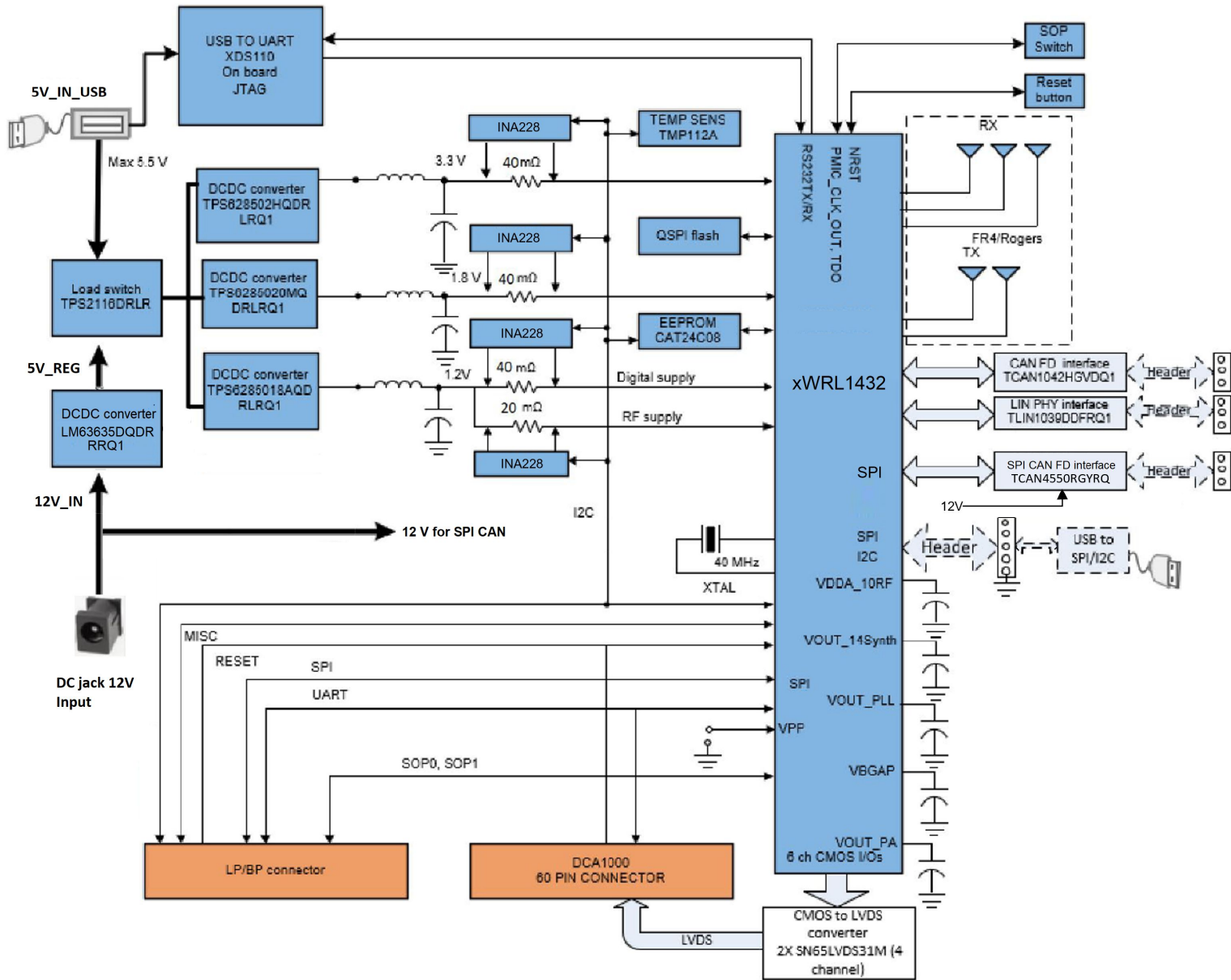


Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
A	1	--	--	Took AWRL1432BOOST Schematic as baseline Added TCAN4550, 12V to 5V Buck regulator Changed DC jack power supply to 12V

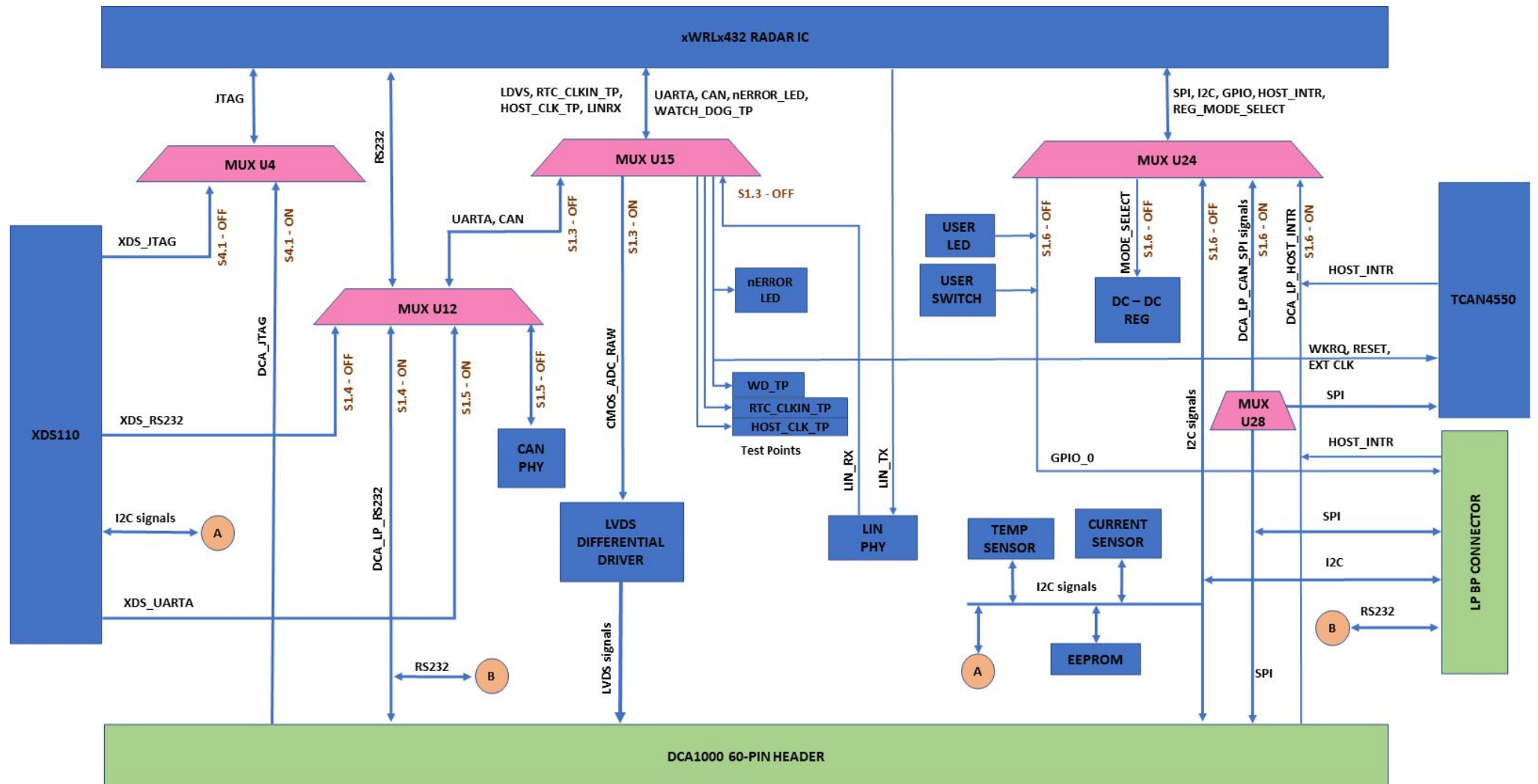


S.No	DESCRIPTION	I2C ADDRESS
1	CURRENT SENSOR 3.3V	100 0101
2	CURRENT SENSOR 1.8V	100 0000
3	CURRENT SENSOR 1.2V	100 0001
4	CURRENT SENSOR RF_1.2V	100 0100
5	TEMPERATURE SENSOR	100 1011
6	EEPROM	1010 0XX

