

Revision History

Rev	ECN #	Approved Date	Approved by	Notes
REV A	01	05-Jul-2023		Updated RevD AWR2944EVM Design
REV A	02	01-Aug-2023		R18 Made Mountable and R55 as DNP
REV A	03	07-Nov-2023		L10 & L13 Replaced with 0 Ohm R192 & R193 D11,C156,C162,C155,C166,C167,D14,D10 part numbers updated R132 made mountable for Tx path 0.5 ns delay

AWR2544 LOP EVM BLOCK DIAGRAM

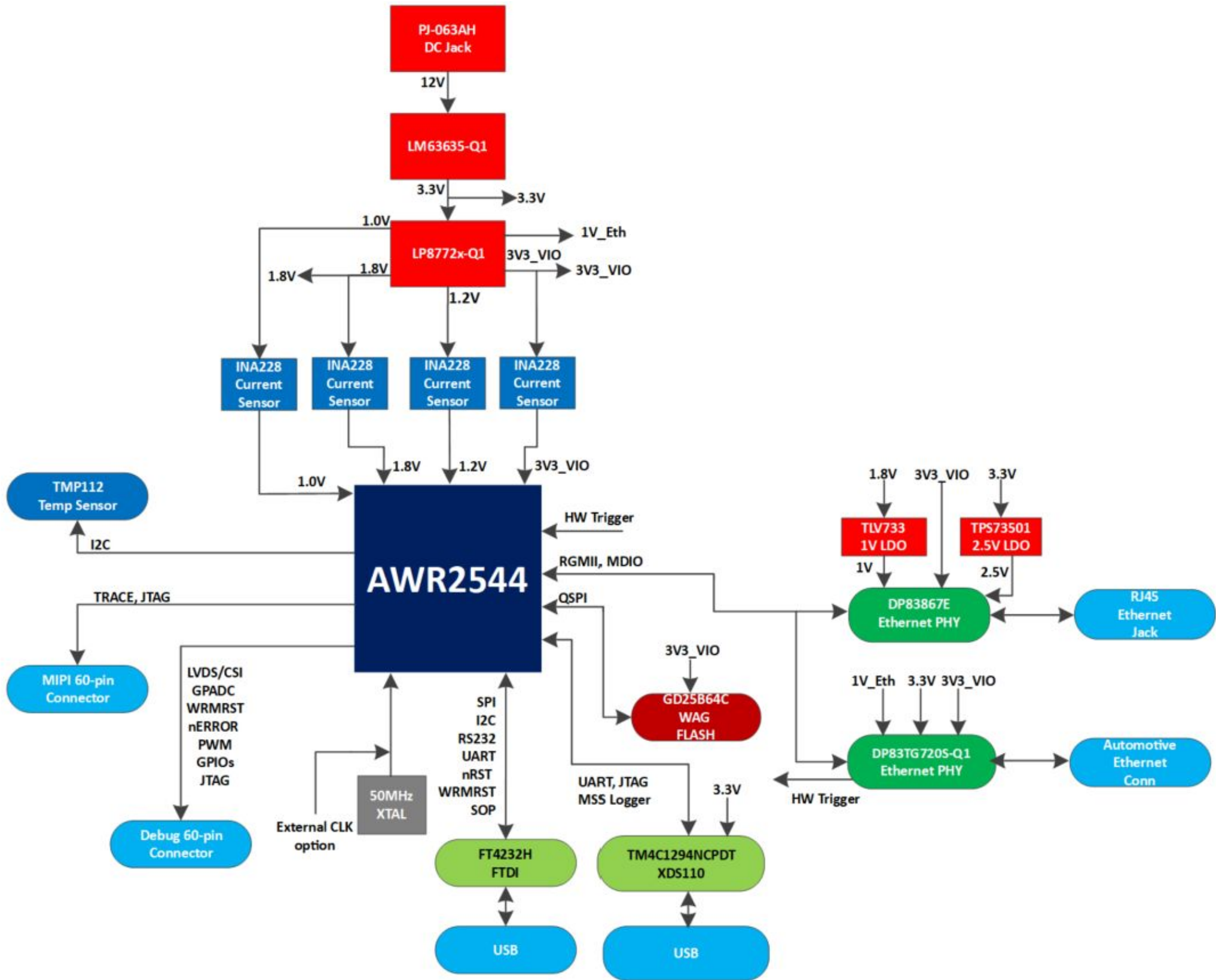


TABLE OF CONTENTS

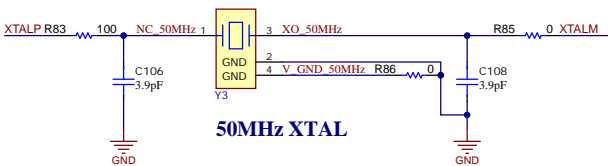
SHEET NO.	SHEET NAME
1	COVER SHEET
2	IO_REFERENCE
3	PWR_REFERENCE
4	DECOUPLING_REFERENCE
5	QSPI_FLASH_REFERENCE
6	PMIC_REFERENCE
7	3V3_SUPPLY_REFERENCE
8	SOP_REFERENCE
9	PWR_RST_LED
10	VPP_LDO
11	ETHERNET_PWR
12	ETHERNET_PHY
13	ETHERNET_MAGNETICS
14	AUTO_ETHERNET_PHY
15	AUTO_ETHERNET_CONN
16	FTDI_PWR
17	FTDI
18	XDS110_INTERFACE_1A
19	XDS110_INTERFACE_1B
20	JTAG_EMU_CONNECTOR
21	DEBUG_CONNECTOR
22	CURRENT_SENSORS
23	TEMP_SENSORS
24	HARDWARE

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Orderable: AWR2544LOPEVM	Designed for: Public Release	Mod. Date: 11/7/2023
TID #: N/A	Project Title: AWR2544LOPEVM	
Number: PROC158	Rev: A	Sheet Title:
SVN Rev: 251 [Locally Modified]	Assembly Variant: 001	Sheet: 1 of 24
Drawn By:	File: PROC158A_CoverSheet.SchDoc	Size: B
Engineer: Vivek Dham/Adrian Ozer	Contact: http://www.ti.com/support	

xWR2544 IO REFERENCE

50MHZ CLOCK SOURCES

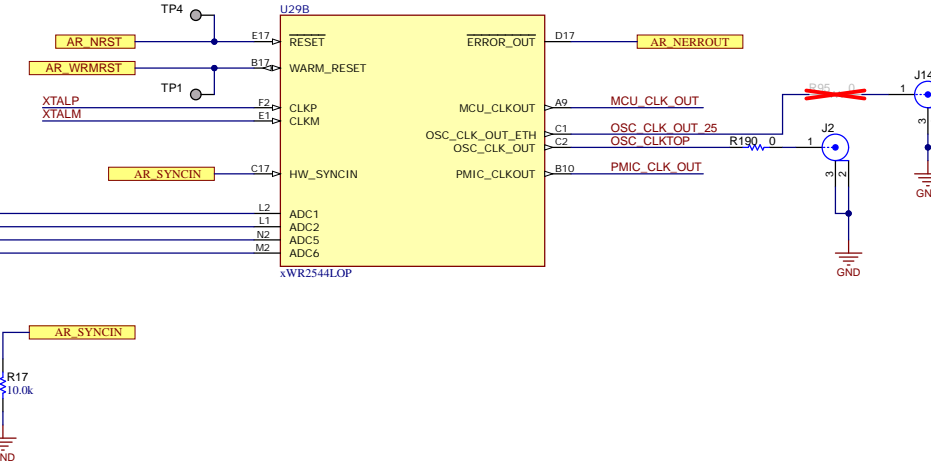
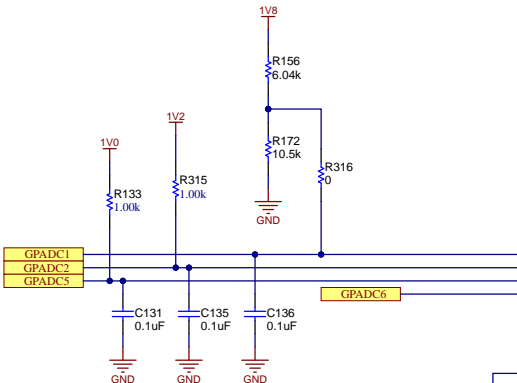


BAW Oscillato

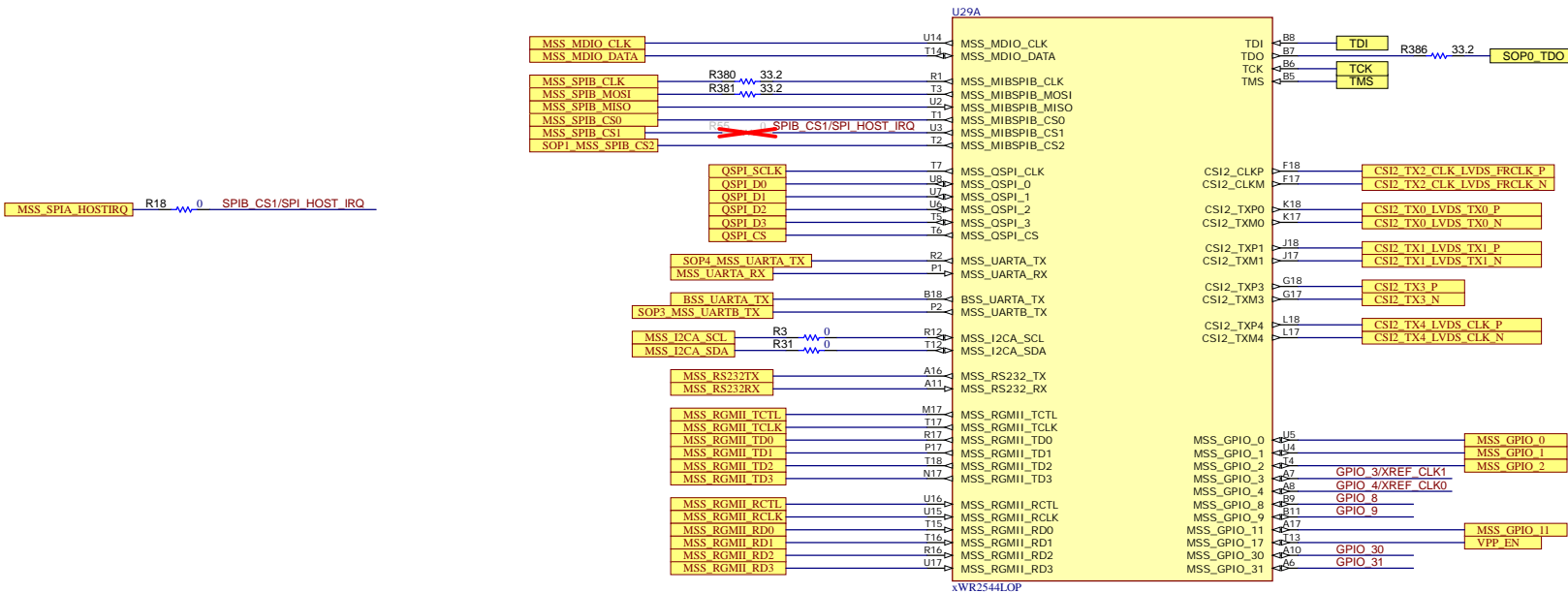
NOTE: When BAW mounted, make R87,R189 and C178 a mountable & R83,R85,R86,C106 and C108 as DNP

RESET, ERROR, CLKOUT, GPADC, CLK

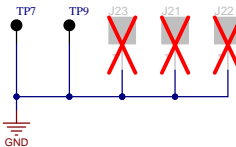
NOMINAL VOLTAGE FOR ADC1 = 01.142V



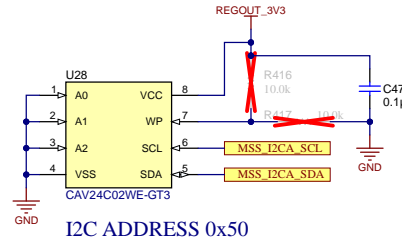
MDIO, SPI, QSPI, UART, EPWM, RGMII, CSI, LVDS, GPIO, JTAC



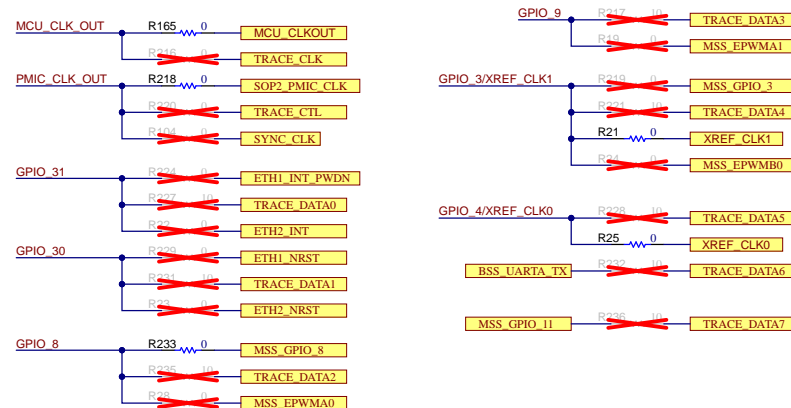
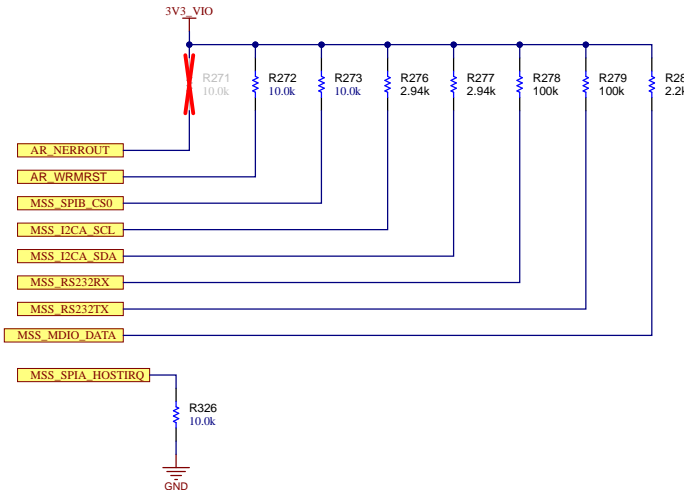
GND TEST POINTS



