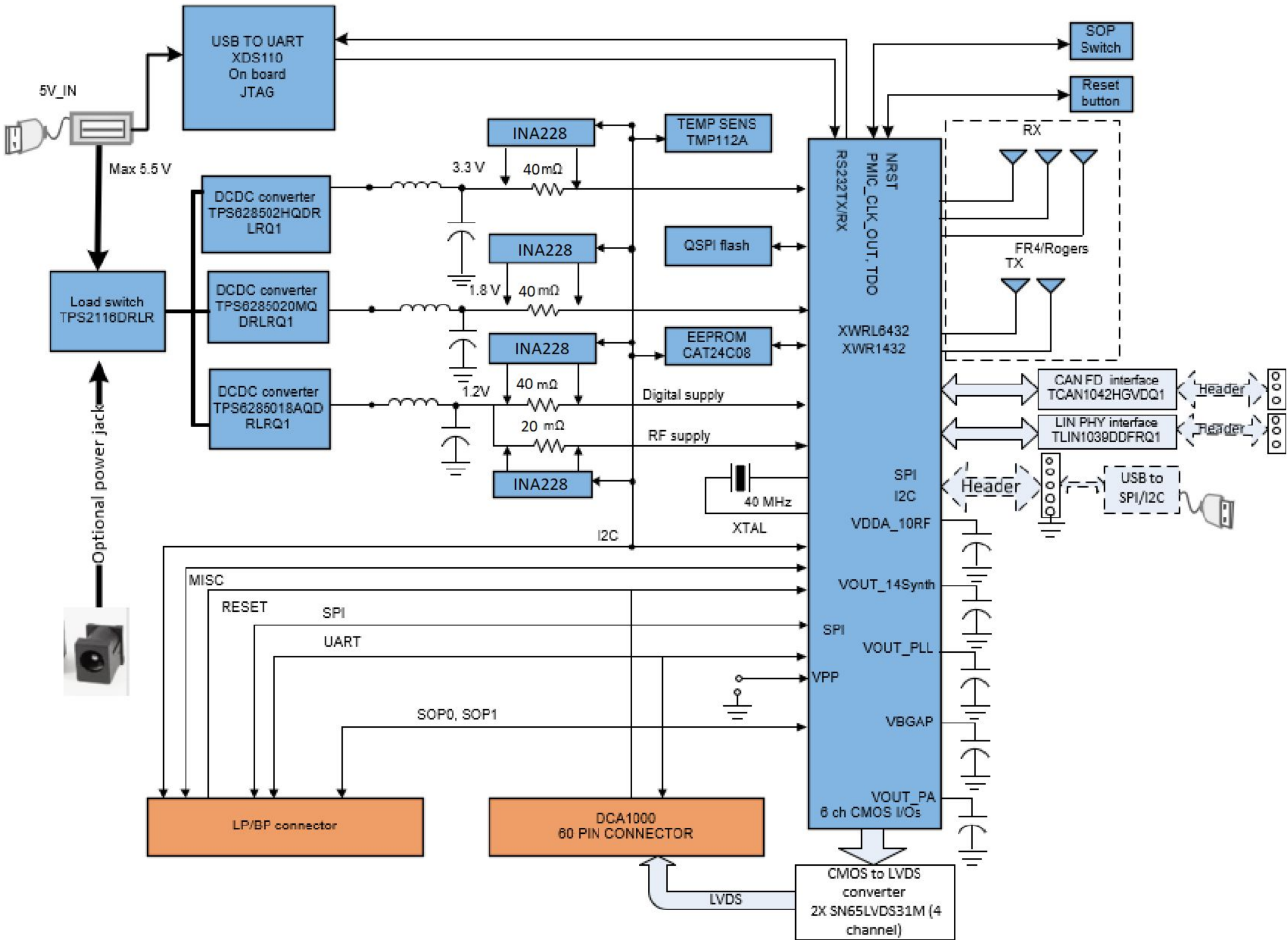


BLOCK DIAGRAM



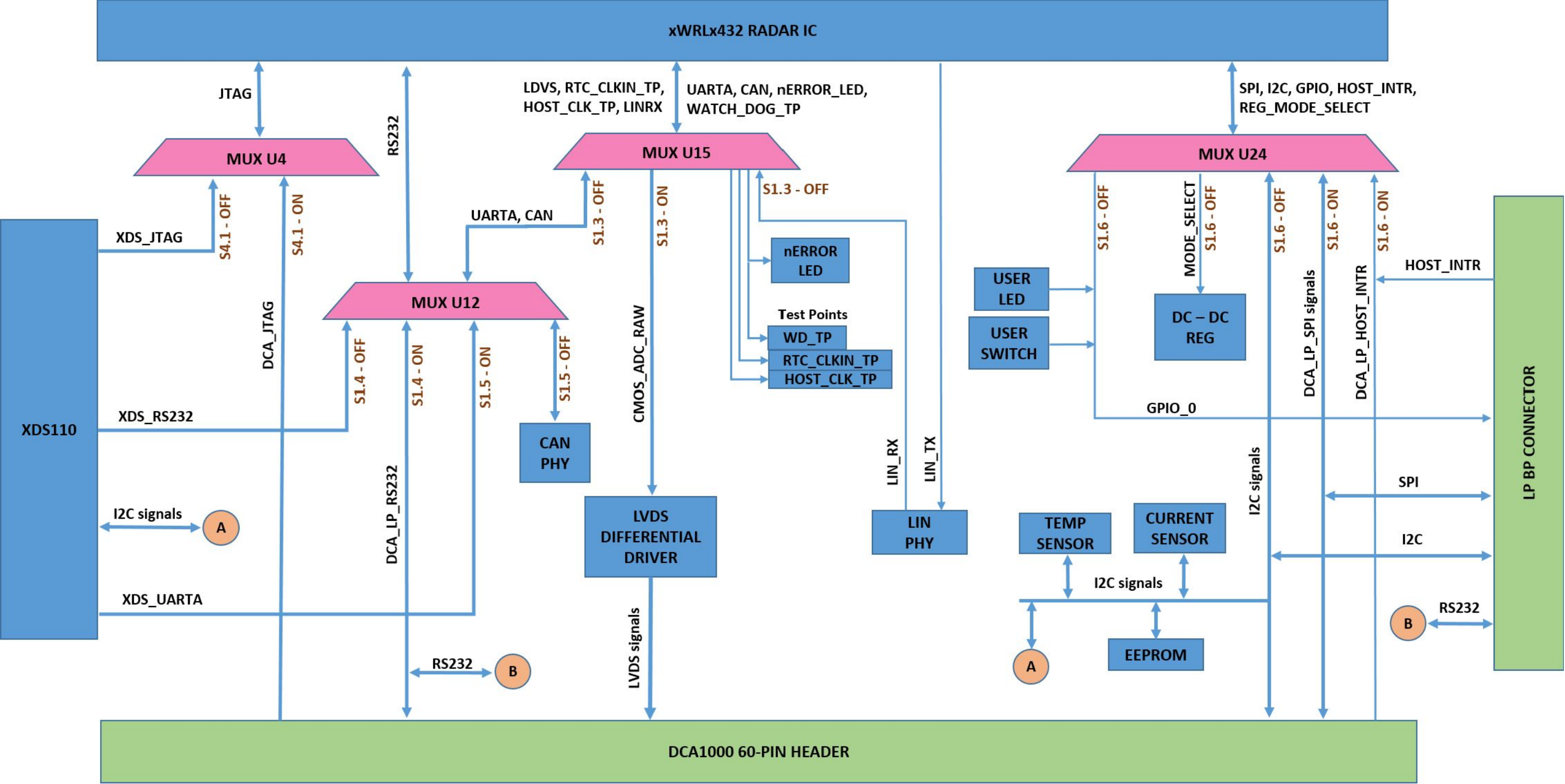
Revision History

Rev	ECN #	Approved Date	Approved by	Notes
B	1	16-Sep-22	Vivek	SOP0 net isolated from analog mux U4
B	2	16-Sep-22	Vivek	Reset circuit discrete components package changed from 0201 to 0402 (C53, R123, R138, R165)
B	3	16-Sep-22	Vivek	LIN header J4 changed from 3x1 to 4x1 5V net brought to J4 connector
B	4	16-Sep-22	Vivek	I2C bus isolated from DCA1000 connector R59 and R60 made DNI
B	5	16-Sep-22	Vivek	User LED D7 source changed from 5V_IN to VCC_3V3
B	6	16-Sep-22	Vivek	Added 2-Pos SPST switch for XDS I2C lines
B	7	07-Mar-23	Abhed	U6, U7, U8, U25 ICs changed from INA226AIDGST to INA228AIDGST R200, R192, R193 Changed from 2 mOhm to 40 mOhms part R134 Changed from 2 mOhms to 20 mOhms

