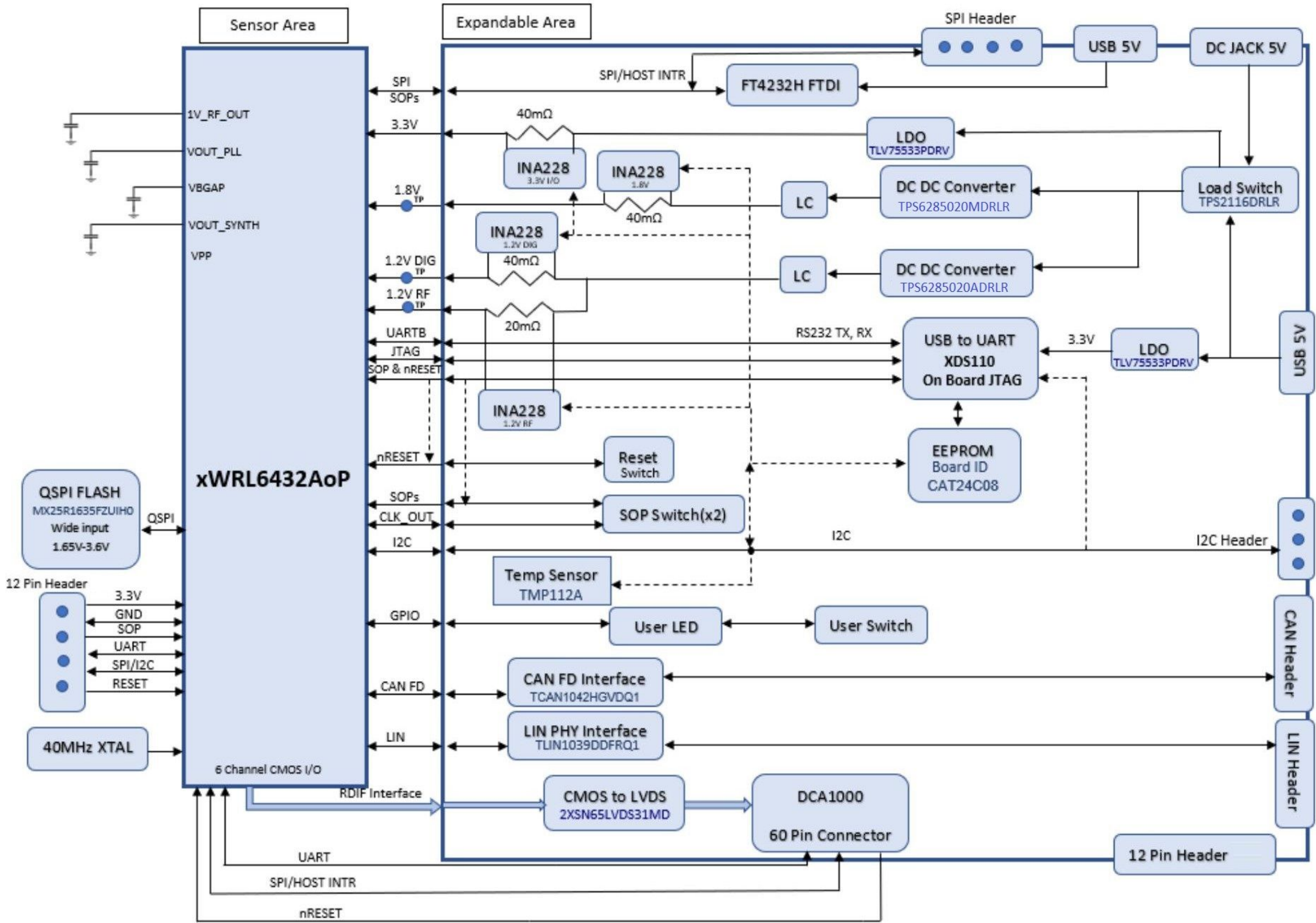


BLOCK DIAGRAM

Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
B	1	22/11/23	Ankit / Chethan	1. DNP R242 to disconnect USER_LED_SW_GPIO0 signal to FTDI chip. 2. PMIC_CLKOUT_SOP1 signal to pin 4 of male headers on sensor area and pin 3 of female connector on expandable area. 3. TP13 added for SOP1 at sensor area.
B	2	01/12/23	Ankit / Chethan	1. SW2 Added for optional 5V power for sensor board 2. SW3 added for SOP0 selection

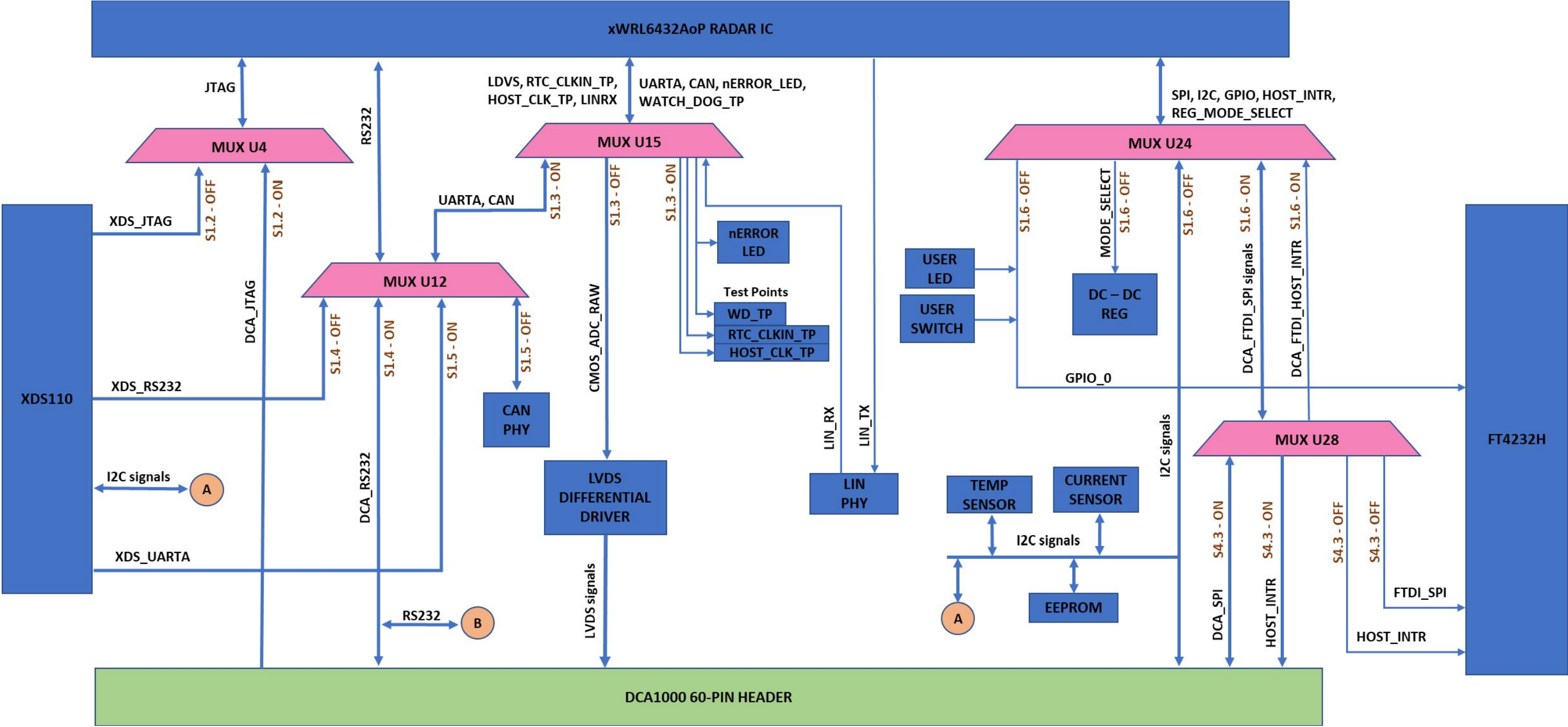


S.No	DESCRIPTION	I2C ADDRESS
1	CURRENT SENSOR 3.3V	100 0101
2	CURRENT SENSOR 1.8V	100 0000
3	CURRENT SENSOR 1.2V	100 0001
4	CURRENT SENSOR RF_1.2V	100 0100
5	TEMPERATURE SENSOR	100 1011
6	EEPROM	1010 0XX

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Orderable: xWRL6432AoP	Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A	Project Title: xWRL6432AoP	
Number: PROC177	Rev: B	Sheet Title: BLOCK DIAGRAM
SVN Rev: Unknown revision	Assembly Variant: 001_IWR	Sheet: 1 of 17
Drawn By: Mistral	File: PROC177B_Block_Diagram.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

MUX BLOCK DIAGRAM



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Orderable: IWRL6432AOPEVM	Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: MUX BLOCK DIAGRAM
SVN Rev: Unknown revision	Assembly Variant: 001_IWR	Sheet: 2 of 17
Drawn By: Mistral	File: PROC177B_MUX_Block_Diagram.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

1	2	3	4	5	6
A					A
B					B
C					C
D					D

TABLE OF CONTENTS

SHEET NO.	SHEET NAME
1	BLOCK DIAGRAM
2	MUX BLOCK DIAGRAM
3	TABLE OF CONTENTS
4	USB_PWR_DC_JACK_SWITCH
5	DC-DC REGULATORS & LDO
6	xWRL6432AoP_CHIP
7	DECOUPLING_CAPS-QSPI_FLASH_
8	TEMP_CURRENT_SENSORS_EEPROM
9	LVDS_DRIVER
10	ANALOG_MUX_SOP_CTRL
11	ANALOG_MUX_SPI_DCA/FTDI
12	XDS110_INTERFACE
13	CAN_LIN_PHY_INTERFACE
14	FTDI- USB to SPI CONVERTER
15	DCA1000_CONN_RESET
16	I2C_SPI_CONN_HEADER
17	EVM_HARDWARE

