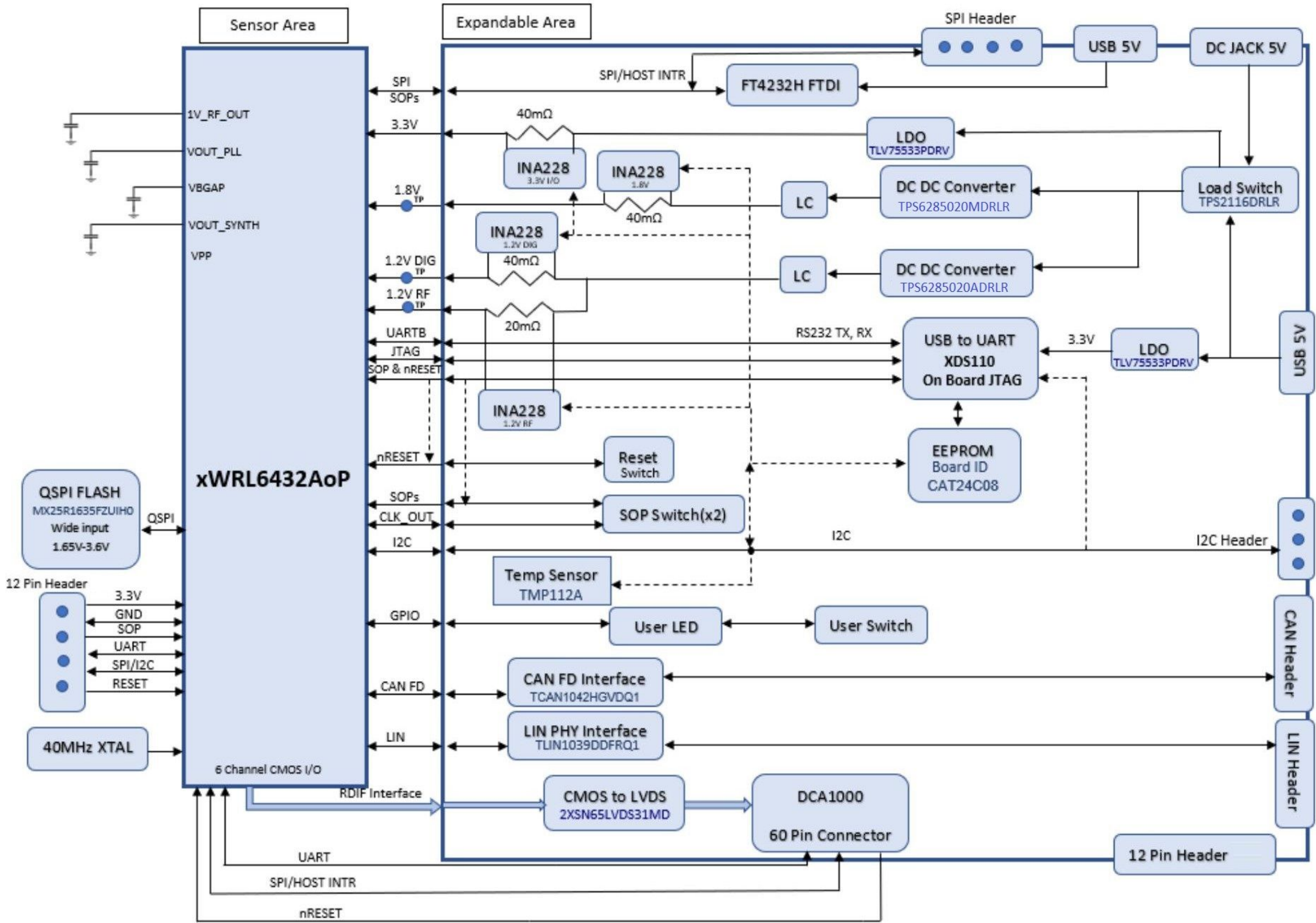


BLOCK DIAGRAM

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

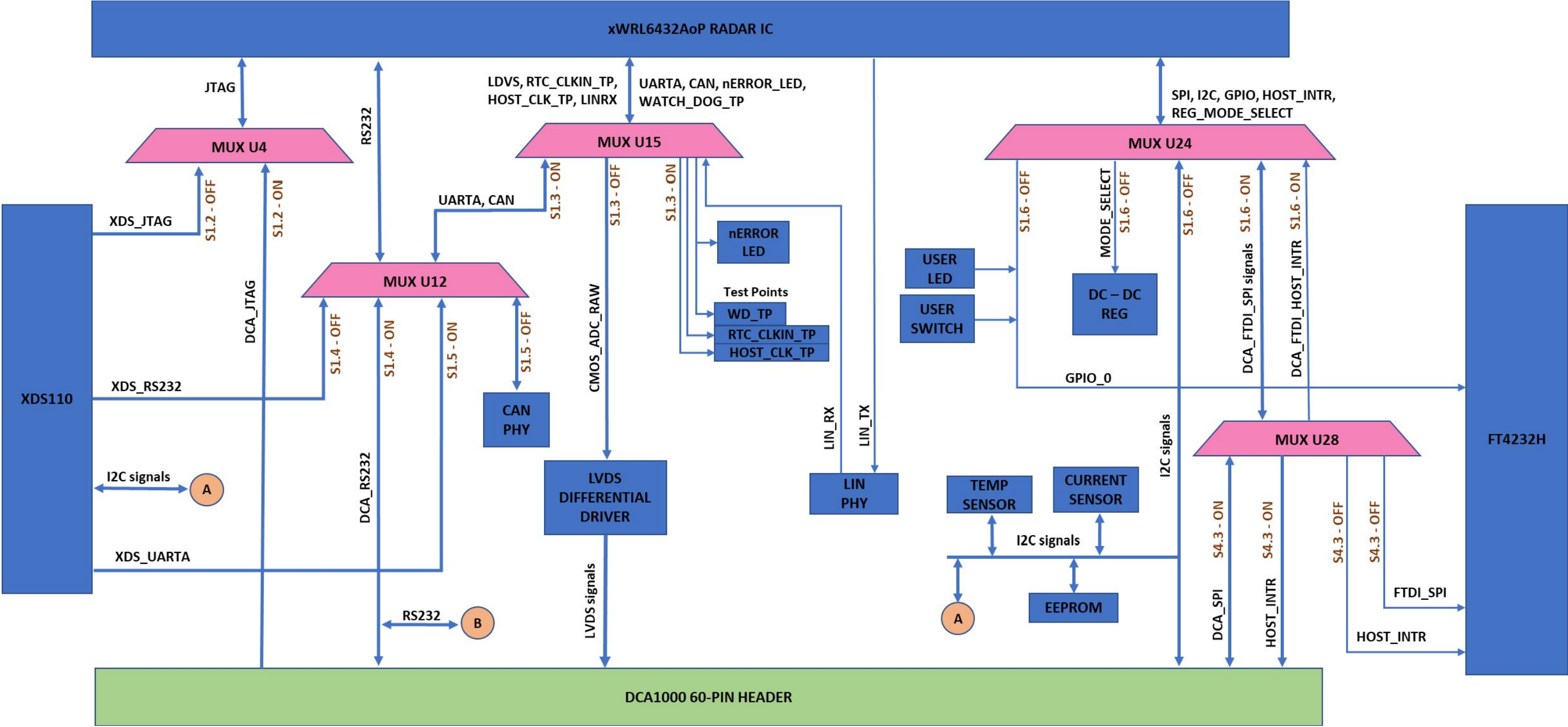


S.No	DESCRIPTION	I2C ADDRESS
1	CURRENT SENSOR 3.3V	100 0101
2	CURRENT SENSOR 1.8V	100 0000
3	CURRENT SENSOR 1.2V	100 0001
4	CURRENT SENSOR RF_1.2V	100 0100
5	TEMPERATURE SENSOR	100 1011
6	EEPROM	1010 0XX

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Orderable: AWRL6432A0PEVM	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: 002_AWR	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: AWRL6432AOPEVM	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: 002_AWR	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: [AWRL6432AOPEVM](#)

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: [002_AWR](#)

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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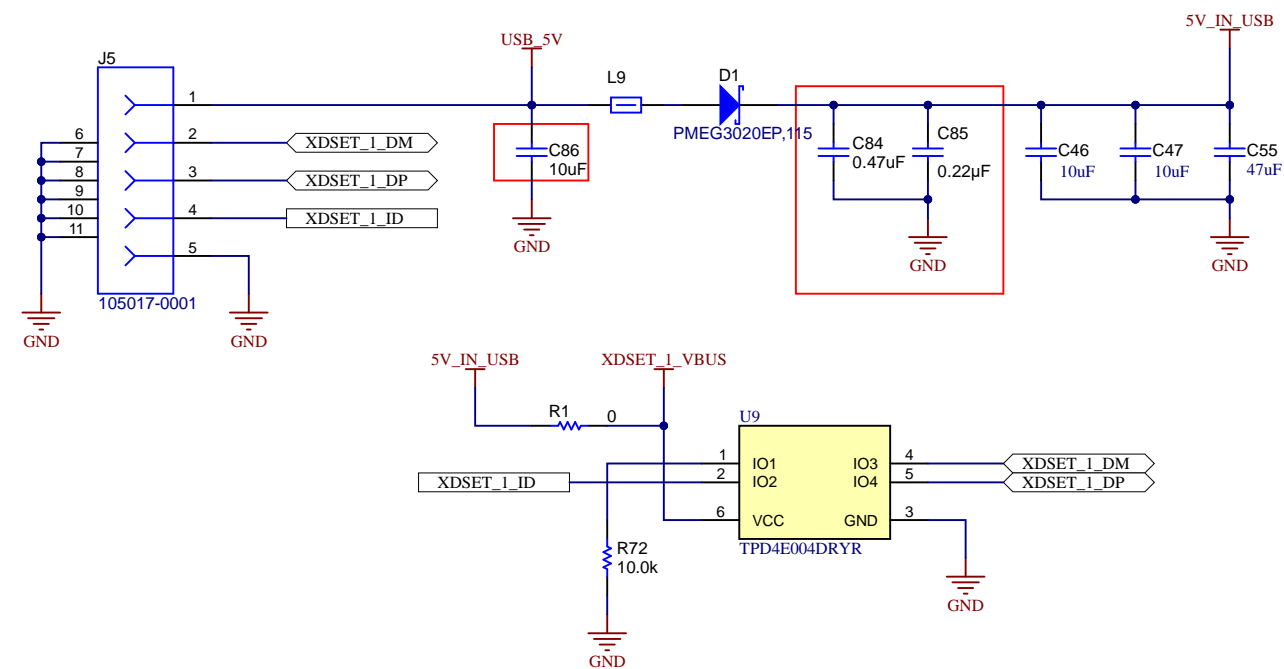
<http://www.ti.com>

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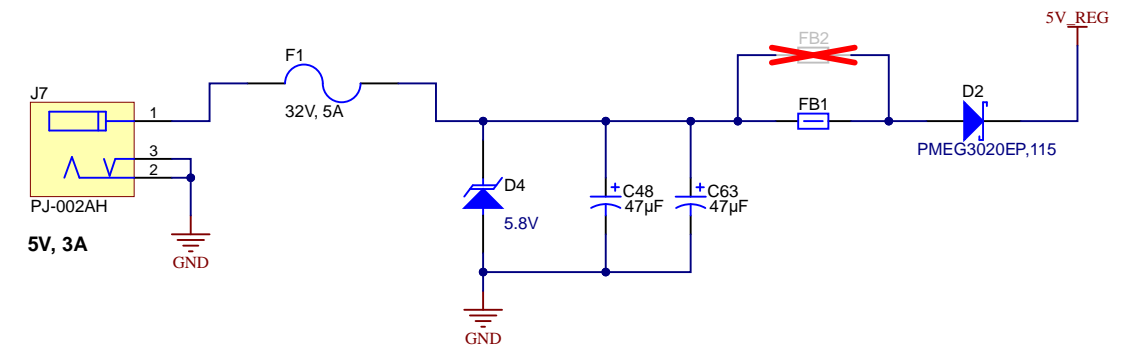
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1	2	3	4	5	6
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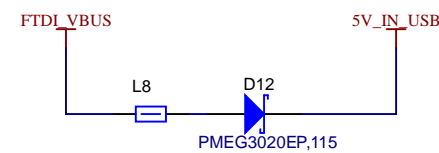
USB CONNECTOR



