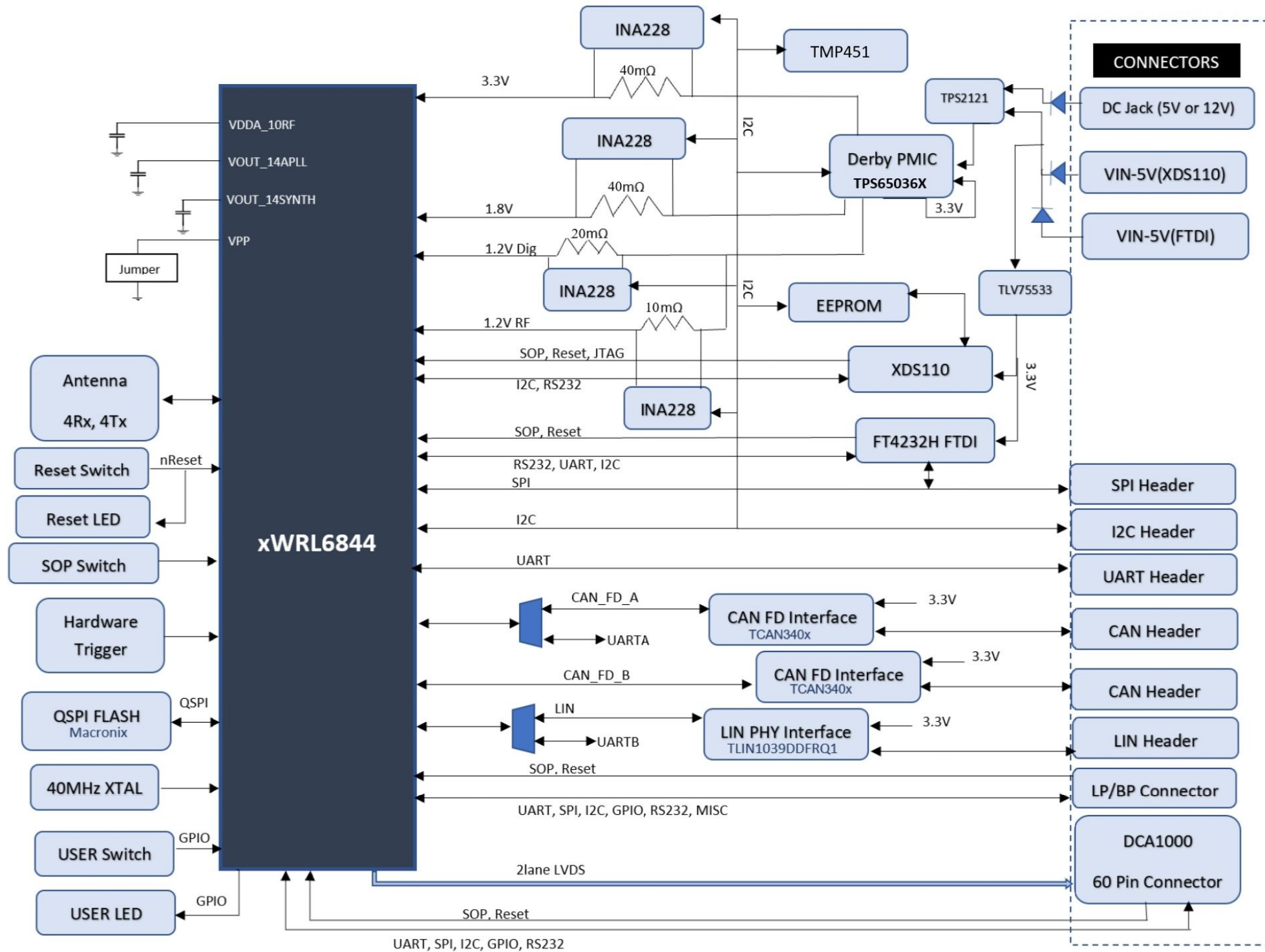


BLOCK DIAGRAM

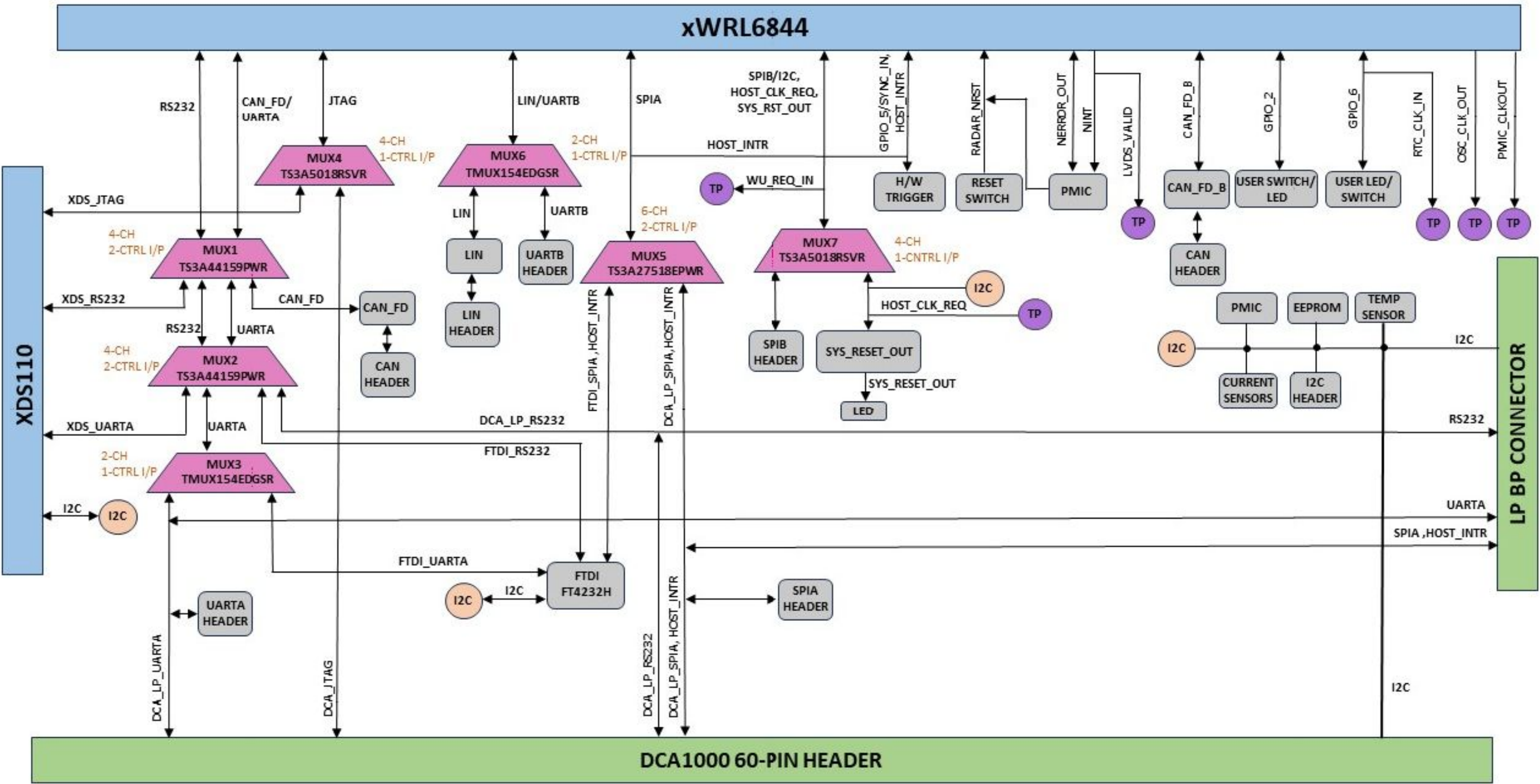


Revision History					
Rev	ECN #	Approved Date	Approved by	Changes	Notes
Rev A ¹					B0 version of PMIC used with Watch Dog enable
Rev A Assy Rev A1 ²				R87 DNP	B0 version of PMIC used with Watch Dog enable. R87 was removed to increase PMIC shutdown window time
Rev A Assy Rev A2 ³				PMIC silicon change	B1 version of PMIC used with Watch Dog disable

1. PMIC WatchDog is enabled in this EVM version. Hence, PMIC asserts a nRESET signal to Radar device for every 13minutes from EVM power-up if WatchDog is not disabled/serviced in timely manner.
2. PMIC WatchDog is enabled in this EVM version and R87 is made DNP. This ensures no connection between nRESET signal going to Radar device. Radar device will not see a reset for every 13 mins, but PMIC shutdowns for every 3.25hrs from the powerup
3. PMIC WatchDog is disabled in this EVM version and R87 is made DNP. No nRESET signal is asserted to Radar device. B1 version of PMIC is used which enables user to exercise low power mode feature through mode pin or I2C

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	1001 100
6	EEPROM	1010 0XX

MUX BLOCK DIAGRAM



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

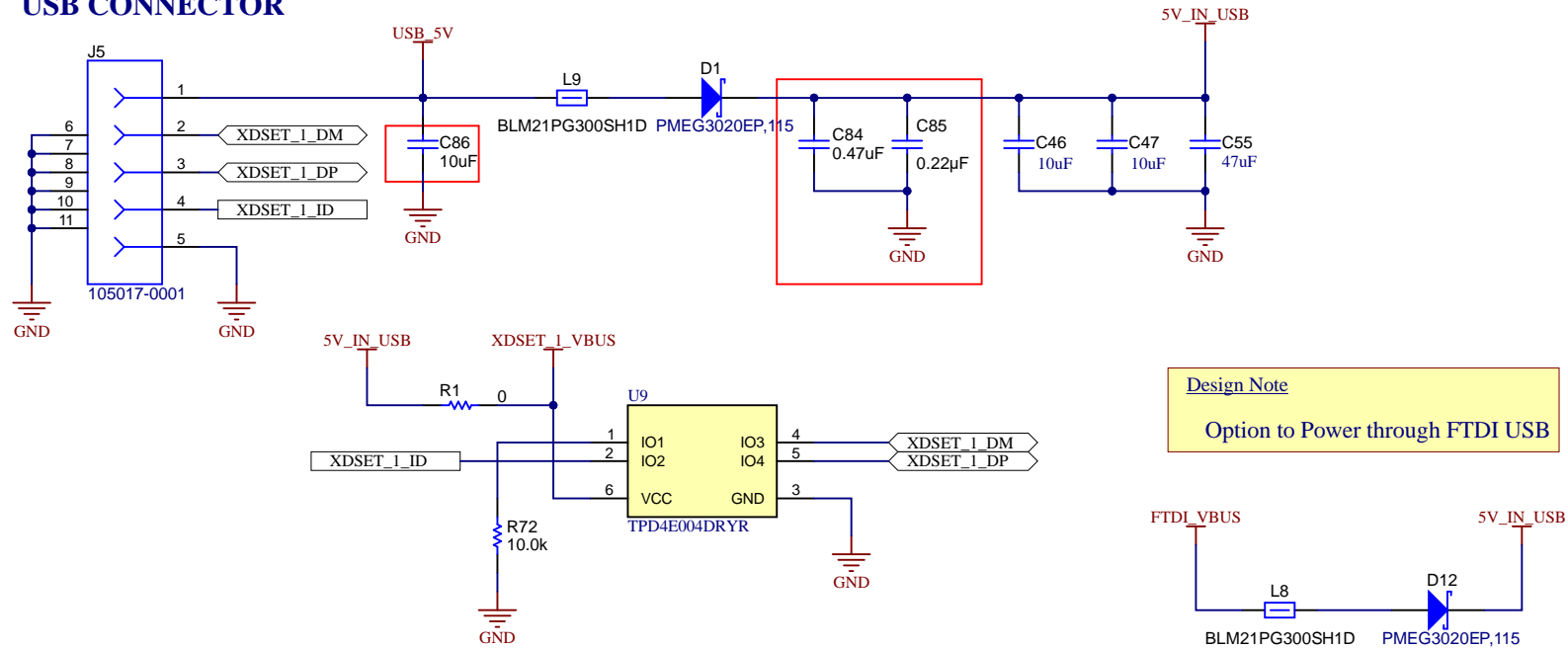
TABLE OF CONTENTS

SHEET NO.	SHEET NAME
1	BLOCK DIAGRAM
2	MUX BLOCK DIAGRAM
3	TABLE OF CONTENTS
4	USB_PWR_DC_JACK_SWITCH
5	PMIC
6	xWRL6844_CHIP
7	DECOUPLING_CAPS-QSPI_FLASH_
8	TEMP_CURRENT_SENSORS_EEPROM
9	ANALOG_MUX_SOP_CTRL
10	ANALOG_MUX_SPI_DCA/FTDI
11	XDS110_INTERFACE
12	MUX_CAN_FD
13	CAN_LIN_PHY_INTERFACE
14	FTDI- USB to SPI CONVERTER
15	DCA1000_CONN_RESET
16	I2C_SPI_CONN_HEADER
17	EVM_HARDWARE

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Orderable: IWRL6844EVM	Designed for: Public Release	Mod. Date: 21-11-2025
TID #: N/A	Project Title: xWRL6844 EVM	
Number: PROC182	Rev: A	Sheet Title: TABLE OF CONTENTS
SVN Rev: 4408	Assembly Variant: 02_IWR	Sheet: 3 of 17
Drawn By: Mistral	File: PROC182A_Table_Of_Contents.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

