

DOLPHIN 1000Base-T1 Media Converter 2025-05-12

Variant: A

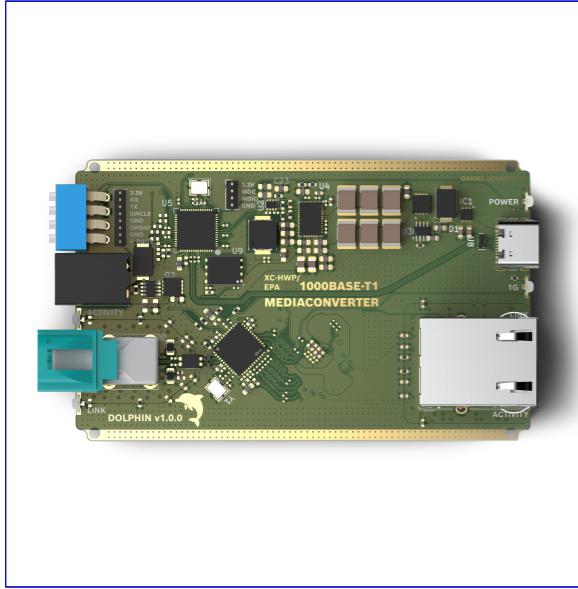
Rev 1.0

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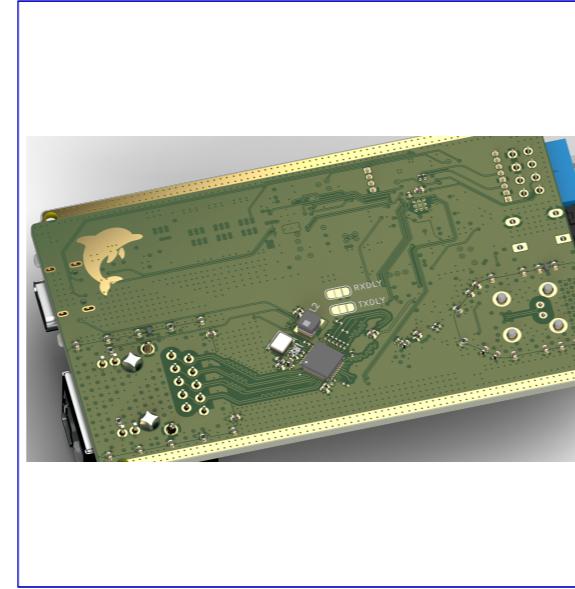
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TOP VIEW



BOTTOM VIEW



DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational design notes.

DESIGN NOTE:
Example text for debug notes.

DESIGN NOTE:
Example text for cautionary design notes.

DESIGN NOTE:
Example text for critical design notes.

LAYOUT NOTE:
Example text for critical layout guidelines.

NOTES

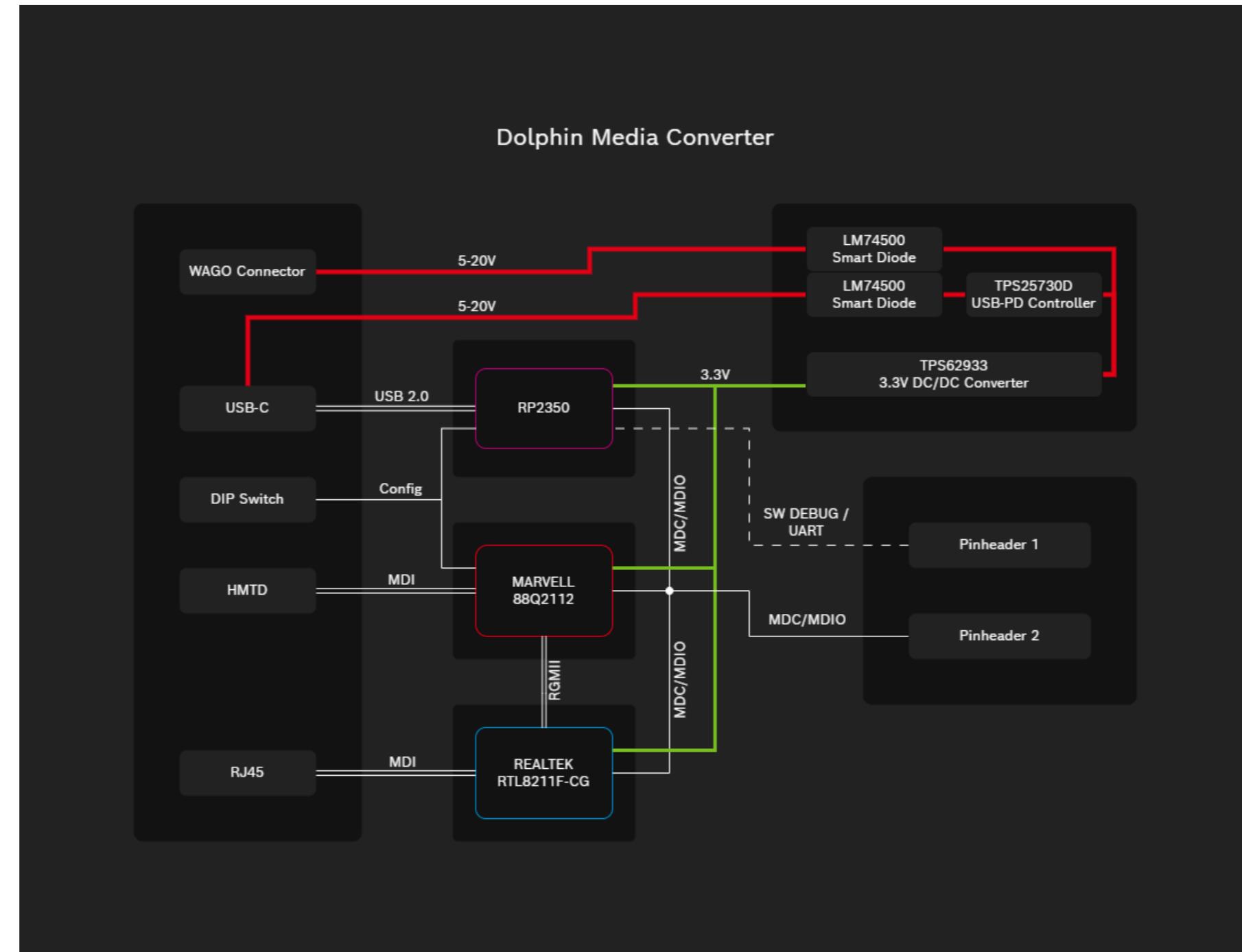
This device is a compact Automotive Ethernet Media Converter that bridges 1000Base-T1 (HMTD) to standard 1000Base-T (RJ45). It enables direct debug access to automotive ECUs for development and testing, offering a cost-effective, in-house alternative to expensive commercial converters.