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Orderable: IWRL1432BOOST-BSD	Designed for: Public Release	Mod. Date: 12-03-2024
TID #: N/A	Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: BLOCK DIAGRAM
SVN Rev: 3057	Assembly Variant: 002_IWR	Sheet 1 of 17
Drawn By: Mistral	File: PROC176A Block Diagram.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

## MUX BLOCK DIAGRAM



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Orderable: IWRL1432BOOST-BS	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: 3057	Assembly Variant: 002 IWR	Sheet 2 of 17
Drawn By: Mistral	File: PROC176A MUX Block Diagram.SchDoc	Size: B
Engineer: Mistral	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

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 REGULATORS
6	xWRL1432_CHIP
7	DECOUPLING_CAPS
8	TEMP_CURRENT_SENSORS_EEPROM
9	QSPL_FLASH_LVDS_DRIVER
10	ANALOG_MUX_SOP_CTRL
11	XDS110_INTERFACE_1A
12	XDS110_INTERFACE_1B
13	CAN_LIN_PHY_INTERFACE
14	SPI_CAN_SECTION
15	DCA1000_CONN_RESET
16	LP_BP_CONN_HEADER
17	EVM_HARDWARE

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[illegible]

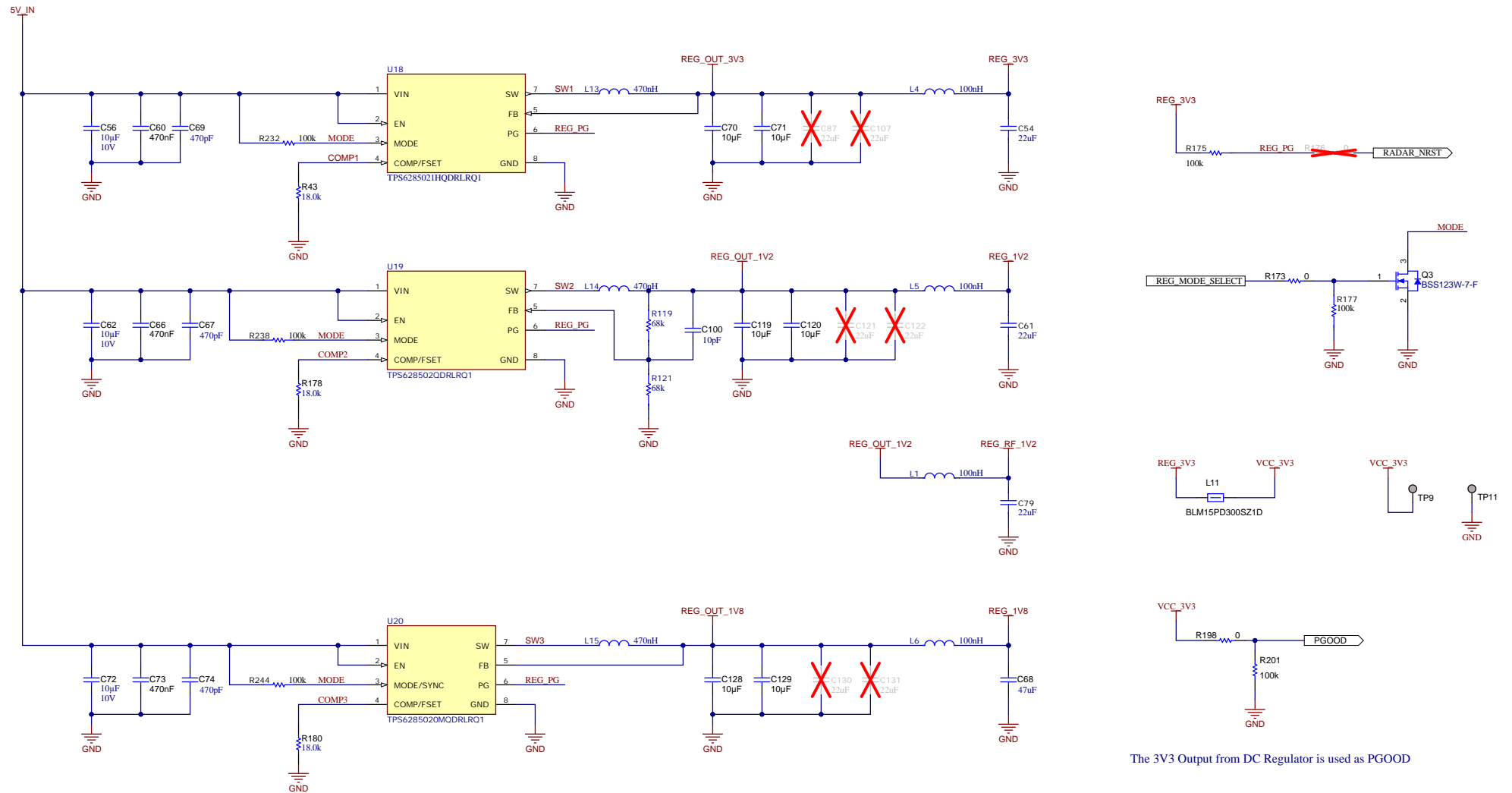
The schematic shows the LM63635DQDRRQ1 buck converter IC connected to a 12V input and a 5V output. The input side features a 10µF capacitor (C153) and a 220nF capacitor (C148) in parallel at the 12V\_IN pin. A 1µF capacitor (C145) is connected to the REGOUT\_VCC pin. The output side includes an inductor L2 (2.2µH) followed by three capacitors in parallel: C151 (0.22µF), C154 (22µF), and C155 (10µF). The 5V\_REG\_EN pin is connected to the 5V output line. The 5V\_REG\_MODE pin is pulled up to the 5V output line by resistor R237 (7.50k). The RESET pin is shown as unconnected (marked with a red X).