Orderable: IWRL6432AOPEVM

TID #: N/A

Number: PROC177

SVN Rev: Unknown revision

Drawn By: Mistral

Engineer: Mistral

Designed for: Public Release

Project Title: xWRL6432AOP

Sheet Title: TABLE OF CONTENTS

Assembly Variant: 001_IWR

File: PROC177B_Table_Of_Contents.SchDoc

Contact: http://www.ti.com/support

Mod. Date: 1/3/2024

Sheet: 3 of 17

Size: B

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2

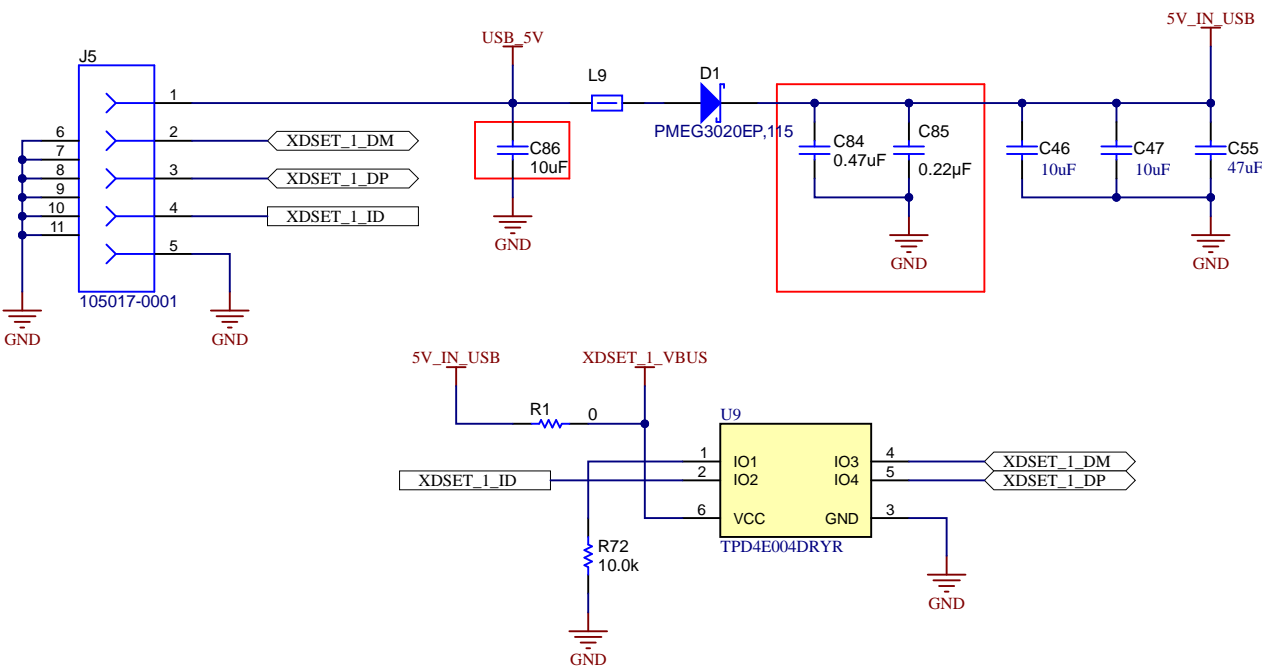
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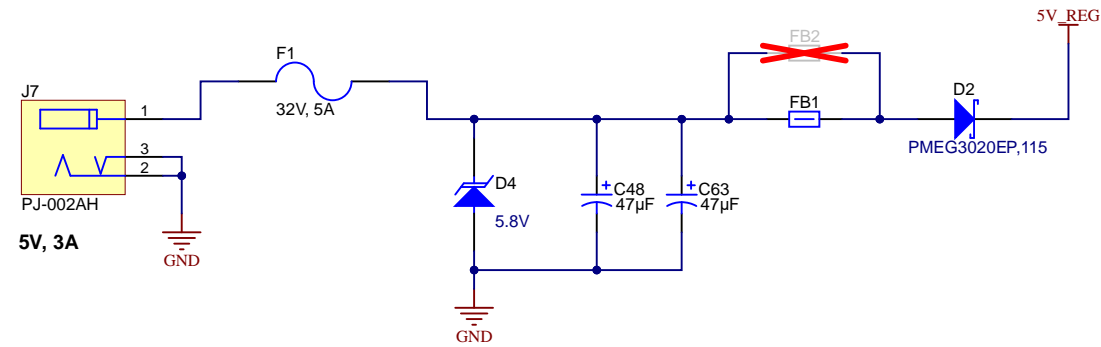
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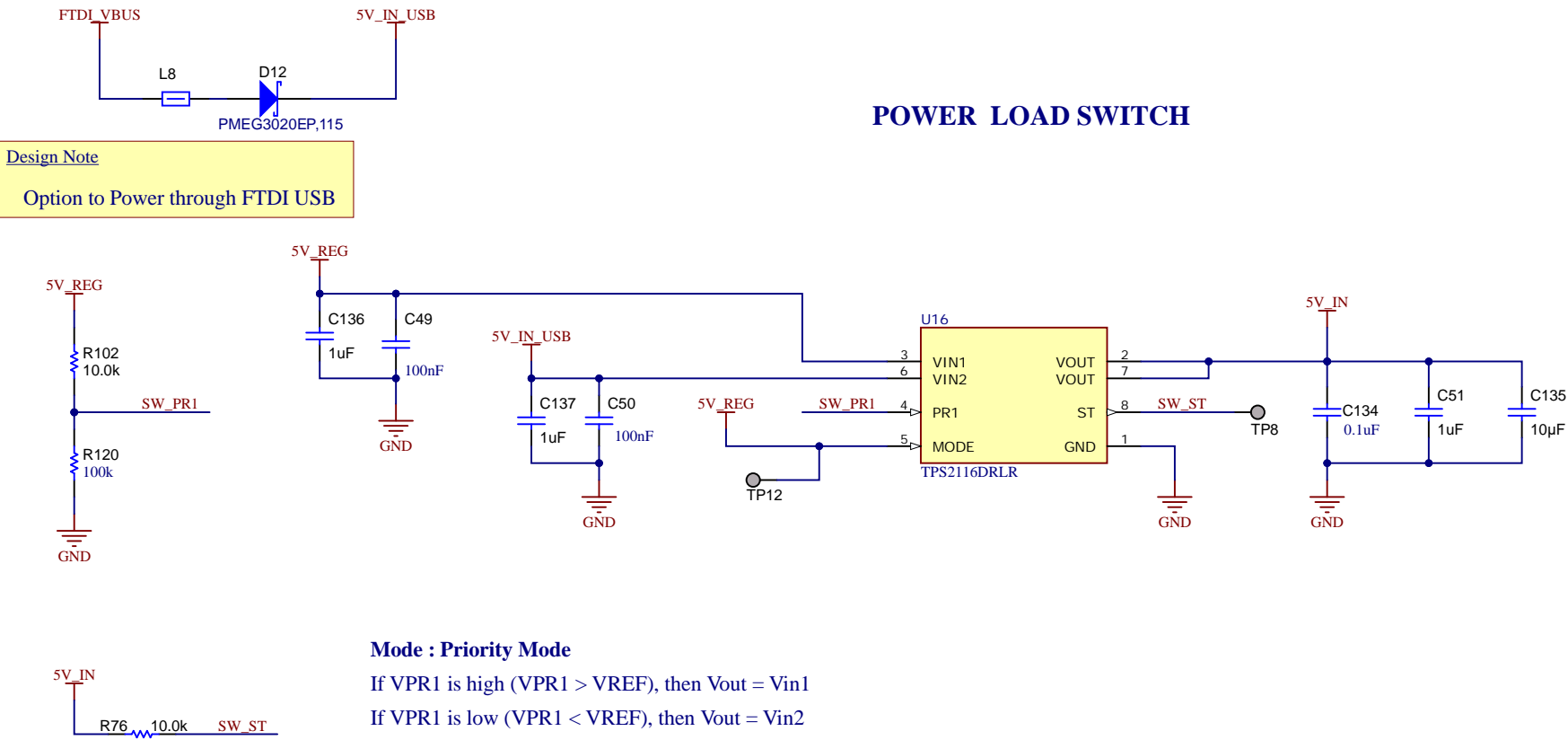
USB CONNECTOR



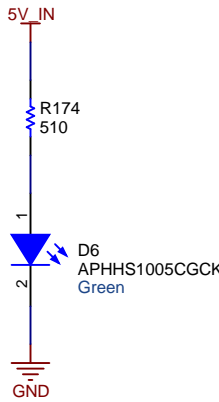
DC JACK



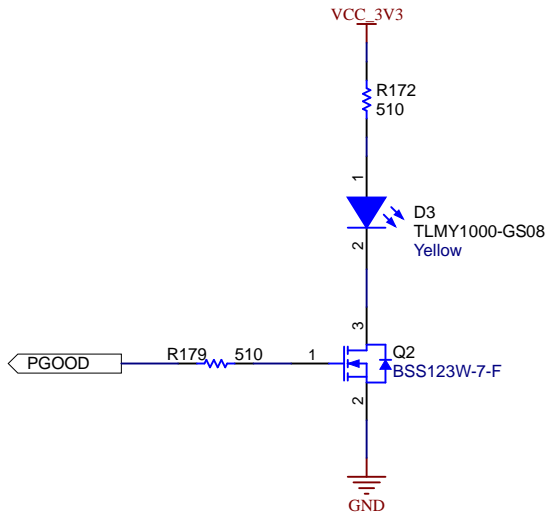
POWER LOAD SWITCH



5V LED INDICATION



PGOOD LED



A

B

C

D

A

B

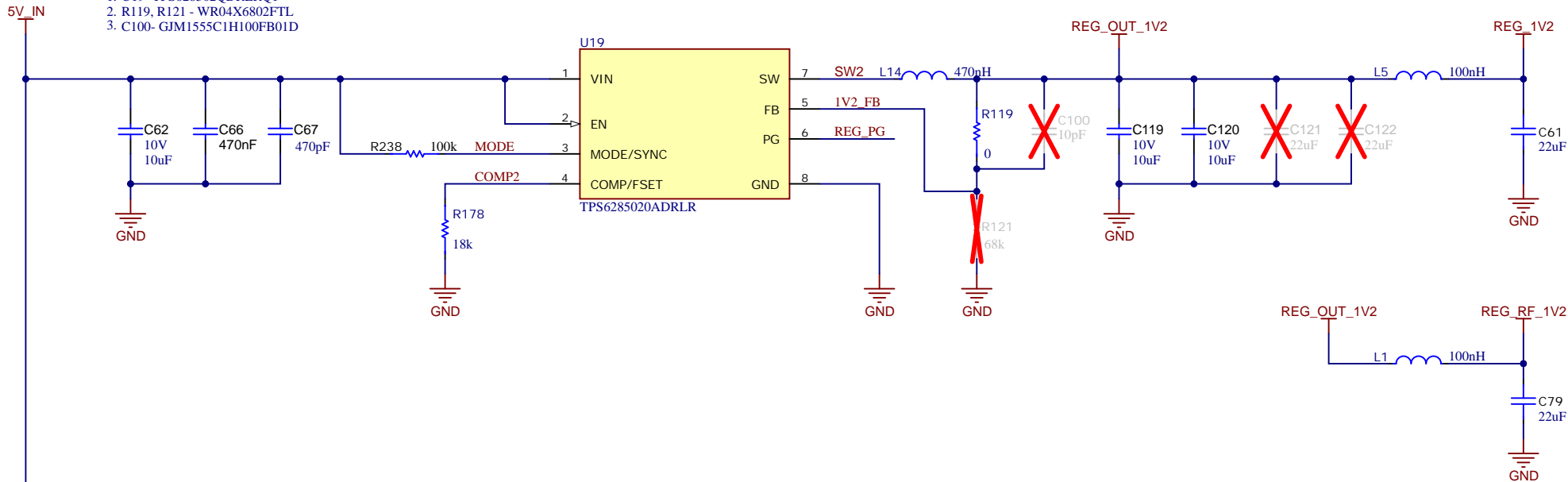
C

D

Design Note
For Adjustable Regulator Mount

1. U19- TPS628502QDRLRQ1
2. R119, R121 - WR04X6802FTL
3. C100- GJM1555C1H100FB01D

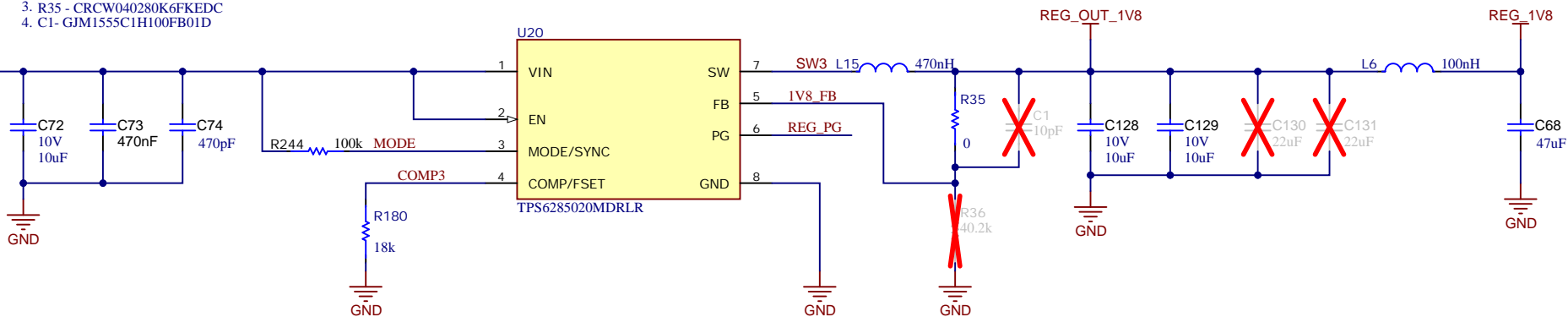
DC-DC REGULATOR - 1.2V



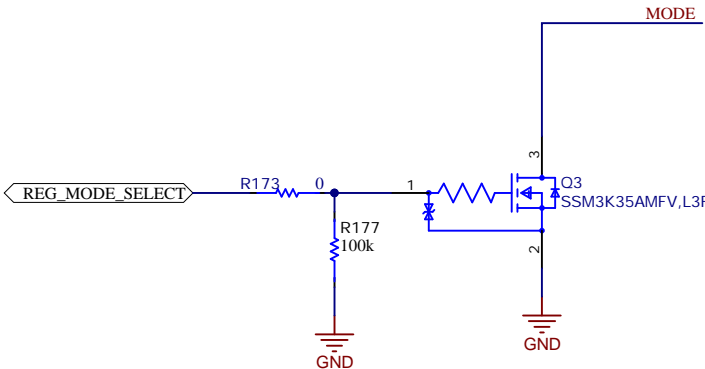
Design Note
For Adjustable Regulator Mount

1. U20- TPS628502QDRLRQ1
2. R36 - CRCW040240K2FKEDC
3. R35 - CRCW040280K6FKEDC
4. C1- GJM1555C1H100FB01D

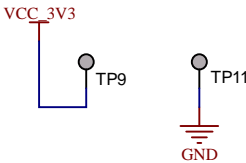
DC-DC REGULATOR - 1.8V



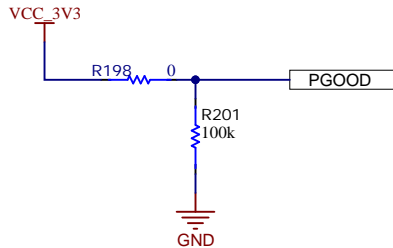
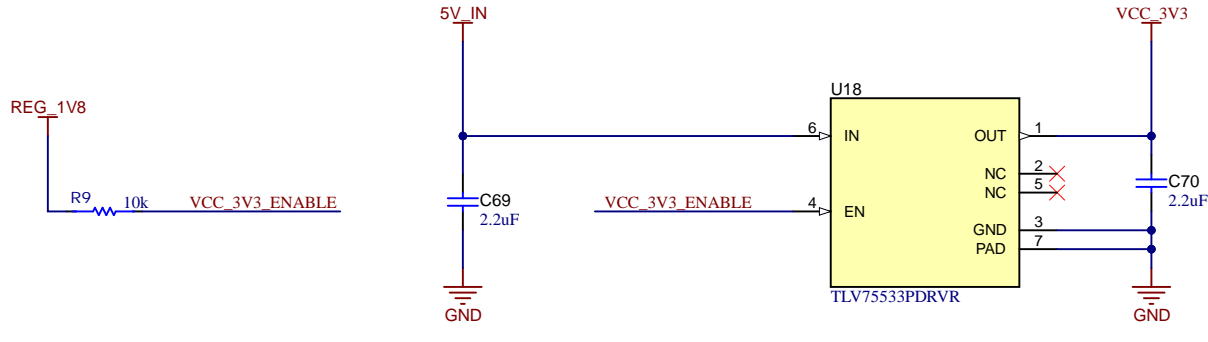
MODE CONTROL



