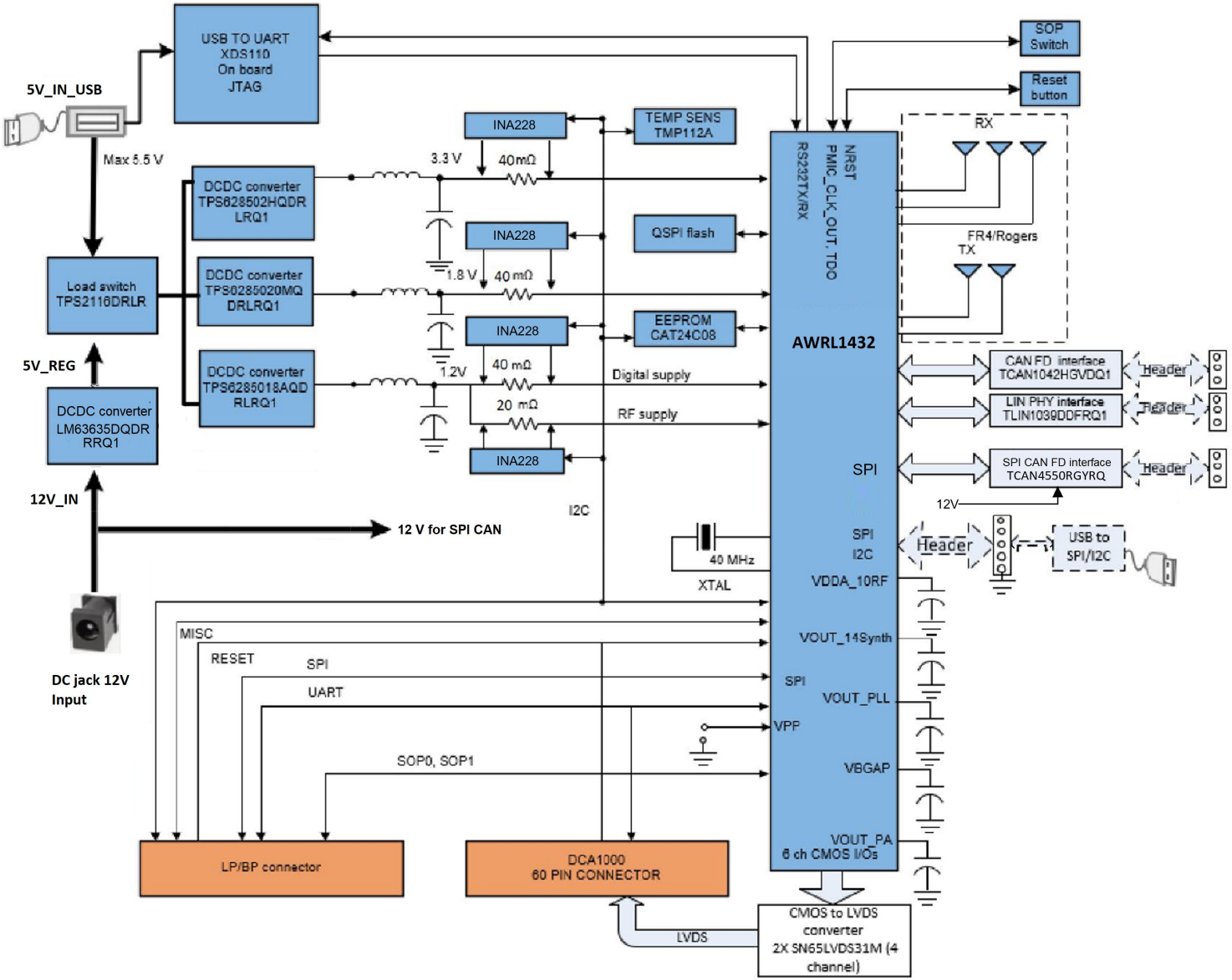
BLOCK DIAGRAM

Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
A	1	--	--	Took AWRL1432BOOST Schematic as baseline Added TCAN4550, 12V to 5V Buck regulator Changed DC jack power supply to 12V



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

Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 13-09-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: BLOCK DIAGRAM	
SVN Rev: 1794		Assembly Variant: 001_AWR	Sheet: 1 of 17
Drawn By: Mistral		File: PROC176A_Block_Diagram.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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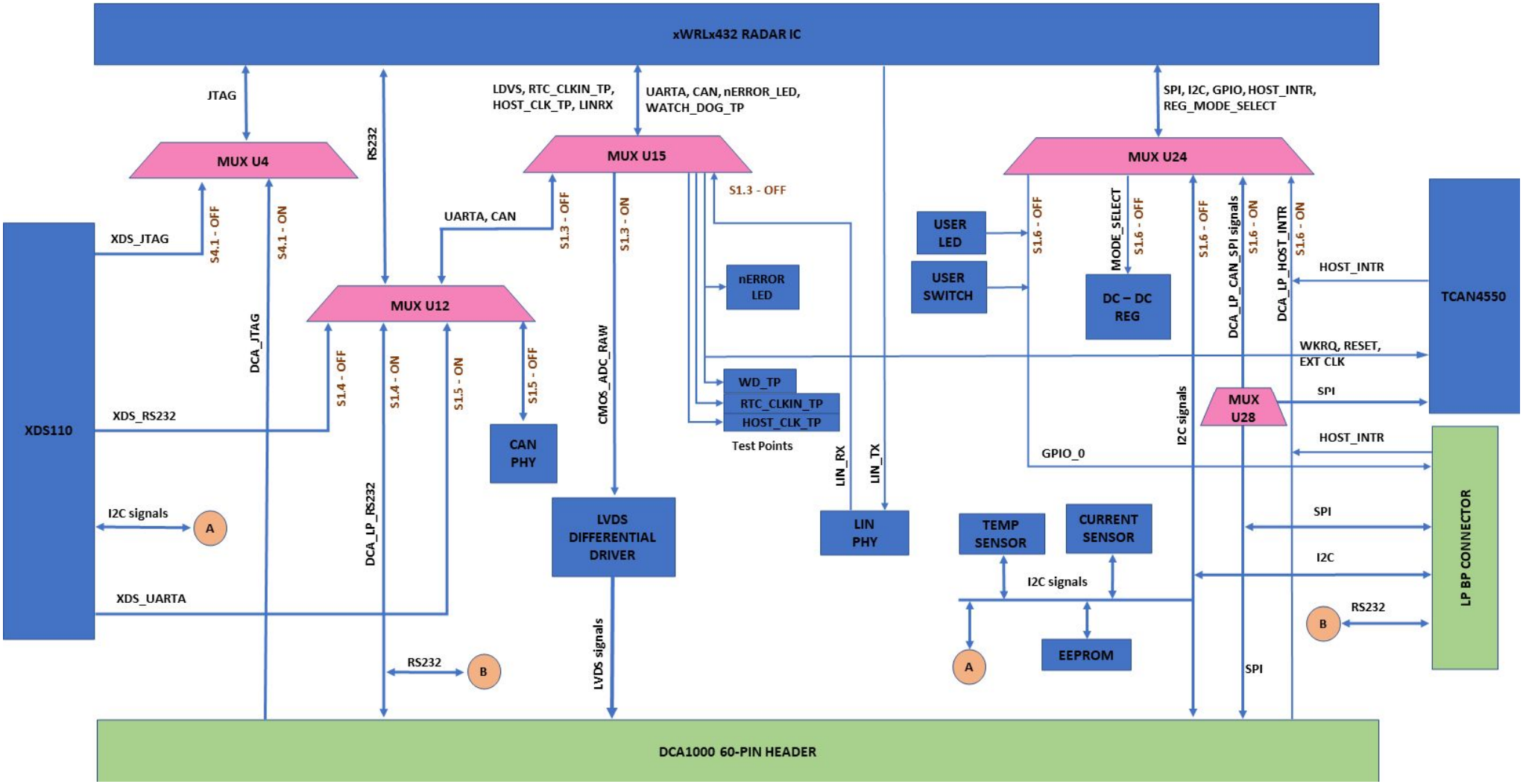
MUX BLOCK DIAGRAM



Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 05-10-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: MUX BLOCK DIAGRAM	
SVN Rev: 1918		Assembly Variant: 001_AWR	Sheet: 2 of 17
Drawn By: Mistral		File: PROC176A_MUX_Block_Diagram.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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TABLE OF CONTENTS

Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: TABLE OF CONTENTS	
SVN Rev: 1493		Assembly Variant: 001_AWR	Sheet: 3 of 17
Drawn By: Mistral		File: PROC176A_Table_Of_Contents.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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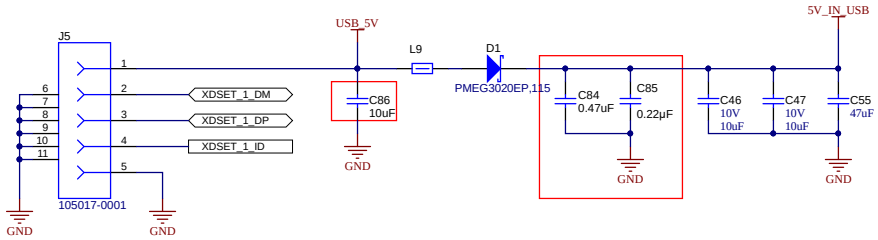
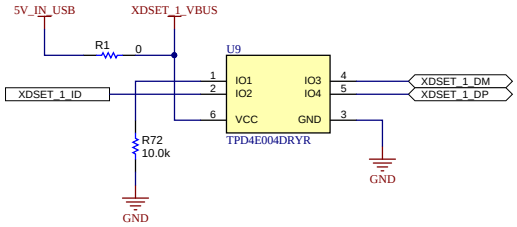
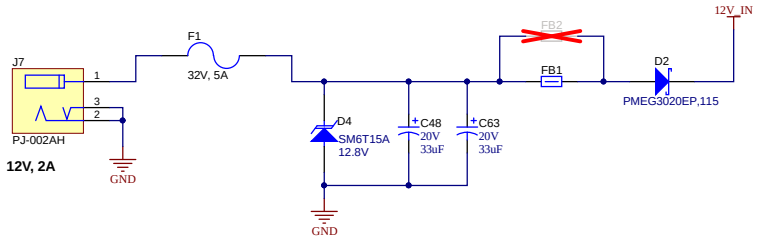
USB CONNECTOR

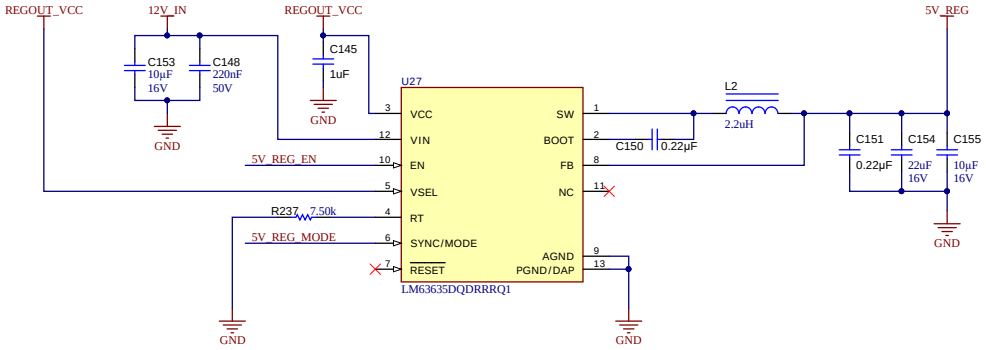




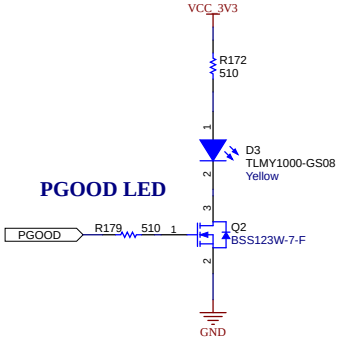
DC JACK



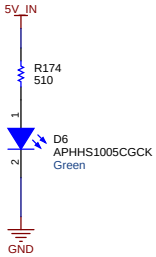
12V TO 5V BUCK CONVERTER



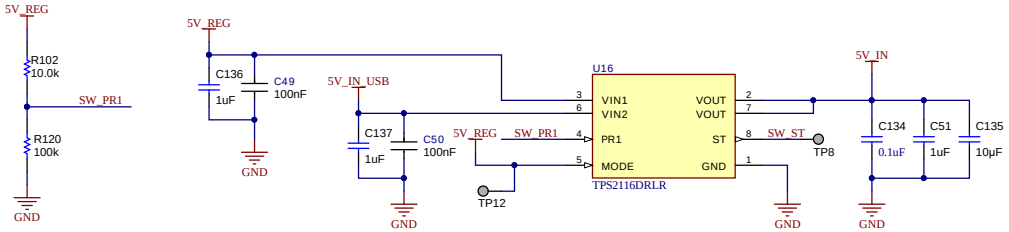
PGOOD LED

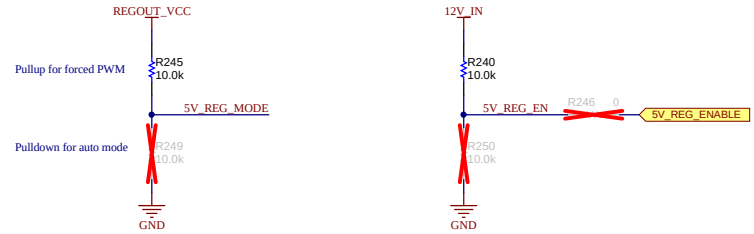


5V LED INDICATION



5V POWER LOAD SWITCH





Mode : Priority Mode

If VPR1 is high (VPR1 > VREF), then Vout = Vin1

If VPR1 is low (VPR1 < VREF), then Vout = Vin2

Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 06-10-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: USB_PWR_DC_JACK_SWITCH	
SVN Rev: 1981		Assembly Variant: 001_AWR	Sheet: 4 of 17
Drawn By: Mistral		File: PROC176A_USB_PWR_DC_Jack_Switch.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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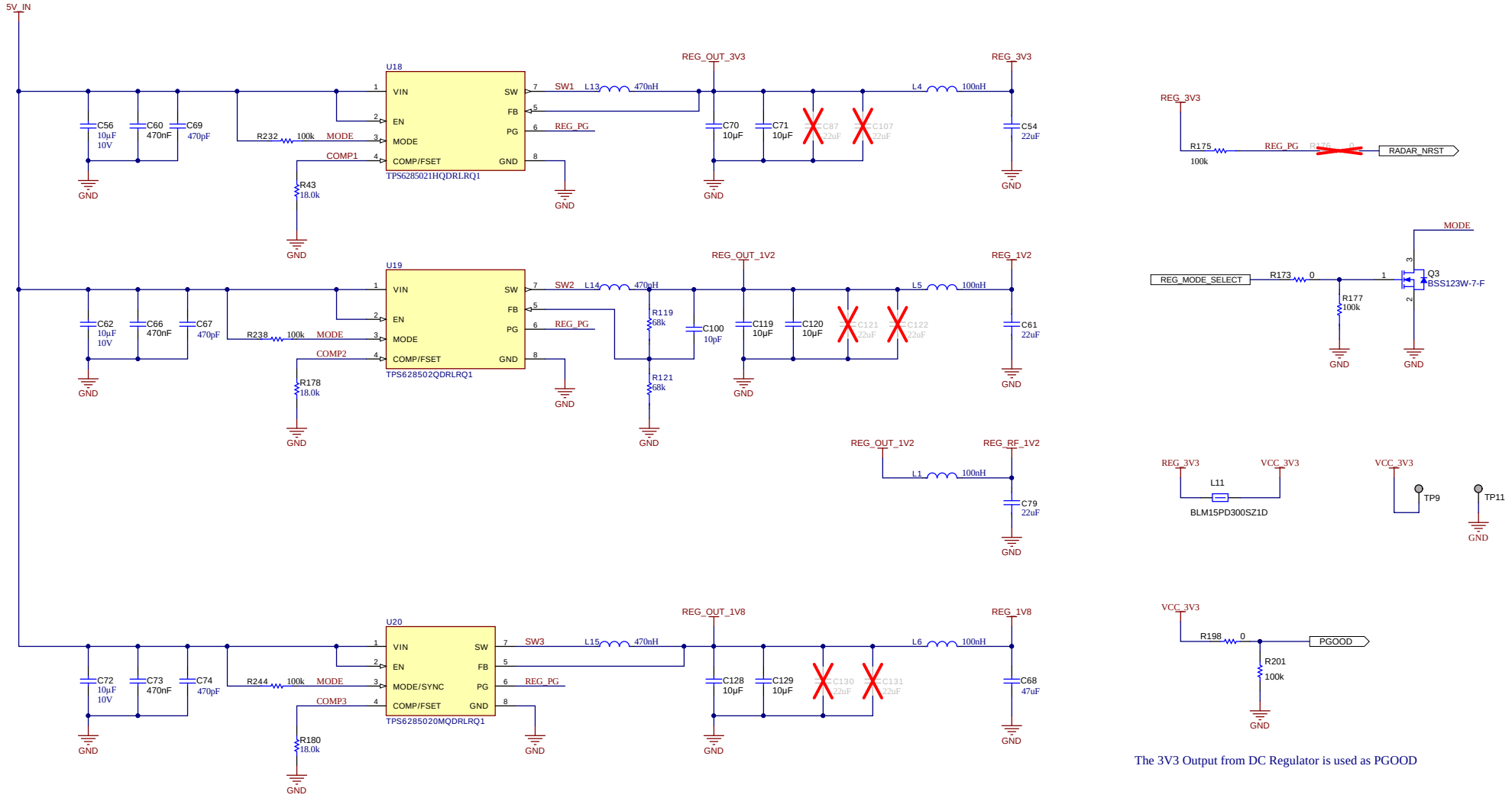
DC-DC REGULATORS - 3.3V, 1.2V & 1.8V OUTPUTS