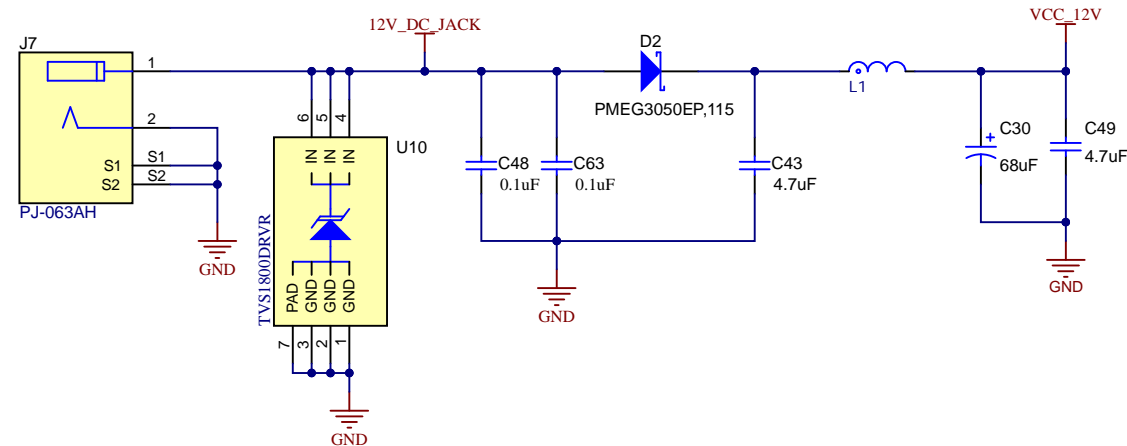
USB CONNECTOR



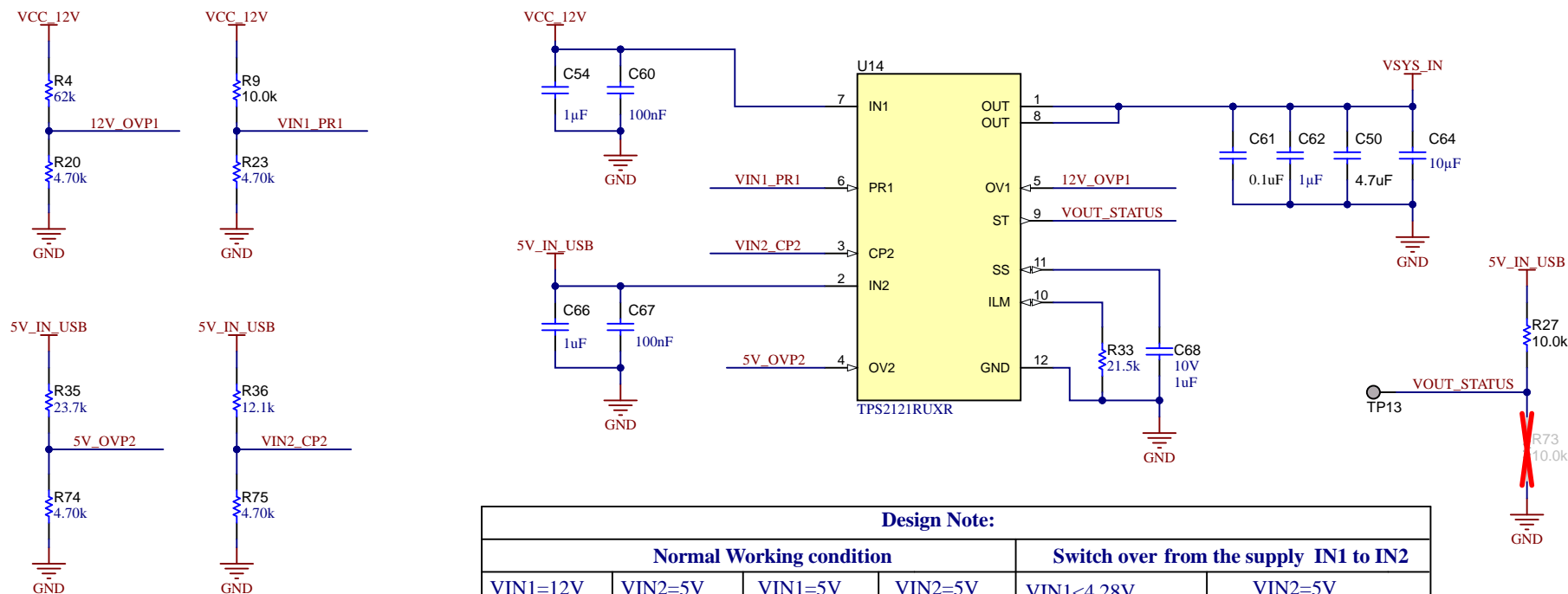
Design Note

Option to Power through FTDI USB

DC JACK



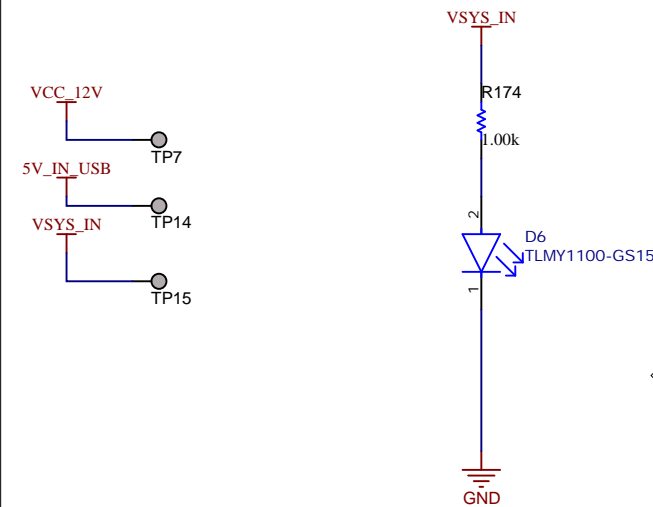
POWER LOAD SWITCH



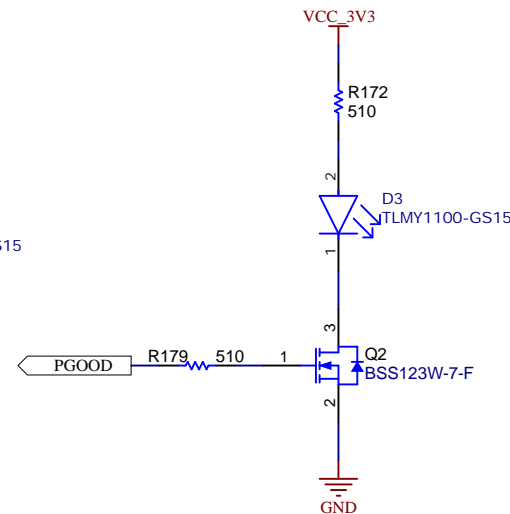
Design Note:

Design Note:					
Normal Working condition				Switch over from the supply IN1 to IN2	
VIN1=12V VPR1=3.83V	VIN2=5V VCP2=1.39V	VIN1=5V VPR1=1.6V	VIN2=5V VCP2=1.39V	VIN1<4.28V VPR1=1.36V	VIN2=5V VCP2=1.39V
VREF(Internal)=1.06V Current Limit = 4.5A VOUT=VIN1(12V)		VREF(Internal)=1.06V Current Limit = 4.5A VOUT=VIN1 (5V)		VREF(Internal)=1.06V Current Limit = 4.5A VOUT= VIN2 (5V)	
VPR1> VCP2> VREF ==> VOUT==>VIN1				VCP2 > VPR1> VREF ==> VOUT ==> VIN2	
Over Voltage Condition					
Over Voltage Protection :15V, @12V for VIN1 Over Voltage Protection : 6.46V @ 5V for VIN2					

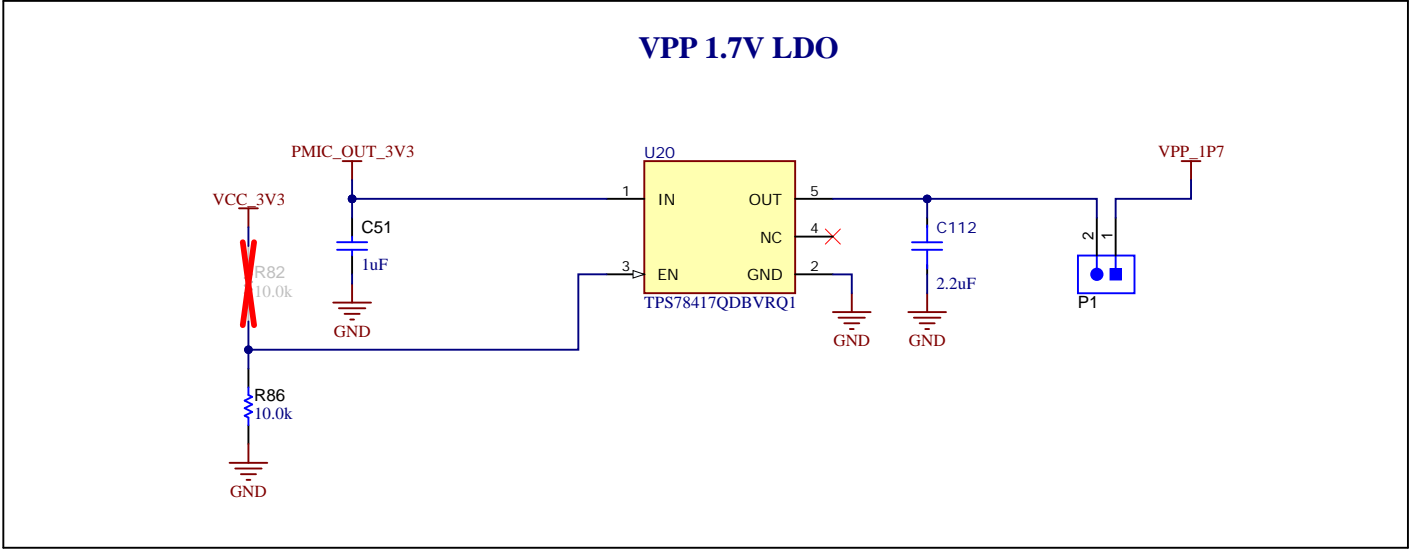
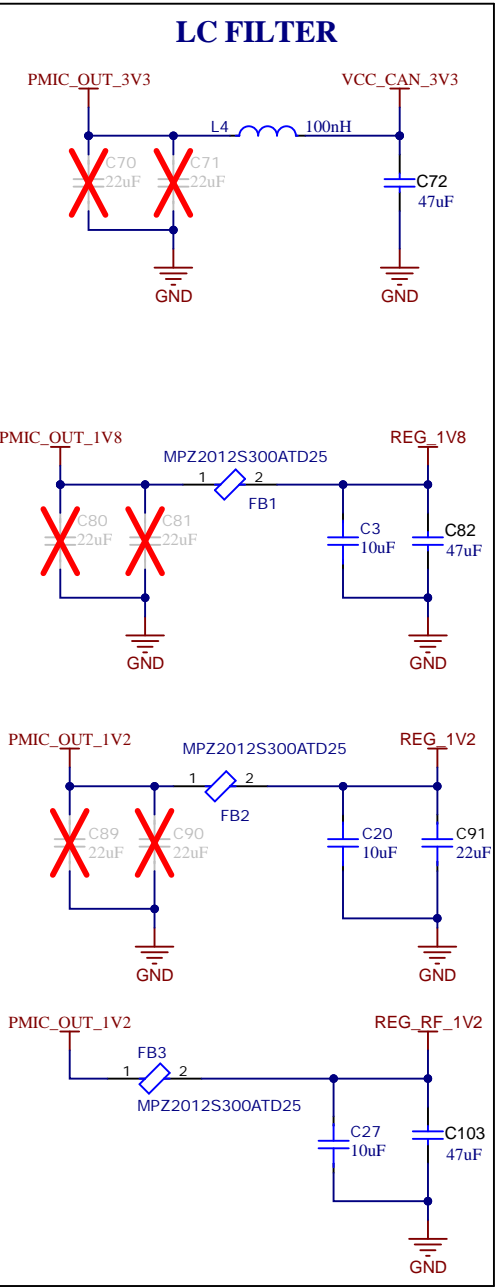
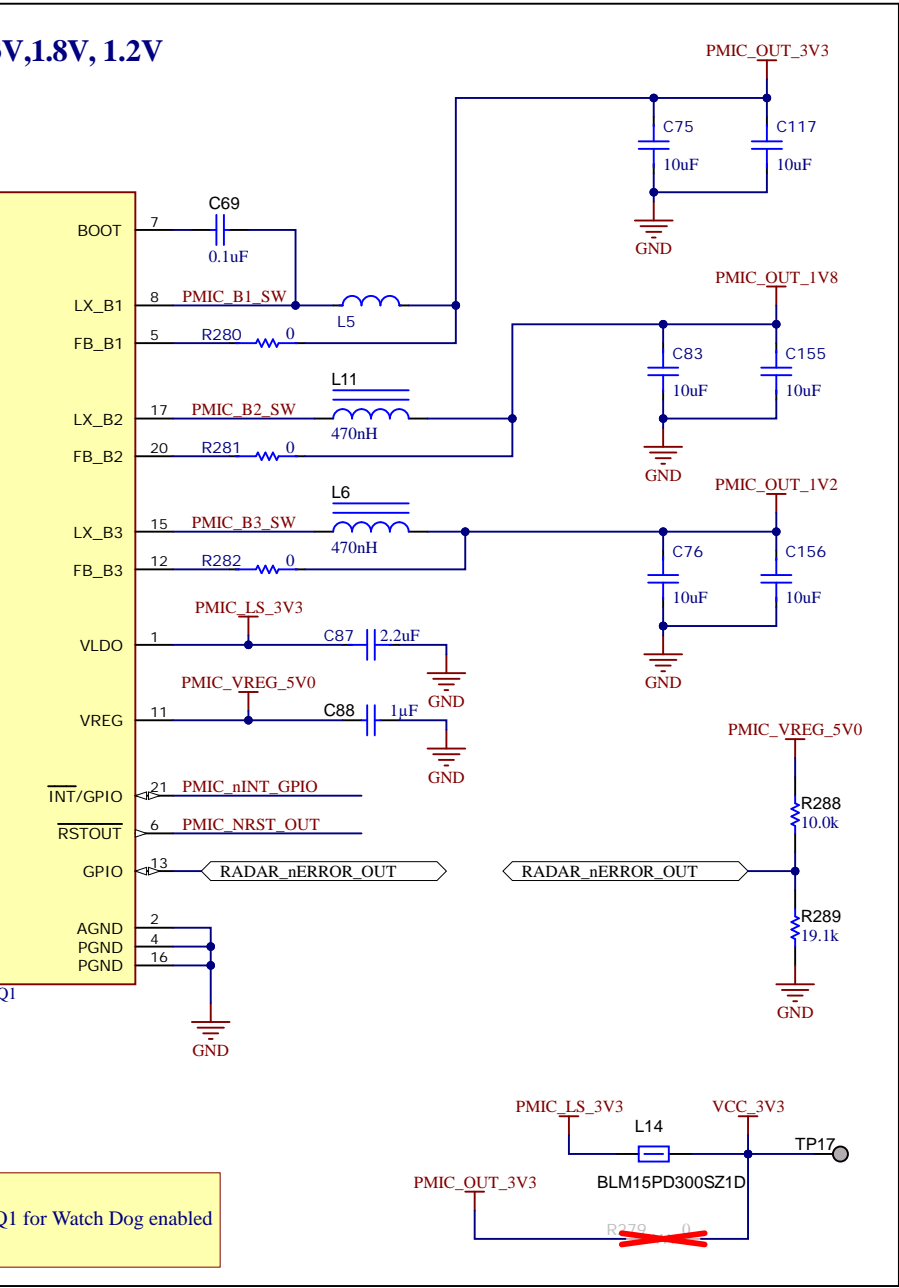
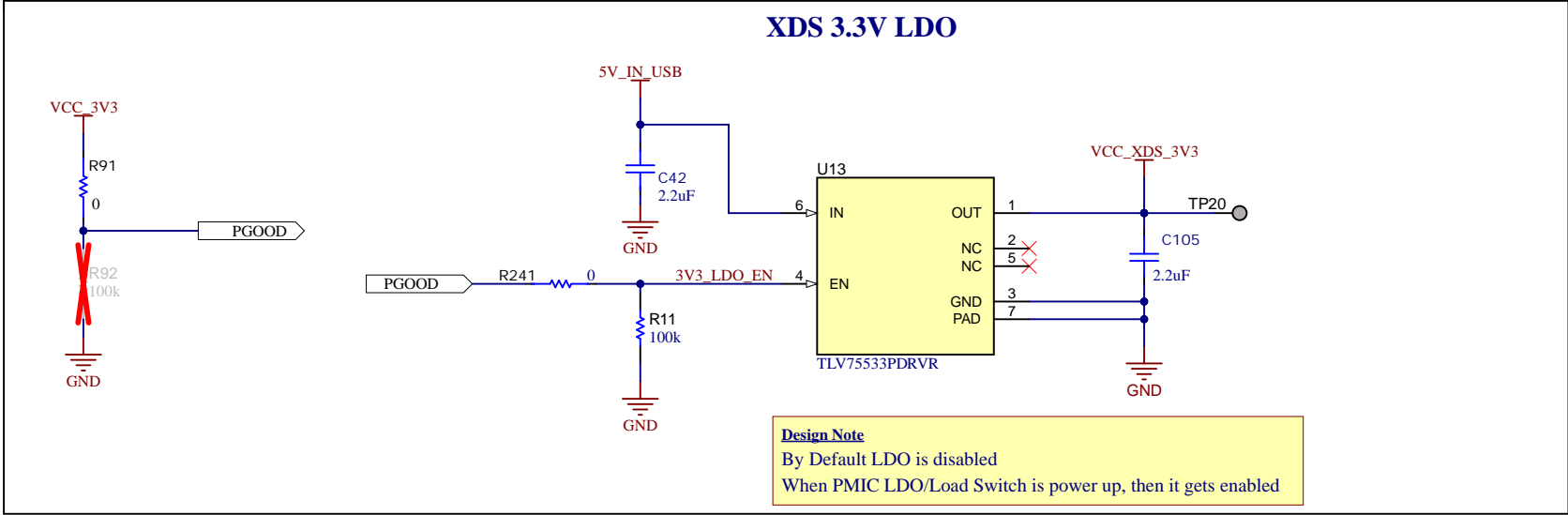
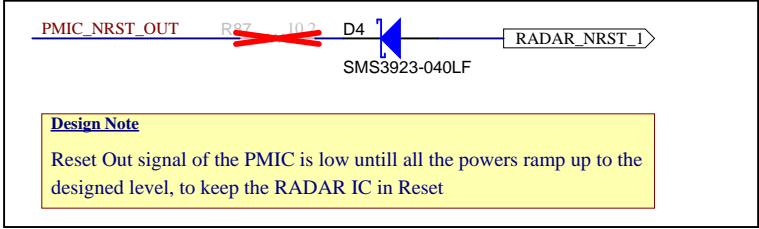
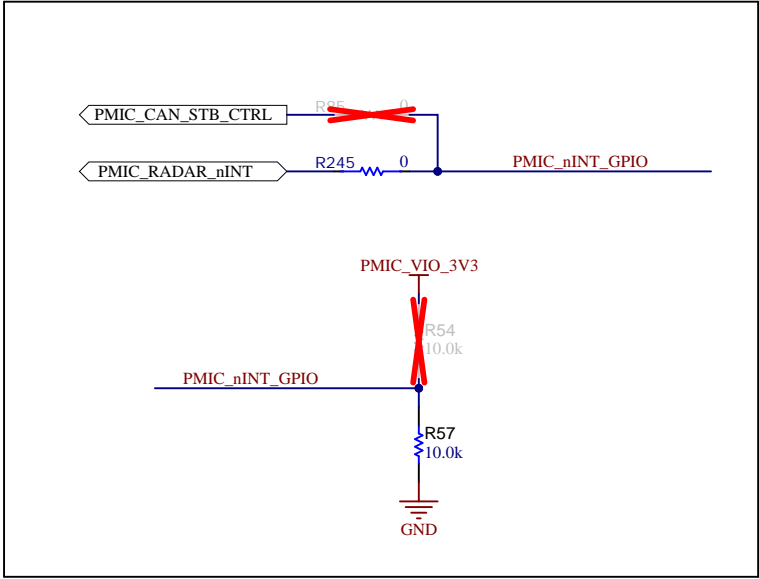
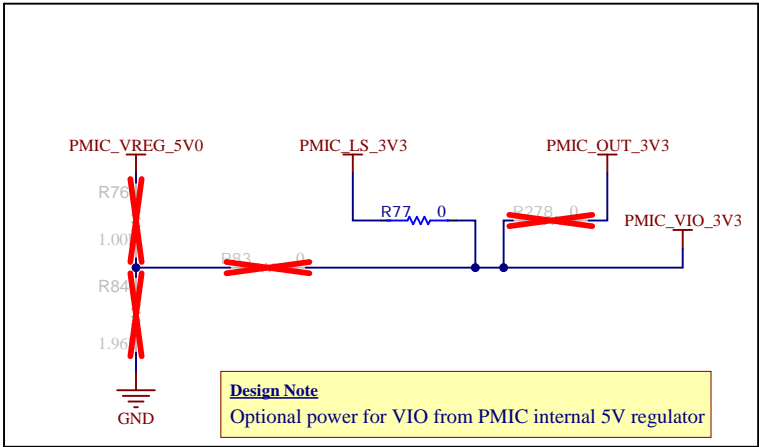
POWER ON LED INDICATION



