

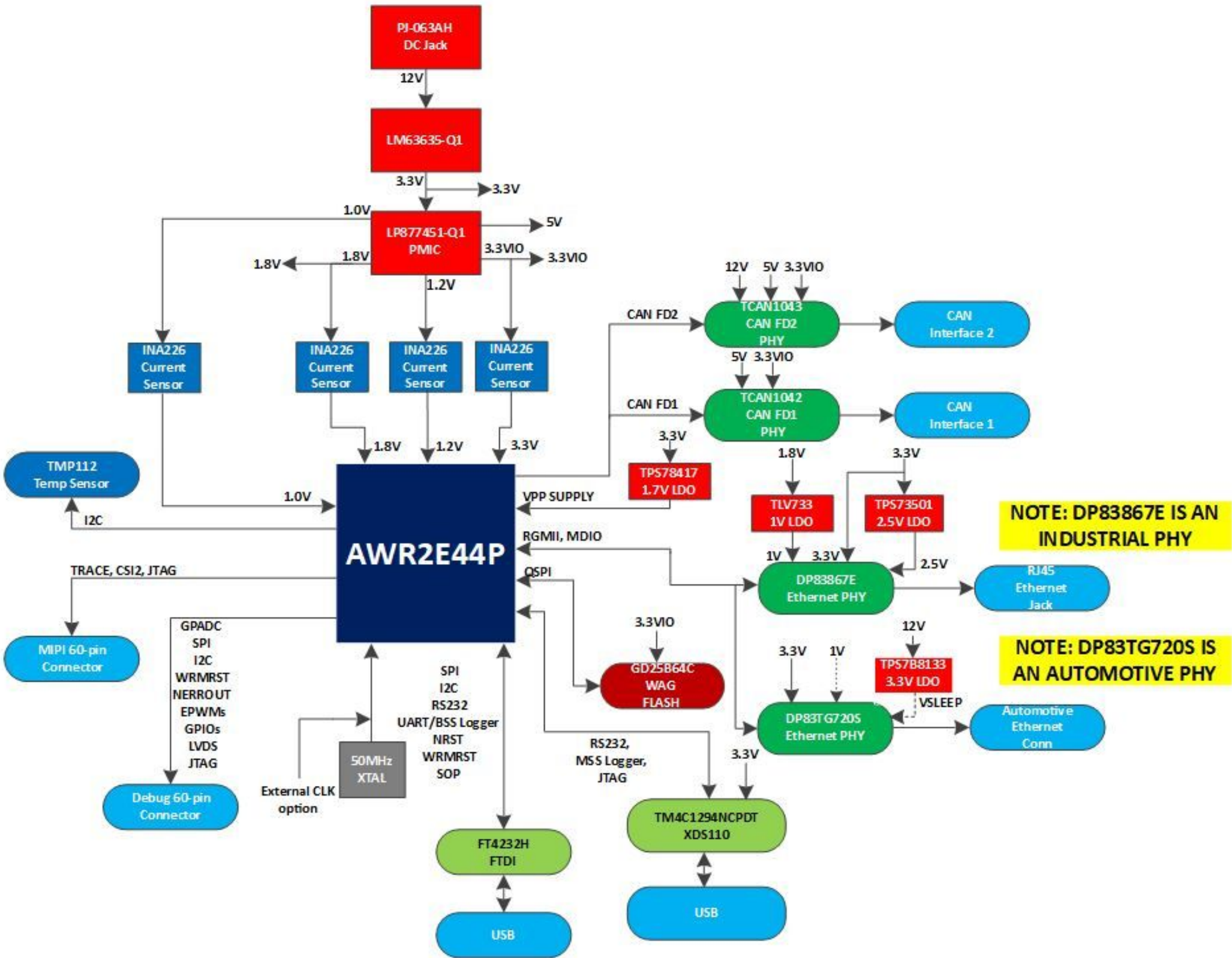
Revision History

Rev	ECN #	Approved Date	Approved by	Notes
REV A	01	30-04-2024		Taken AWR2E44EVM REVA Design and updated to AWR2E44P
REV A	02	21-05-2024		Changed U4 to 1Gbps AUTO ETH PHY with BOM Updates
REV A	03	25-06-2024		Changed Y3 to 50MHz R301, R309 made mountable and R303, R312 DNP
REV A	04	30-08-2024		Updated Block Diagram with 50MHz Updated L6& D11 part numbers

BLOCK DIAGRAM

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6	PMIC_REFERENCE
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8	SOP_REFERENCE
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10	VPP_LDO
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21	DEBUG_CONNECTOR
22	CAN_INTERFACE
23	CURRENT_SENSORS
24	TEMP_SENSORS
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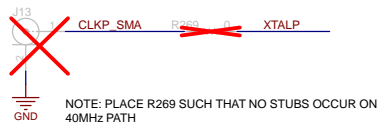
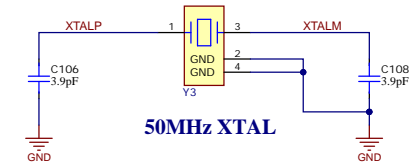


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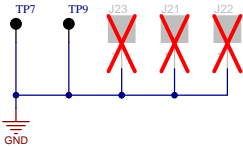
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Number: PROC196	Rev: A	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 1 of 25
Drawn By:	File: PROC196A_CoverSheet_SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	

AWR2E44P IO REFERENCE

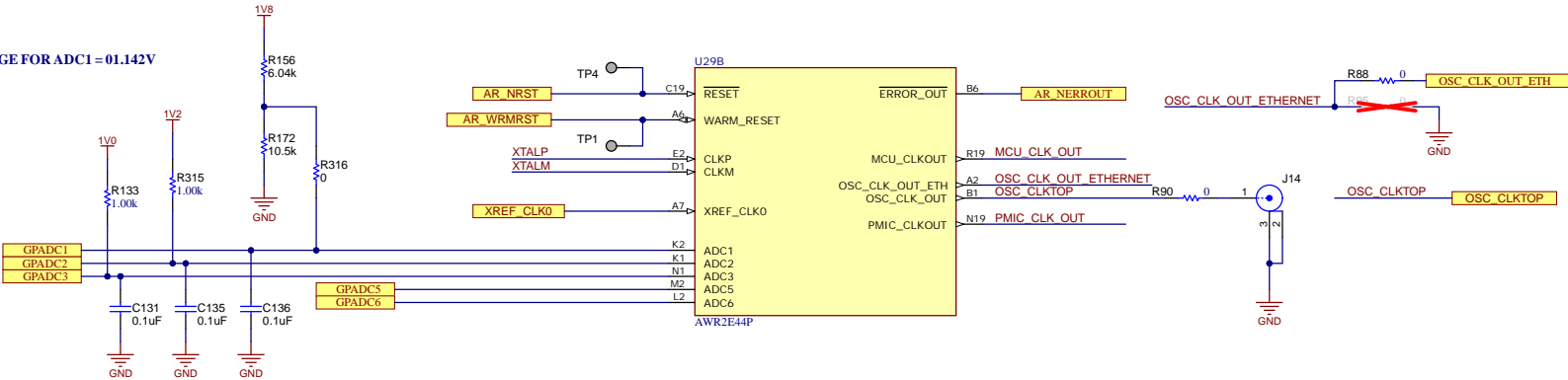
50MHZ CLOCK SOURCES



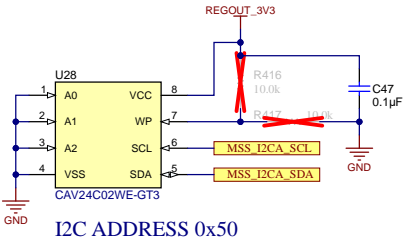
GND TEST POINTS



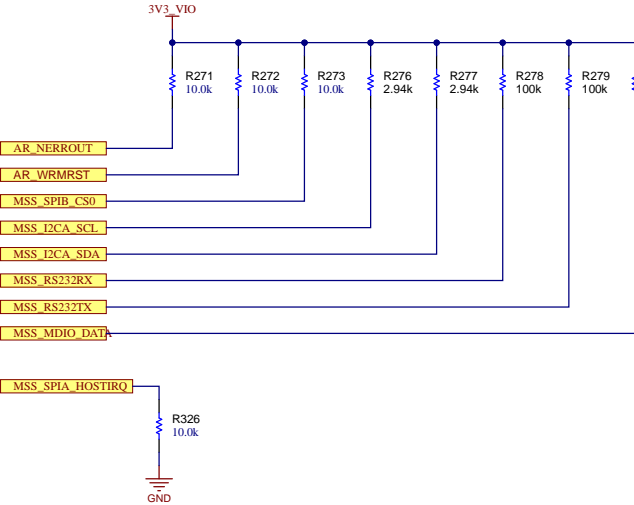
RESET, ERROR, CLKOUT, GPADC, CLK



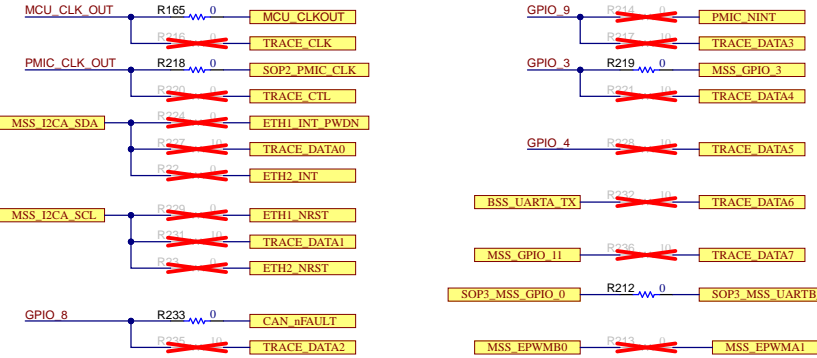
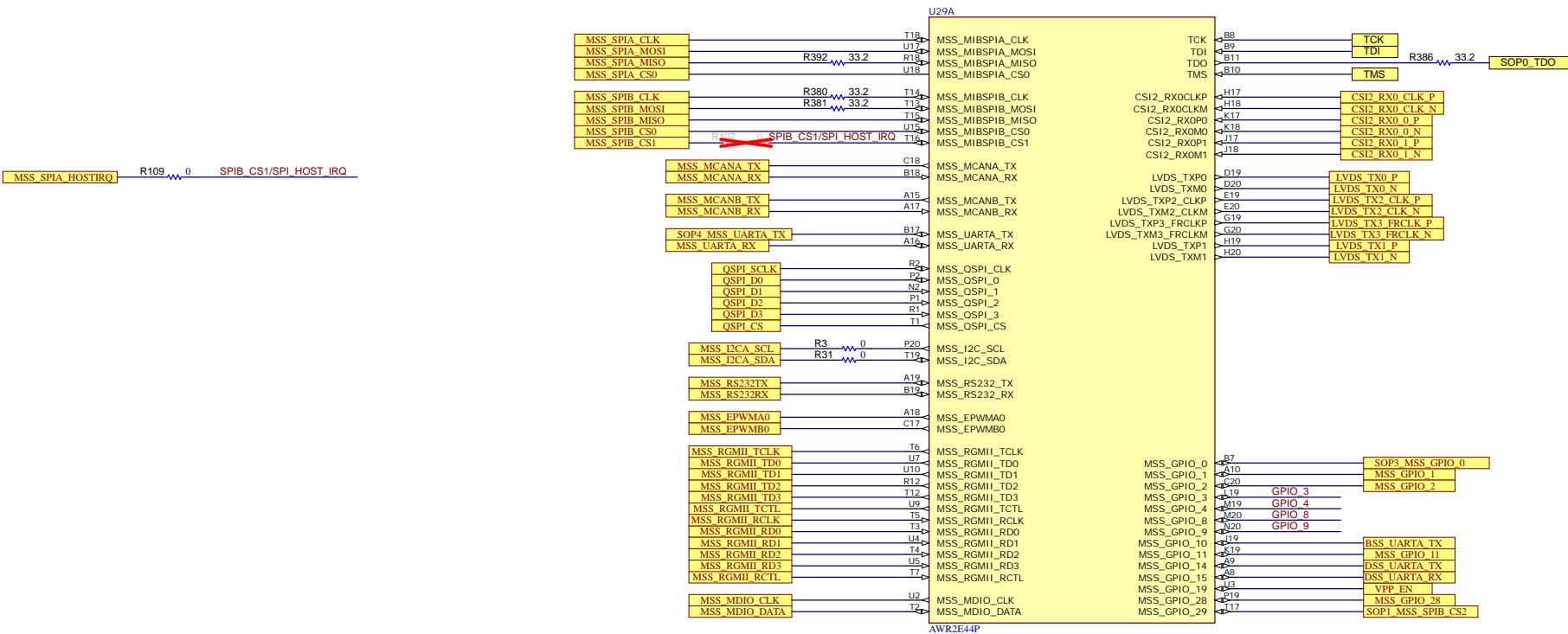
BOARD ID EEPROM