TEST POINTS



3.3V LDO, 500mA



Design note:- 3.3V LDO enable with 1.8V

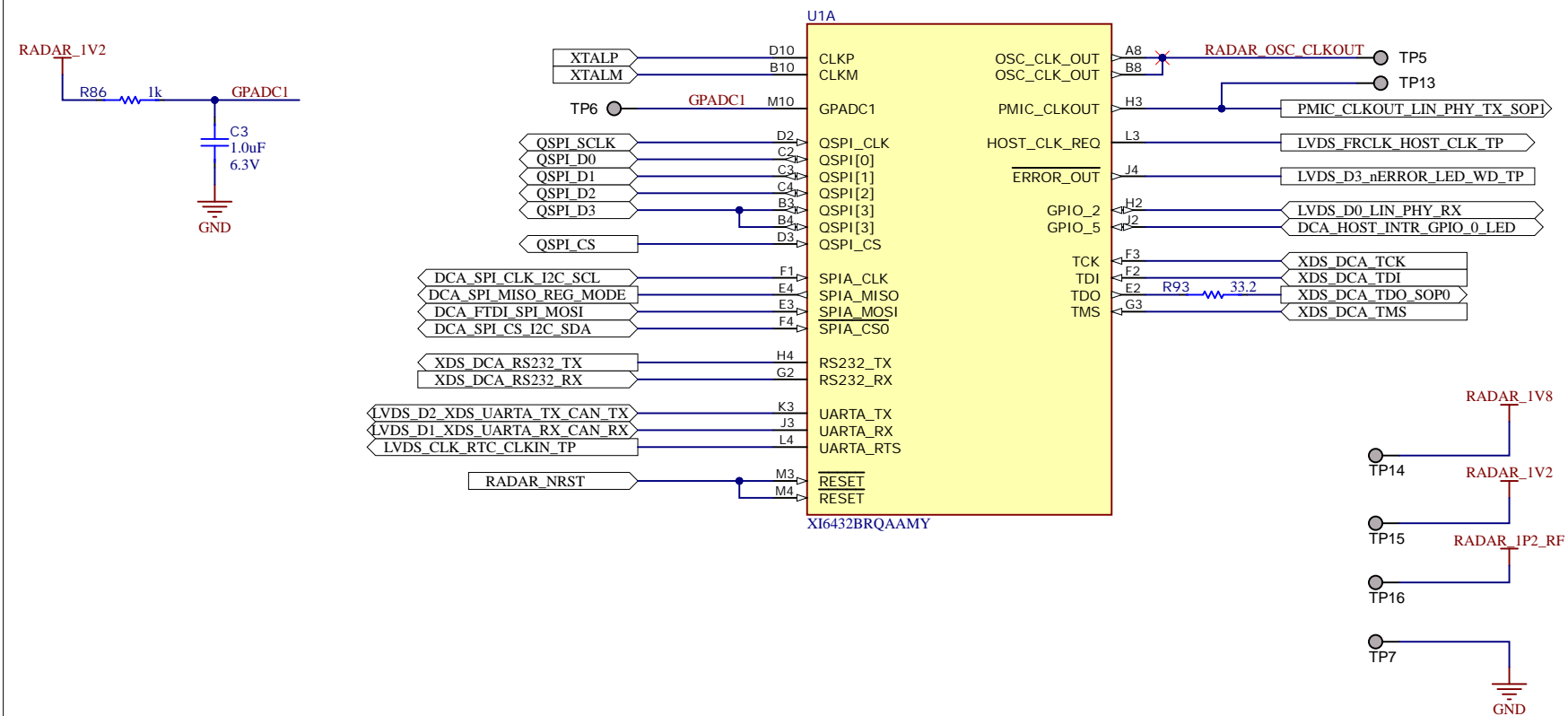
The VCC_3V3 Output from LDO is used as PGOOD

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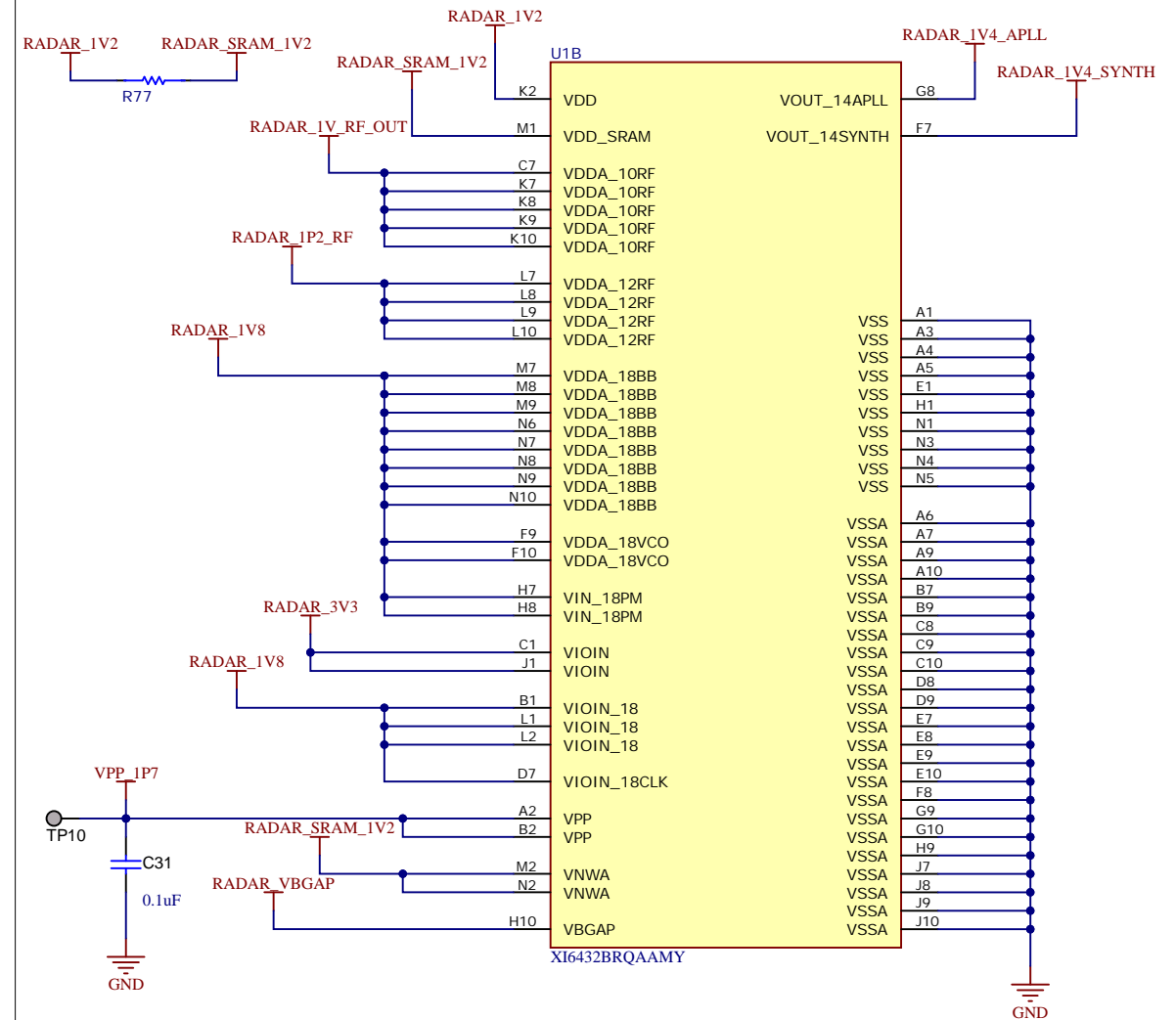
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TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: DC REGULATORS & LDO
SVN Rev: Unknown revision	Assembly Variant: 001_IWR	Sheet: 5 of 17
Drawn By: Mistral	File: PROC177B_DC_Regulators.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

xWRL6432AOP CHIP (SENSOR BOARD)

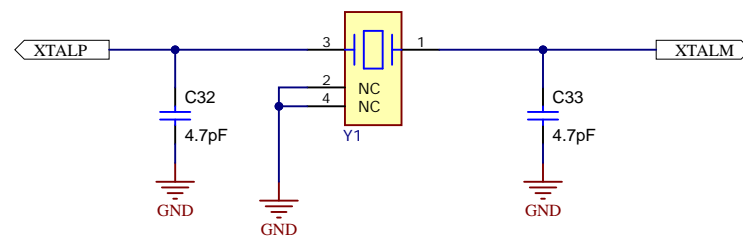
xWRL6432AOP CHIP - INTERFACE



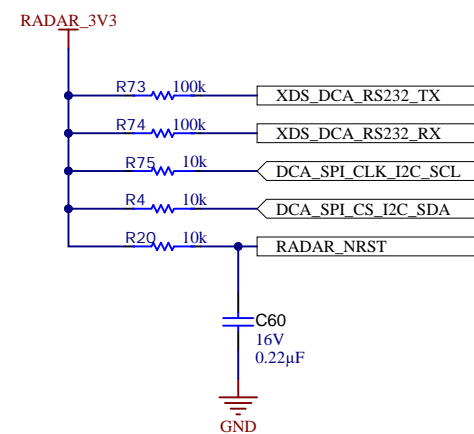
xWRL6432AOP CHIP - POWER



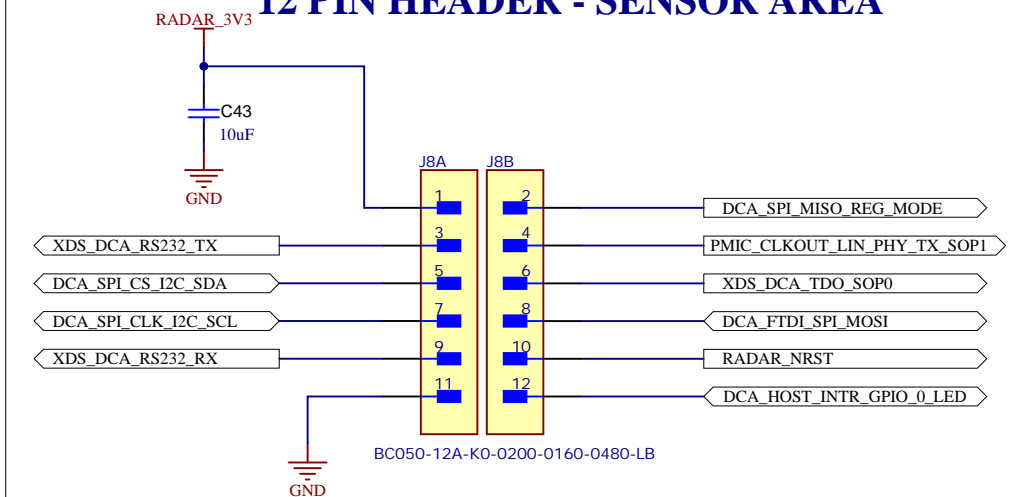
40 MHz CRYSTAL OSCILLATOR



Alternate Crystal part number :
XRCGE40M000FBAABR0(Murata)
CX2016SA40000D0PTWC1



12 PIN HEADER - SENSOR AREA



Orderable: IWRL6432AOPEVM	Designed for: Public Release	Mod. Date: 1/17/2024	 http://www.ti.com © Texas Instruments 2023
TID #: N/A	Project Title: xWRL6432AOP		
Number: PROC177	Rev: B	Sheet Title: xWRL6432AOP_CHIP	
SVN Rev: Unknown revision	Assembly Variant: 001_IWR	Sheet: 6 of 17	
Drawn By: Mistral	File: PROC177B_xWRL6432AoP_Chip_SchDoc	Size: B	
Engineer: Mistral	Contact: http://www.ti.com/support		

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A



A

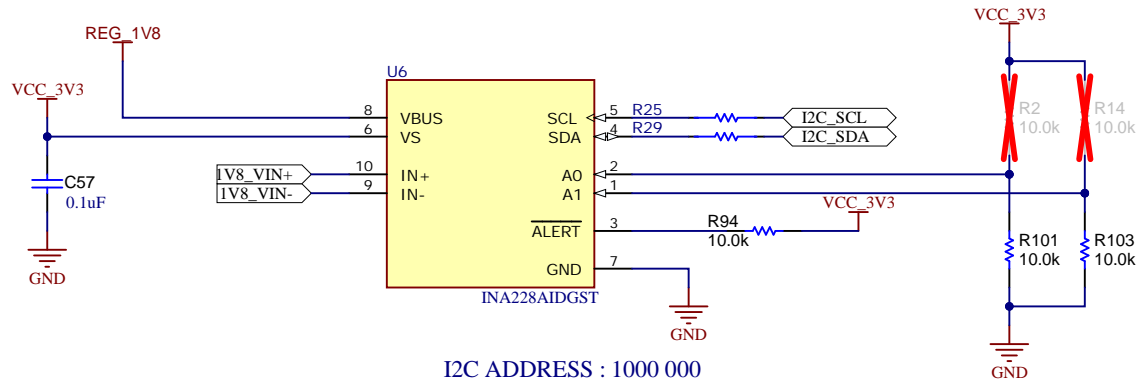
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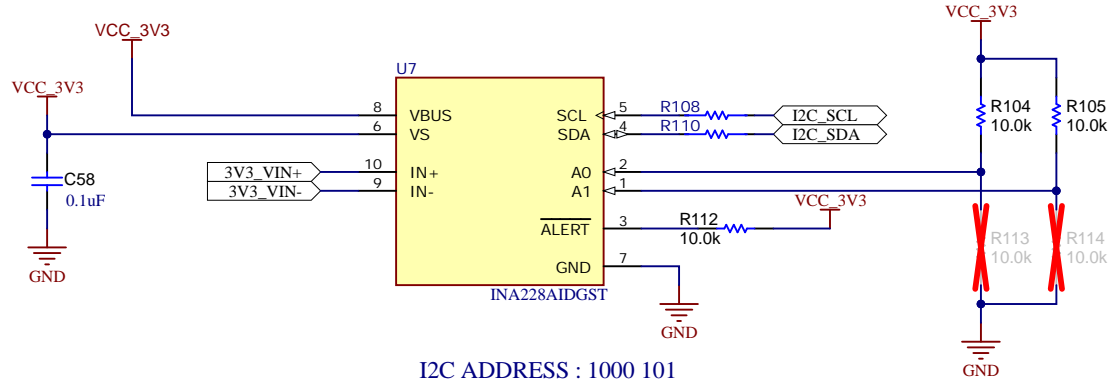
Tex