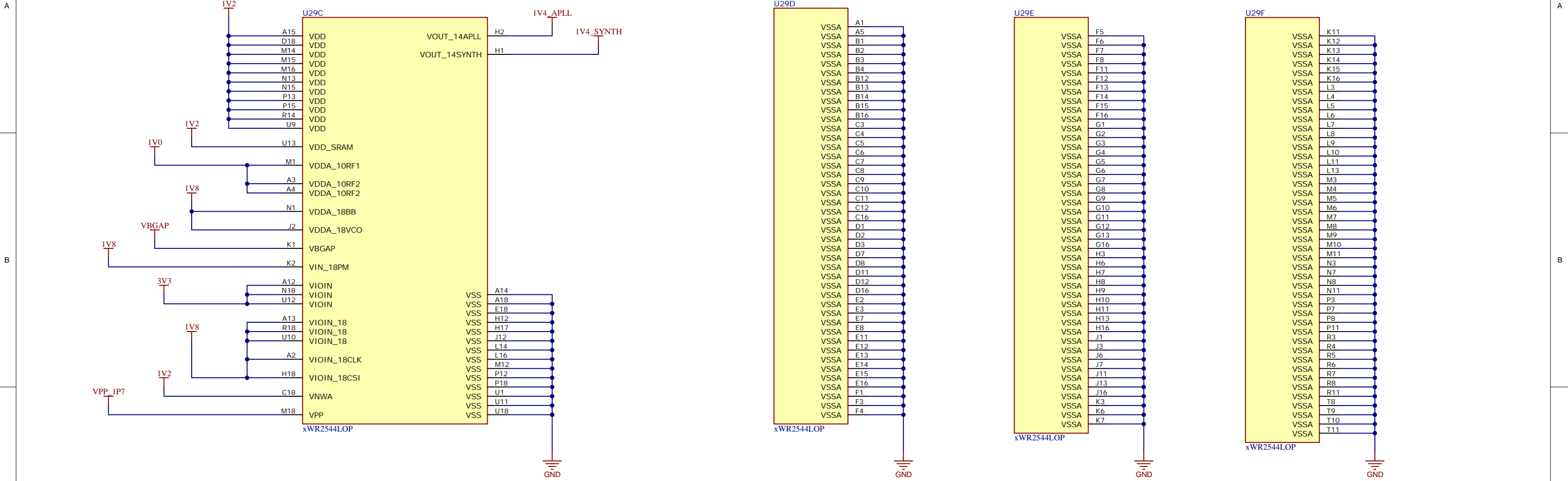
BOARD ID EEPROM



PULLUPS/DOWN

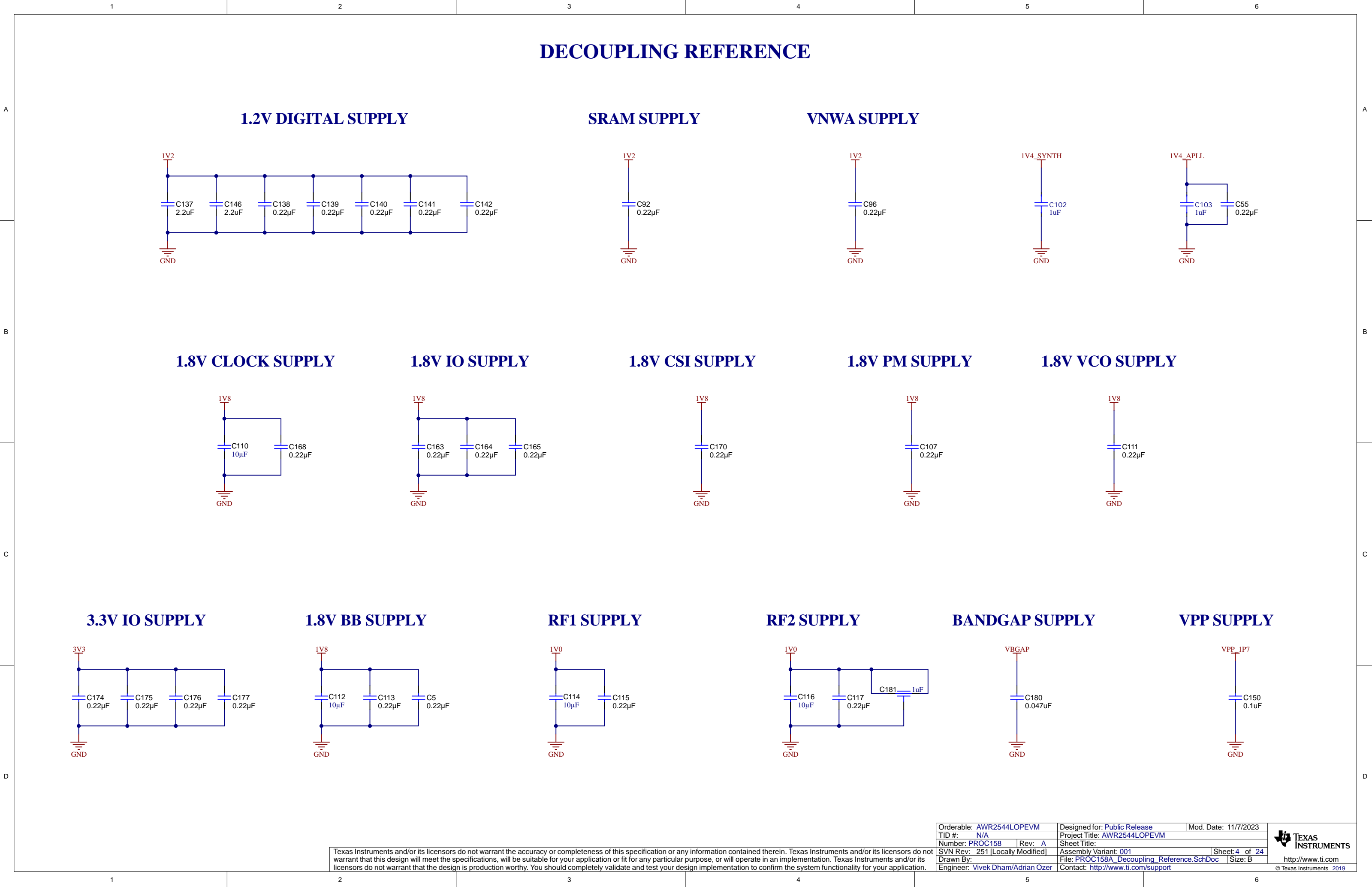


xWR2544 POWER REFERENCE



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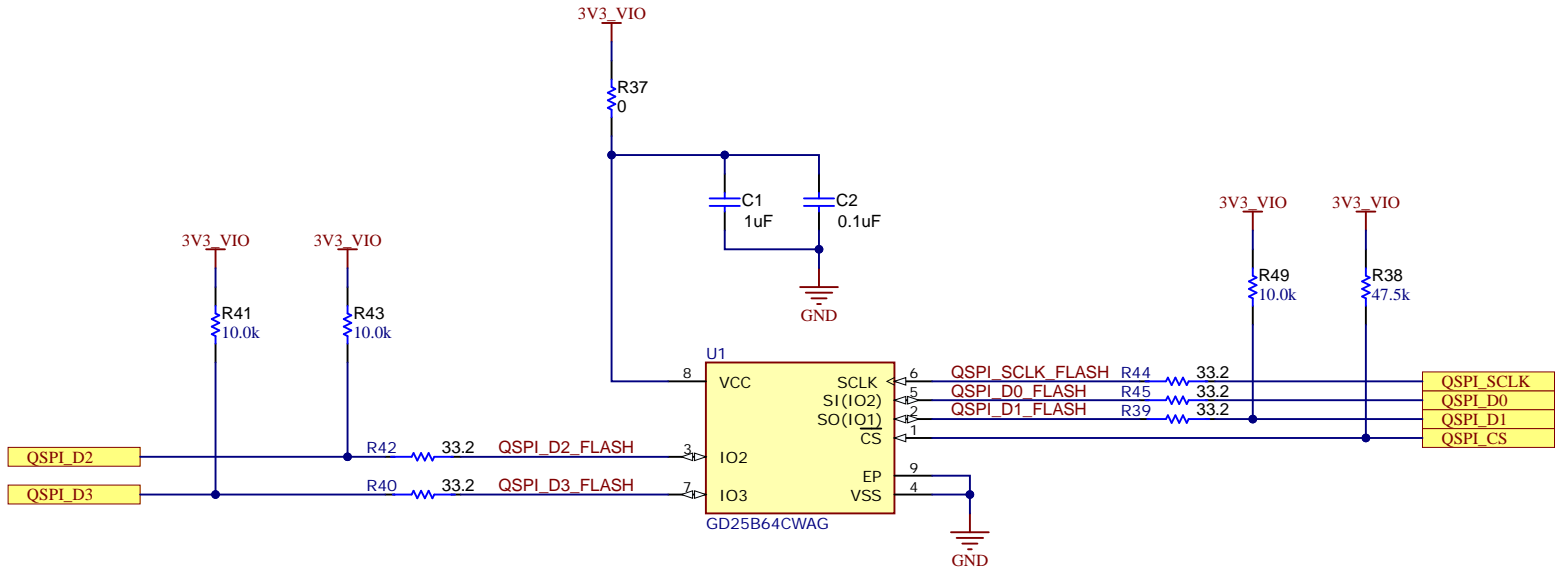
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TID #: N/A		Project Title: AWR2544LOPEVM			
Number: PROC158		Rev: A		Sheet Title:	
SVN Rev: 251 [Locally Modified]		Assembly Variant: 001		Sheet: 3 of 24	
Drawn By:		File: PROC158A_PWR_Reference.SchDoc		Size: B	
Engineer: Vivek Dham/Adrian Ozer		Contact: http://www.ti.com/support			



References

[GD25B64CWAG Datasheet](#)

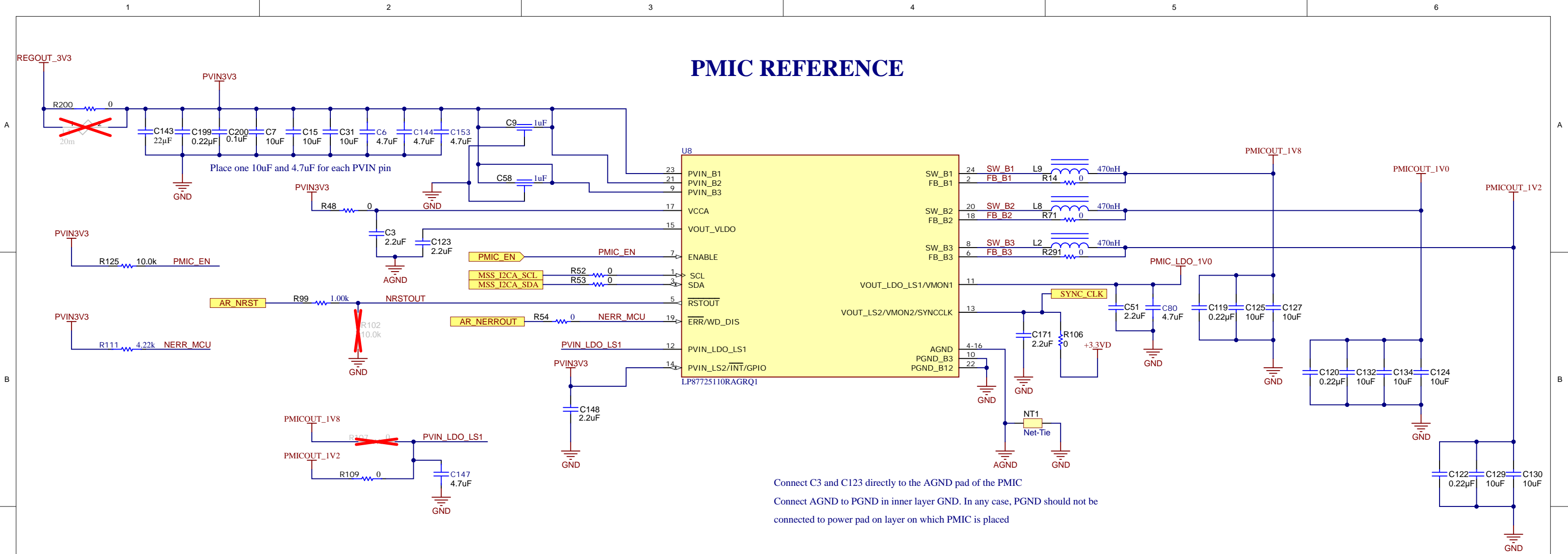
QSPI FLASH REFERENCE



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TID #: N/A		Project Title: AWR2544LOPEVM	
Number: PROC158	Rev: A	Sheet Title:	
SVN Rev: 251 [Locally Modified]		Assembly Variant: 001	Sheet: 5 of 24
Drawn By:		File: PROC158A_QSPI_Flash_Reference.SchDoc Size: B	
Engineer: Vivek Dham/Adrian Ozer		Contact: http://www.ti.com/support	