Not fitted components are marked as X

A 12.05.2025

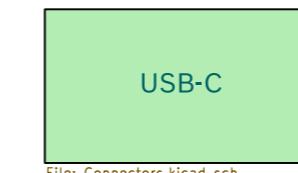
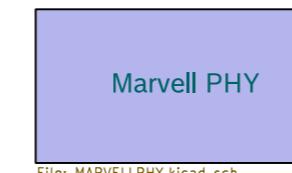
	Comments:	Company:  BOSCH	Variant: A
	Board Name: DOLPHIN 1000Base-T1 Media Converter	Project Name: T1-OG	
Sheet Title: Cover Page	File Name: Dolphin_1000BASE-T1_Mediaconverter.pdf	Designer: Klaus Jovanovic	Date: Last Modified Date Revision: 1.0
Sheet Path: /	Reviewer: DJ	Size: A3	Sheet: 1 of 13

[2] Block Diagram



	Comments:	Company:	BOSCH	Variant:
	Board Name: DOLPHIN 1000Base-T1 Media Converter	Project Name: T1-OG		
	Sheet Title: Block Diagram	File Name: Block Diagram.kicad_sch	Designer: Daniel Jovanovic	Date: Last Modified Date 1.0
	Sheet Path: /Block Diagram/	Reviewer: DJ	Size: A3	Sheet: 2 of 13

[3] Project Index



File: Section A - Title A.kicad_sch

File: MARVELLPHY.kicad_sch

File: Connectors.kicad_sch

File: RP2350.kicad_sch

File: 3V3.kicad_sch

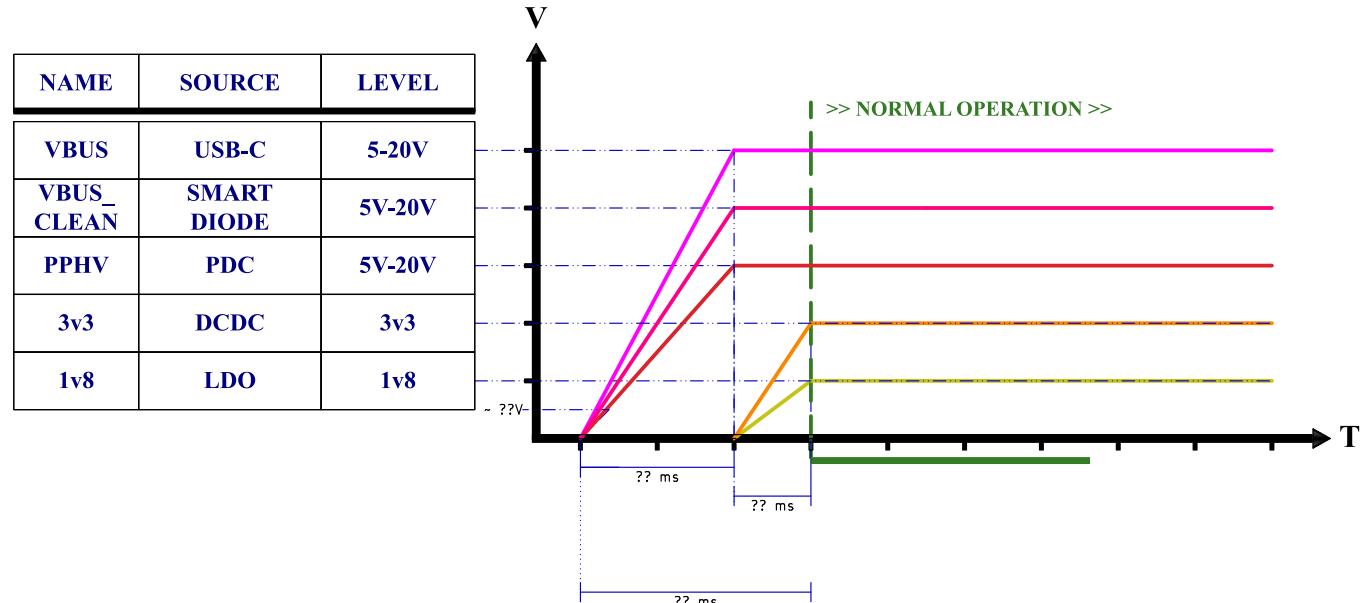
File: RTL8211.kicad_sch

File: ETH_PORT.kicad_sch

File: HMTD.kicad_sch

	Comments:	Company:  BOSCH	Variant: A
	Board Name: DOLPHIN 1000Base-T1 Media Converter	Project Name: T1-OG	
	Sheet Title: Project Index	File Name: Project Architecture.kicad_sch	Designer: Daniel Jovanovic
	Sheet Path: /Page Index/	Reviewer: DJ	Date: Last Modified Date 1.0