D

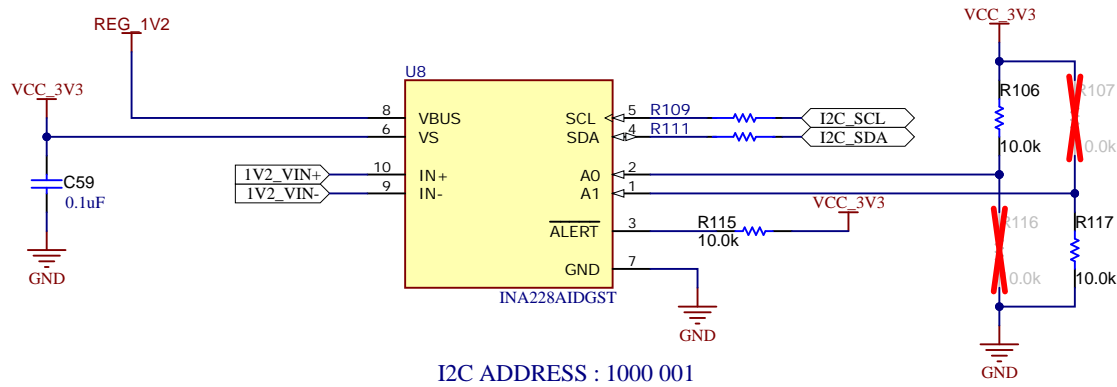
CURRENT SENSOR- 1V8



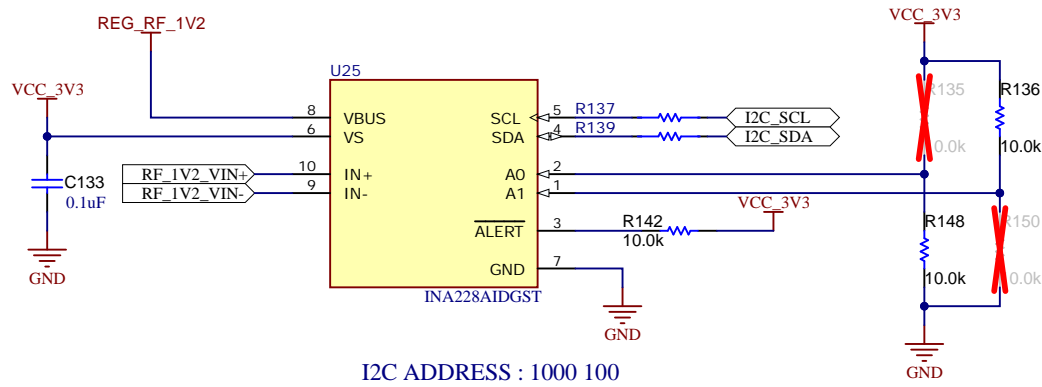
CURRENT SENSOR- 3V3



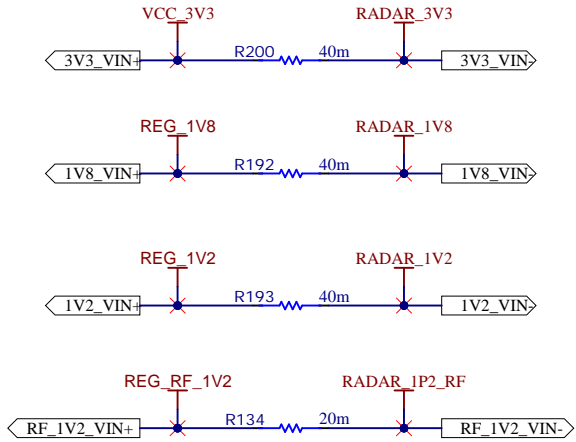
CURRENT SENSOR- 1V2



CURRENT SENSOR- RF_1V2

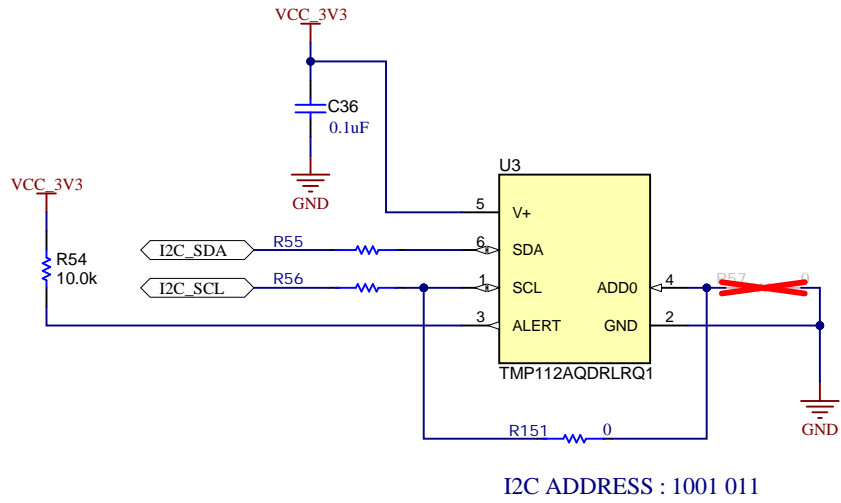


CURRENT SENSE RESISTORS

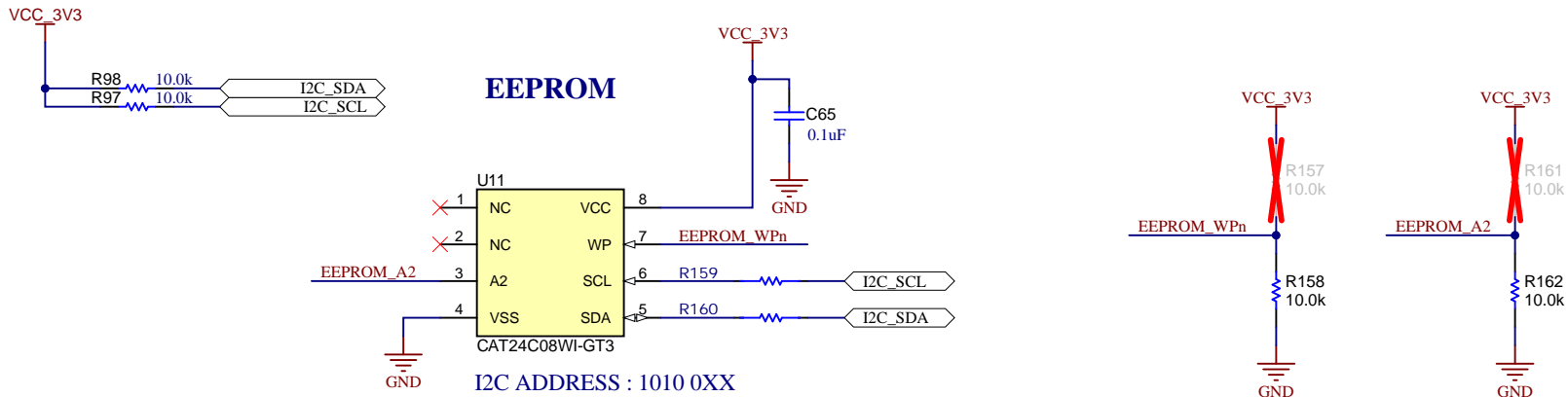


Design Note: 'Generic No ERCs' were placed intentionally on either sides of Current sense resistors

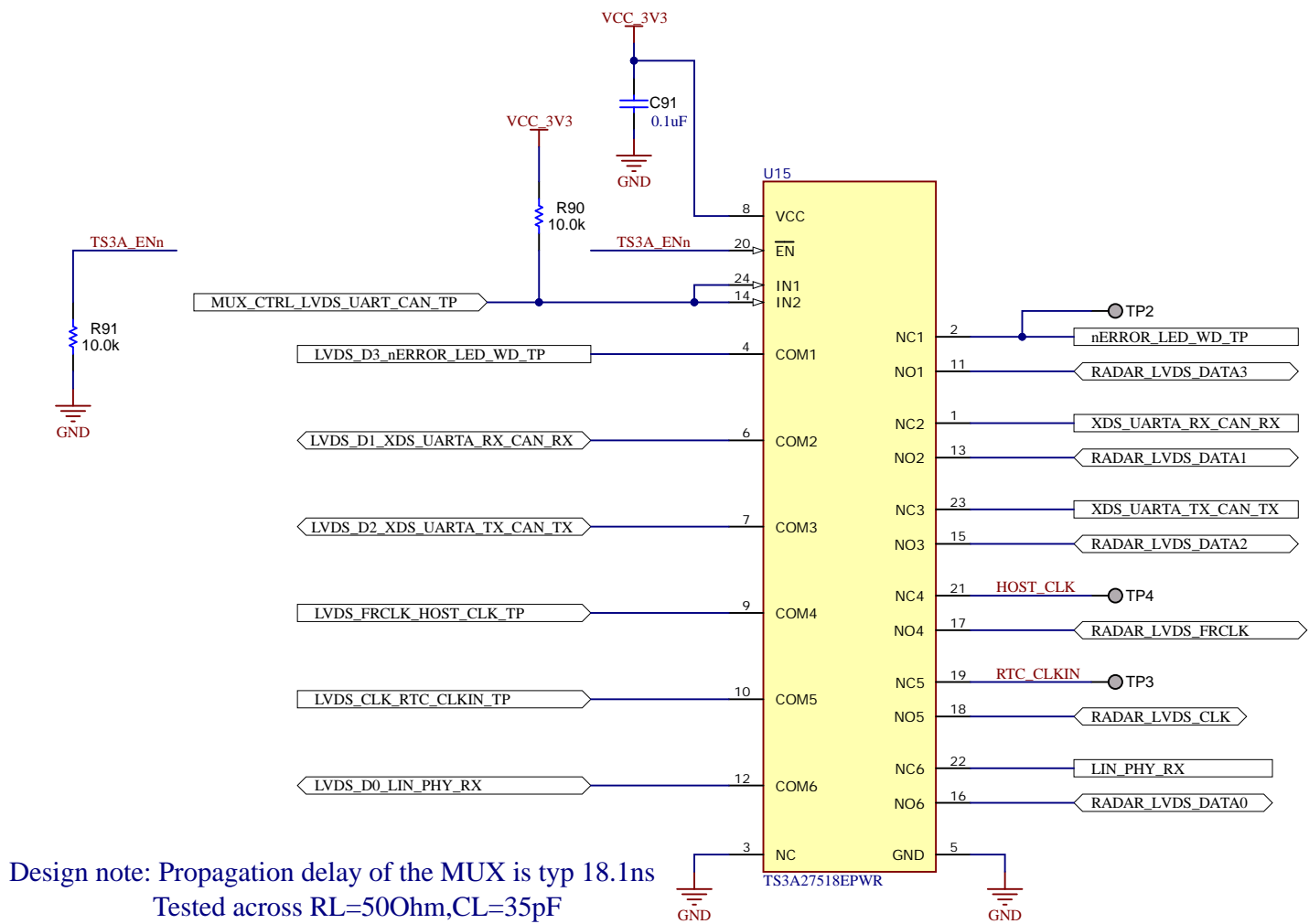
TEMPERATURE SENSOR



EEPROM

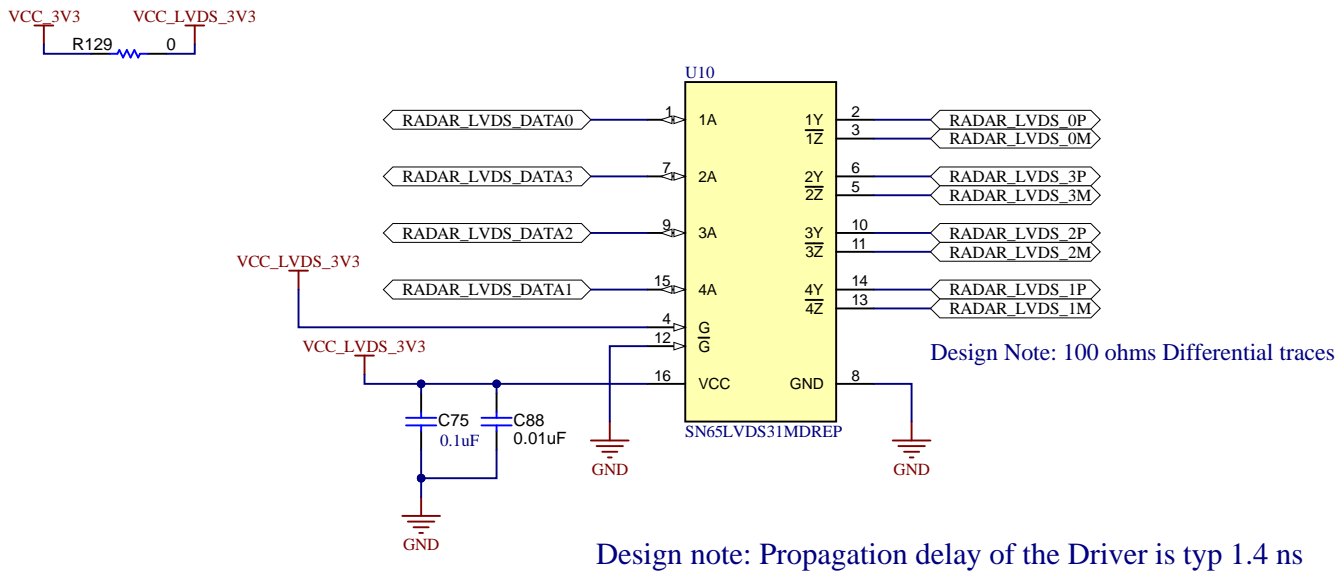


ANALOG MUX - RADAR DATA & CLOCK



Design note: Propagation delay of the MUX is typ 18.1ns
Tested across RL=50Ohm,CL=35pF

