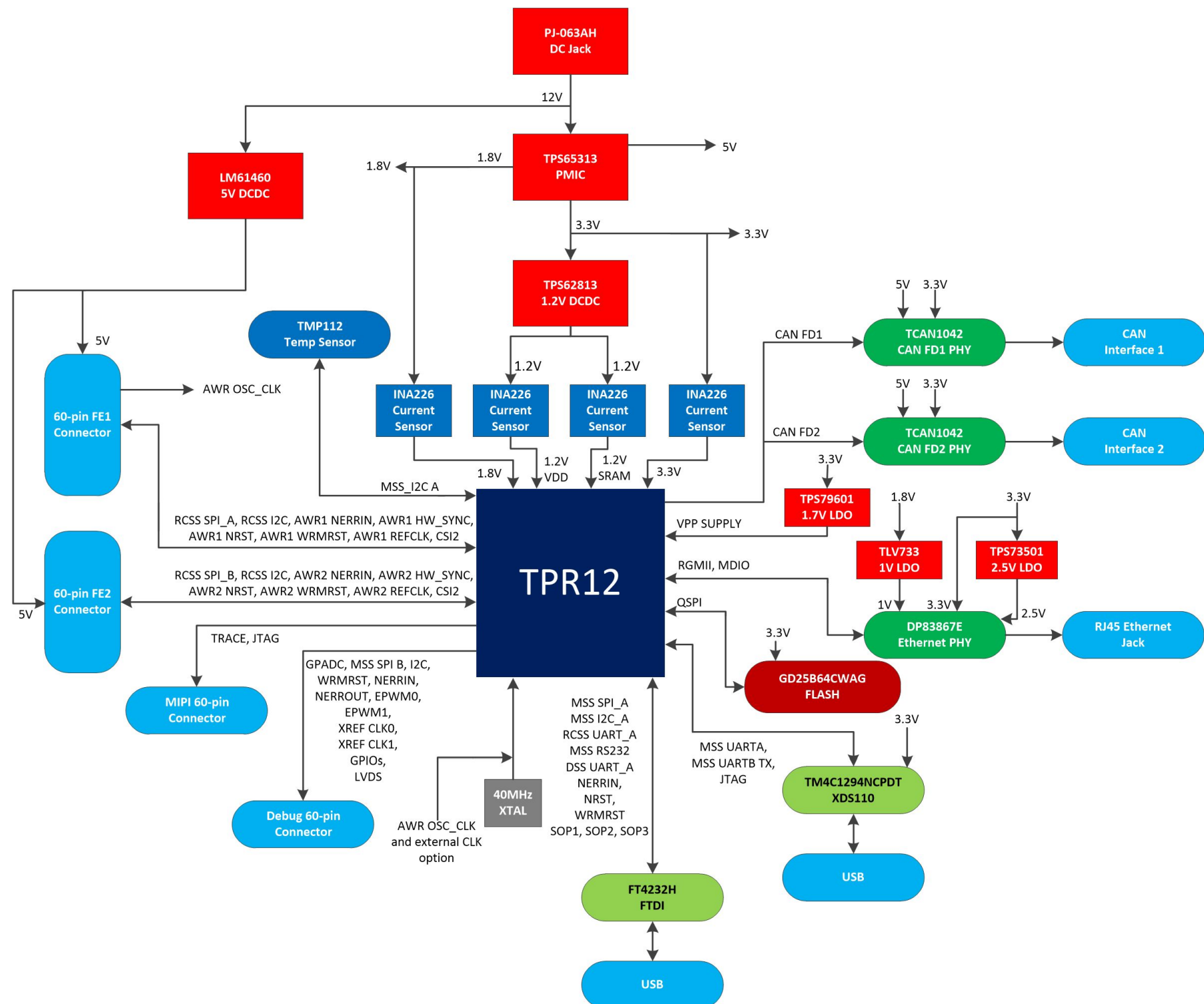


Revision History


Rev	ECN #	Approved Date	Approved by	Notes
B	1	11/16/2020	Adrian Ozer	1. QSPI Flash updated to GD25B64CWAG for bootloader compatibility
B	2	11/16/2020	Adrian Ozer	2. R416 made DNP by default
B	3	11/16/2020	Adrian Ozer	3. 10k pull up added to QSPI SO pin

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4	TPR12_DECOUPLING_REFERENCE
5	QSPI_FLASH_REFERENCE
6	PMIC_REFERENCE
7	1V2_SUPPLY_REFERENCE
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9	PWR_RST_LED
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21	HD_CONNECTOR_FE2
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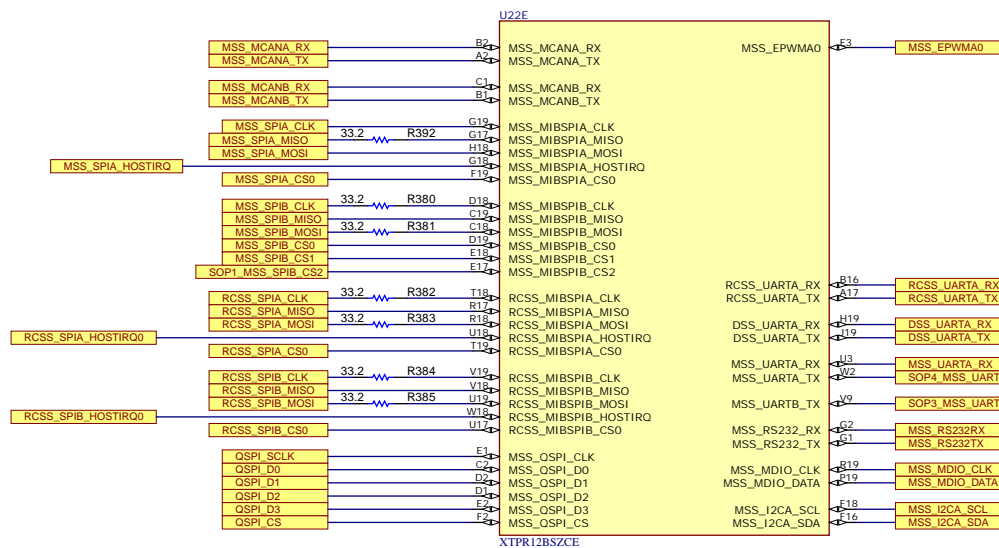
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TID #: N/A	Project Title: TPR12REVM		
Number: PROC103	Rev: B	Sheet Title: CoverSheet	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 1 of 26	
Drawn By:	File: PROC103B_CoverSheet.SchDoc	Size: B	
Engineer: Adrian Ozer	Contact: http://www.ti.com/support		