The 3V3 Output from DC Regulator is used as PGOOD

CAD NOTE : Place all Input & Output Decaps close to Regulator Pins - U[18:20]

Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: DC_REGULATORS	
SVN Rev: 1493		Assembly Variant: 001_AWR	Sheet: 5 of 17
Drawn By: Mistral		File: PROC176A_DC_Regulators.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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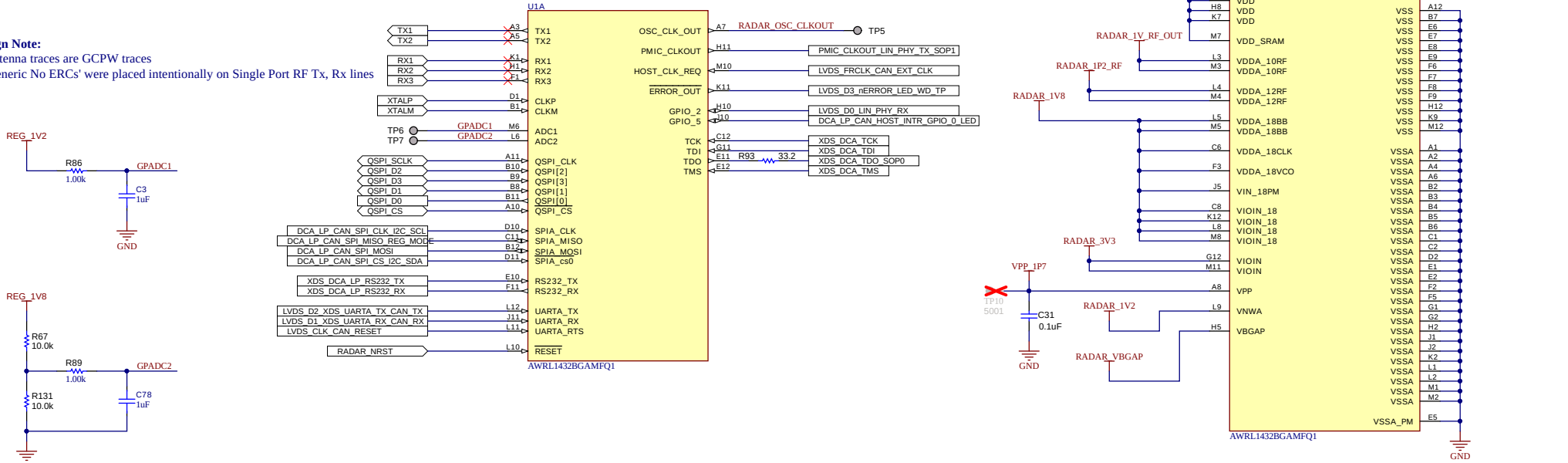
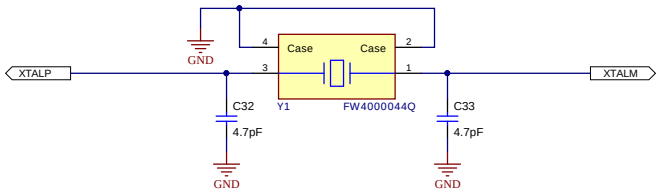
xWRL1432 CHIP

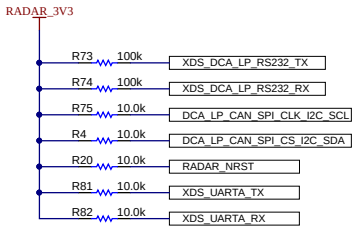
Design Note:
1. Antenna traces are GCPW traces
2. 'Generic No ERCs' were placed intentionally on Single Port RF Tx, Rx lines

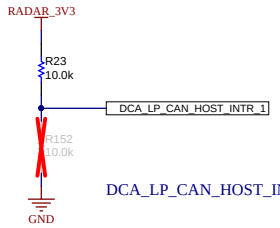


CAD Note: Place C3 and C78 close to xWRLx432S IC

40 MHz CRYSTAL OSCILLATOR





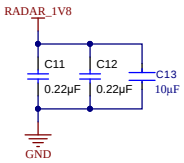


DCA_LP_CAN_HOST_INTR_1 is the SPI_BUSY signal

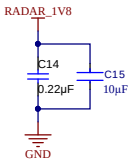
Orderable: AWRL1432BOOST-BSD	Designed for: Public Release		Mod. Date: 06-10-2023
TID #: N/A	Project Title: xWRL1432BOOST BSD		
Number: PROC176	Rev: A	Sheet Title: xWRL1432_CHIP	
SVN Rev: 1949	Assembly Variant: 001_AWR		Sheet: 6 of 17
Drawn By: Mistral	File: PROC176A_xWRL1432_Chip.SchDoc		Size: B
Engineer: Mistral	Contact: http://www.ti.com/support		