PULLUPS/DOWNS



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

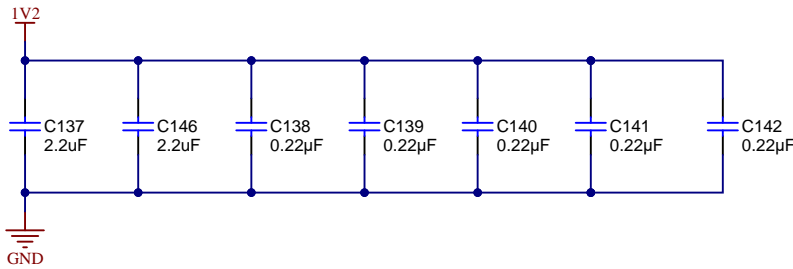


A

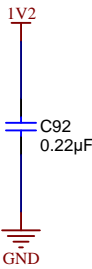


DECOUPLING REFERENCE

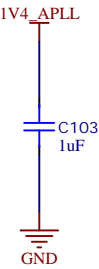
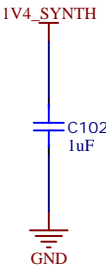
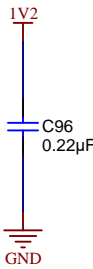
1.2V DIGITAL SUPPLY



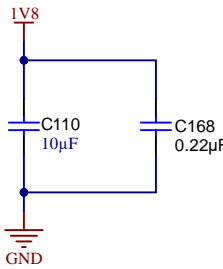
SRAM SUPPLY



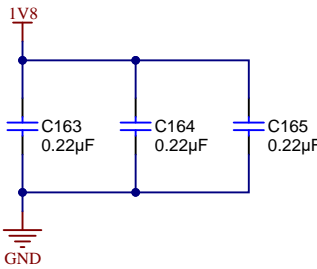
VNWA SUPPLY



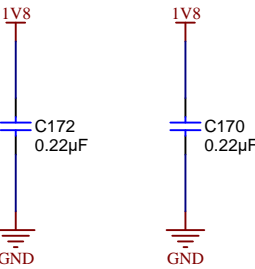
1.8V CLOCK SUPPLY



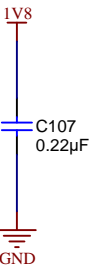
1.8V IO SUPPLY



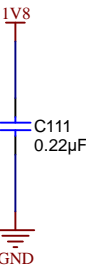
1.8V LVDS SUPPLY



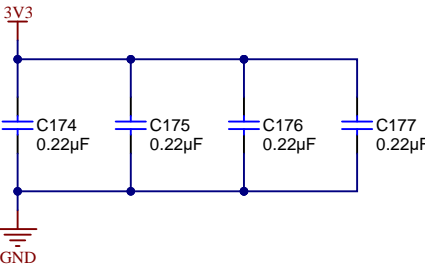
1.8V PM SUPPLY



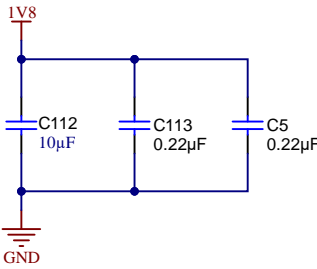
1.8V VCO SUPPLY



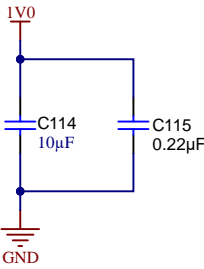
3.3V IO SUPPLY



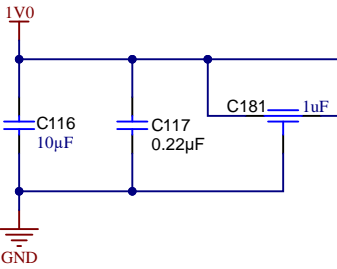
1.8V BB SUPPLY



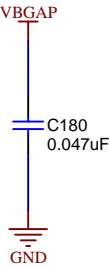
RF1 SUPPLY



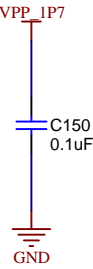
RF2 SUPPLY



BANDGAP SUPPLY



VPP SUPPLY



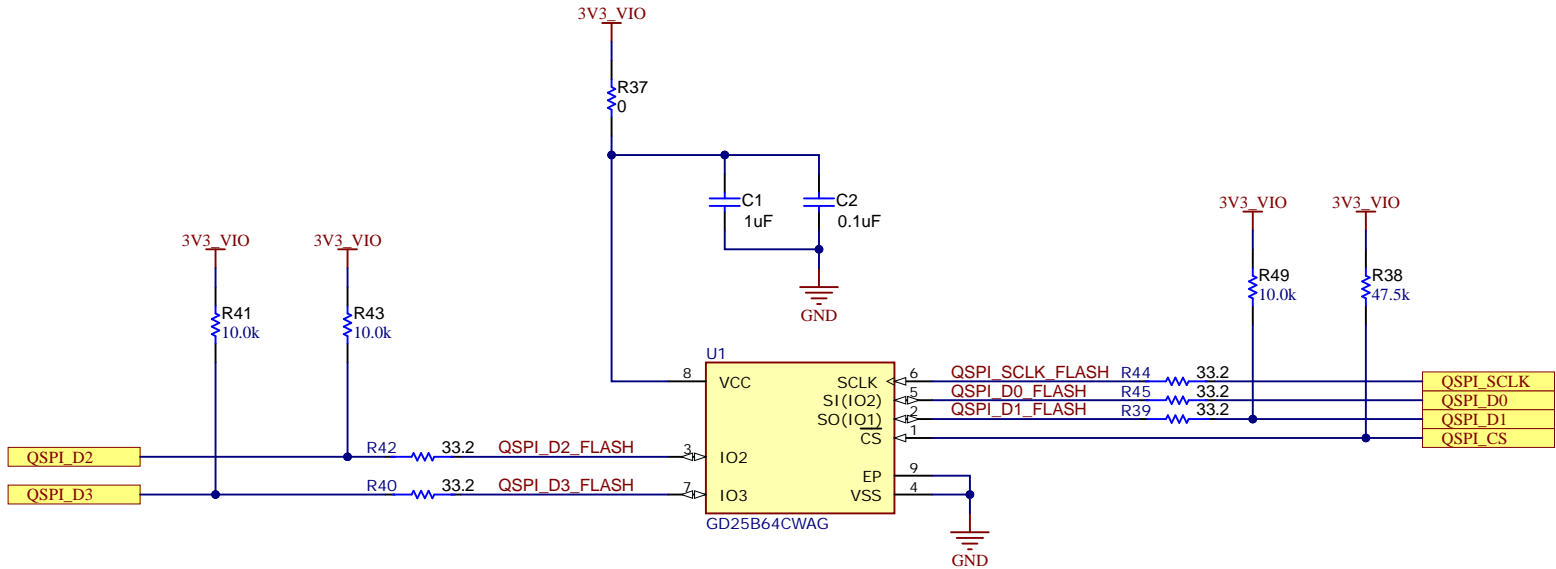
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TID #: N/A	Project Title: AWR2E44PEVM	
Number: PROC196	Rev: A	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 4 of 25
Drawn By:	File: PROC196A_Decoupling_Reference.SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	

References

[GD25B64CWAG Datasheet](#)

QSPI FLASH REFERENCE



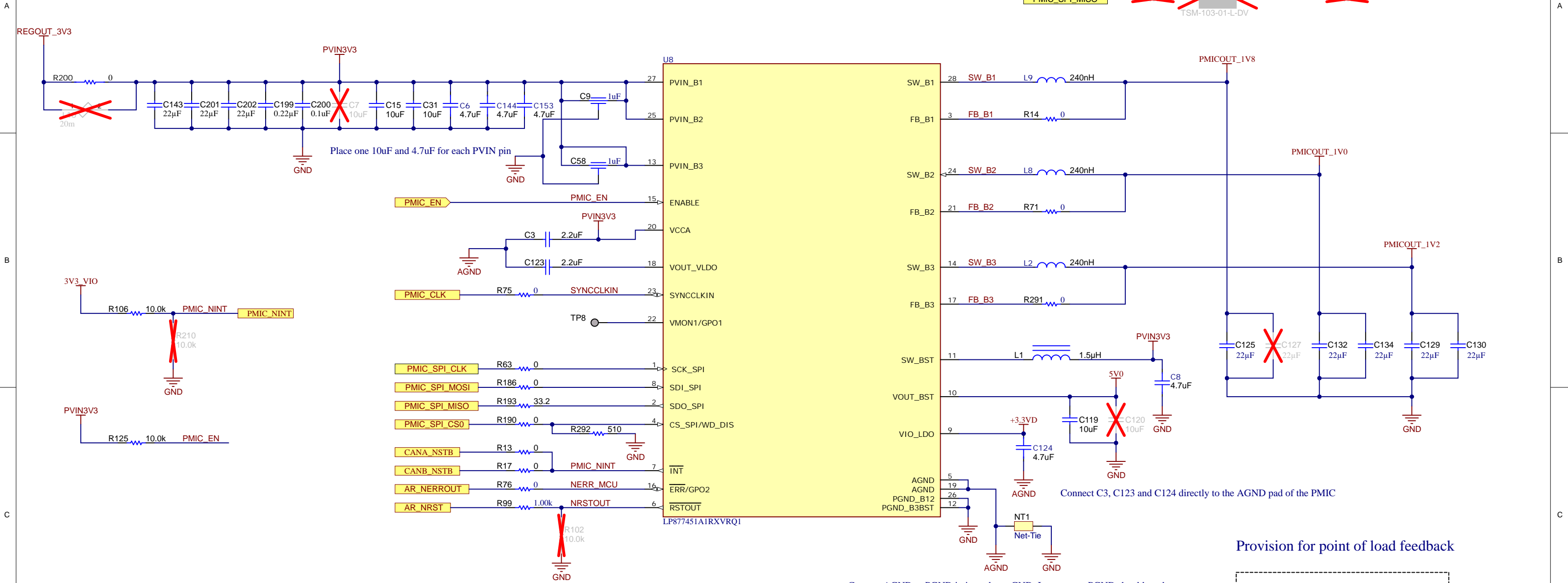
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Engineer: Sami Mardini	Contact: http://www.ti.com/support	

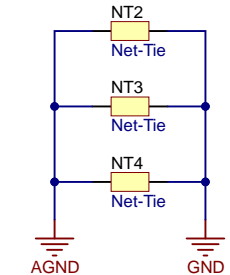
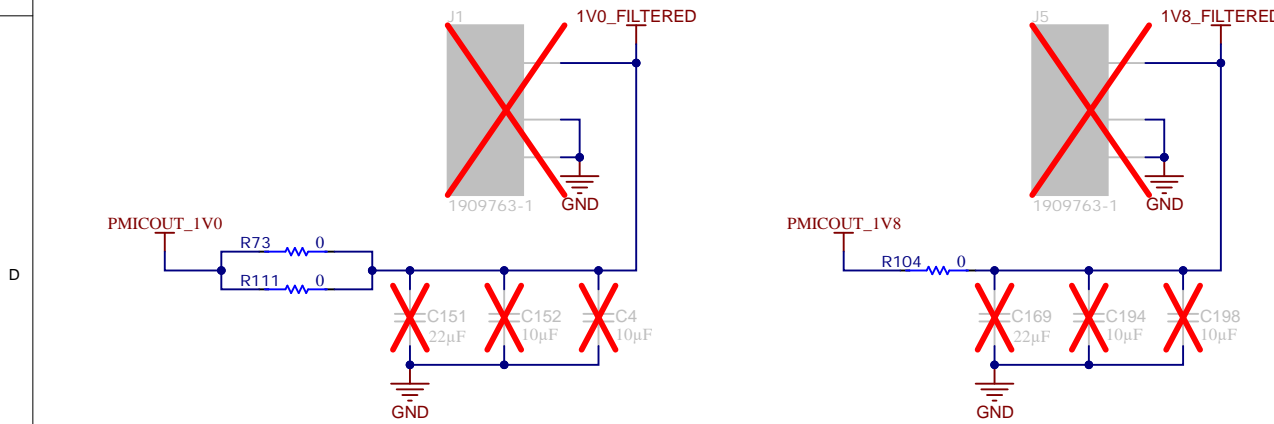
References