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

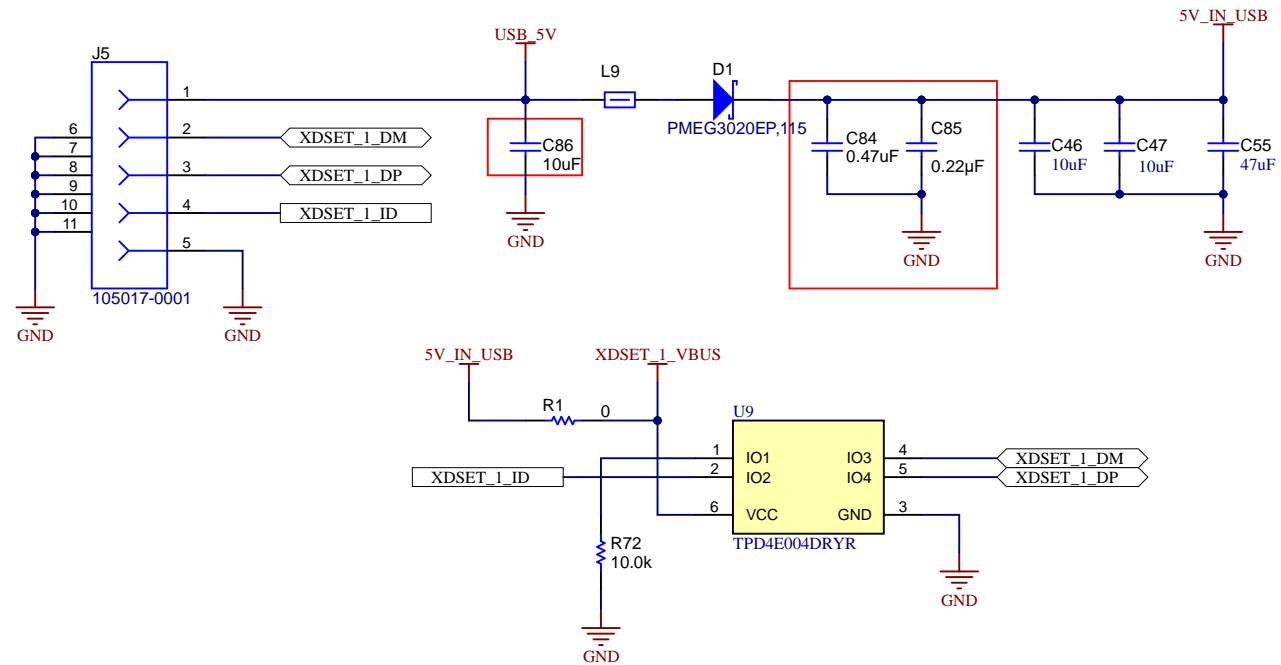
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular 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: AWRL1432BOOST	Designed for: Public Release	Mod. Date: 23-06-2023
TID #: N/A	Project Title: xWRL1432BOOST	
Number: PROC140	Rev: B	Sheet Title: TABLE OF CONTENTS
SVN Rev: Not in version control	Assembly Variant: 001_AWR	Sheet: 3 of 16
Drawn By: Mistral	File: PROC140B_Table_Of_Contents.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

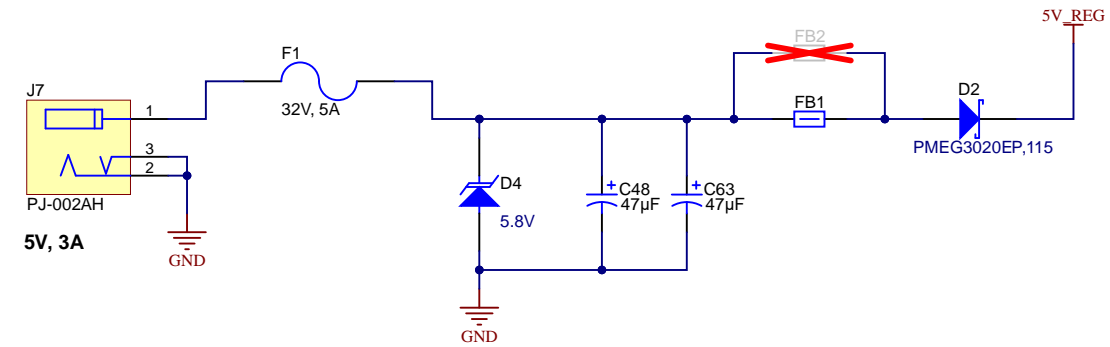
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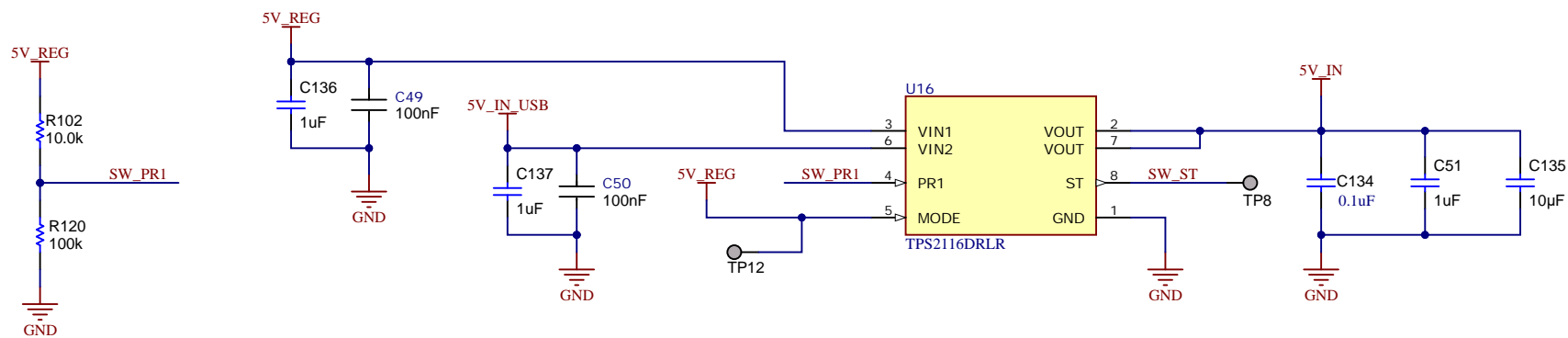
USB CONNECTOR



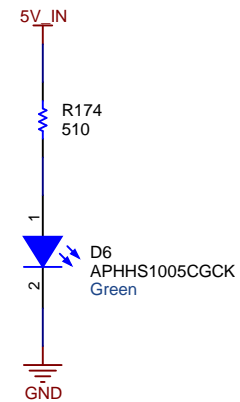
DC JACK



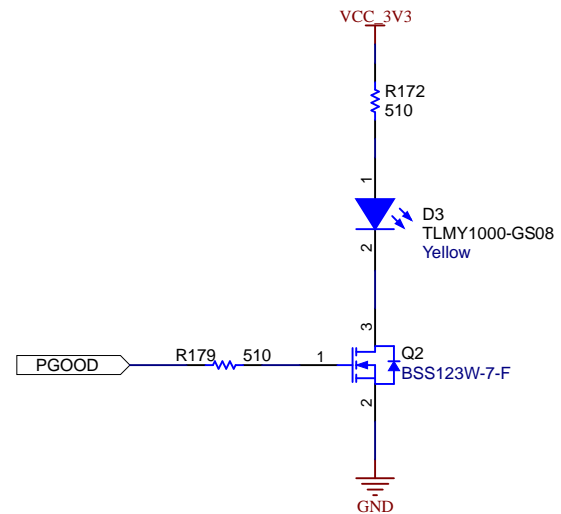
POWER LOAD SWITCH



5V LED INDICATION



PGOOD LED

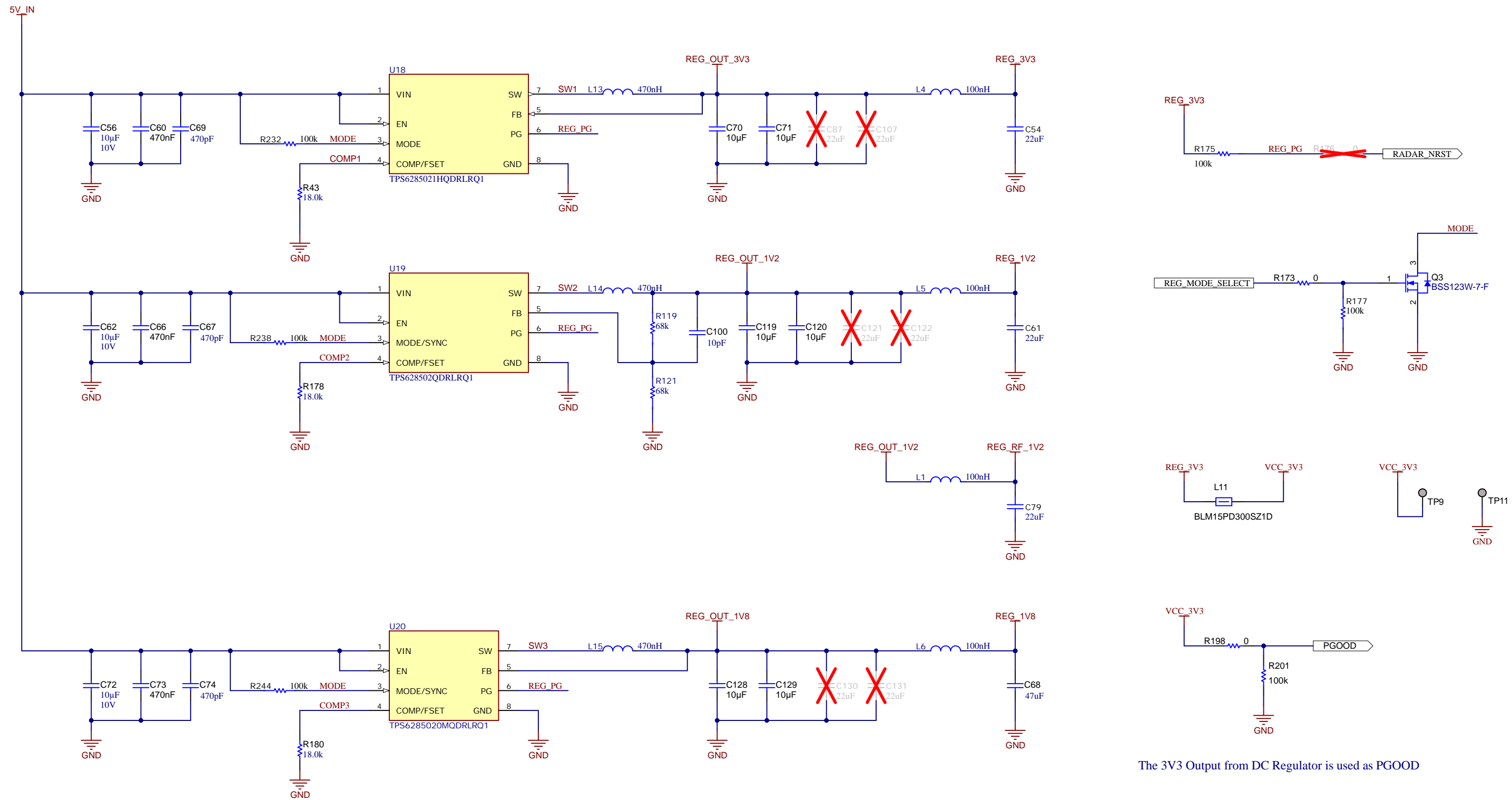


Mode : Priority Mode

If VPR1 is high ($V_{PR1} > V_{REF}$), then $V_{out} = V_{in1}$

If VPR1 is low ($V_{PR1} < V_{REF}$), then $V_{out} = V_{in2}$

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



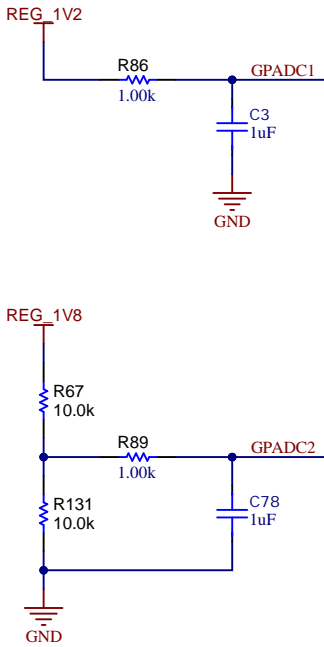
CAD NOTE : Place all Input & Output Decaps close to Regulator Pins - U[18:20]