[12] Power - Sequencing



	Comments:	Company:  BOSCH	Variant:
	Board Name: DOLPHIN 1000Base-T1 Media Converter		Project Name: T1-OG
	Sheet Title: Power - Sequencing	File Name: Power - Sequencing.kicad_sch	Designer: Daniel Jovanovic
	Sheet Path: /Power - Sequencing/	Reviewer: DJ	Date: Last Modified Date Revision: 1.0

1 2 3 4 5 6

[13] Revision History

A

DD.MM.YYYY - xxx Revision
Variant: xxx

- REV 1.0.0 First release

B

C

DD.MM.YYYY - xxx Revision
Variant: xxx

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DD.MM.YYYY - xxx Revision
Variant: xxx

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DD.MM.YYYY - xxx Revision
Variant: xxx

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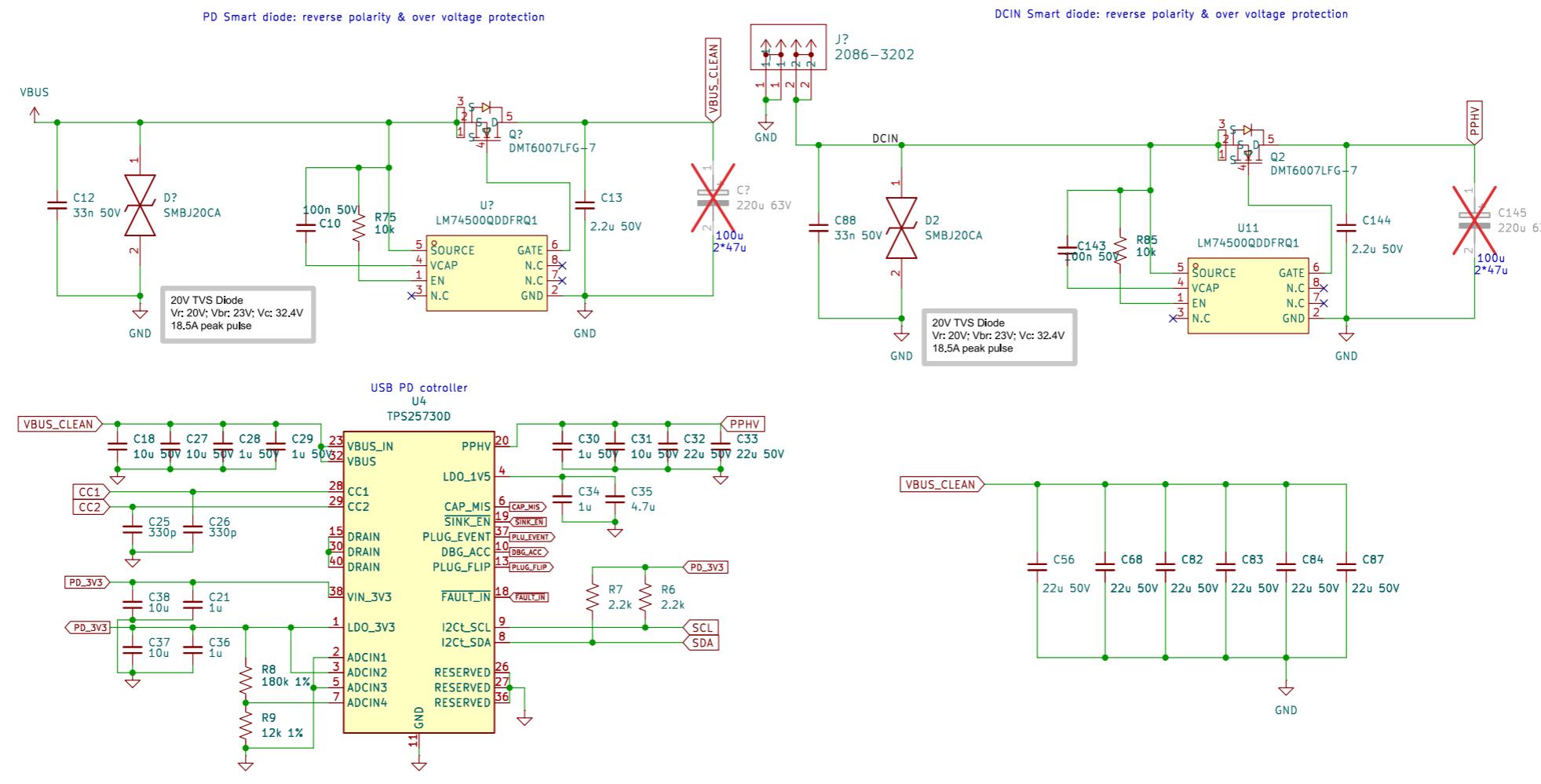
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D

	Comments:	Company:  BOSCH	Variant: A
	Board Name: DOLPHIN 1000Base-T1 Media Converter		
	Sheet Title: Revision History	File Name: Revision History.kicad_sch	Designer: Daniel Jovanovic
	Sheet Path: /Revision History/	Reviewer: DJ	Date: Last Modified Date
			Revision: 1.0
		Size: A4	Sheet: 13 of 13



ADC	DESCRIPTION	VALUE	TARGET	R1	R2
ADCIN1	MIN. VOLTAGE = 0V	0	GND	-	-
ADCIN2	MAX. VOLTAGE = 20V	7	3V3	-	-
ADCIN3	MIN. CURRENT = 0A	0	GND	-	-
ADCIN4	MAX. CURRENT = 5A	3	0.1899	190k	11.5k