PMIC REFERENCE

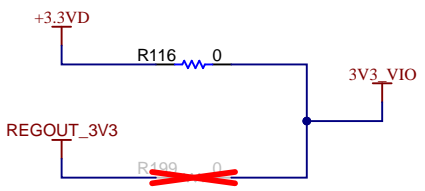
DEBUG TEST PINS



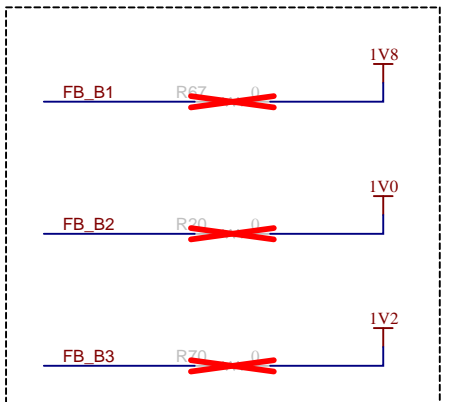
PMIC LC FILTER



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



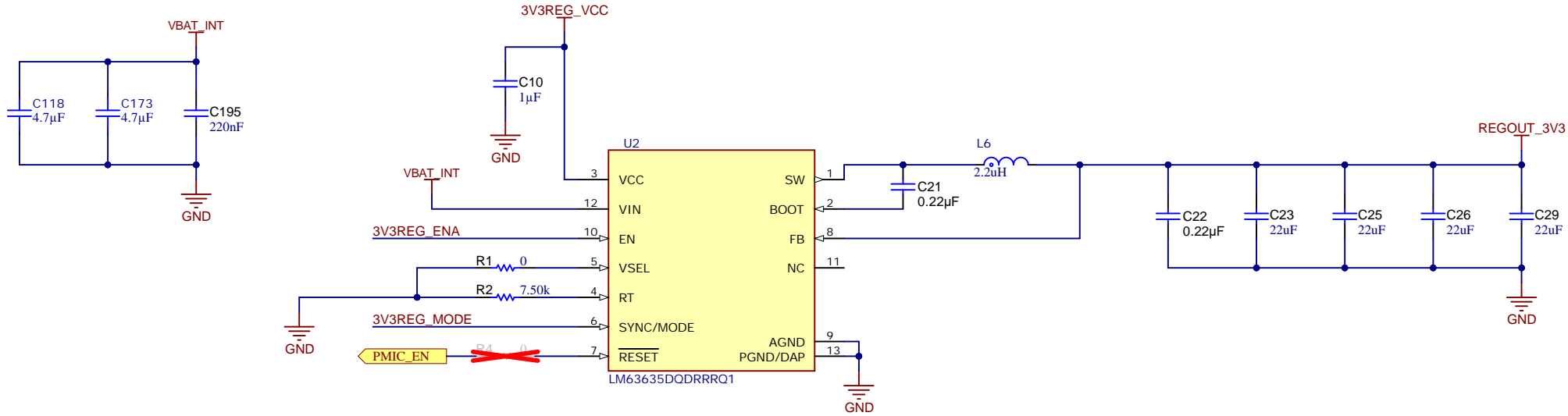
Provision for point of load feedback



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References

3V3 SUPPLY REFERENCE

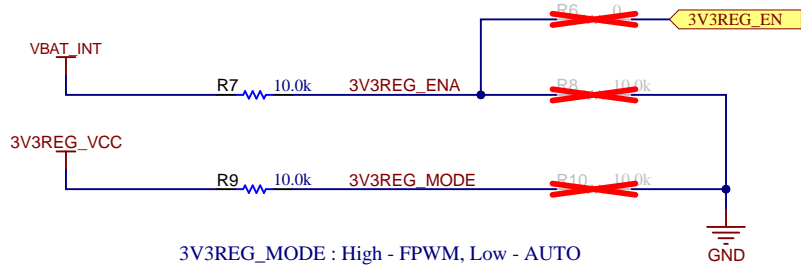


Switching Frequency : 2.1 MHz

Mode : Forced PWM

Output Voltage : Fixed 3.3

Output current limit : 3.25A



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TID #: N/A	Project Title: AWR2E44PEVM	
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SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 7 of 25
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Engineer: Sami Mardini	Contact: http://www.ti.com/support	

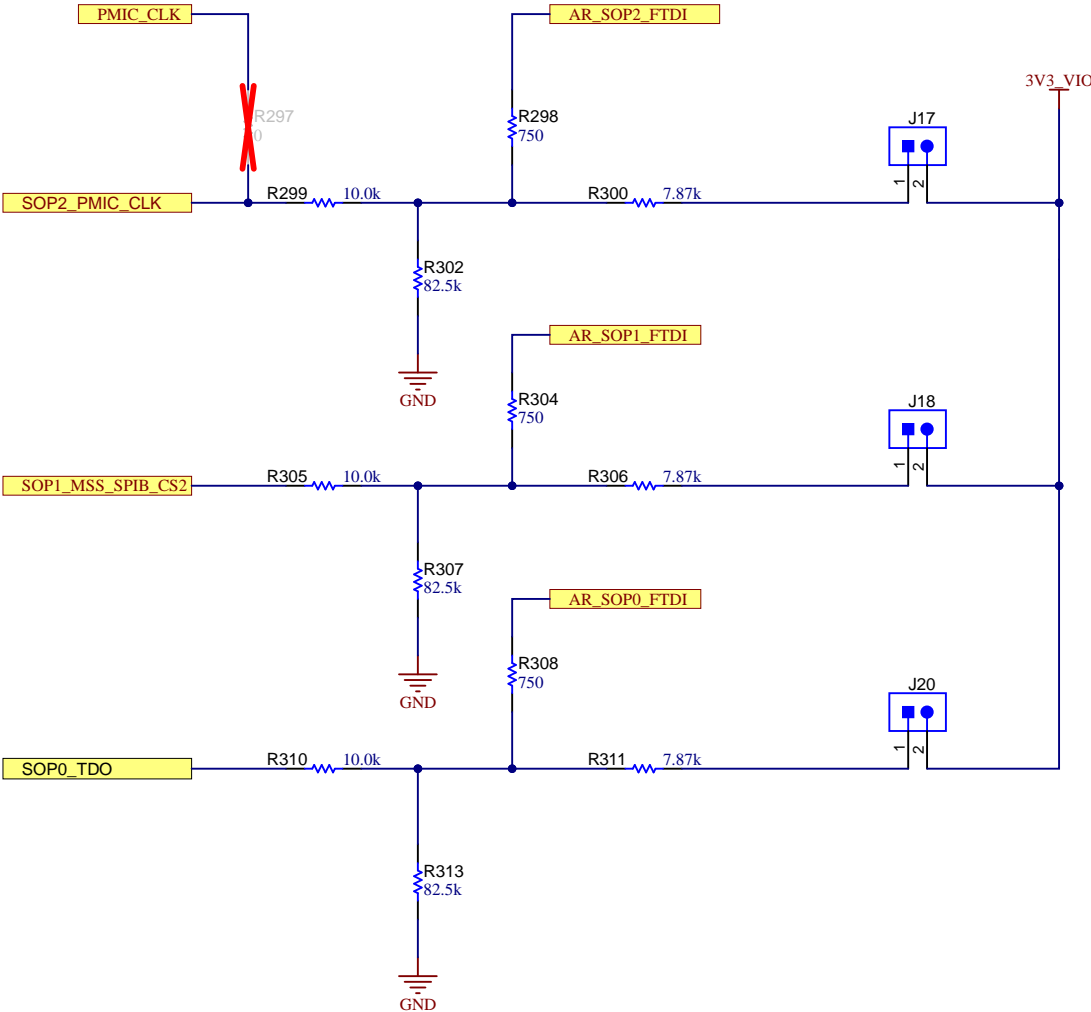
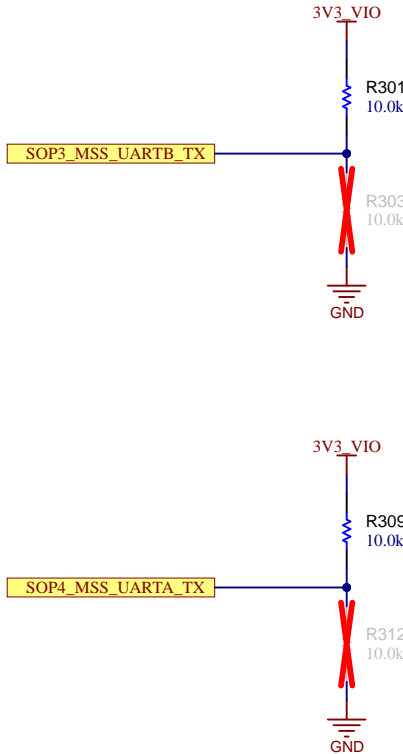
SOP REFERENCE

XTAL DETECT SOP CONFIG

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

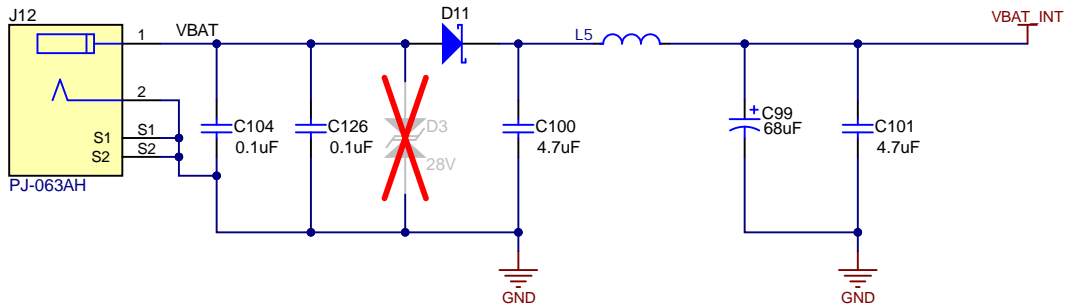
SOP2, SOP1, SOP0

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

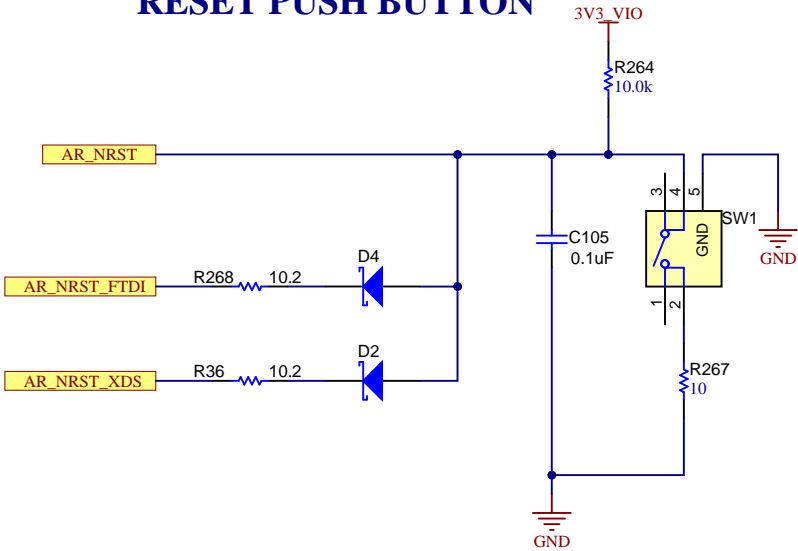


POWER IN, RESETS, AND LEDS

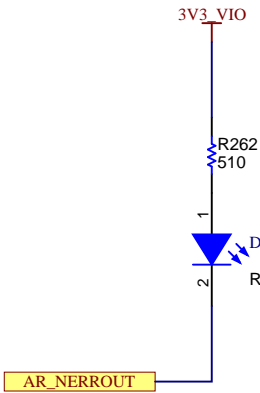
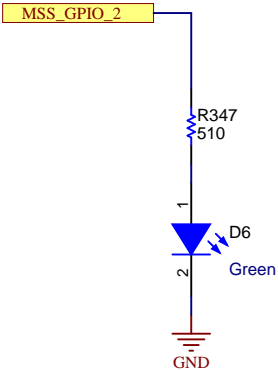
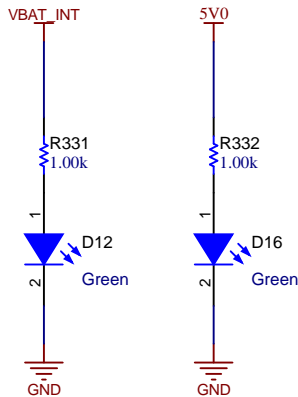
POWER JACK