If  $V_{PR1}$  is high ( $V_{PR1} > V_{REF}$ ), then  $V_{out} = V_{in1}$   
 If  $V_{PR1}$  is low ( $V_{PR1} < V_{REF}$ ), then  $V_{out} = V_{in2}$

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Orderable: <b>IWR1432BOOST-BS</b>	Designed for: <b>Public Release</b>	Mod. Date: <b>06-10-2023</b>	 <b>TEXAS INSTRUMENTS</b>
TID #:	<b>N/A</b>	Part Title: <b>xWR1432BOOST B5D</b>	
Number: <b>PROC176</b>	Rev: <b>A</b>	Sheet Title: <b>USB PWR DC JACK SWITCH</b>	
SVN Rev: <b>3057</b>		Assembly Variant: <b>02 IWR</b>	
Drawn By: <b>Mistral</b>		File: <b>PROC176A USB PWR DC Jack Switch</b>	
Engineer: <b>Mistral</b>		Contact: <b>http://www.ti.com/support</b>	Sheet <b>4</b> of <b>17</b> Size: <b>B</b> <a href="http://www.ti.com">http://www.ti.com</a> © Texas Instruments 2023

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



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

The 3V3 Output from DC Regulator is used as PGOOD

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Orderable: IWRL1432BOOST-BS	Designed for: Public Release	Mod. Date: 14-03-2024
TID #: N/A	Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: DC REGULATORS
SVN Rev: 3091	Assembly Variant: 002_IWR	Sheet 5 of 17
Drawn By: Mistral	File: PROC176A_DC_Regulators_SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	http://www.ti.com
		© Texas Instruments 2023

1	2	3	4	5	6
---	---	---	---	---	---

## A

- B



C



## D

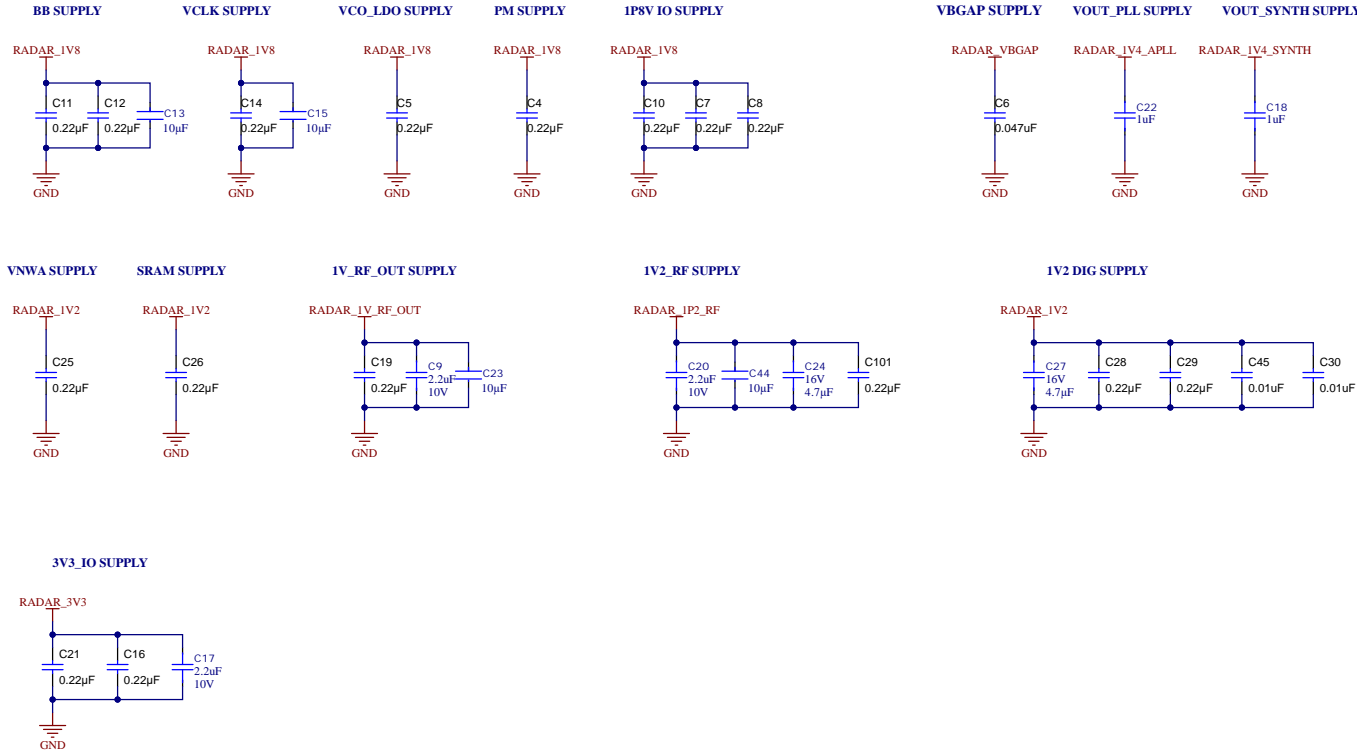


D

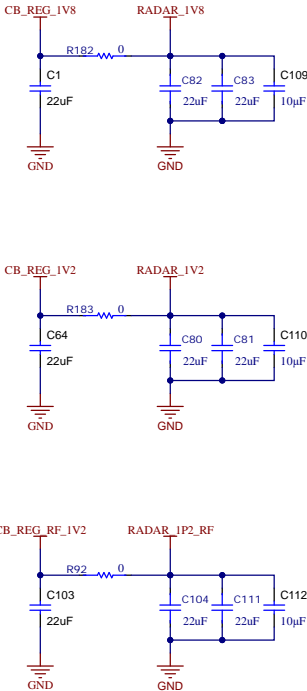
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1	2	3	4	5	6
---	---	---	---	---	---

SUPPLY\_DECOUPLING\_CAPS



DC-DC LC FILTERS



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

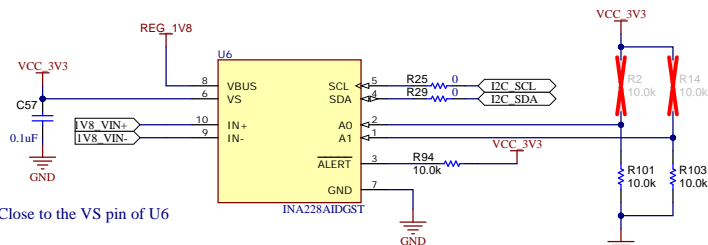
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular 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: IWRL1432BOOST-BSD	Designed for: Public Release	Mod. Date: 14-03-2024
TID #: N/A	Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: DECOUPLING_CAPS
SVN Rev: 3091	Assembly Variant: 002_IWR	Sheet 7 of 17
Drawn By: Mistral	File: PROC176A_Decooupling_caps.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	