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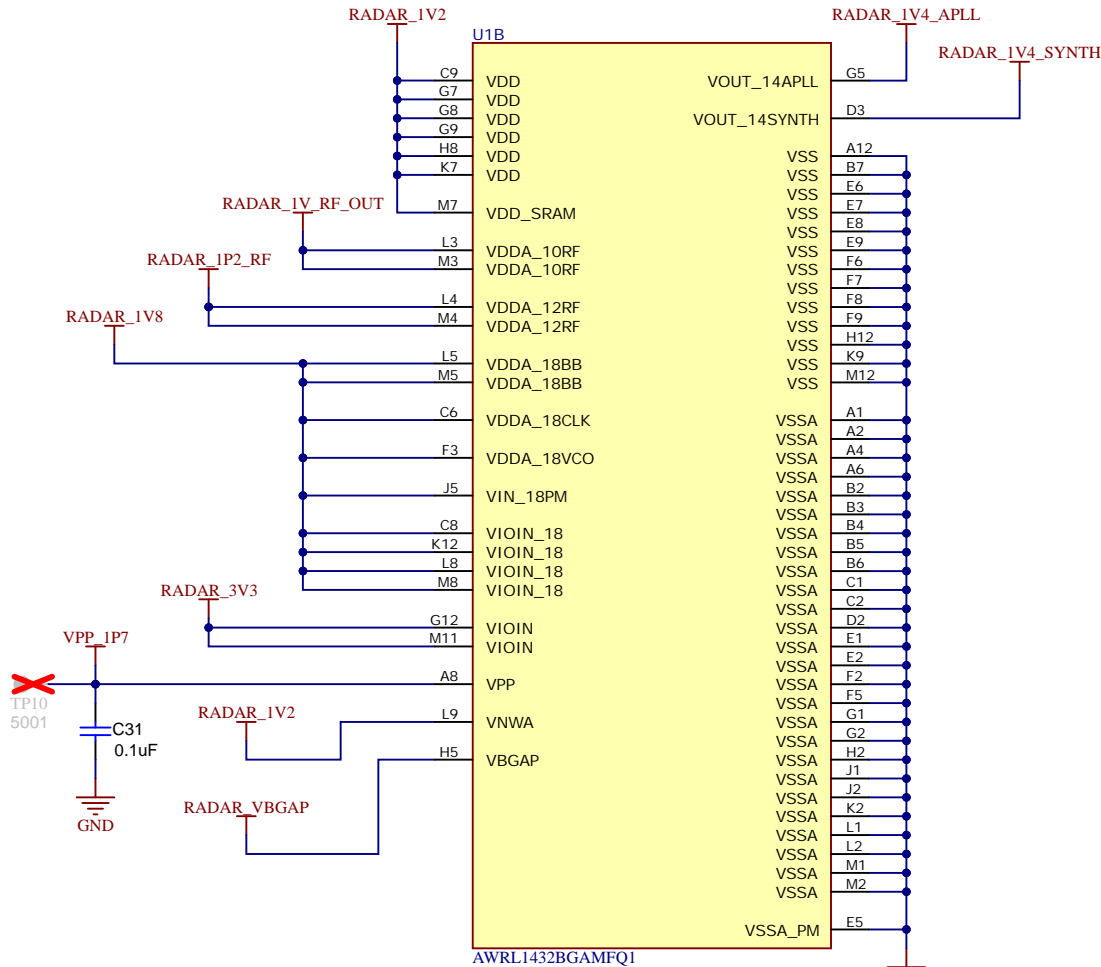
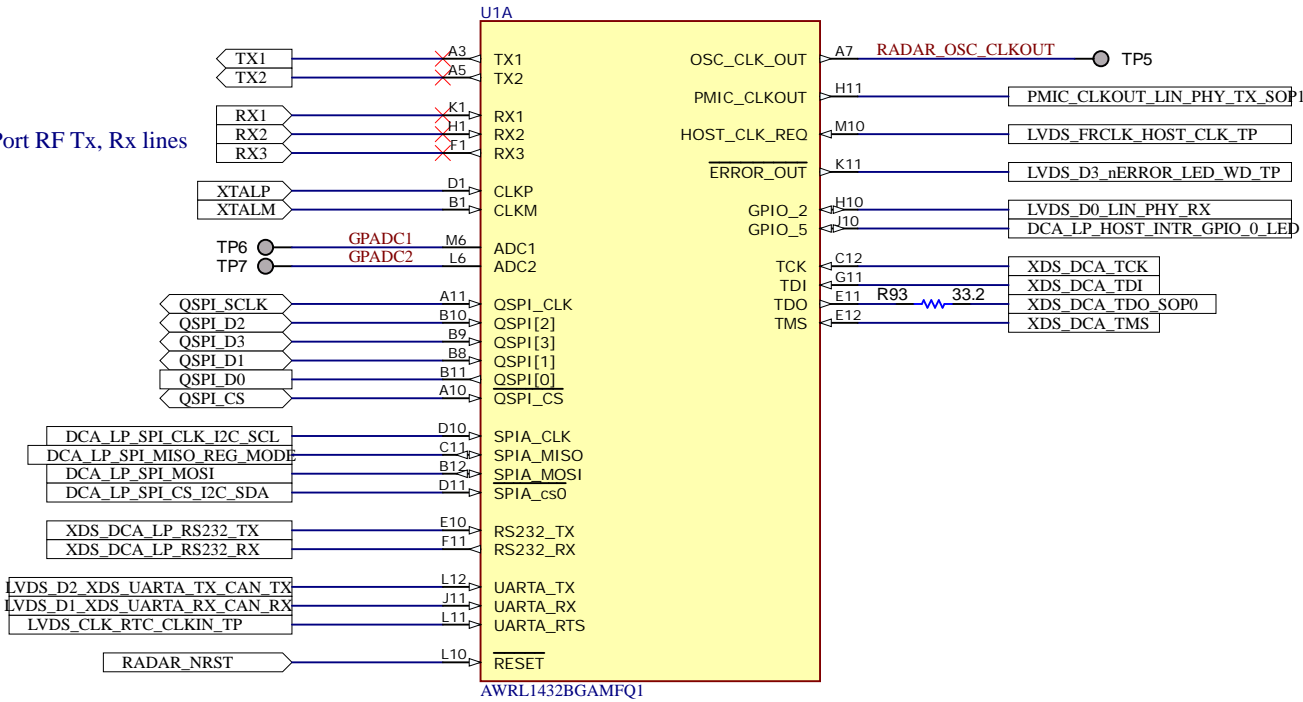
Orderable: AWRL1432BOOST	Designed for: Public Release	Mod. Date: 23-06-2023
TID #: N/A	Project Title: xWRL1432BOOST	
Number: PROC140	Rev: B	Sheet Title: DC REGULATORS
SVN Rev: Not in version control	Assembly Variant: 001_AWR	Sheet: 5 of 16
Drawn By: Mistral	File: PROC140B_DC_Regulators.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

xWRL1432 CHIP

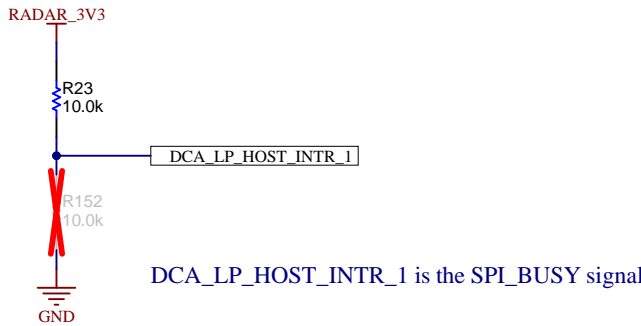
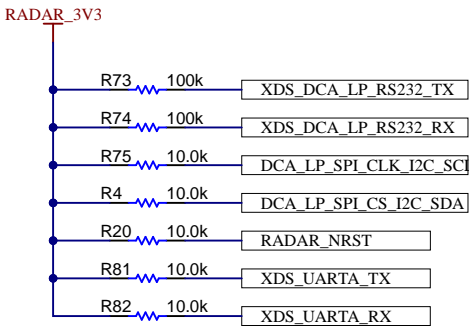
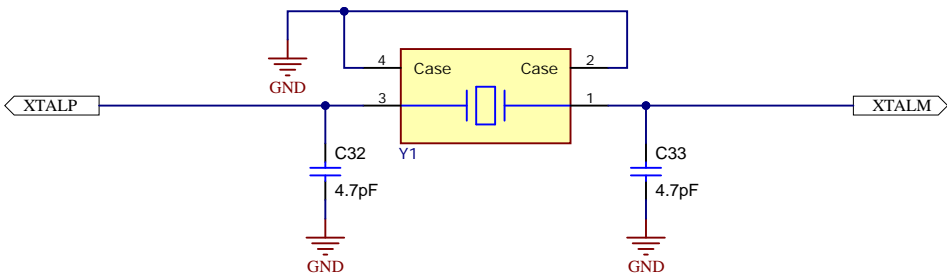
Design Note:
1. Antenna traces are GCPW traces
2. 'Generic No ERCs' were placed intentionally on Single Port RF Tx, Rx lines