PGOOD LED



Orderable: IWRL6844EVM	Designed for: Public Release	Mod. Date: 21-11-2025
TID #: N/A	Project Title: xWRL6844 EVM	
Number: PROC182	Rev: A	Sheet Title: USB_PWR_DC_JACK_SWITCH
SVN Rev: 4408	Assembly Variant: 02_IWR	Sheet: 4 of 17
Drawn By: Mistral	File: PROC182A_USB_PWR_DC_Jack_Switch.Sch	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

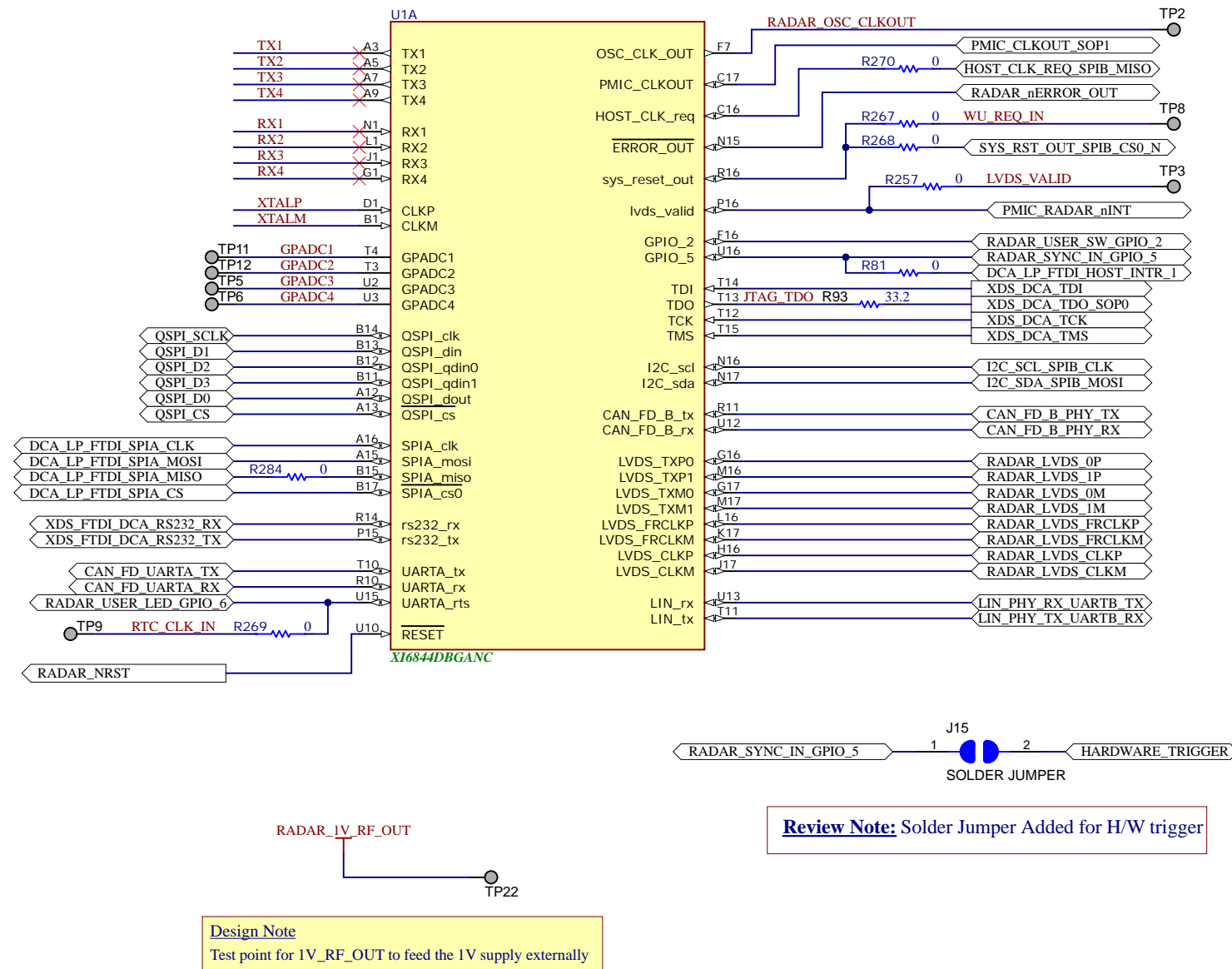


xWRL6844 CHIP -INTERFACE

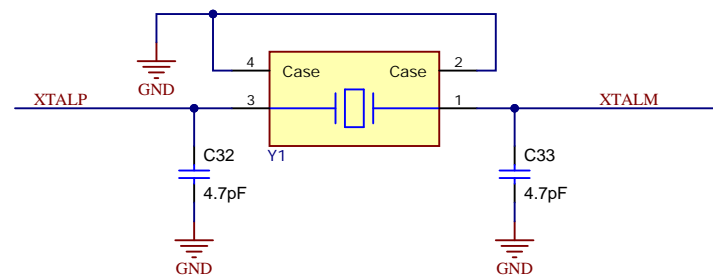
xWRL6844 CHIP -POWER

Design Note:

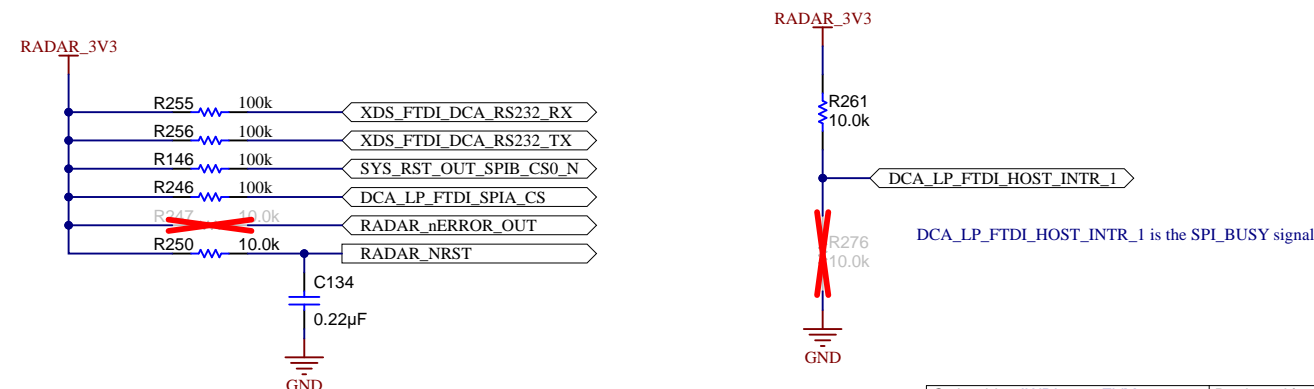
1. Antenna traces are GCPW traces
2. 'Generic No ERCs' were placed intentionally on Single Port RF Tx, Rx lines



40 MHz CRYSTAL OSCILLATOR



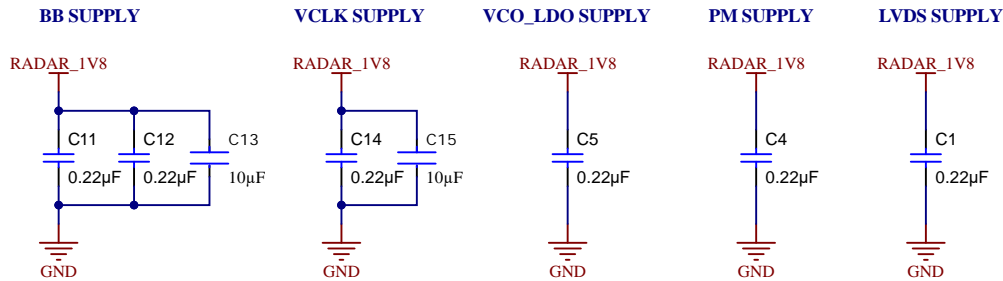
Alternate Crystal part number : CX2016SA40000D0PTWC1



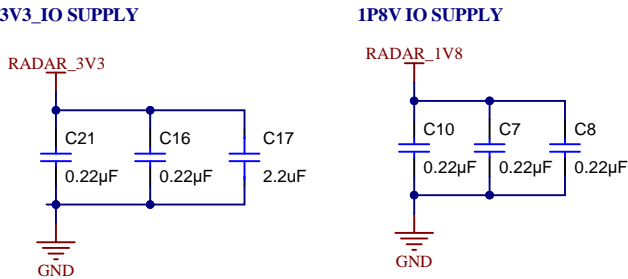
Orderable: IWRL6844EVM	Designed for: Public Release	Mod. Date: 21-11-2025	 TEXAS INSTRUMENTS http://www.ti.com © Texas Instruments 2023
TID #: N/A	Project Title: xWRL6844 EVM		
Number: PROC182	Rev: A	Sheet Title: xWRL6844_CHIP	
SVN Rev: 4408	Assembly Variant: 02_IWR	Sheet: 6 of 17	
Drawn By: Mistral	File: PROC182A_Chip.SchDoc	Size: B	
Engineer: Mistral	Contact: http://www.ti.com/support		