SUPPLY_DECOUPLING_CAPS

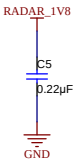
BB SUPPLY



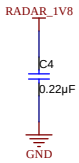
VCLK SUPPLY



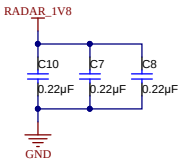
VCO_LDO SUPPLY



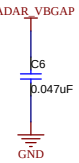
PM SUPPLY



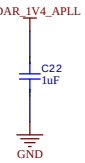
1P8V IO SUPPLY



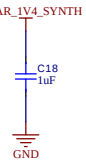
VBGAP SUPPLY



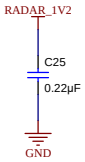
VOUT_PLL SUPPLY



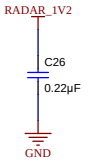
VOUT_SYNTH SUPPLY



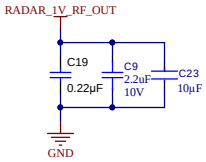
VNWA SUPPLY



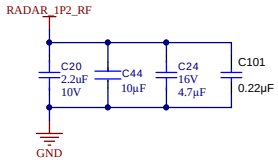
SRAM SUPPLY



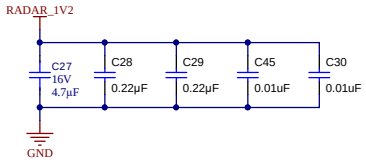
1V_RF_OUT SUPPLY



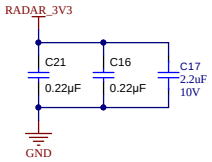
1V2_RF SUPPLY



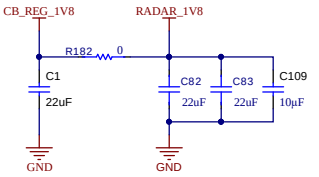
1V2 DIG SUPPLY

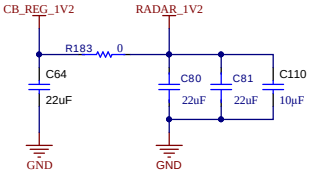


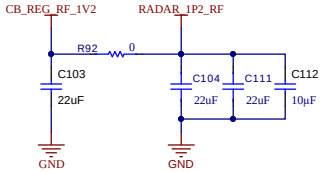
3V3_IO SUPPLY



DC-DC LC FILTERS







Design note: Alternate Ferrite bead part for R182,R183, R92 is BLM18KG121TH1D

Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: DECOUPLING_CAPS	
SVN Rev: 1493		Assembly Variant: 001_AWR	Sheet: 7 of 17
Drawn By: Mistral		File: PROC176A_Decoupling_caps.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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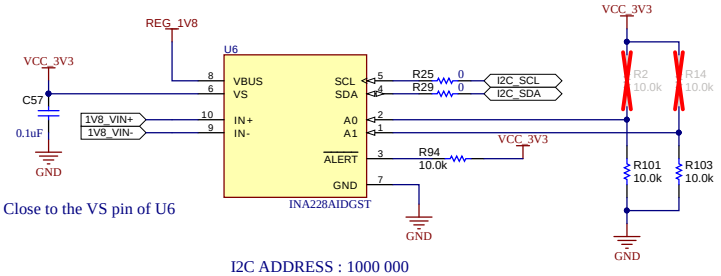
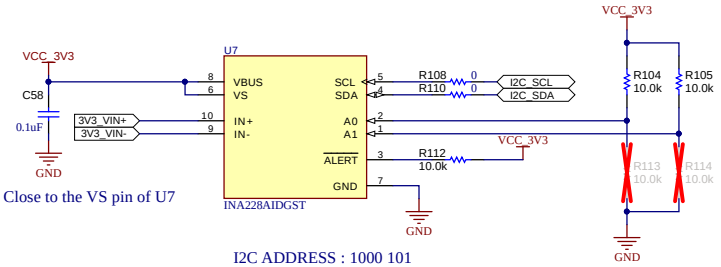
CURRENT SENSORS



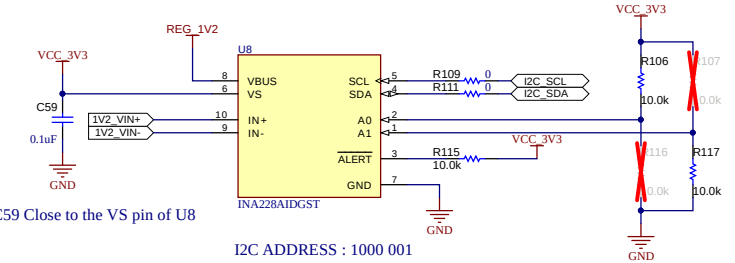
Place C57 Close to the VS pin of U6

I2C ADDRESS : 1000 000



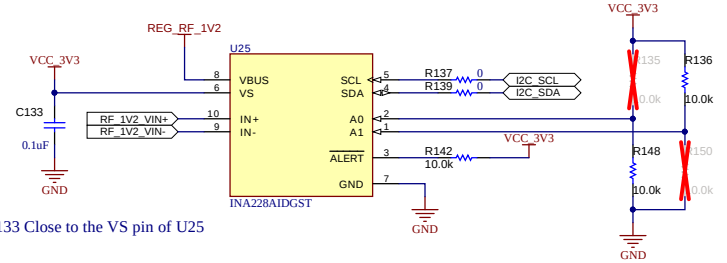
Place C58 Close to the VS pin of U7

I2C ADDRESS : 1000 101



Place C59 Close to the VS pin of U8

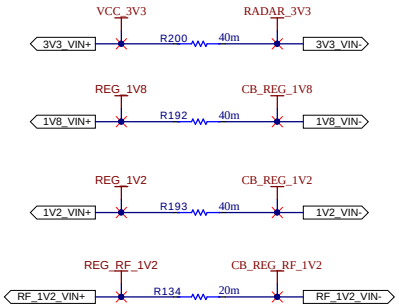
I2C ADDRESS : 1000 001



Place C133 Close to the VS pin of U25

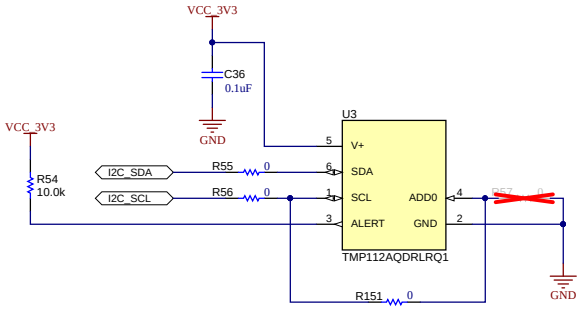
I2C ADDRESS : 1000 100

CURRENT SENSE RESISTORS



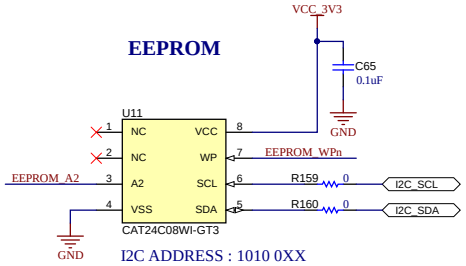
Design Note: 'Generic No ERCs' were placed intentionally on either sides of Current sense resistors

TEMPERATURE SENSOR



I2C ADDRESS : 1001 011

EEPROM



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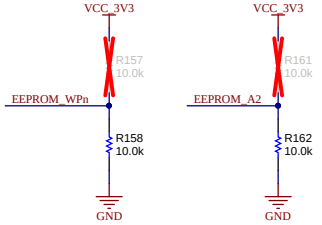
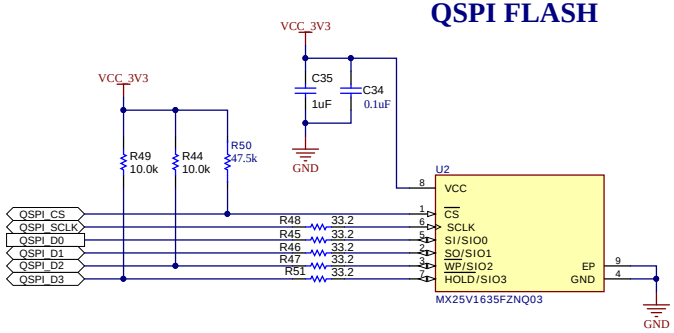


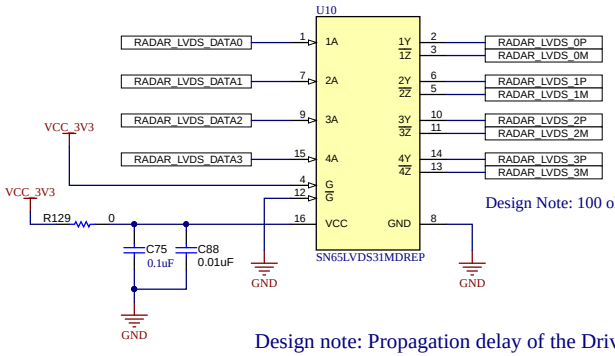
Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: TEMP_CURRENT_SENSORS_EEPROM	
SVN Rev: 1493		Assembly Variant: 001_AWR	Sheet: 8 of 17
Drawn By: Mistral		File: PROC176A_Temp_Current_Sensors and EEPROM.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