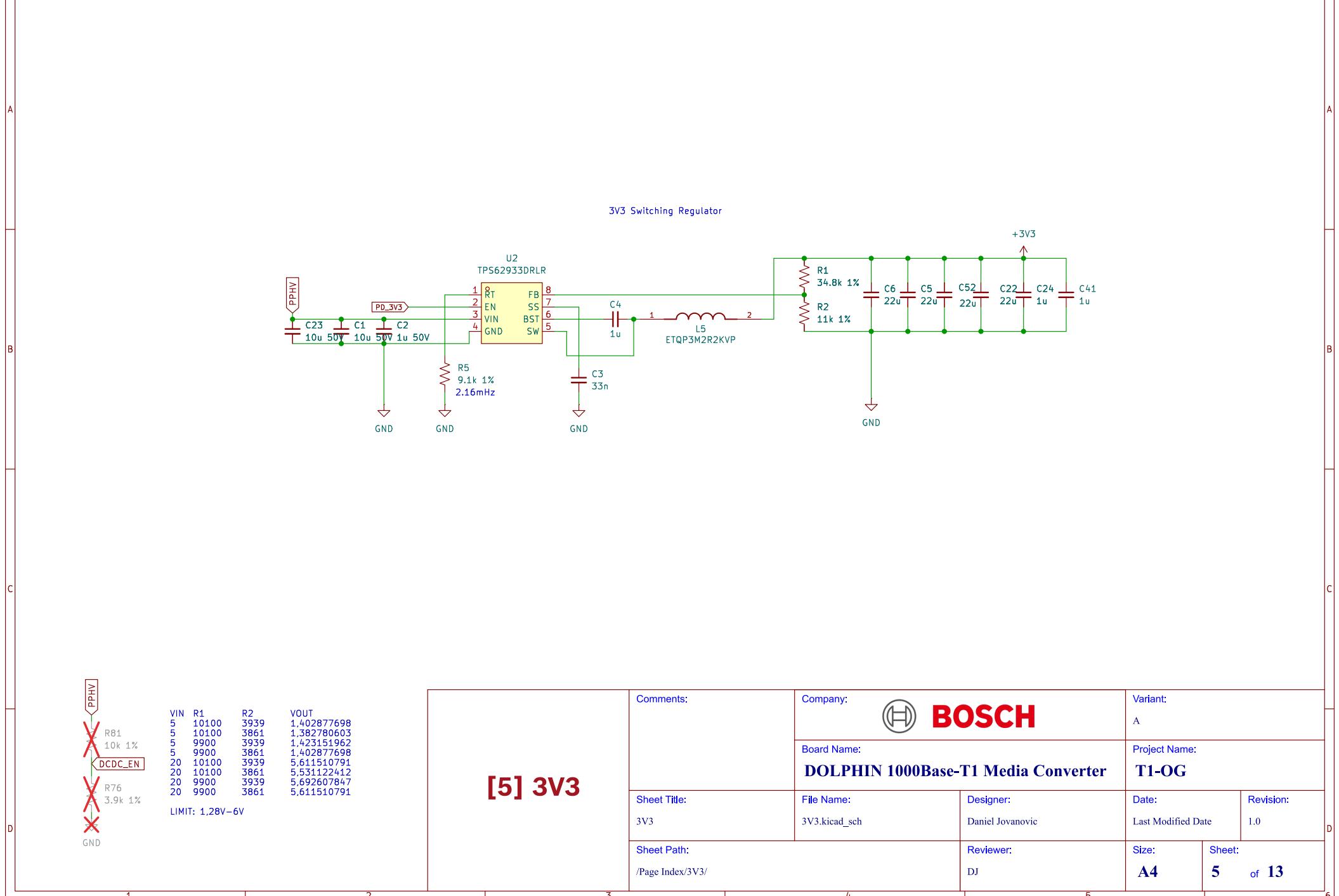
Voltage Divider Worst Case Calculation

VIN	R1	R2	VOUT
3	181800	12120	0.1875
3	181800	11880	0.18401487
3	178200	12120	0.191046658
3	178200	11880	0.1875

LIMIT: 0.1425V – 0.2372V

[4] Power

Comments:	Company: BOSCH	Variant: A
Board Name: DOLPHIN 1000Base-T1 Media Converter	Project Name: T1-OG	
Sheet Title: Power	File Name: Section A - Title A.kicad_sch	Designer: Daniel Jovanovic
Date: Last Modified Date	Revision: 1.0	
Sheet Path: /Page Index/Power/	Reviewer: DJ	Size: A3 Sheet: 4 of 13