SUPPLY_DECOUPLING_CAPS

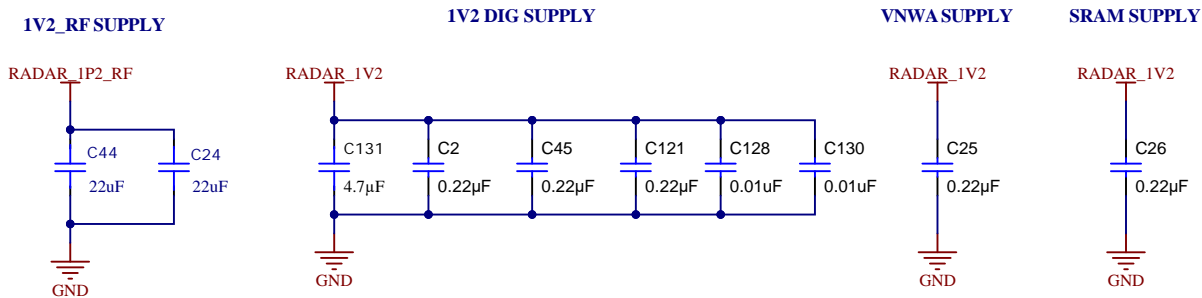
1.8V POWER SUPPLY VOLTAGE RAILS



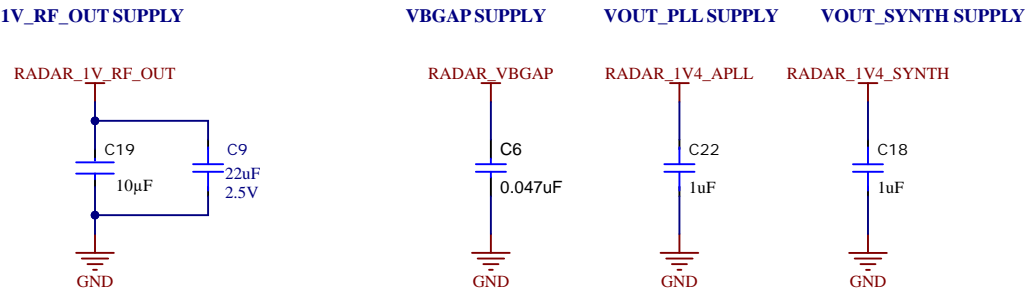
I/O SUPPLY VOLTAGE RIALS



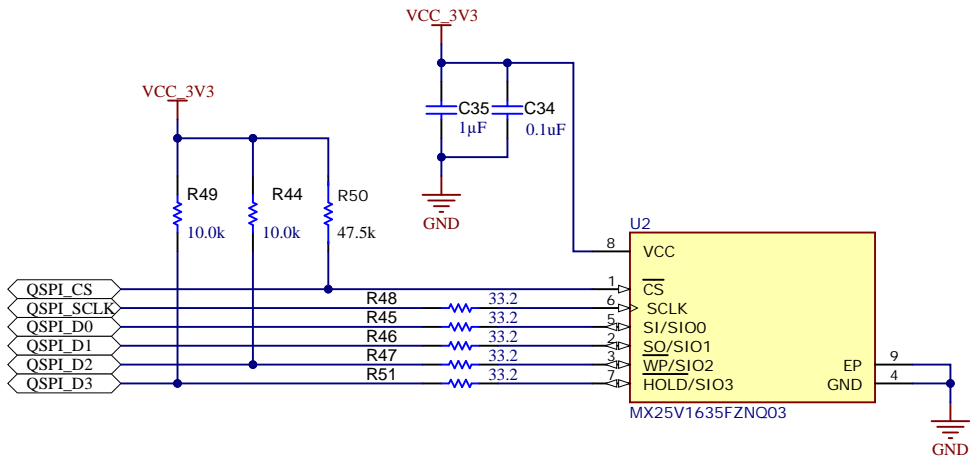
1.2V POWER SUPPLY VOLTAGE RAILS



INTERNAL GENERATED VOLTAGE RAILS



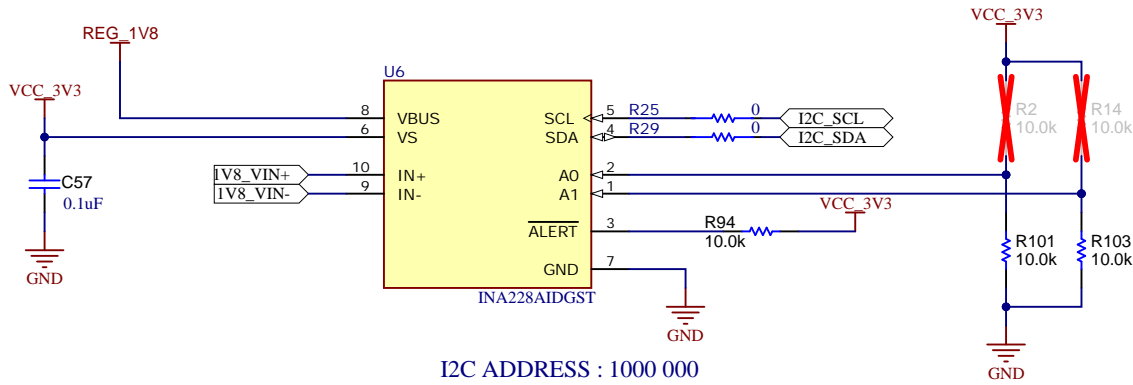
QSPI FLASH



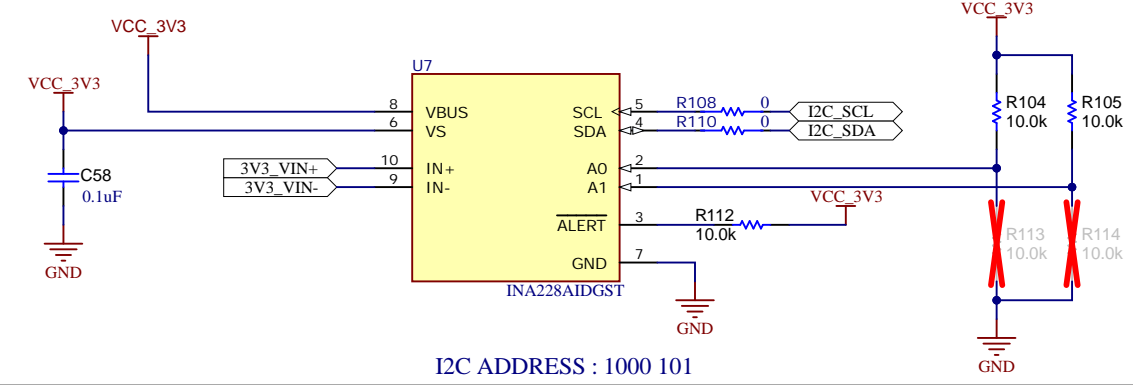
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Orderable: IWRL6844EVM	Designed for: Public Release	Mod. Date: 21-11-2025
TID #: N/A	Project Title: xWRL6844 EVM	
Number: PROC182	Rev: A	Sheet Title: DECOUPLING_CAPS
SVN Rev: 4408	Assembly Variant: 02_IWR	Sheet: 7 of 17
Drawn By: Mistral	File: PROC182A_Decoupling_caps-QSPI Flash.Sch	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

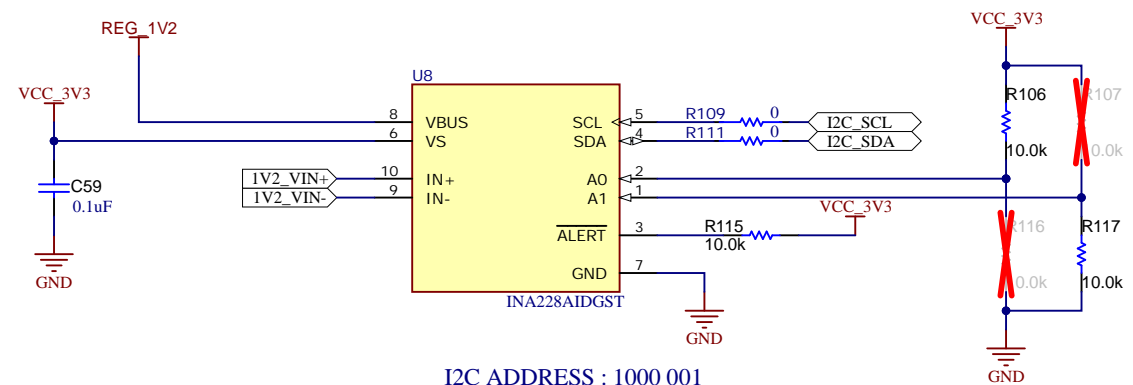
CURRENT SENSOR- 1V8



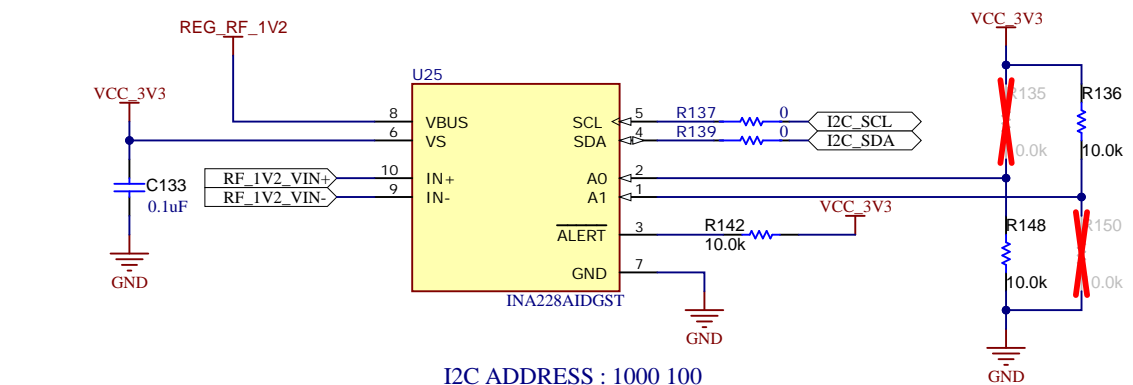
CURRENT SENSOR- 3V3



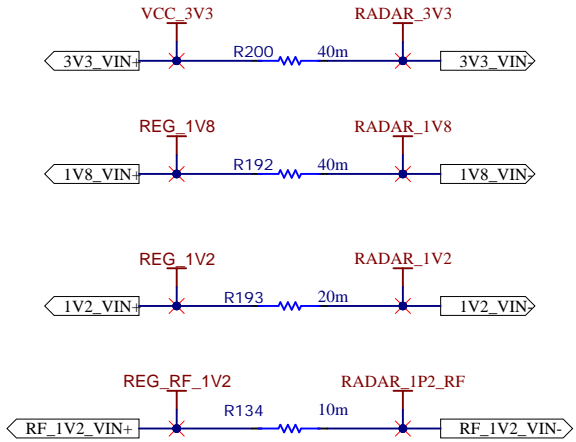
CURRENT SENSOR- 1V2



CURRENT SENSOR- RF_1V2

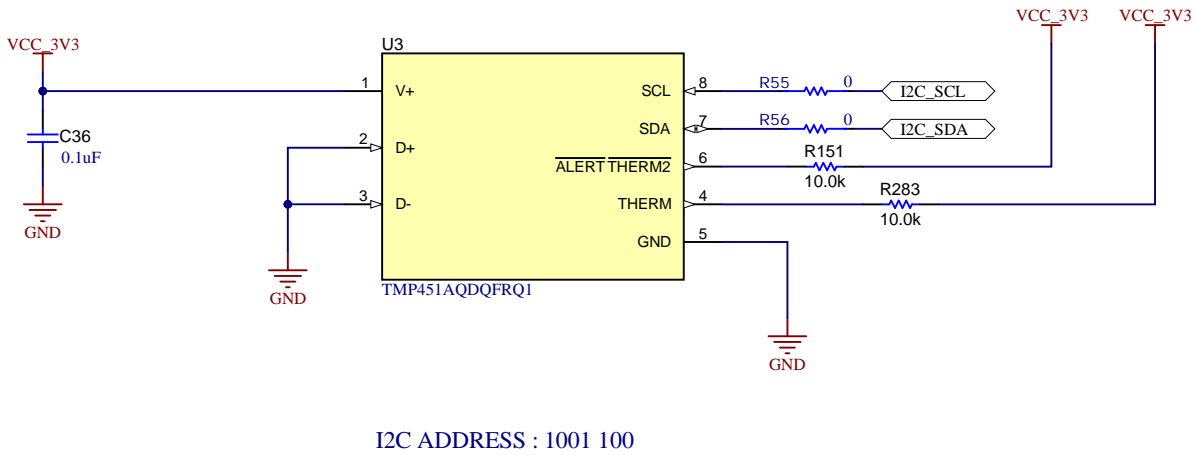


CURRENT SENSE RESISTORS

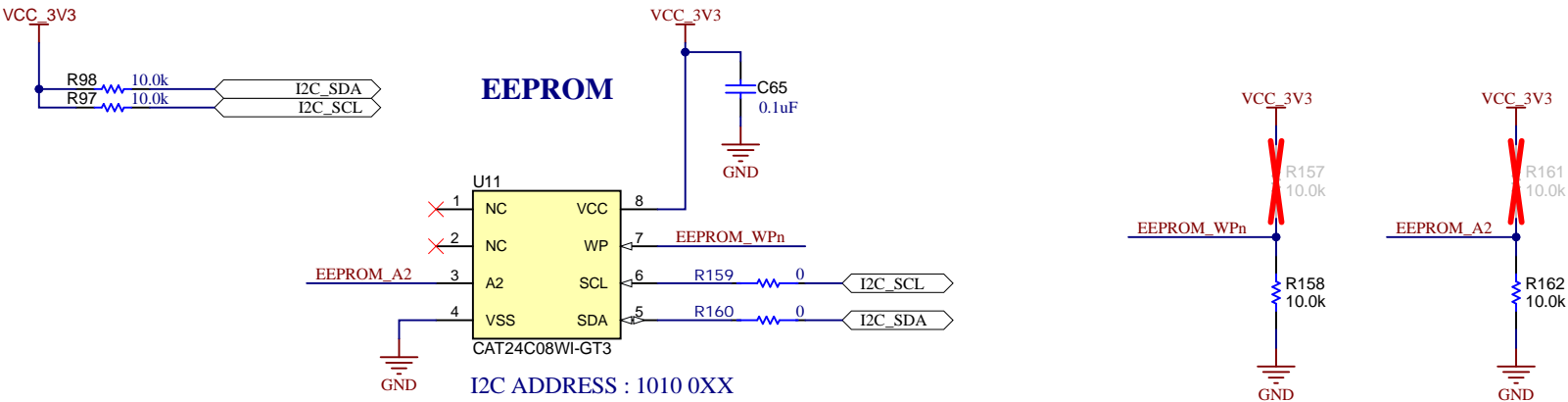


Design Note: 'Generic No ERCs' were placed intentionally on either sides of Current sense resistors

TEMPERATURE SENSOR



EEPROM



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Orderable: IWRL6844EVM	Designed for: Public Release	Mod. Date: 21-11-2025
TID #: N/A	Project Title: xWRL6844 EVM	
Number: PROC182	Rev: A	Sheet Title: TEMP CURRENT SENSORS EEPROM
SVN Rev: 4408	Assembly Variant: 02_IWR	Sheet 8 of 17
Drawn By: Mistral	File: PROC182A Temp Current sensors EPROM_Sch206	
Engineer: Mistral	Contact: http://www.ti.com/support	

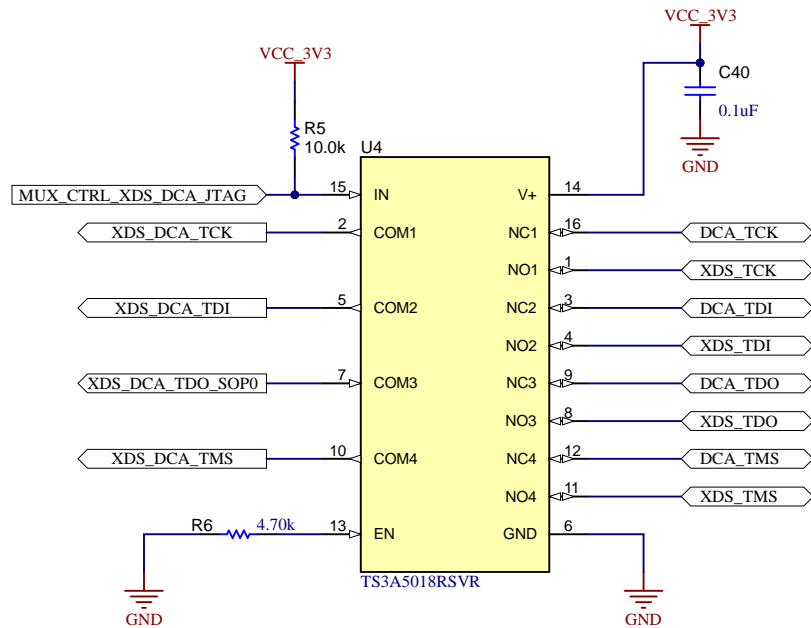
A

B

A

B

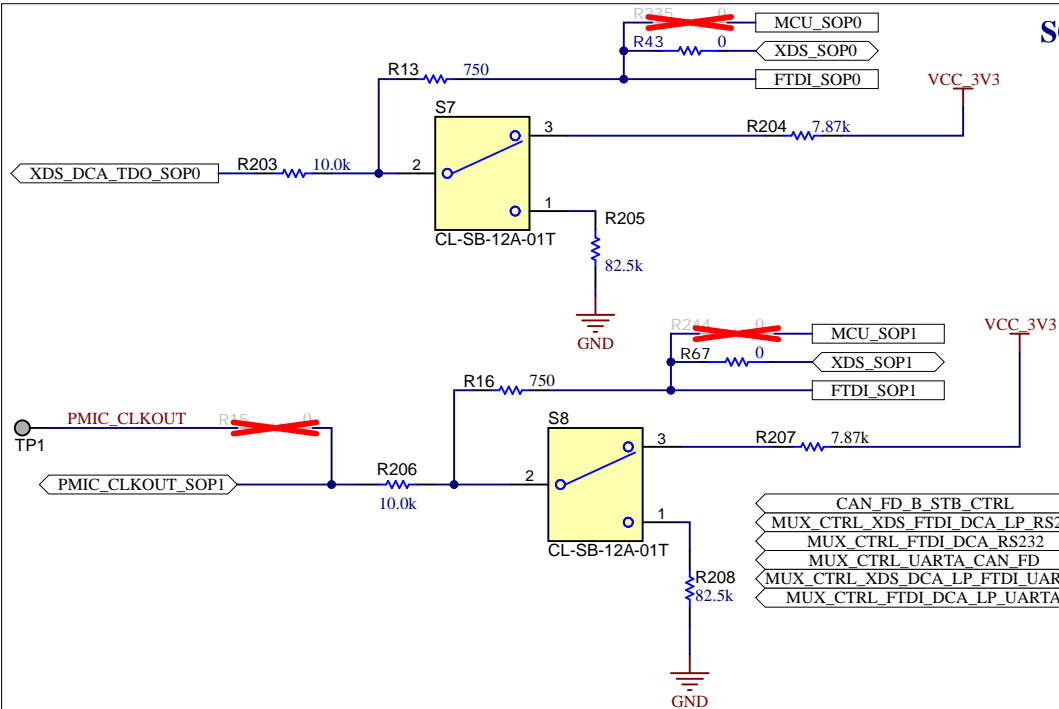
JTAG-ANALOG MUX



SOP & MUX CONTROL

MUX / 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
S4.4	XDS_JTAG	DCA_JTAG
S4.5	UARTB	LIN
S4.6	SPIB	I2C/ HOST_CLK_REQ/SYS_RST_OUT