DC JACK

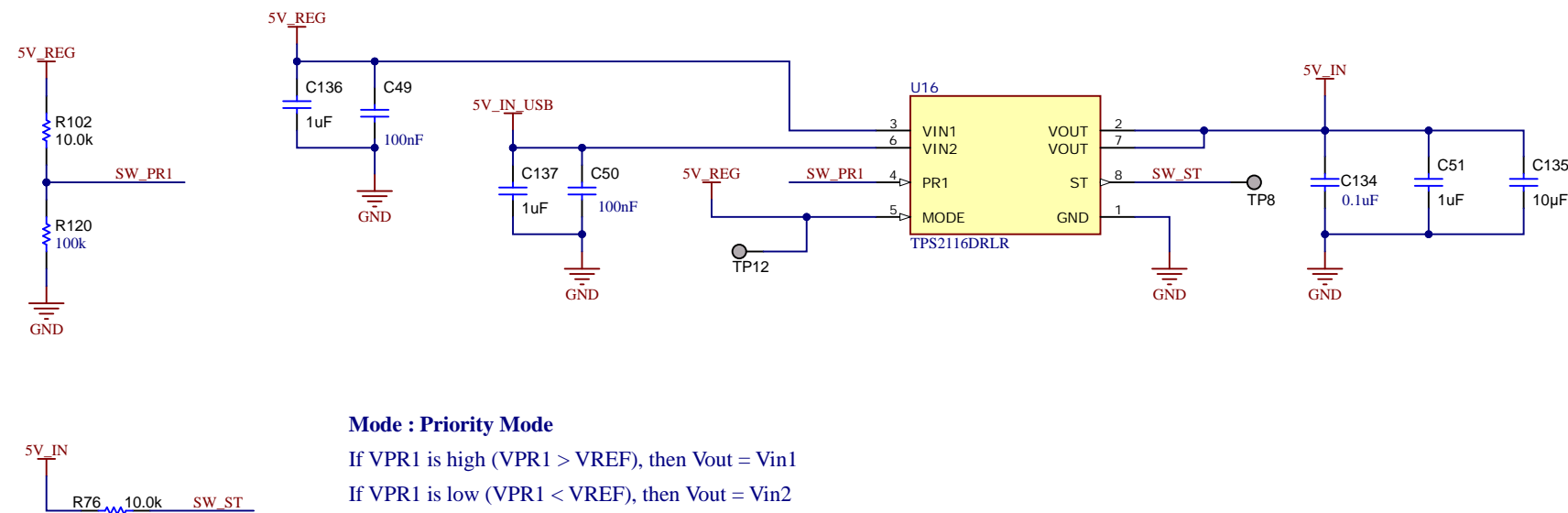


POWER LOAD SWITCH

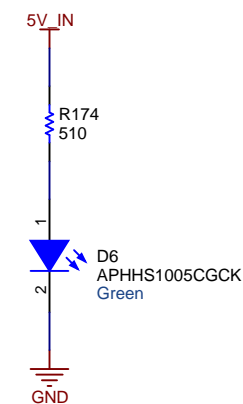


Design Note

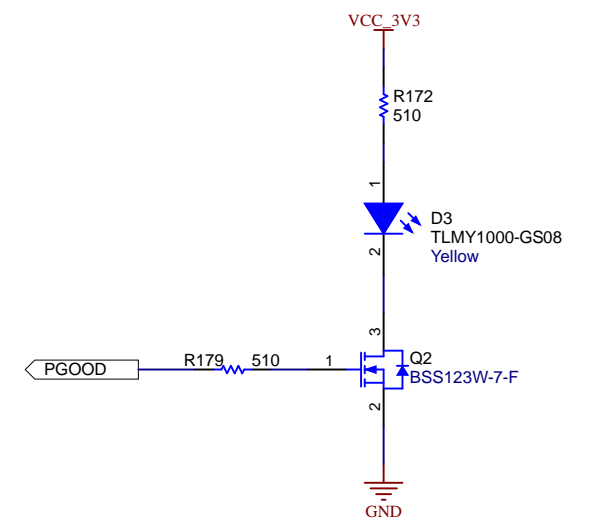
Option to Power through FTDI USB



5V LED INDICATION



PGOOD LED



Orderable: AWRL6432AOPEVM	Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: USB_PWR_DC_JACK_SWITCH
SVN Rev: Unknown revision	Assembly Variant: 002_AWR	Sheet 4 of 17
Drawn By: Mistral	File: PROC177B_USB_PWR_DC_Jack_Switch.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	



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A

B

C

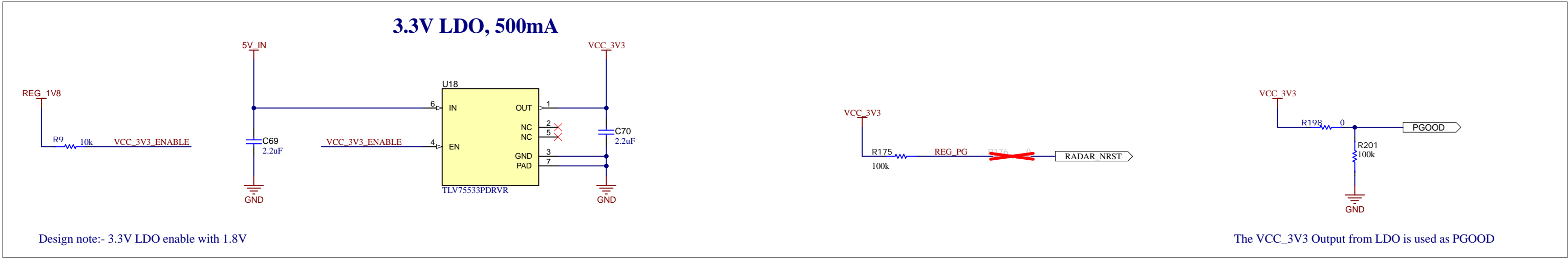
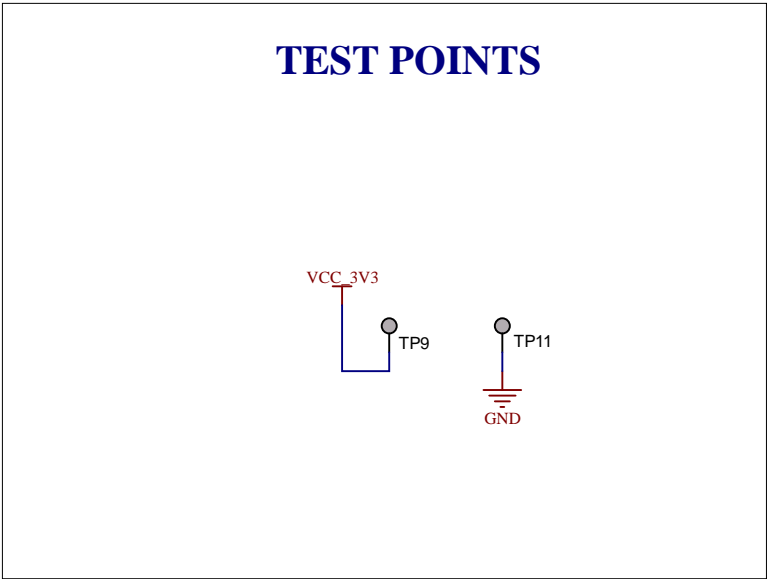
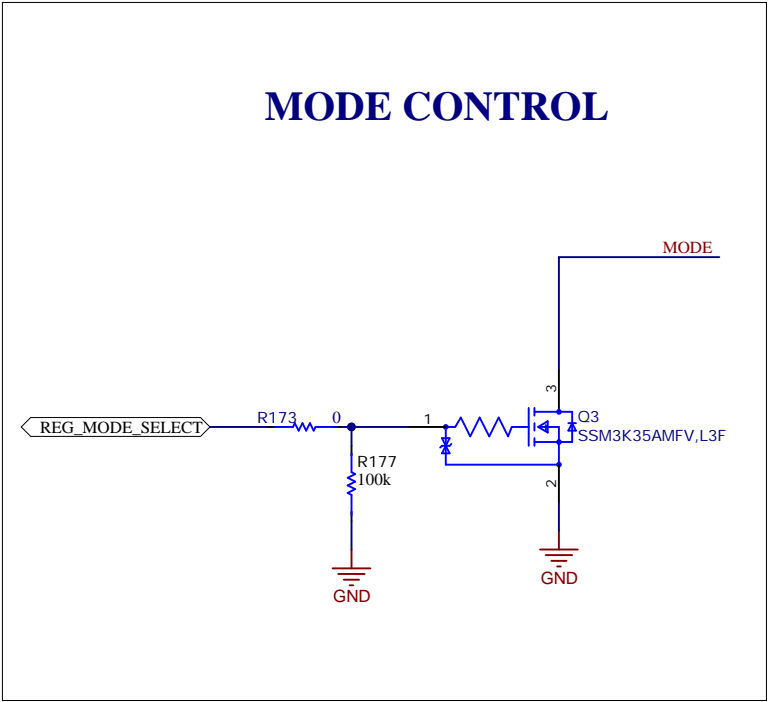
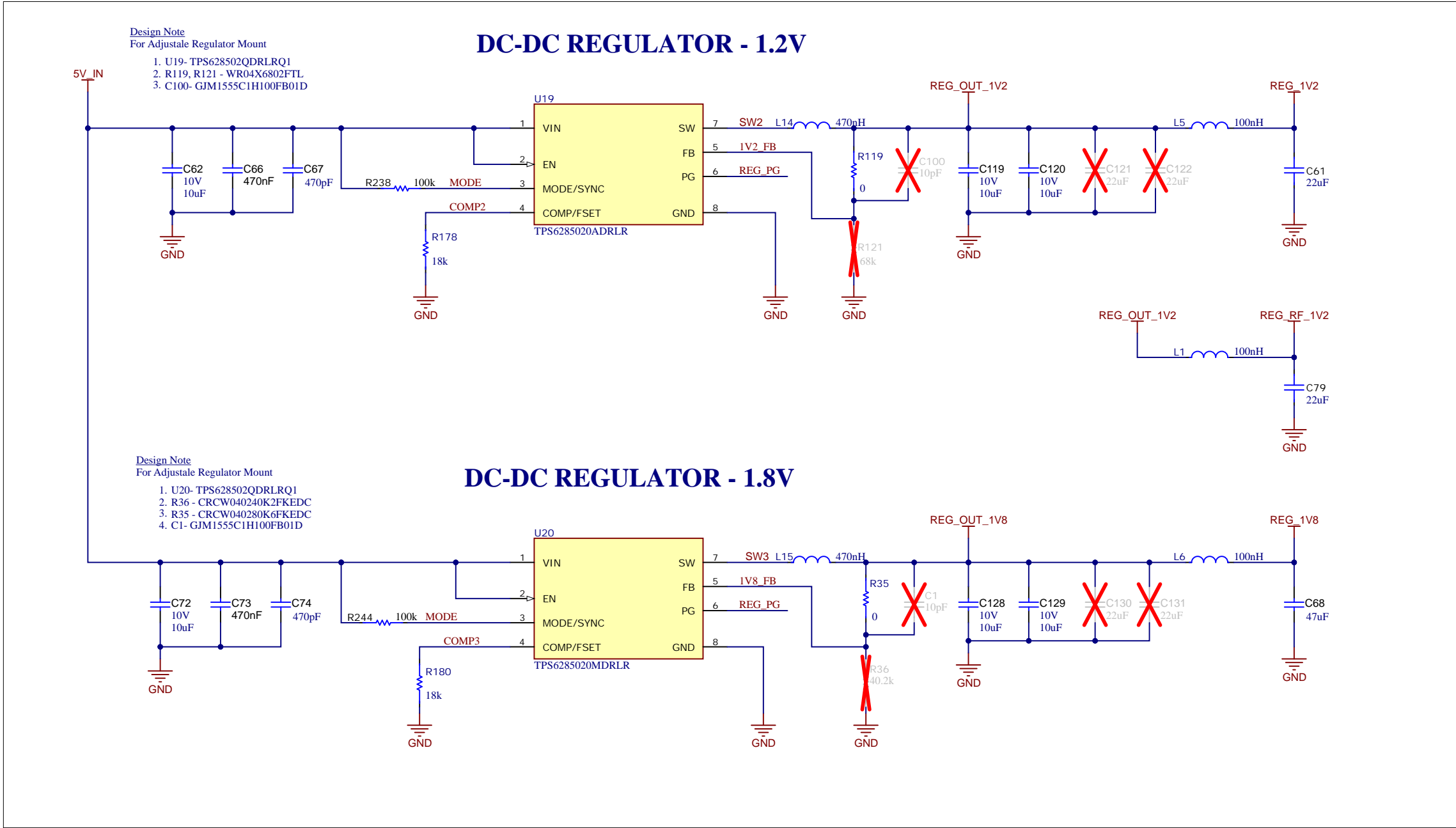
D