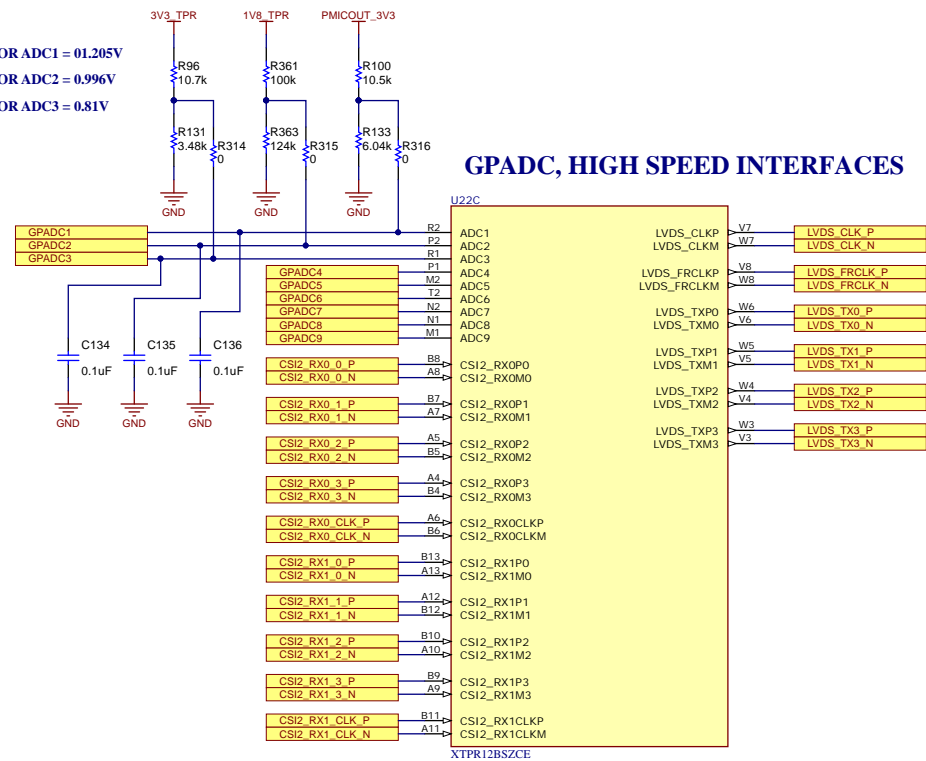
TPR12 IO REFERENCE



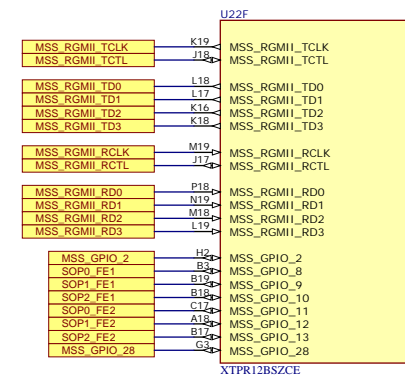
SPI, CAN, QSPI, UART, I2C, MDI



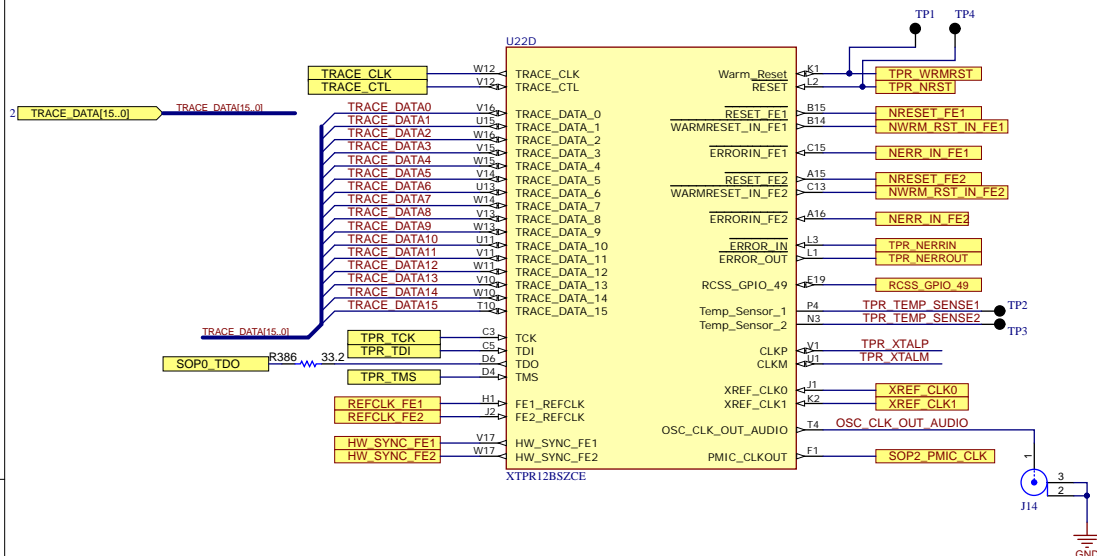
GPADC, HIGH SPEED INTERFACES



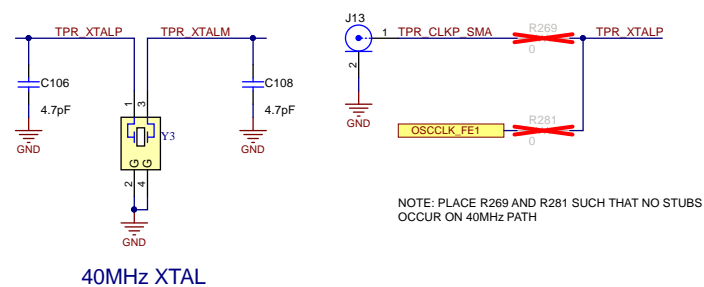
RGMII, GPIO



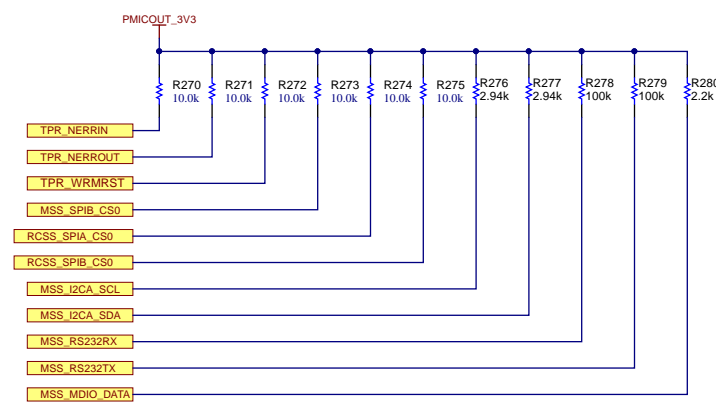
TRACE, JTAG, RESET, ERROR, CLK



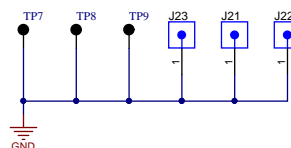
40MHZ CLOCK SOURCES



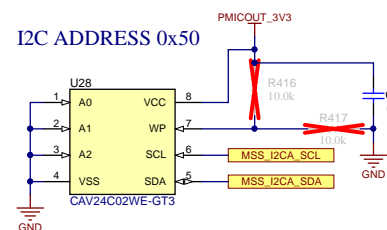
PULLUPS/DOWNS



GND TEST POINTS



BOARD ID EEPROM



A

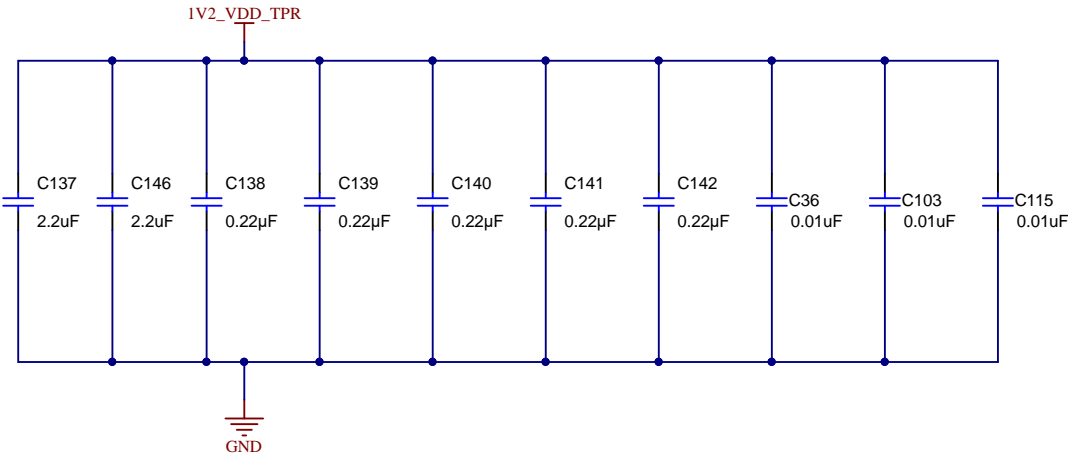


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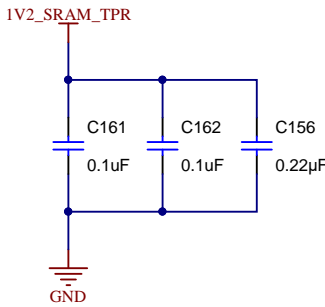
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TPR12 DECOUPLING REFERENCE

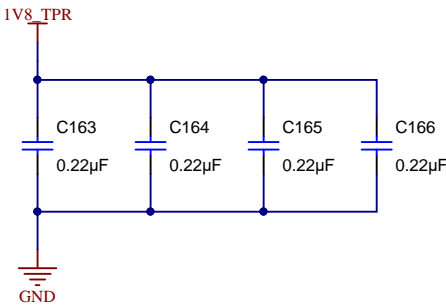
1.2V DIGITAL SUPPLY



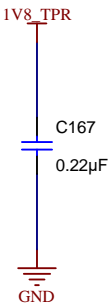
SRAM SUPPLY



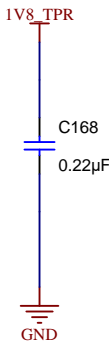
1.8V IO SUPPLY



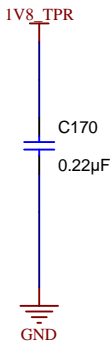
1.8V ADC SUPPLY



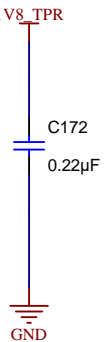
1.8V CLOCK SUPPLY



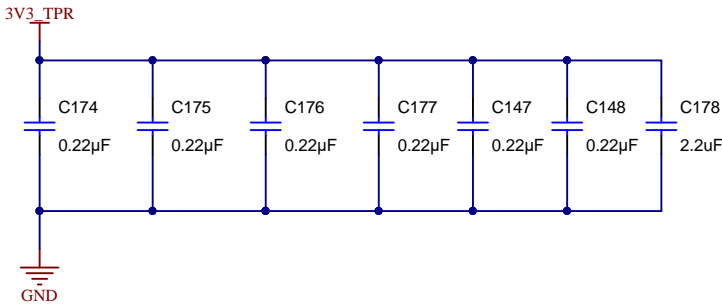
1.8V CSI SUPPLY



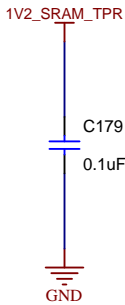
1.8V LVDS SUPPLY



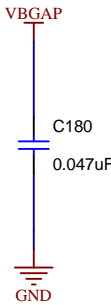
3.3V IO SUPPLY



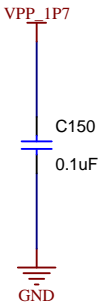
VNWA SUPPLY



BANDGAP SUPPLY




VPP SUPPLY



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Number: PROC103		Rev: B		Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001		Sheet: 4 of 26	
Drawn By:		File: PROC103B_TPR12_Decoupling_Reference.Sch		Size: B	
Engineer: Adrian Ozer		Contact: http://www.ti.com/support			



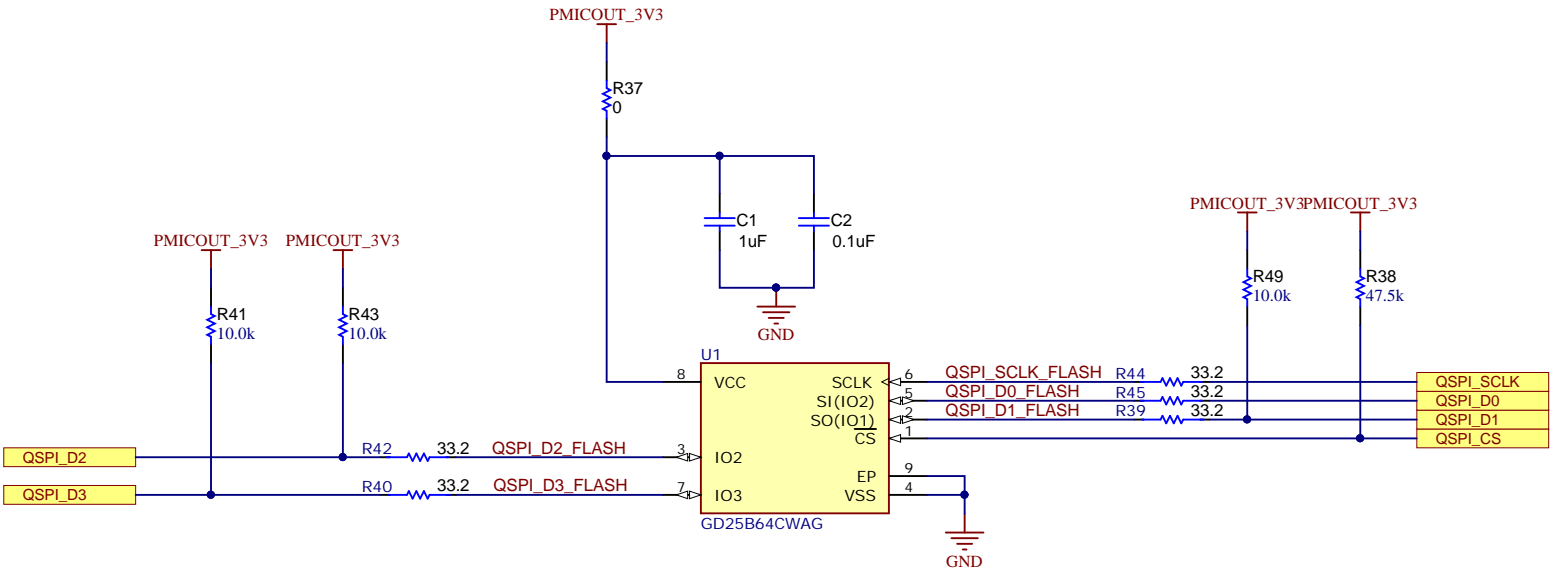
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QSPI FLASH REFERENCE

References
GD25B64CWAG Datasheet



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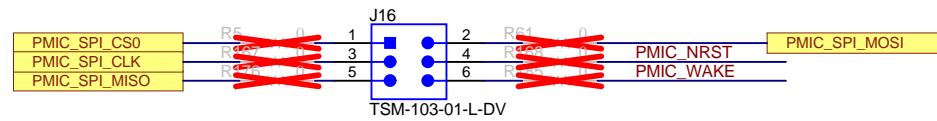
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References

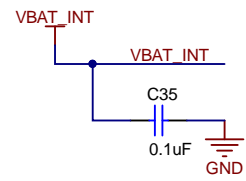
[TPS65313 Datasheet](#)