SOP CONFIGURATION

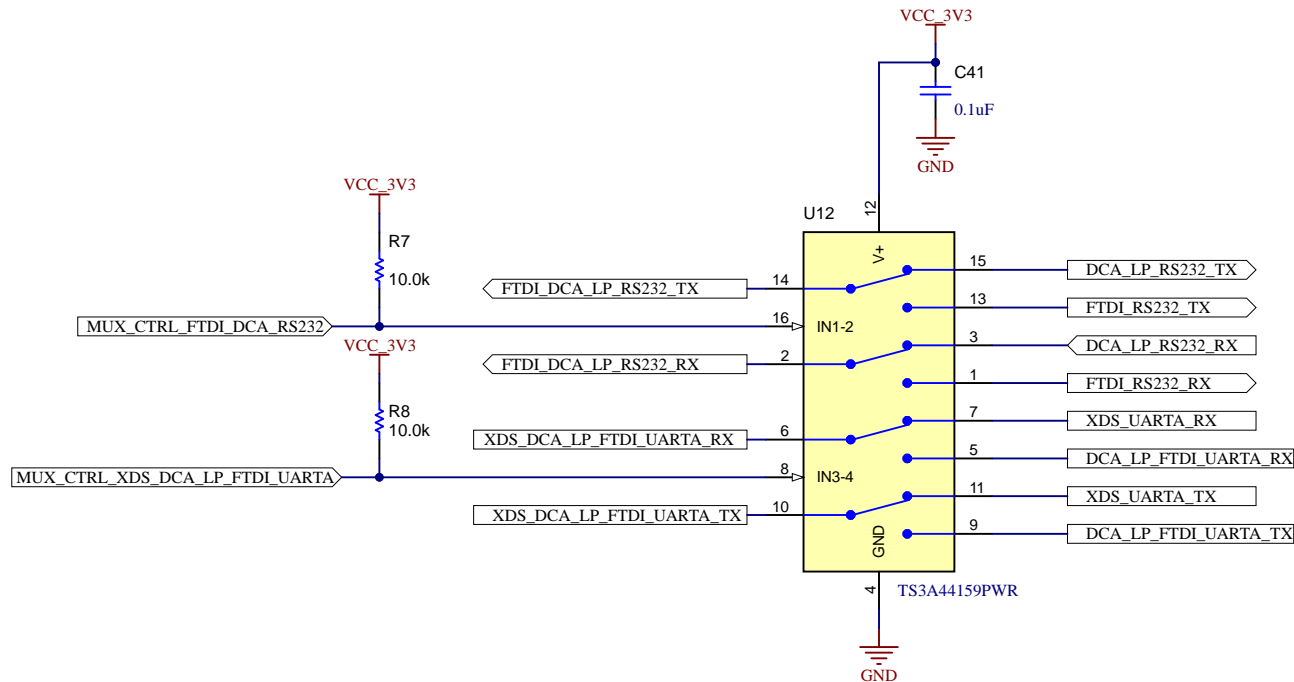
SOP Mode	PMIC_CLK_OUT, TDO	Combination	S8(SOP1)	S7(SOP0)
SOP_MODE1	Device management mode / QSPI Flashing mode	0 0	2-1	2-1
SOP_MODE2	Application mode / Functional mode	0 1	2-1	2-3
SOP_MODE4	Debug mode / mmWave studio connectivity mode	1 1	2-3	2-3

- CAN_FD_B_STB_CTRL
- MUX_CTRL_XDS_FTDI_DCA_LP_RS232
- MUX_CTRL_FTDI_DCA_RS232
- MUX_CTRL_UARTA_CAN_FD
- MUX_CTRL_XDS_DCA_LP_FTDI_UARTA
- MUX_CTRL_FTDI_DCA_LP_UARTA

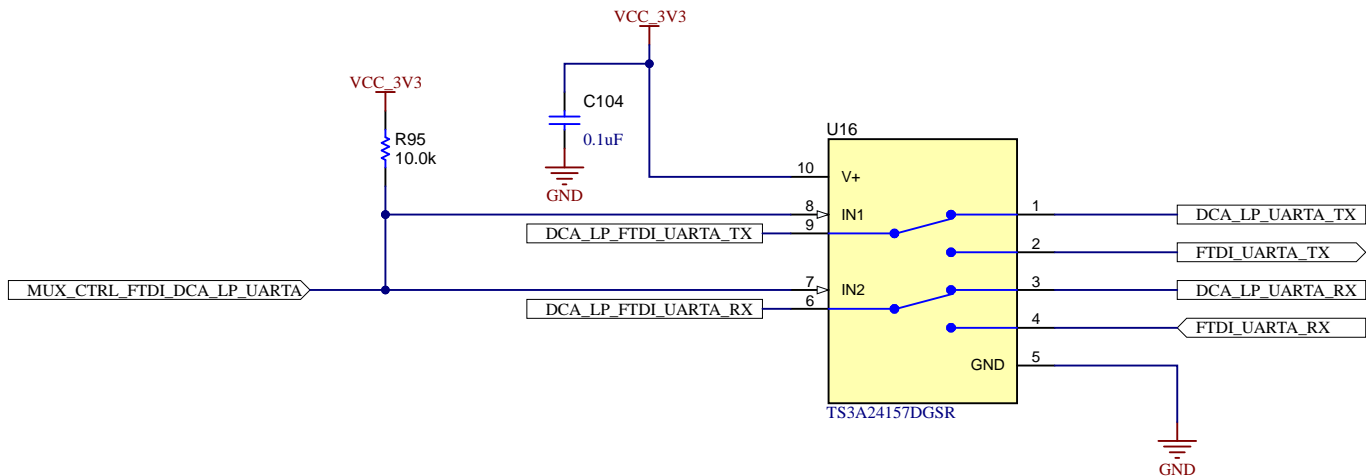
MUX / CONTROL TABLE

	Switch Position OFF	Switch Position ON
S1.1	CAN B PHY : Stand-by Mode Disable	CAN B PHY : Stand-by Mode Enable
S1.2	XDS_RS232	FTDI_DCA_LP/BP_RS232
S1.3	FTDI_RS232	DCA_LP/BP_RS232
S1.4	CAN_FD	XDS_DCA_LP/BP_FTDI_UARTA
S1.5	DCA_LP/BP_FTDI_UARTA	XDS_UARTA
S1.6	FTDI_UARTA	DCA_LP/BP_UART

UARTA, RS232-ANALOG SWITCH



ANALOG MUX - FTDI UARTA / DCA_LP UARTA



C

D

C

D

A

B

C

D

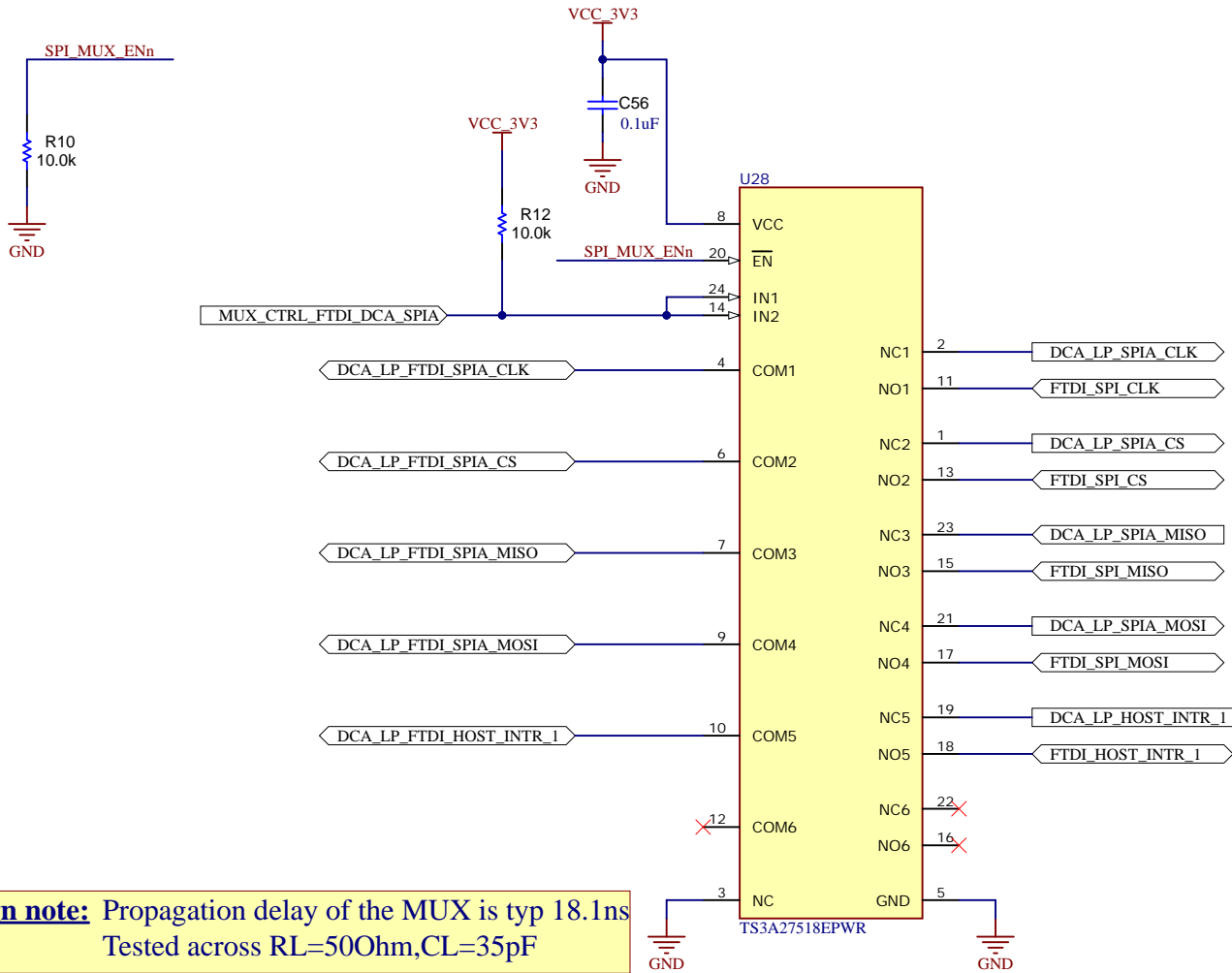
A

B

C

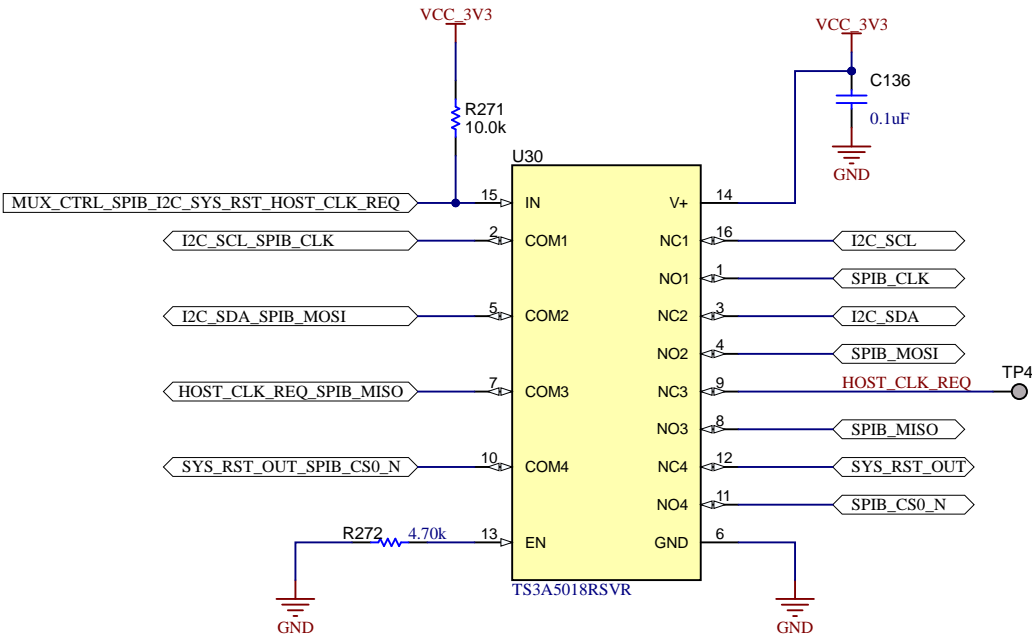
D

ANALOG MUX SPIA- DCA/FTDI

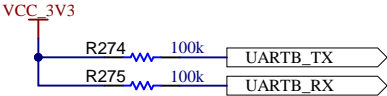
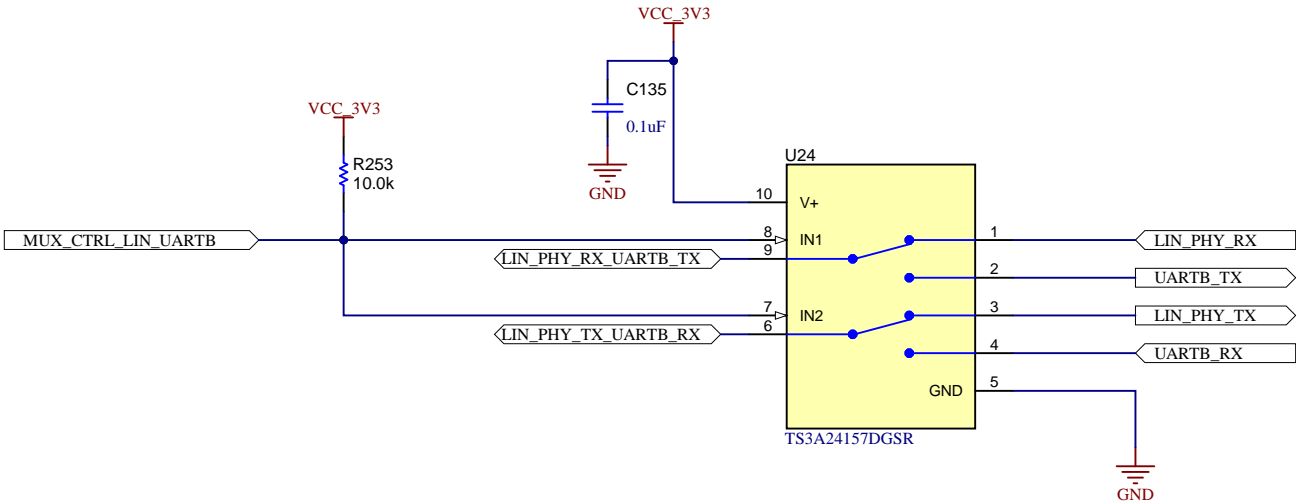