A

A

B

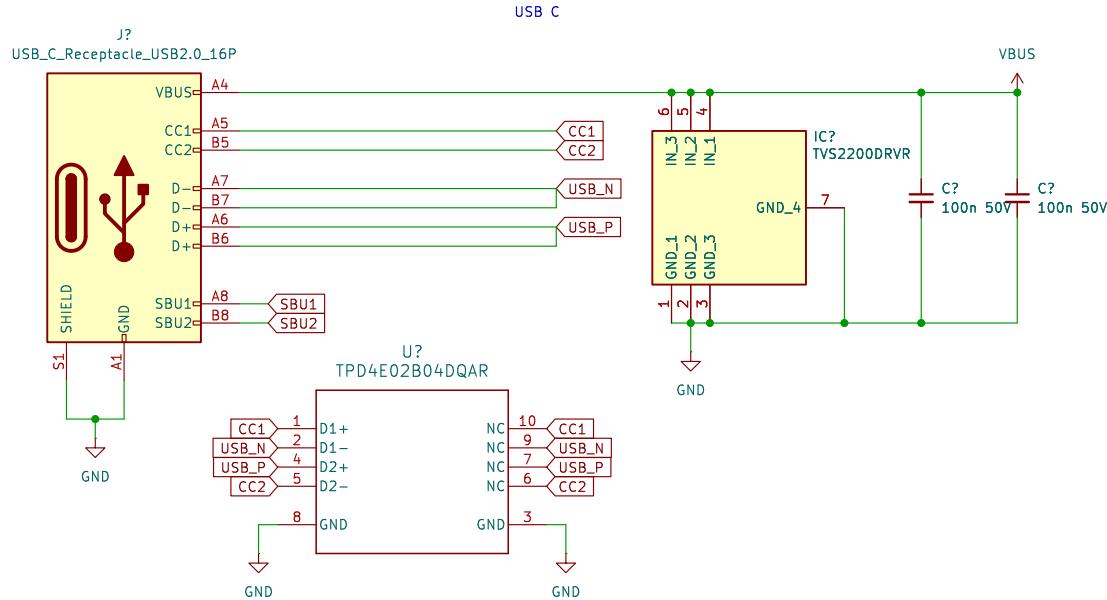
B

C

C

D

D



[6] USB-C

Comments:

Company:  **BOSCH**

Variant:

A

Board Name:

DOLPHIN 1000Base-T1 Media Converter

Project Name:

T1-OG

Sheet Title:

USB-C

File Name:

Connectors.kicad_sch

Designer:

Daniel Jovanovic

Date:

