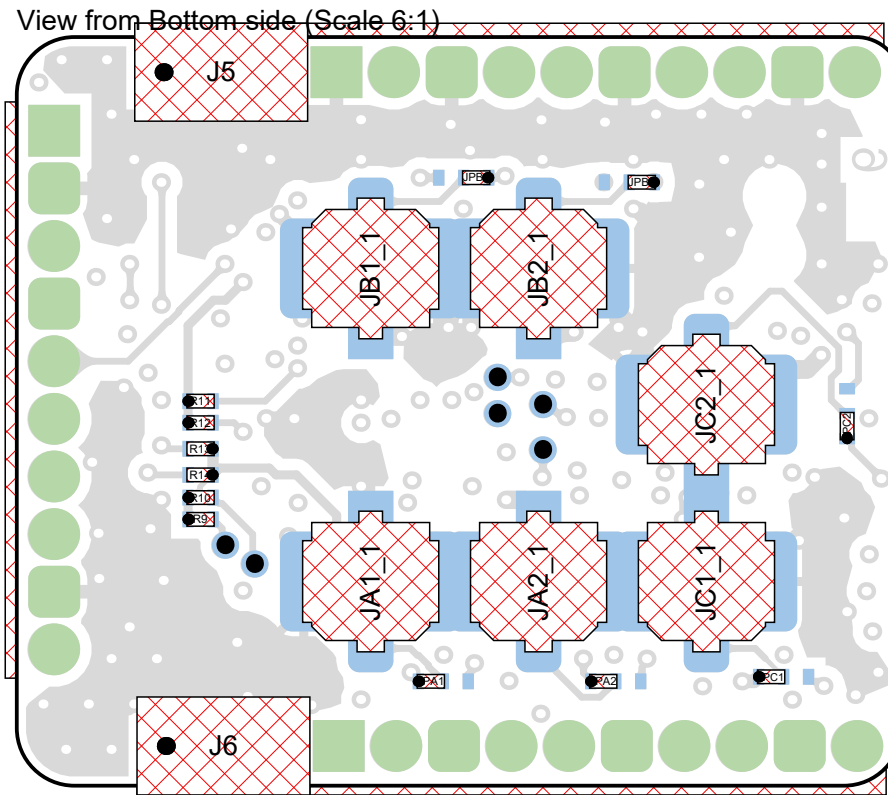
Sheet: 1/2

A

B

C

D



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Laboratory: ETHZ D-ITET PBL Date: 21/07/2025 14:18 Revision: 1.0 Variant: Fabrication File: DOC_ASSEMBLY.PCBDwf

Project: Qvar 6 Channel Vitalcore Backpack <b>Assembly</b>
Drawn By: villanif Checked By: topononelli, nschae, peterste
Sheet: 2/2

A

B

C

D

1

1

2

2

3

3

4

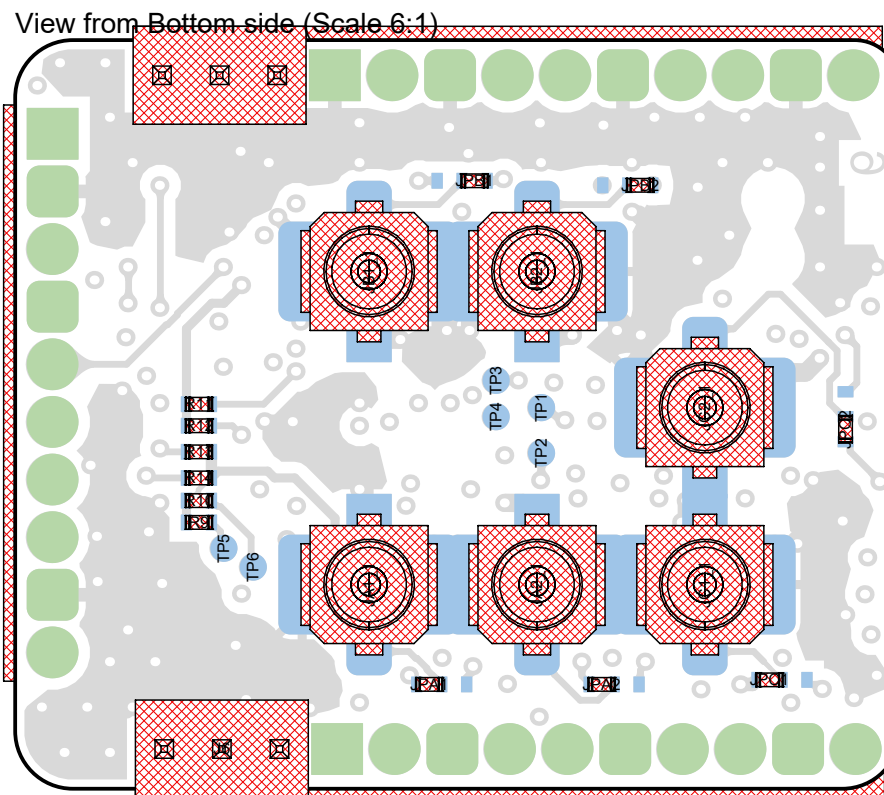
4

A

B

C

D

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Date: 21/07/2025 14:18

Revision: 1.0

Variant: Fabrication

File: DOC\_CONN.PCBDwf

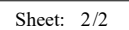
Project: Qvar 6 Channel Vitalcore Backpack