CAD Note: Place C3 and C78 close to xWRLx432S IC



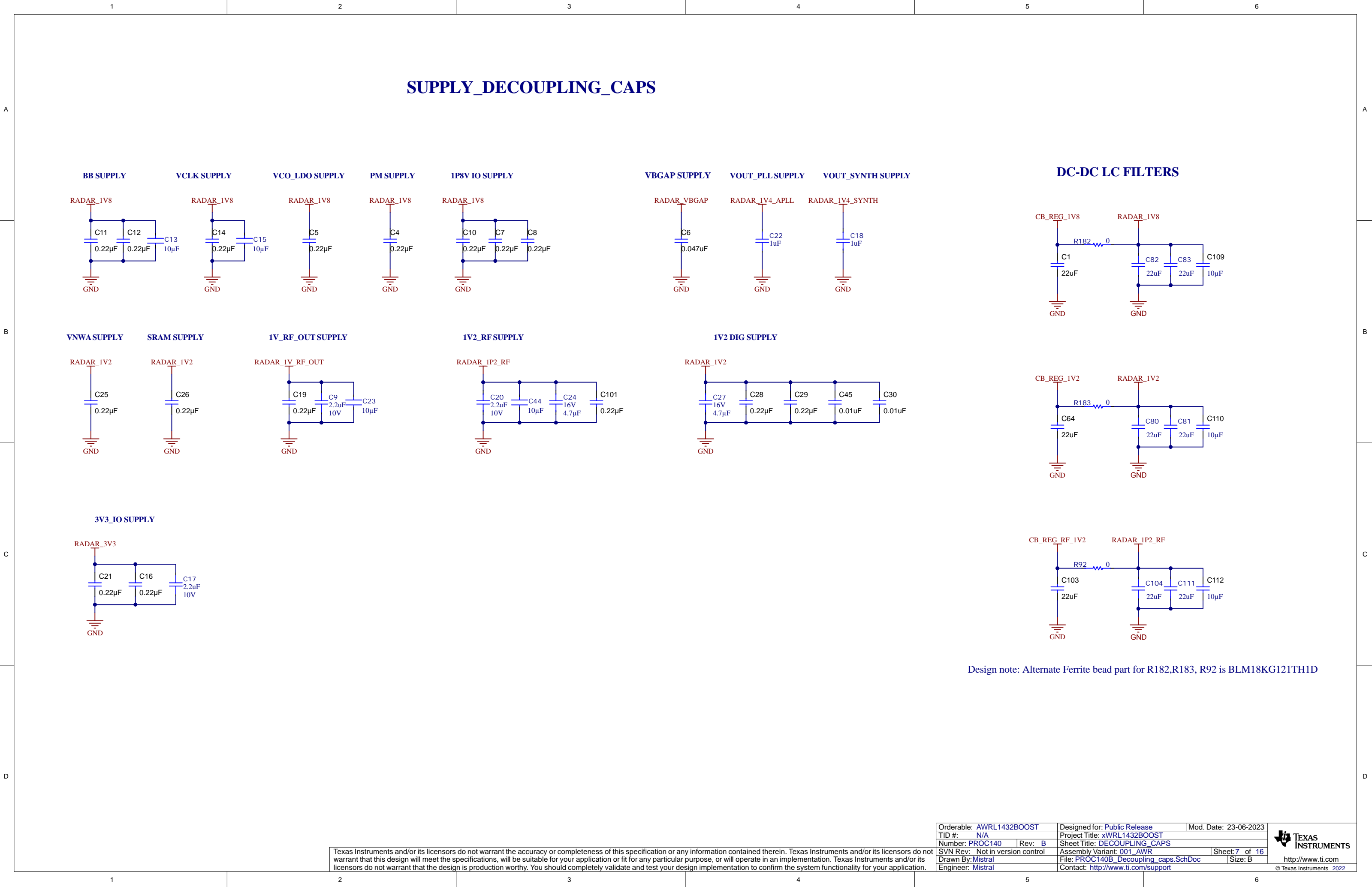
40 MHz CRYSTAL OSCILLATOR



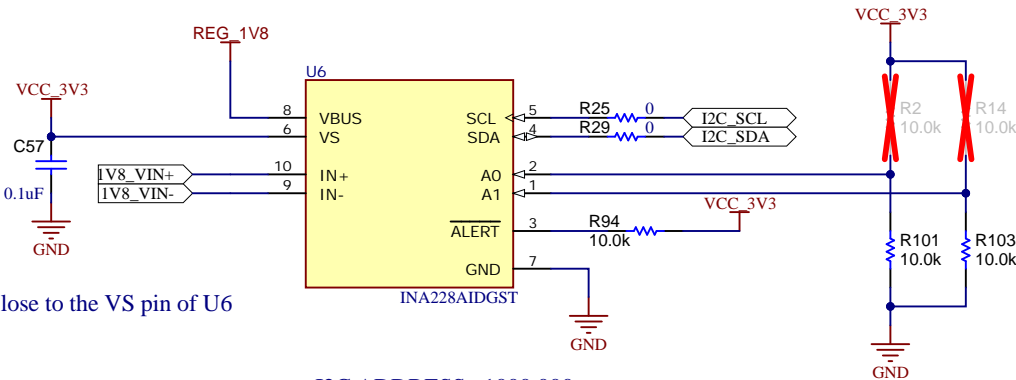
DCA_LP_HOST_INTR_1 is the SPI_BUSY signal

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Orderable: AWRL1432BOOST	Designed for: Public Release	Mod. Date: 23-06-2023
TID #: N/A	Project Title: xWRL1432BOOST	
Number: PROC140	Rev: B	Sheet Title: xWRL1432_CHIP
SVN Rev: Not in version control	Assembly Variant: 001_AWR	Sheet: 6 of 16
Drawn By: Mistral	File: PROC140B_xWRL1432_Chip.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