PMIC REFERENCE

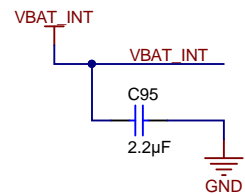
DEBUG TEST PINS



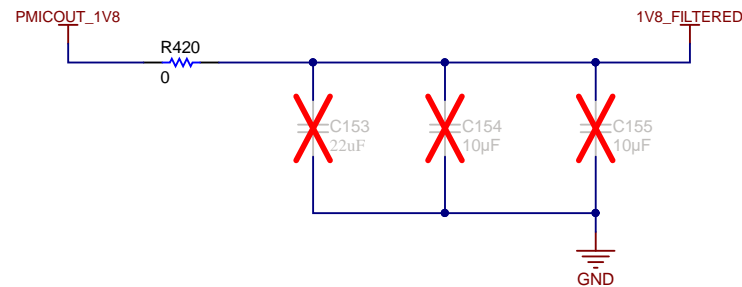
AVIN DECOUPLING



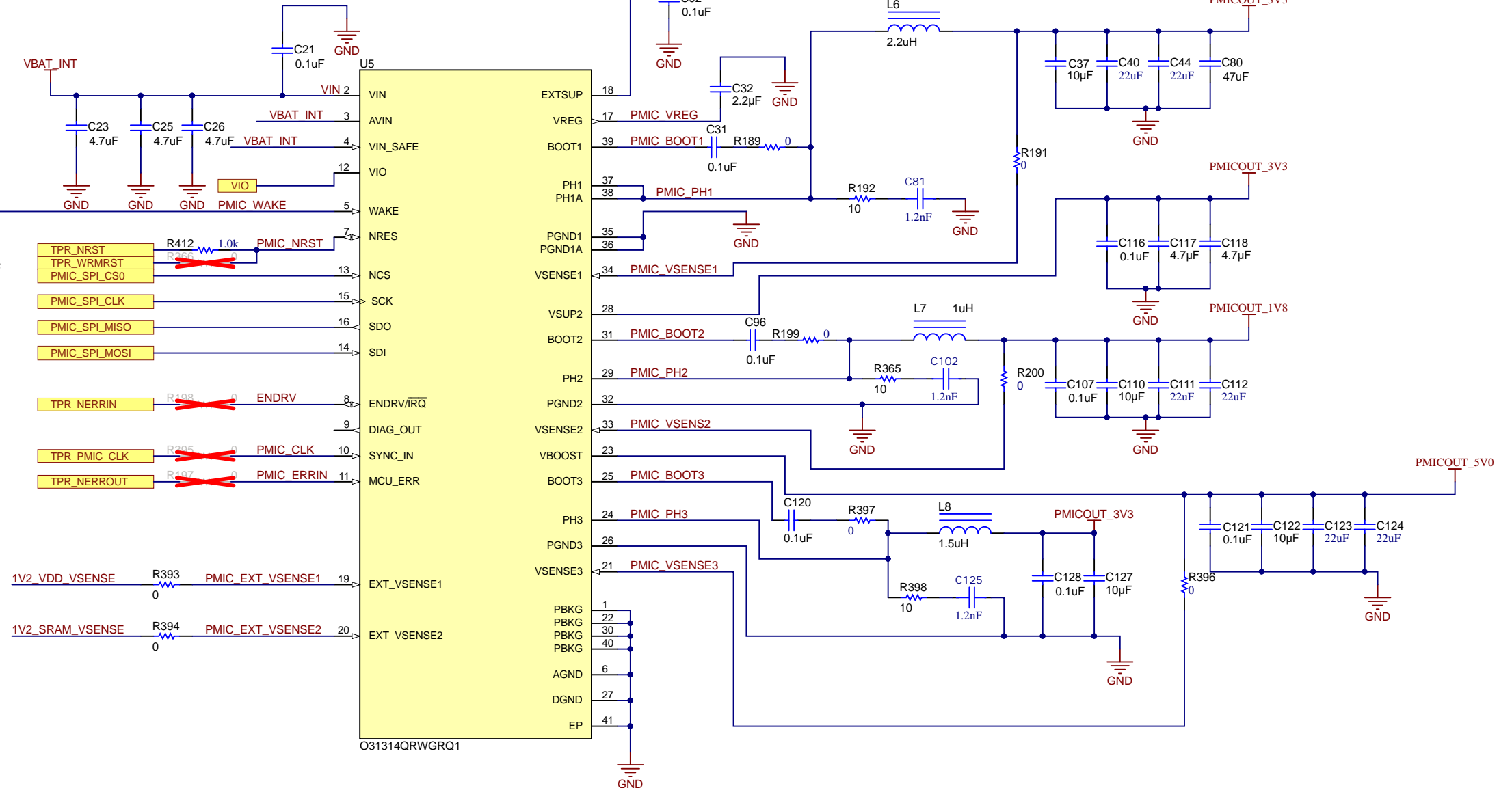
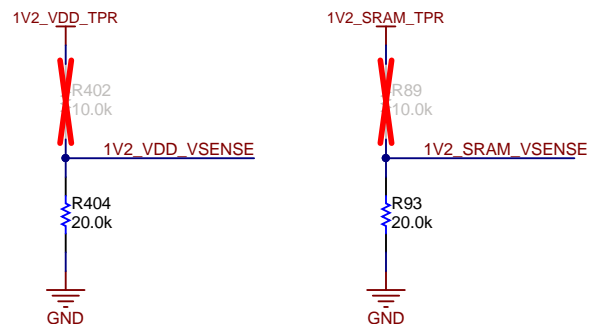
VIN_SAFE DECOUPLING



PROVISION FOR LC FILTER ON 1.8V TPR12 SUPPLY RECOMMENDED FERRITE FOR LC FILTER: MPZ2012S101A

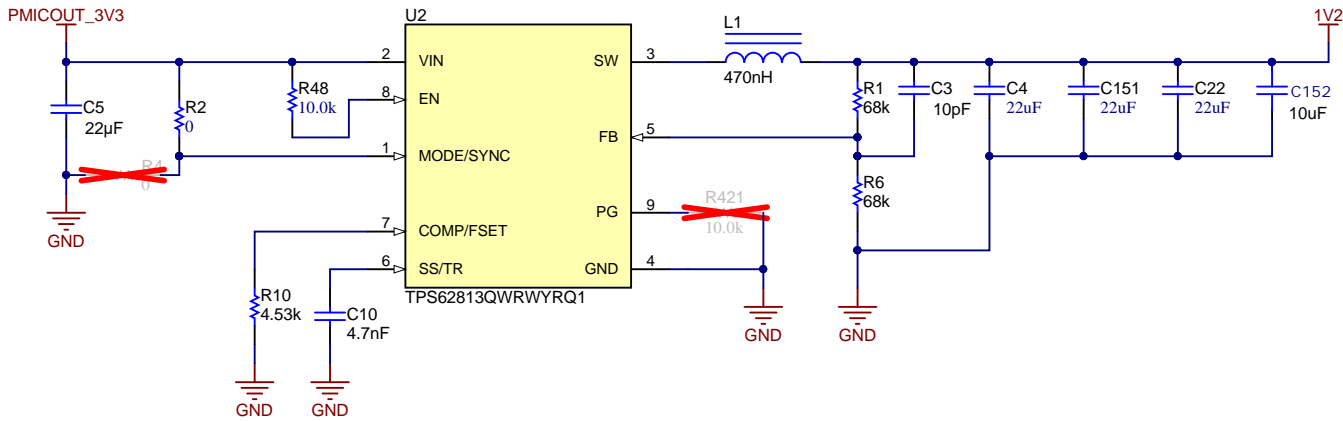


EXTERNAL 1.2V VOLTAGE MONITORS



1.2V TPR12 SUPPLY REFERENCE

TPR12 1.2V DCDC

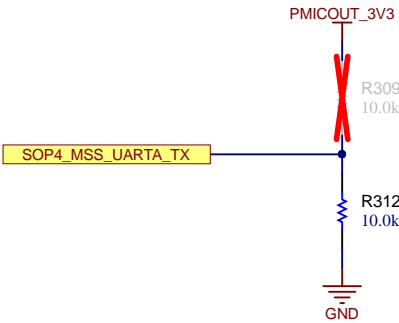
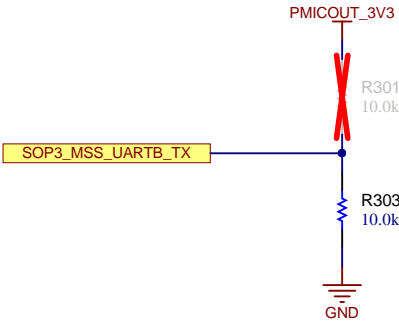