## Connectors

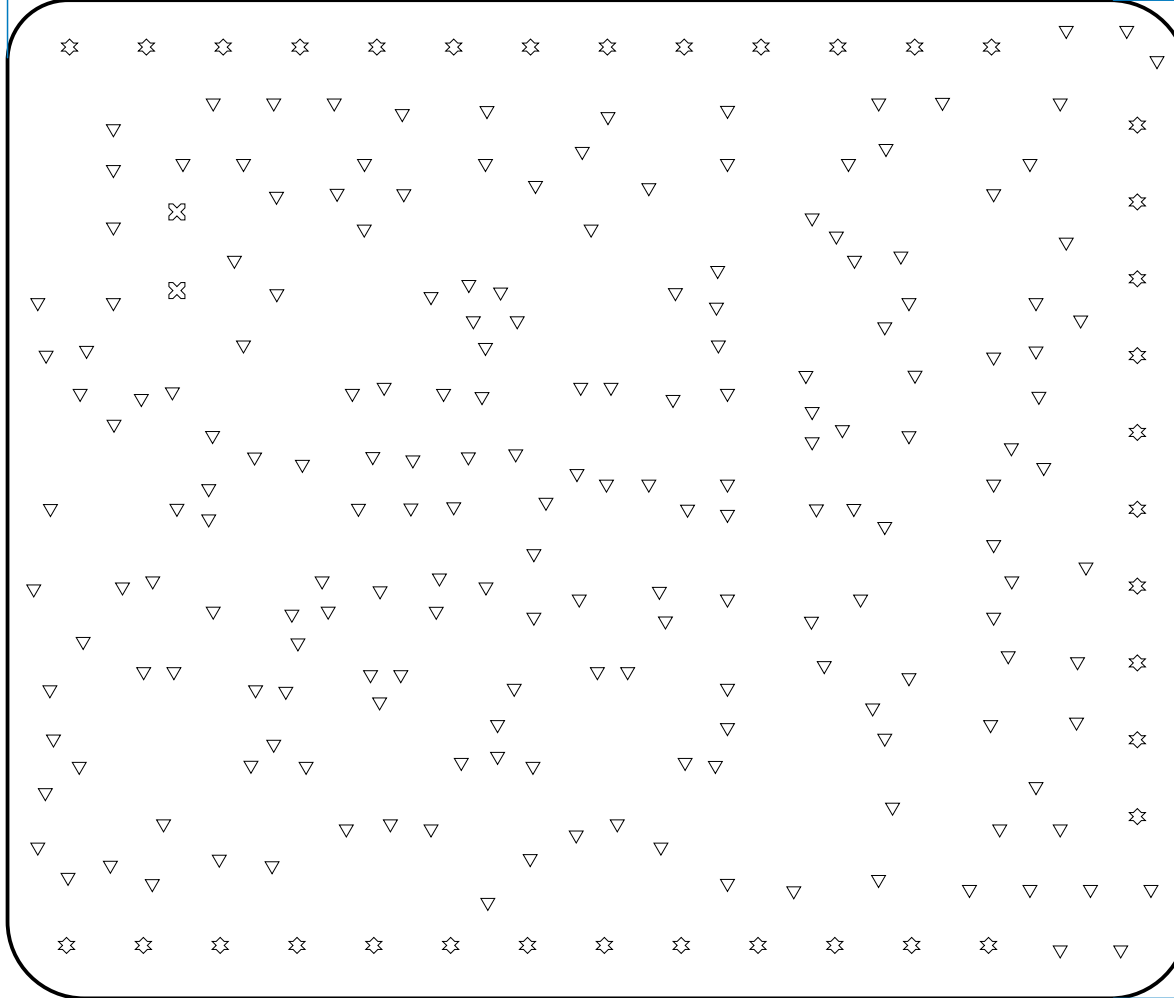
Drawn By: villanif

Checked By: topononelli, nschae, peterste

Sheet: 1/2



Drill Drawing View (Scale 8:1)



Drill Table

Symbol	Count	Hole Size	Plated	Drill Layer Pair
▽	193	0.20mm	Plated	Top Layer - Bottom Layer
☆	36	0.71mm	Plated	Top Layer - Bottom Layer
⊠	2	0.90mm	Non-Plated	Top Layer - Bottom Layer
231 Total				