Design note: Propagation delay of the MUX is typ 18.1ns
Tested across RL=50Ohm,CL=35pF

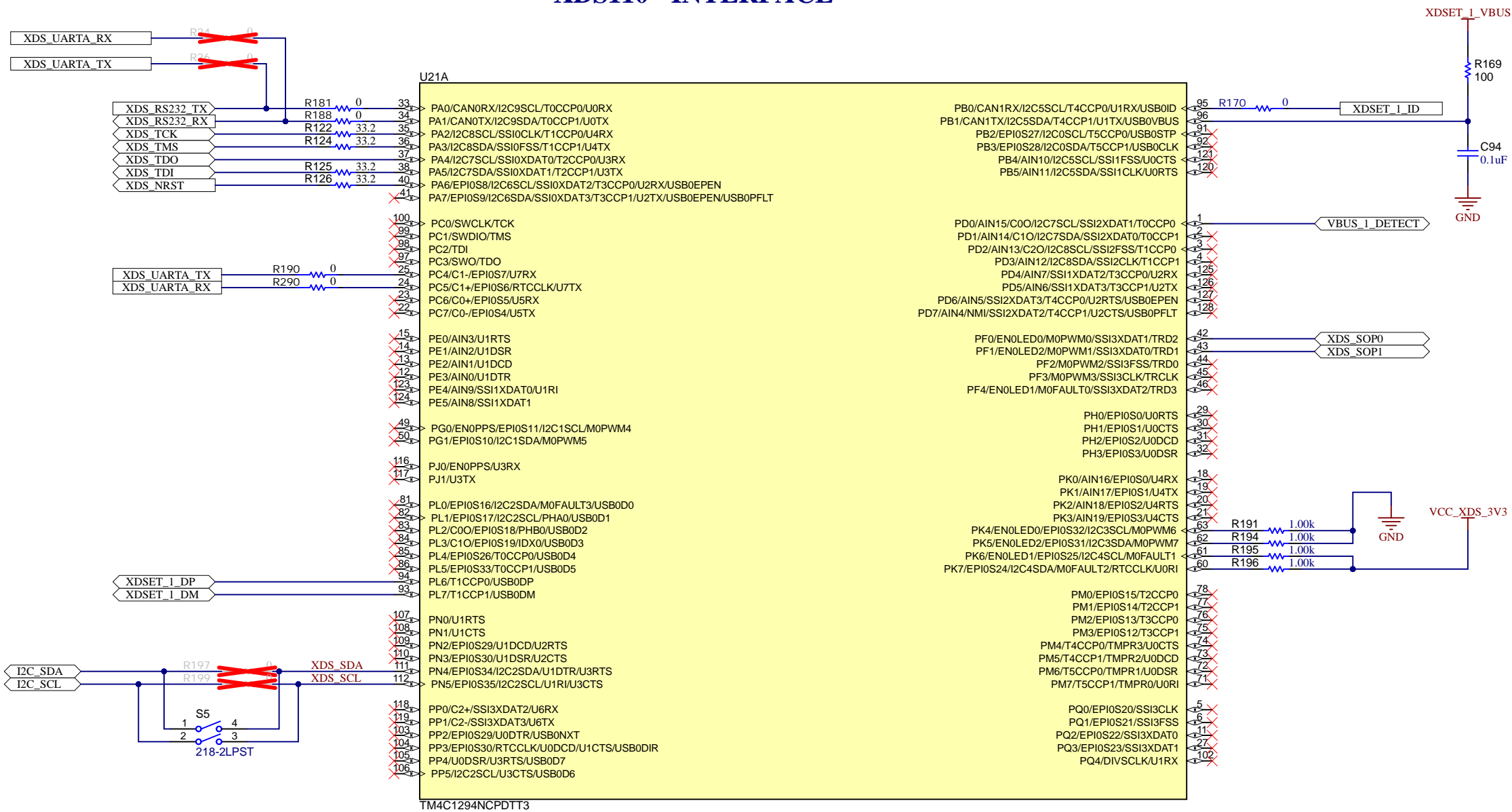
ANALOG MUX- SPI B/ I2C, LVDS VALID, SYS RESET OUT (OPTIONAL)



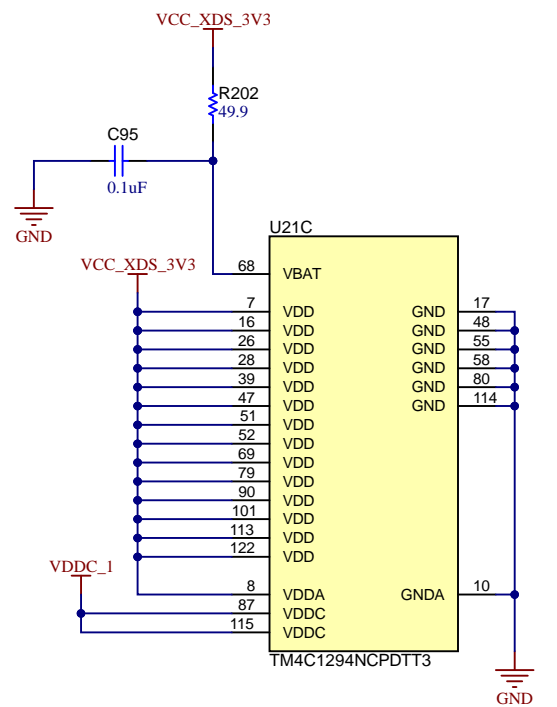
ANALOG MUX - LIN/UARTB



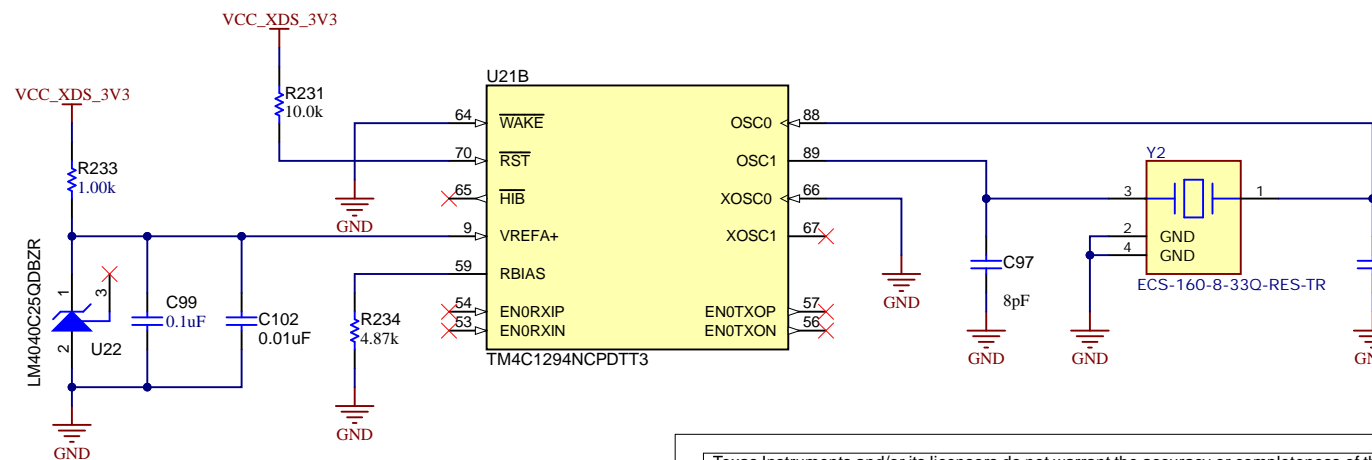
XDS110 - INTERFACE



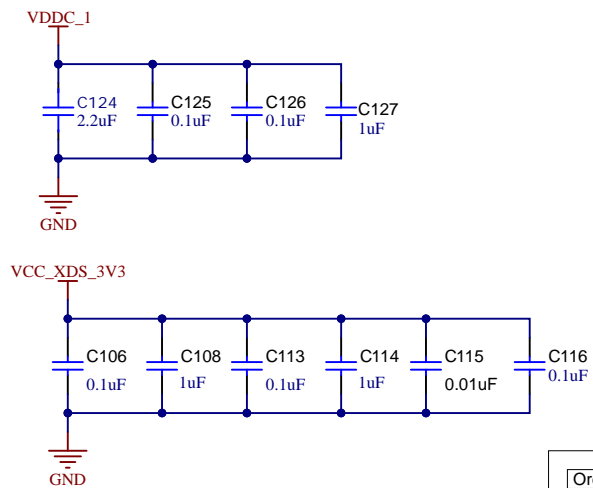
XDS110 - POWER



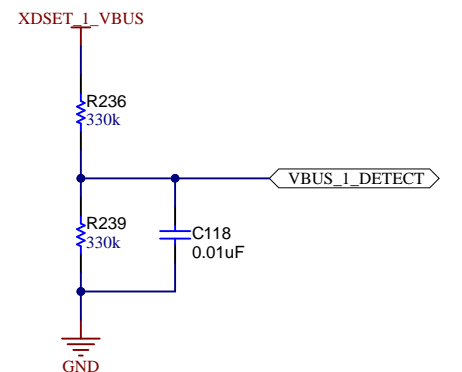
XDS110 - XTAL



DECOUPLING CAPS - XDS



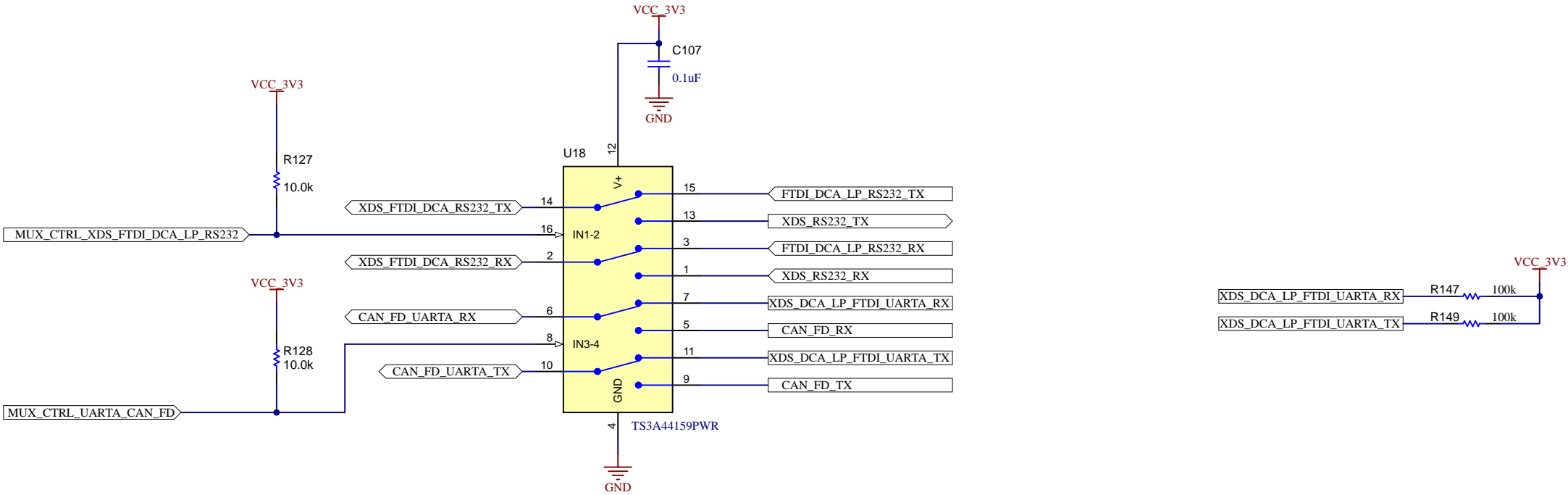
VBUS_DETECT



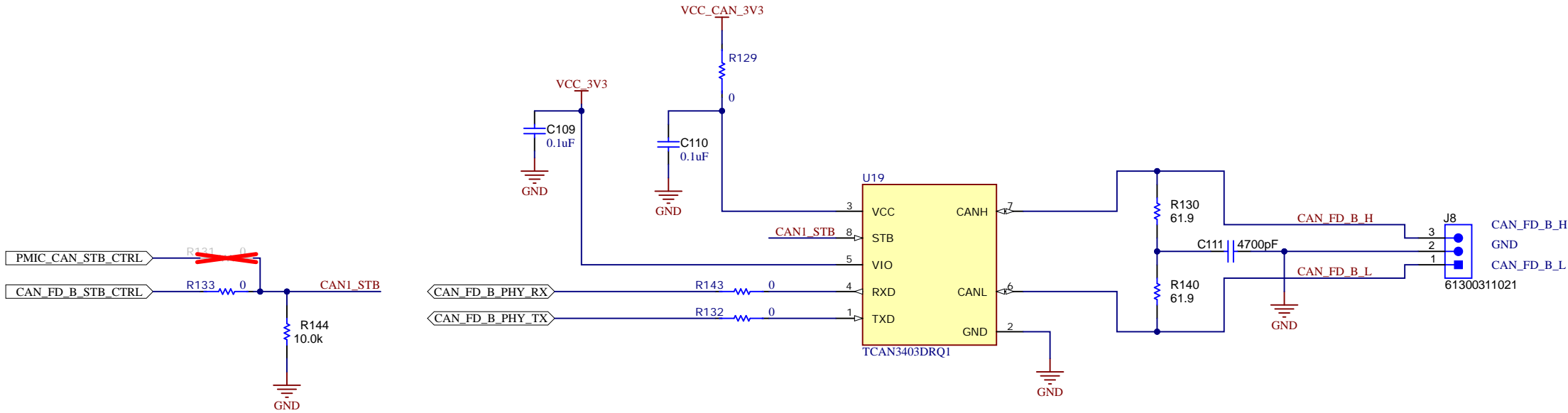
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Orderable: IWRL6844EVM	Designed for: Public Release	Mod. Date: 21-11-2025
TID #: N/A	Project Title: xWRL6844 EVM	
Number: PROC182	Rev: A	Sheet Title: XDS110_INTERFACE
SVN Rev: 4408	Assembly Variant: 02_IWR	Sheet: 11 of 17
Drawn By: Mistral	File: PROC182A_XDS110_Interface.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