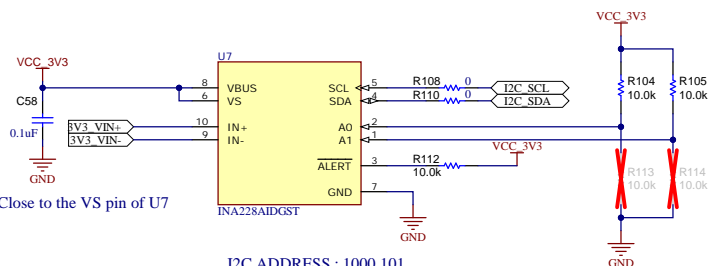
© Texas Instruments, 2023

## CURRENT SENSORS



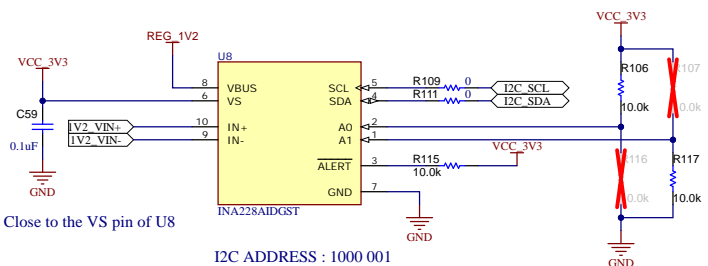
Place C57 Close to the VS pin of U6

I2C ADDRESS : 1000 000



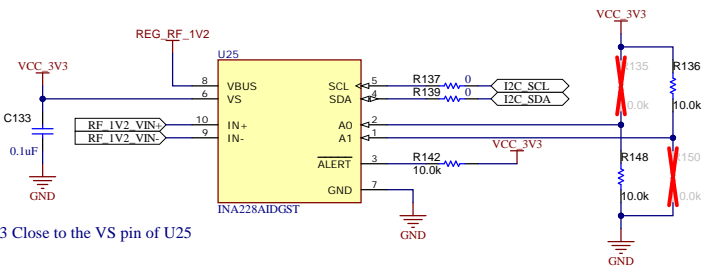
Place C58 Close to the VS pin of U7

I2C ADDRESS : 1000 101



Place C59 Close to the VS pin of U8

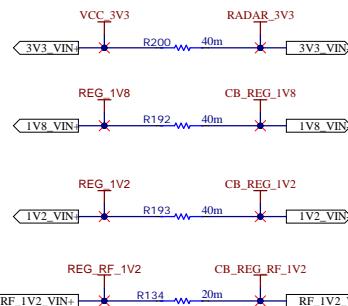
I2C ADDRESS : 1000 001



Place C133 Close to the VS pin of U25

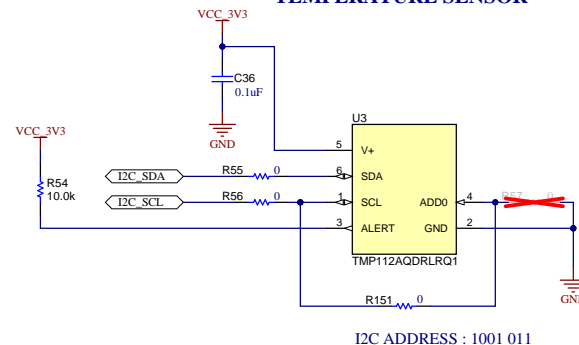
I2C ADDRESS : 1000 100

## CURRENT SENSE RESISTORS



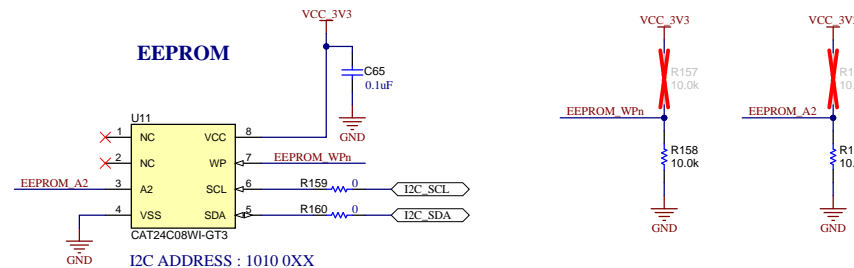
Design Note: 'Generic No ERCs' were placed intentionally on either sides of Current sense resistors

## TEMPERATURE SENSOR



I2C ADDRESS : 1001 011

## EEPROM



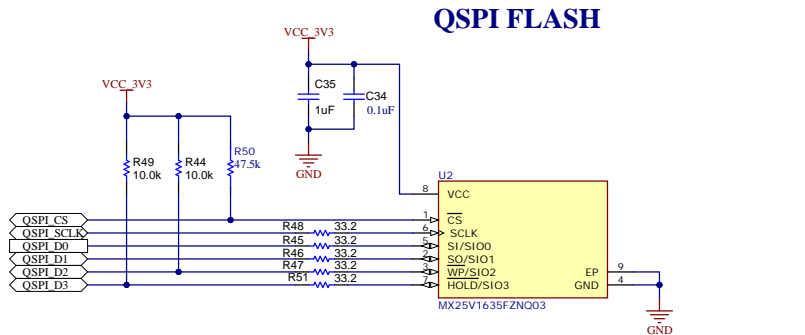
I2C ADDRESS : 1010 0XX

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Orderable: IWRL1432BOOST-BS	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: 3057	Assembly Variant: 002 IWR	Sheet 8 of 17
Drawn By: Mistral	File: PROC176A Temp Current Sensors and EEPROM Doc	http://www.ti.com
Engineer: Mistral	Contact: http://www.ti.com/support	© Texas Instruments 2023

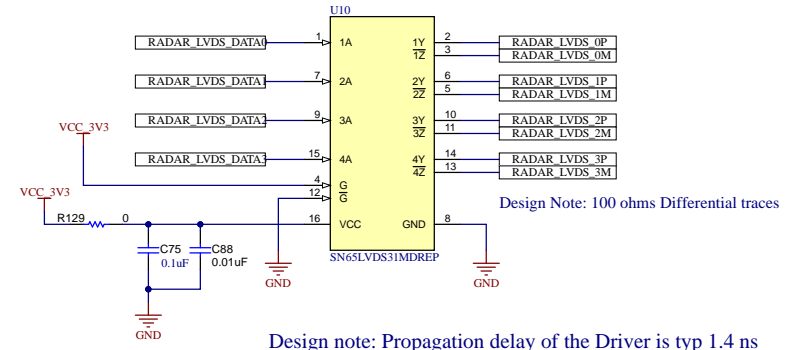






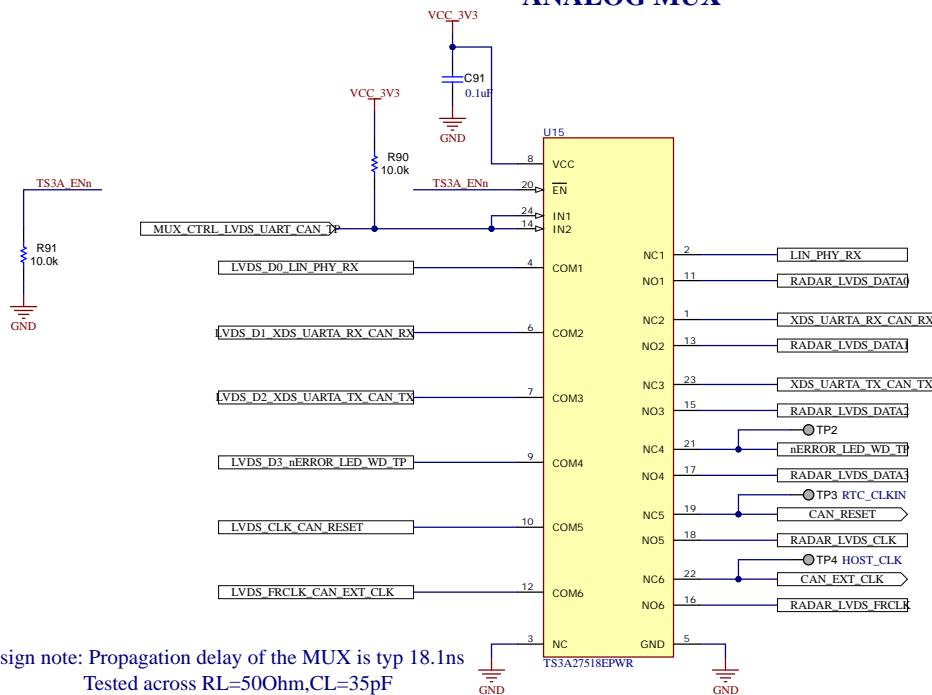
Design note: Alternate Flash part is MX25V1635FZNQ