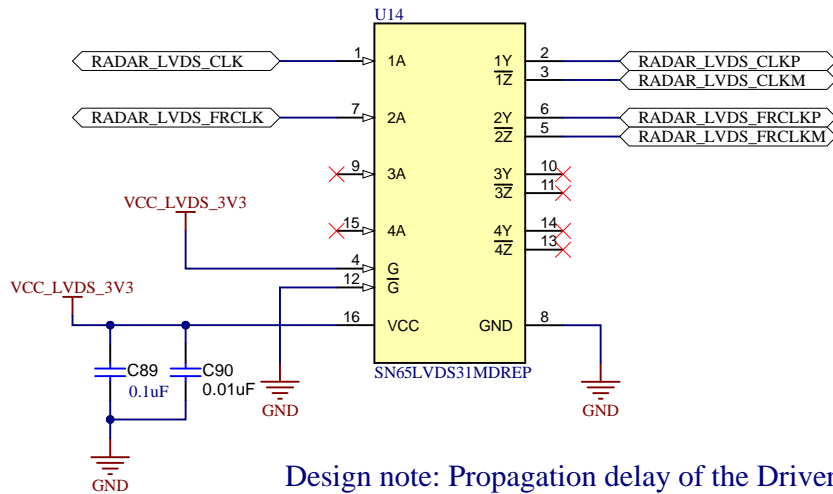
DIFFERENTIAL LVDS DRIVER - DATA



Design note: Propagation delay of the Driver is typ 1.4 ns

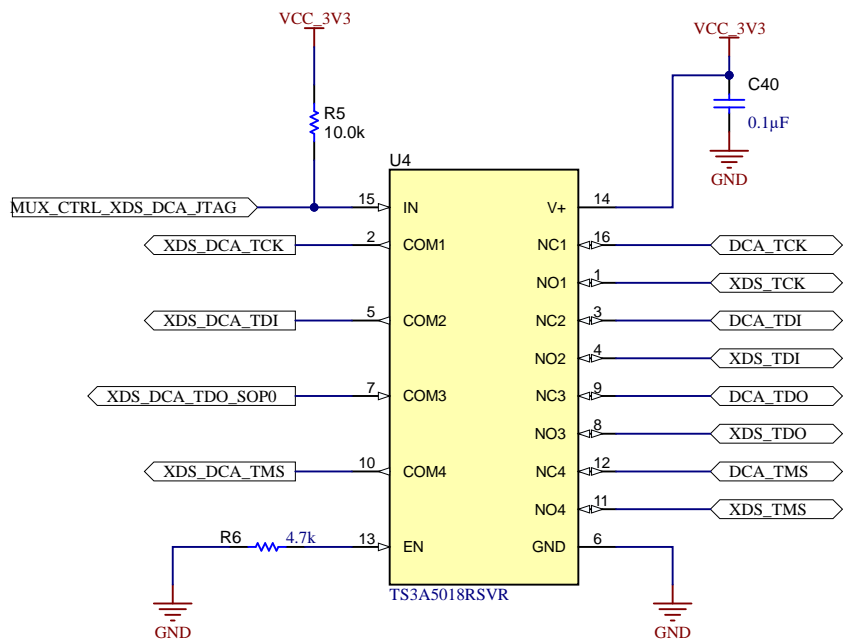
Design Note: 100 ohms Differential traces

DIFFERENTIAL LVDS DRIVER - CLK

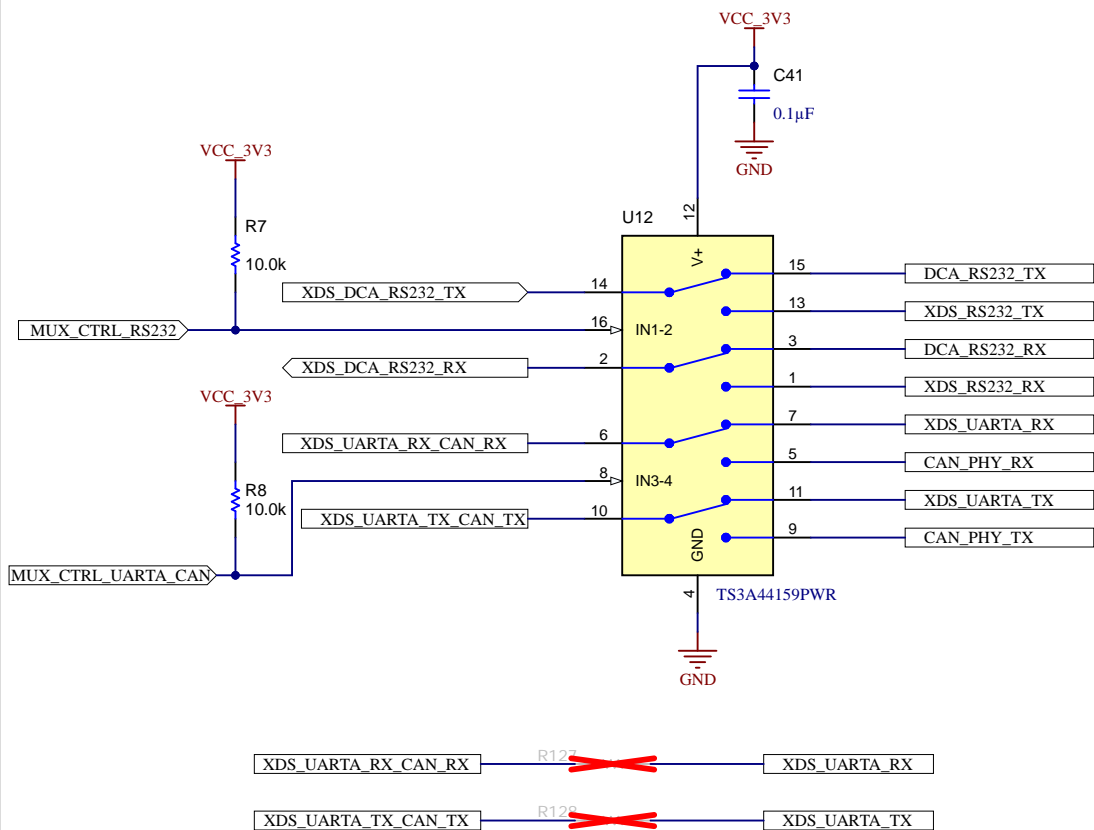


Design note: Propagation delay of the Driver is typ 1.4 ns

ANALOG MUX



UART-ANALOG SWITCH

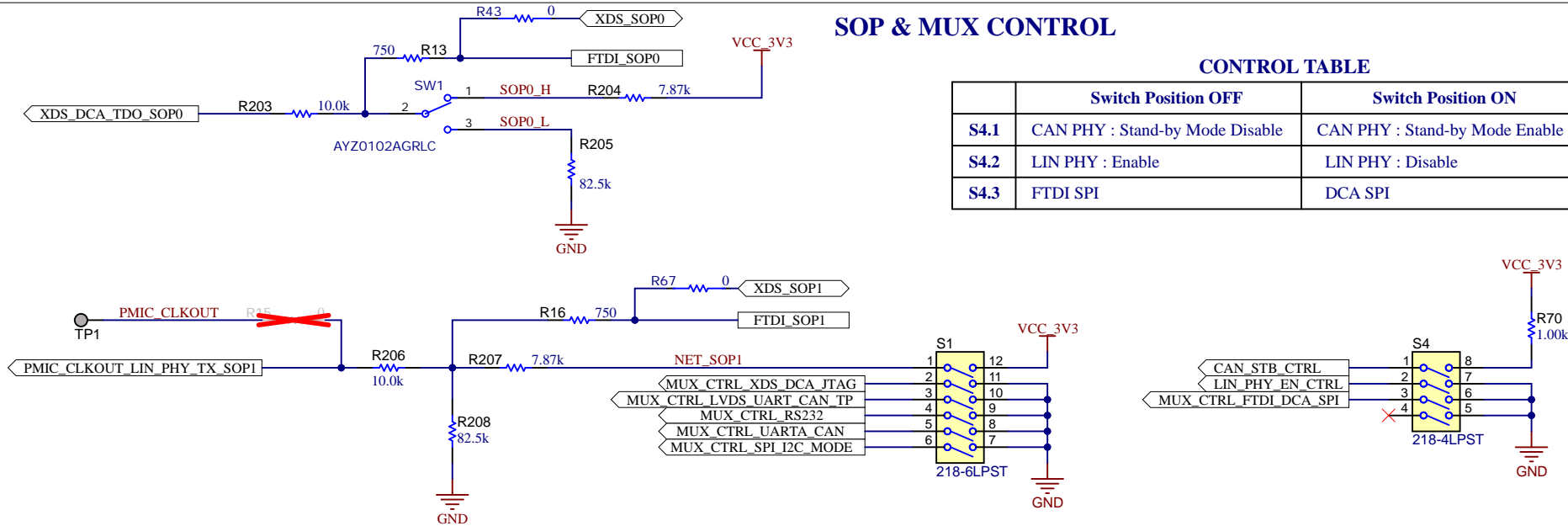


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SOP & MUX CONTROL

CONTROL TABLE

	Switch Position OFF	Switch Position ON
S4.1	CAN PHY : Stand-by Mode Disable	CAN PHY : Stand-by Mode Enable
S4.2	LIN PHY : Enable	LIN PHY : Disable
S4.3	FTDI SPI	DCA SPI