TPR12 SOP REFERENCE

XTAL DETECT SOP CONFIG

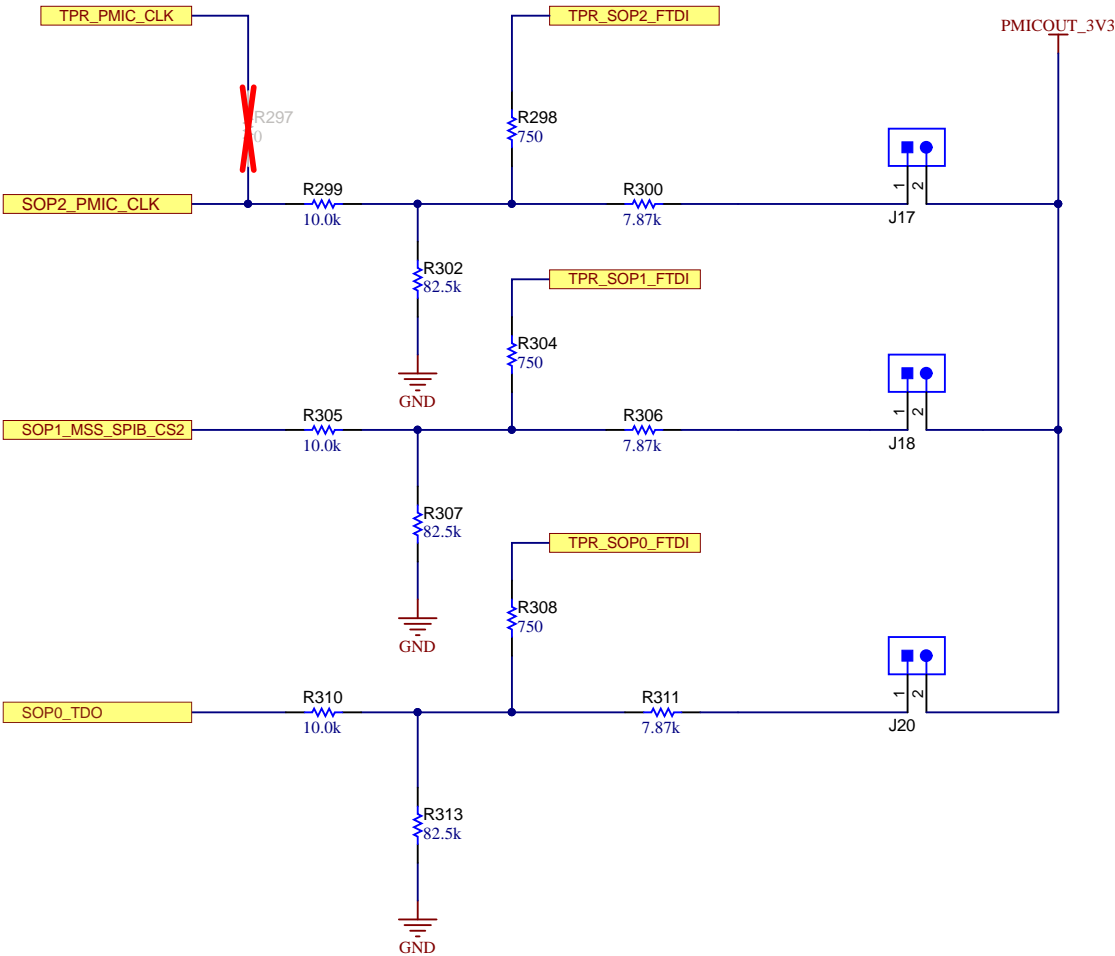
SOP4, SOP3

40 MHz	00
45.1584 MHz	01
49.152 MHz	10
50 MHz	11



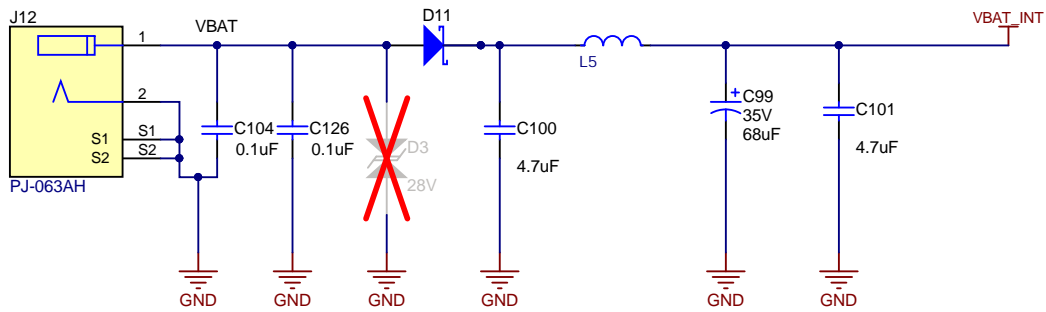
SOP2, SOP1, SOP0

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

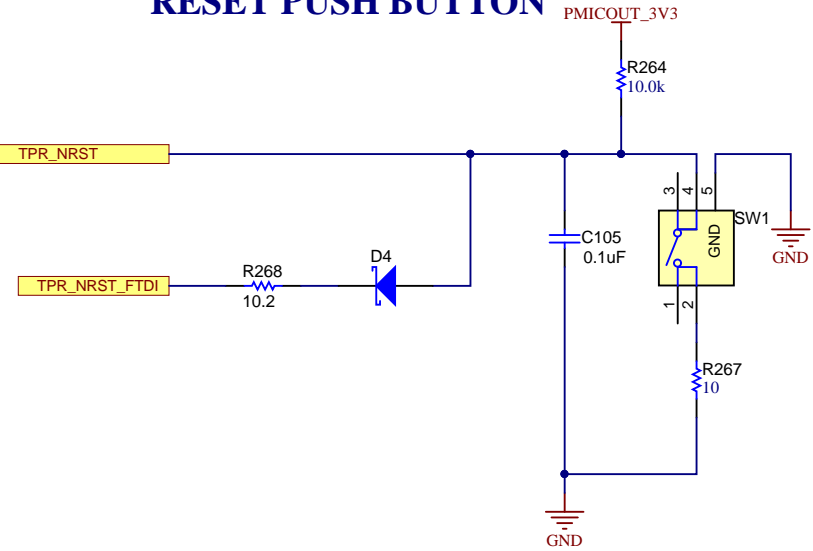


POWER IN, RESETS, AND LEDS

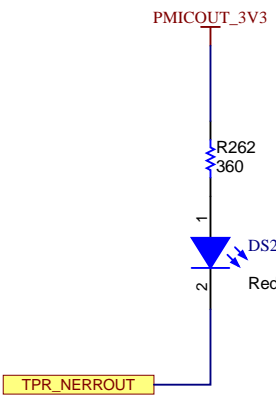
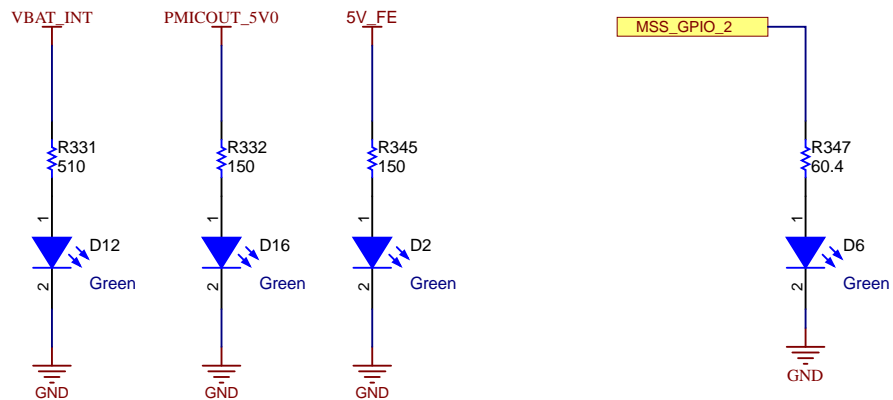
POWER JACK



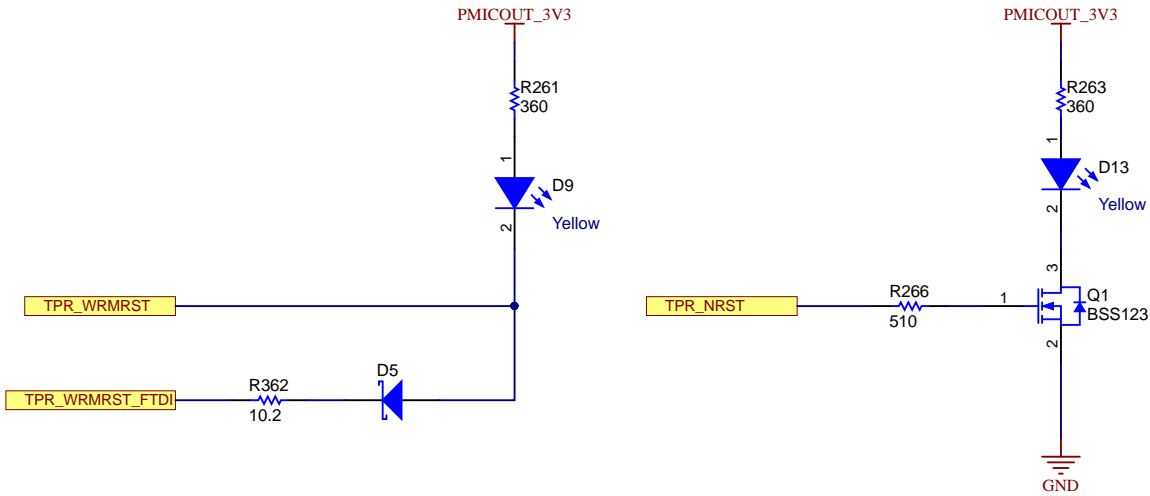
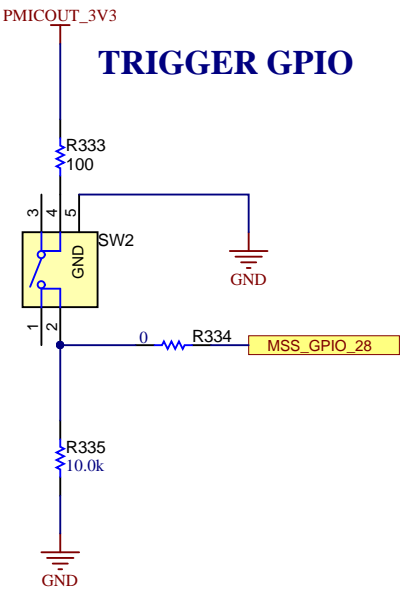
RESET PUSH BUTTON



INDICATION LEDS



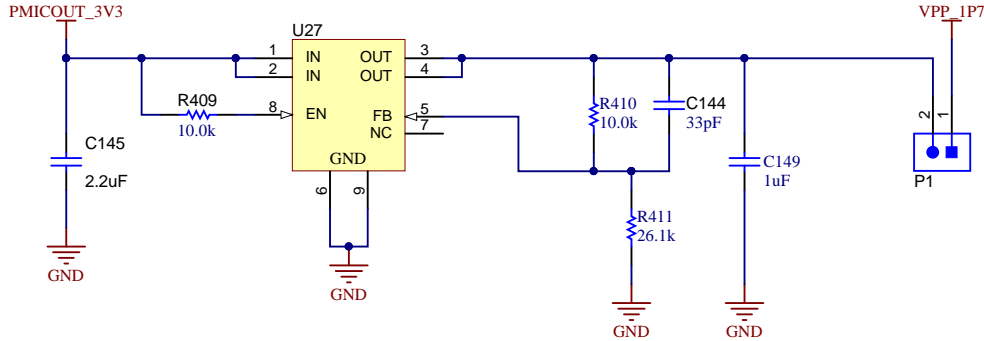
TRIGGER GPIO



References


[TPS79601 Datasheet](#)

VPP LDO



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TID #: N/A		Project Title: TPR12REVM			
Number: PROC103		Rev: B		Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001			Sheet: 10 of 26
Drawn By:		File: PROC103B_VPP_LDO.SchDoc			Size: B
Engineer: Adrian Ozer		Contact: http://www.ti.com/support			

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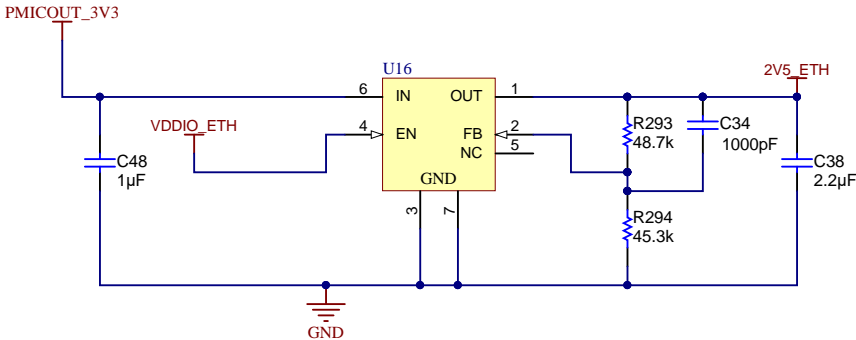
References

[TPS73501 Datasheet](#)

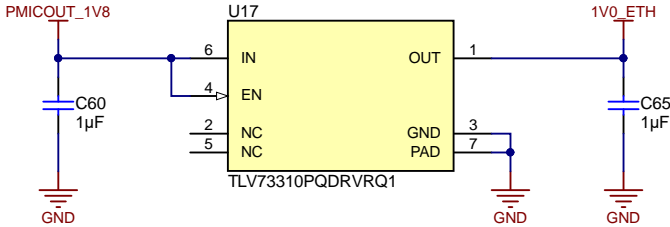
[TLV733P Datasheet](#)

ETHERNET POWER

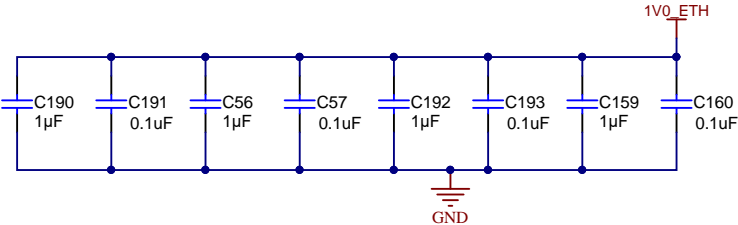
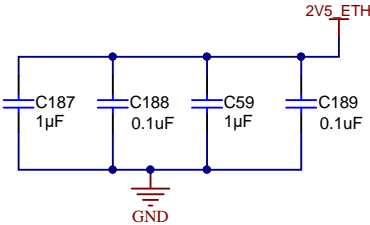
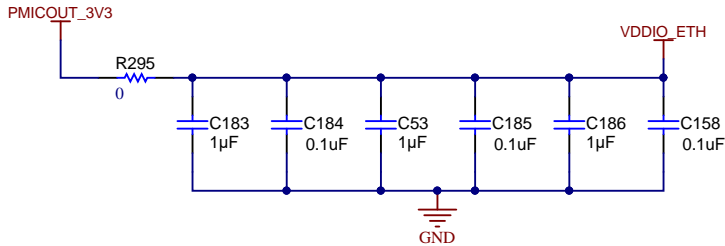
2.5V ANALOG SUPPLY