## DIFFERENTIAL LVDS DRIVER

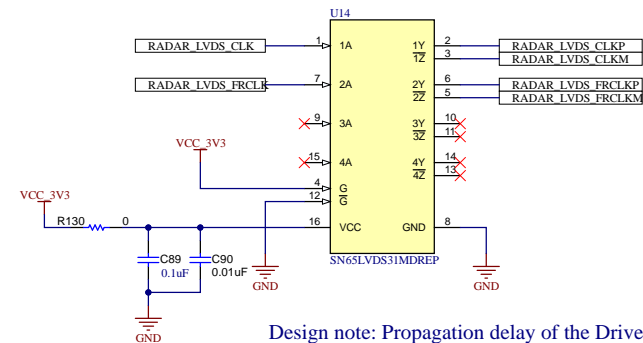


Design note: Propagation delay of the Driver is typ 1.4 ns

## ANALOG MUX



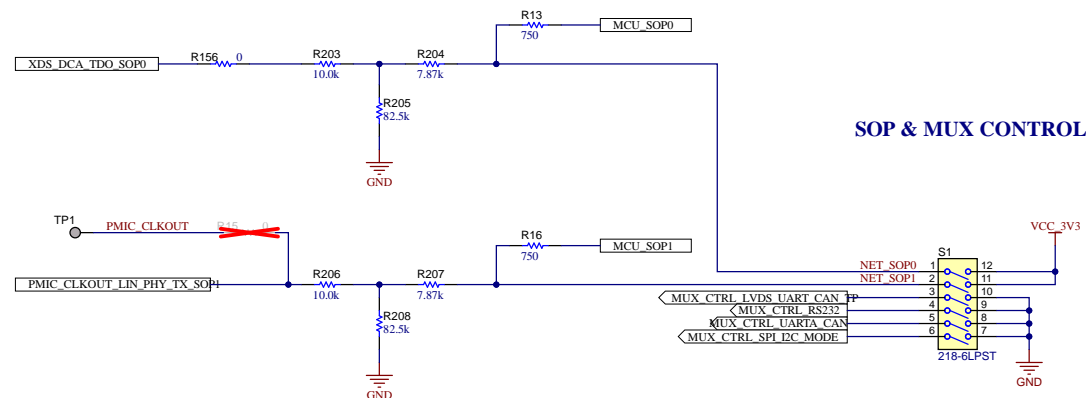
Design note: Propagation delay of the MUX is typ 18.1ns  
Tested across RL=50Ohm,CL=35pF



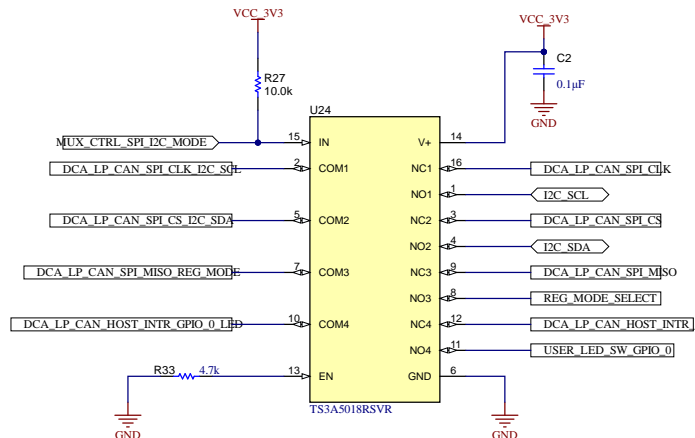
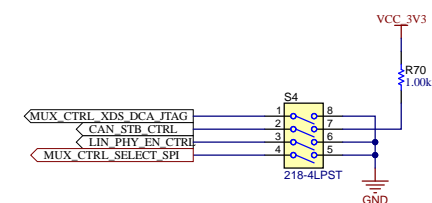
Design note: Propagation delay of the Driver is typ 1.4 ns

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Orderable: IWRL1432BOOST-BS	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: 3057	Assembly Variant: 002_IWR	Sheet: 9 of 17
Drawn By: Mistral	File: PROC176A_QSPI Flash LVDS_Driver.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	



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

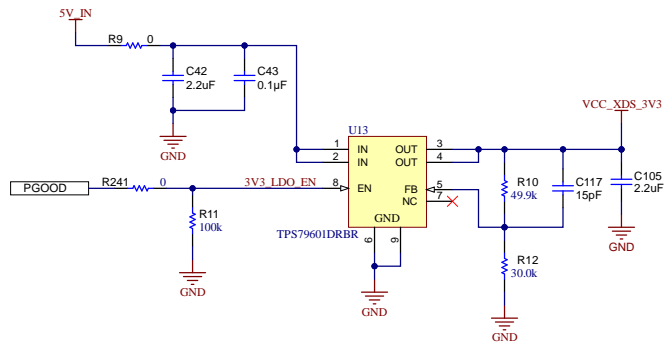


	Switch Position OFF	Switch Position ON
<b>S1.3</b>	LVDS	LIN_RX, XDS_UARTA/CAN, NERROR_LED, WATCH_DOG_TP, RTC_CLK_IN_TP, HOST_CLK_TP
<b>S1.4</b>	XDS_RS232	DCA_LP_RS232
<b>S1.5</b>	CAN	XDS_UARTA
<b>S1.6</b>	I2C, REG_MODE, LED_SW_GPIO	SPI
<b>S4.1</b>	XDS_JTAG	DCA_JTAG
<b>S4.4</b>	DCALP.FTDI - SPI	TCAN - SPI

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

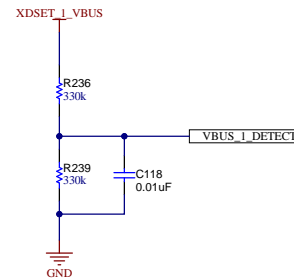
## XDS110(1/2)

## 5V TO 3.3V LDO

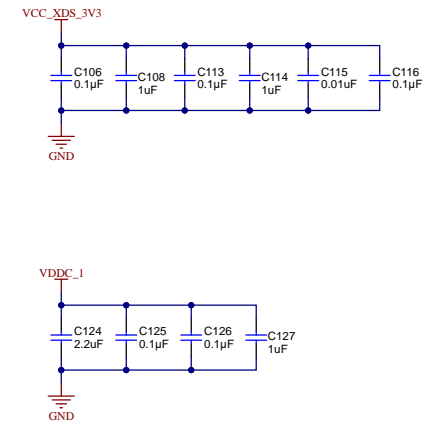


By Default LDO is disabled  
When 3V3 DC-DC regulator is powered up, then it gets enabled