A

B

C

D

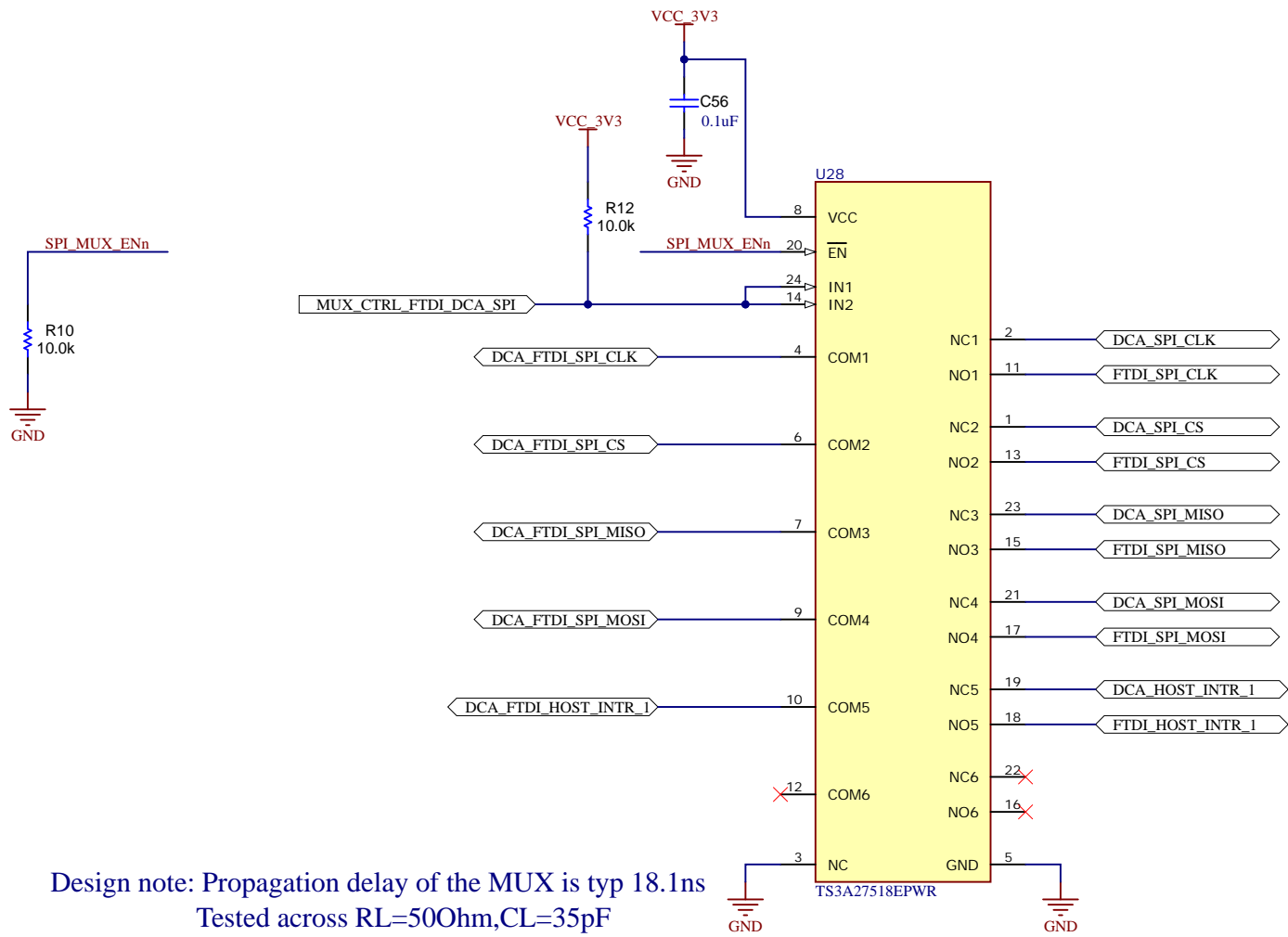
A

B

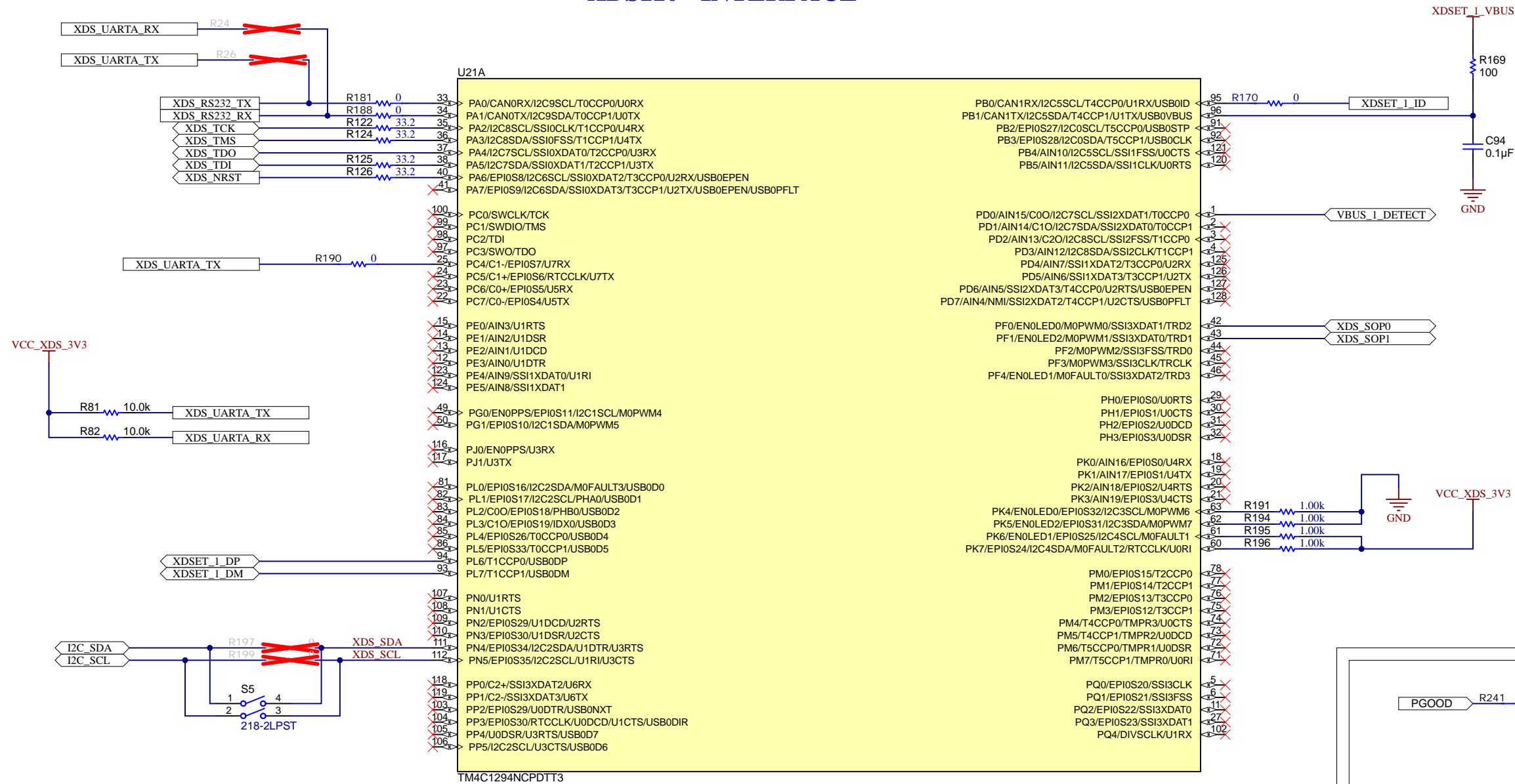
C

D

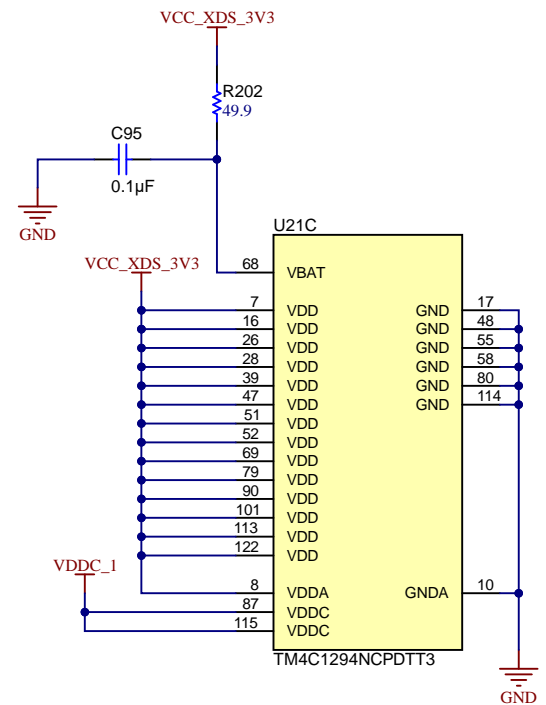
ANALOG MUX SPI- DCA/FTDI



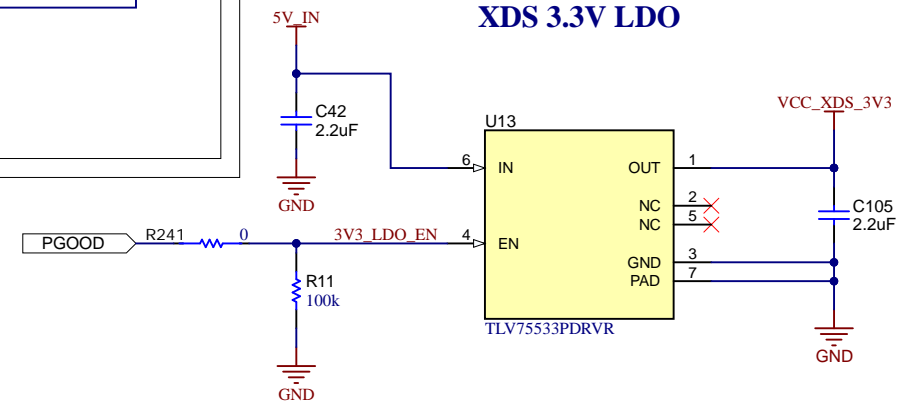
XDS110 - INTERFACE



XDS110 - POWER

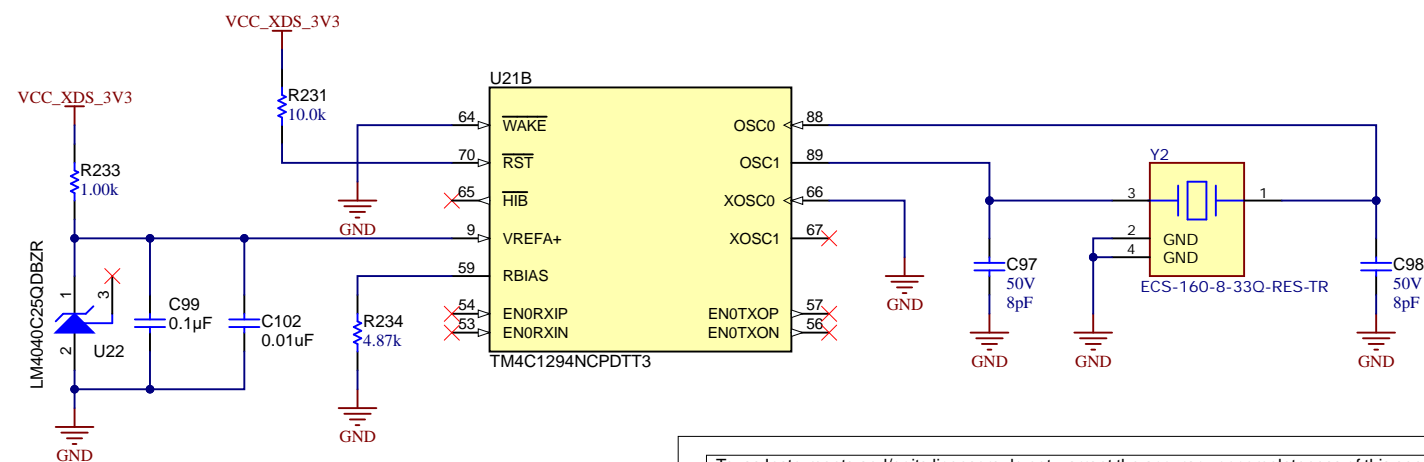


XDS 3.3V LDO

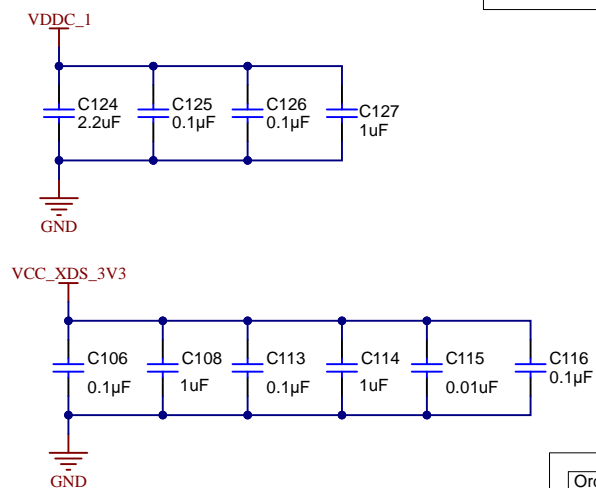


By Default LDO is disabled
When 3V3 DC-DC regulator is powered up, then it gets enabled

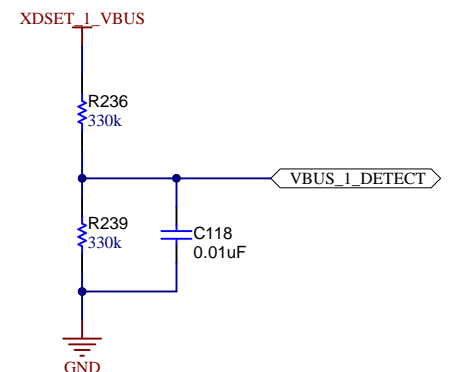
XDS110 - XTAL



DECOUPLING CAPS - XDS



VBUS_DETECT



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Orderable: IWRL6432AOP	Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: XDS110_INTERFACE
SVN Rev: Unknown revision	Assembly Variant: 001_IWR	Sheet: 12 of 17
Drawn By: Mistral	File: PROC177B_XDS110_Interface.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	© Texas Instruments 2023