QSPI FLASH



Design note: Alternate Flash part is MX25V1635FZNQ

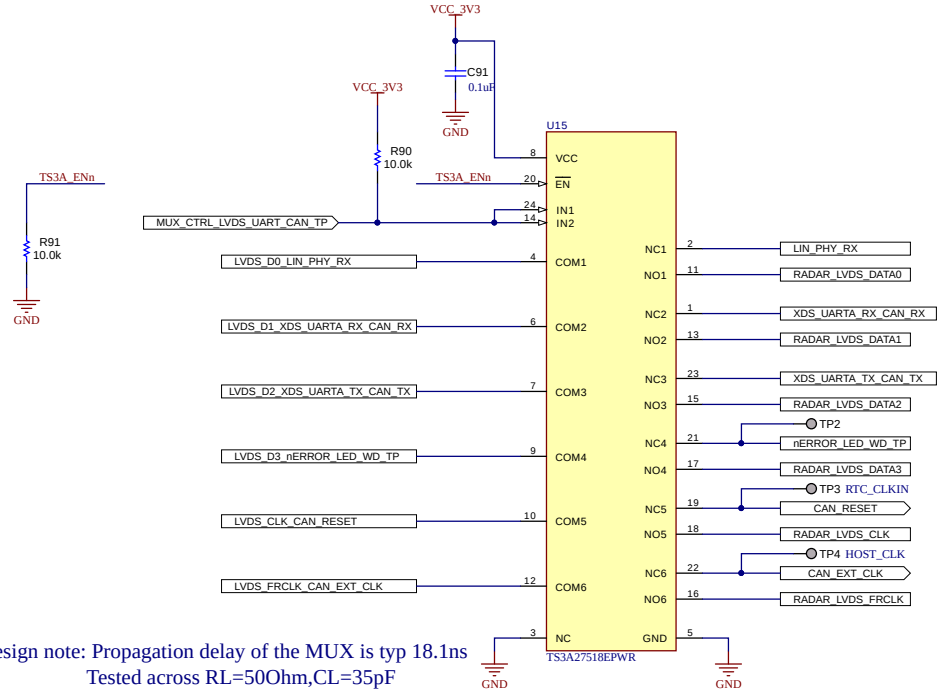
DIFFERENTIAL LVDS DRIVER



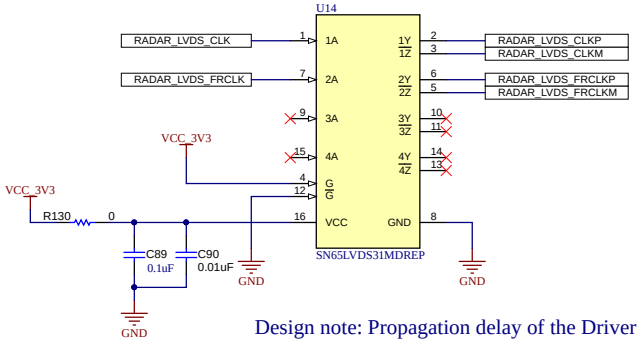
Design Note: 100 ohms Differential traces

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

ANALOG MUX



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



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

Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: QSPI_FLASH_LVDS_DRIVER	
SVN Rev: 1493		Assembly Variant: 001_AWR	Sheet: 9 of 17
Drawn By: Mistral		File: PROC176A_QSPI_Flash_LVDS_Driver.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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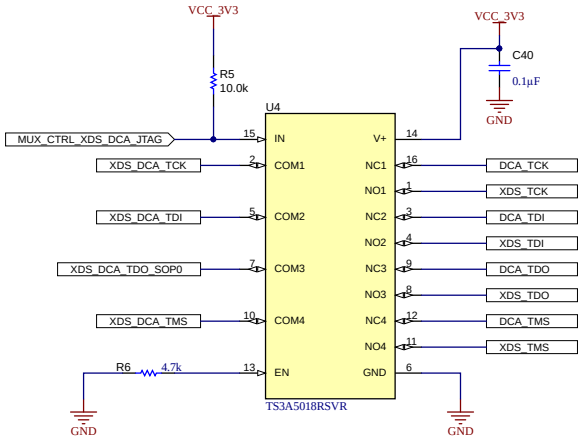
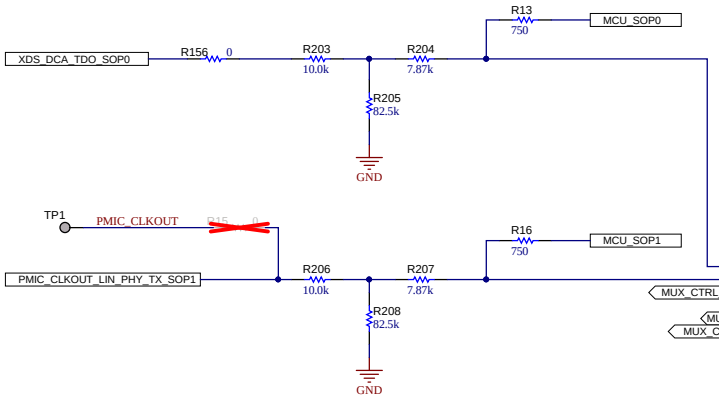
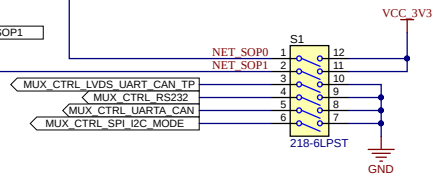
http://www.ti.com

ANALOG MUX



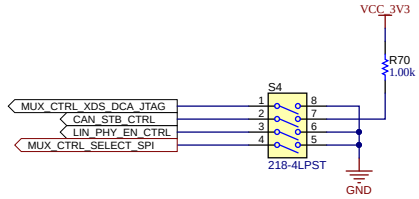


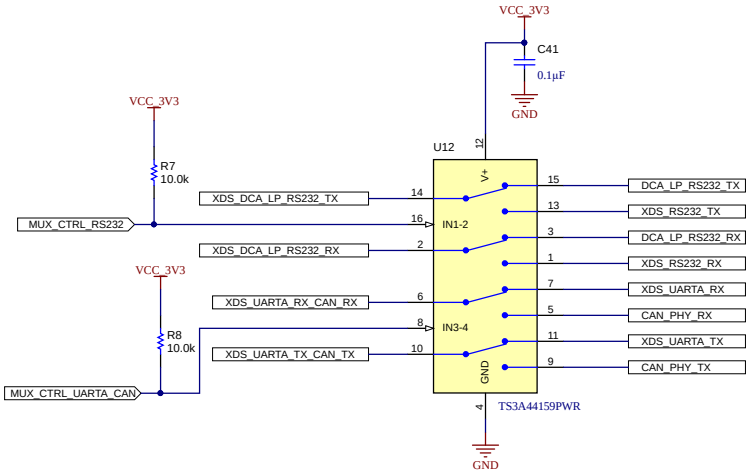
SOP & MUX CONTROL

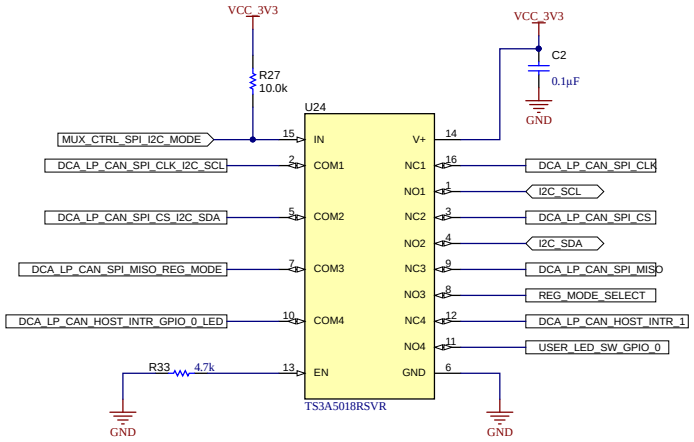


SOP CONFIGURATION

SOP Mode	PMIC_CLK_OUT, TDO	Combination (S1.2, S1.1)
SOP_MODE1	Device Management Mode	0 0
SOP_MODE2	Application Mode / Functional Mode	0 1
SOP_MODE3	Test mode	1 0
SOP_MODE4	Debug Mode	1 1