1V ANALOG SUPPLY



DECOUPLING CAPS



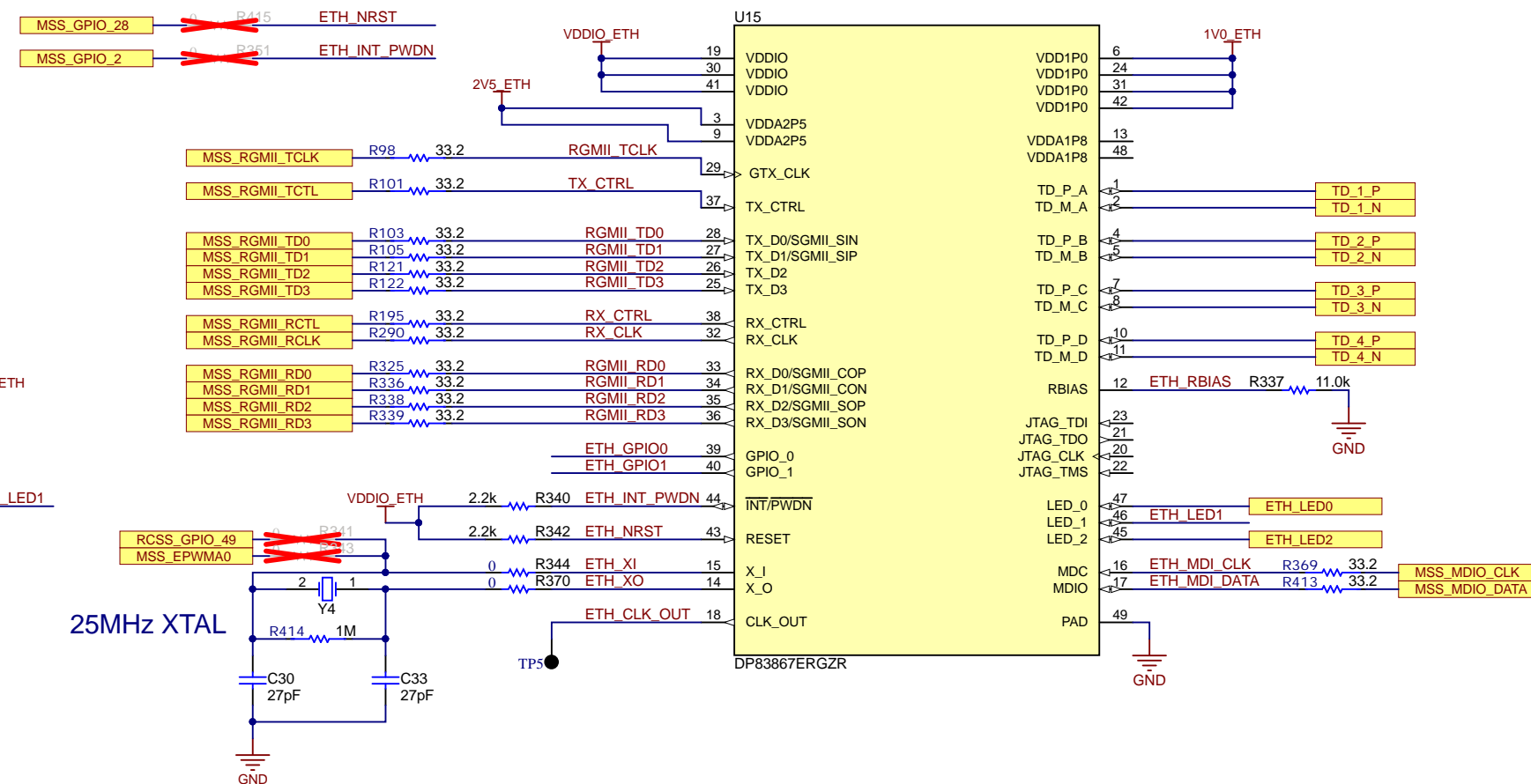
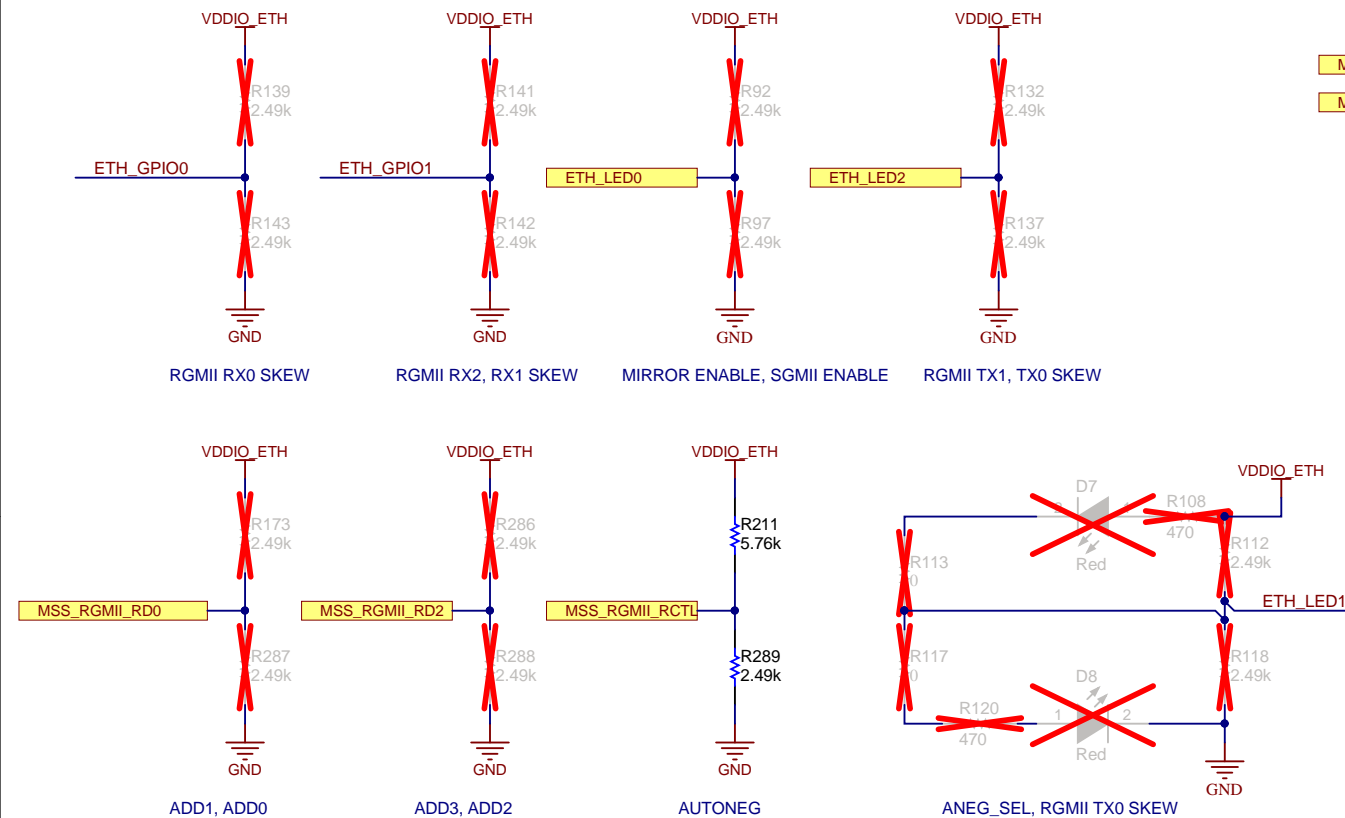
References

DP83867E Datasheet

ETHERNET PHY

BOOTSTRAP CONFIGURATION PINS

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



DEFAULT CONFIGURATION:

ADD1, ADD0 = 0

ADD3, ADD2 = 0

AUTONEG = 1

RGMII RX0 SKEW = 0

RGMII RX2, RX1 SKEW = 0, 0

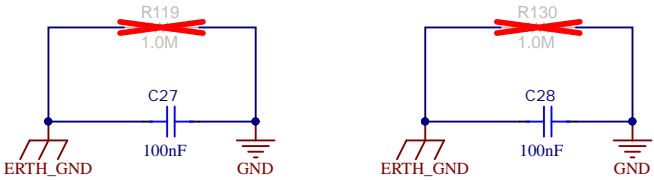
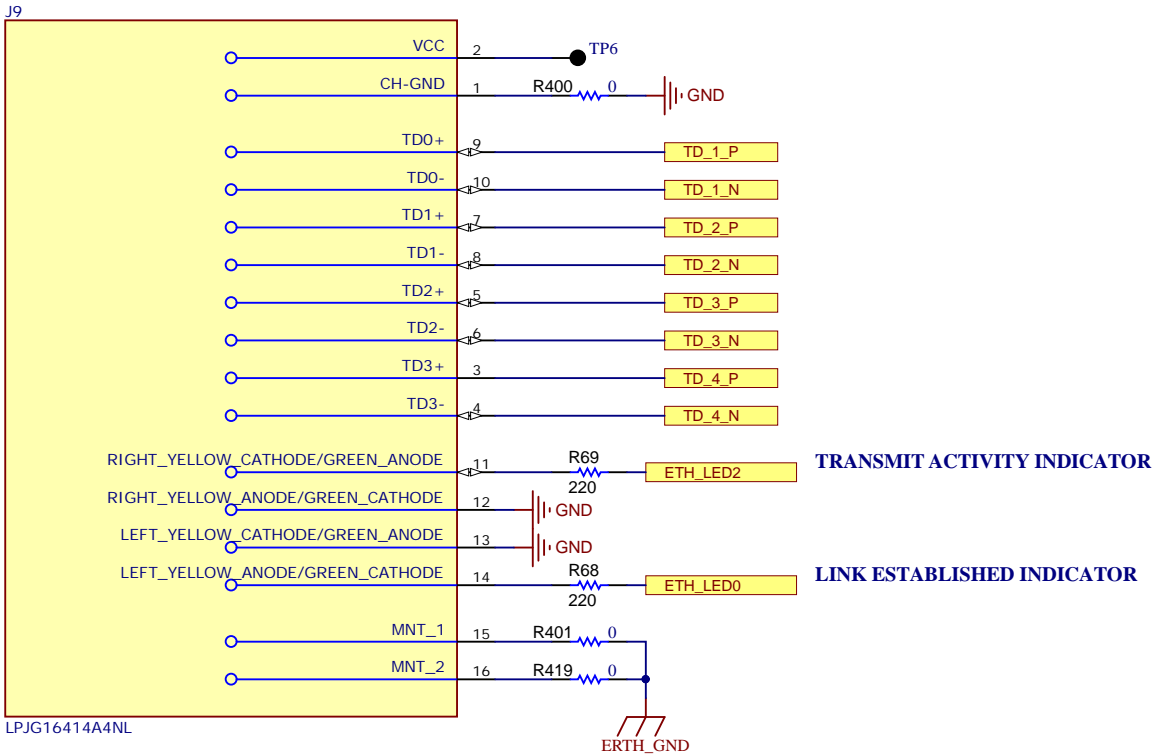
RGMII TX1, TX0 SKEW = 0, 0

ANEG_SEL, RGMII TX0 SKEW = 0, 0

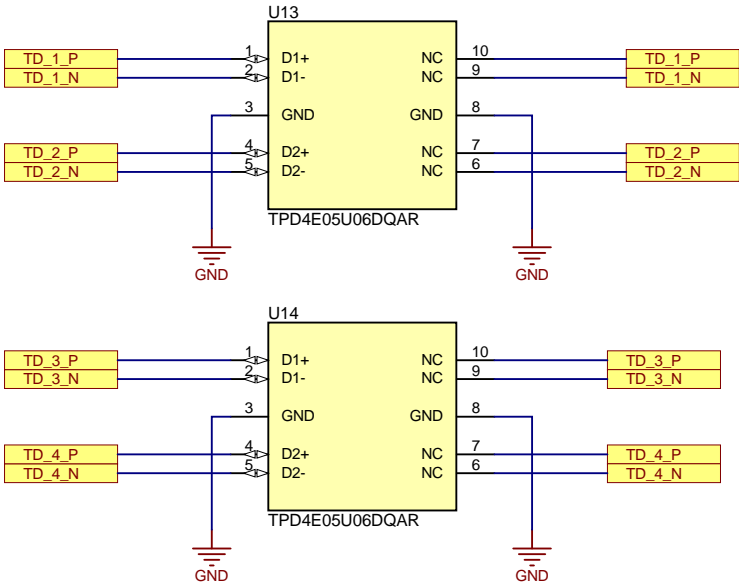
MIRROR ENABLE, SGMII ENABLE = 0, 0

ETHERNET MAGNETICS

RJ45 WITH MAGJACK




ETHERNET ESD PROTECTION



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TID #: N/A	Project Title: TPR12REVM	
Number: PROC103	Rev: B	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 13 of 26
Drawn By:	File: PROC103B_Ethernet_Magnetics.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: http://www.ti.com/support	