A

B

C

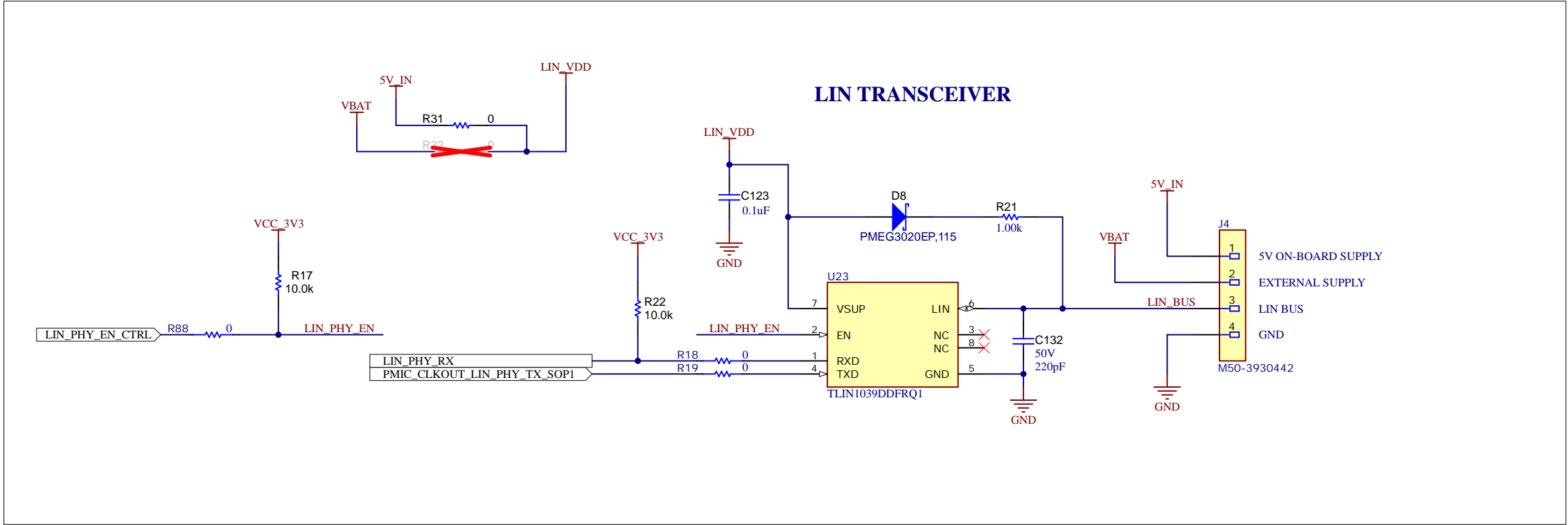
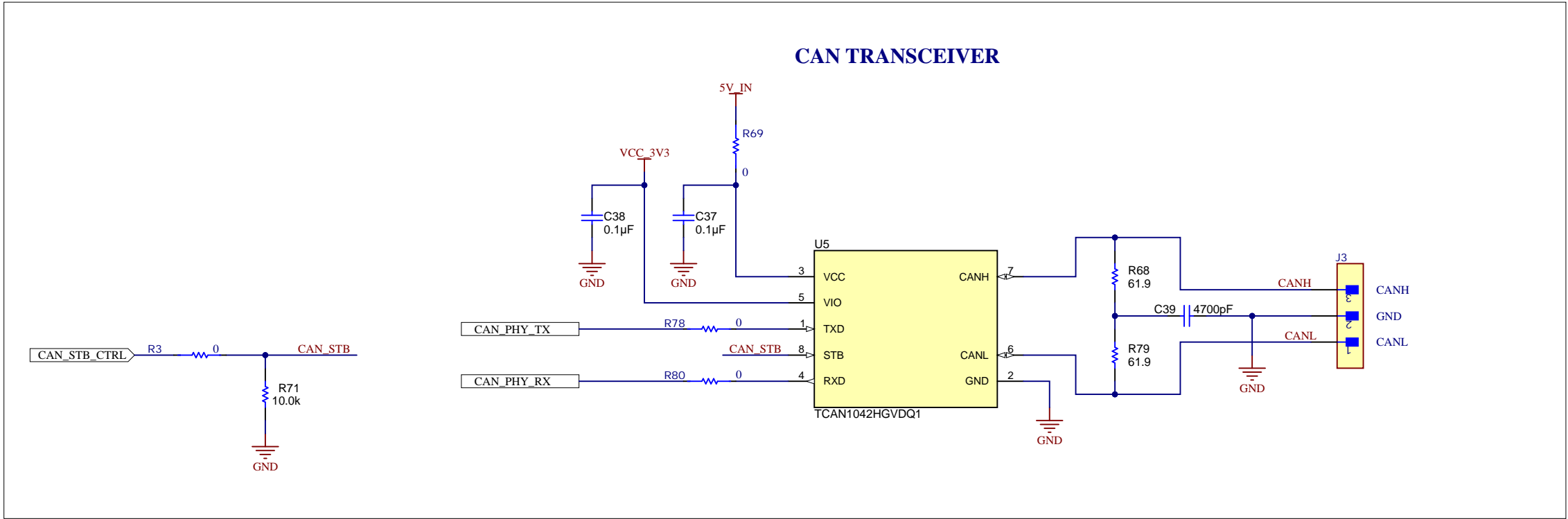
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A

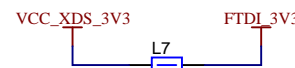
B

C

D



FTDI - USB to SPI CONVERTER

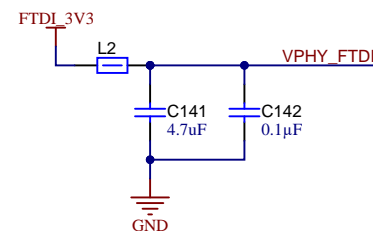
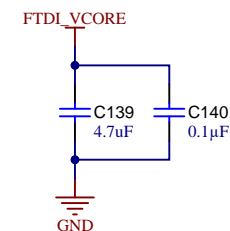


Review Note

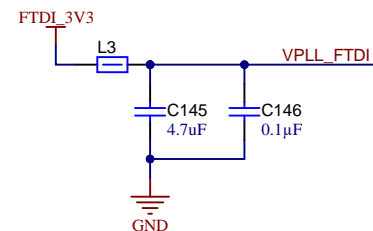
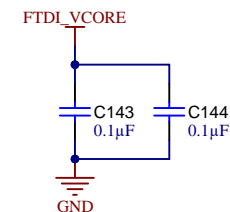
FTDI_3V3 Power from XDS LDO 3V3

FTDI SUPPLY DECAPS

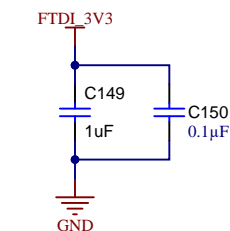
VCORE DECAPS



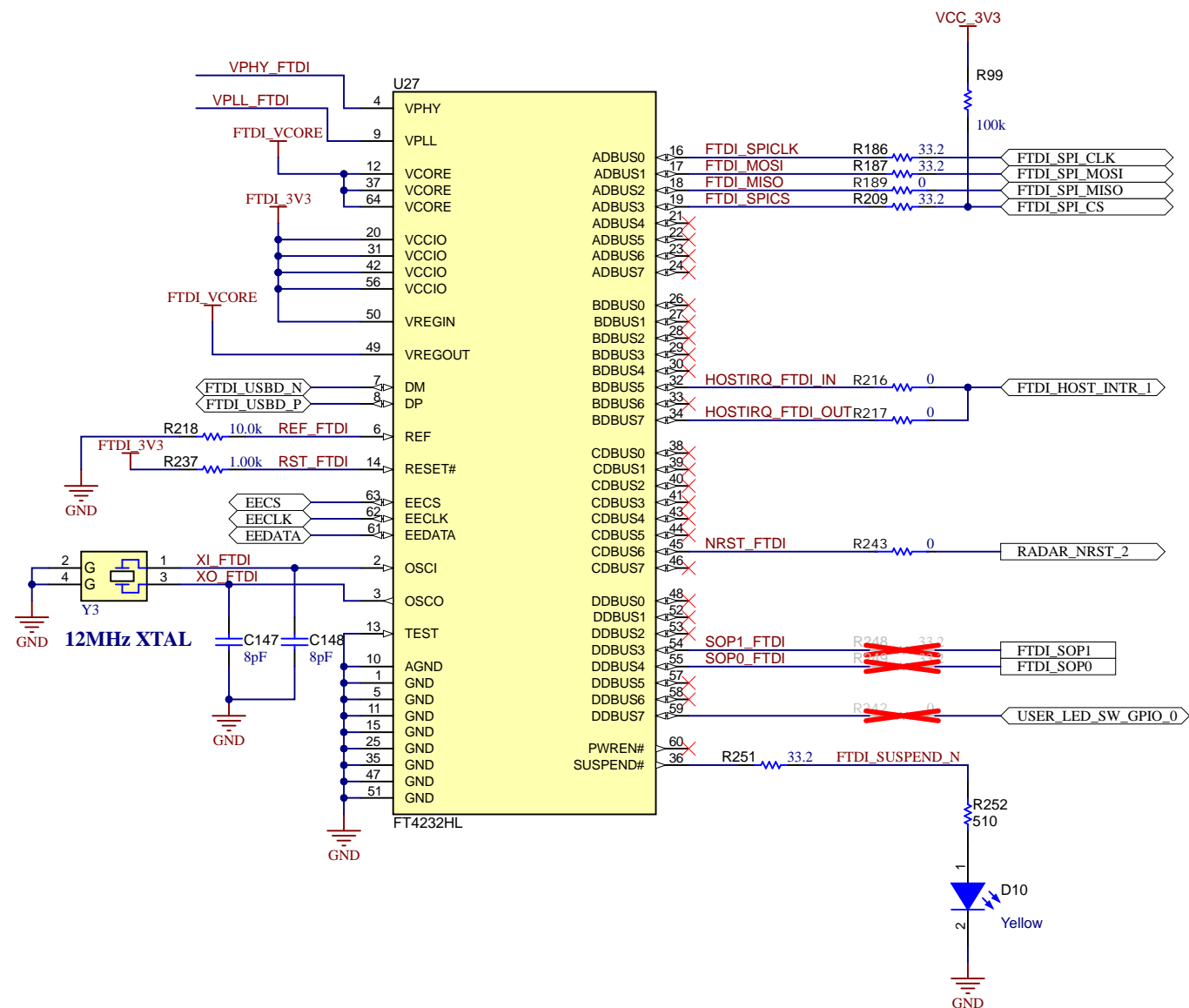
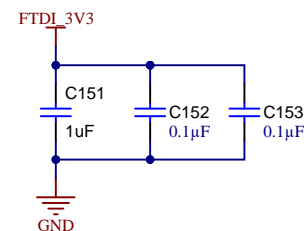
VREGOUT DECAPS