A

B

C

D

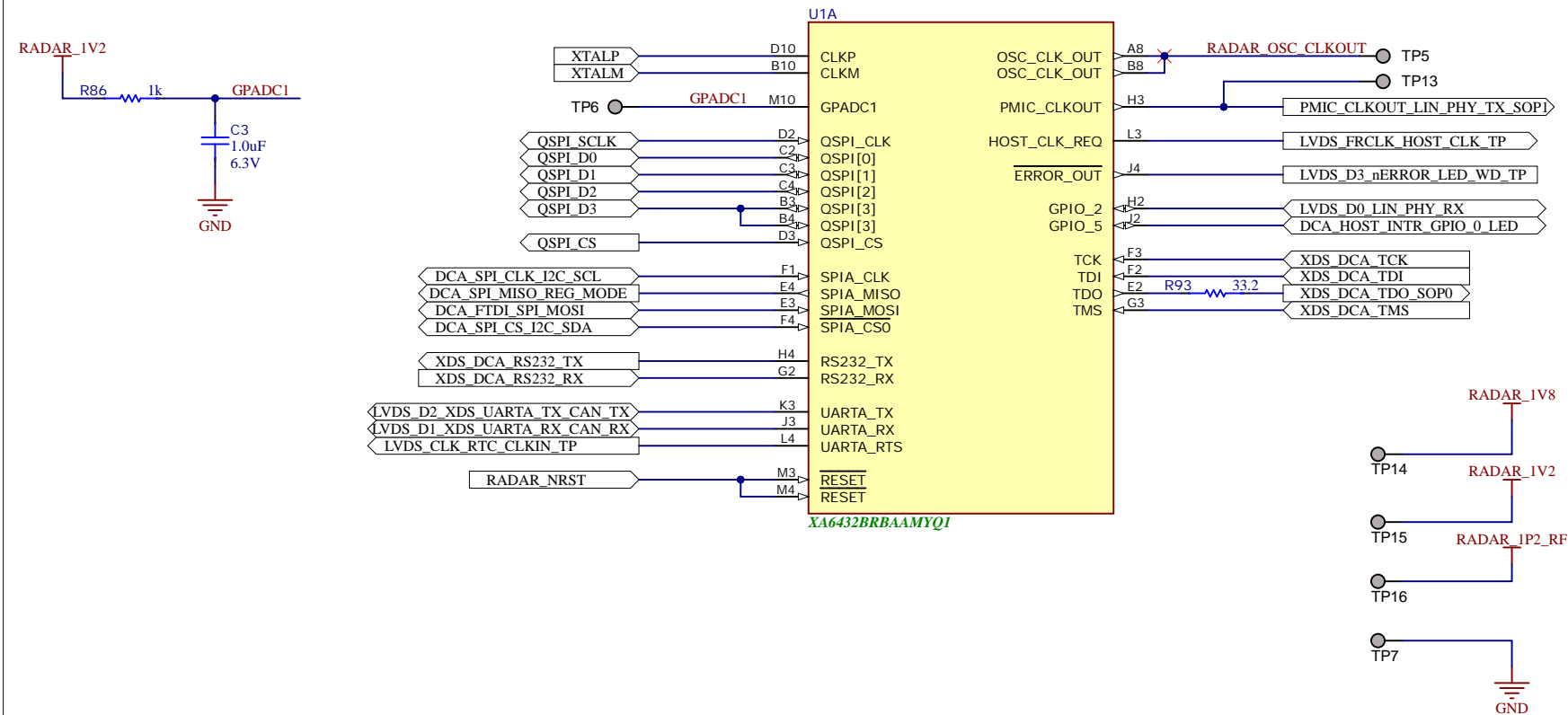


Design note:- 3.3V LDO enable with 1.8V

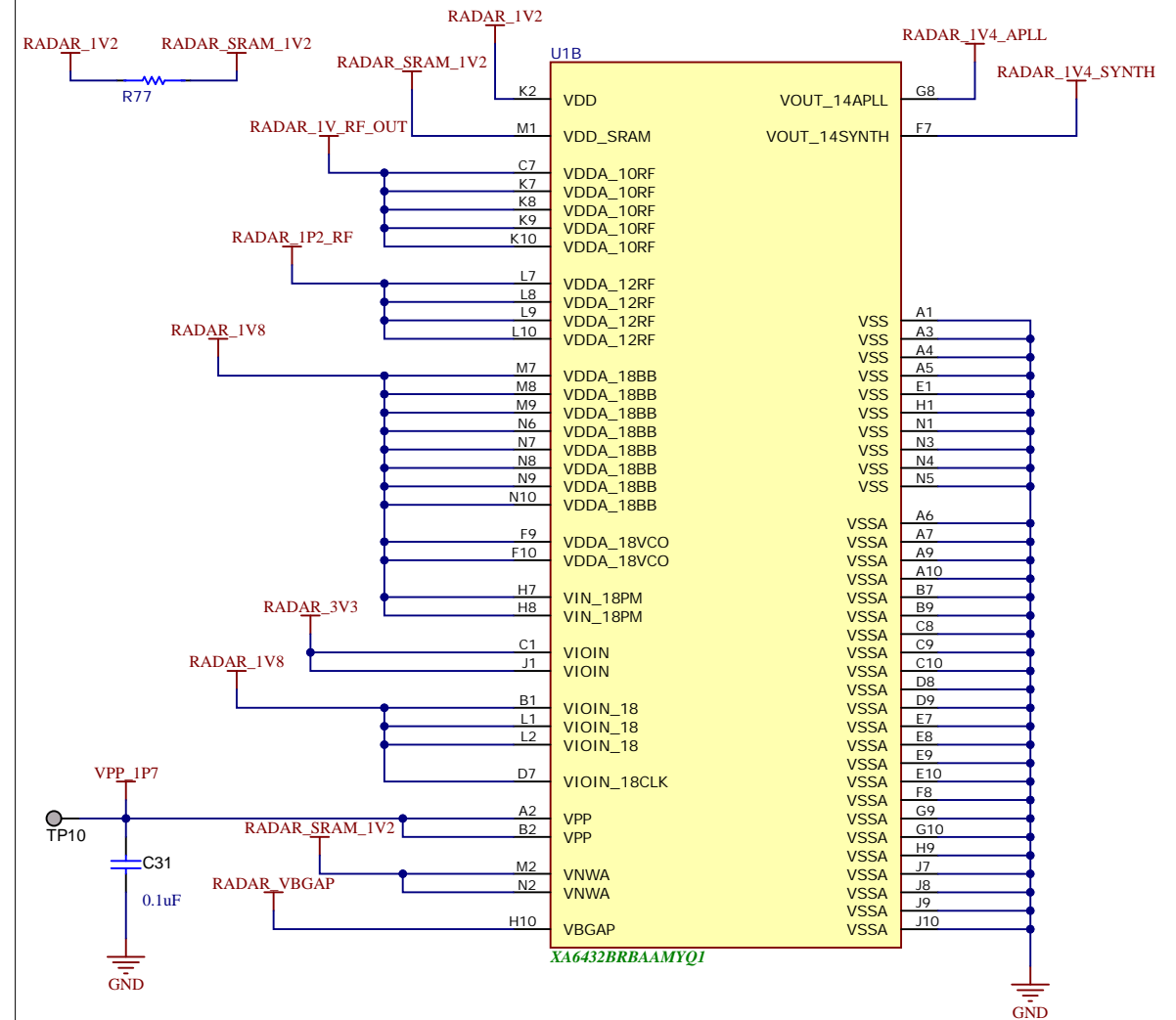
The VCC_3V3 Output from LDO is used as PGOOD

xWRL6432AOP CHIP (SENSOR BOARD)

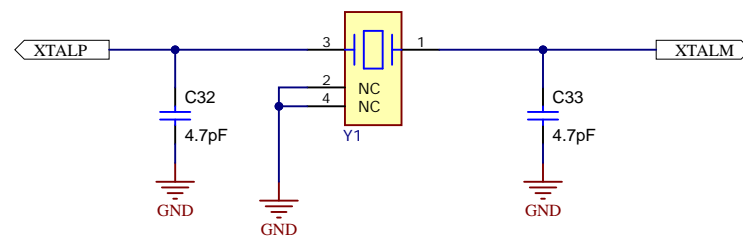
xWRL6432AOP CHIP - INTERFACE



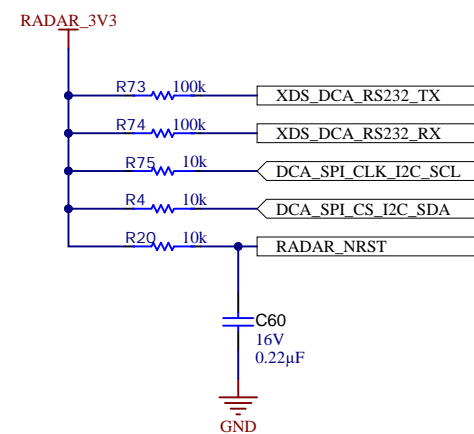
xWRL6432AOP CHIP - POWER



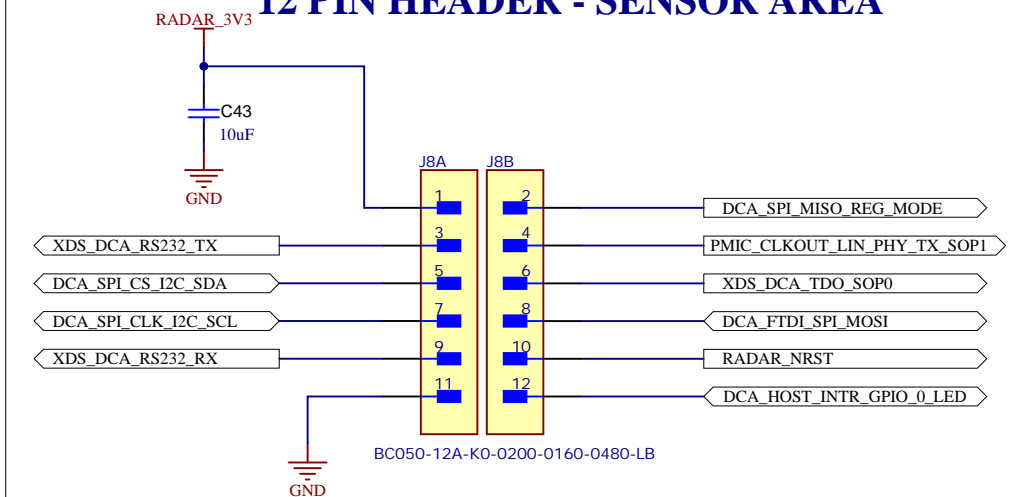
40 MHz CRYSTAL OSCILLATOR



Alternate Crystal part number :
XRCGE40M000FBAABR0(Murata)
CX2016SA40000D0PTWC1



12 PIN HEADER - SENSOR AREA

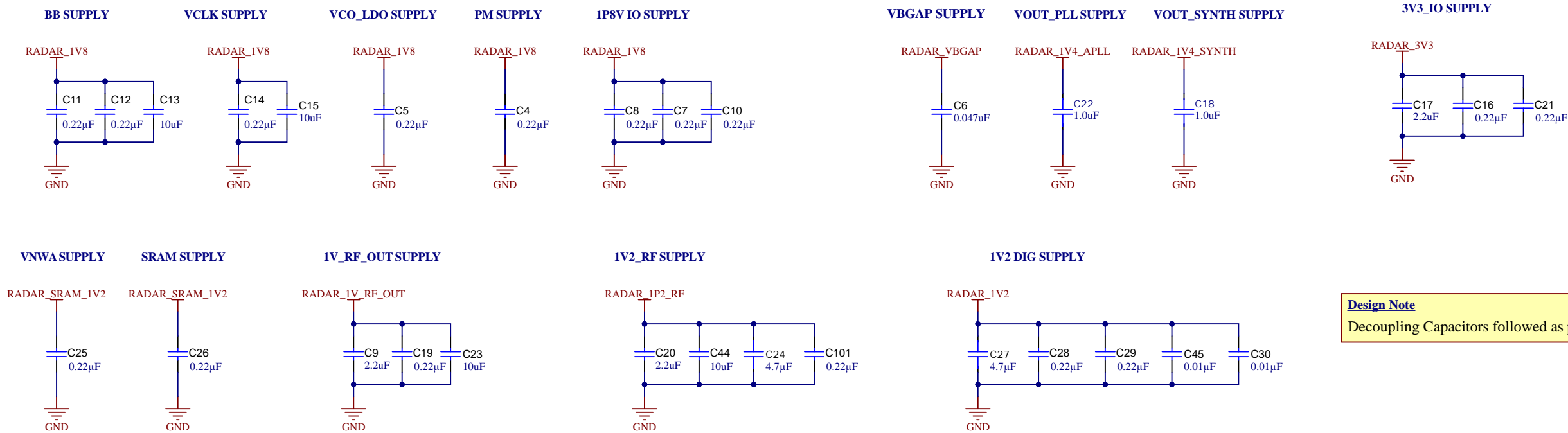


Orderable: AWRL6432AOPEVM	Designed for: Public Release	Mod. Date: 1/17/2024	 TEXAS INSTRUMENTS http://www.ti.com © Texas Instruments 2023
TID #: N/A	Project Title: xWRL6432AOP		
Number: PROC177	Rev: B	Sheet Title: xWRL6432AOP_CHIP	
SVN Rev: Unknown revision	Assembly Variant: 002_AWR	Sheet: 6 of 17	
Drawn By: Mistral	File: PROC177B_xWRL6432AoP_Chip_SchDoc	Size: B	
Engineer: Mistral	Contact: http://www.ti.com/support		

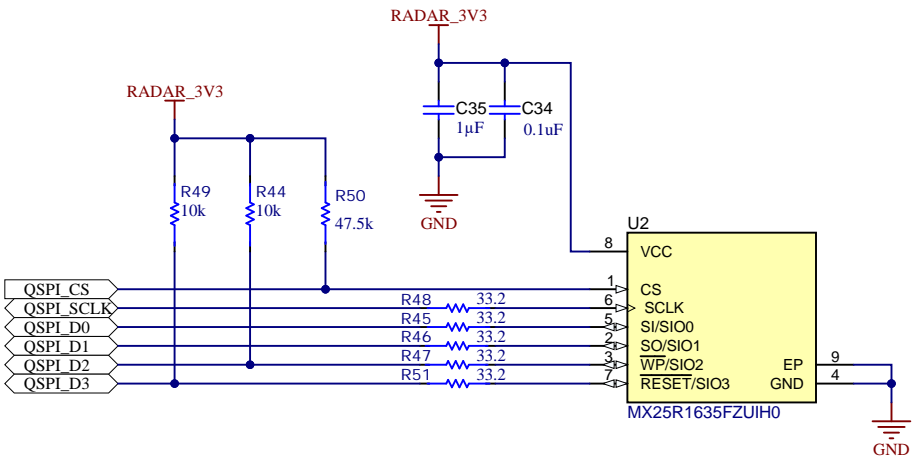
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xWRL6432AOP CHIP SUPPLY_DECOUPLING_CAPS (SENSOR BOARD)



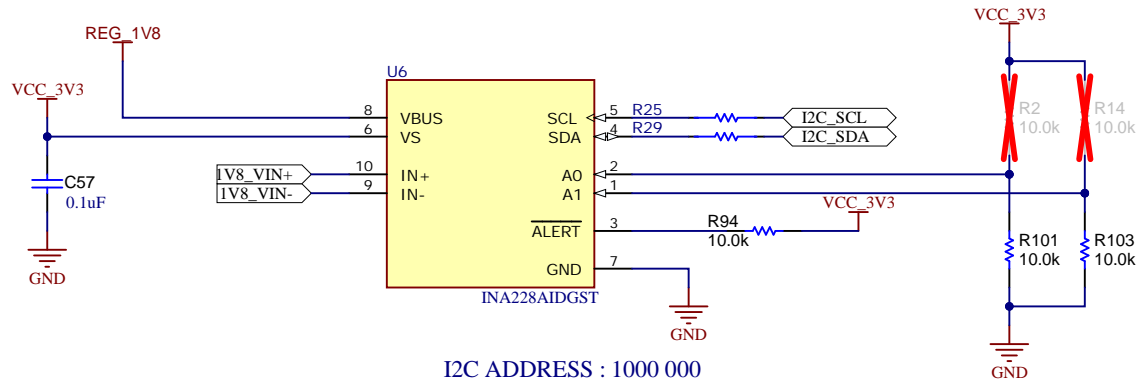
QSPI FLASH (SENSOR BOARD)