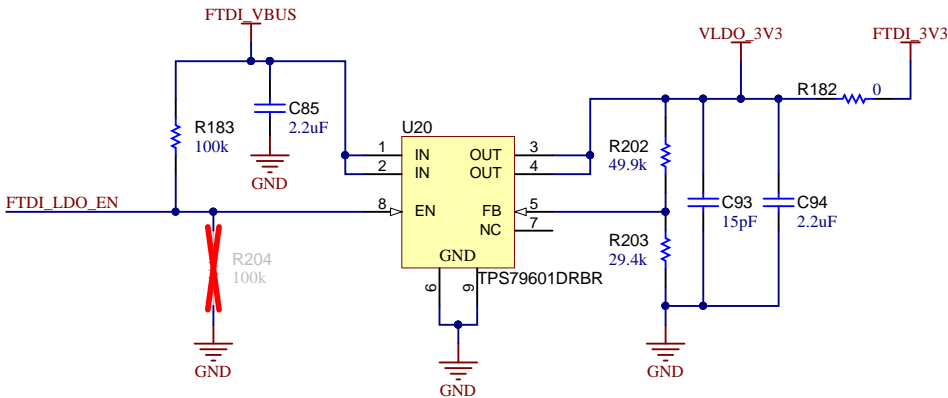
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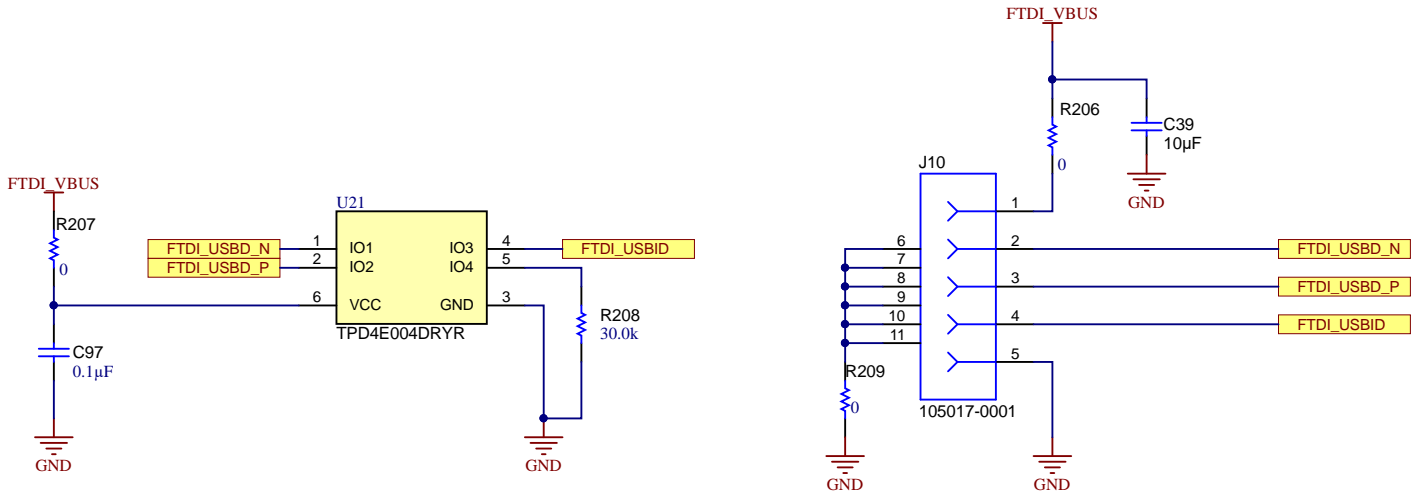
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FTDI (1/2)

3.3V LDO FOR FTDI



FTDI USB PORT



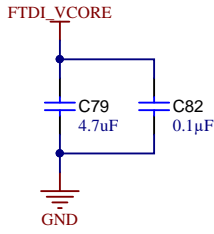
References

[FT4232H Datasheet](#)

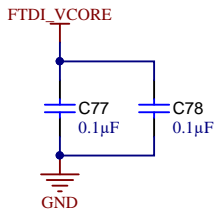
FTDI (2/2)

FTDI SUPPLY DECAPS

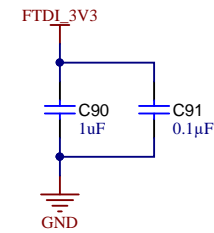
VCORE DECAPS



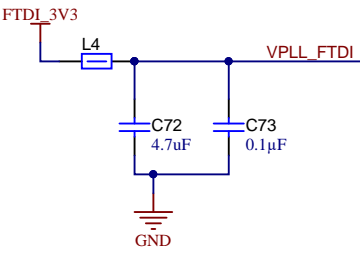
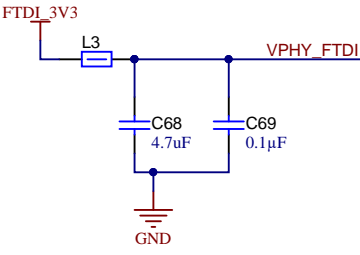
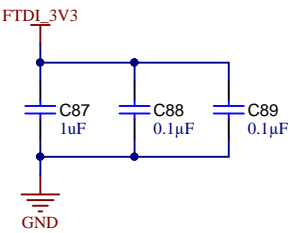
VREGOUT DECAPS



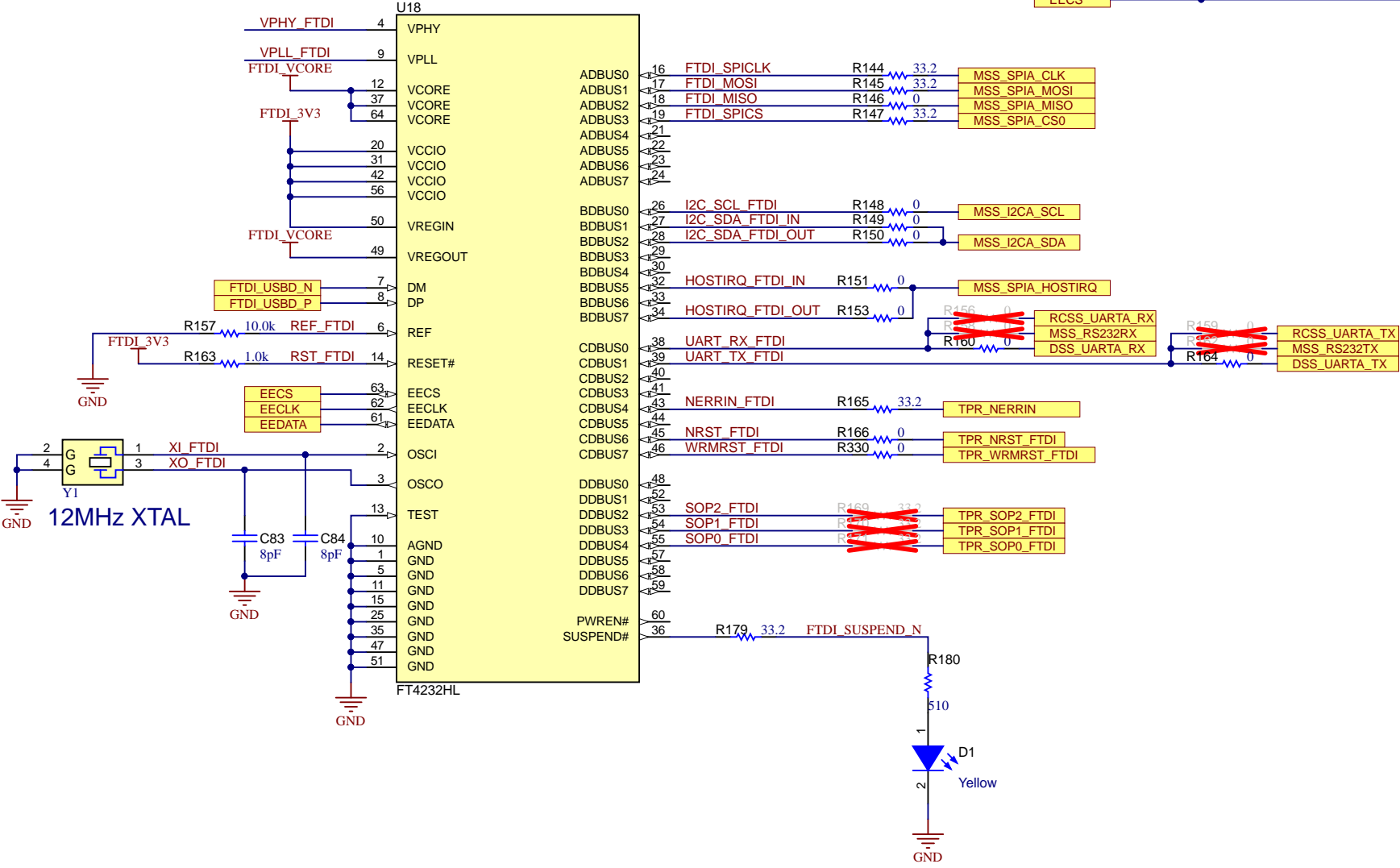
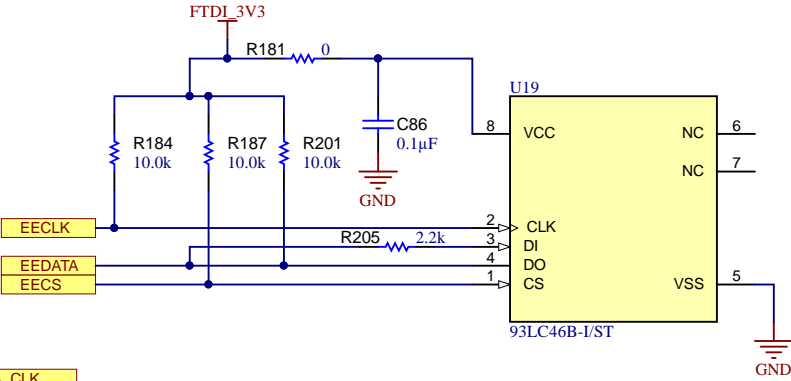
VREGIN DECAPS



VCCIO DECAPS

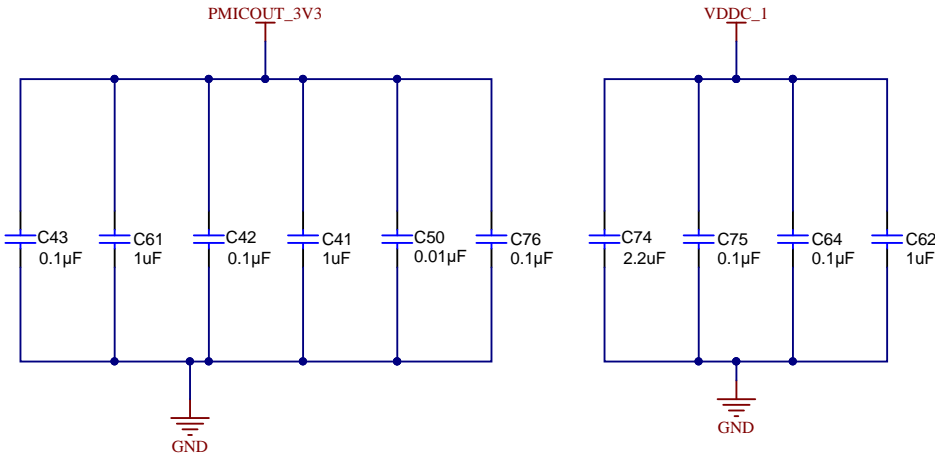


FTDI EEPROM

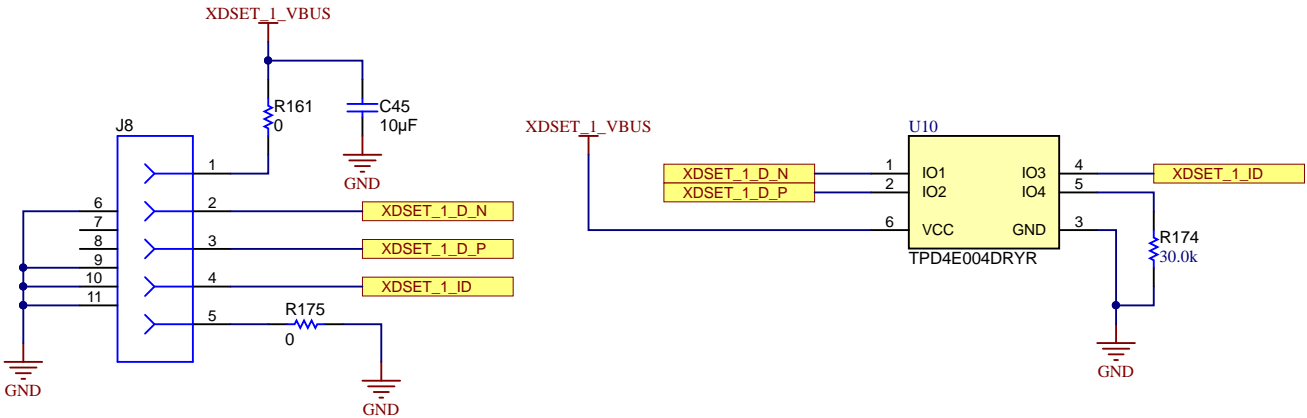


XDS110(1/2)