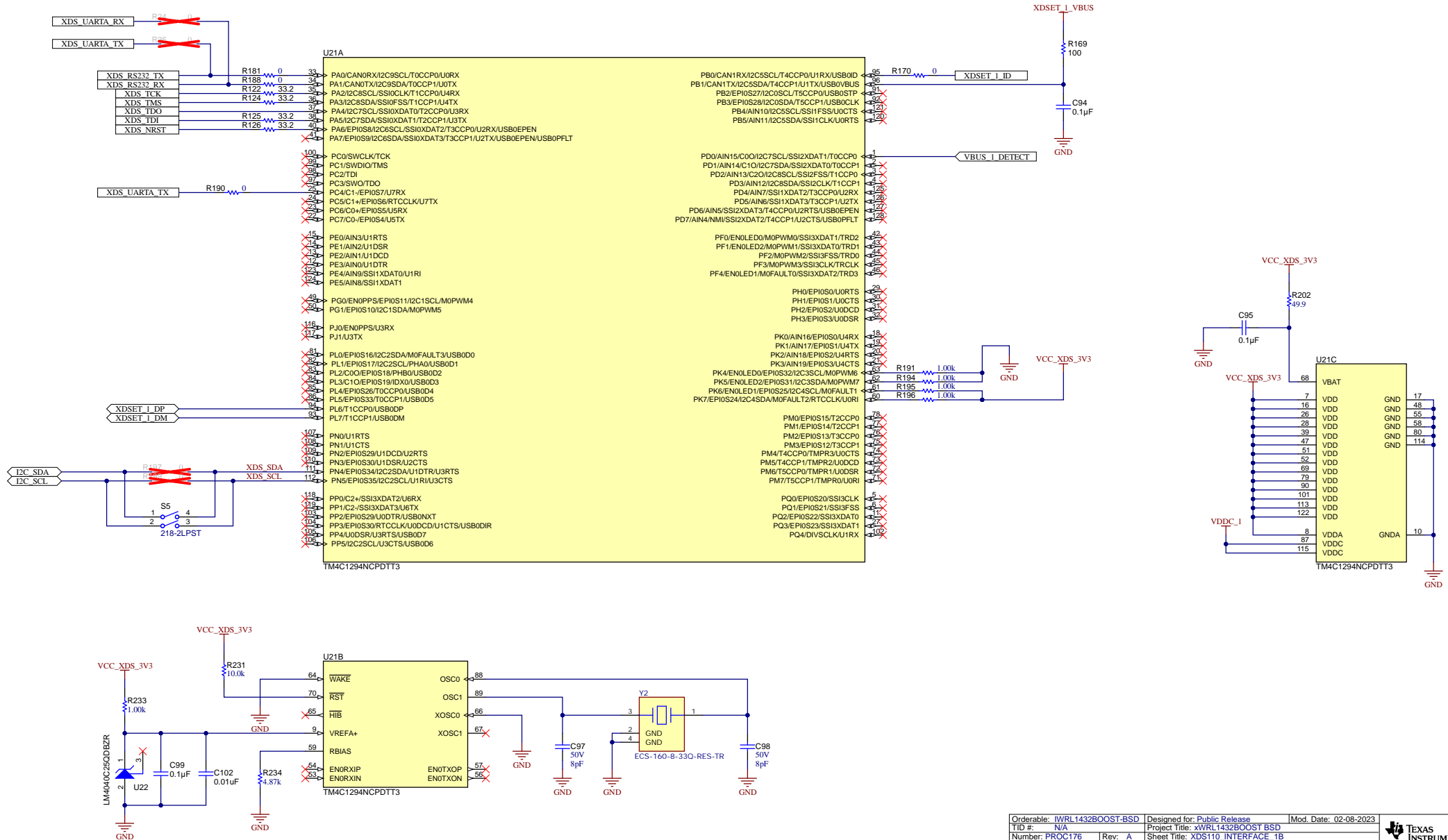
## VBUS\_DETECT



## DECOUPLING CAPACITORS - XDS110



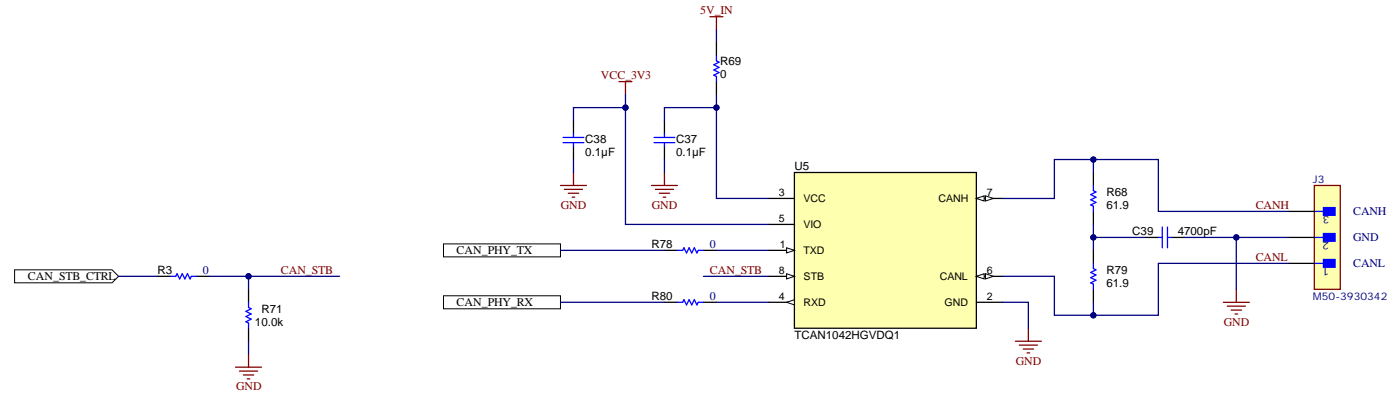
# XDS110(2/2)



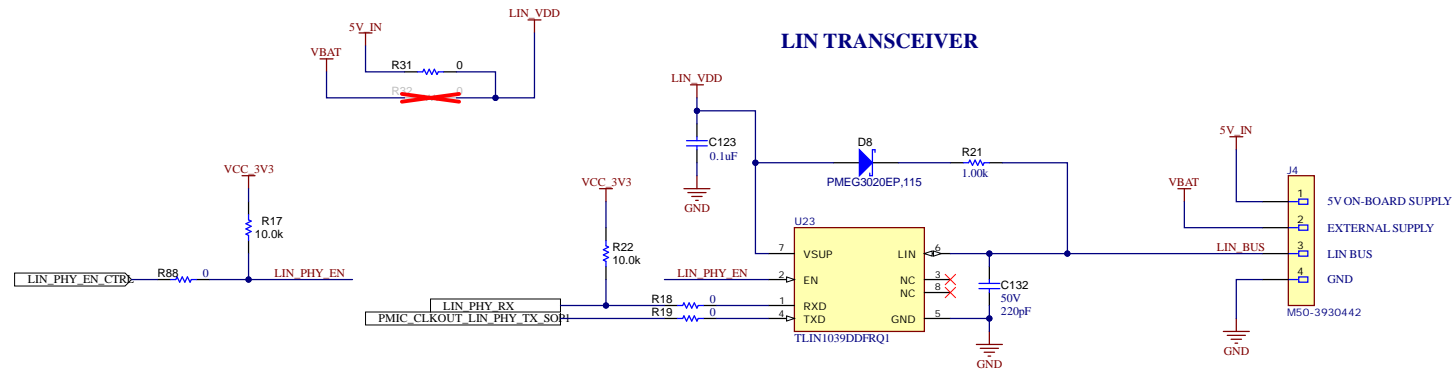
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Orderable: IWRL1432BOOST-BSD	Designed for: Public Release	Mod. Date: 02-08-2023
TID #: N/A	Project Title: xWRL1432BOOST BSD	52
Number: PROC176	Rev: A	Sheet Title: XDS110_INTERFACE_1B
SVN Rev: 3057	Assembly Variant: 002_IWR	Sheet 12 of 17
Drawn By: Mistral	File: PROC176A_XDS110_Interface_1B.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	© Texas Instruments, 2023