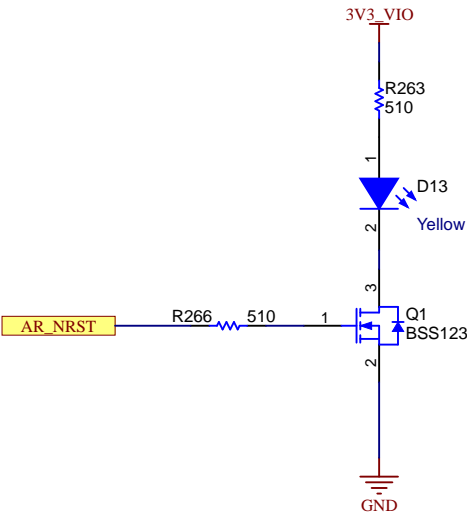
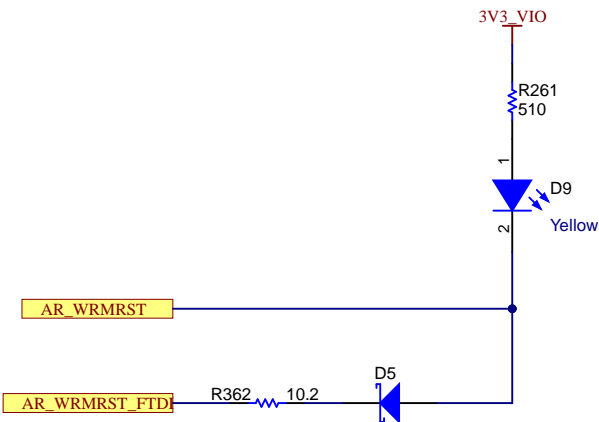
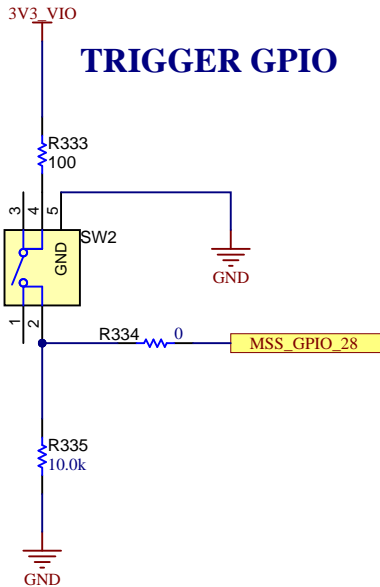
RESET PUSH BUTTON



INDICATION LEDS



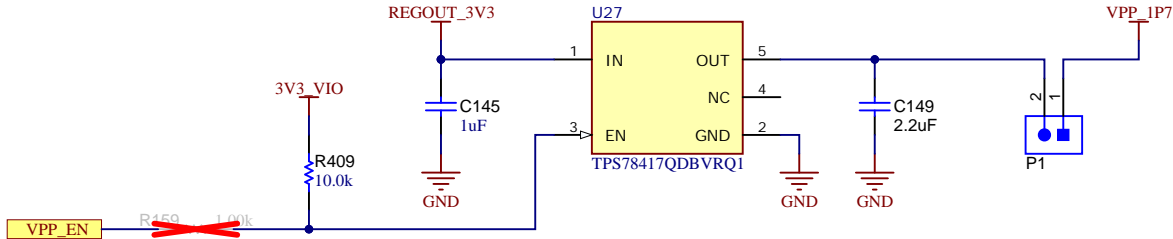
TRIGGER GPIO



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SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 9 of 25
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Engineer: Sami Mardini	Contact: http://www.ti.com/support	





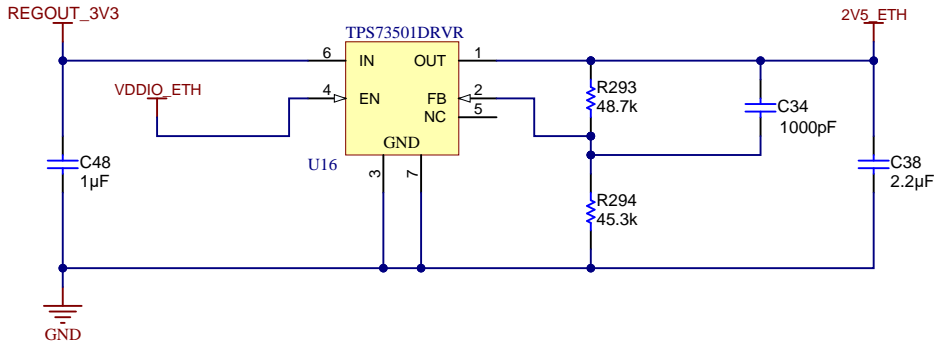
References

[TPS73501 Datasheet](#)

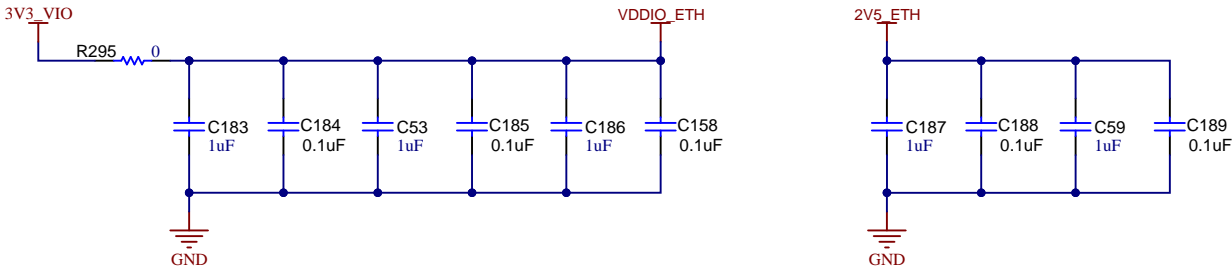
[TLV733P Datasheet](#)

ETHERNET POWER

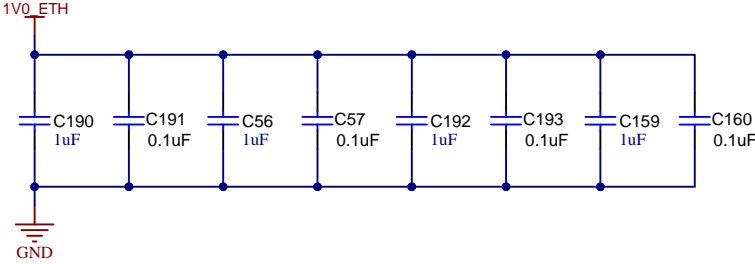
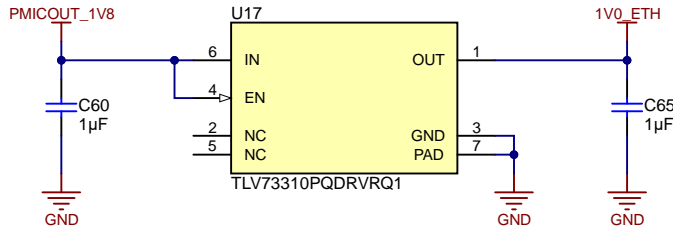
2.5V ANALOG SUPPLY



DECOUPLING CAPS



1V ANALOG SUPPLY

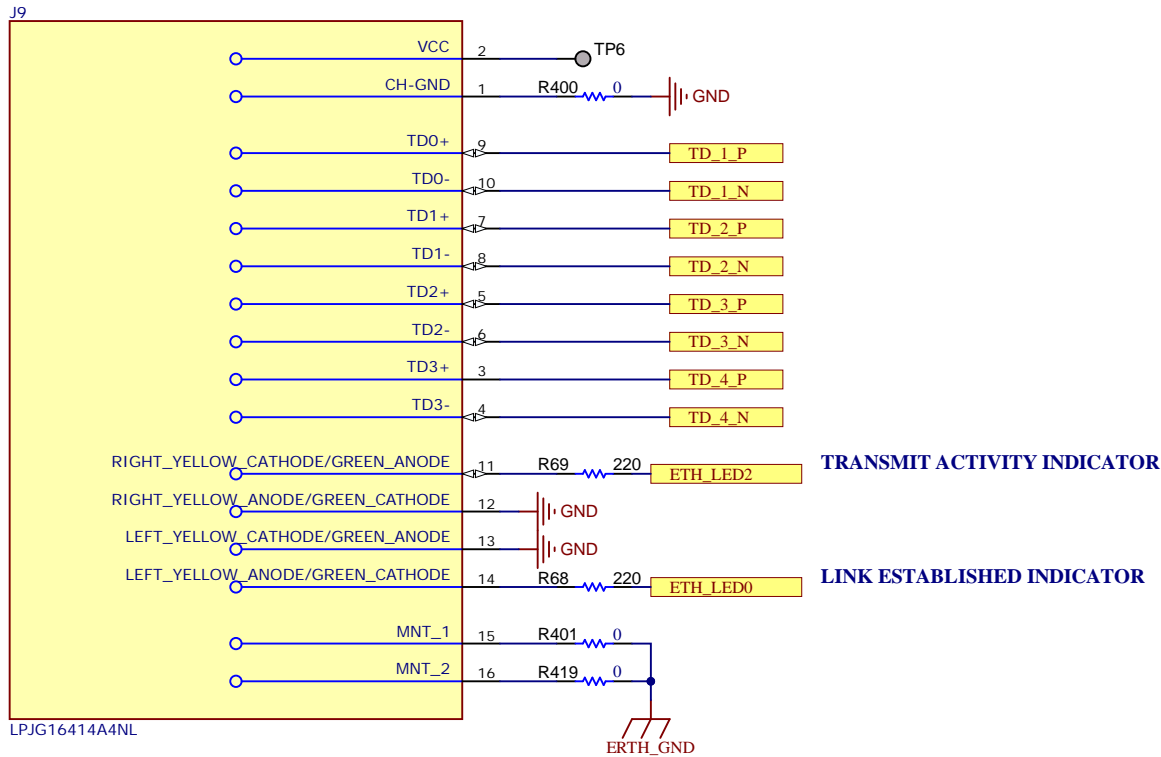


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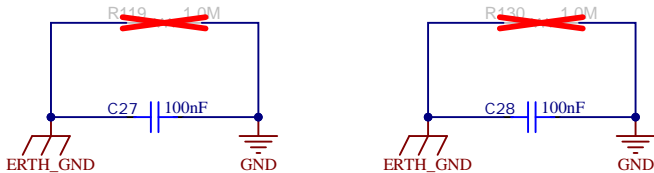
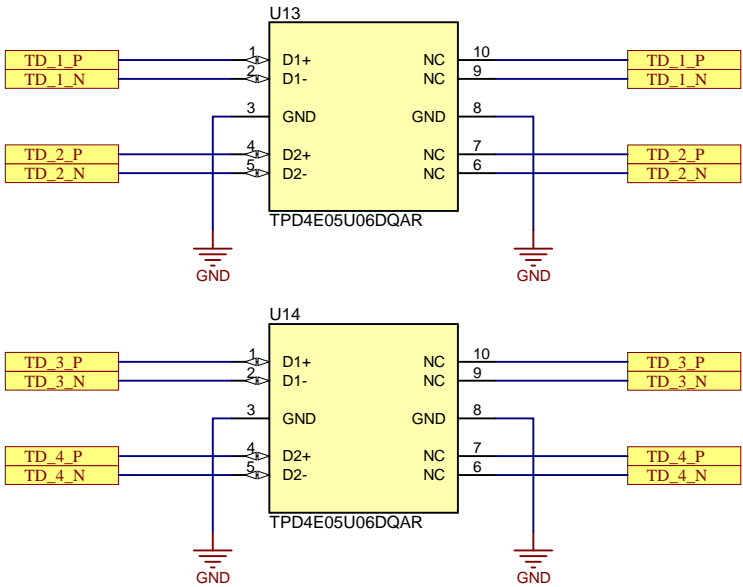
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Drawn By:	File: PROC196A_Ethernet_PWR.SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	