XDS110 DECOUPLING CAPS



XDS110 USB PORT



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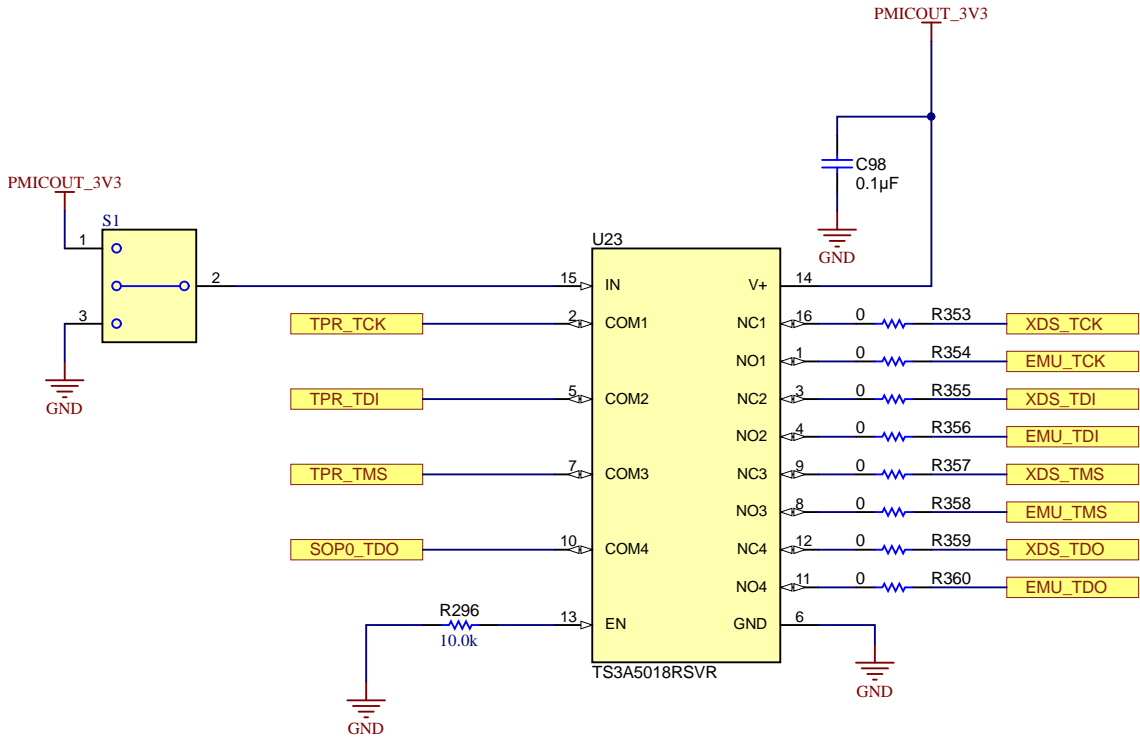
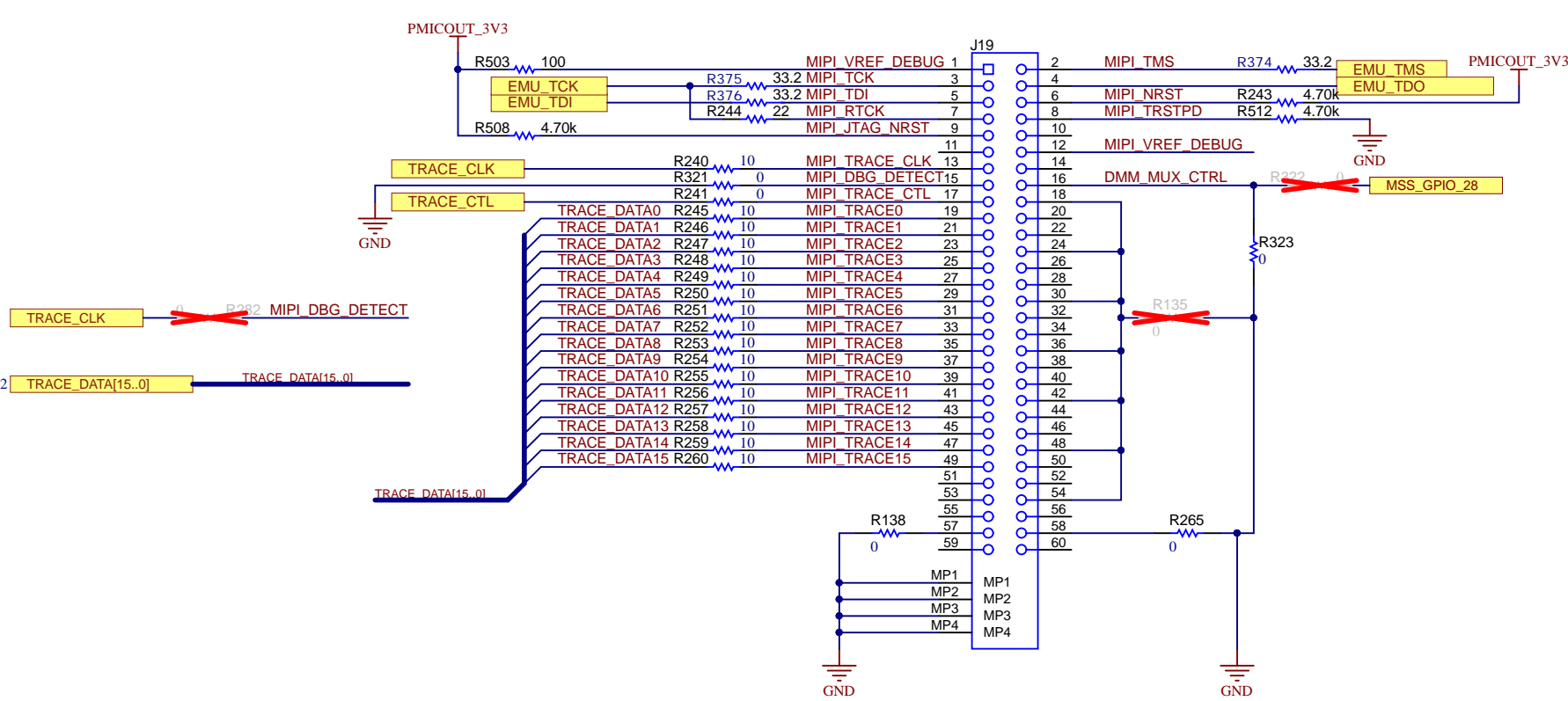
References

EMULATION AND TRACE HEADERS
XDS560v2 EMULATOR

MIPI 60 PIN HEADER

NOTE: DEFAULT CONFIGURATION IS FOR MIPI 60 PIN EMULATOR, SEE NOTES BELOW FOR DCA1000
NOTE: REMOVE R503, R375, R374, R265, R138 BEFORE CONNECTING TO DCA1000
NOTE: POPULATE R282, R322 FOR DMM ON DCA1000

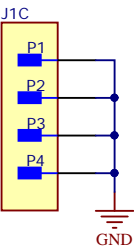
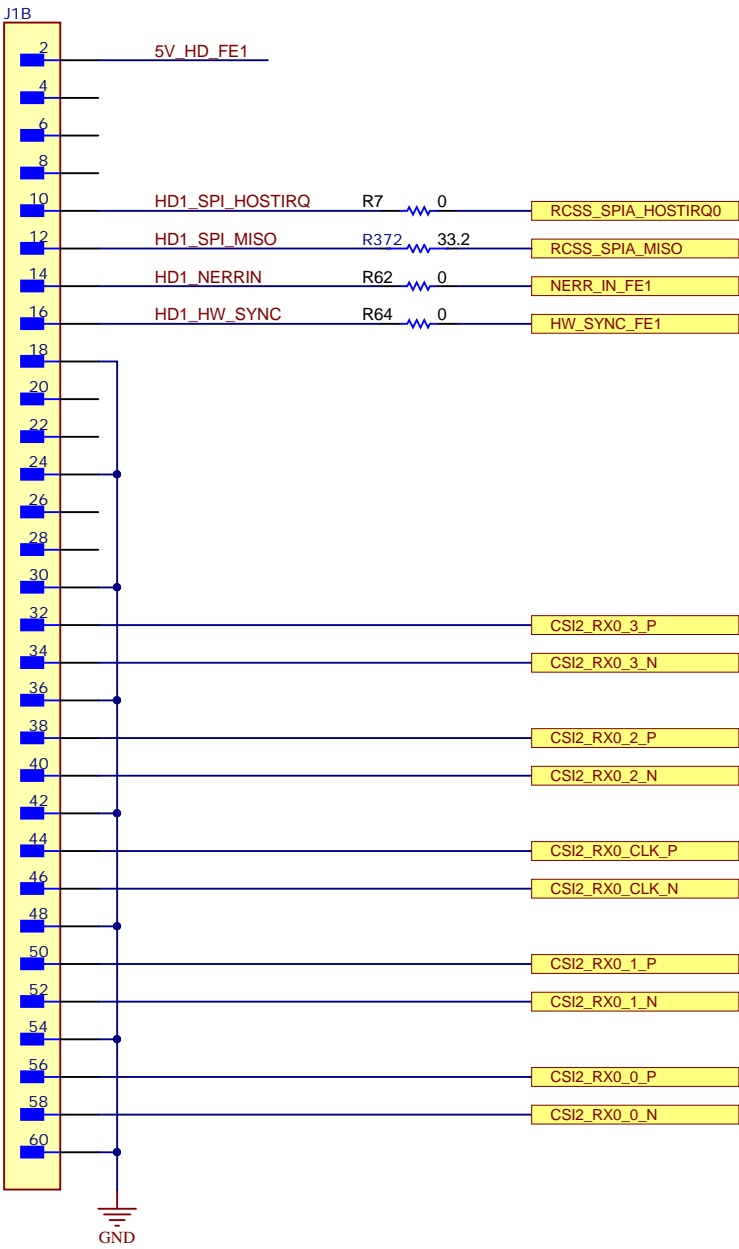
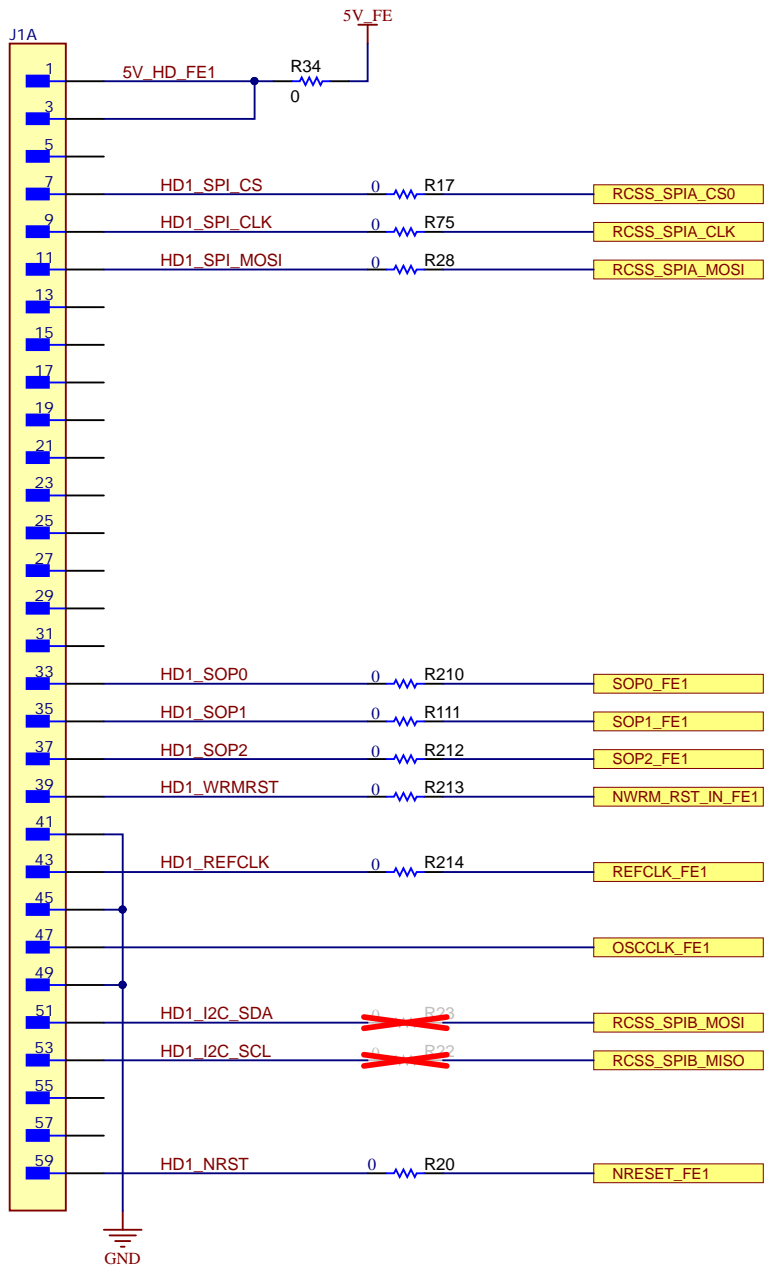
JTAG MUX BETWEEN XDS110 AND MIPI 60 PIN