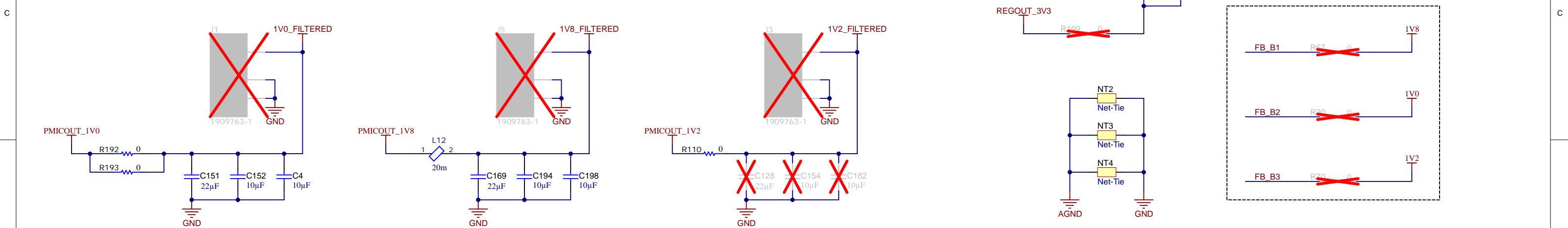
PMIC REFERENCE



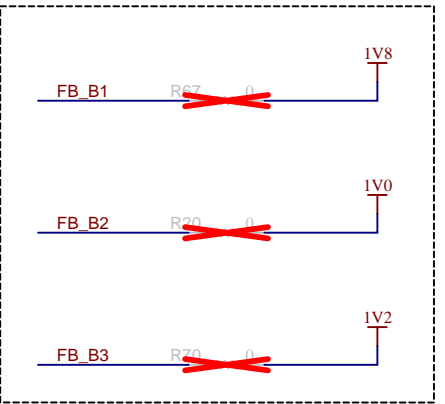
Connect C3 and C123 directly to the AGND pad of the PMIC
Connect AGND to PGND in inner layer GND. In any case, PGND should not be connected to power pad on layer on which PMIC is placed

PMIC LC FILTER

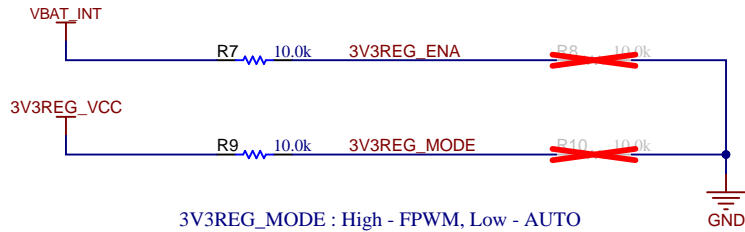
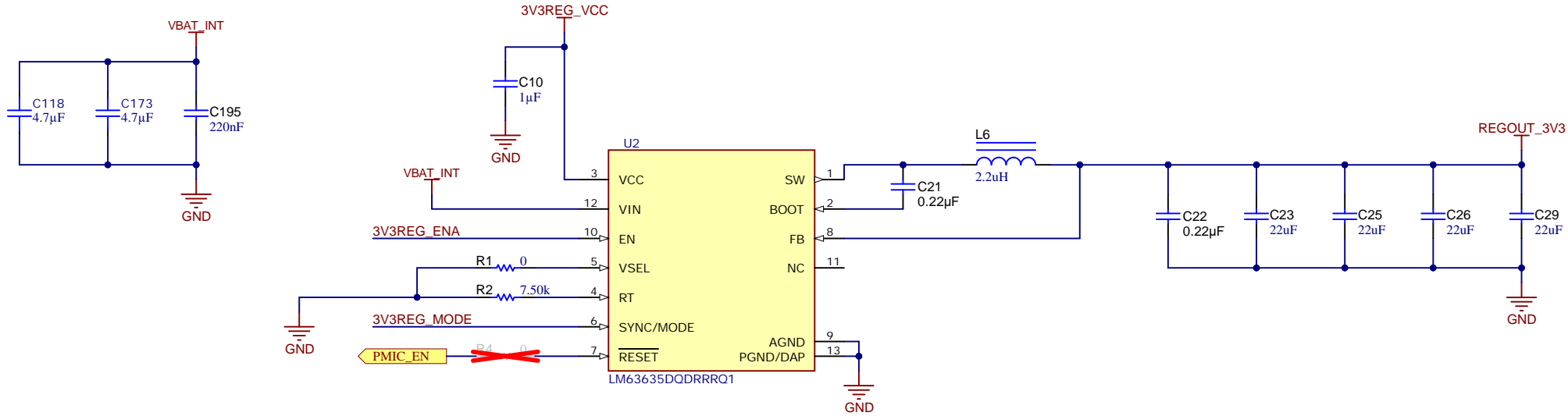
For IF bandwidth <17.6MHz the secondary LC filter is not needed



Provision for point of load feedback



3V3 SUPPLY REFERENCE



Switching Frequency : 2.1 MHz

Mode : Forced PWM

Output Voltage : Fixed 3.3

Output current limit : 3.25A

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Number: PROC158	Rev: A	Sheet Title:	
SVN Rev: 251 [Locally Modified]		Assembly Variant: 001	Sheet: 7 of 24
Drawn By:		File: PROC158A_3V3_Supply_Reference.SchDoc Size: B	
Engineer: Vivek Dham/Adrian Ozer		Contact: http://www.ti.com/support	

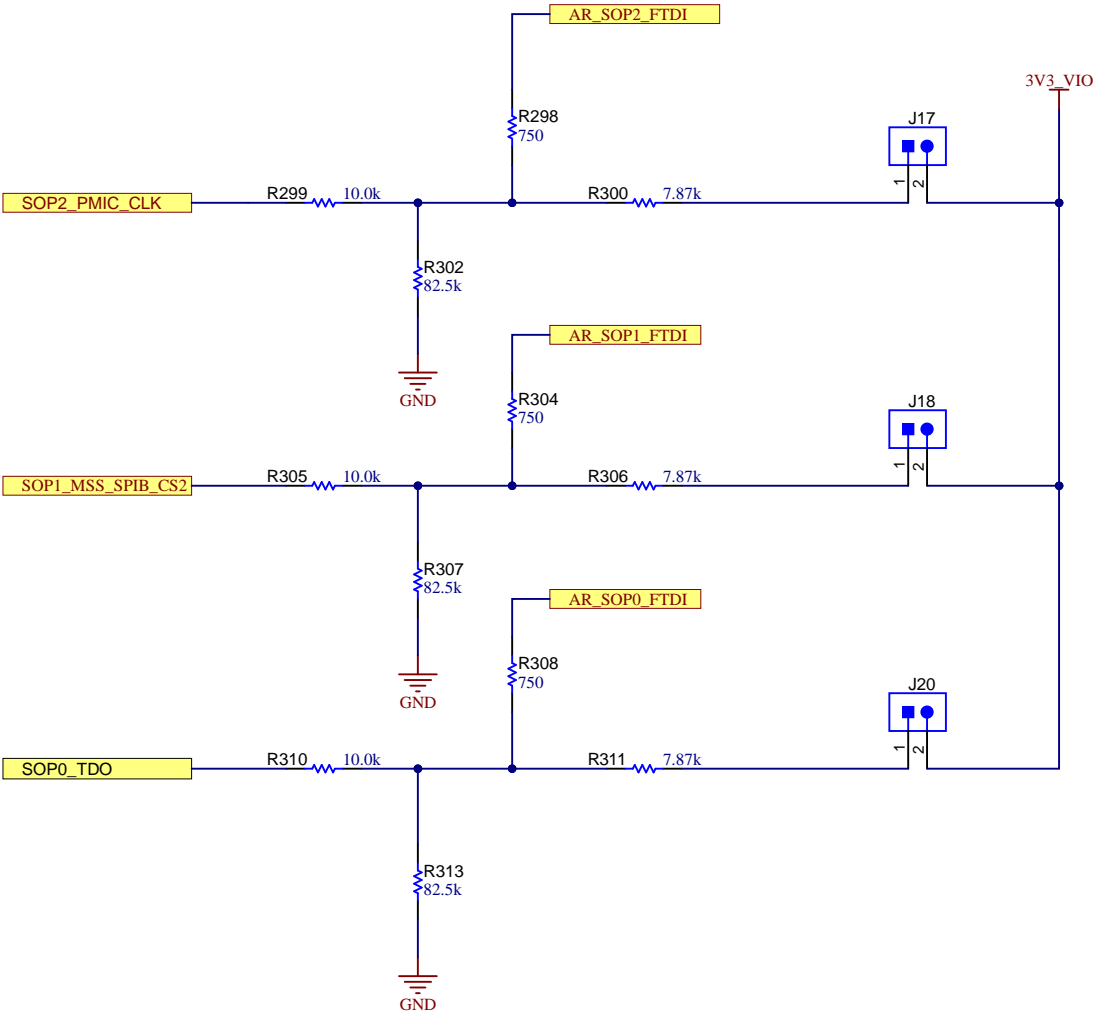
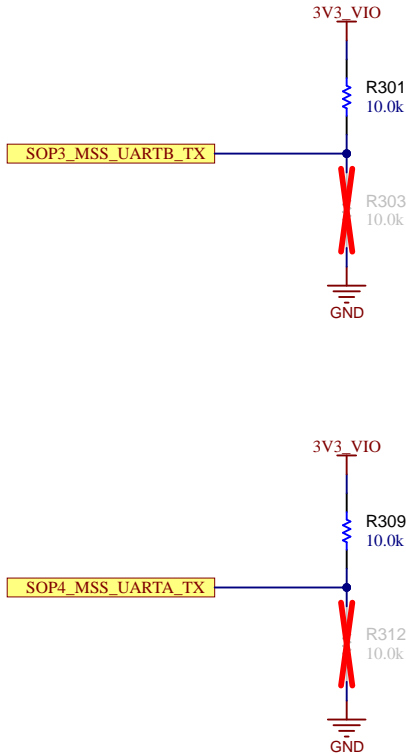
SOP REFERENCE