ETHERNET MAGNETICS

RJ45 WITH MAGJACK



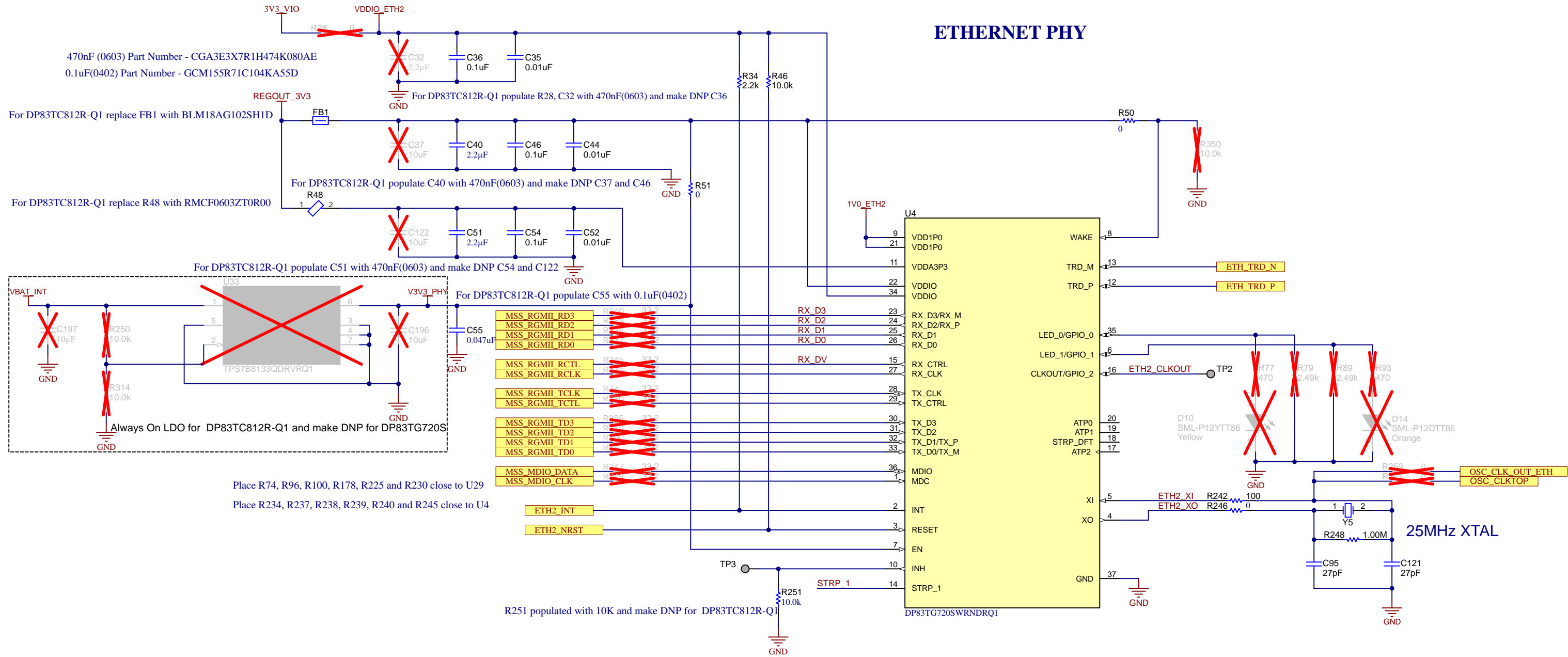
ETHERNET ESD PROTECTION



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Number: PROC196	Rev: A	Sheet Title:
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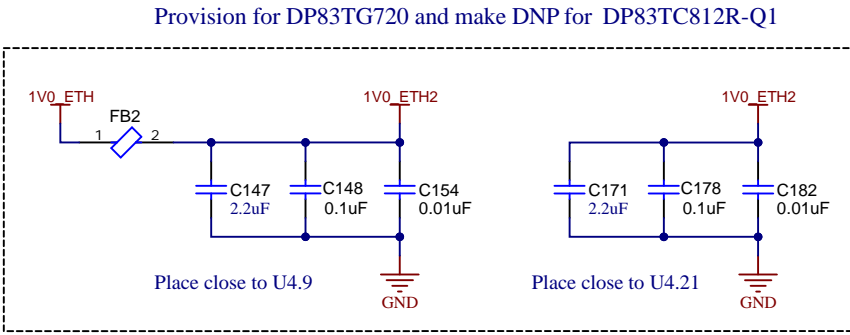
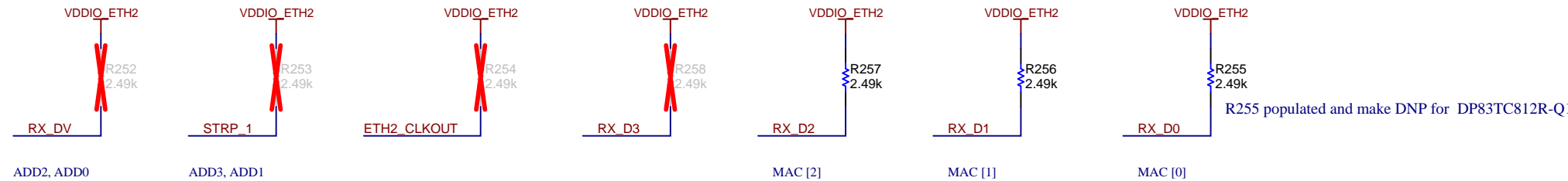
ETHERNET

ETHERNET PHY



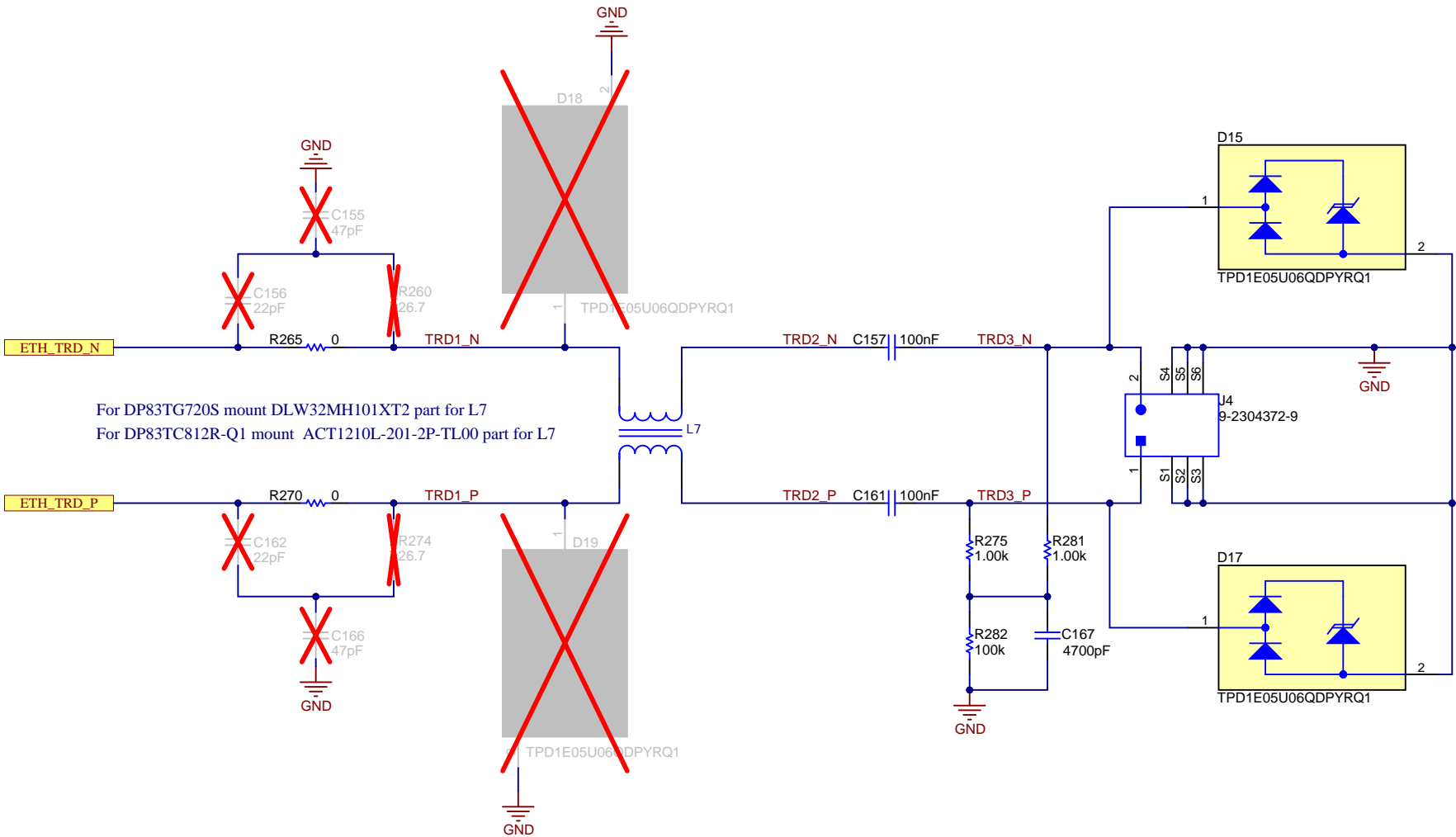
BOOTSTRAP CONFIGURATION PINS

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



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ETHERNET CONNECTOR

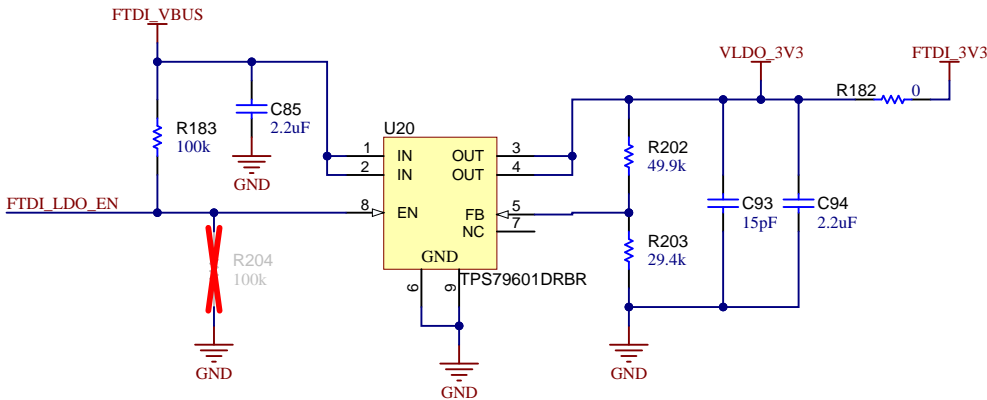


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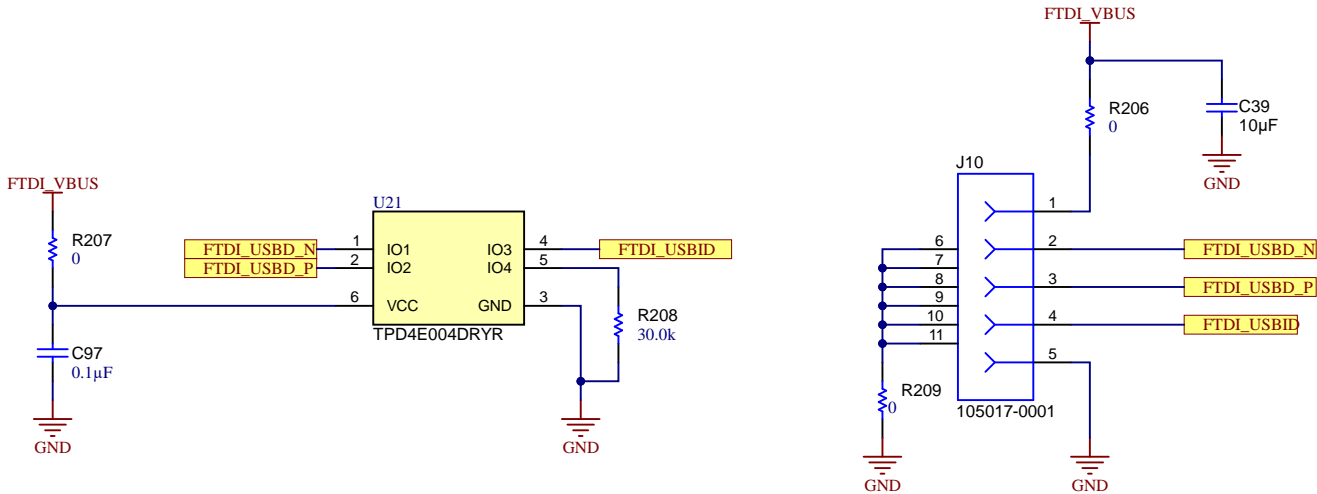
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Drawn By:	File: PROC196A_Auto_Ethernet_conn.SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	