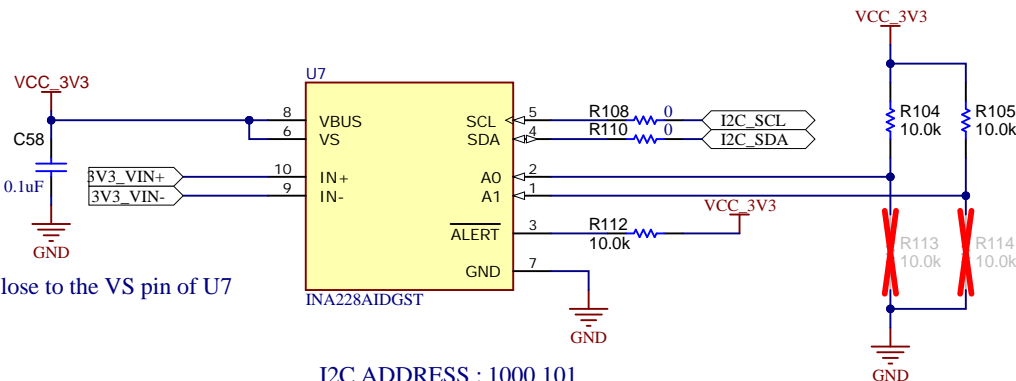


CURRENT SENSORS



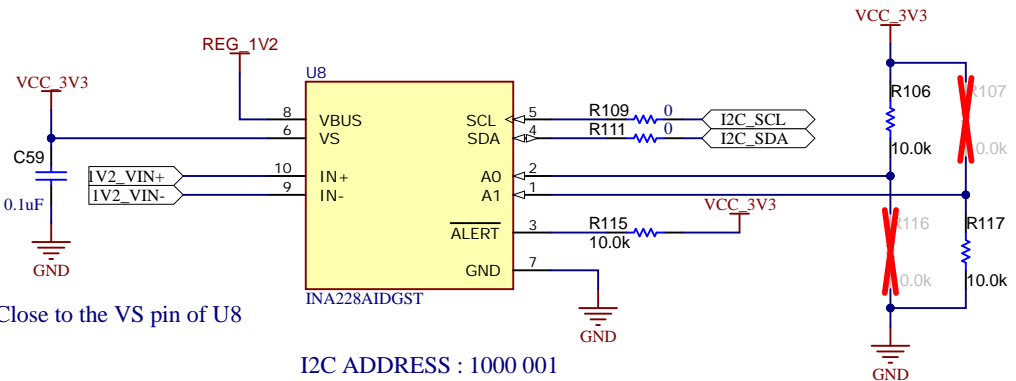
Place C57 Close to the VS pin of U6

I2C ADDRESS : 1000 000



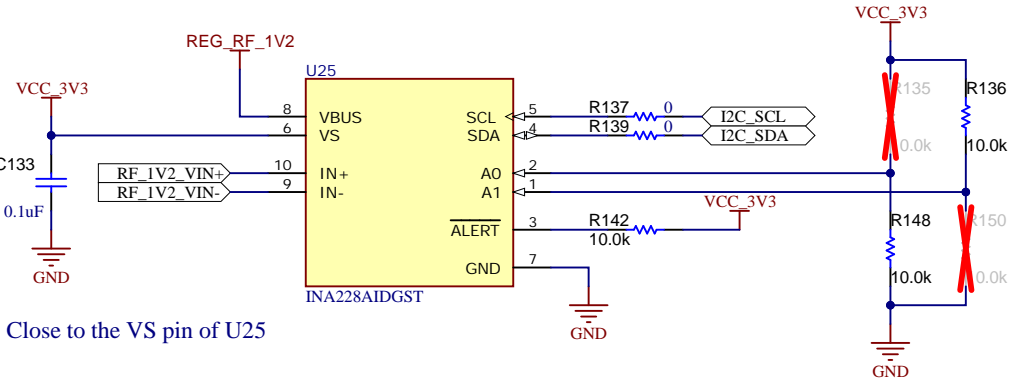
Place C58 Close to the VS pin of U7

I2C ADDRESS : 1000 101



Place C59 Close to the VS pin of U8

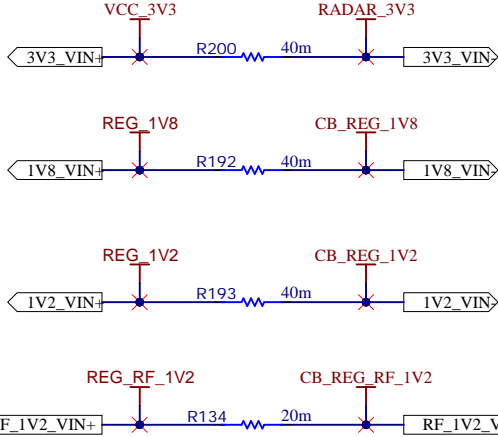
I2C ADDRESS : 1000 001



Place C133 Close to the VS pin of U25

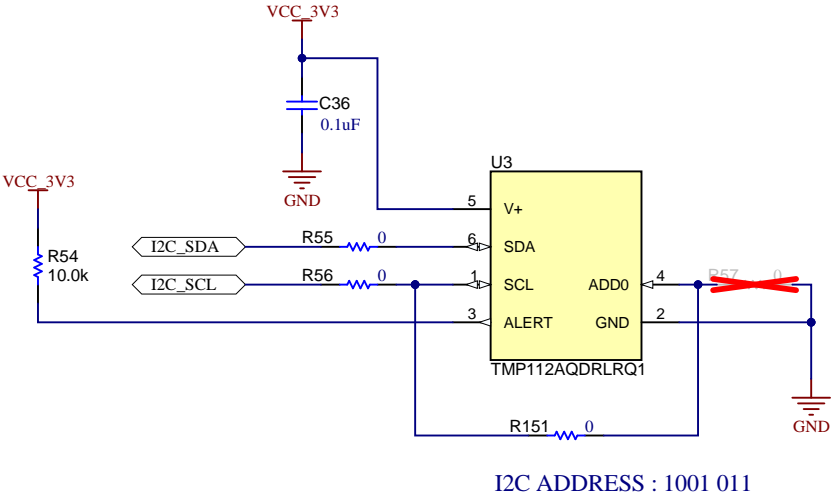
I2C ADDRESS : 1000 100

CURRENT SENSE RESISTORS



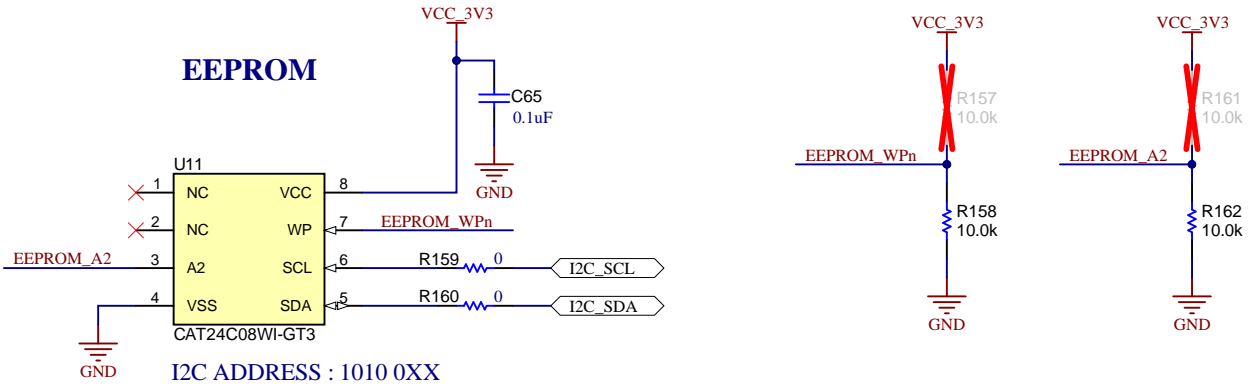
Design Note: 'Generic No ERCs' were placed intentionally on either sides of Current sense resistors

TEMPERATURE SENSOR



I2C ADDRESS : 1001 011

EEPROM



I2C ADDRESS : 1010 0XX

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Orderable: AWRL1432BOOST	Designed for: Public Release	Mod. Date: 23-06-2023
TID #: N/A	Project Title: xWRL1432BOOST	
Number: PROC140	Rev: B	Sheet Title: TEMP_CURRENT_SENSORS_EEPROM
SVN Rev: Not in version control	Assembly Variant: 001_AWR	Sheet: 8 of 16
Drawn By: Mistral	File: PROC140B_Temp_Current_Sensors and EEPROM_SchDoc	
Engineer: Mistral	Contact: http://www.ti.com/support	

A

B

C

D

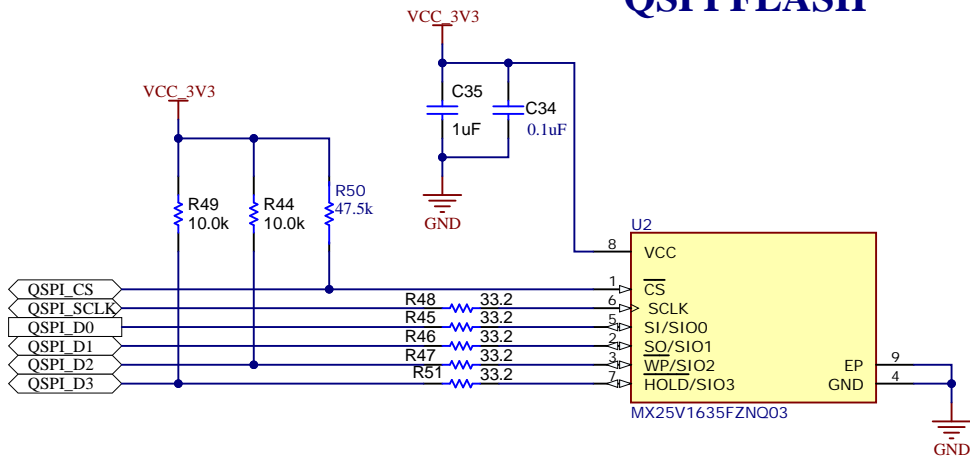
A

B

C

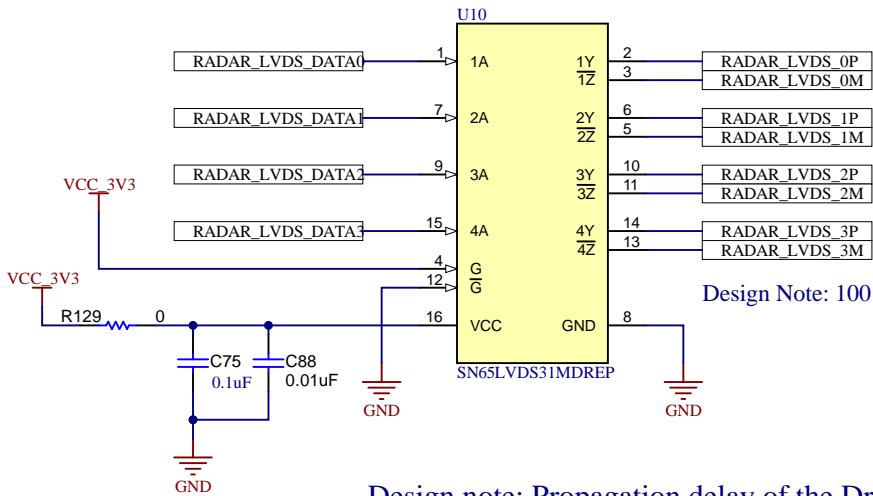
D

QSPI FLASH



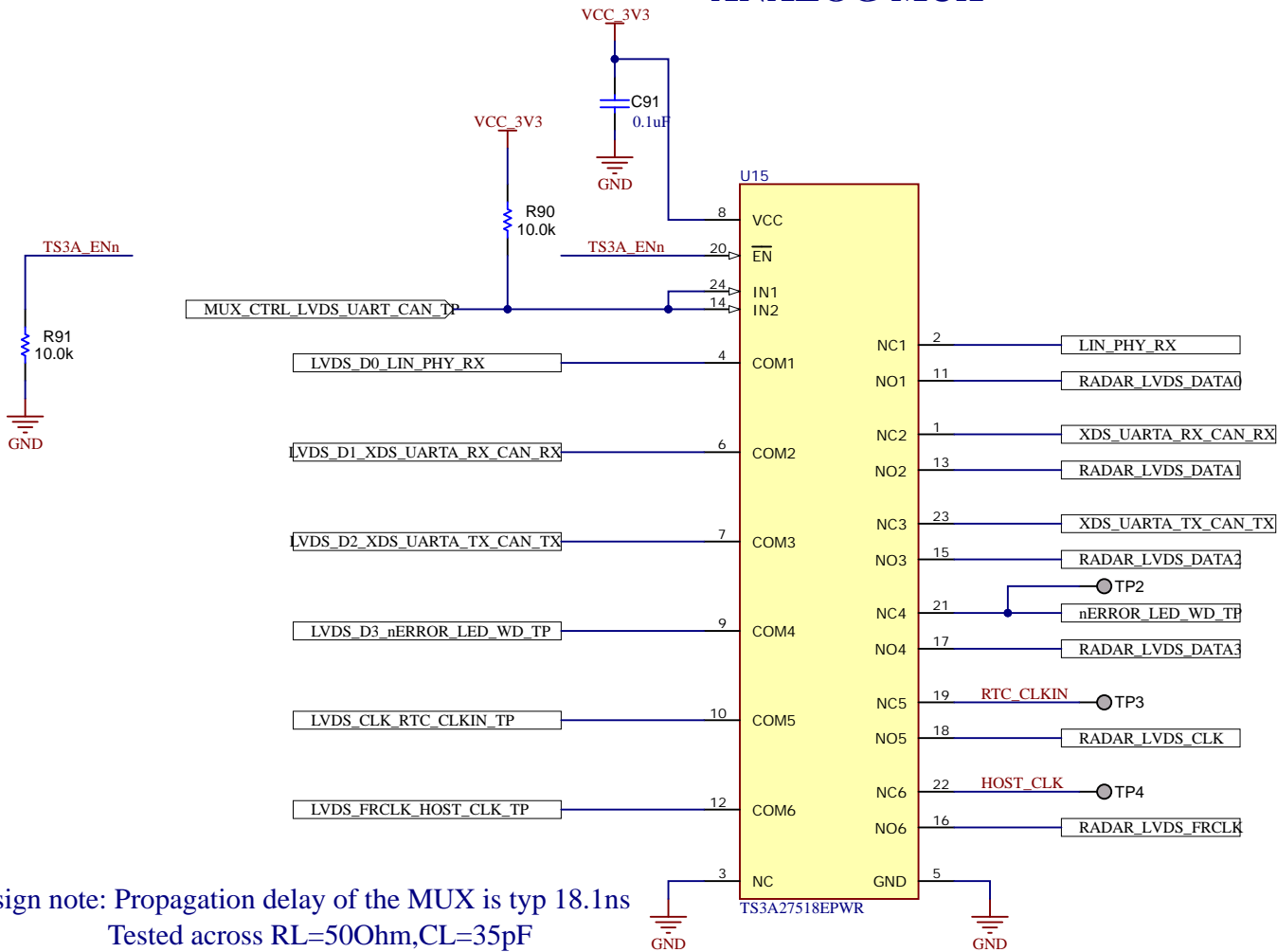
Design note: Alternate Flash part is MX25V1635FZNQ