XTAL DETECT SOP CONFIG

SOP4, SOP3	
40 MHz	00
45.1584 MHz	01
49.152 MHz	10
50 MHz	11

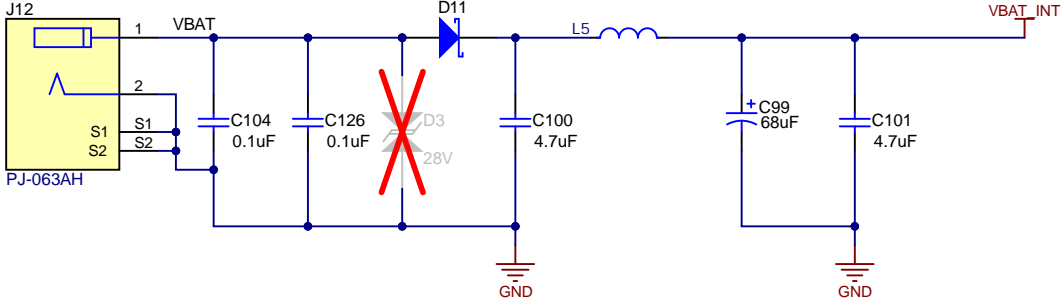
SOP2, SOP1, SOP0

SOP_MODE1	SCAN/ATPG	010
SOP_MODE2	DEV/FLED/ORBIT	011
SOP_MODE3	THB	000
SOP_MODE4	FUNC	001
SOP_MODE5	DEV MANAGEMENT	101

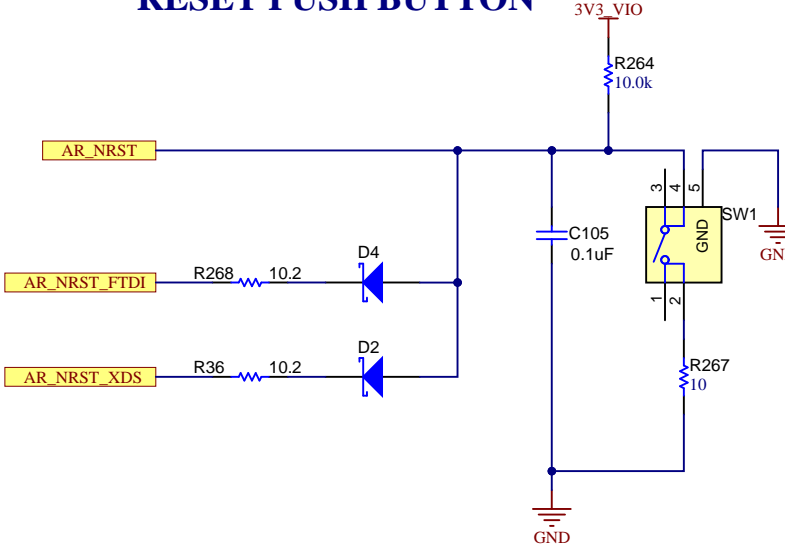


POWER IN, RESETS, AND LEDS

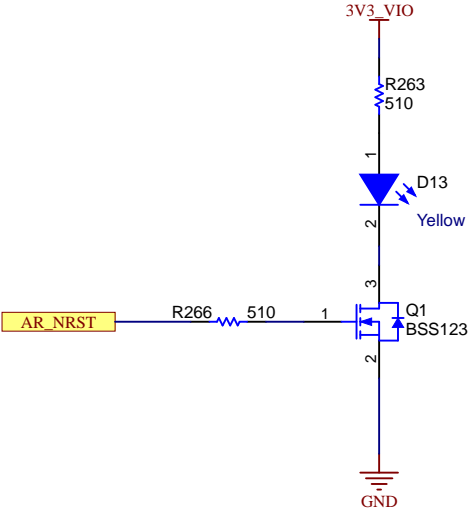
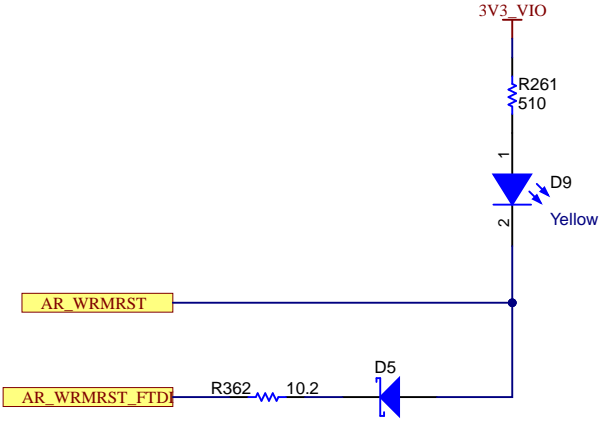
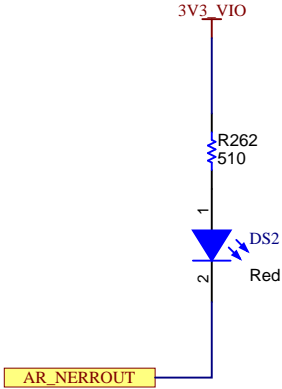
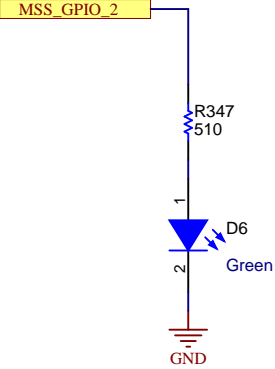
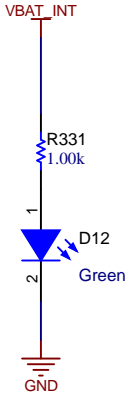
POWER JACK



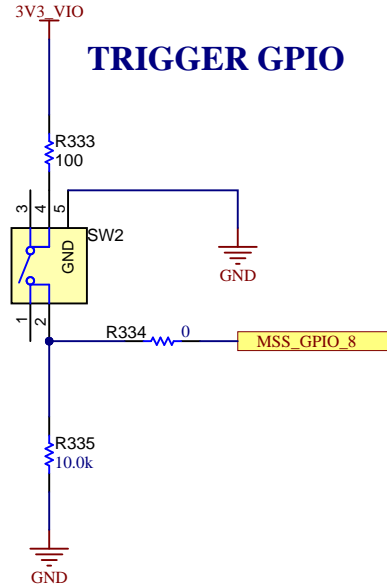
RESET PUSH BUTTON



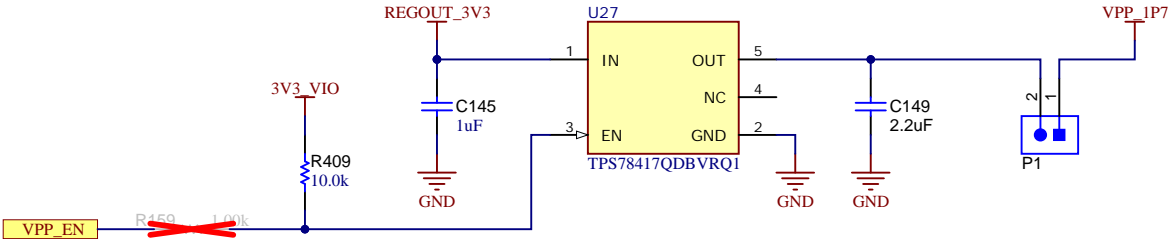
INDICATION LEDS



TRIGGER GPIC



VPP LDO



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Number: PROC158	Rev: A	Sheet Title:	
SVN Rev: 251 [Locally Modified]		Assembly Variant: 001	Sheet: 10 of 24
Drawn By:		File: PROC158A_VPP_LDO.SchDoc	Size: B
Engineer: Vivek Dham/Adrian Ozer		Contact: http://www.ti.com/support	

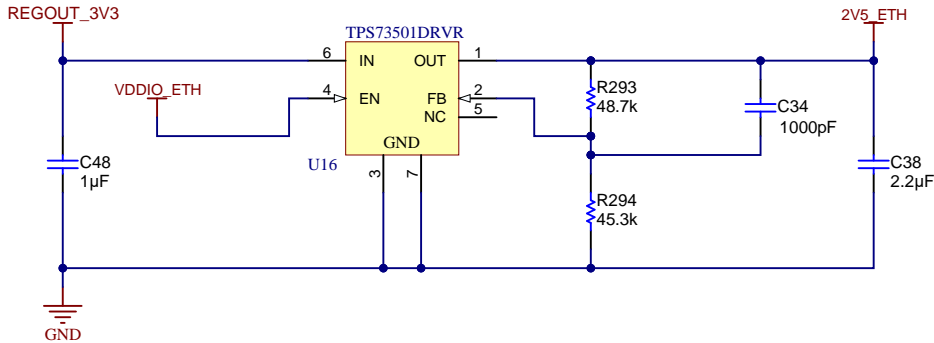
References

[TPS73501 Datasheet](#)

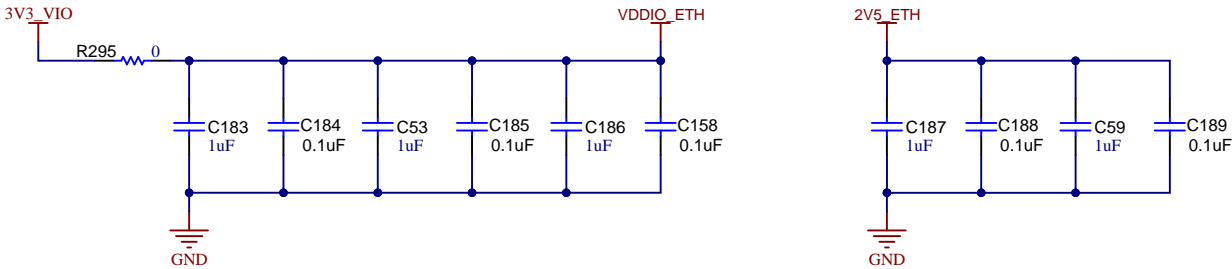
[TLV733P Datasheet](#)

ETHERNET POWER

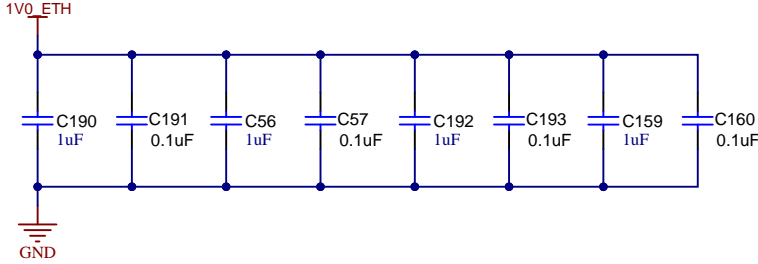
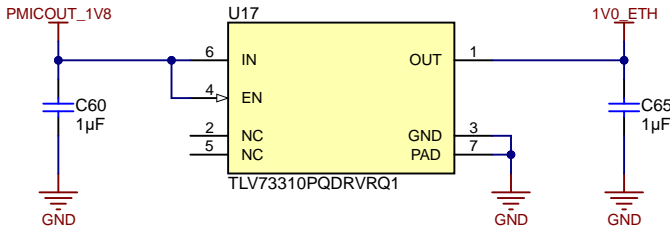
2.5V ANALOG SUPPLY



DECOUPLING CAPS



1V ANALOG SUPPLY



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TID #: N/A		Project Title: AWR2544LOPEVM	
Number: PROC158	Rev: A	Sheet Title:	
SVN Rev: 251 [Locally Modified]		Assembly Variant: 001	Sheet: 11 of 24
Drawn By:		File: PROC158A Ethernet_PWR.SchDoc	Size: B
Engineer: Vivek Dham/Adrian Ozer		Contact: http://www.ti.com/support	

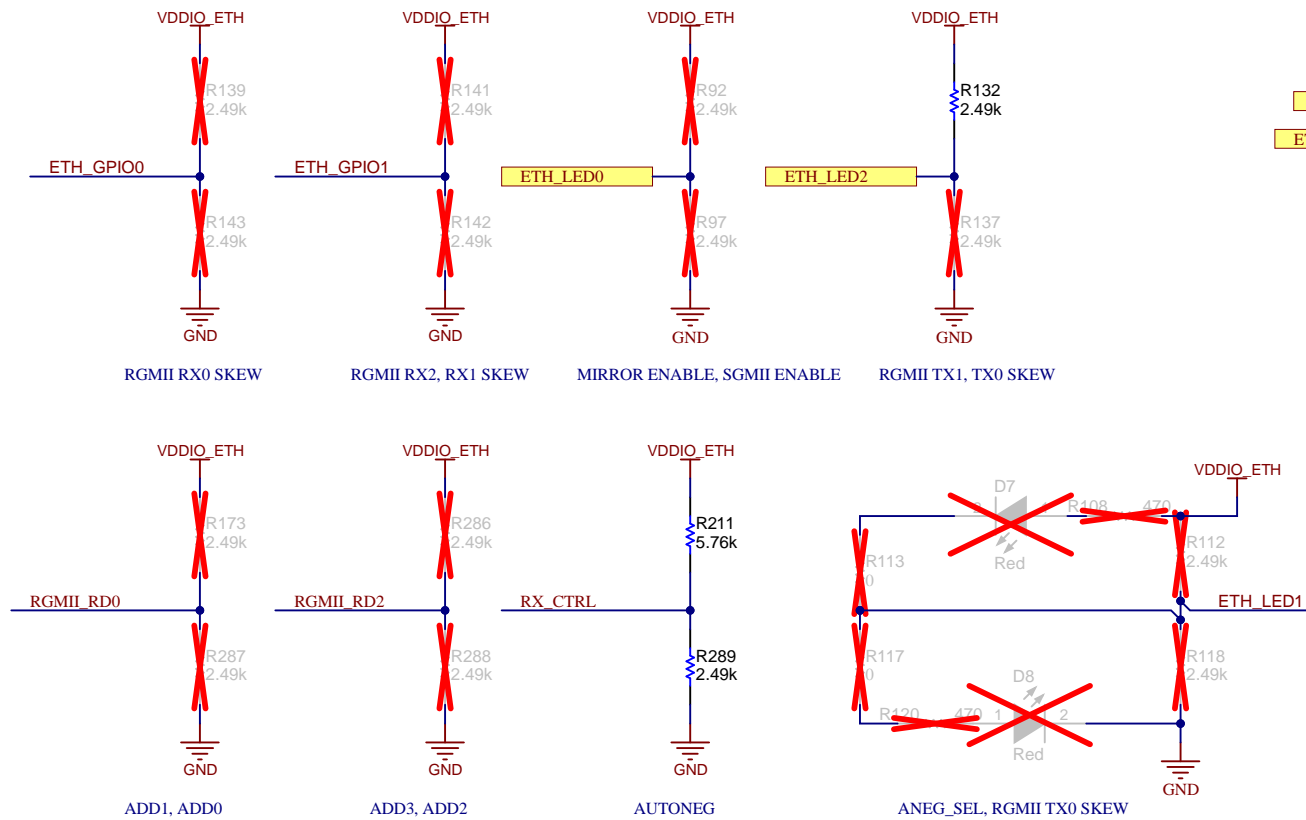
References

DP83867E Datasheet

ETHERNET PHY

BOOTSTRAP CONFIGURATION PINS

Resistor Values must be changed to change Modes, refer to datasheet for proper values