FTDI (1/2)

3.3V LDO FOR FTDI



FTDI USB PORT



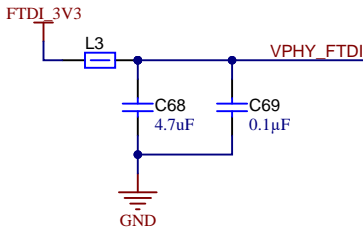
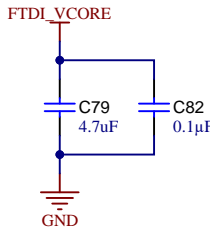
References

[FT4232H Datasheet](#)

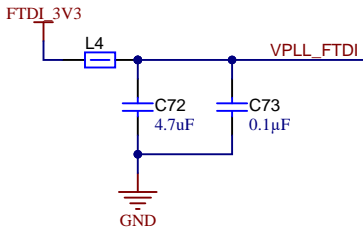
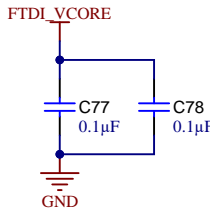
FTDI (2/2)

FTDI SUPPLY DECAPS

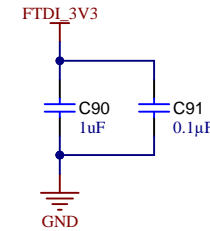
VCORE DECAPS



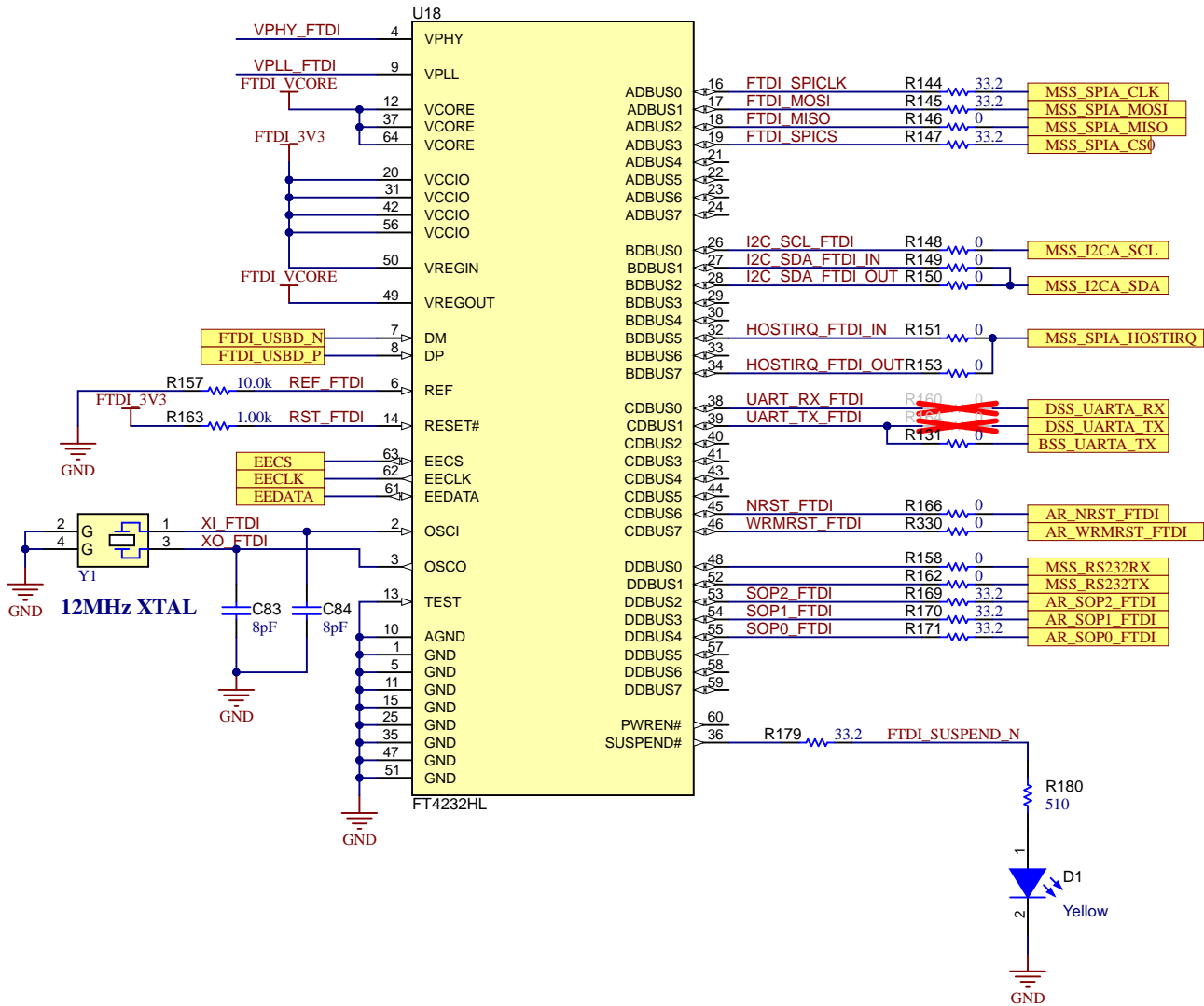
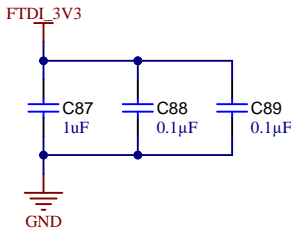
VREGOUT DECAPS



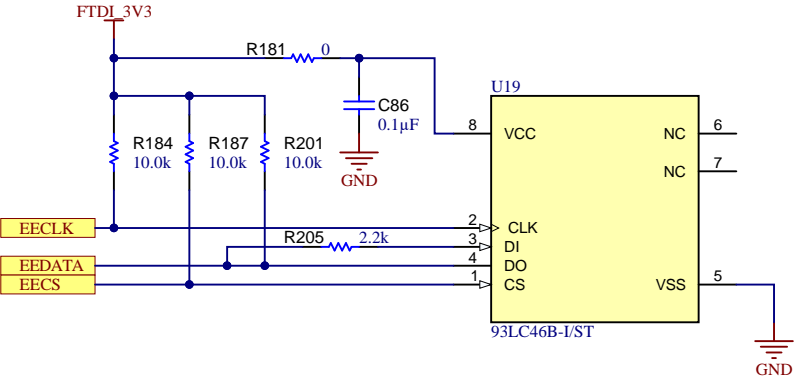
VREGIN DECAPS



VCCIO DECAPS

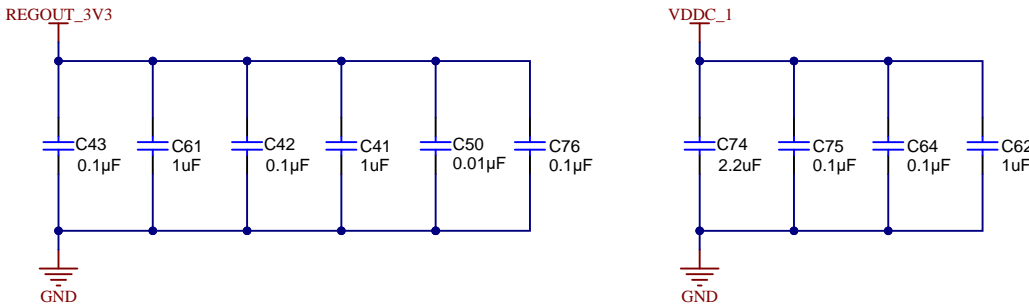


FTDI EEPROM

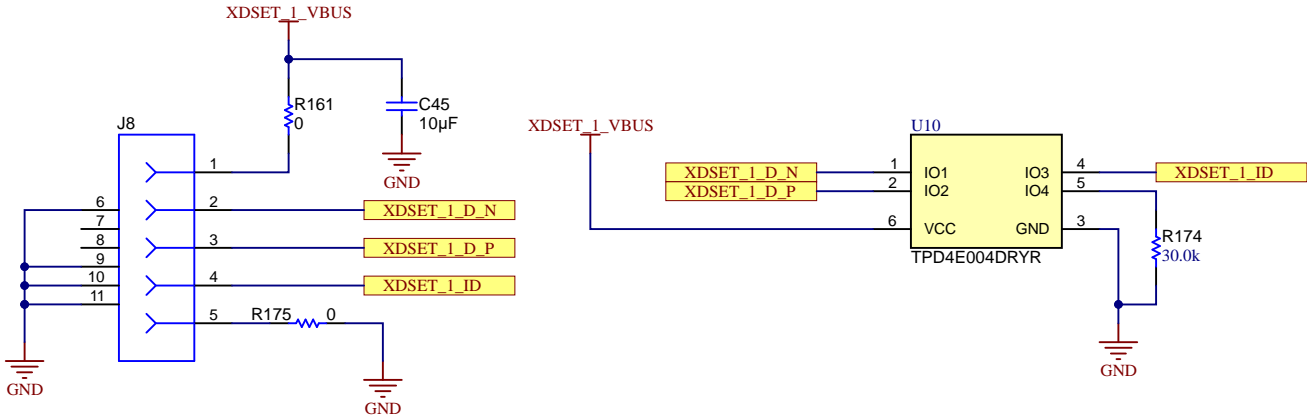


XDS110(1/2)

XDS110 DECOUPLING CAPS



XDS110 USB PORT



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References

[TM4C1294NCPDT Datasheet](#)

XDS110(2/2)



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Orderable: AWR2E44PEVM	Designed for: Public Release	Mod. Date: 8/30/2024
TID #: N/A	Project Title: AWR2E44PEVM	
Number: PROC196	Rev: A	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 19 of 25
Drawn By:	File: PROC196A_XDS110Interface_1B.SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	