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Date: 21/07/2025 14:18  
Revision: 1.0  
Variant: Fabrication  
File: DOC\_MANUFACTURE.PCBDwf

Project: Qvar 6 Channel Vitalcore Backpack  
**Manufacturing**  
  
Drawn By: villanif  
Checked By: topolonelli, nschae, peterste

Sheet: 1/2

A

B

C

D

Layer Stack Legend

Layer	Type	Gerber	Thickness
Board Layer Stack Top Solder	Solder Mask	GTS	0.025mm
Top Surface Finish	Surface Finish		0.004mm
Top Layer	Signal	GTL	0.035mm
	Dielectric		0.099mm
Layer 1 (GND)	Signal	G1	0.015mm
	Dielectric		0.350mm
Layer 2 (signal)	Signal	G2	0.015mm
	Dielectric		0.109mm
Layer 3 (power)	Signal	G3	0.015mm
	Dielectric		0.350mm
Layer 4 (GND)	Signal	G4	0.015mm
	Dielectric		0.099mm
Bottom Layer	Signal	GBL	0.035mm
Bottom Surface Finish	Surface Finish		0.004mm
Board Layer Stack Bottom Solder	Solder Mask	GBS	0.025mm

NOTES:

- Via in pad
- 0.8mm Board: Use JLCPCB standard stackup
- ENIG finish.

<div><div>ETH</div><div>Eidgenössische Technische Hochschule Zürich Swiss Federal Institute of Technology Zurich</div></div>	Project: Qvar 6 Channel Vitalcore Backpack
	Manufacturing
Laboratory: ETHZ D-ITET PBL	Drawn By: villanif Checked By: topononelli, nschae, peterste
Date: 21/07/2025 14:18	
Revision: 1.0	
Variant: Fabrication	
File: DOC_MANUFACTURE.PCBDwf	
Sheet: 2/2	

A

B

C

D

A

B

C

D

Bill Of Materials

Line #	Designator	Name	Quantity	Design Item Id	Manufacturer	Manufacturer Part Number
1	C1_QA1, C1_QA2, C1_QB1, C1_QB2, C1_QC1, C1_QC2, C2_QA1, C2_QA2, C2_QB1, C2_QB2, C2_QC1, C2_QC2	0R	12	R_0201_0R_short_cap	Panasonic	ERJ-1GN0R00C
1	JP_A, JP_D	JMP	2	JMP_0201_3w	Panasonic	ERJ-1GN0R00C
2	R1_QA1, R1_QA2, R1_QB1, R1_QB2, R1_QC1, R1_QC2, R2_QA1, R2_QA2, R2_QB1, R2_QB2, R2_QC1, R2_QC2	4.7k	12	R_0201_4.7K	Panasonic	ERJ-1GNF4701C
3	C5_QA1, C5_QA2, C5_QB1, C5_QB2, C5_QC1, C5_QC2, C6_QA1, C6_QA2, C6_QB1, C6_QB2, C6_QC1, C6_QC2	100 nF	12	CAP_0201_100n_10V	Murata	GRM033R6YA104ME14D
4	CG1_QA1, CG1_QA2, CG1_QB1, CG1_QB2, CG1_QC1, CG1_QC2, CG2_QA1, CG2_QA2, CG2_QB1, CG2_QB2, CG2_QC1, CG2_QC2	110pF	12	CAP_0201_110p_50V	Murata	GRM0335C1H111JA01D
5	C4_QA1, C4_QA2, C4_QB1, C4_QB2, C4_QC1, C4_QC2, C7, C8, C9	1µF	9	CAP_0201_1u_10V	Murata	GRM033C81A105ME05D
6	D1_QA1, D1_QA2, D1_QB1, D1_QB2, D1_QC1, D1_QC2, D2_QA1, D2_QA2, D2_QB1, D2_QB2, D2_QC1, D2_QC2	TPD1E01B04DPYRQ1	12	TPD1E01B04DPYRQ1	Texas Instruments	TPD1E01B04DPYRQ1
7	U1_QA1, U1_QA2, U1_QB1, U1_QB2, U1_QC1, U1_QC2	LIS2DUXS12TR	6	LIS2DUXS12TR	STMicroelectronics	LIS2DUXS12TR
8	J1	VitalCore Interface v1.0	1	BACKPACK_INTERFACE_V1.0	Hirose	DF40C(2.0)-50DS-0.4V(51)



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Laboratory: ETHZ D-ITET PBL  
Date: 21/07/2025 14:18  
Revision: 1.0  
Variant: Fabrication  
File: DOC\_BOM.PCBDwf