DEFAULT CONFIGURATION:

$$\text{ADD1, ADD0} = 0$$
$$\text{ADD3, ADD2} = 0$$

AUTONEG = 1

RGMII RX0 SKEW = 0

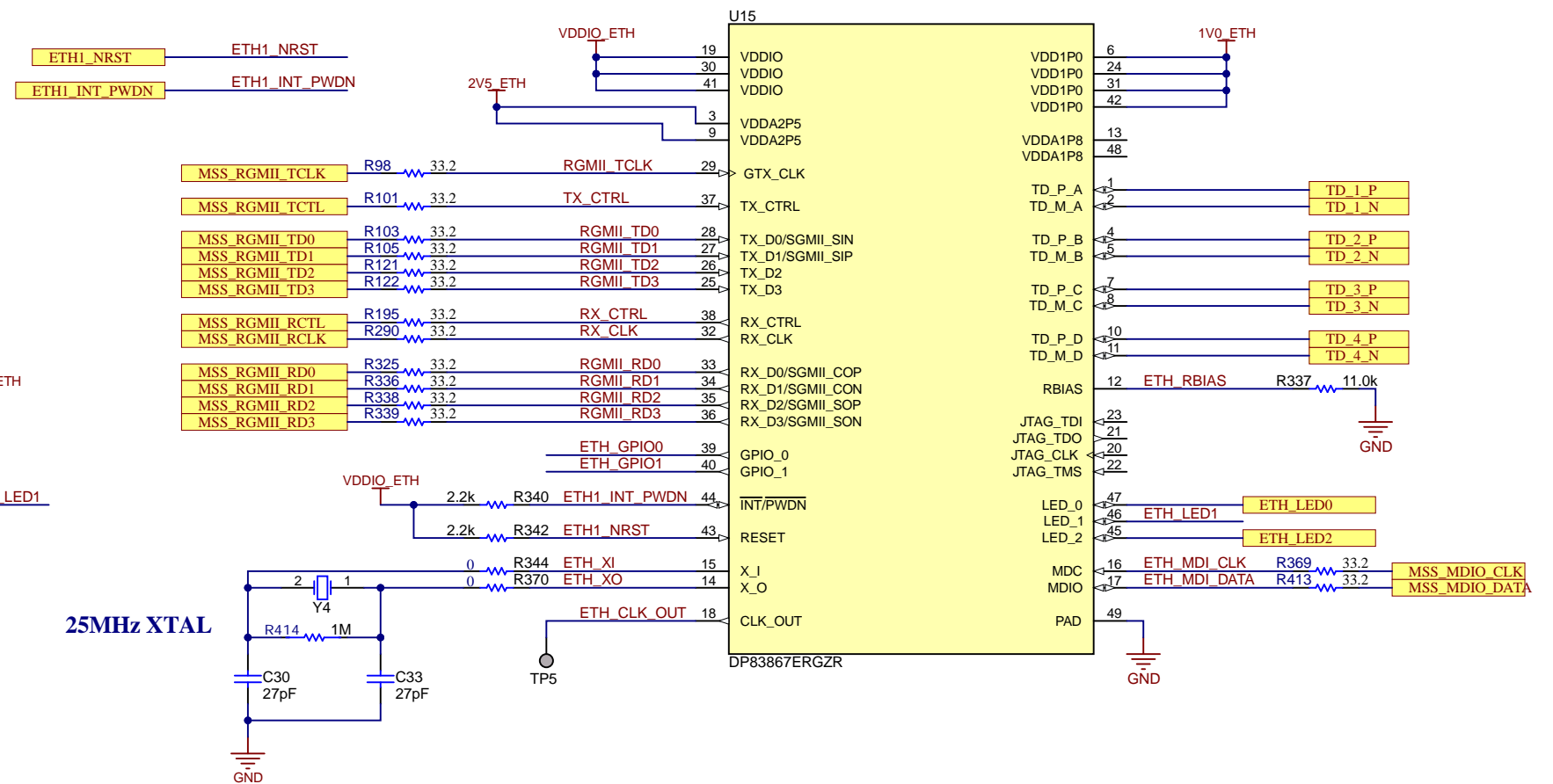
RGMII RX2, RX1 SKEW = 0, 0

RGMII TX1, TX0 SKEW = 1, 1

ANEG_SEL, RGMII TX0 SKEW = 0, 0

MIRROR ENABLE, SGMII ENABLE = 0, 0

ETHERNET PHY



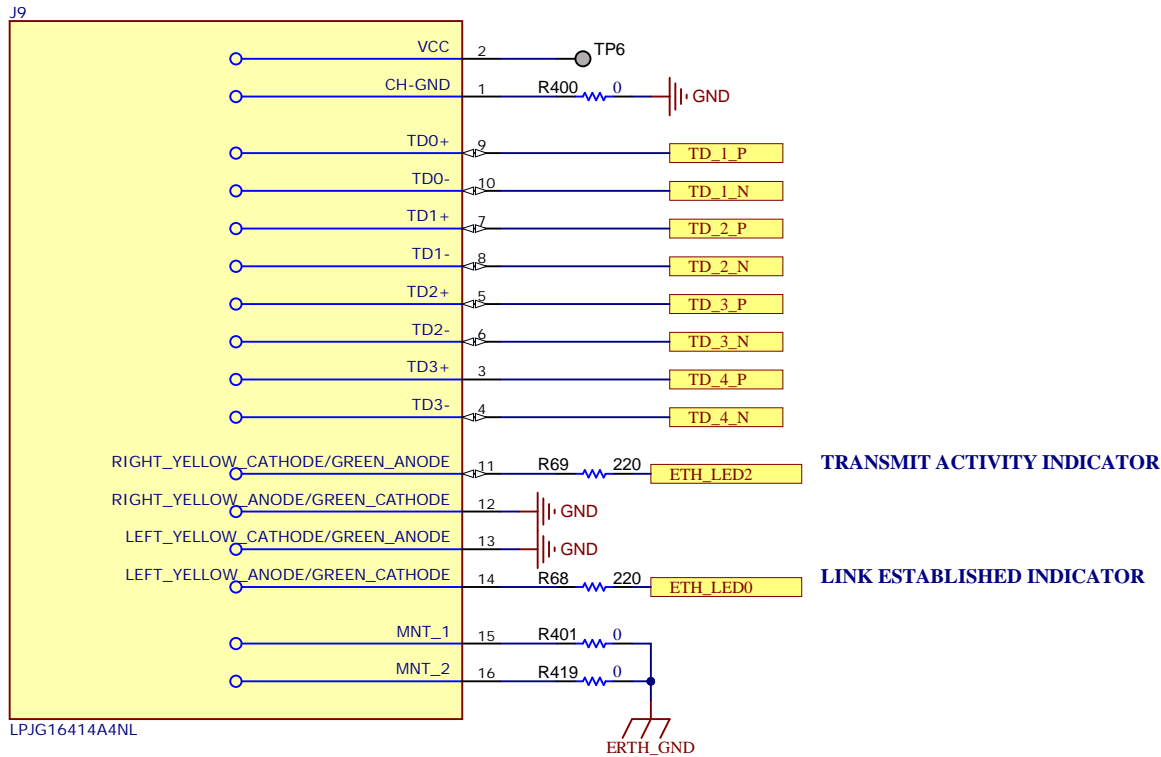
Place R98, R101, R103, R105, R121 and R122 close to U29

Place R195, R290, R325, R336, R338 and R339 close to U15

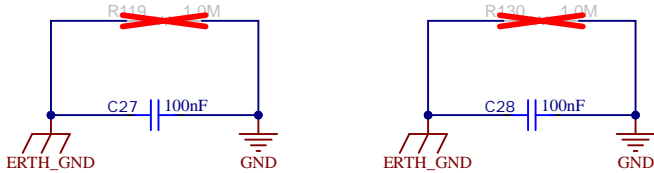
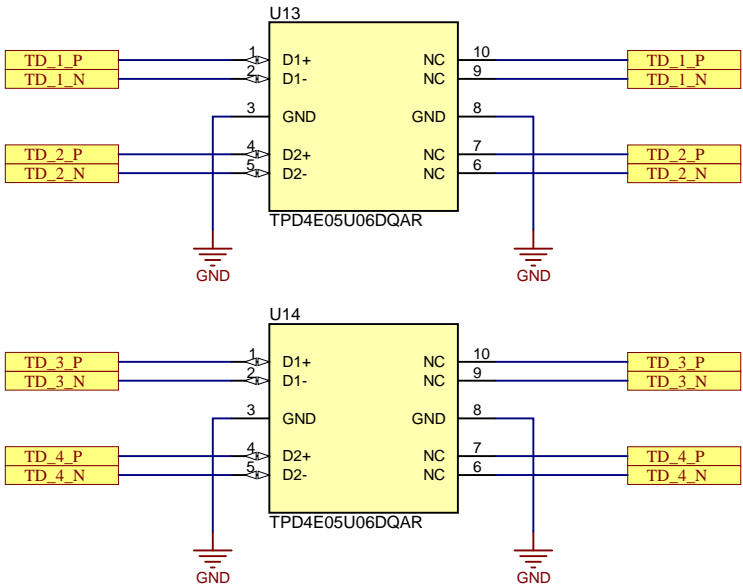
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Number: PROC158	Rev: A	Sheet Title:	
SVN Rev: 251 [Locally Modified]	Assembly Variant: 001	Sheet: 12 of 24	
Drawn By:	File: PROC158A_Ethernet_PHY.SchDoc	Size: B	
Engineer: Vivek Dham/Adrian Ozer			http://www.ti.com © Texas Instruments 2019

ETHERNET MAGNETICS

RJ45 WITH MAGJACK



ETHERNET ESD PROTECTION



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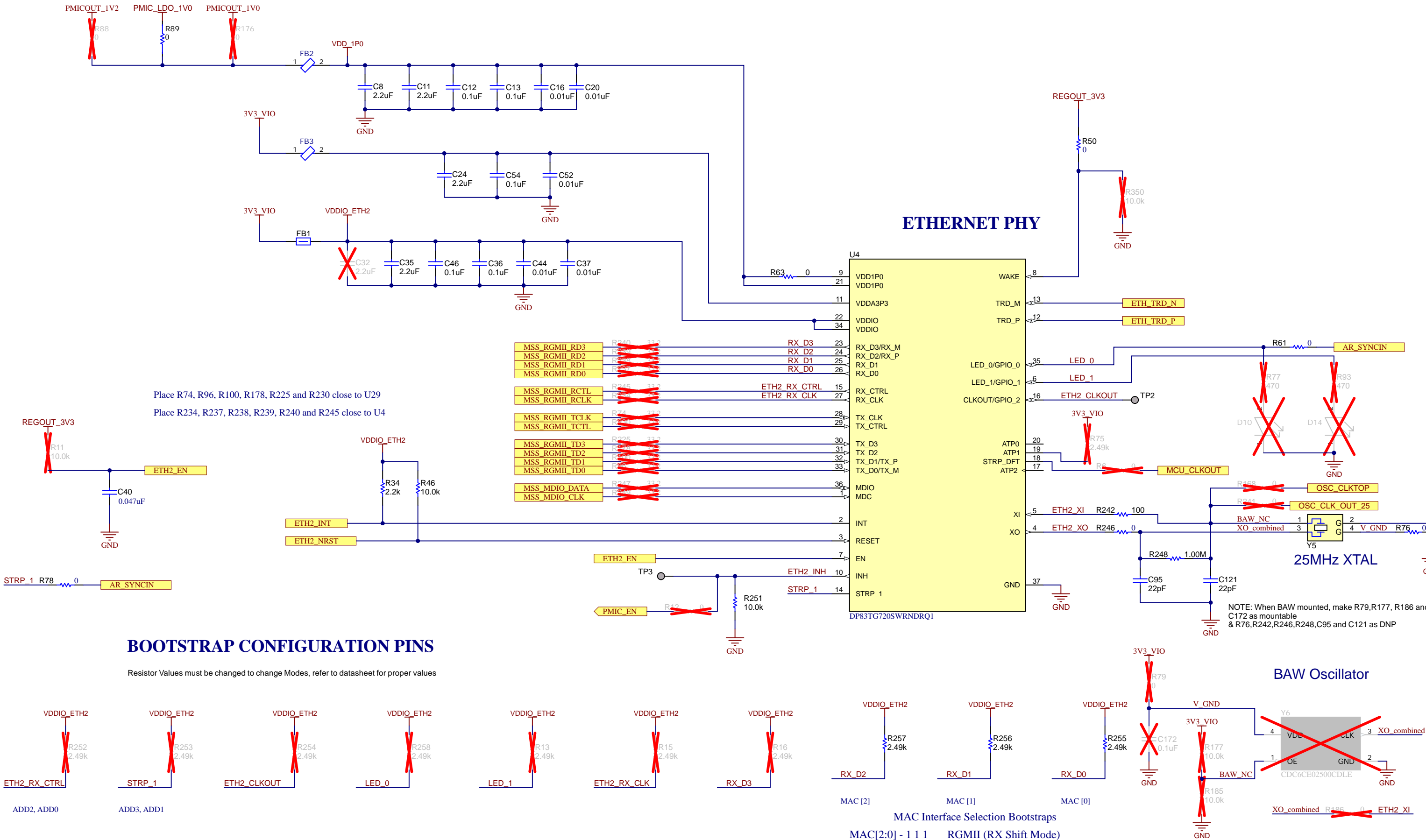
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Number: PROC158	Rev: A	Sheet Title:
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Engineer: Vivek Dham/Adrian Ozer	Contact: http://www.ti.com/support	