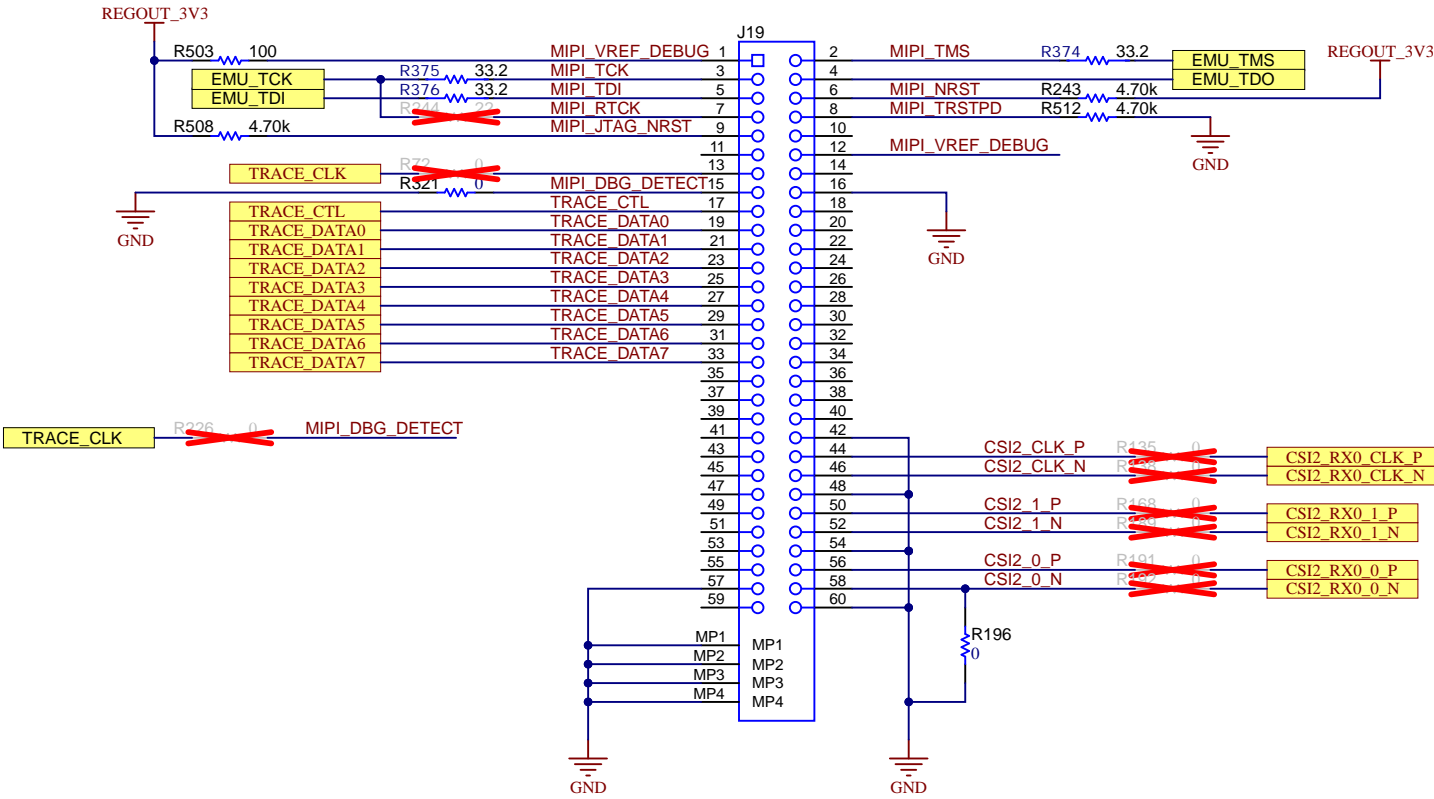
© Texas Instruments 2024

References

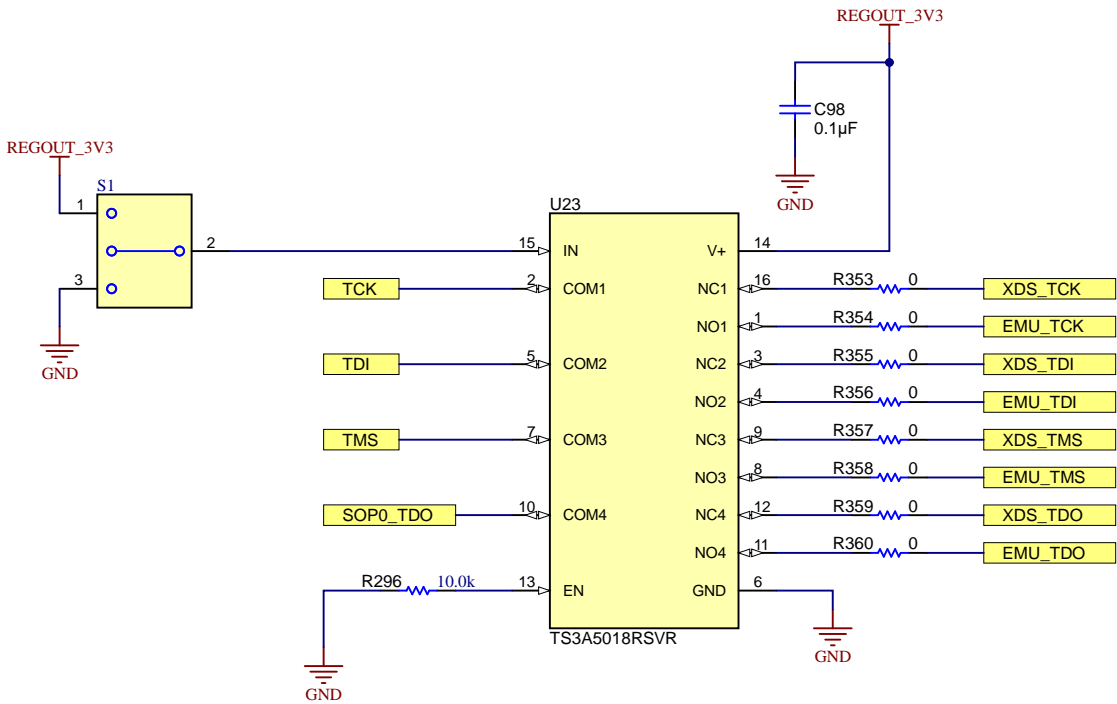
EMULATION AND TRACE HEADERS
XDS560v2 EMULATOR

MIPI 60 PIN HEADER

NOTE: DEFAULT CONFIGURATION IS FOR MIPI 60 PIN EMULATOR



JTAG MUX BETWEEN XDS110 AND MIPI 60 PIN

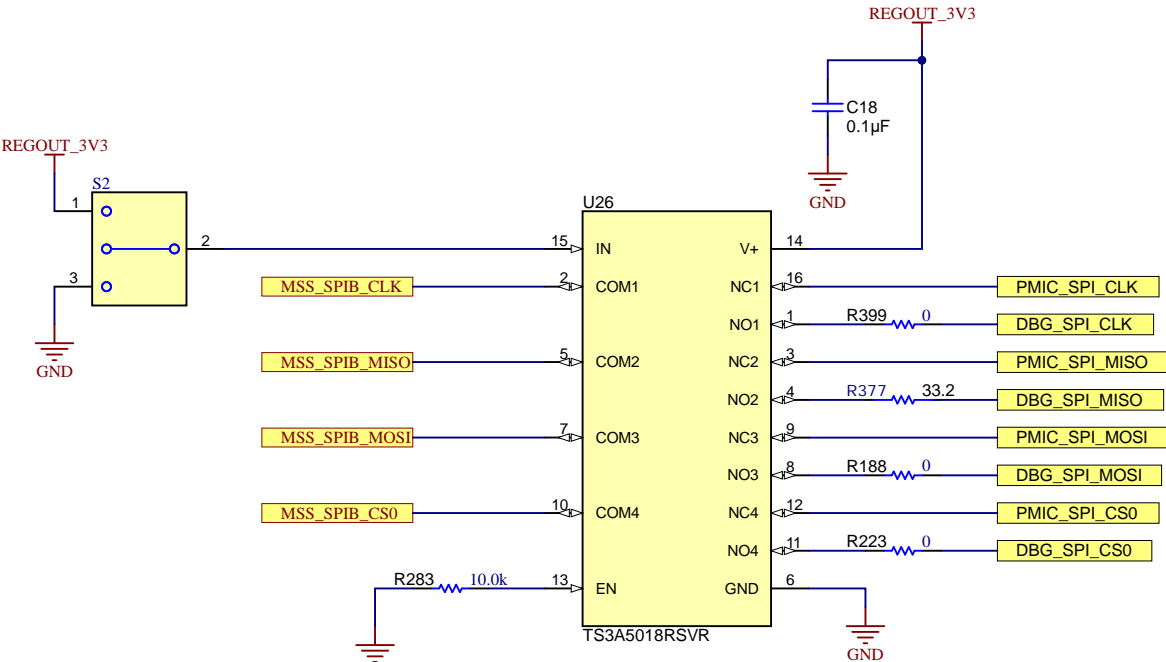
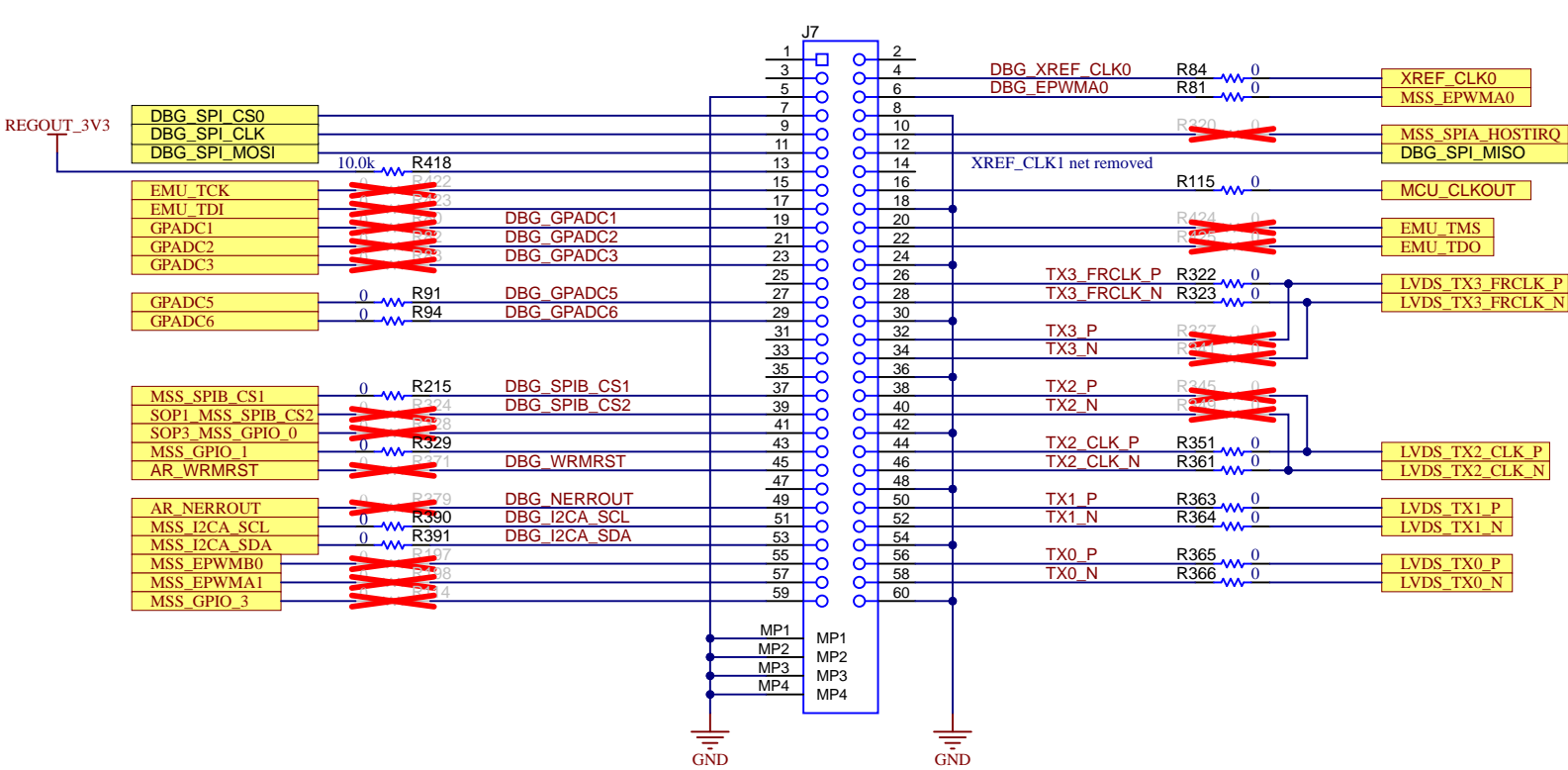


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Orderable: AWR2E44PEVM	Designed for: Public Release	Mod. Date: 8/30/2024
TID #: N/A	Project Title: AWR2E44PEVM	
Number: PROC196	Rev: A	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 20 of 25
Drawn By:	File: PROC196A_JTAG_EMU_Connector.SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	

60 PIN DEBUG CONNECTOR

SPI MUX BETWEEN PMIC AND 60 PIN DEBUG CONNECTOR



PLACE DBG SERIES RESISTORS NEAR 60 PIN CONNECTOR

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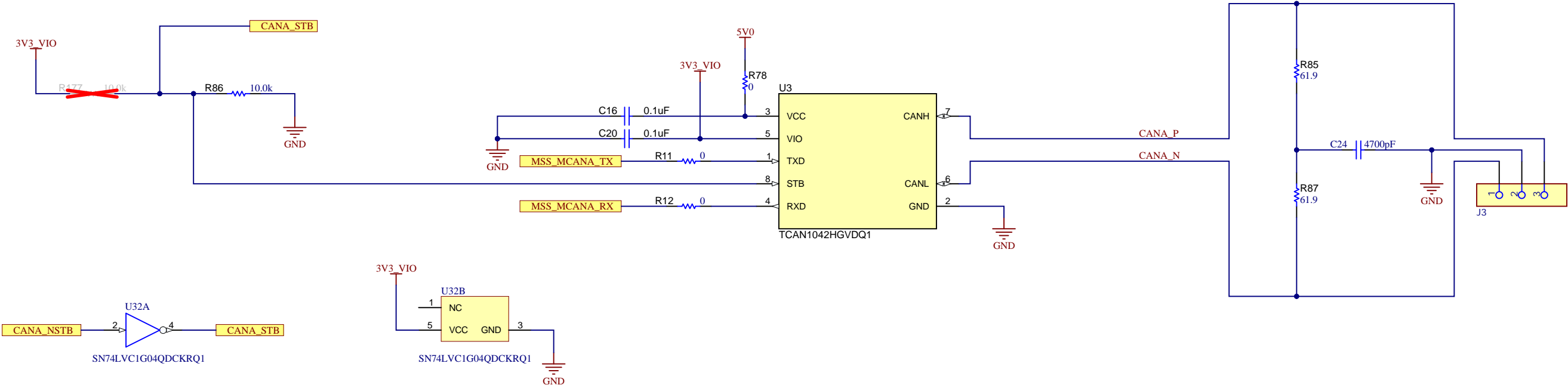
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SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 21 of 25
Drawn By:	File: PROC196A_Debug_Connector.SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	