MUX TABLE

	Switch Position OFF	Switch Position ON
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_LP_RS232
S1.5	CAN	XDS_UARTA
S1.6	I2C, REG_MODE, LED_SW_GPIO	SPI
S4.1	XDS_JTAG	DCA_JTAG
S4.4	DCA,LP,FTDI - SPI	TCAN - SPI

CONTROL TABLE

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

Orderable: AWRL1432BOOST-BSD	Designed for: Public Release	Mod. Date: 11-09-2023
TID #: N/A	Project Title: xWRL1432BOOST BSD	
Number: PROC176 Rev: A	Sheet Title: ANALOG_MUX_SOP_CTRL	
SVN Rev: Unknown revision	Assembly Variant: 001_AWR	Sheet: 10 of 17
Drawn By: Mistral	File: PROC176A_Analog_Mux_SOP_Ctrl.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

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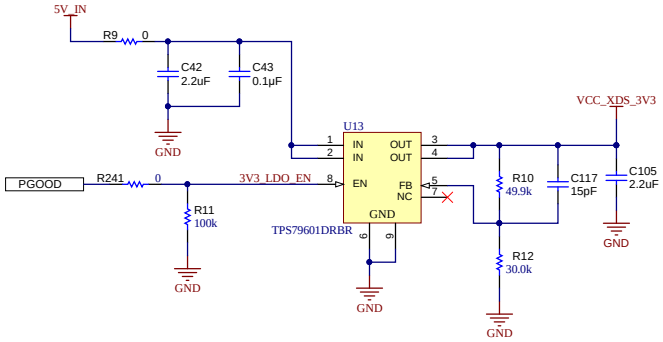
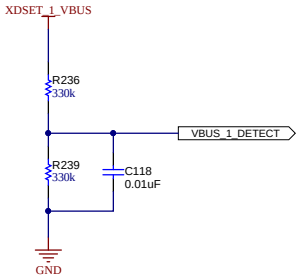
XDS110(1/2)

5V TO 3.3V LDO

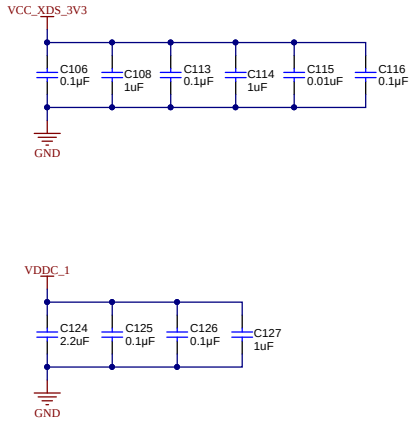


By Default LDO is disabled
When 3V3 DC-DC regulator is powered up, then it gets enabled

VBUS_DETECT



DECOUPLING CAPACITORS - XDS110



Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 31-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: XDS110_INTERFACE_1A	
SVN Rev: 1704		Assembly Variant: 001_AWR	Sheet: 11 of 17
Drawn By: Mistral		File: PROC176A_XDS110_Interface_1A.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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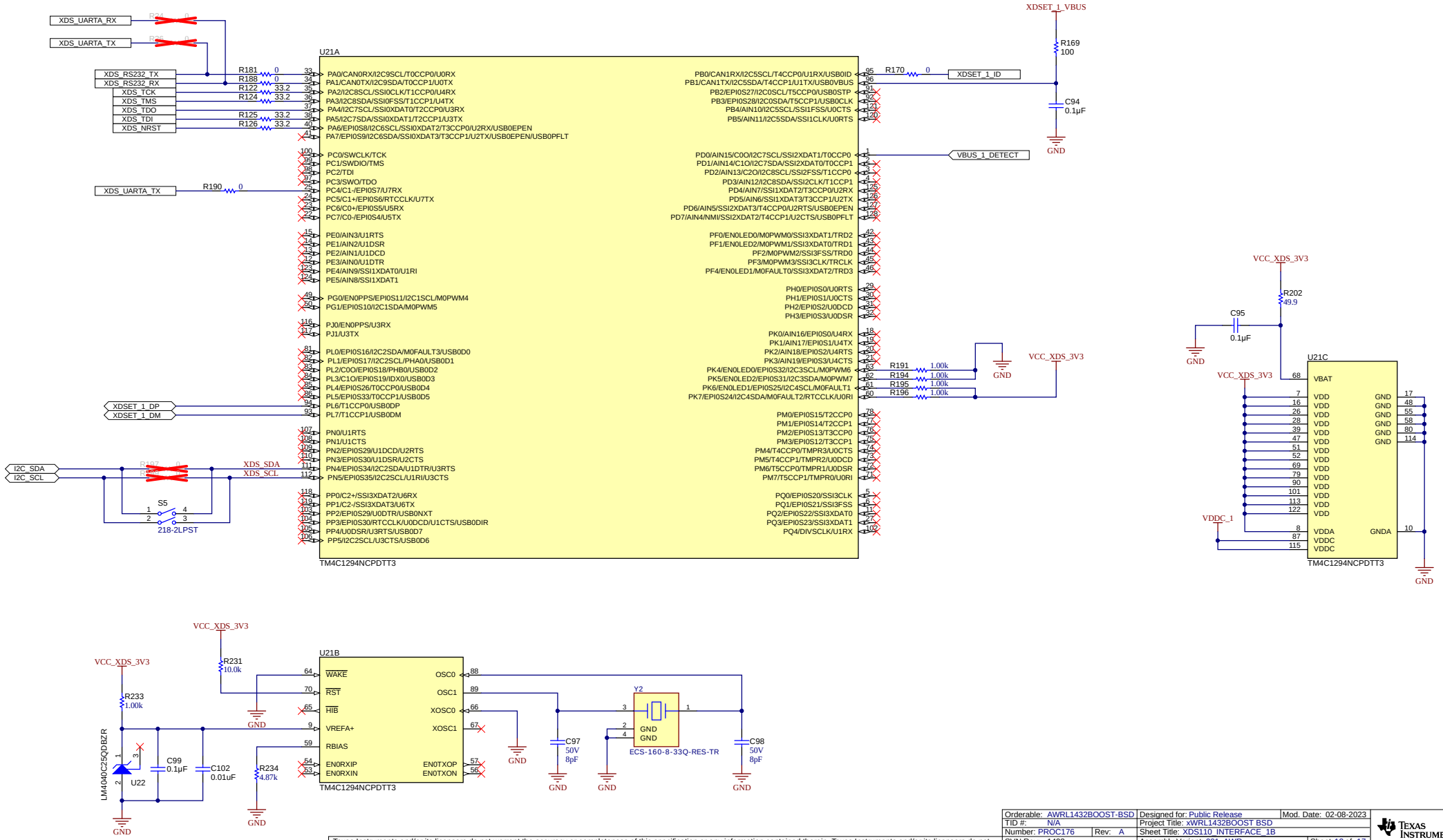
XDS110(2/2)



Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: XDS110_INTERFACE_1B	
SVN Rev: 1493		Assembly Variant: 001_AWR	Sheet: 12 of 17
Drawn By: Mistral		File: PROC176A_XDS110_Interface_1B.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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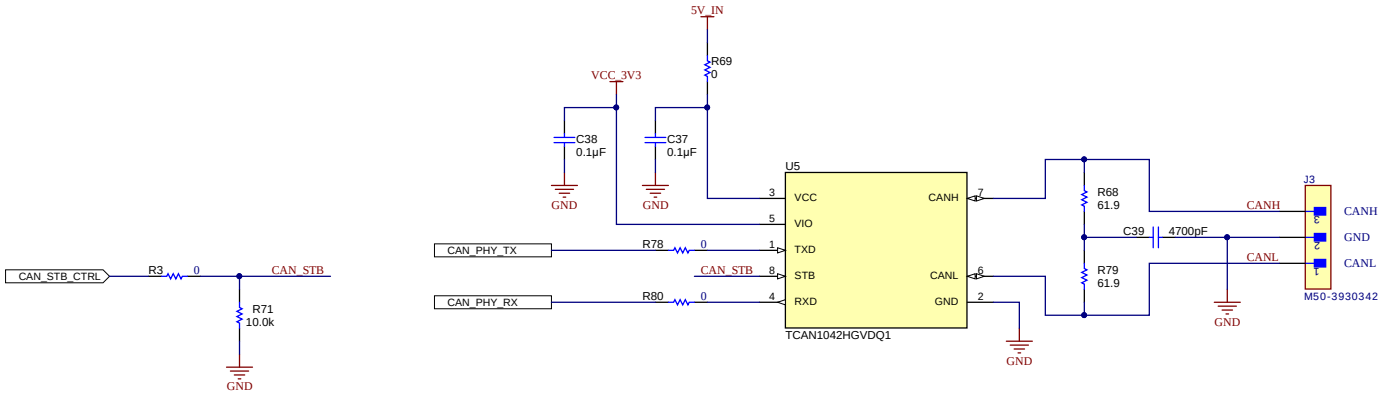
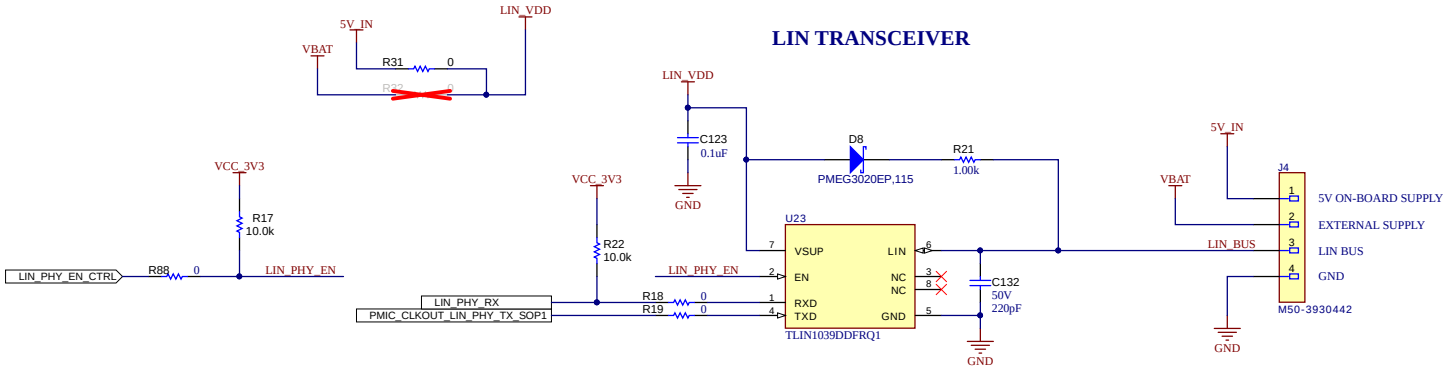
CAN TRANSCEIVER



LIN TRANSCEIVER



Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: CAN_LIN_PHY_INTERFACE	
SVN Rev: 1493		Assembly Variant: 001_AWR	Sheet: 13 of 17
Drawn By: Mistral		File: PROC176A_CAN_LIN_PHY_Interface.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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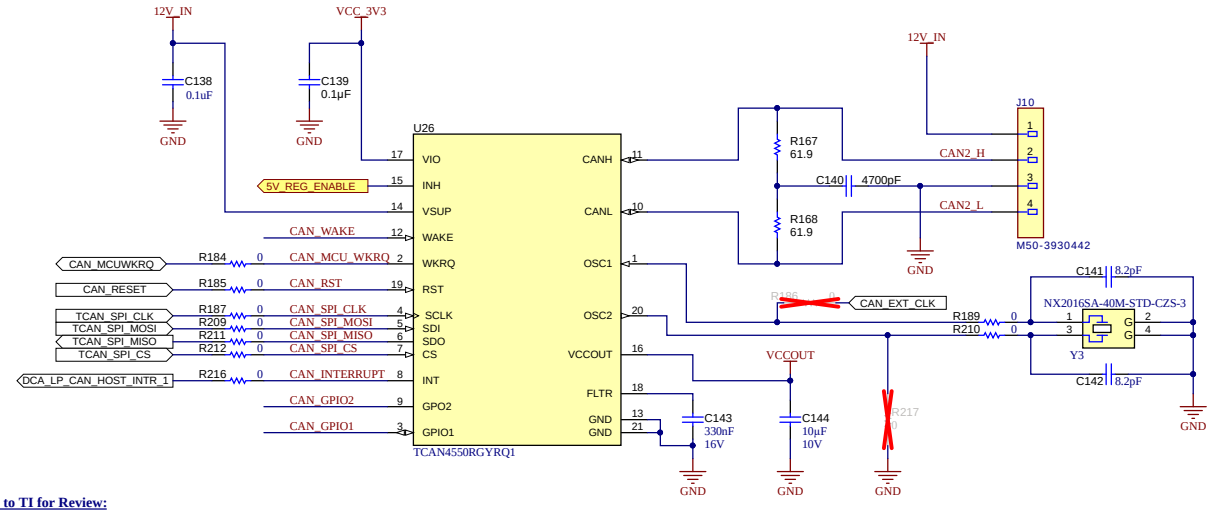
SPI CAN TRANSCEIVER

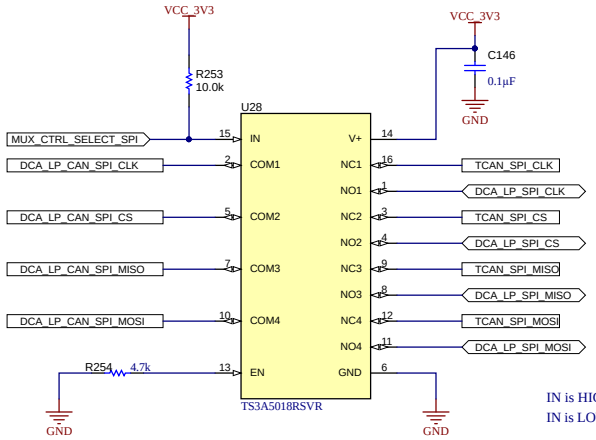


Note to TI for Review:

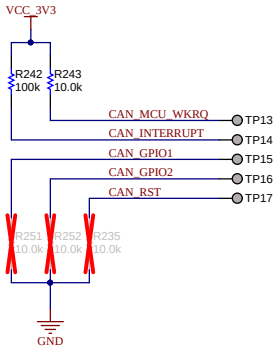
Kindly review and give comments on the current signal connections to TCAN4550

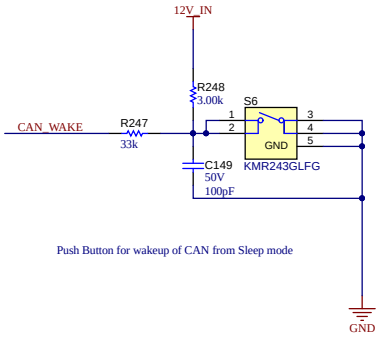
The CAN RESET signal is connected to GPIO_6 - pin L11 of 1432 MCU
The CAN GPIO1 and WKRQ are connected to nERROR LED (GPIO_4 and WU_REQIN - pin K11)
The CAN INTERRUPT is connected to DCA_LP_HOST_INTR (SPI Busy) signal (GPIO_5 - pin J10)