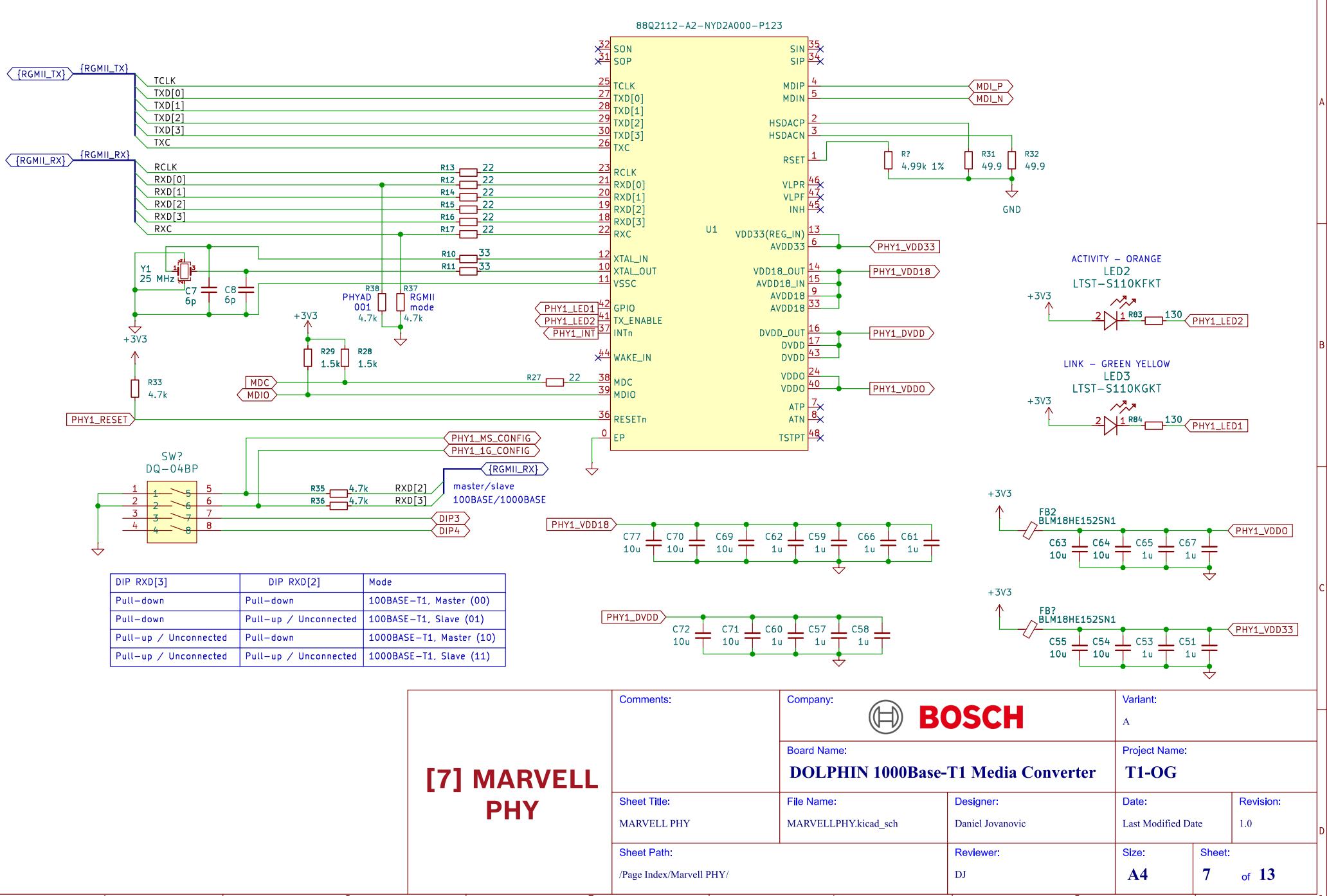
Last Modified Date 1.0

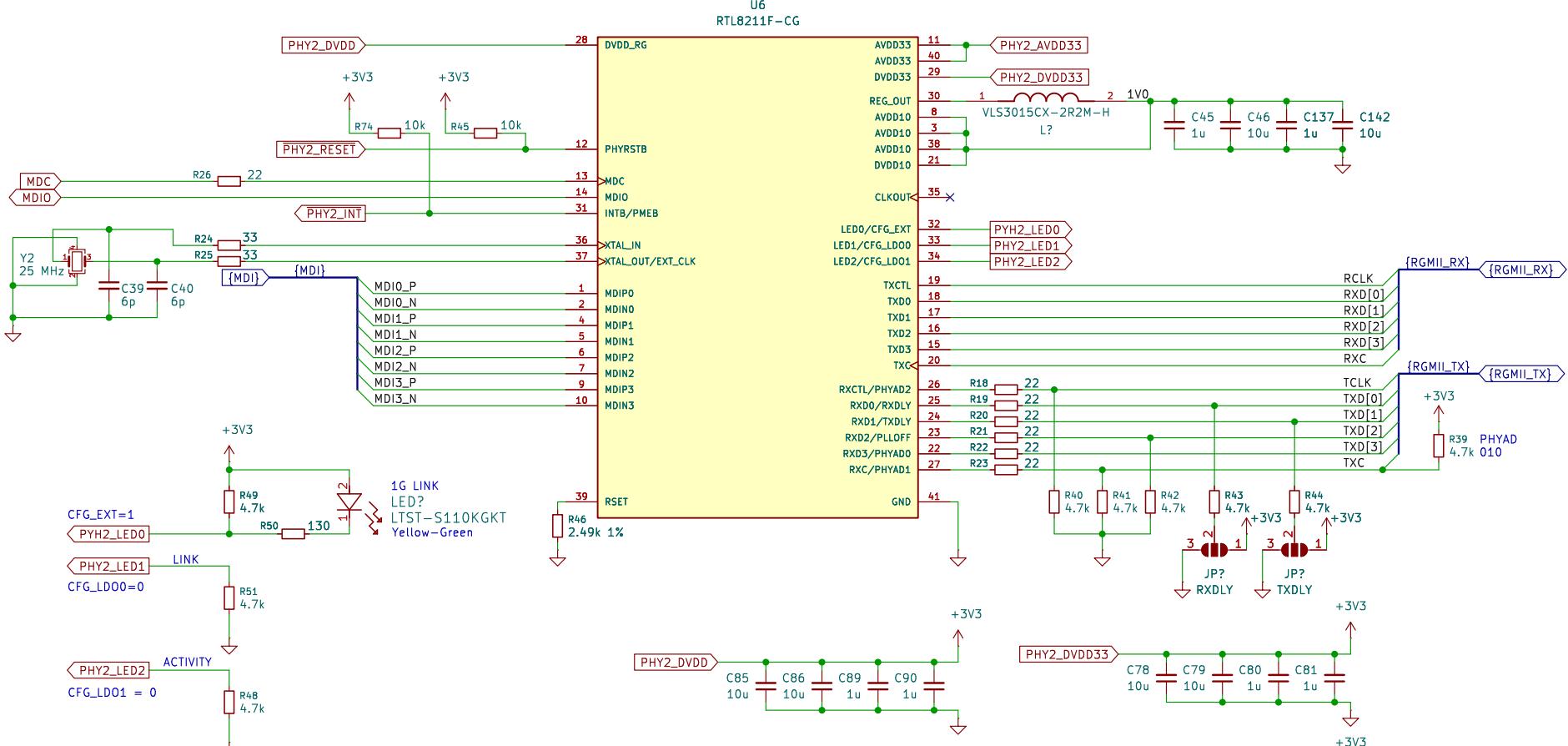
Sheet Path:
/Page Index/USB-C/

Reviewer:
DJ

Size:
A4

Sheet:
6 of **13**





[8] REALTEK PHY

Comments:

Company:
BOSCH

Board Name:
DOLPHIN 1000Base-T1 Media Converter

Variant:
A

Sheet Title:
REALTEK PHY

File Name:

Designer:

Daniel Jovanovic

Project Name:
T1-OG

Sheet Path:
/Page Index/RTL8211 PHY/

Reviewer:

DJ

Date:
Last Modified Date

Revision:
1.0

Size:
A4

Sheet:
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A

A

B

B

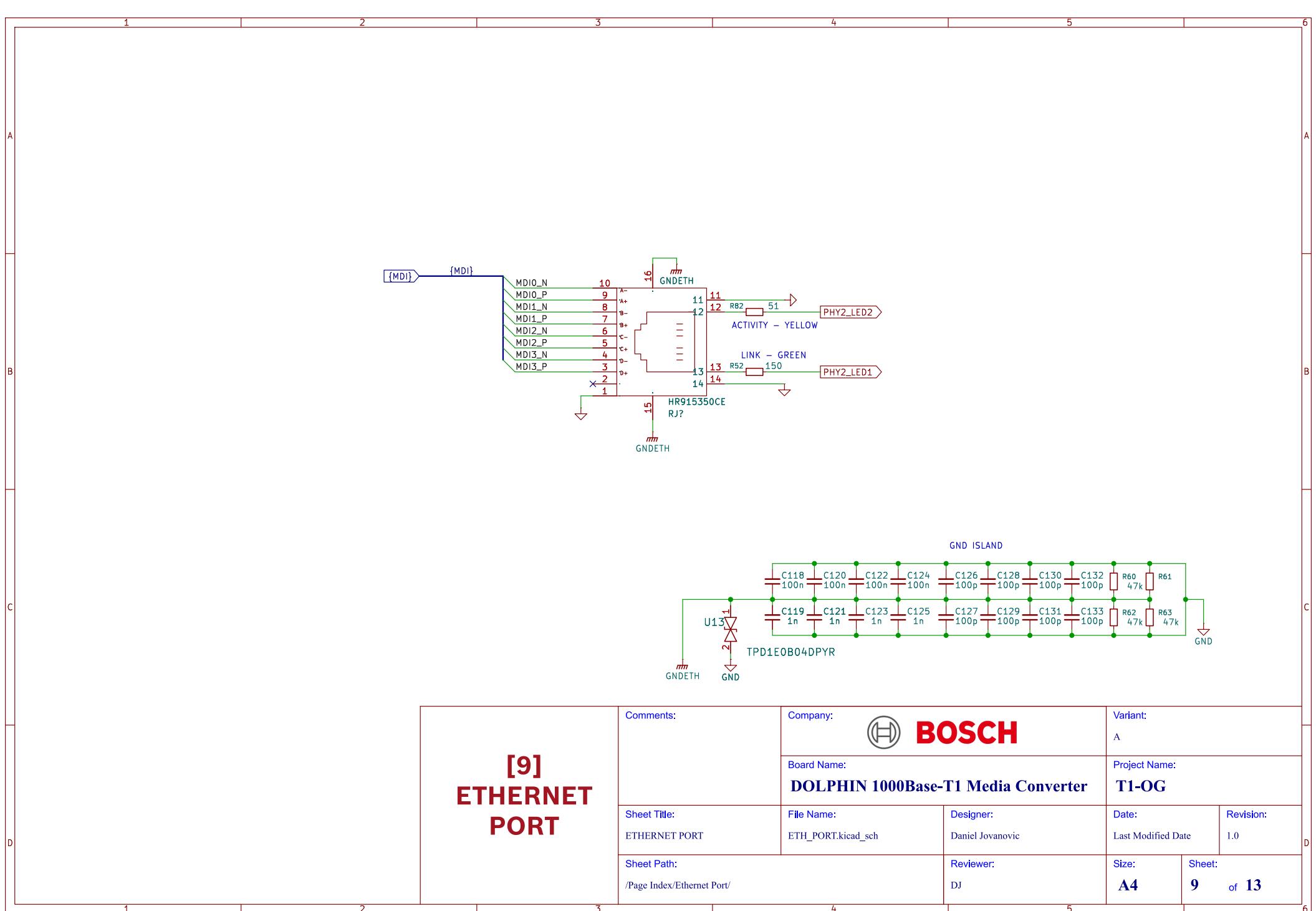
C

C

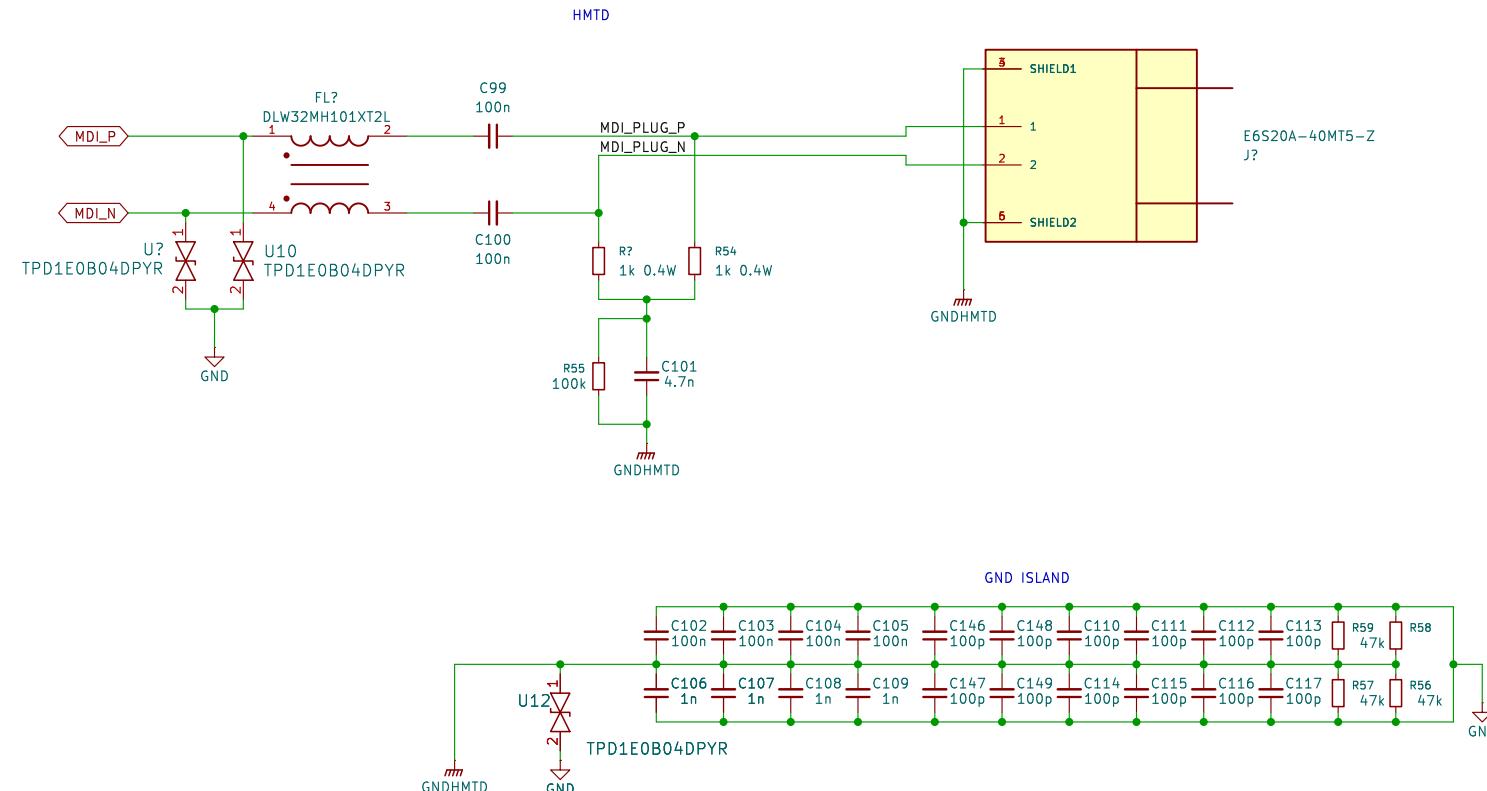
D

D

[9] ETHERNET PORT



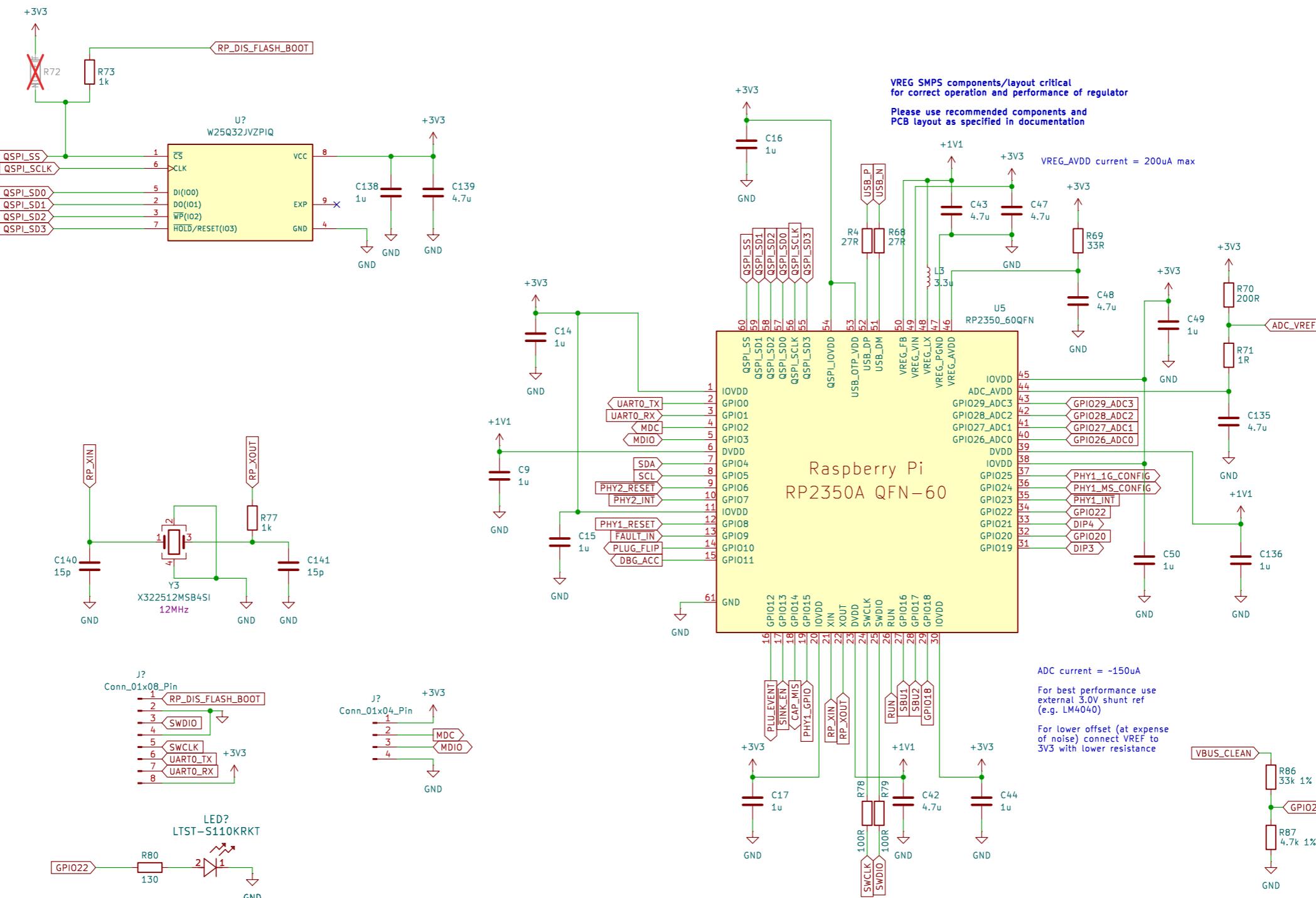
Comments:	Company:	BOSCH	Variant:
Board Name: DOLPHIN 1000Base-T1 Media Converter			Project Name: T1-OG
Sheet Title: ETHERNET PORT	File Name: ETH_PORT.kicad_sch	Designer: Daniel Jovanovic	Date: Last Modified Date 1.0
Sheet Path: /Page Index/Ethernet Port/	Reviewer: DJ	Size: A4	Sheet: 9 of 13



[10] H-MTD

[10] H-MTD	Comments:	Company:	 BOSCH	Variant:
		Board Name:	DOLPHIN 1000Base-T1 Media Converter	Project Name: T1-OG
	Sheet Title: H-MTD	File Name: HMTD.kicad_sch	Designer: Daniel Jovanovic	Date: Last Modified Date Revision: 1.0
	Sheet Path: /Page Index/H-MTD/	Reviewer: DJ	Size: A4	Sheet: 10 of 13

1 2 3 4 5 6 7 8



[11] RP2350

1 2 3 4 5 6 7 8