ANALOG MUX -XDS /FTDI, DCA RS232, CAN_FD / UART A



CAN_FD_B_TRANSCEIVER



A

B

A

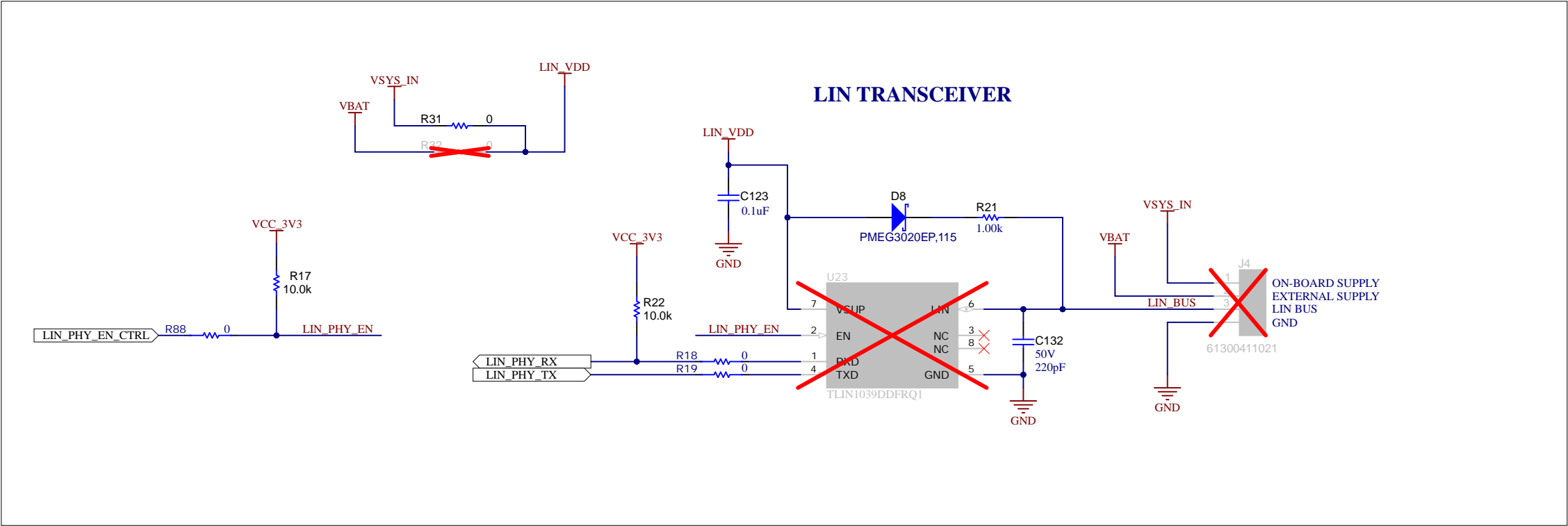
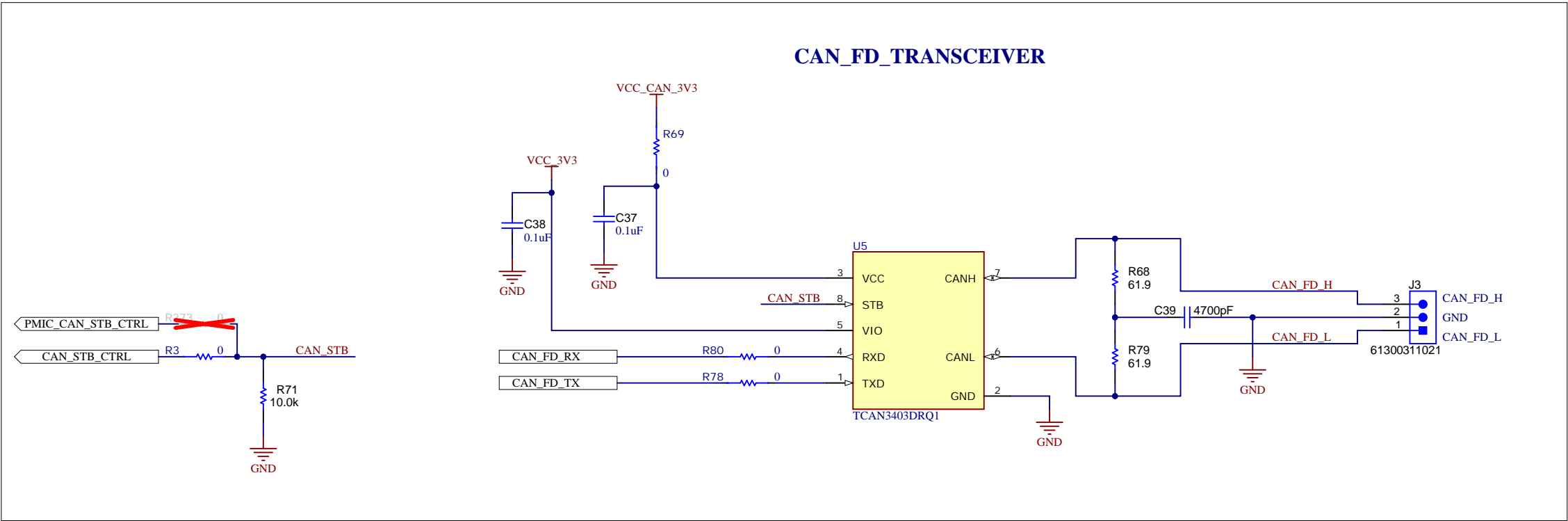
B

C

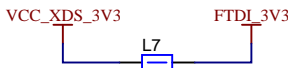
C

D

D



FTDI - USB to SPI CONVERTER

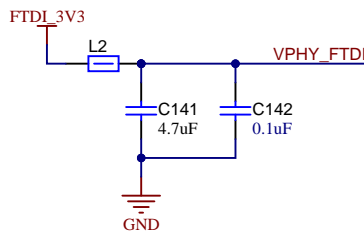
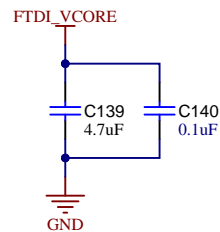


Review Note

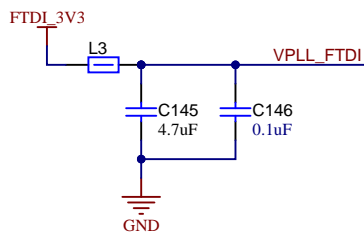
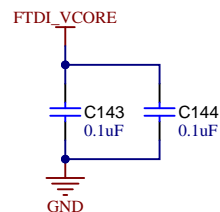
FTDI_3V3 Power from XDS LDO 3V3

FTDI SUPPLY DECAPS

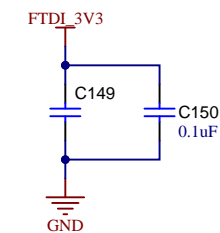
VCORE DECAPS



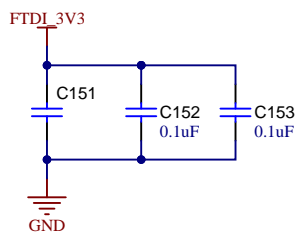
VREGOUT DECAPS



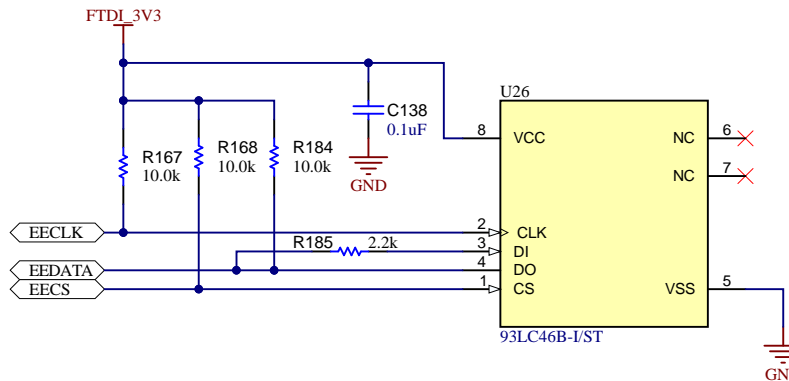
VREGIN DECAPS



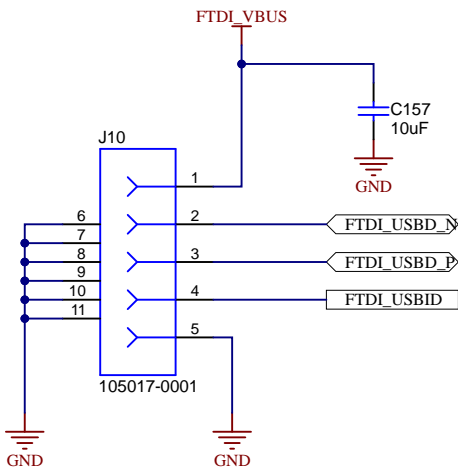
VCCIO DECAPS



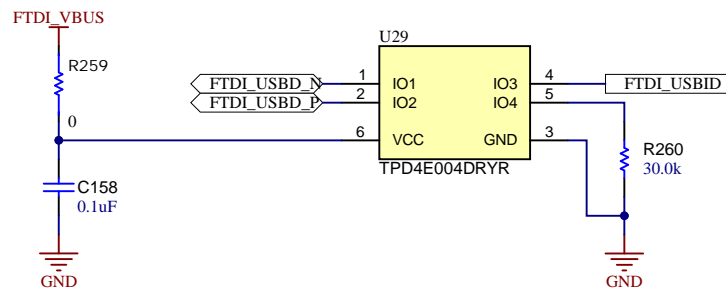
FTDI EEPROM



FTDI USB PORT



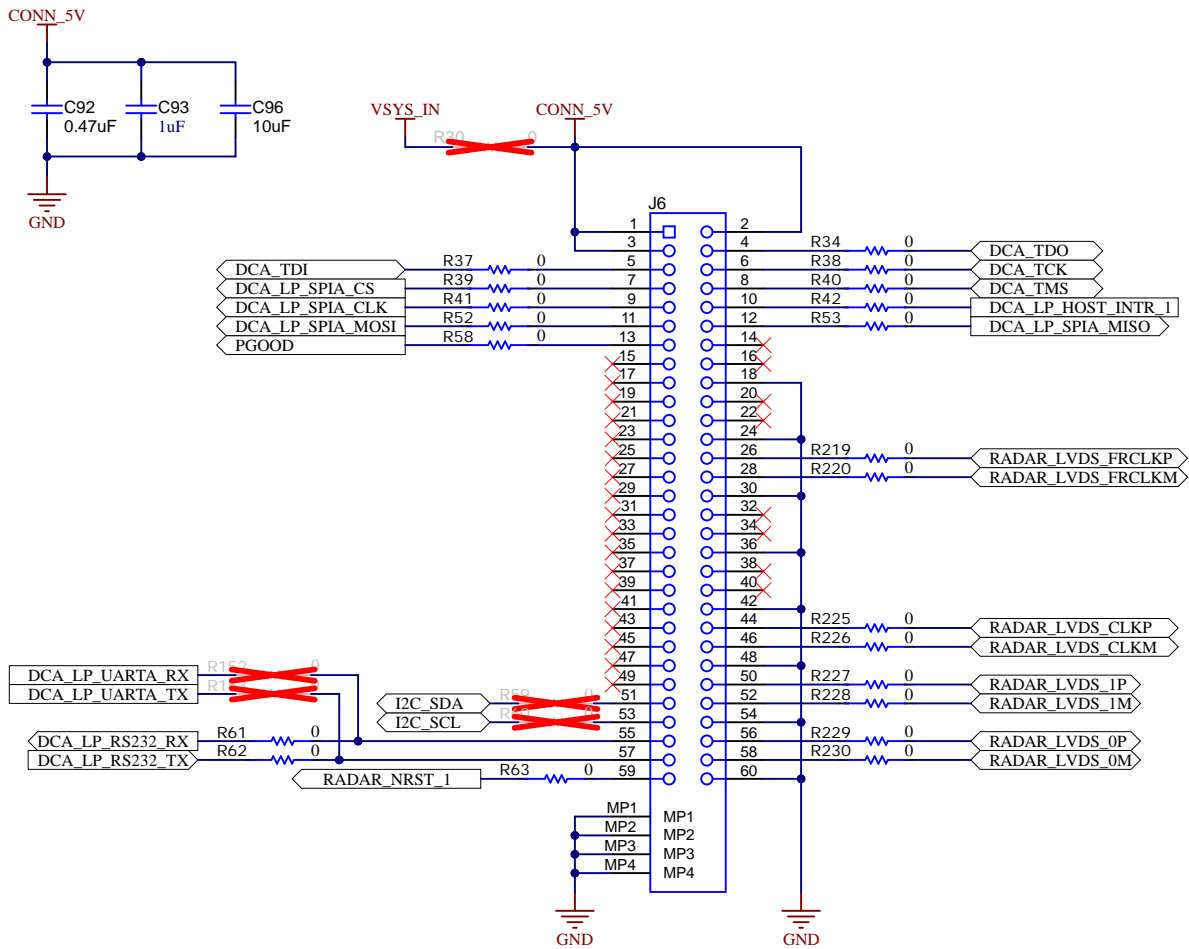
FTDI USB - ESD PROTECTION



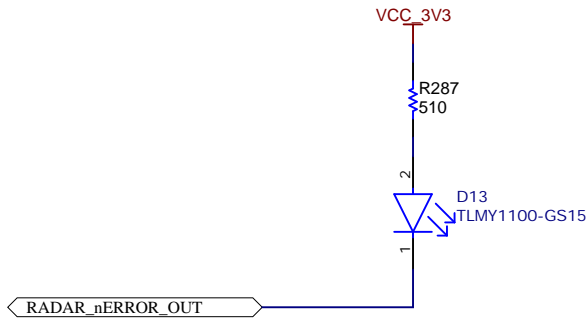
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: IWRL6844EVM	Designed for: Public Release	Mod. Date: 21-11-2025
TID #: N/A	Project Title: xWRL6844 EVM	
Number: PROC182	Rev: A	Sheet Title: FTDI_USB to SPI/12C/UART Converter
SVN Rev: 4408	Assembly Variant: 02_IWR	Sheet: 14 of 17
Drawn By: Mistral	File: PROC182A_FTDI.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