## CAN TRANSCEIVER



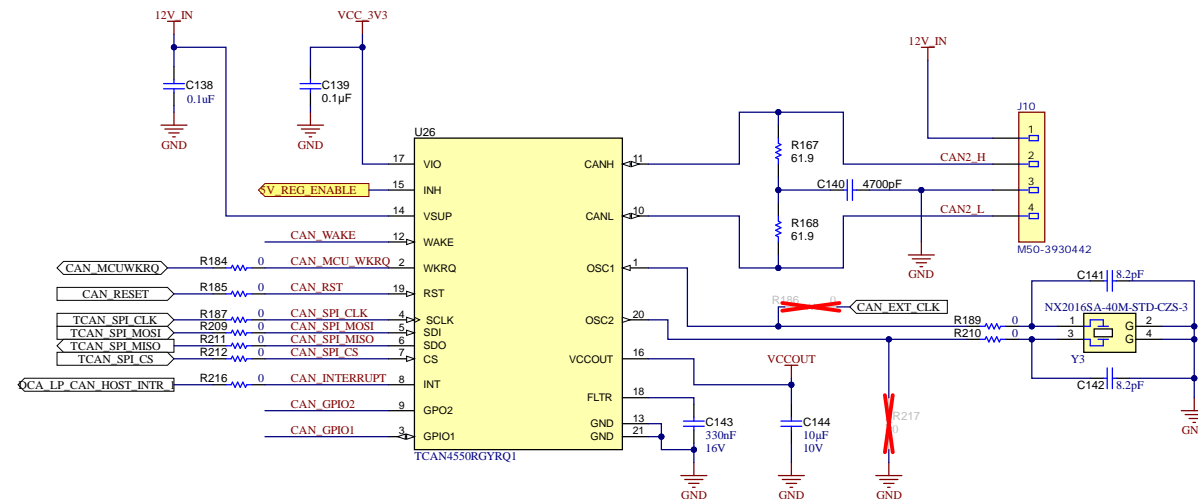
## LIN TRANSCEIVER



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Orderable: IWRL1432BOOST-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: 3057	Assembly Variant: 002 IWR	Sheet 13 of 17
Drawn By: Mistral	File: PROC176A CAN LIN PHY Interface.SchDoc	Size: B
Engineer: Mistral	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

## SPI CAN TRANSCEIVER



**Note to TI for Review:**

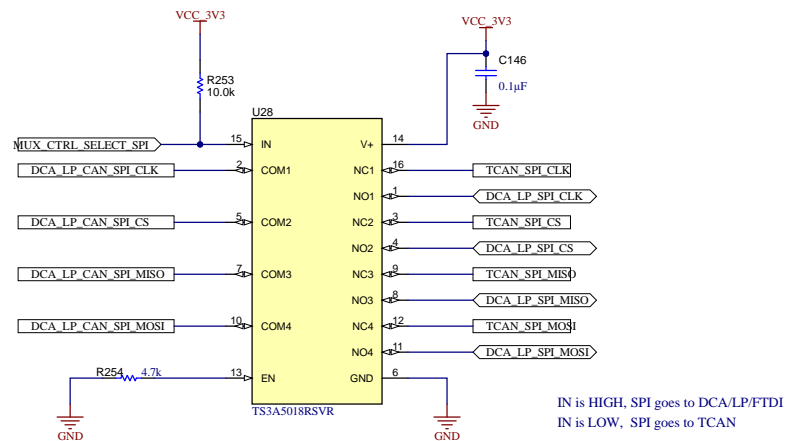
Kindly review and give comments on the current signal connections to TCAN4550

The CAN RESET signal is connected to GPIO\_6 - pin L11 of 1432 MCU

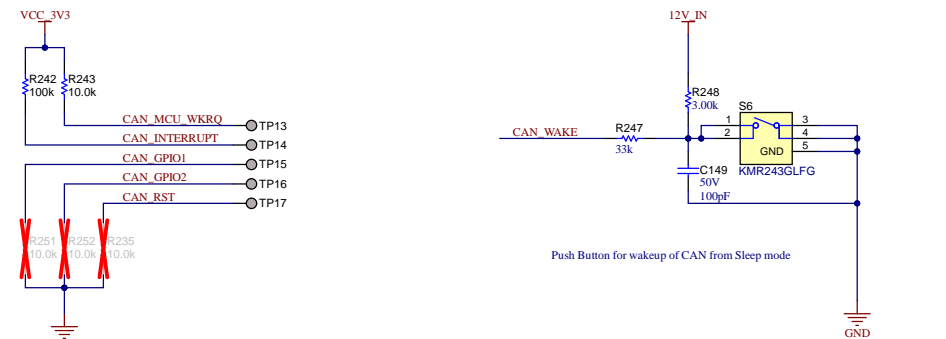
The CAN GPIO1 and WKRQ are connected to nERROR LED (GPIO\_4 and WU\_REQIN - pin K11)

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

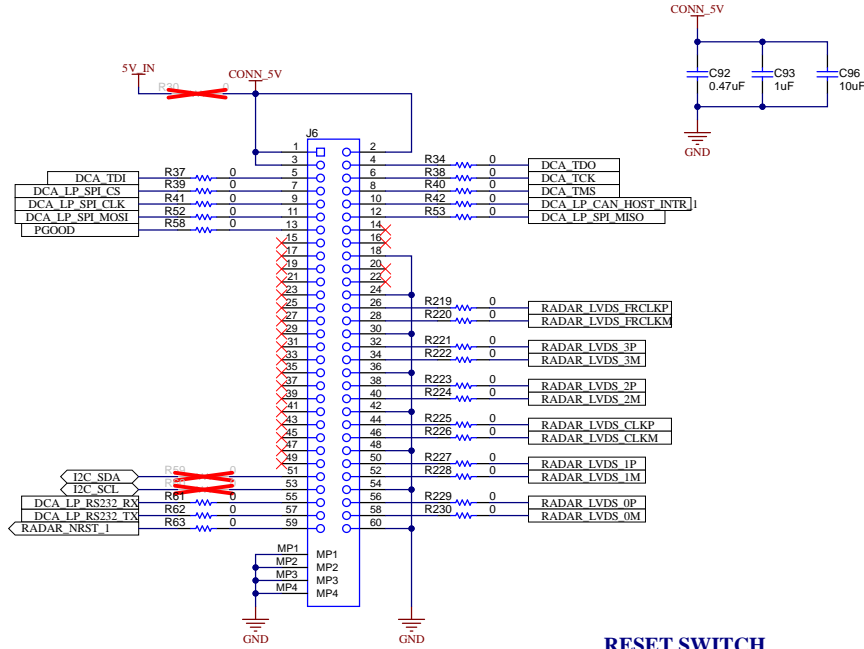


### Push Button for wakeup of CAN from Sleep mode

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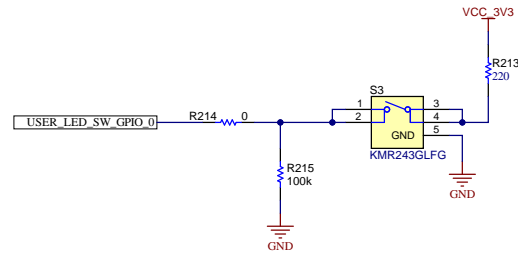
Order#: <b>WRLR1432BOOST-BSD</b>	Designed for: <b>Public Release</b>	Mod. Date: <b>12-10-2023</b>	 <b>TEXAS INSTRUMENTS</b>  <a href="http://www.ti.com">http://www.ti.com</a> © Texas Instruments 2023
TID #: <b>N/A</b>	Project Title: <b>xWRLR1432BOOST BSD</b>		
Version: <b>PROC176</b>	Rev: <b>A</b>	Sheet Title: <b>BLOCK Diagram</b>	
S/N: Rev: <b>3057</b>	Assembly Variant: <b>002 WRLR</b>		
Drawn by: <b>Mistral</b>	File: <b>PROC176A SPI CAN Section.SchDoc</b>	Sheet: <b>14 of 17</b>	
Engineer: <b>Mistral</b>	Contact: <b>http://www.ti.com/support</b>	Size: <b>B</b>	