ANALOG MUX FOR SPI



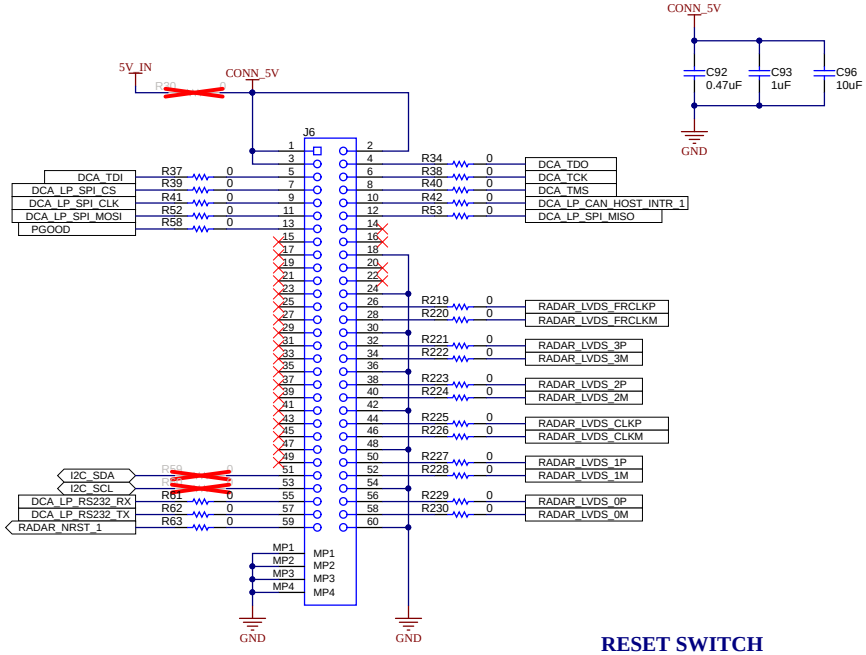
IN is HIGH, SPI goes to DCA/LP/FTDI
IN is LOW, SPI goes to TCAN





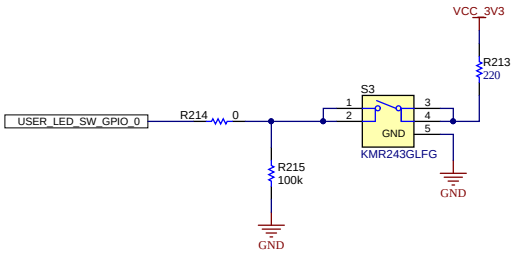
Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 10-10-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: BLOCK DIAGRAM	
SVN Rev: 1949 [Locally Modified]		Assembly Variant: 001_AWR	Sheet: 14 of 17
Drawn By: Mistral		File: PROC176A_SPI_CAN_Section.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

60-PIN HD CONNECTOR FOR DCA1000

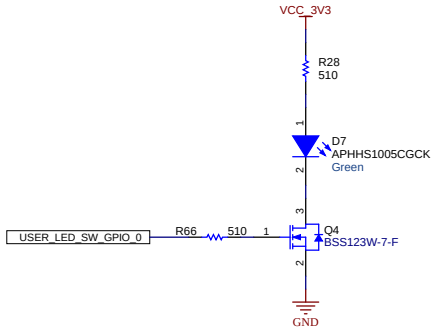


RESET, USER LED & SWITCHES

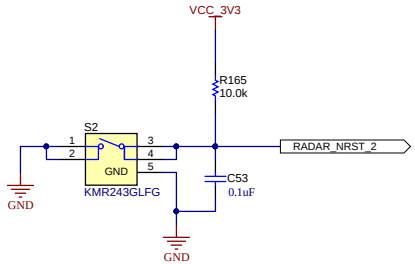
USER SWITCH



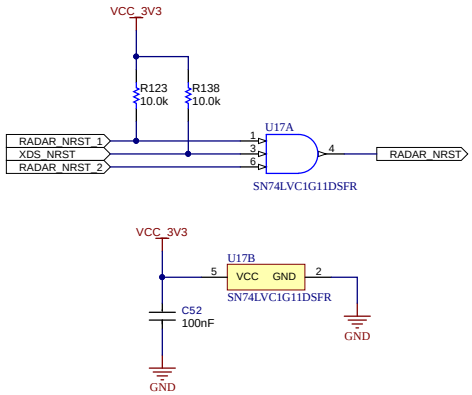
USER LED



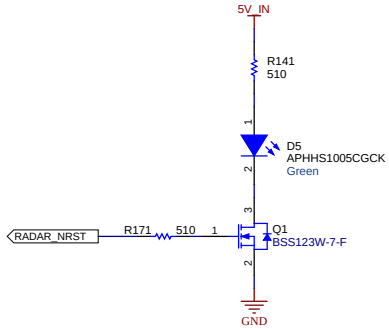
RESET SWITCH



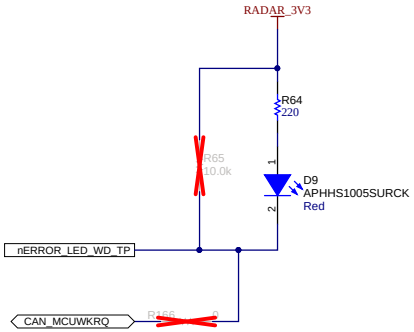
RESET



RESET LED



nERROR LED



Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 05-10-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: DCA1000_CONN_RESET	
SVN Rev: 1918		Assembly Variant: 001_AWR	Sheet: 15 of 17
Drawn By: Mistral		File: PROC176A_DCA1000_Connector_Reset.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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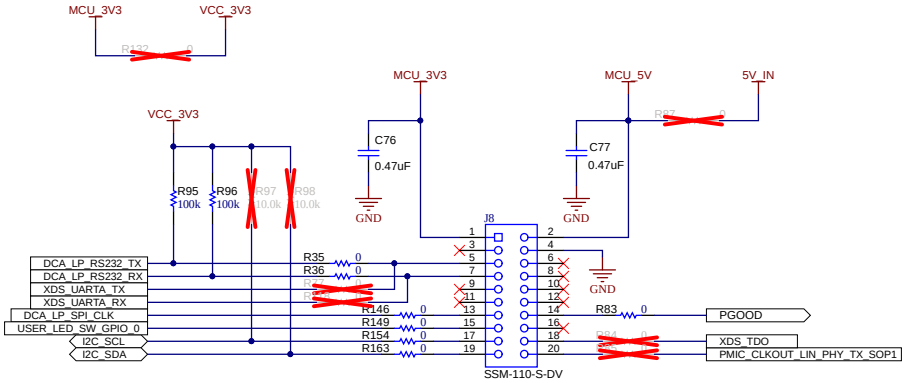
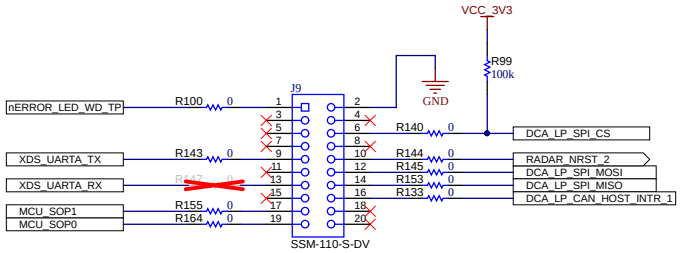
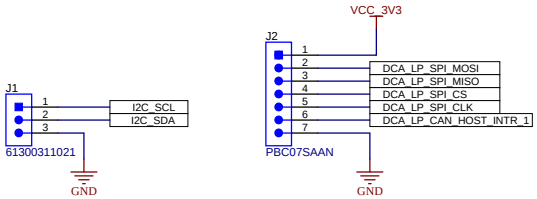
LP/BP CONNECTOR





I2C & SPI HEADER FOR FTDI INTERFACE



Orderable: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 11-09-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: LP_BP_CONN_HEADER	
SVN Rev: 1758		Assembly Variant: 001_AWR	Sheet: 16 of 17
Drawn By: Mistral		File: PROC176A_LP_BP_Connector.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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FID1 FID2 FID3 FID4 FID6

PCB Number: PROC176
PCB Rev: A

PCB LOGO
Texas Instruments

CE Mark

PCB LOGO
FCC disclaimer

PCB LOGO
WEEE logo

CAUTION HOT SURFACE1

CAUTION HOT SURFACE

Variant/Label Table	
Variant	Label Text
001_AWR	AWRL1432BOOST-BSD

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

LBL1
PCB Label
THT-14-423-10
Size: 0.65" x 0.20 "

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: AWRL1432BOOST-BSD		Designed for: Public Release	Mod. Date: 05-10-2023
TID #: N/A		Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: HARDWARE	
SVN Rev: 1918		Assembly Variant: 001_AWR	Sheet: 17 of 17
Drawn By: Mistral		File: PROC176A_EVM_Hardware.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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