DIFFERENTIAL LVDS DRIVER

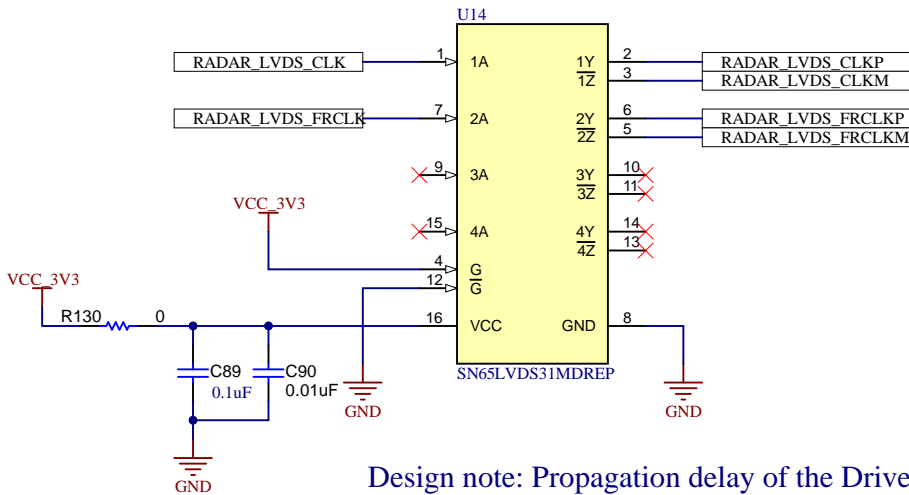


Design note: Propagation delay of the Driver is typ 1.4 ns

ANALOG MUX

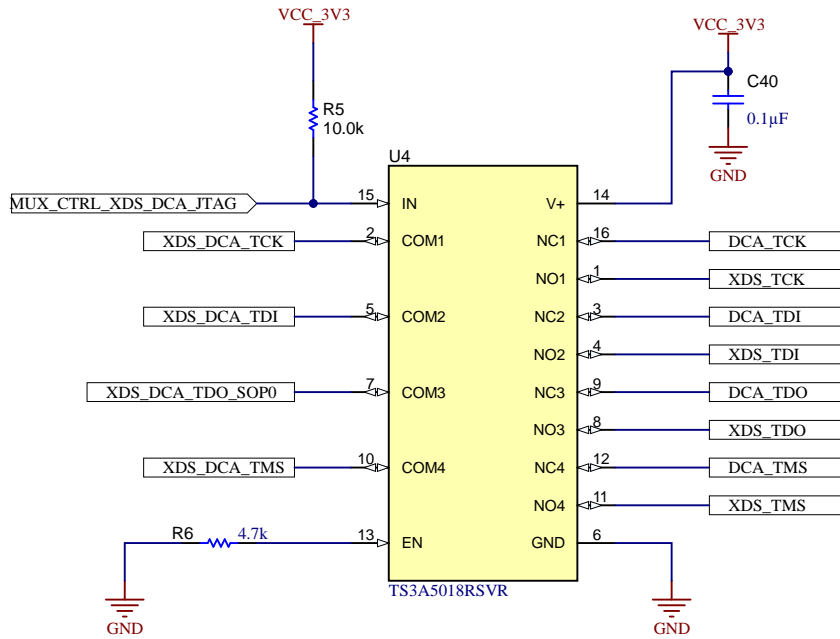


Design note: Propagation delay of the MUX is typ 18.1ns
Tested across RL=500hm,CL=35pF

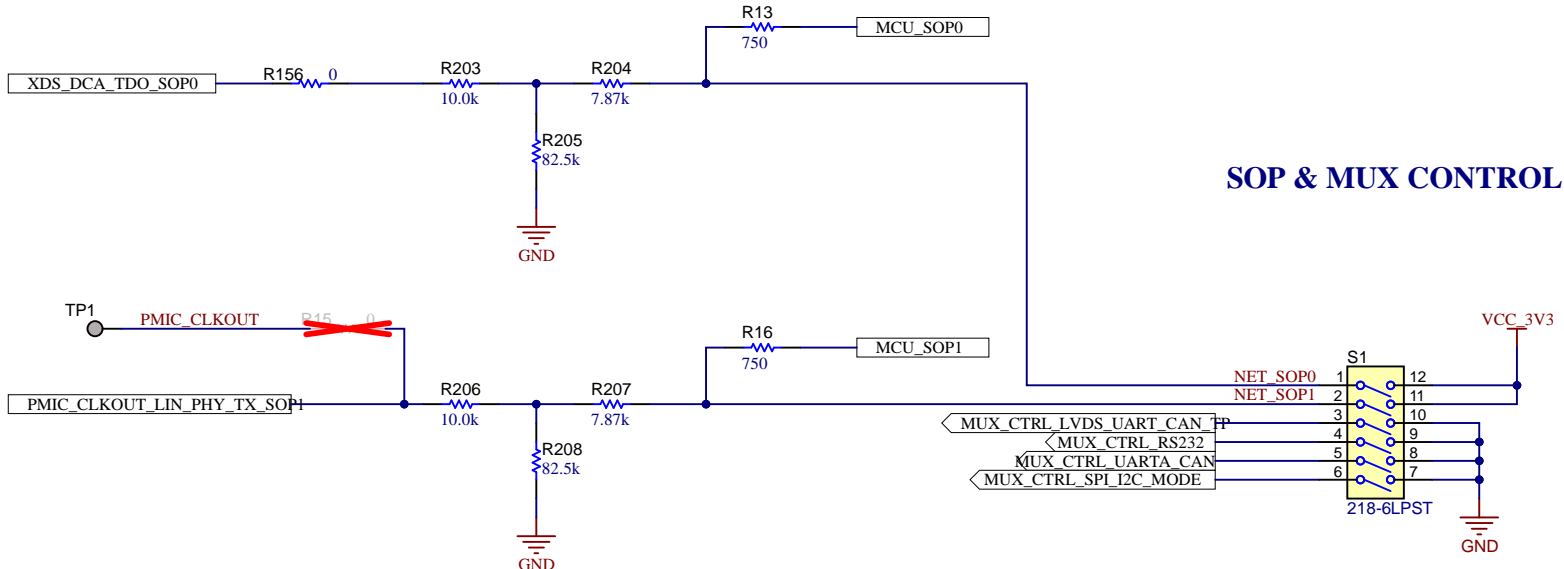


Design note: Propagation delay of the Driver is typ 1.4 ns

ANALOG MUX



SOP & MUX CONTROL



SOP CONFIGURATION

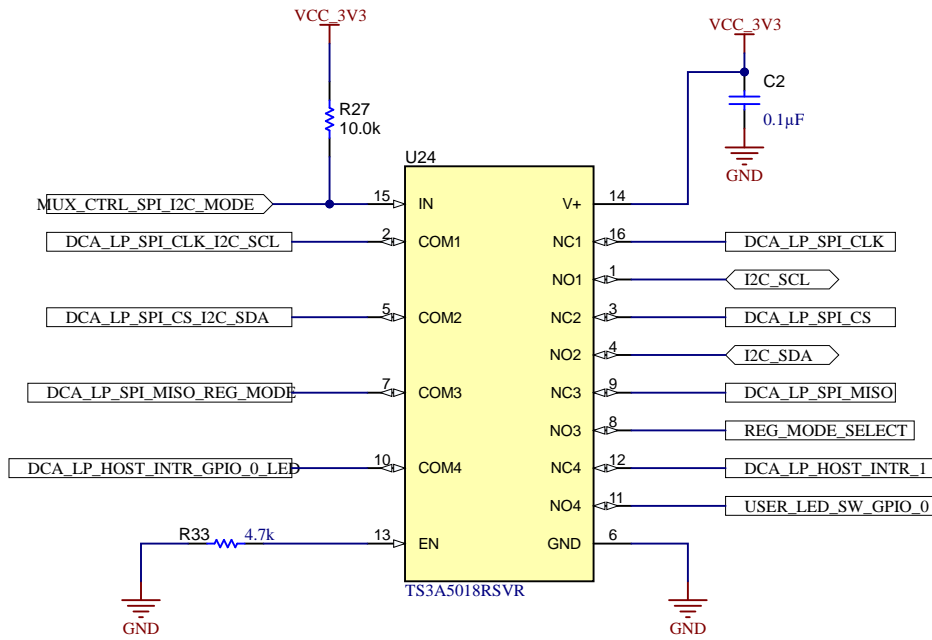
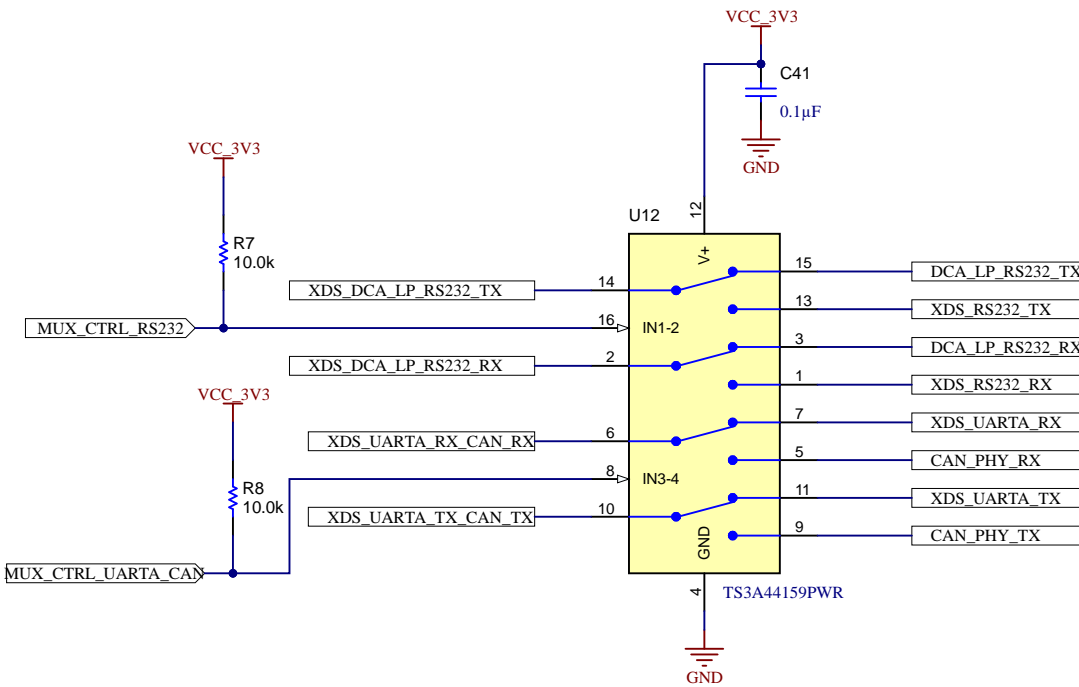
SOP Mode	PMIC_CLK_OUT, TDO	Combination (S1.2, S1.1)
SOP_MODE1	Device Management Mode	0 0
SOP_MODE2	Application Mode / Functional Mode	0 1
SOP_MODE3	Test mode	1 0
SOP_MODE4	Debug Mode	1 1