Project: Qvar 6 Channel Vitalcore Backpack  
BOM  
  
Drawn By: villanif  
Checked By: topolonelli, nschae, peterste

Sheet: 1/1

A

B

C

D



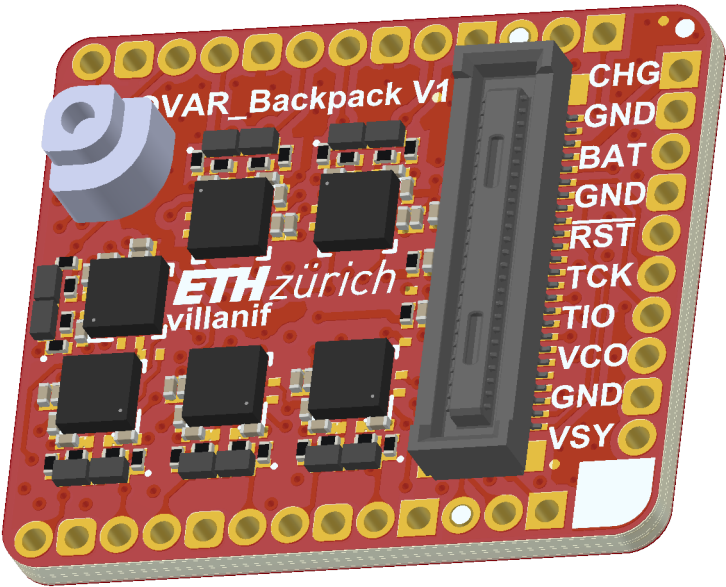
A

B

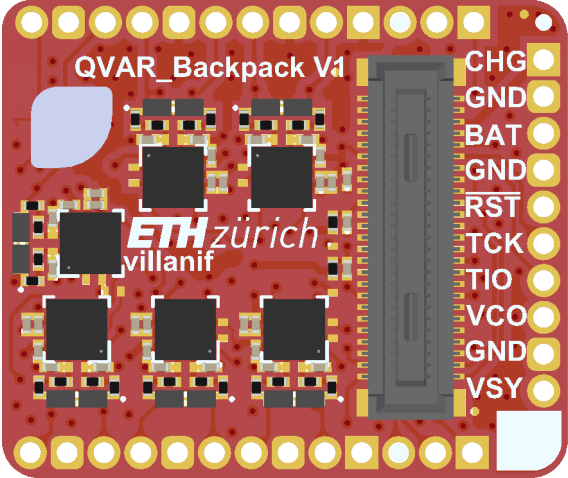
C

D

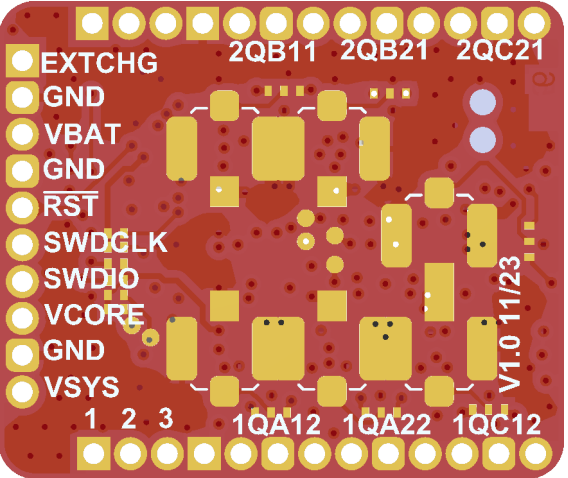
Realistic View



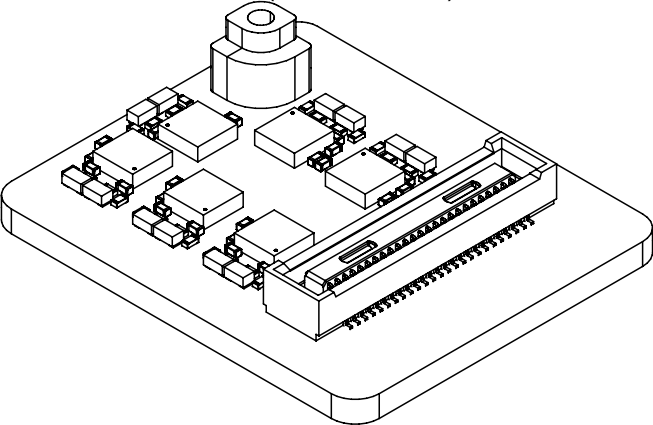
Realistic View



Realistic View



View from Front side (Scale 3.528:1)



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Revision: 1.0

Variant: Fabrication

File: DOC\_3D.PCBDwf

Project: Qvar 6 Channel Vitalcore Backpack

3D Render

Drawn By: villanif

Checked By: topononelli, nschae, peterste

Sheet: 1/1