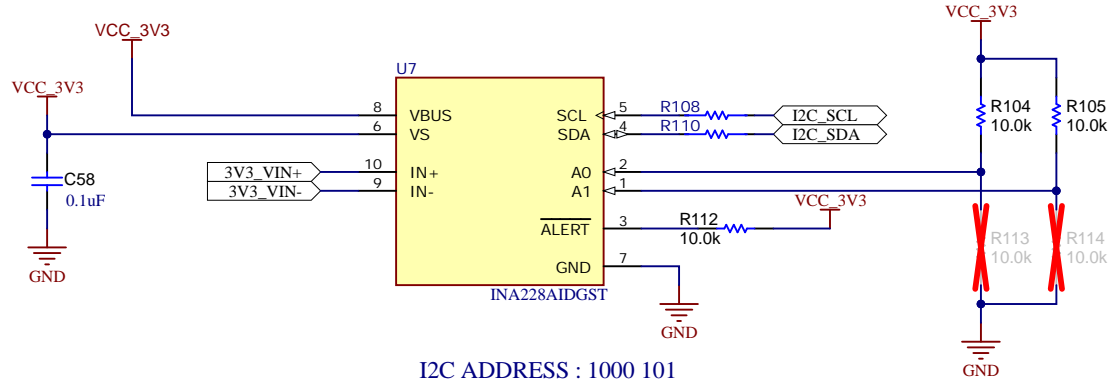
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Orderable: AWRL6432AOP EVM	Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: DECOUPLING_CAPS_QSPI_FLASH
SVN Rev: Unknown revision	Assembly Variant: 002_AWR	Sheet: 7 of 17
Drawn By: Mistral	File: PROC177B_Dcoupling_caps_QSPI_Flash_SheetB	
Engineer: Mistral	Contact: http://www.ti.com/support	

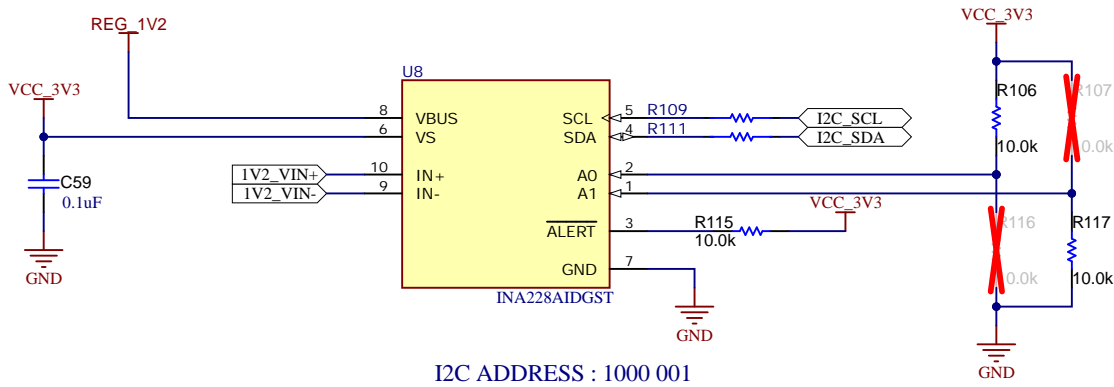
CURRENT SENSOR- 1V8



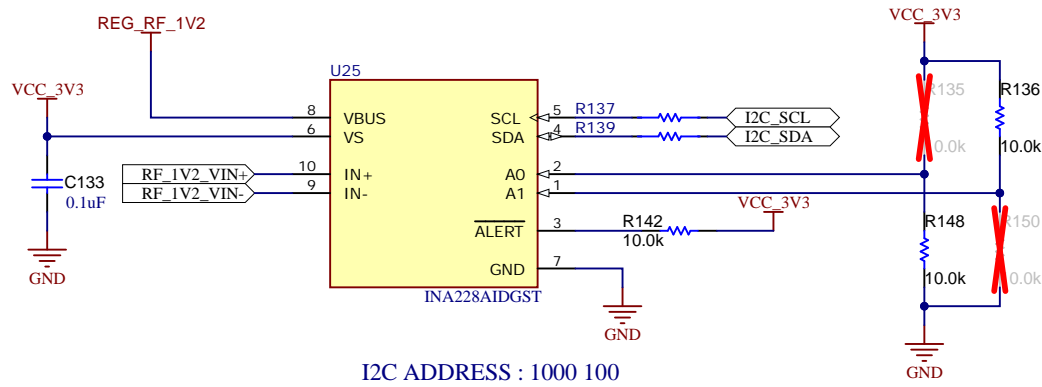
CURRENT SENSOR- 3V3



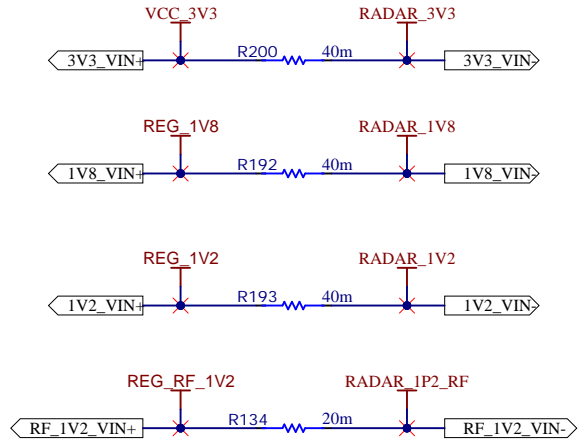
CURRENT SENSOR- 1V2



CURRENT SENSOR- RF_1V2

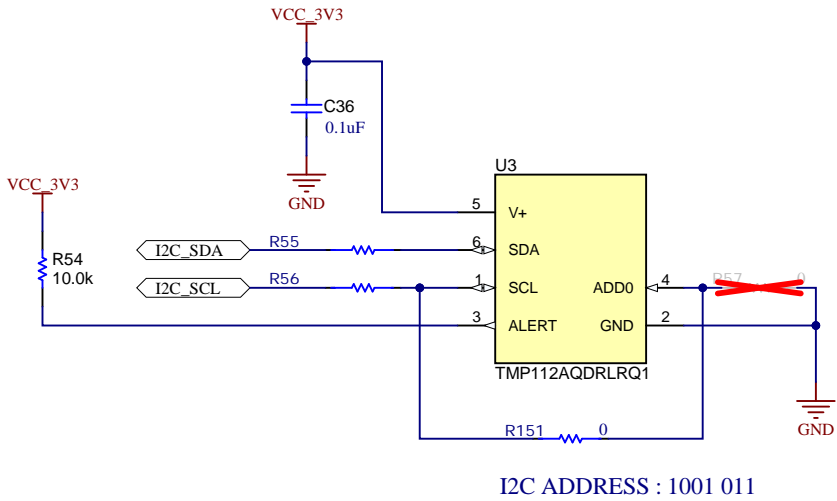


CURRENT SENSE RESISTORS

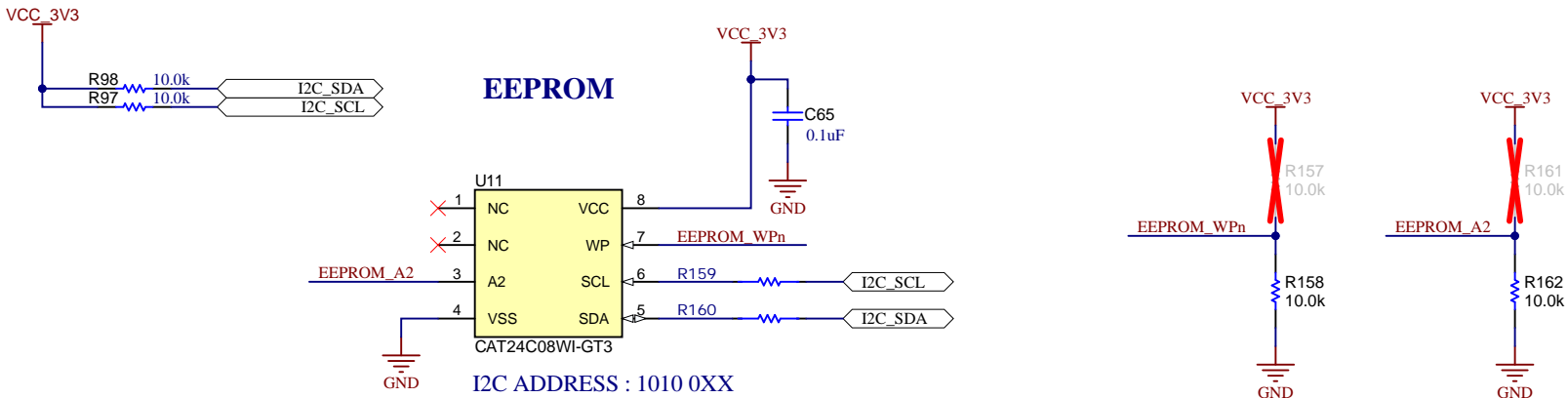


Design Note: 'Generic No ERCs' were placed intentionally on either sides of Current sense resistors

TEMPERATURE SENSOR



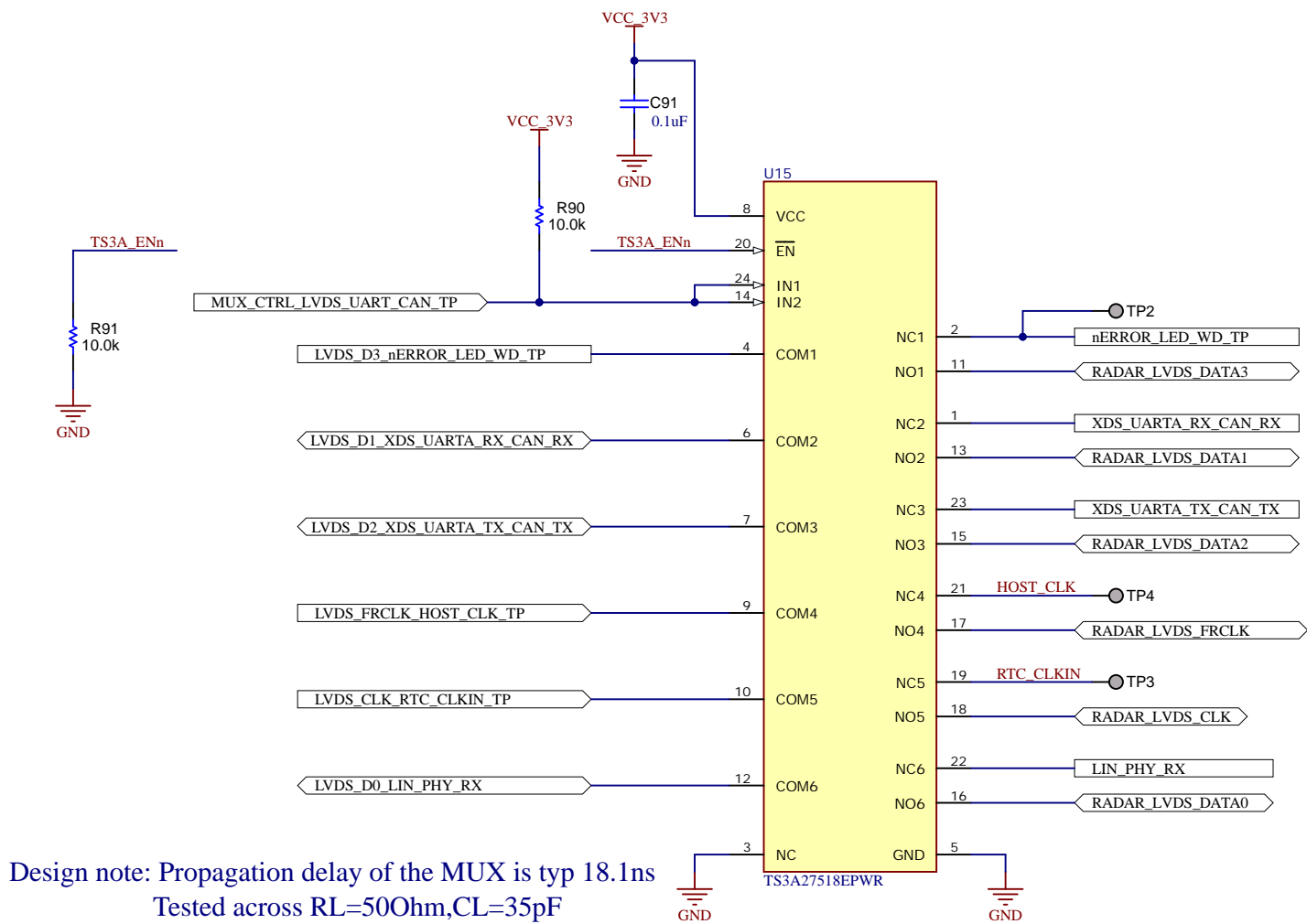
EEPROM



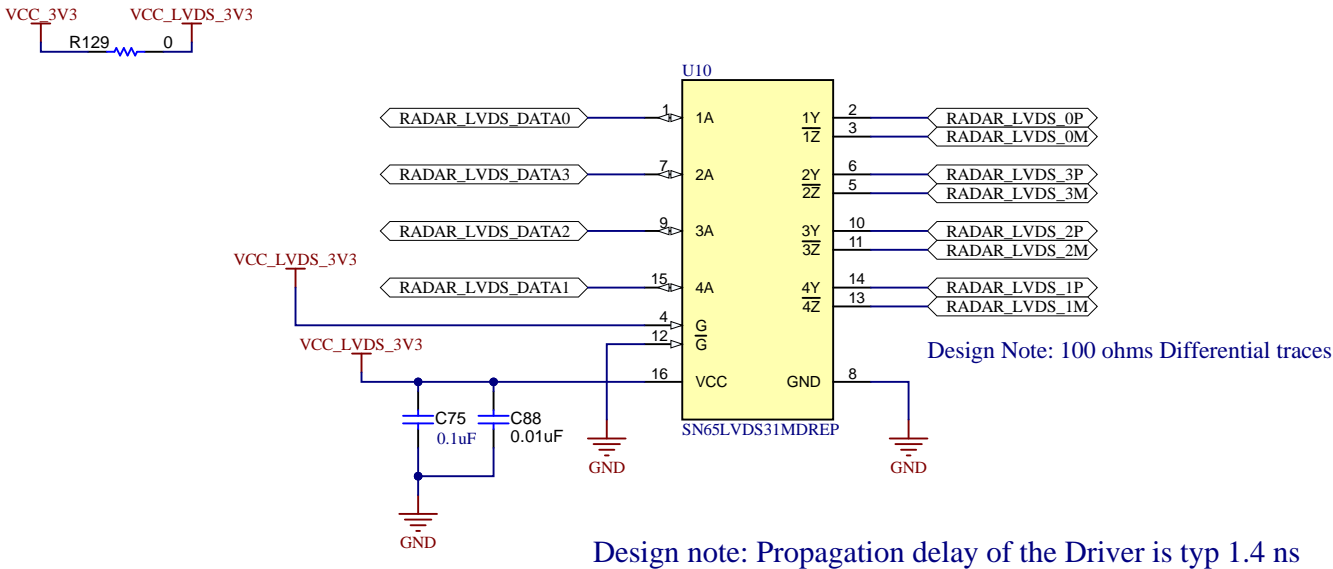
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Orderable: AWRL6432AOPEVM	Designed for: Public Release	Mod. Date: 1/3/2024
TID #: N/A	Project Title: xWRL6432AOP	
Number: PROC177	Rev: B	Sheet Title: TEMP_CURRENT_SENSORS_EEPROM
SVN Rev: Unknown revision	Assembly Variant: 002_AWR	Sheet: 8 of 17
Drawn By: Mistral	File: PROC177B_Temp_Current_sensors_EPROM_Schema	
Engineer: Mistral	Contact: http://www.ti.com/support	