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

CONTROL TABLE

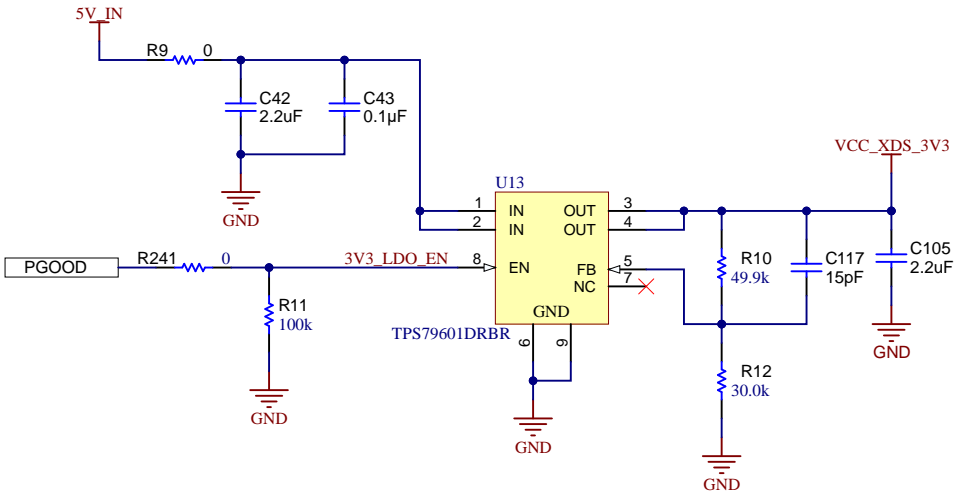
	Switch Position OFF	Switch Position ON
S4.2	CAN PHY : Stand-by Mode Disable	CAN PHY : Stand-by Mode Enable
S4.3	LIN PHY : Enable	LIN PHY : Disable



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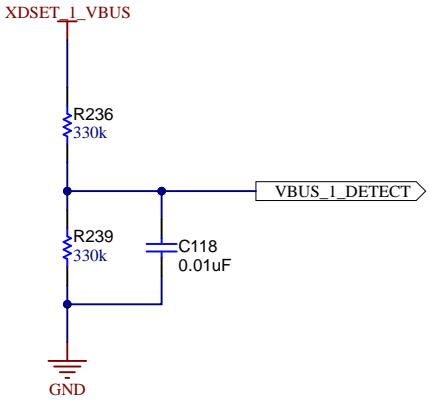
XDS110(1/2)

5V TO 3.3V LDO

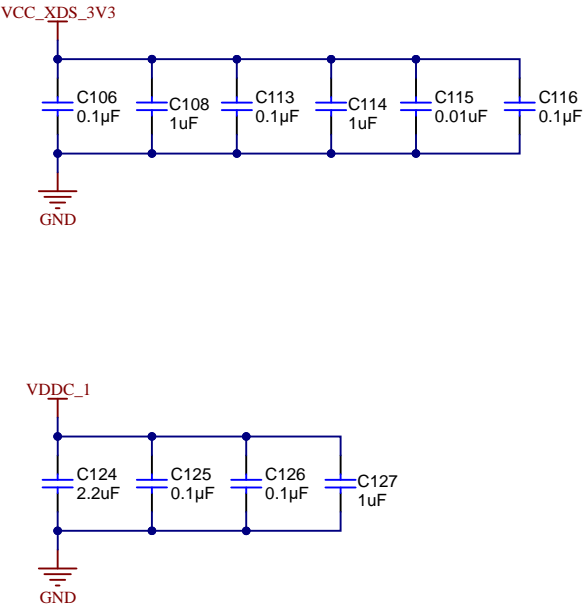


By Default LDO is disabled
When 3V3 DC-DC regulator is powered up, then it gets enabled

VBUS_DETECT

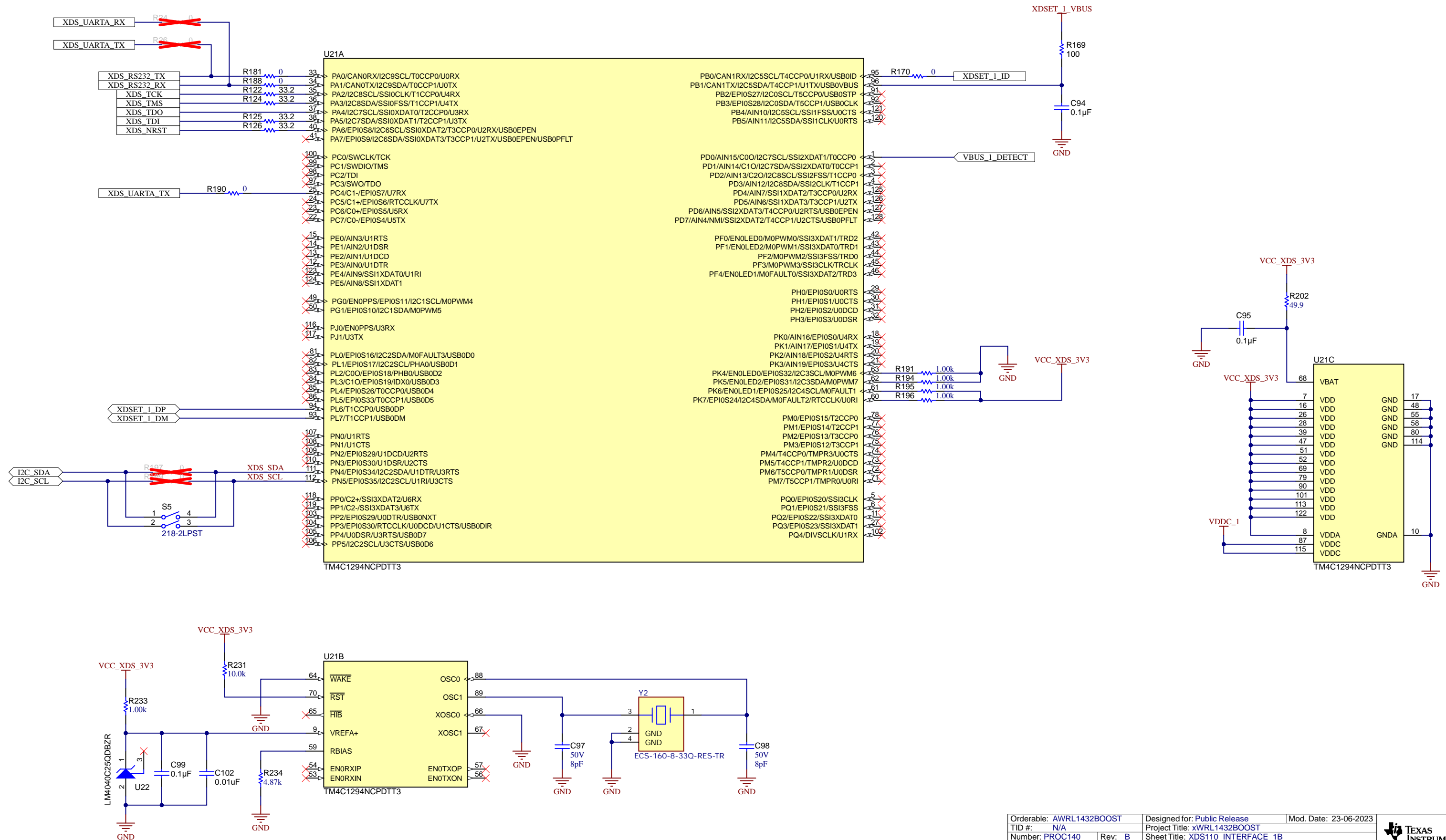



DECOUPLING CAPACITORS - XDS110



Orderable: AWRL1432BOOST		Designed for: Public Release	Mod. Date: 23-06-2023
TID #: N/A		Project Title: xWRL1432BOOST	
Number: PROC140	Rev: B	Sheet Title: XDS110_INTERFACE_1A	
SVN Rev: Not in version control		Assembly Variant: 001_AWR	Sheet: 11 of 16
Drawn By: Mistral		File: PROC140B_XDS110_Interface_1A.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

XDS110(2/2)



Orderable: AWRL1432BOOST	Designed for: Public Release	Mod. Date: 23-06-2023	 TEXAS INSTRUMENTS http://www.ti.com © Texas Instruments 2022
TID #: N/A	Project Title: xWRL1432BOOST		
Number: PROC140	Rev: B	Sheet Title: XDS110_INTERFACE_1B	
SVN Rev: Not in version control	Assembly Variant: 001_AWR	Sheet: 12 of 16	
Drawn By: Mistral	File: PROC140B_XDS110_Interface_1B.SchDoc	Size: B	
Engineer: Mistral	Contact: http://www.ti.com/support		