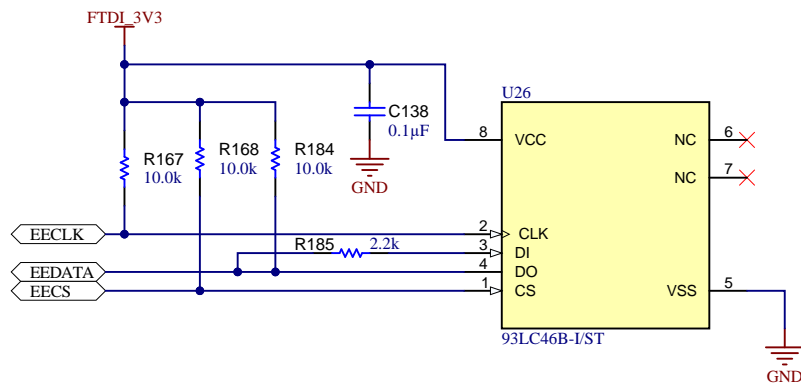
VREGIN DECAPS



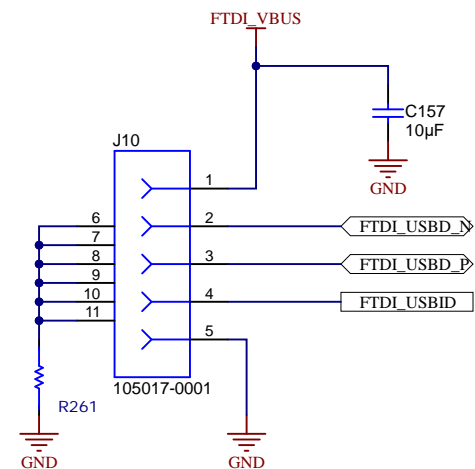
VCCIO DECAPS



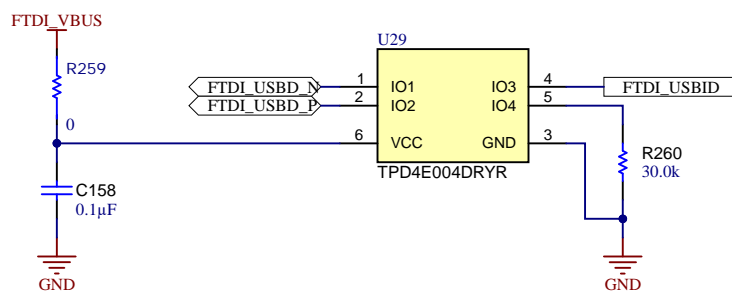
FTDI EEPROM



FTDI USB PORT



FTDI USB - ESD PROTECTION

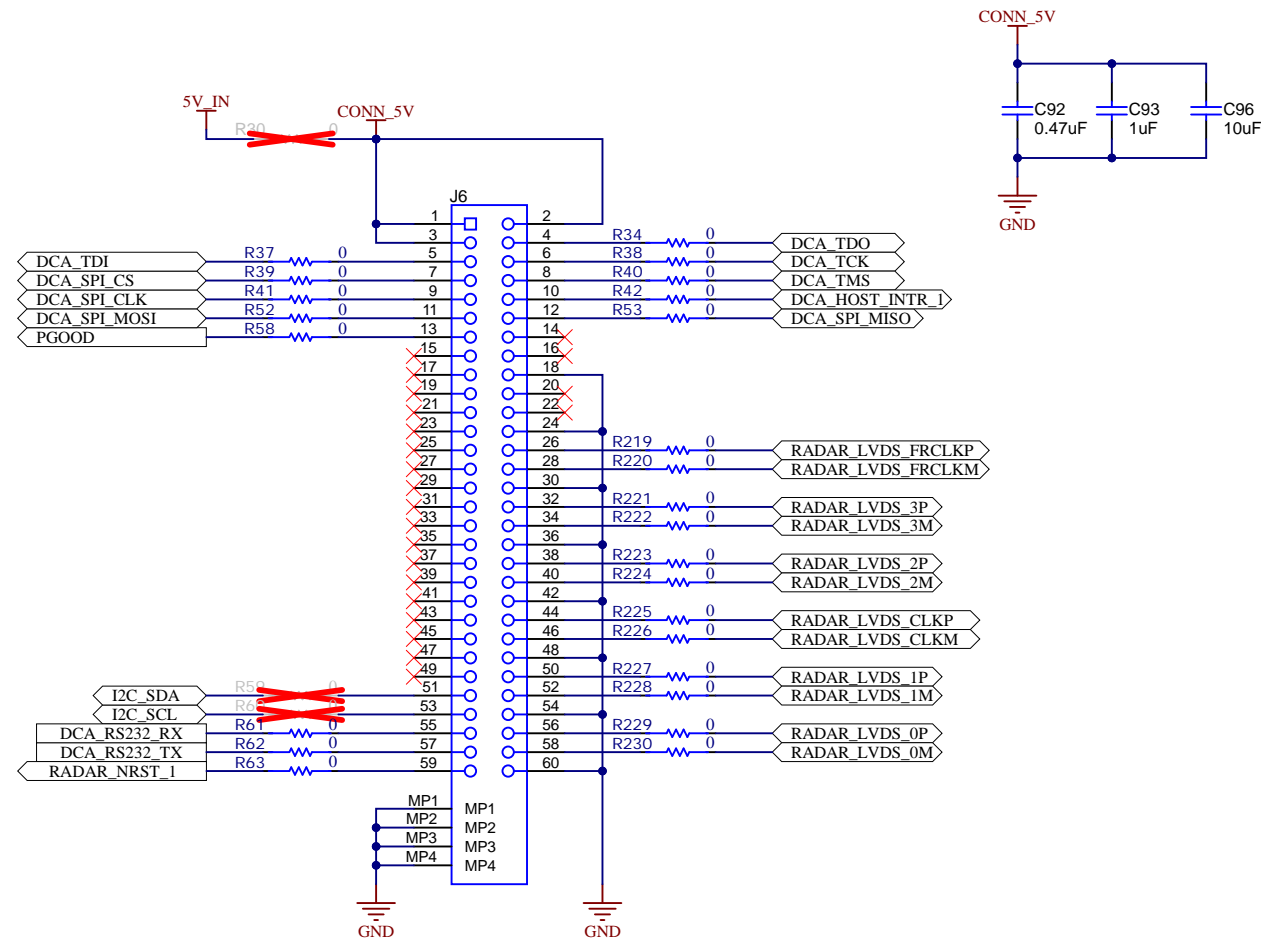


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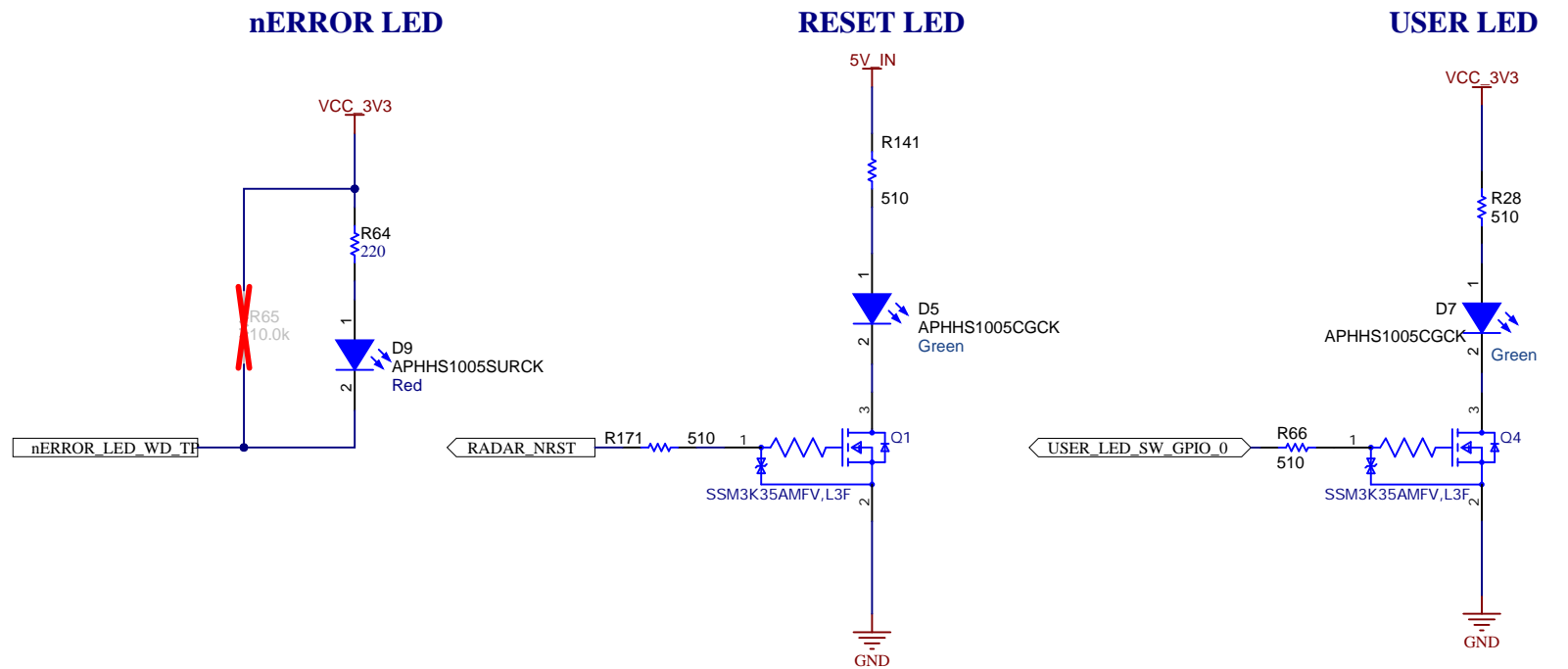
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TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: FTDI_USB_to_SPI_Converter
SVN Rev: Unknown revision	Assembly Variant: 001_IWR	Sheet: 14 of 17
Drawn By: Mistral	File: PROC177B_FTDI.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	© Texas Instruments 2023



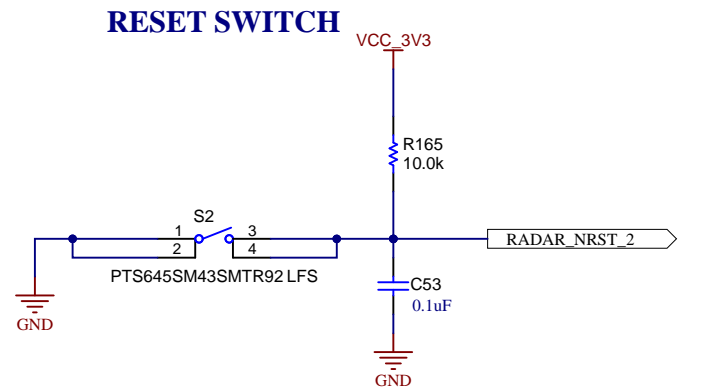
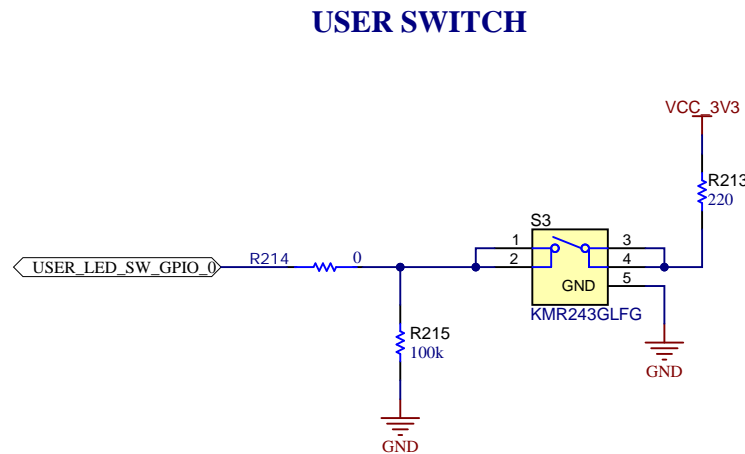
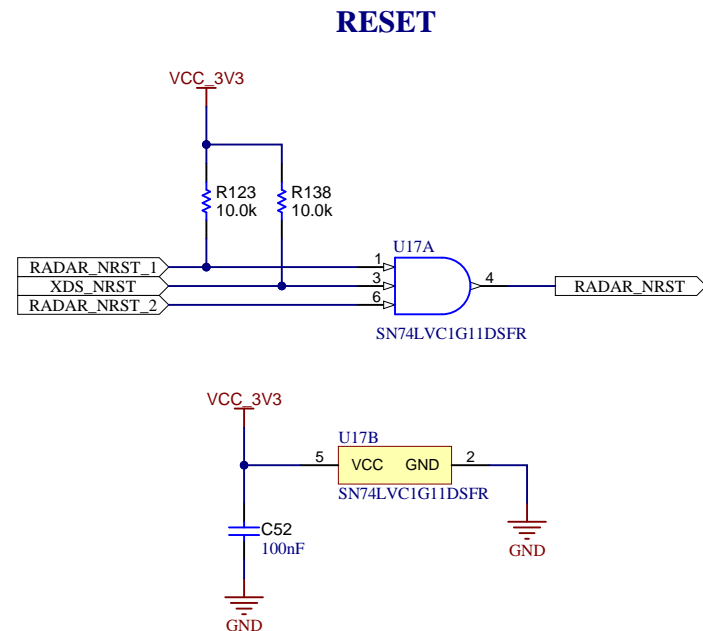
60-PIN HD CONNECTOR FOR DCA1000



RESET, USER LEDS



RESET, USER SWITCHES

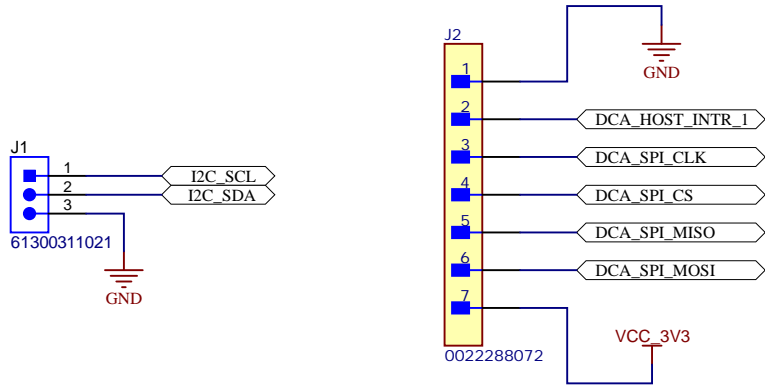


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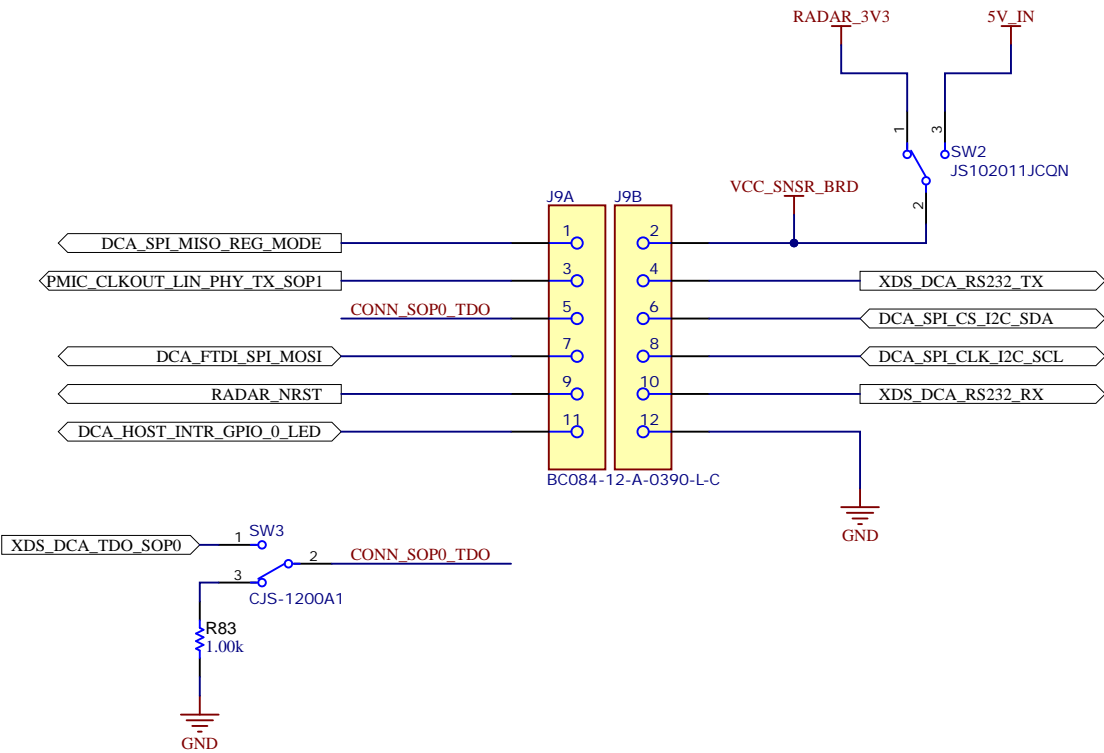
Orderable: IWRL6432AOPEVM	Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: DCA1000_CONN_RESET
SVN Rev: Unknown revision	Assembly Variant: 001_IWR	Sheet: 15 of 17
Drawn By: Mistral	File: PROC177B_DCA1000_Connector_Reset_Sch.Dwg	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	© Texas Instruments 2023



I2C & SPI HEADER FOR FTDI INTERFACE



FEMALE CONNECTOR- Expandable Area





PCB Number: PROC177
PCB Rev: B

PCB
LOGO
Texas Instruments



PCB
LOGO
FCC disclaimer

PCB
LOGO
WEEE logo

CAUTION HOT SURFACE1



CAUTION HOT SURFACE

Variant/Label Table	
Variant	Label Text
001_IWR	IWRL6432AOP EVM
002_AWR	AWRL6432AOP EVM

LBL1

PCB Label

THT-14-423-10
Size: 0.65" x 0.20 "

CAPACITORS HIGHLIGHTED IN THE RED COLOR BOXES ARE ADDED FOR IMPROVEMENT AND THOSE ARE NOT MANDATORY.

ZZ1

Label Assembly Note

This Assembly Note is for PCB labels only

ZZ2

Assembly Note

These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ3

Assembly Note

These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ4

Assembly Note

These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

ZZ5

Assembly Note

INDICATION FOR COMPONENTS D* ARE GIVEN AT THEIR CATHODE SIDE.

Orderable: IWRL6432AOPEVM		Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A		Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: HARDWARE	
SVN Rev: Unknown revision		Assembly Variant: 001_IWR	Sheet: 17 of 17
Drawn By: Mistral		File: PROC177B_EVM_Hardware.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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