## 60-PIN HD CONNECTOR FOR DCA1000

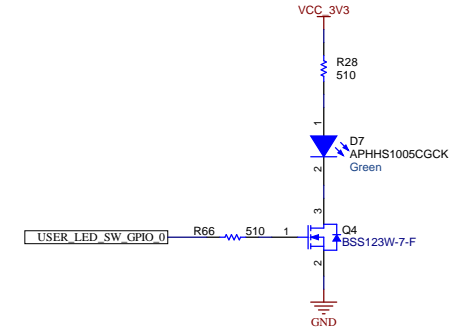


## RESET, USER LED & SWITCHES

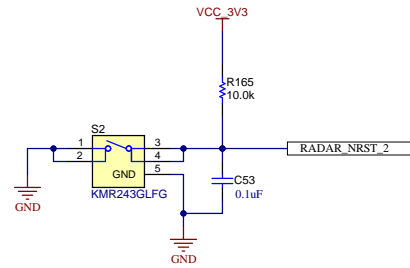
### USER SWITCH



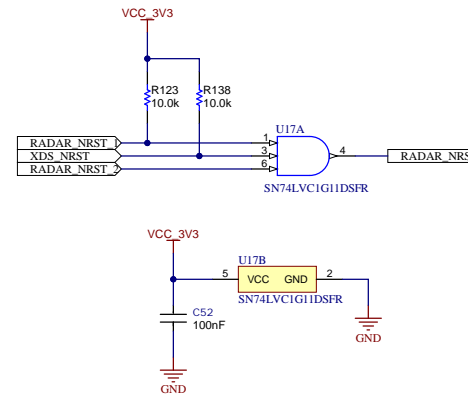
### USER LED



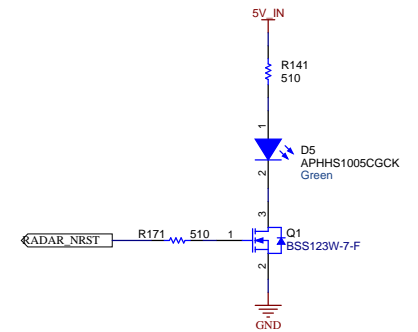
### RESET SWITCH



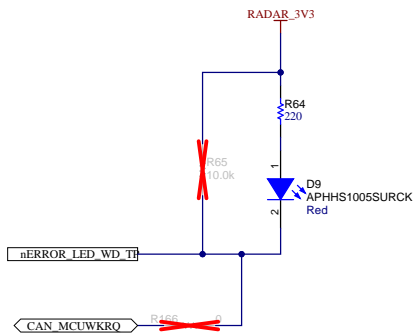
### RESET



### RESET LED



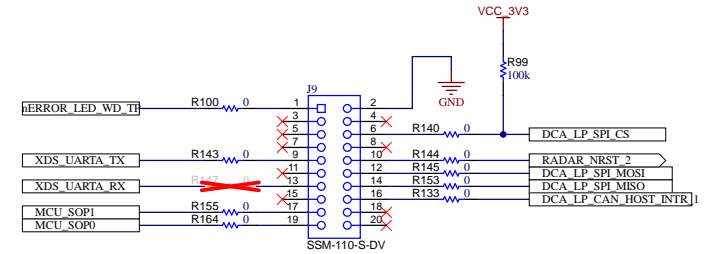
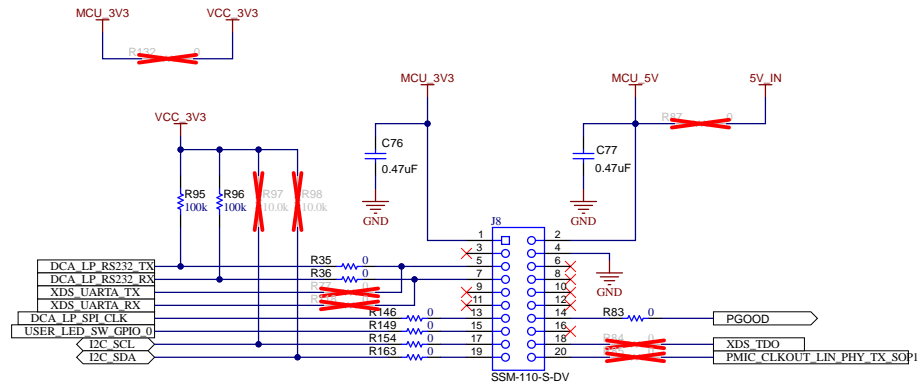
### nERROR LED



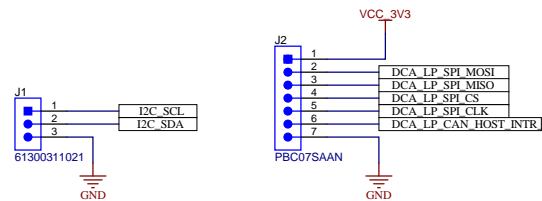
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Orderable: IWRL1432BOOST-BS	Designed for: Public Release	Mod. Date: 14-03-2024
TID #: N/A	Project Title: xWRL1432BOOST BSD	
Number: PROC176	Rev: A	Sheet Title: DCA1000 CONN RESET
SVN Rev: 3091	Assembly Variant: 002_IWR	Sheet 15 of 17
Drawn By: Mistral	File: PROC176A_DCA1000_Connector_Reset_Sch.Dwg	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	http://www.ti.com

## LP/BP CONNECTOR



## I2C & SPI HEADER FOR FTDI INTERFACE



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Orderable: IWRL1432BOOST-BS	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: 3057	Assembly Variant: 002_IWR	Sheet 16 of 17
Drawn By: Mistral	File: PROC176A_LP_BP_Connector_SchDoc	Size: B
Engineer: Mistral	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	





PCB Number: PROC176  
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	AWRL1432BOOST-BSD
002_IWR	IWRL1432BOOST-BSD

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.

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

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Order Number: <b>IWR1432BOOST-BSD</b>		Designed for: <b>Public Release</b>		Mod. Date: <b>20-03-2024</b>	
TID #: <b>N/A</b>		Project Title: <b>xWRL1432BOOST BSD</b>		 <b>TEXAS INSTRUMENTS</b>	
SVN Rev: <b>PROCT176</b> Rev: <b>A</b>		Sheet Title: <b>HARDWARE</b>			
Number: <b>3057</b> [Locally Modified]		Assembly Name: <b>002 IWR</b>		Sheet: <b>17 of 17</b>	
Drawn by: <b>Mistral</b>		File: <b>PROCT176A_EVM_Hardware_SchDoc</b>		Size: <b>B</b>	
Engineer: <b>Mistral</b>		Contact: <a href="http://www.ti.com">http://www.ti.com</a>		<a href="http://www.ti.com">http://www.ti.com</a>	
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