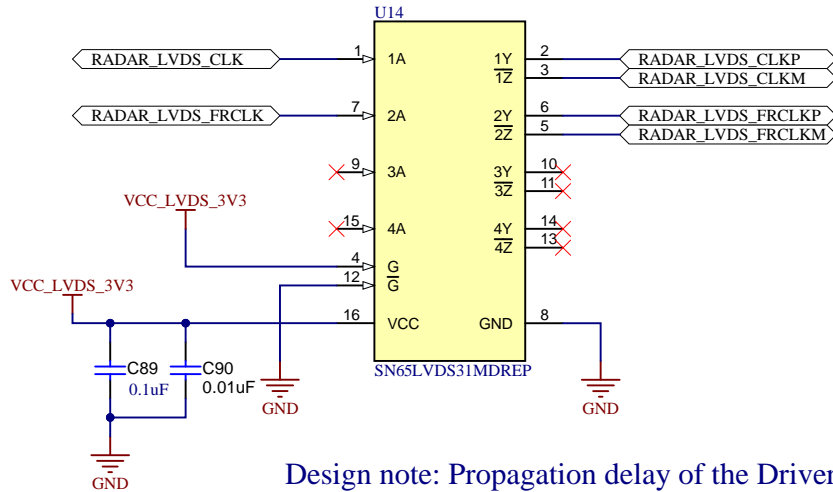
ANALOG MUX - RADAR DATA & CLOCK



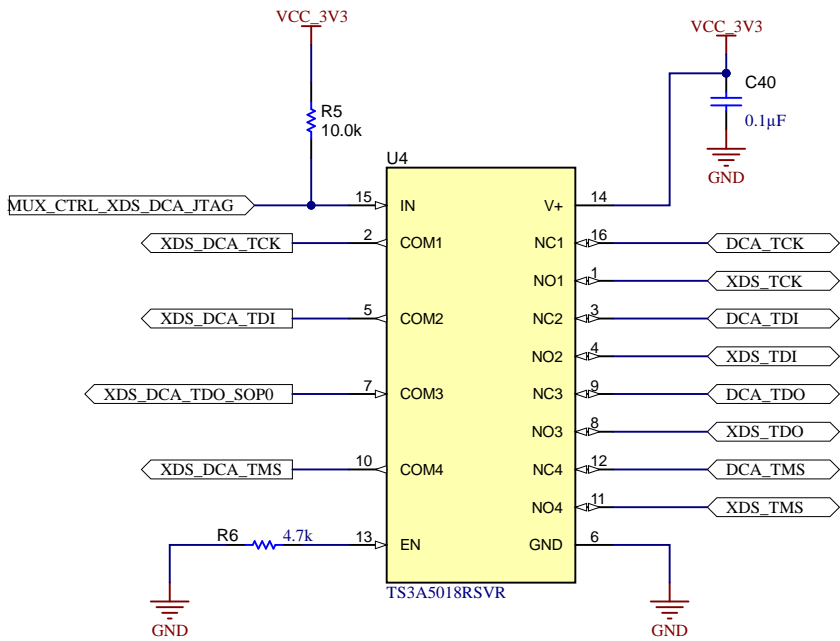
DIFFERENTIAL LVDS DRIVER - DATA



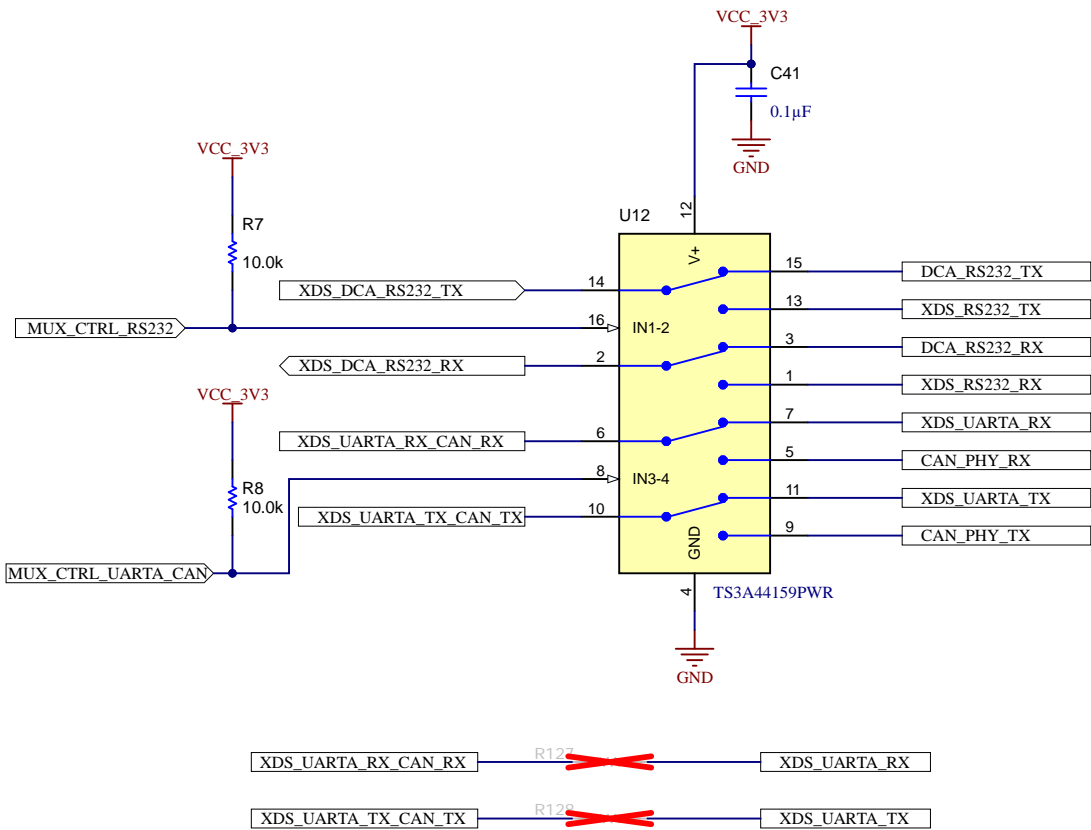
DIFFERENTIAL LVDS DRIVER - CLK



ANALOG MUX



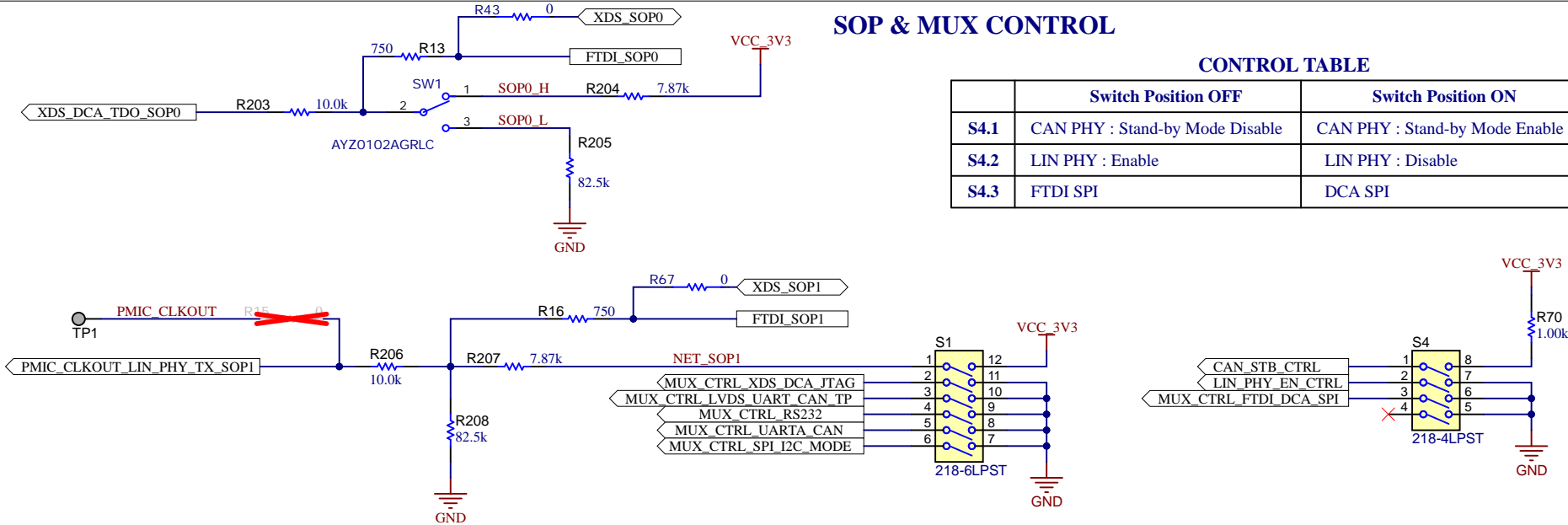
UART-ANALOG SWITCH



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



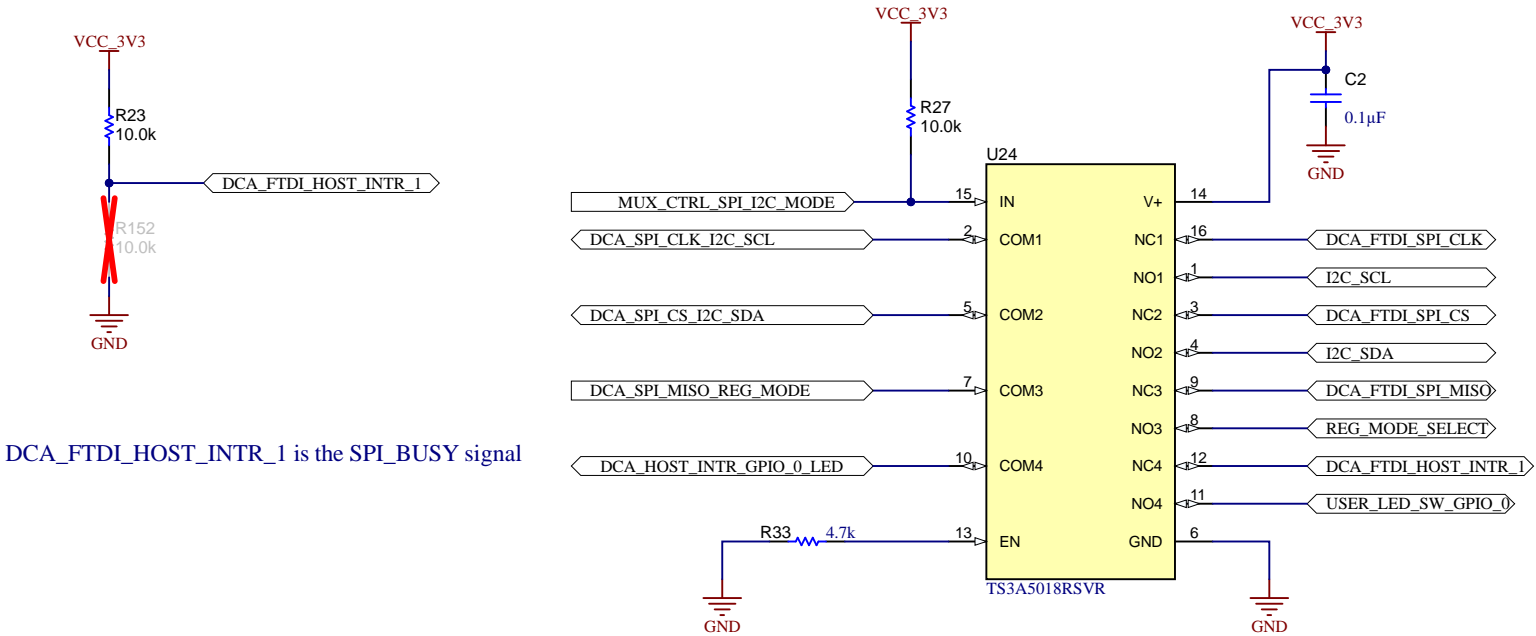
MUX TABLE

	Switch Position OFF	Switch Position ON
S1.2	XDS_JTAG	DCA_JTAG
S1.3	LVDS	LIN_RX, XDS_UARTA/CAN, NERROR_LED, WATCH_DOG_TP, RTC_CLK_IN_TP, HOST_CLK_TP
S1.4	XDS_RS232	DCA_RS232
S1.5	CAN	XDS_UARTA
S1.6	I2C, REG_MODE, LED_SW_GPIO	SPI

SOP CONFIGURATION

SOP Mode	PMIC_CLK_OUT, TDO	Combination	S1.1(SOP1)	SW1(SOP0)
SOP_MODE1	Device management mode / QSPI Flashing mode	0 0	OFF	2--3
SOP_MODE2	Application mode / Functional mode	0 1	OFF	2--1
SOP_MODE4	Debug mode / mmWave studio connectivity mode	1 1	ON	2--1