ETHERNET

ETHERNET PHY

BOOTSTRAP CONFIGURATION PINS

Resistor Values must be changed to change Modes, refer to datasheet for proper values



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Number: PROC158	Rev: A	Sheet Title:
SVN Rev: 251 [Locally Modified]	Assembly Variant: 001	Sheet: 14 of 24
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Engineer: Vivek Dham/Adrian Ozer	Contact: http://www.ti.com/support	

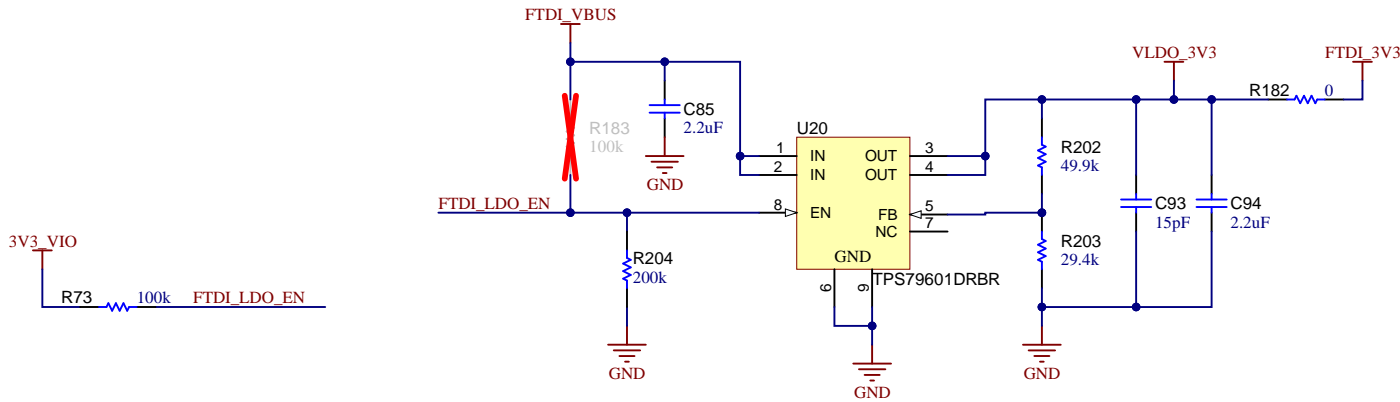
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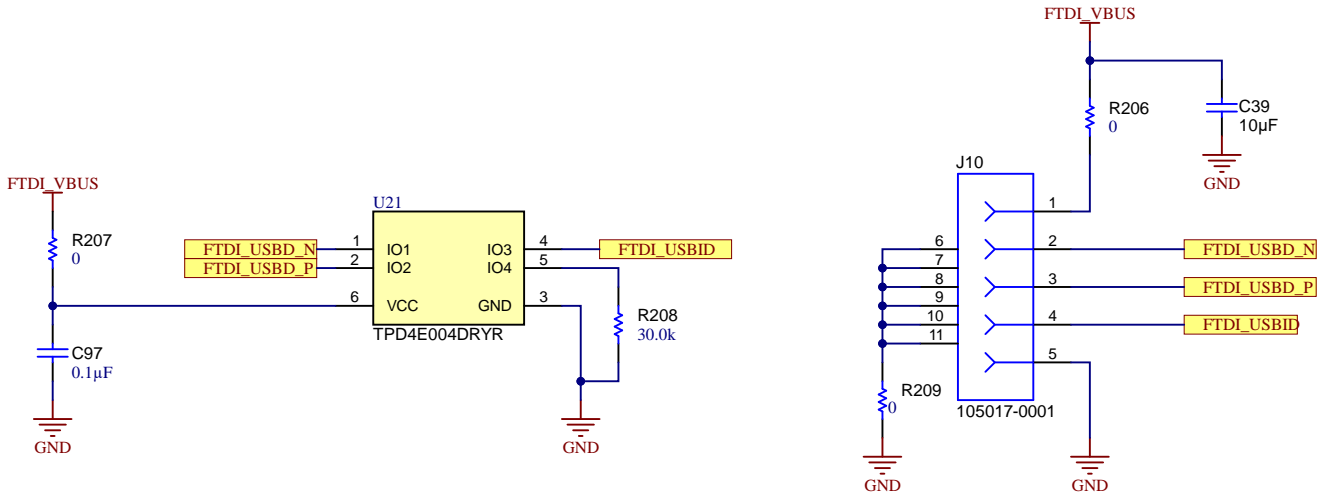
D

FTDI (1/2)

3.3V LDO FOR FTDI



FTDI USB PORT



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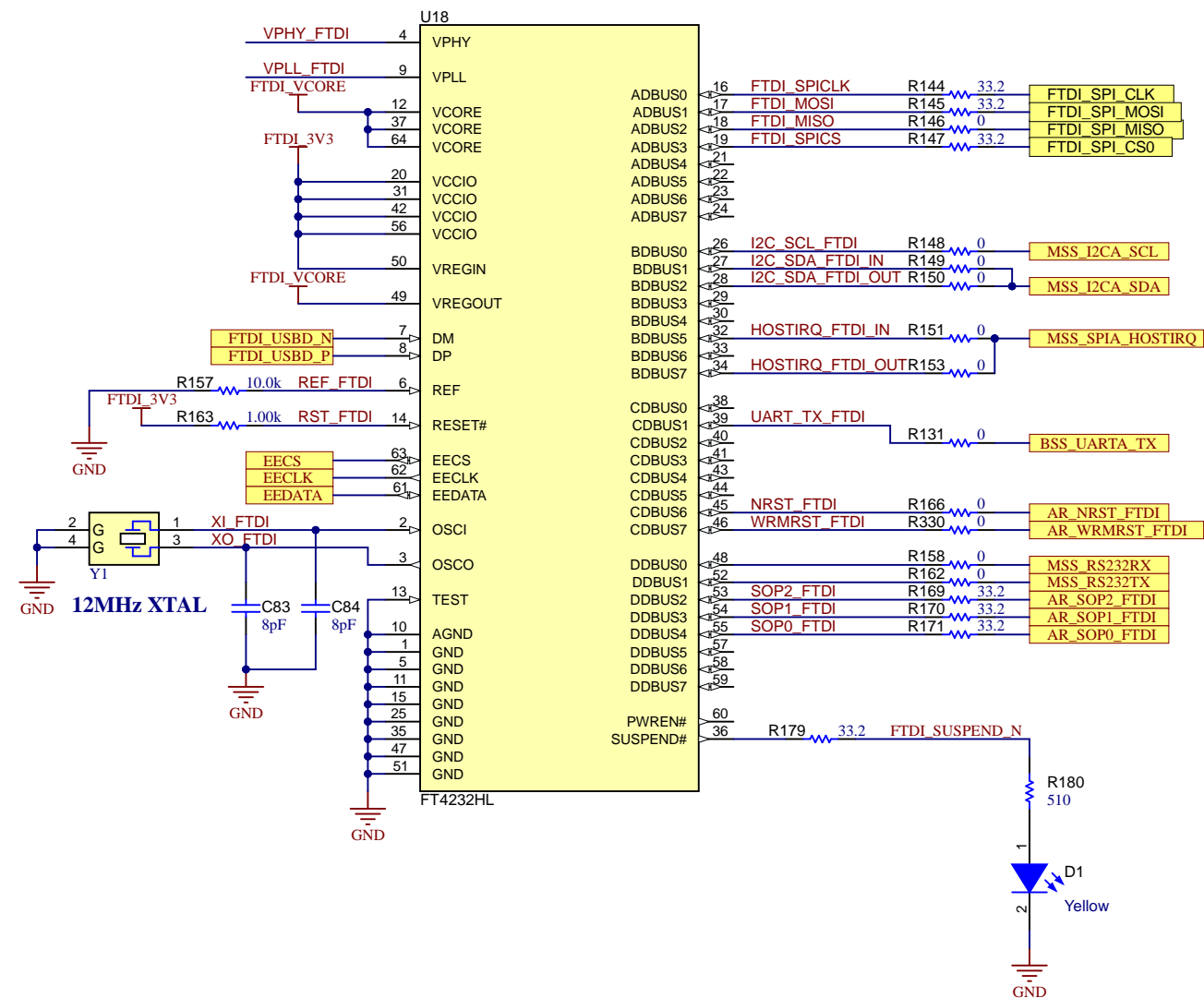
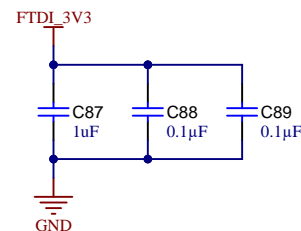
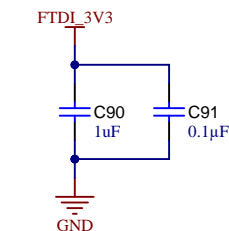
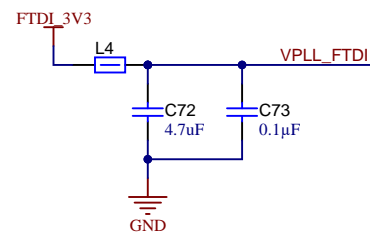
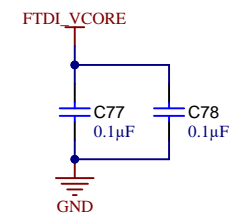
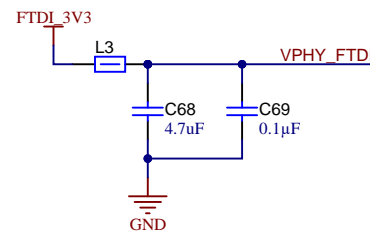
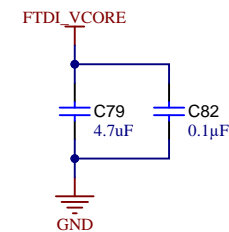


FTDI (2/2)

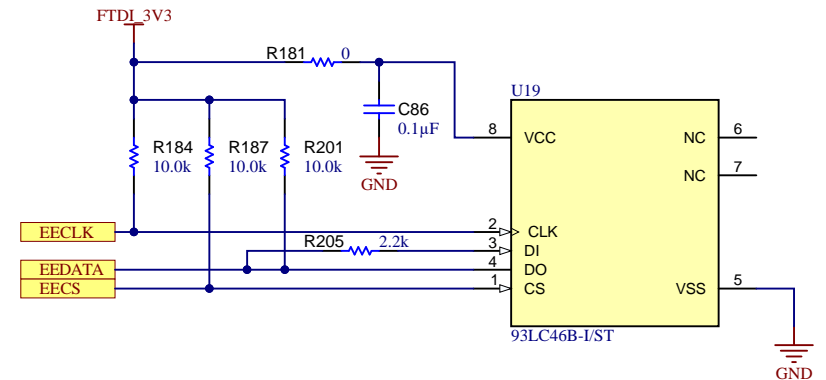
References

FT4232H Datasheet

FTDI SUPPLY DECAPS

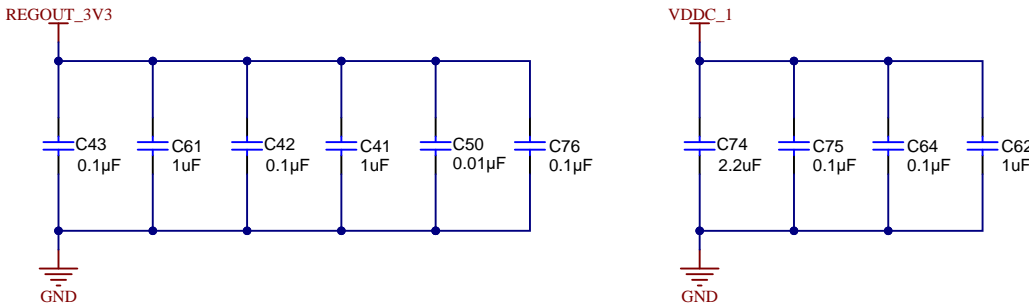


FTDI EEPROM

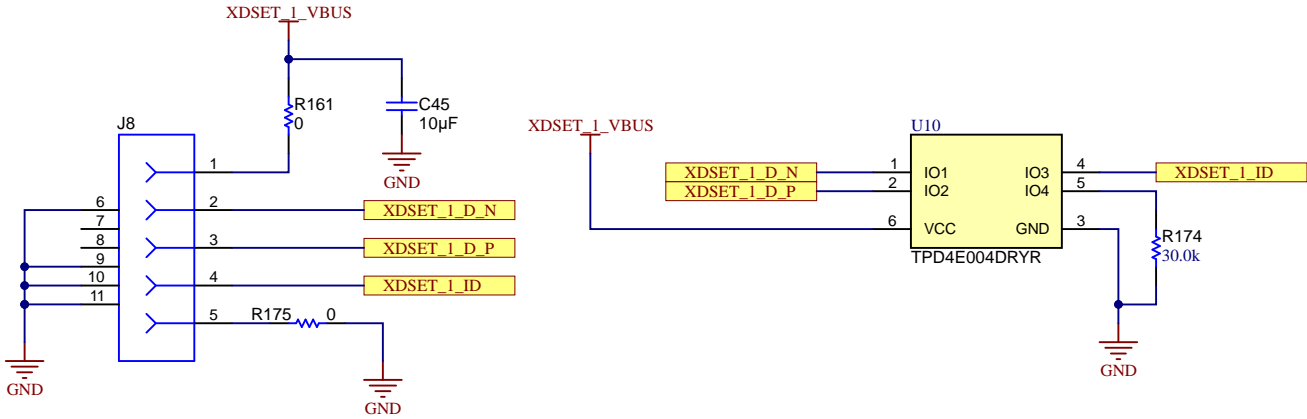


XDS110(1/2)