References

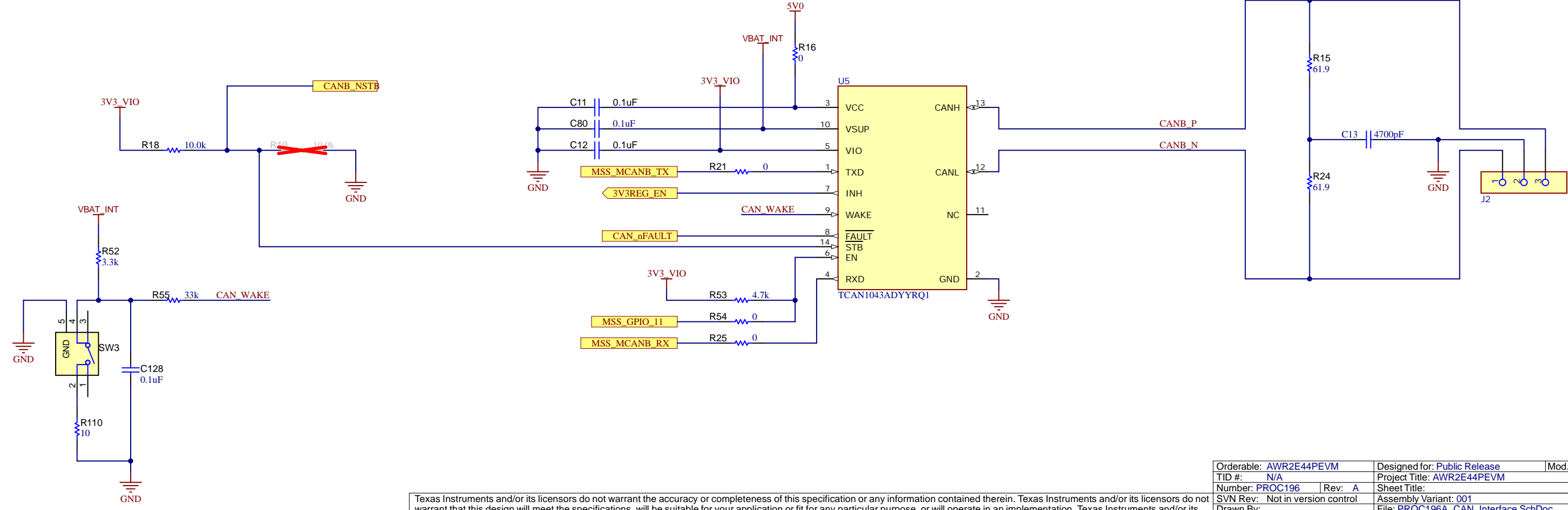
[TCAN1042 Datasheet](#)

CAN INTERFACE

CAN_A PHY



CAN_B PHY



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Orderable: AWR2E44PEVM	Designed for: Public Release	Mod. Date: 8/30/2024
TID #: N/A	Project Title: AWR2E44PEVM	
Number: PROC196	Rev: A	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 22 of 25
Drawn By:	File: PROC196A_CAN_Interface.SchDoc	Size: B
Engineer: Sami Mardini	Contact: http://www.ti.com/support	



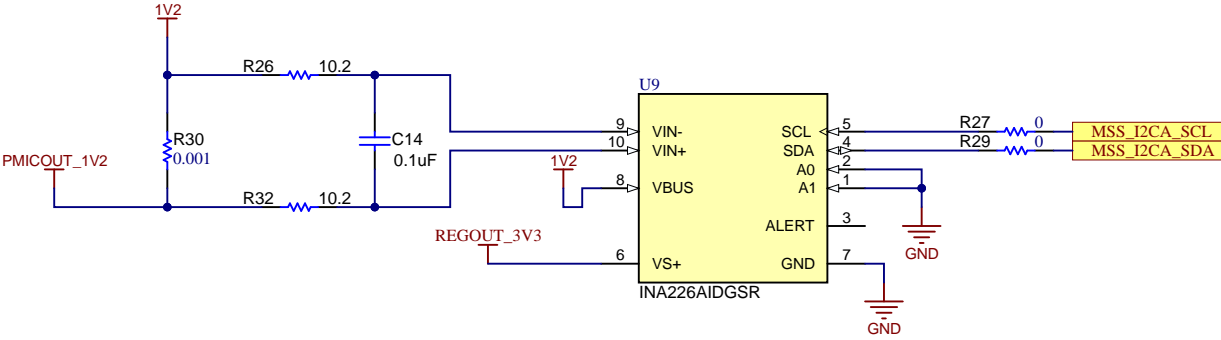
CURRENT SENSORS

References

INA226 Datasheet

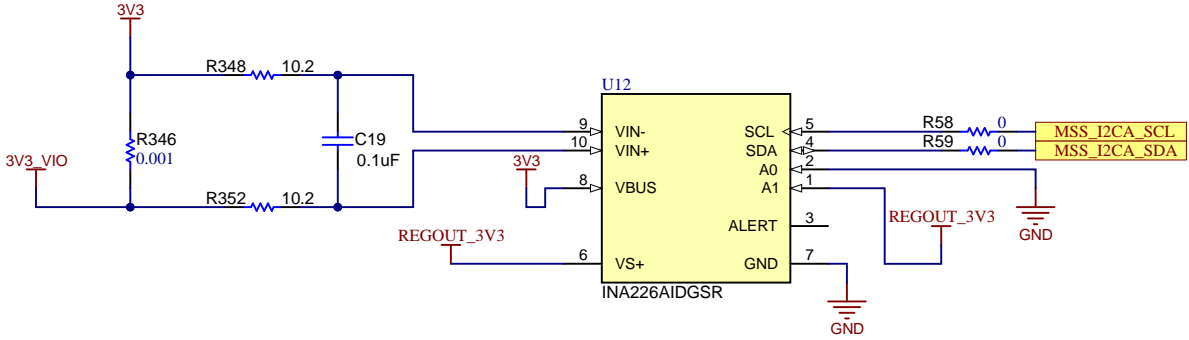
1.2V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x40



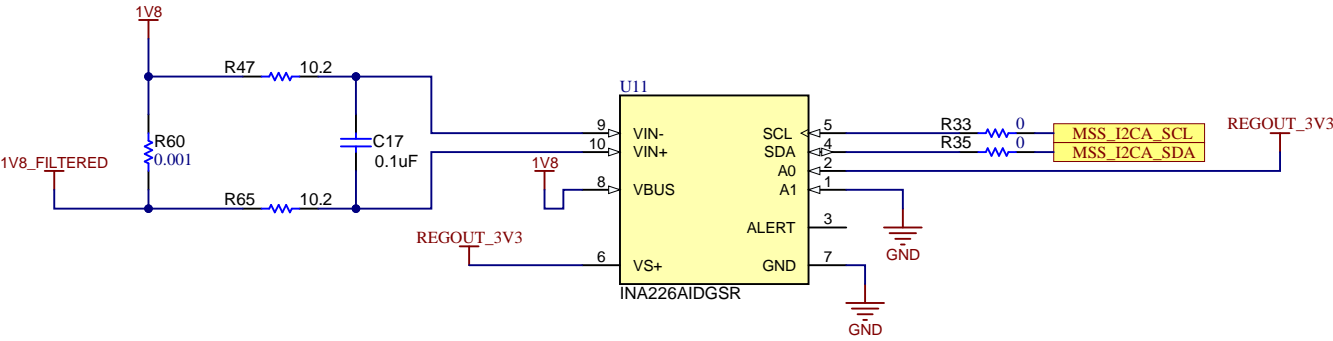
3.3V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x44



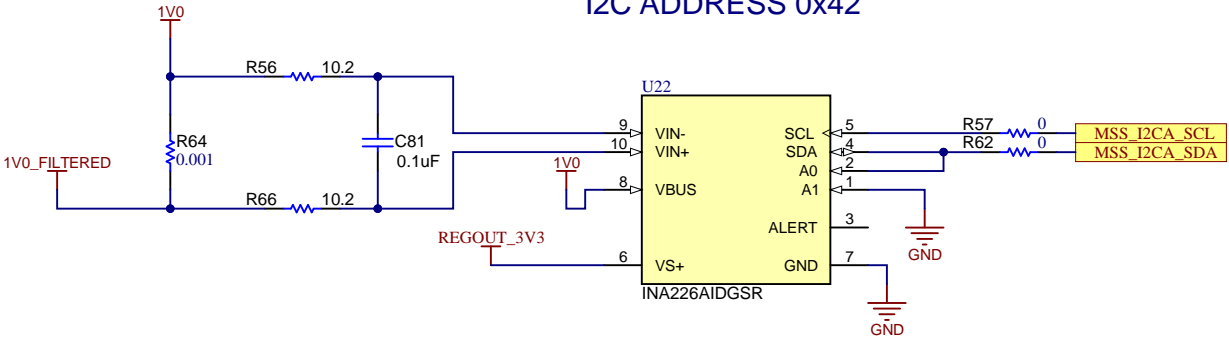
1.8V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x41



1.0V SUPPLY CURRENT SENSOR

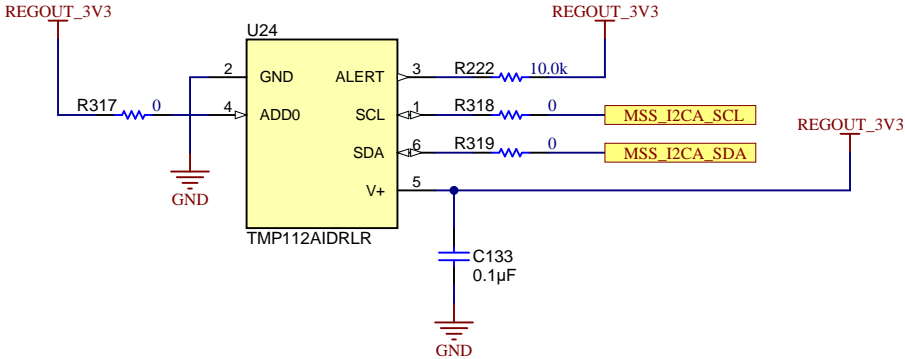
I2C ADDRESS 0x42




TEMP SENSOR

References
[TMP112 Datasheet](#)

I2C ADDRESS 0x49



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Orderable: AWR2E44PEVM		Designed for: Public Release		Mod. Date: 8/30/2024		 TEXAS INSTRUMENTS http://www.ti.com © Texas Instruments 2024
TID #: N/A		Project Title: AWR2E44PEVM				
Number: PROC196		Rev: A		Sheet Title:		
SVN Rev: Not in version control		Assembly Variant: 001			Sheet: 24 of 25	
Drawn By:		File: PROC196A_Temp_Sensor.SchDoc			Size: B	
Engineer: Sami Mardini		http://www.ti.com/support				

FID1

FID2

FID3

FID4

FID5

FID6

FID7

FID8

FID9

FID10

FID11

FID12

FID13

FID14

FID15

FID16


PCB Number: PROC196
PCB Rev: A


PCB
LOGO
Texas Instruments


PCB
LOGO
FCC disclaimer

PCB
LOGO
WEEE logo

PCB
LOGO
ESD Susceptible


CAUTION HOT SURFACE

LOGO2

CE Mark

Logo5

UKCA Marking

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

Variant/Label Table	
Variant	Label Text
001	AWR2E44PEVM

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.

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