ANALOG MUX - SPI/I2C



DCA_FTDI_HOST_INTR_1 is the SPI_BUSY signal

A

B

C

D

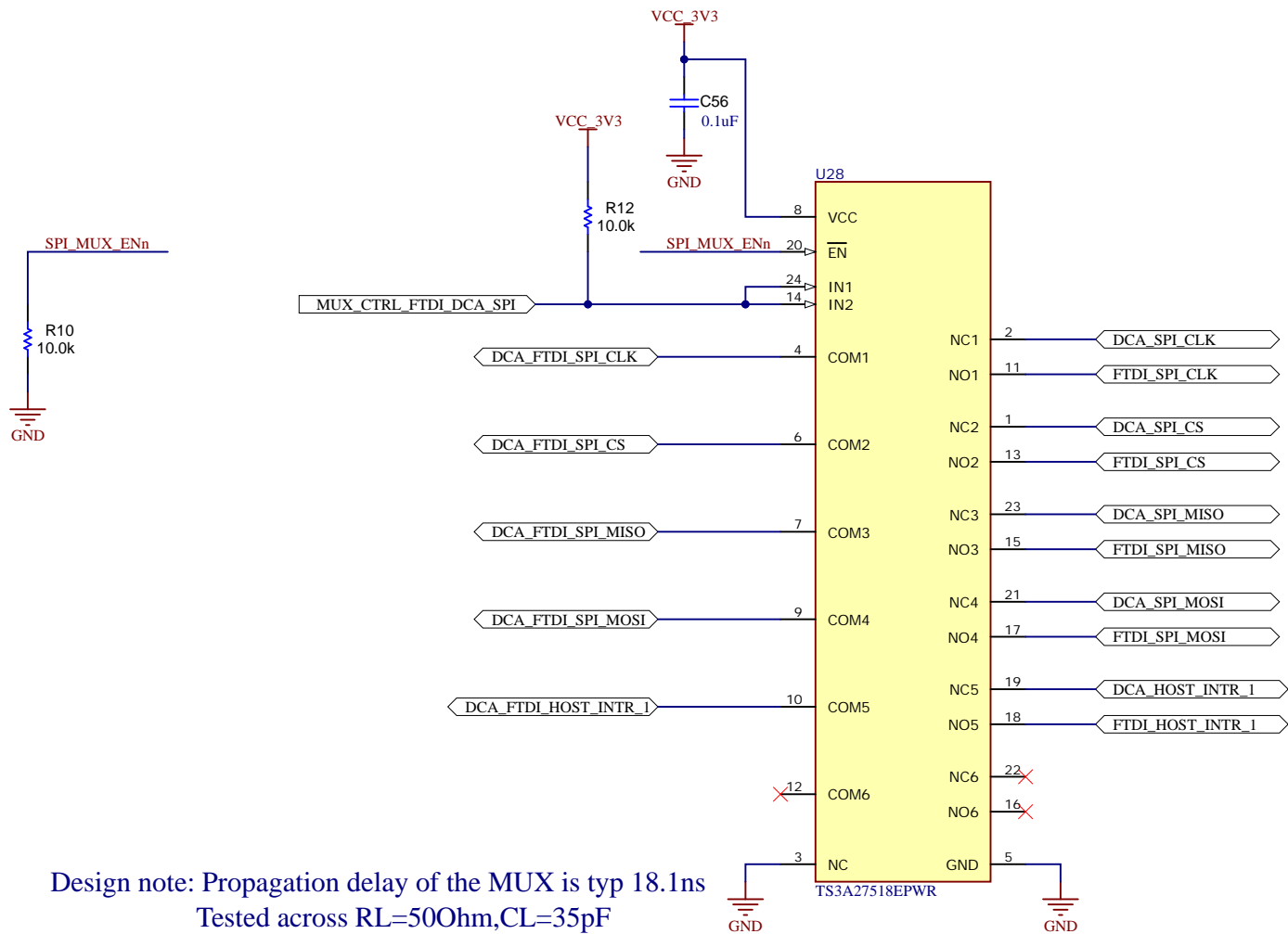
A

B

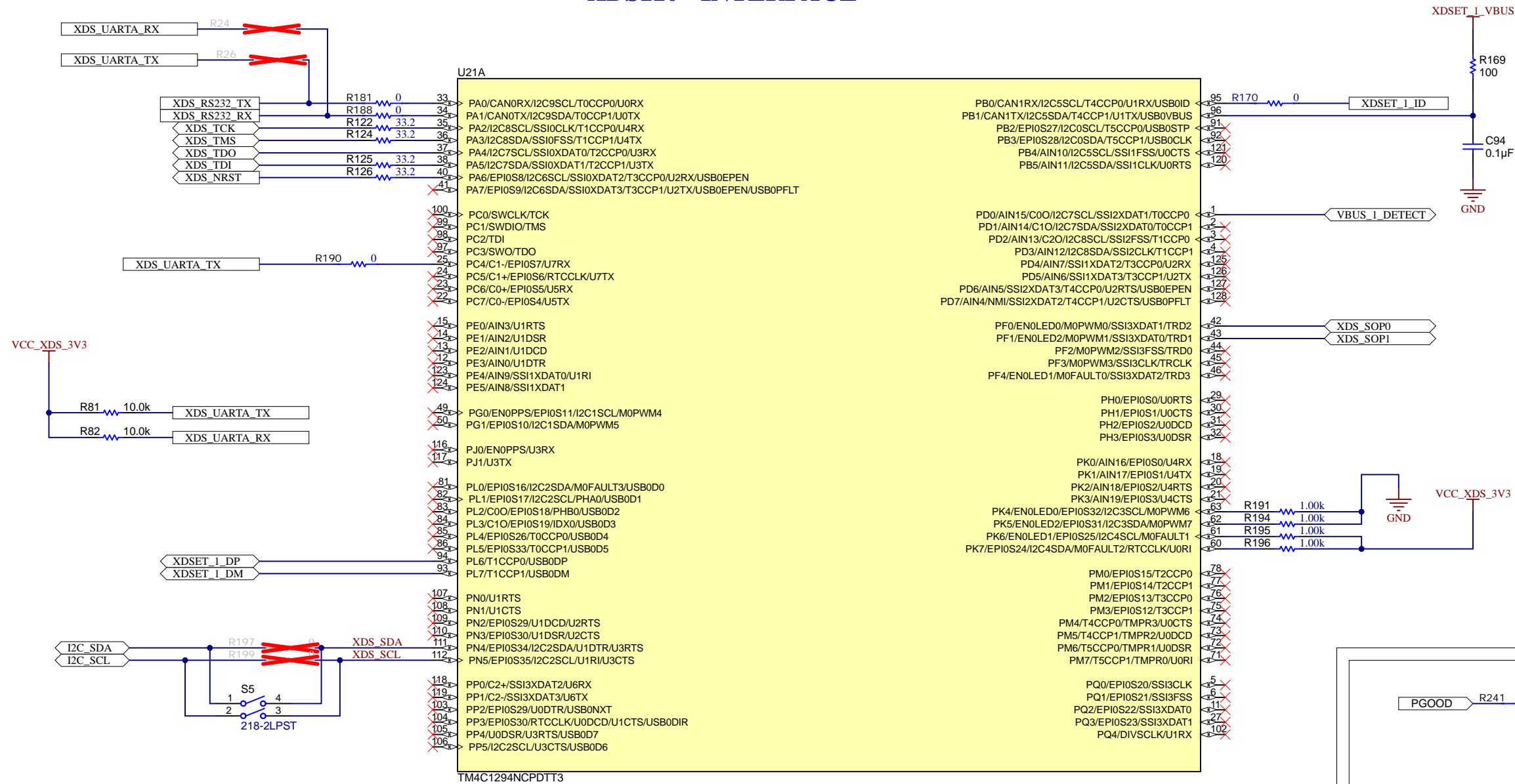
C

D

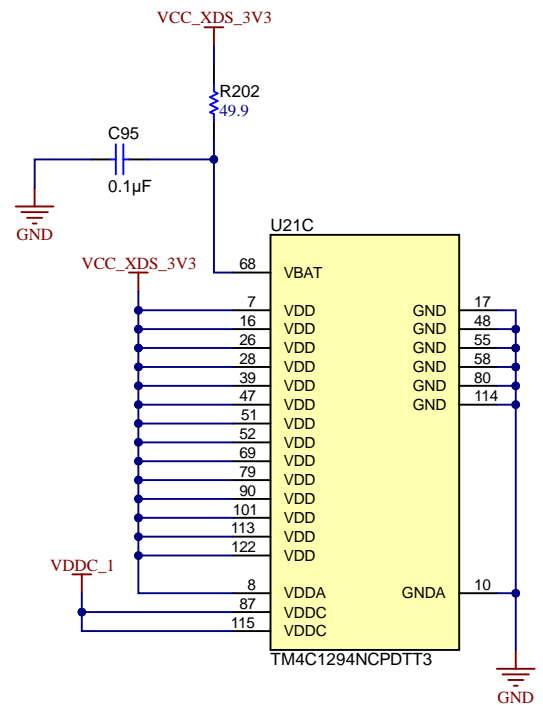
ANALOG MUX SPI- DCA/FTDI



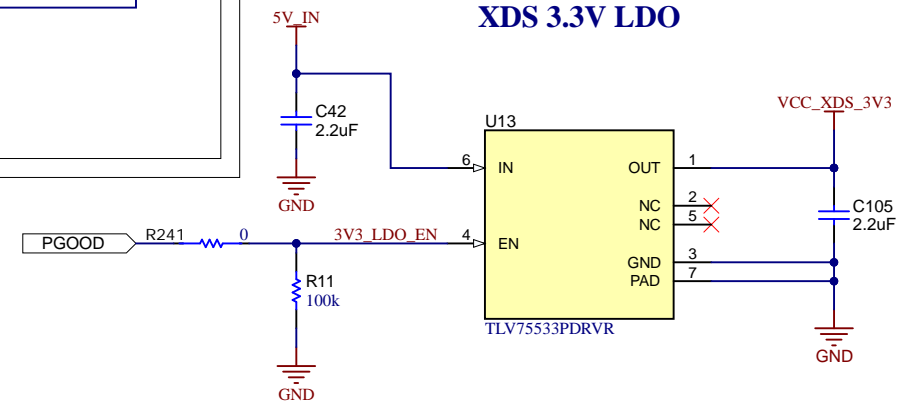
XDS110 - INTERFACE



XDS110 - POWER

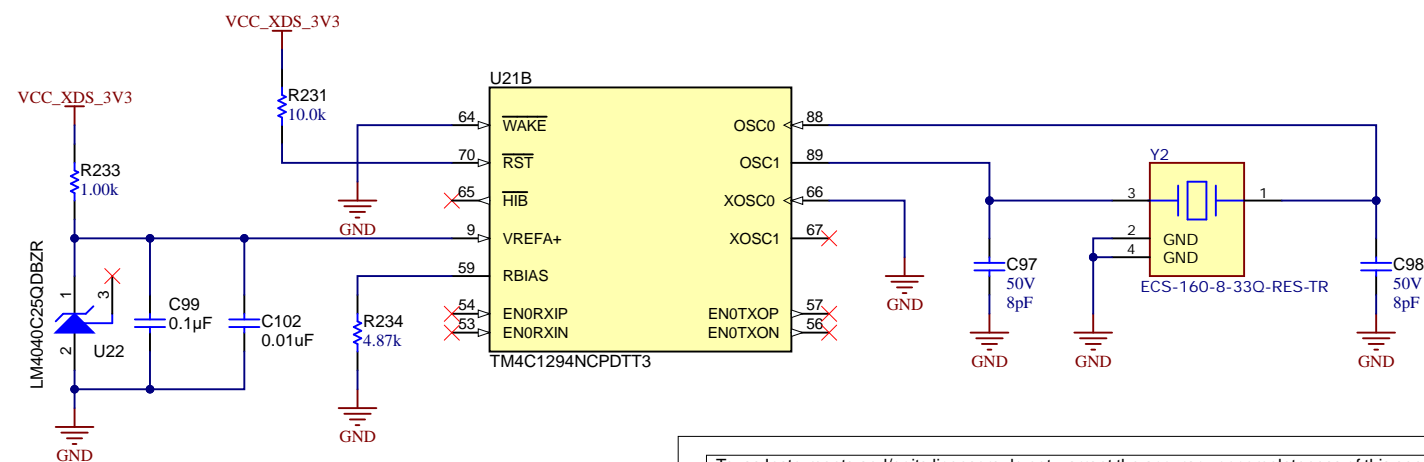


XDS 3.3V LDO

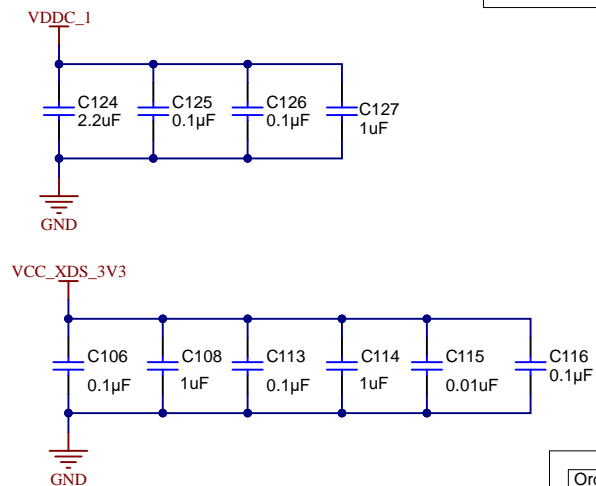


By Default LDO is disabled
When 3V3 DC-DC regulator is powered up, then it gets enabled

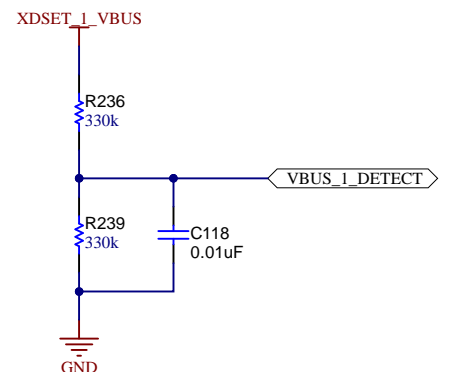
XDS110 - XTAL



DECOUPLING CAPS - XDS



VBUS_DETECT



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Orderable: AWRL6432AOP	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: 002_AWR	Sheet: 12 of 17
Drawn By: Mistral	File: PROC177B_XDS110_Interface.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