XDS110 DECOUPLING CAPS



XDS110 USB PORT

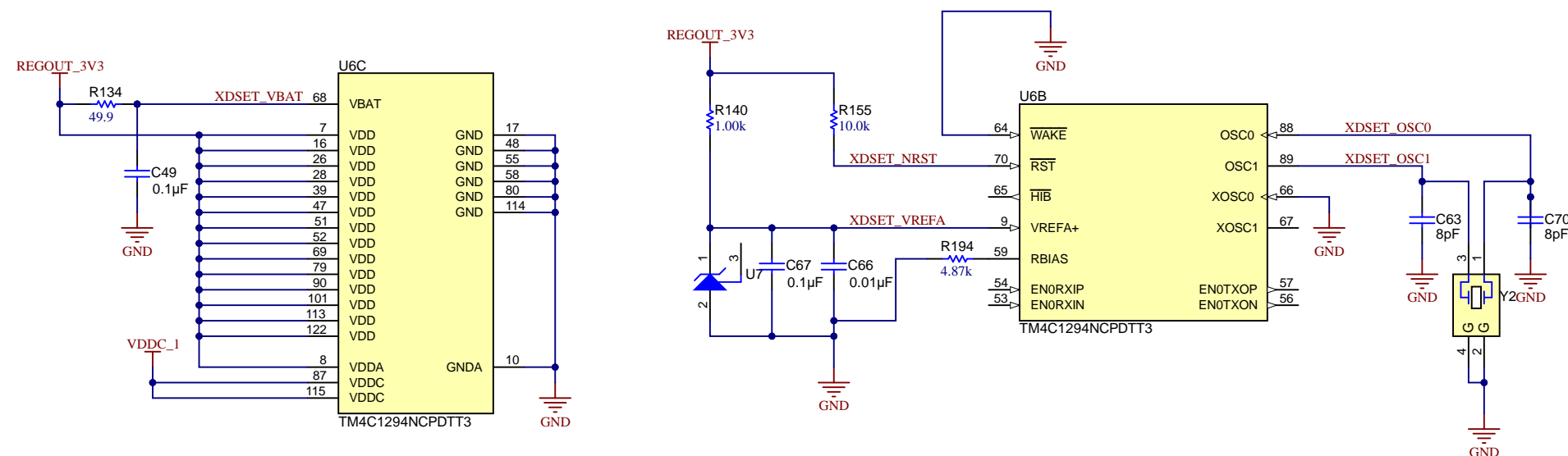
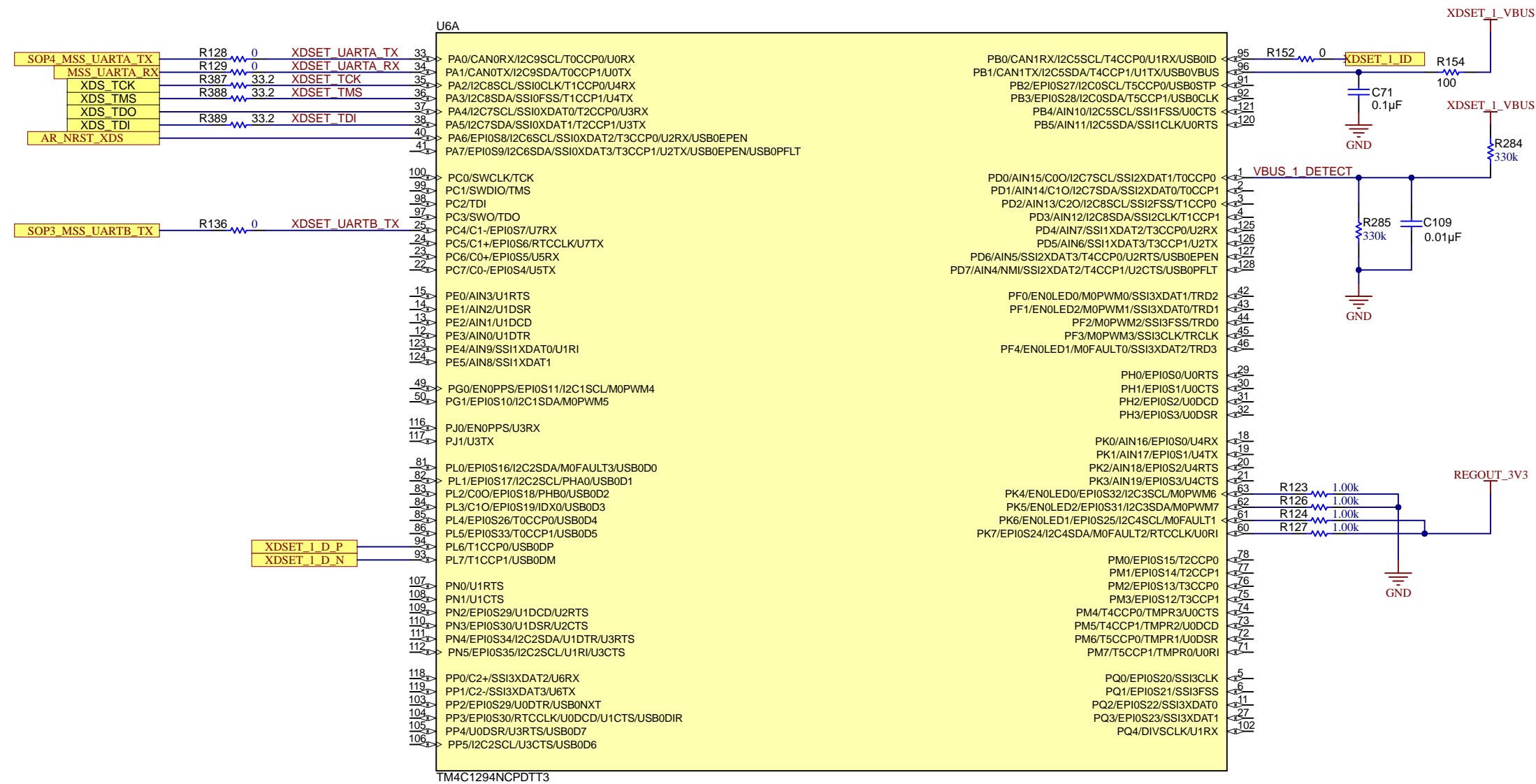


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References

TM4C1294NCPDT Datasheet

XDS110(2/2)



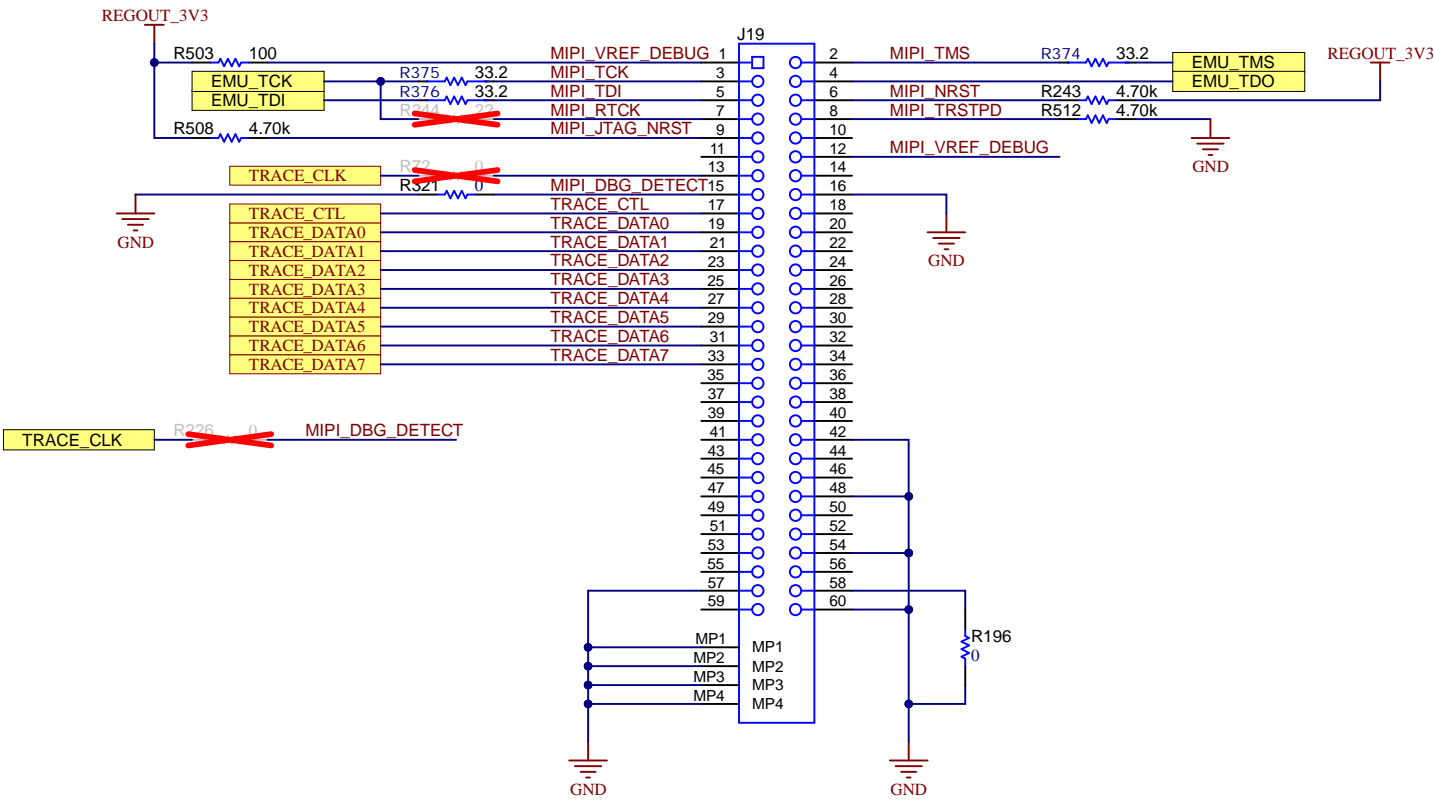
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TID #: N/A	Project Title: AWR2544LOPEVM	
Number: PROC158	Rev: A	Sheet Title:
SVN Rev: 251 [Locally Modified]	Assembly Variant: 001	Sheet: 19 of 24
Drawn By:	File: PROC158A_XDS110Interface_1B.SchDoc	Size: B
Engineer: Vivek Dham/Adrian Ozer	Contact: http://www.ti.com/support	