A

A

B

B

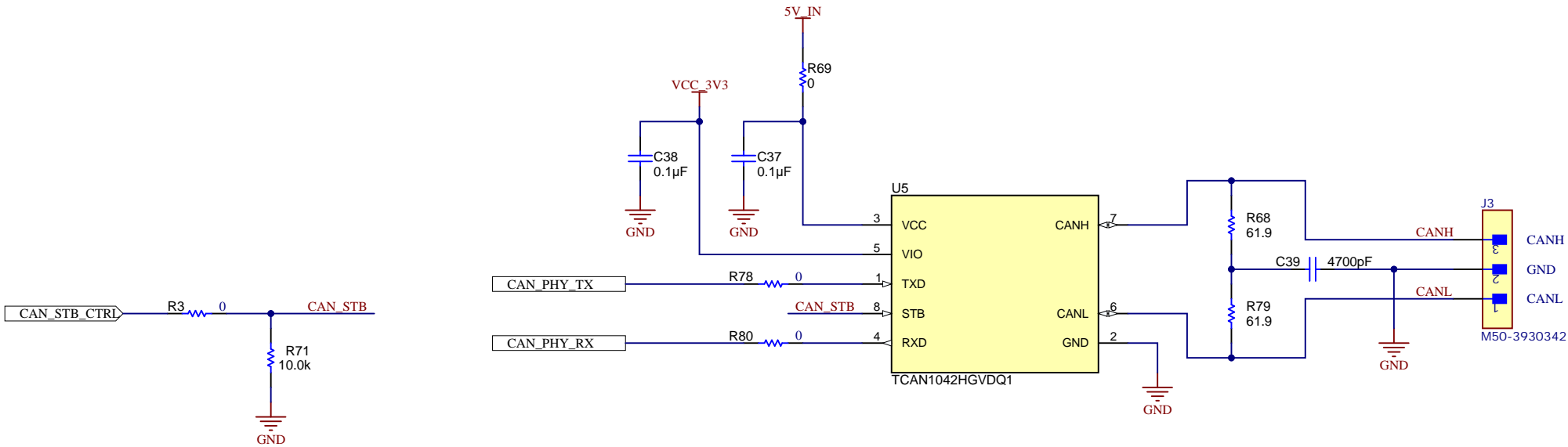
C

C

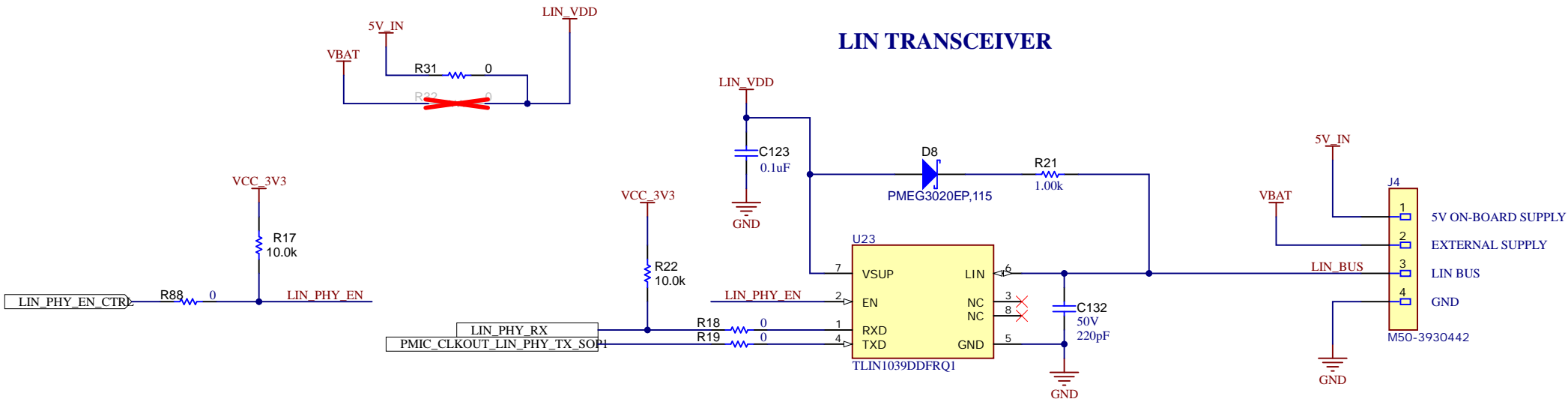
D

D

CAN TRANSCEIVER



LIN TRANSCEIVER



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Orderable: AWRL1432BOOST	Designed for: Public Release	Mod. Date: 23-06-2023
TID #: N/A	Project Title: xWRL1432BOOST	
Number: PROC140	Rev: B	Sheet Title: CAN LIN PHY INTERFACE
SVN Rev: Not in version control	Assembly Variant: 001_AWR	Sheet: 13 of 16
Drawn By: Mistral	File: PROC140B_CAN_LIN_PHY_Interface.SchDoc	Size: B
Engineer: Mistral	Contact: http://www.ti.com/support	

A



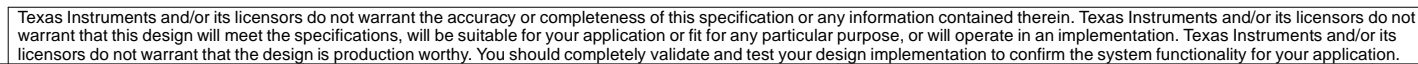
A

E

C

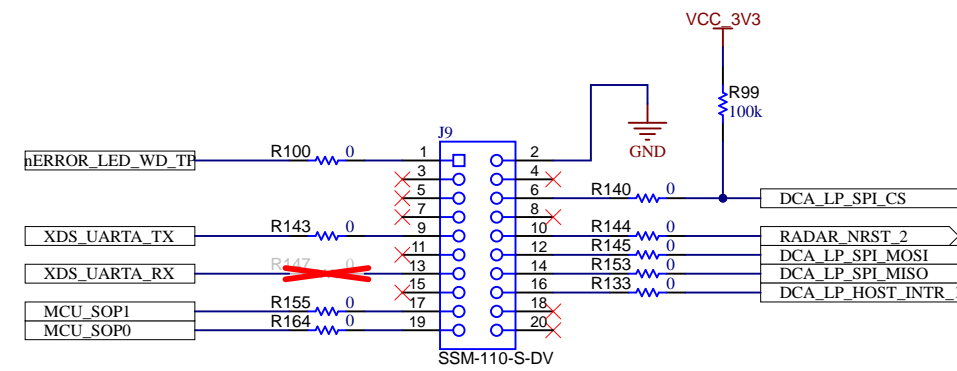
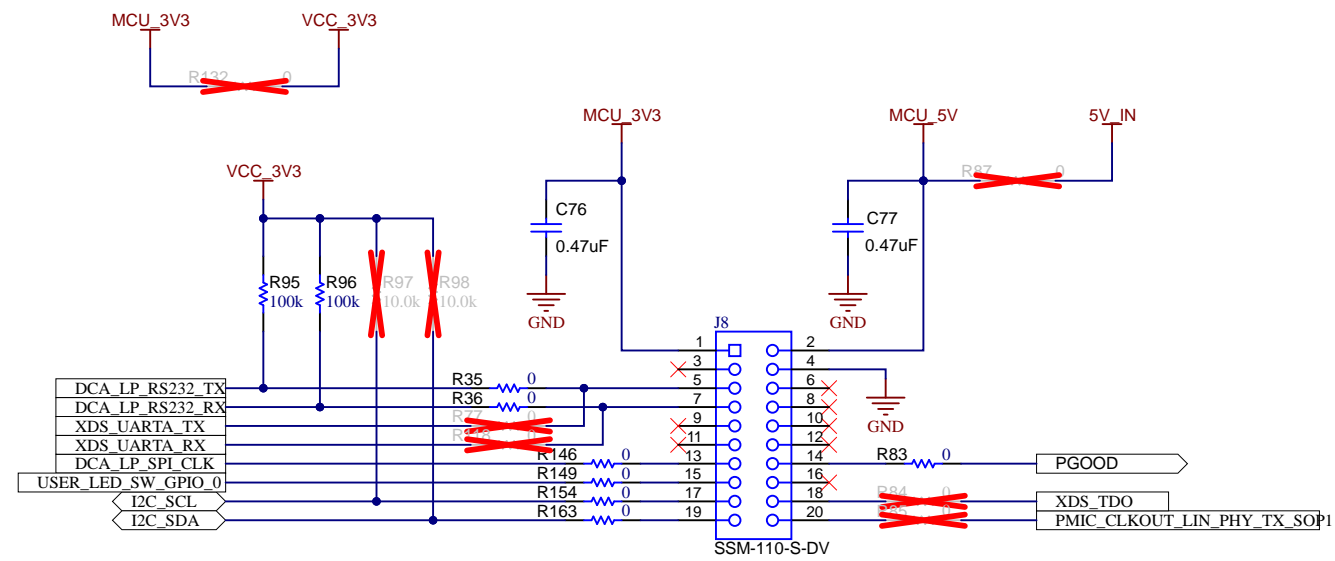


C

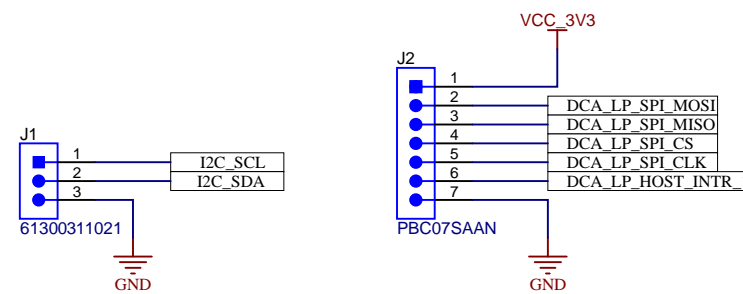


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LP/BP CONNECTOR



I2C & SPI HEADER FOR FTDI INTERFACE





PCB Number: PROC140
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_AWR	AWRL1432BOOST
002_IWR	IWRL1432BOOST

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: AWRL1432BOOST		Designed for: Public Release	Mod. Date: 23-06-2023
TID #: N/A		Project Title: xWRL1432BOOST	
Number: PROC140	Rev: B	Sheet Title: HARDWARE	
SVN Rev: Not in version control		Assembly Variant: 001_AWR	Sheet: 16 of 16
Drawn By: Mistral		File: PROC140B_EVM_Hardware.SchDoc	Size: B
Engineer: Mistral		Contact: http://www.ti.com/support	

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