A

B

C

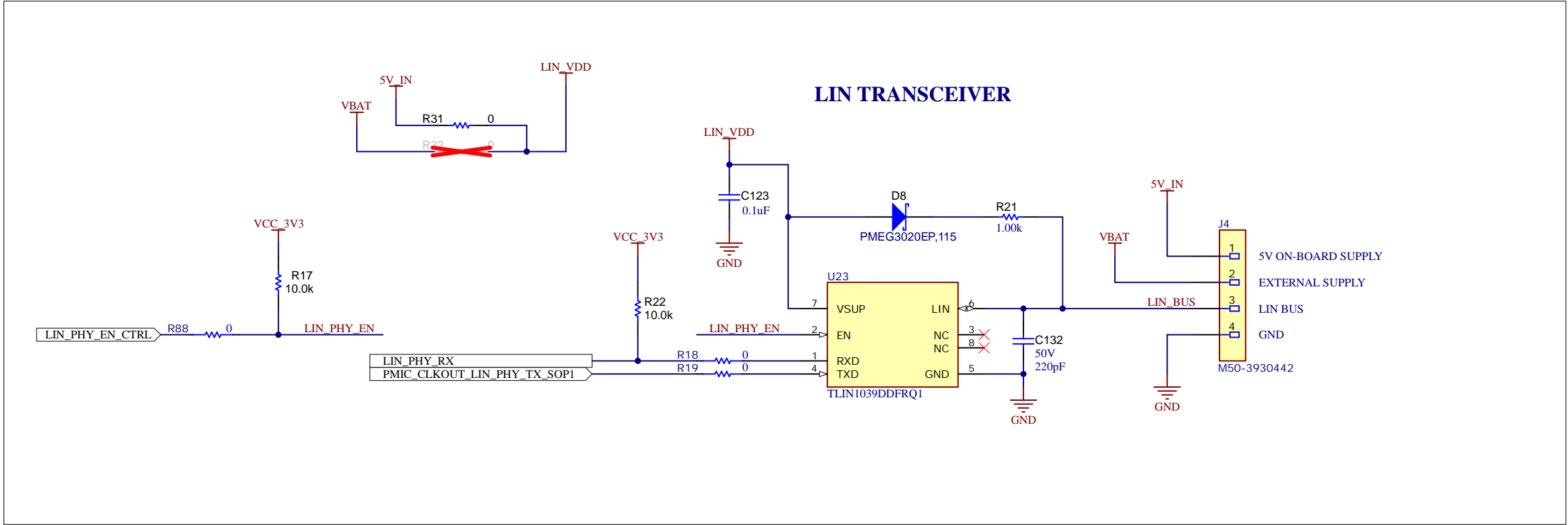
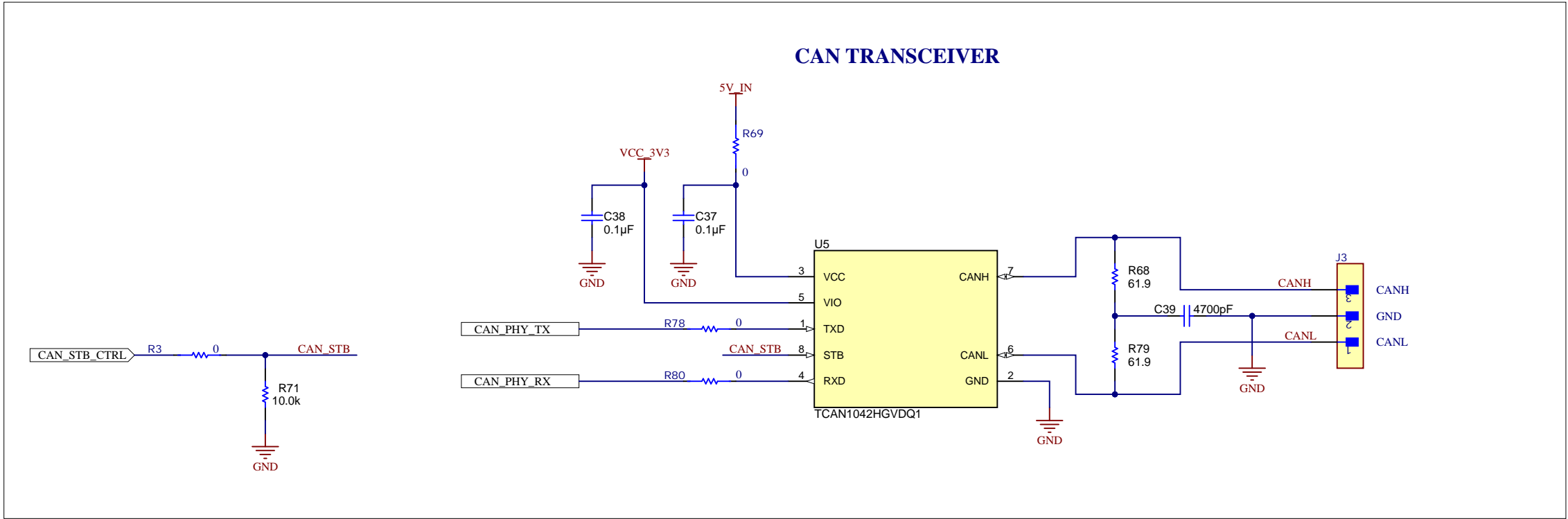
D

A

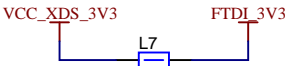
B

C

D



FTDI - USB to SPI CONVERTER

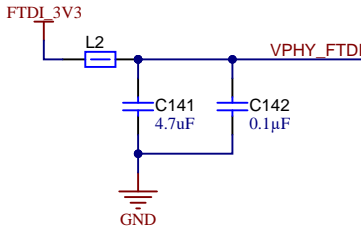
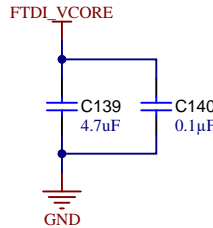


Review Note

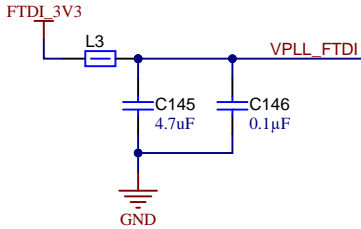
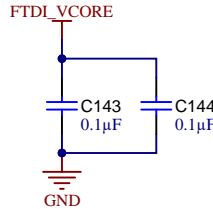
FTDI_3V3 Power from XDS LDO 3V3

FTDI SUPPLY DECAPS

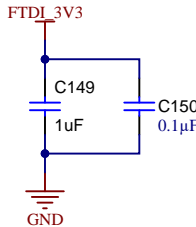
VCORE DECAPS



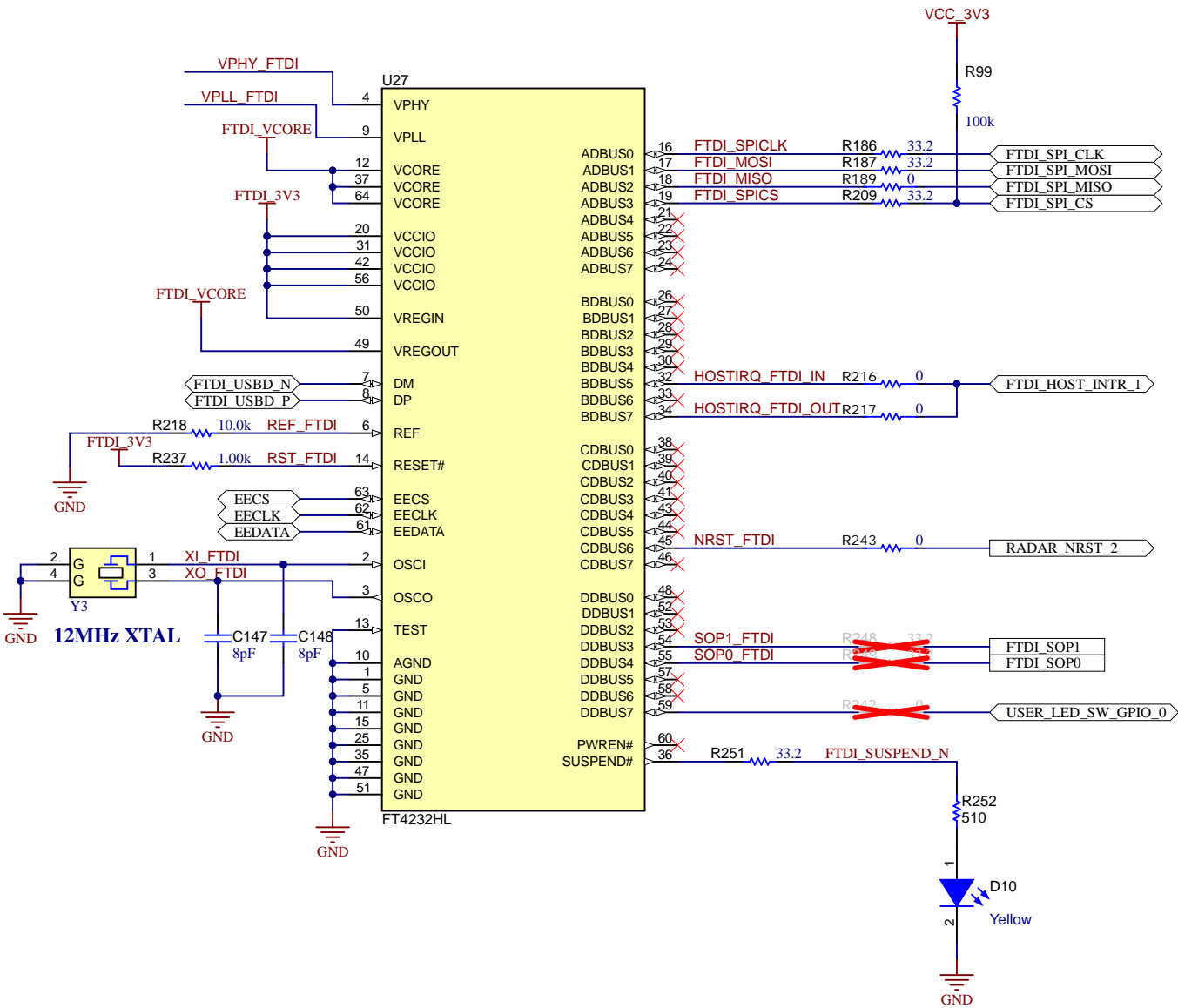
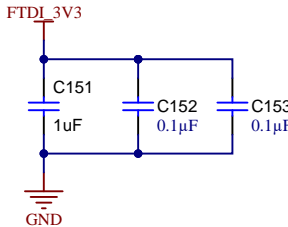
VREGOUT DECAPS