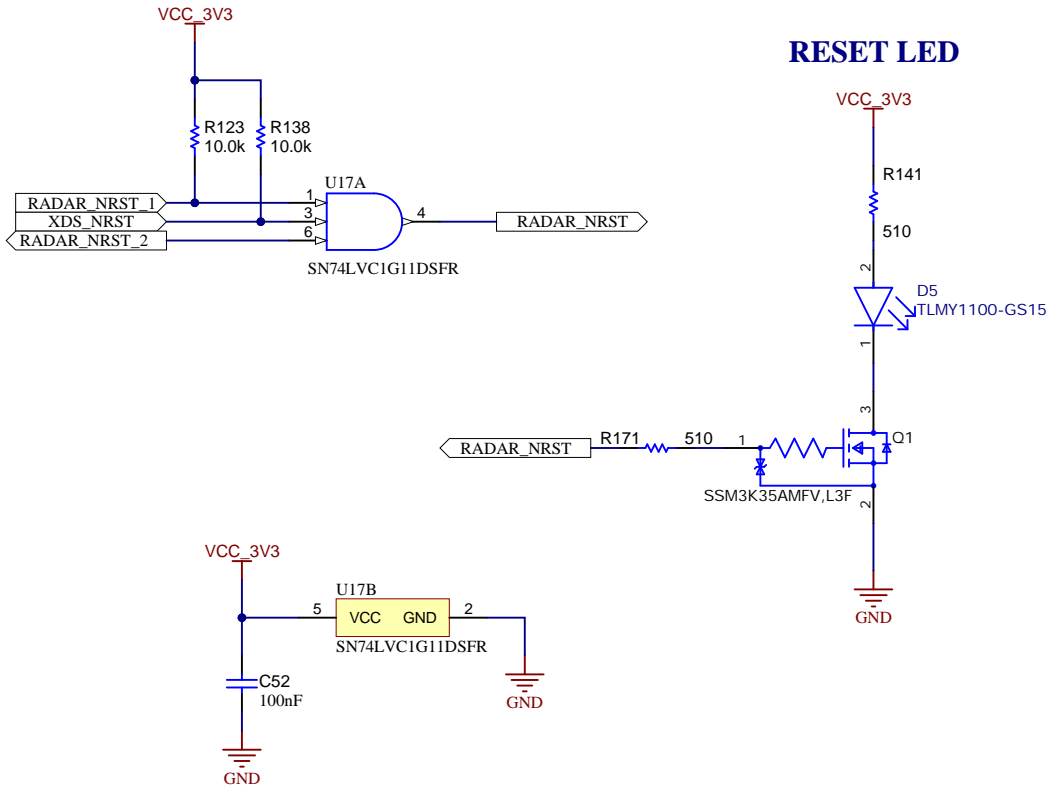
60-PIN HD CONNECTOR FOR DCA1000



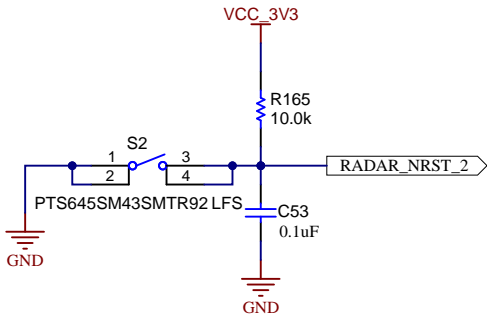
nERROR LED



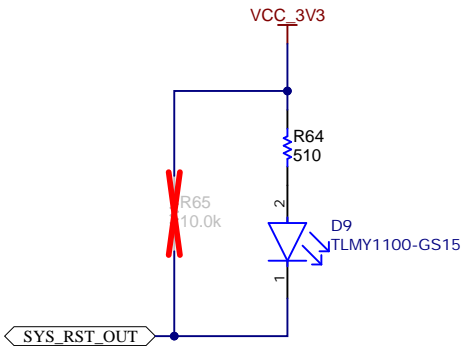
RESET SCHEME



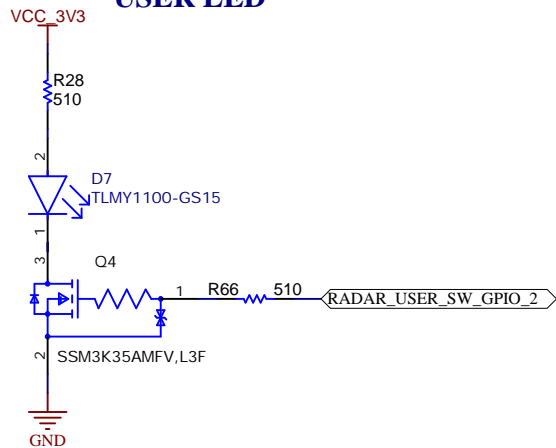
RESET SWITCH



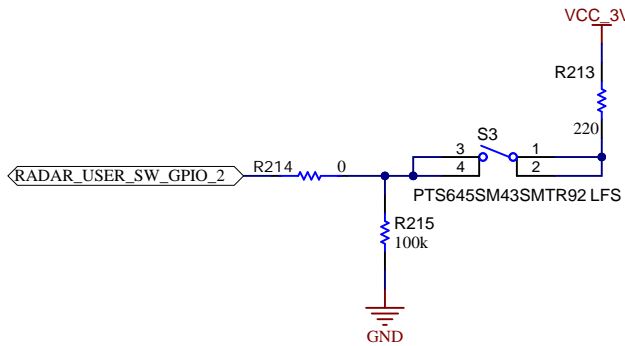
RESET OUT LED



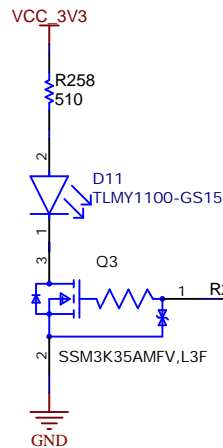
USER LED



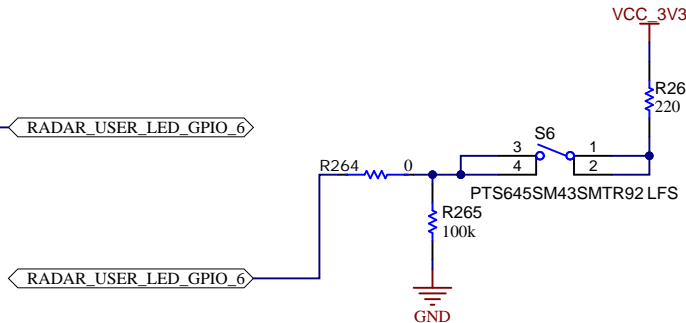
USER SWITCH



USER LED



USER SWITCH

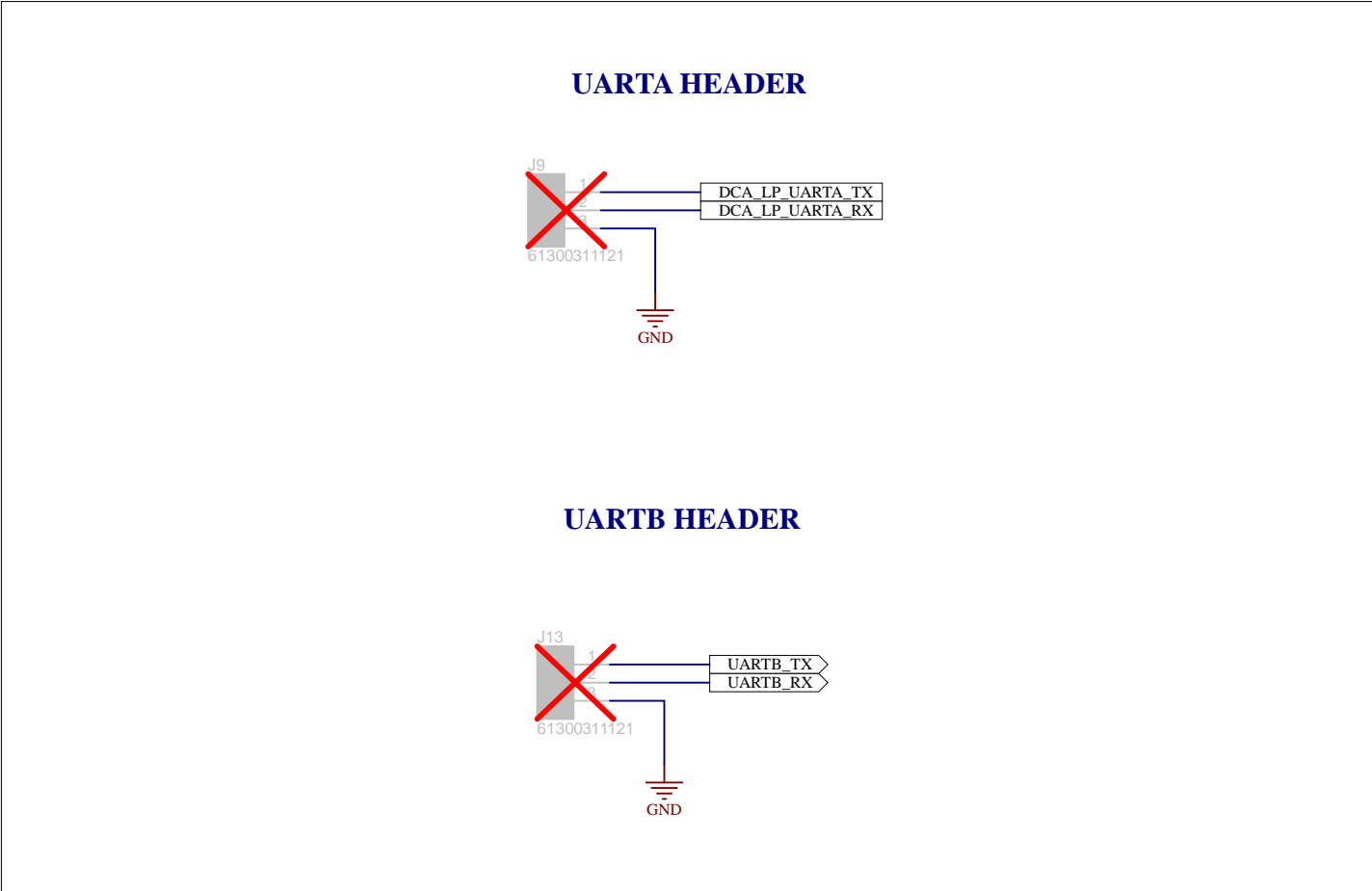
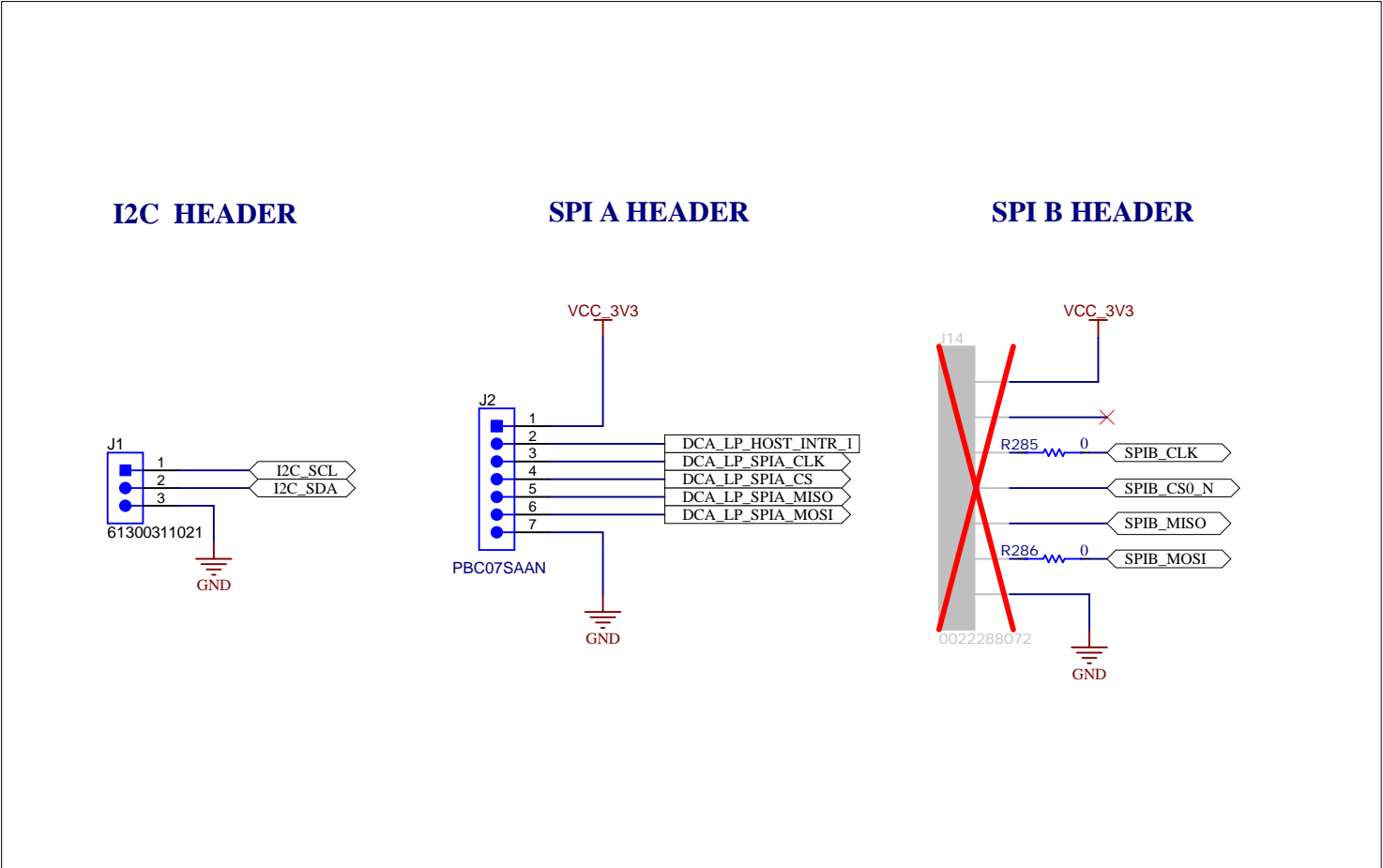


A

B

A

B

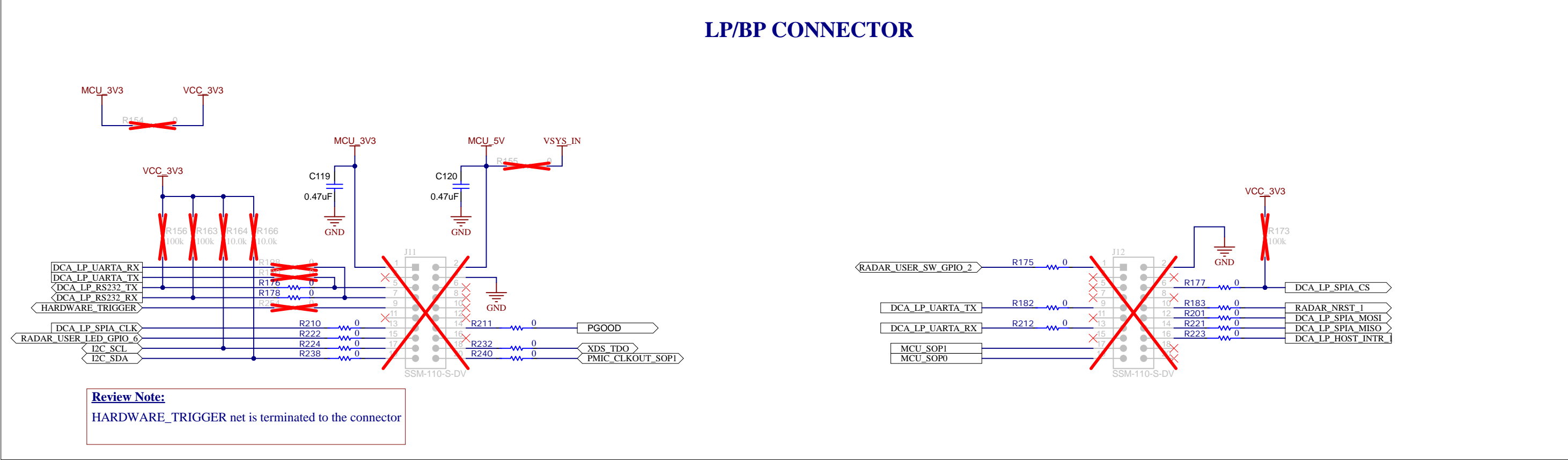


C

C

D

D



Review Note:

HARDWARE_TRIGGER net is terminated to the connector



PCB Number: PROC182
PCB Rev: A

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_AWR	
002_IWR	

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 MANDITORY.

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: IWRL6844EVM		Designed for: Public Release	Mod. Date: 21-11-2025
TID #: N/A		Project Title: xWRL6844 EVM	
Number: PROC182	Rev: A	Sheet Title: HARDWARE	
SVN Rev: 4408	Assembly Variant: 02_IWR		Sheet: 17 of 17
Drawn By: Mistral		File: PROC182A_EVM_Hardware.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	