References

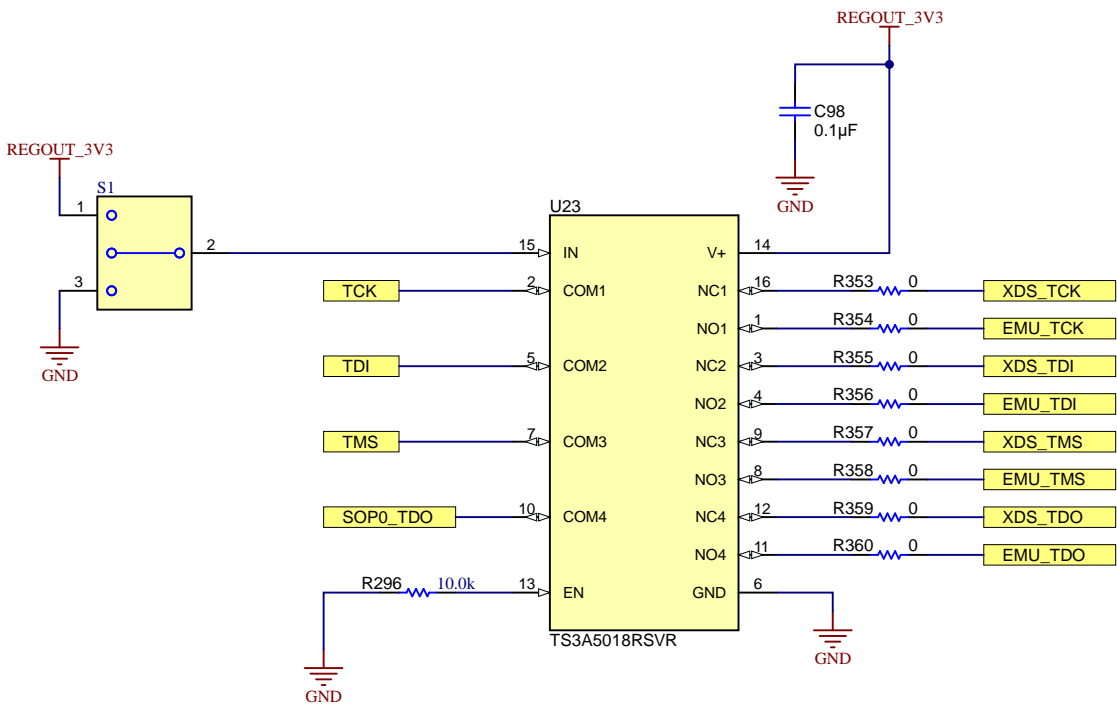
EMULATION AND TRACE HEADERS
XDS560v2 EMULATOR

MIPI 60 PIN HEADER

NOTE: DEFAULT CONFIGURATION IS FOR MIPI 60 PIN EMULATOR



JTAG MUX BETWEEN XDS110 AND MIPI 60 PIN



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Orderable: AWR2544LOPEVM	Designed for: Public Release	Mod. Date: 11/7/2023
TID #: N/A	Project Title: AWR2544LOPEVM	
Number: PROC158	Rev: A	Sheet Title:
SVN Rev: 251 [Locally Modified]	Assembly Variant: 001	Sheet: 20 of 24
Drawn By:	File: PROC158A_JTAG_EMU_Connector.SchDoc	Size: B
Engineer: Vivek Dham/Adrian Ozer	Contact: http://www.ti.com/support	

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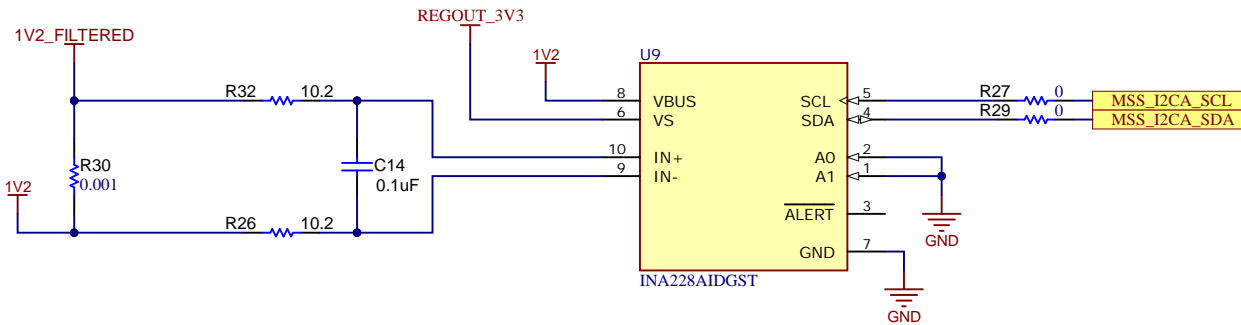
CURRENT SENSORS

References

[INA226 Datasheet](#)

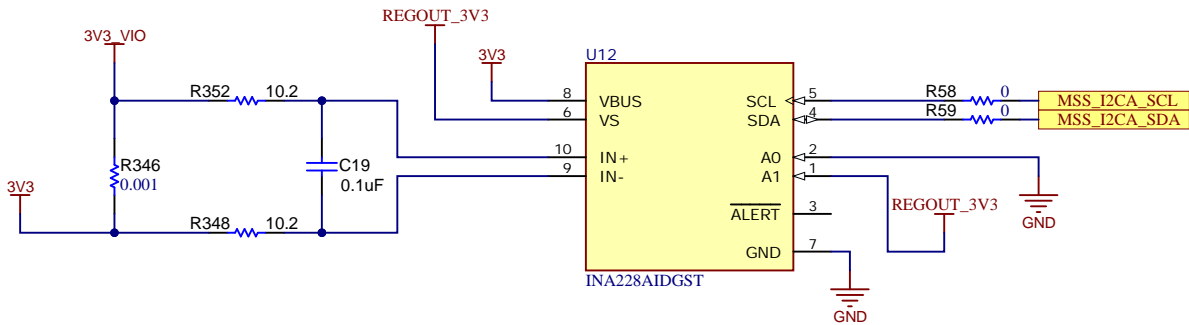
1.2V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x40



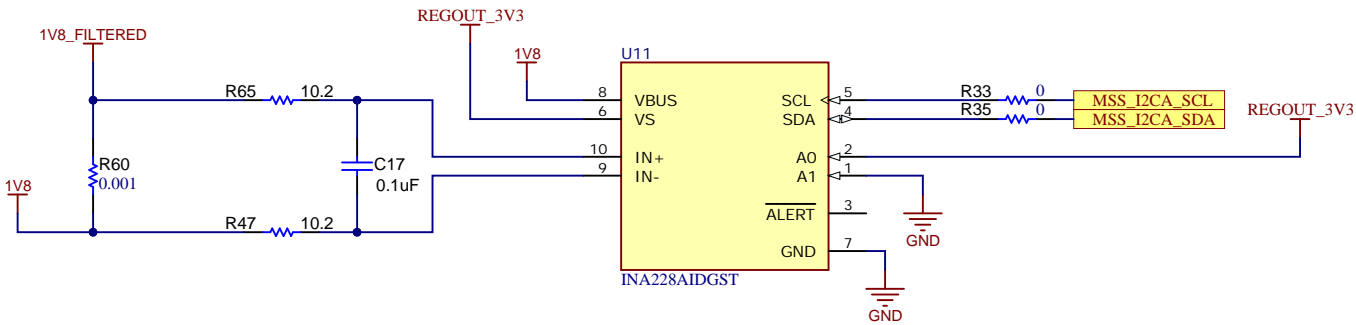
3.3V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x44



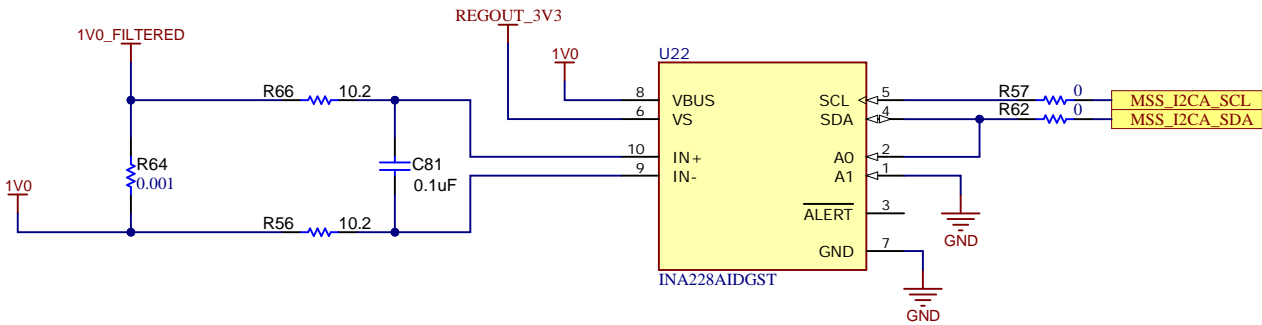
1.8V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x41



1.0V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x42

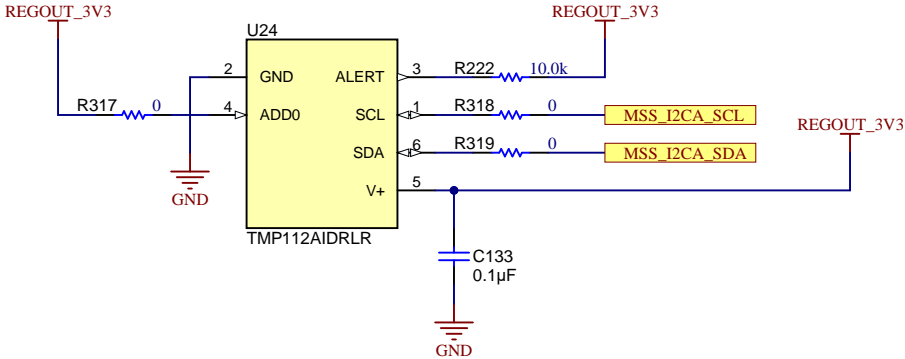


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TEMP SENSOR


References
[TMP112 Datasheet](#)

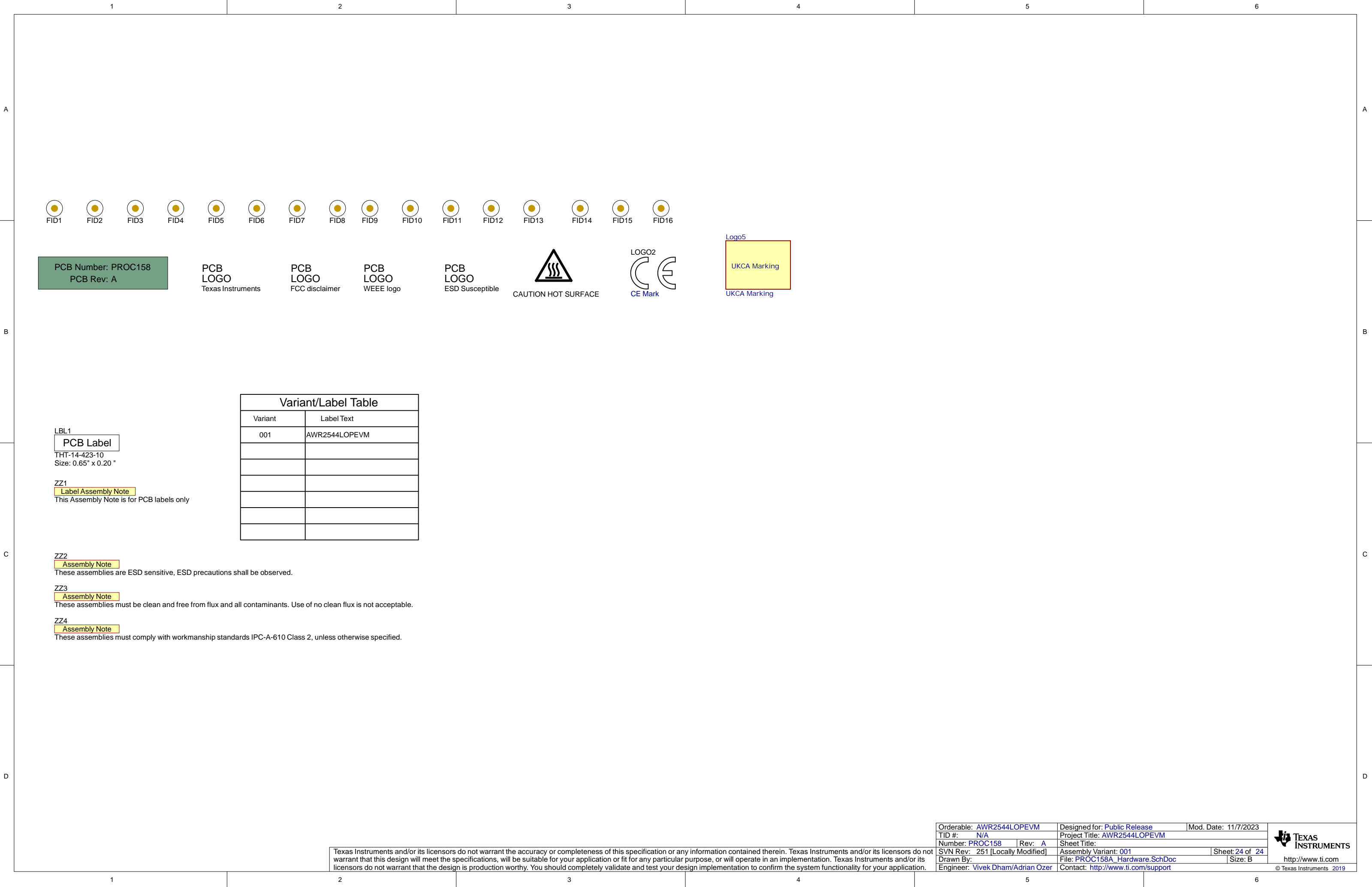
I2C ADDRESS 0x49



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TID #: N/A		Project Title: AWR2544LOPEVM	
Number: PROC158	Rev: A	Sheet Title:	
SVN Rev: 251 [Locally Modified]		Assembly Variant: 001	Sheet: 23 of 24
Drawn By:		File: PROC158A_Temp_Sensor.SchDoc	Size: B
Engineer: Vivek Dham/Adrian Ozer		Contact: http://www.ti.com/support	

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