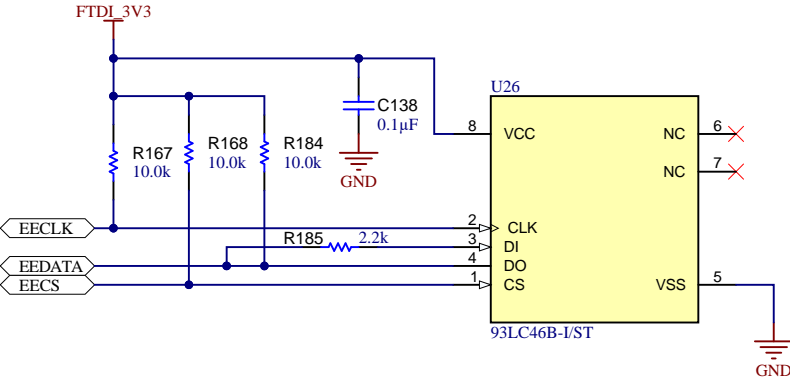
VREGIN DECAPS



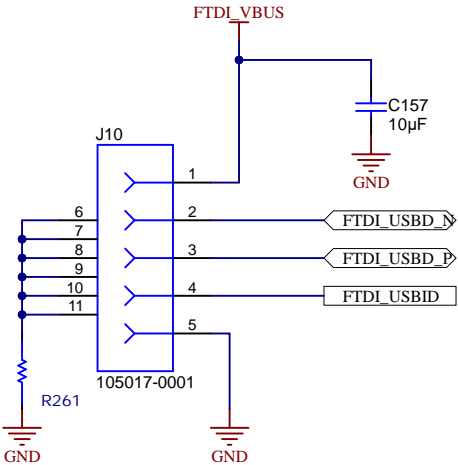
VCCIO DECAPS



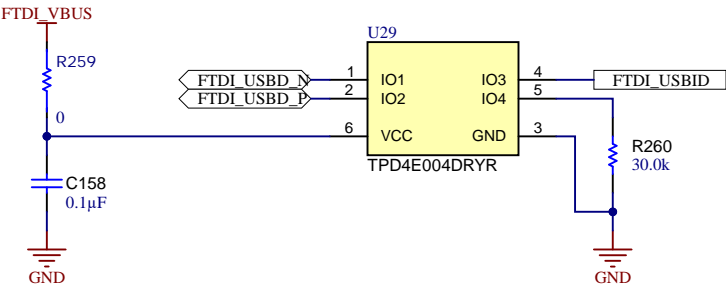
FTDI EEPROM



FTDI USB PORT



FTDI USB - ESD PROTECTION

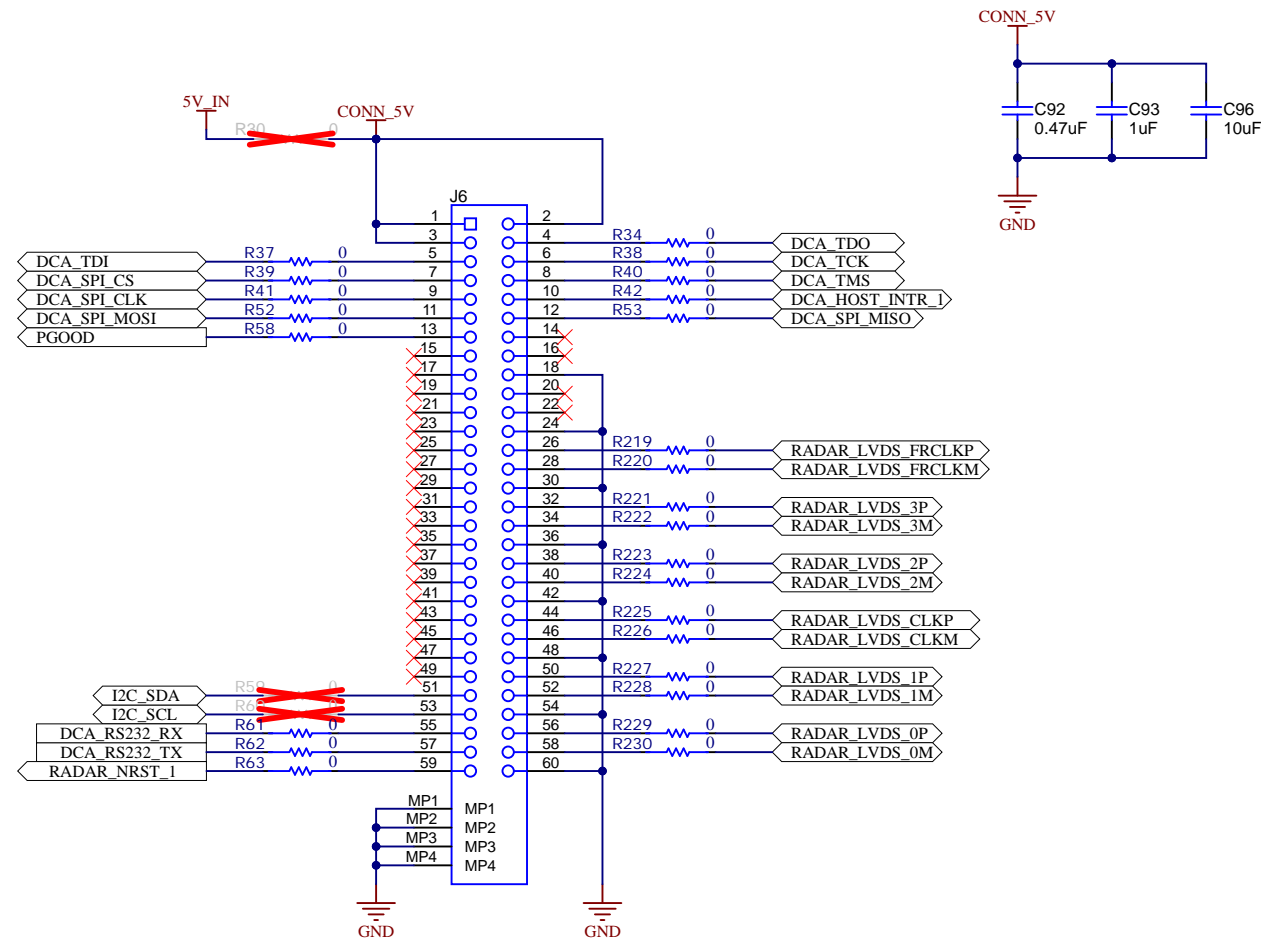


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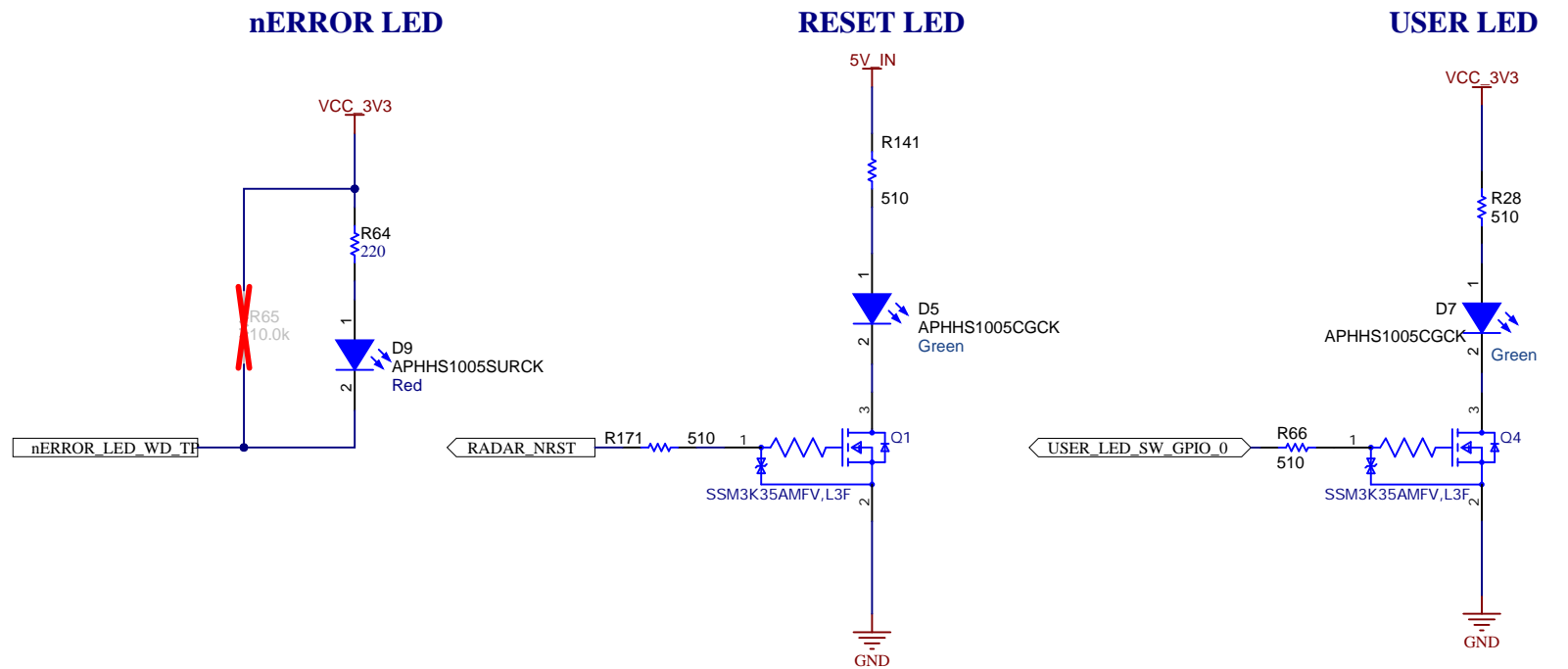
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Number: PROC177	Rev: B	Sheet Title: FTDI_USB to SPI_Converter
SVN Rev: Unknown revision	Assembly Variant: 002_AWR	Sheet: 14 of 17
Drawn By: Mistral	File: PROC177B_FTDI.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	© Texas Instruments 2023



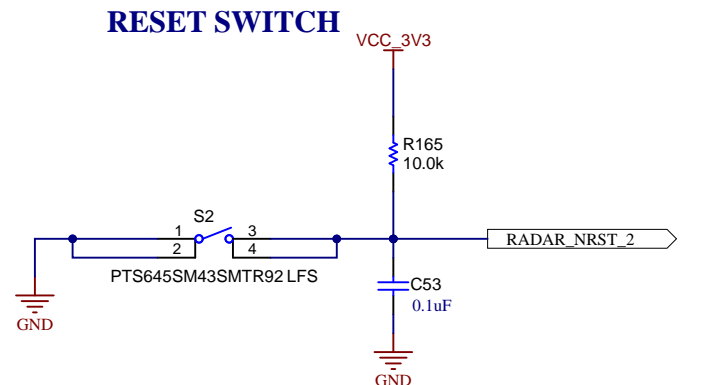
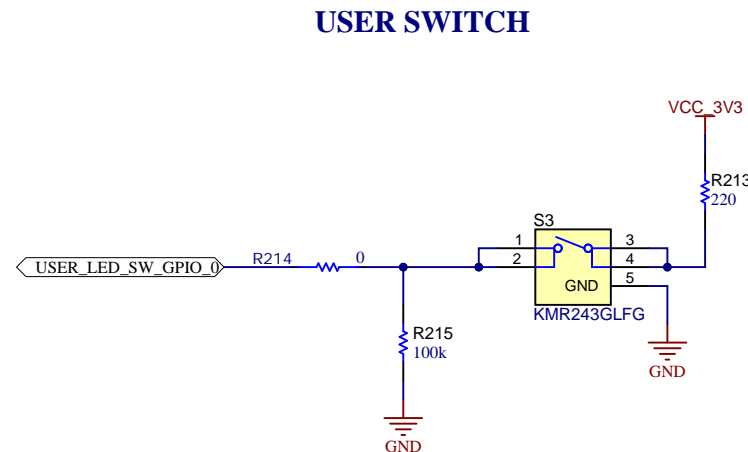
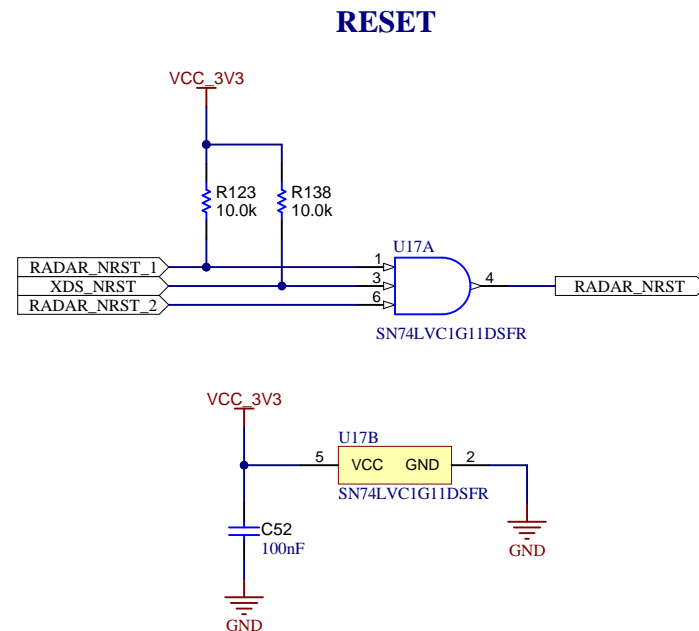
60-PIN HD CONNECTOR FOR DCA1000



RESET, USER LEDS



RESET, USER SWITCHES



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Orderable: AWRL6432AOPEVM	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: 002_AWR	Sheet: 15 of 17
Drawn By: Mistral	File: PROC177B_DCA1000_Connector_Reset_Sch.Dwg	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

A

B

C

D

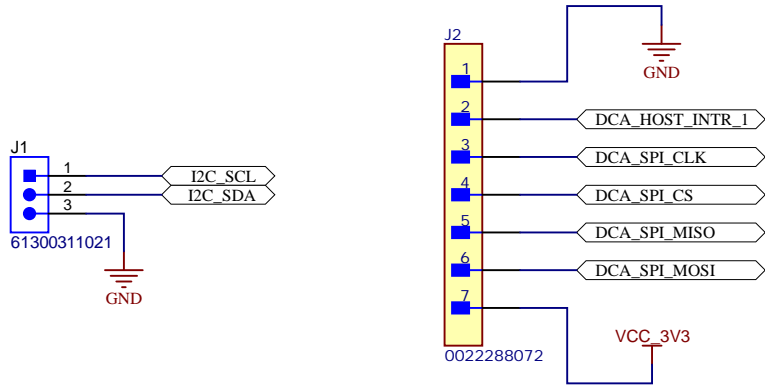
A

B

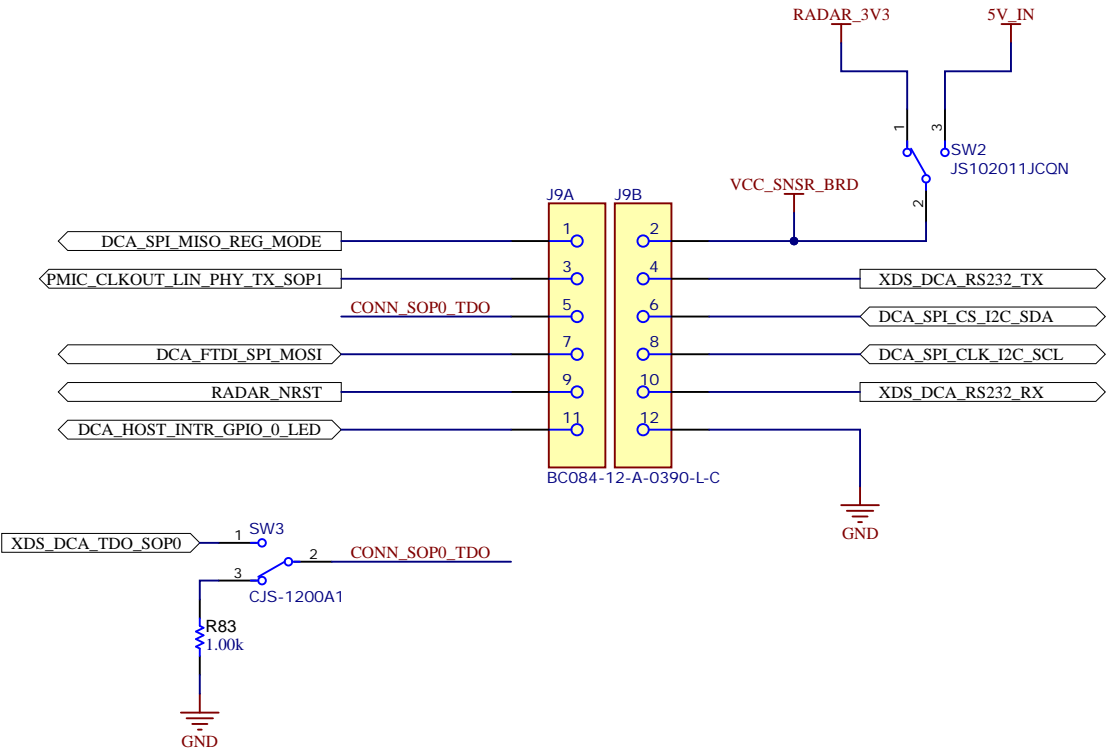
C

D

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: AWRL6432AOPEVM		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: 002_AWR	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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