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Orderable: TPR12REVM	Designed for: Public Release	Mod. Date: 2/9/2021
TID #: N/A	Project Title: TPR12REVM	
Number: PROC103	Rev: B	Sheet Title: TPS659039-Q1 TDA2 PMIC - SMPS6/7/8/9
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 18 of 26
Drawn By: Alec Schott	File: PROC103B_JTAG_EMU_Connector.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: http://www.ti.com/support	

HD CONNECTOR FRONT END 1

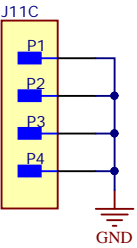
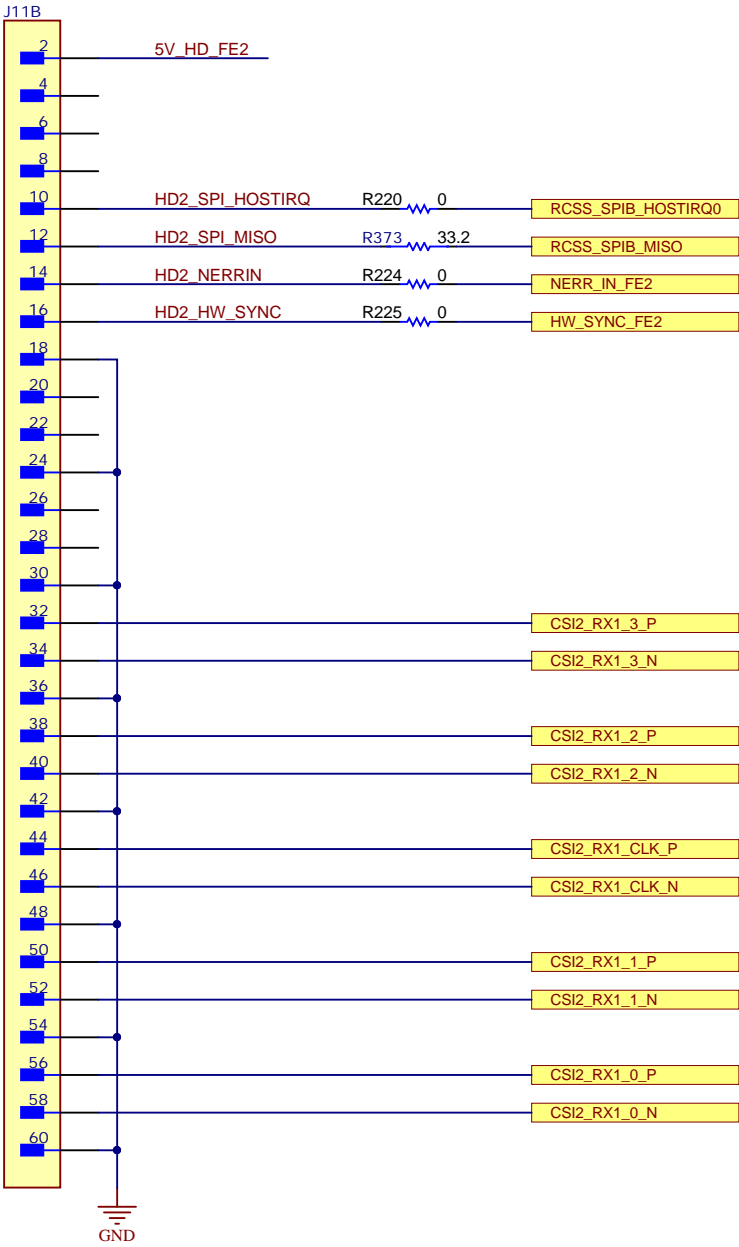
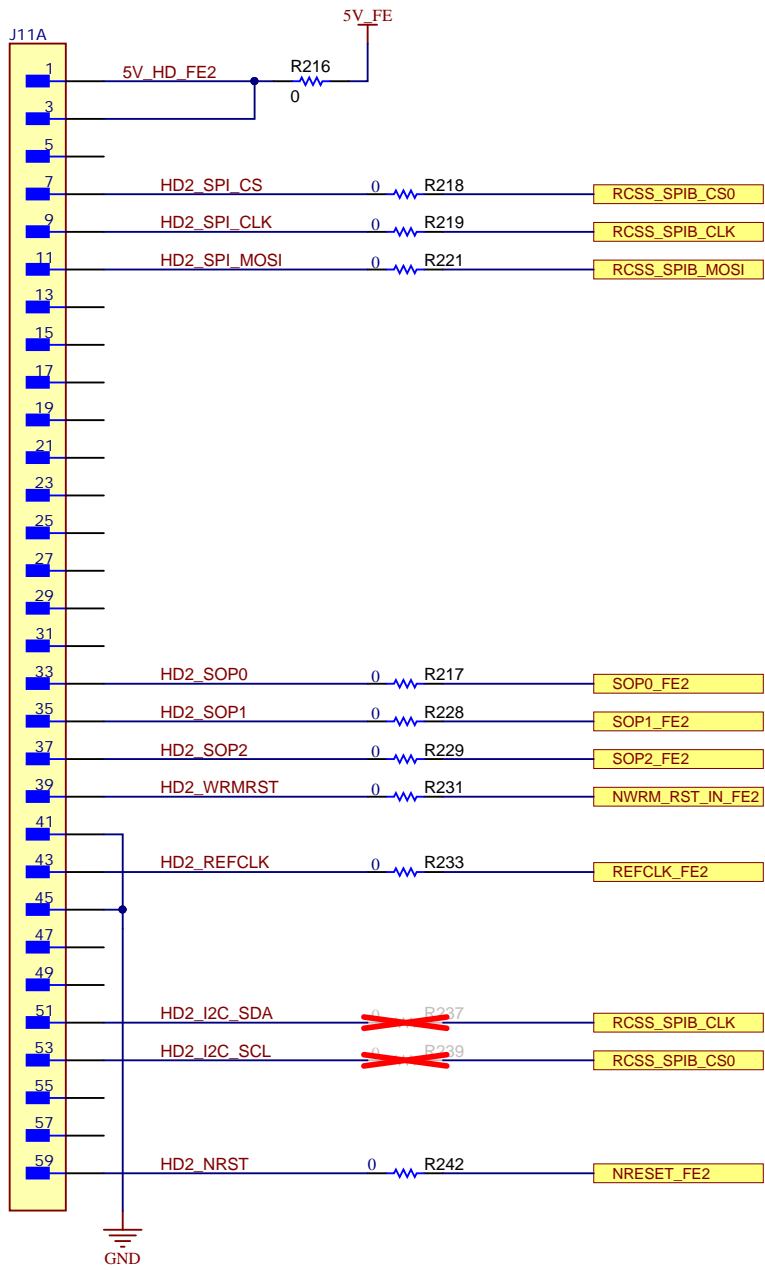


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Orderable: TPR12REVM	Designed for: Public Release	Mod. Date: 2/9/2021
TID #: N/A	Project Title: TPR12REVM	
Number: PROC103	Rev: B	Sheet Title: HD Connector
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 20 of 26
Drawn By: Adrian Ozer	File: PROC103B_HD Connector1.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: http://www.ti.com/support	

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HD CONNECTOR FRONT END 2

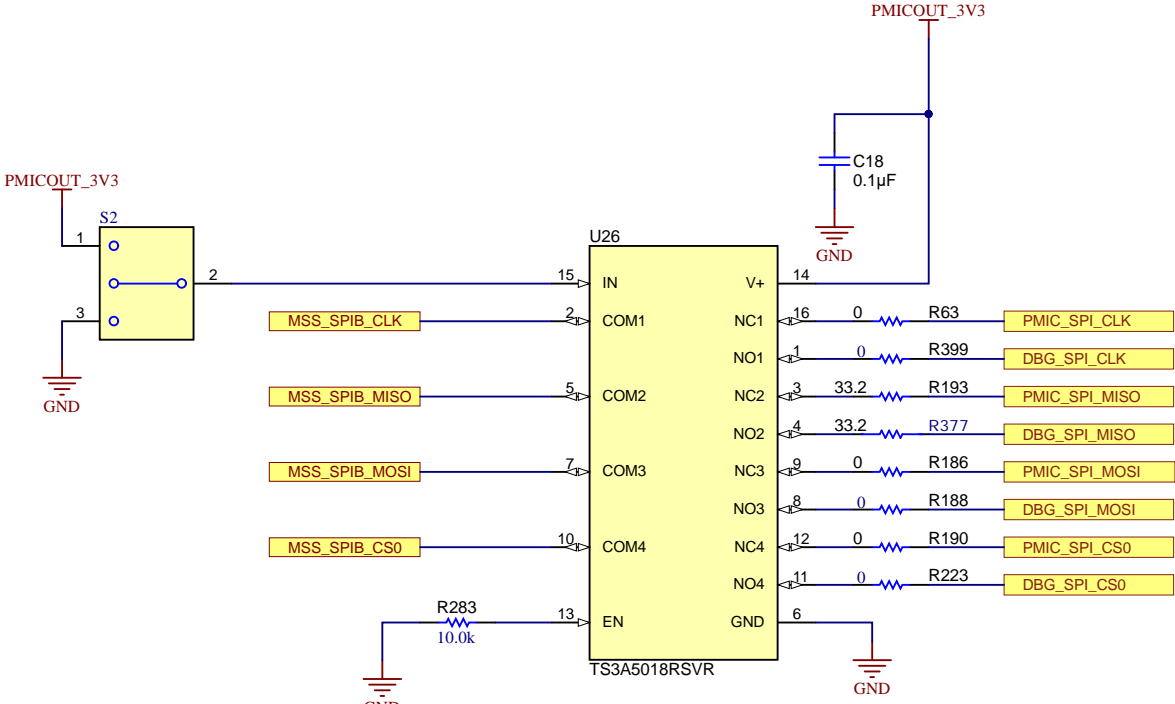
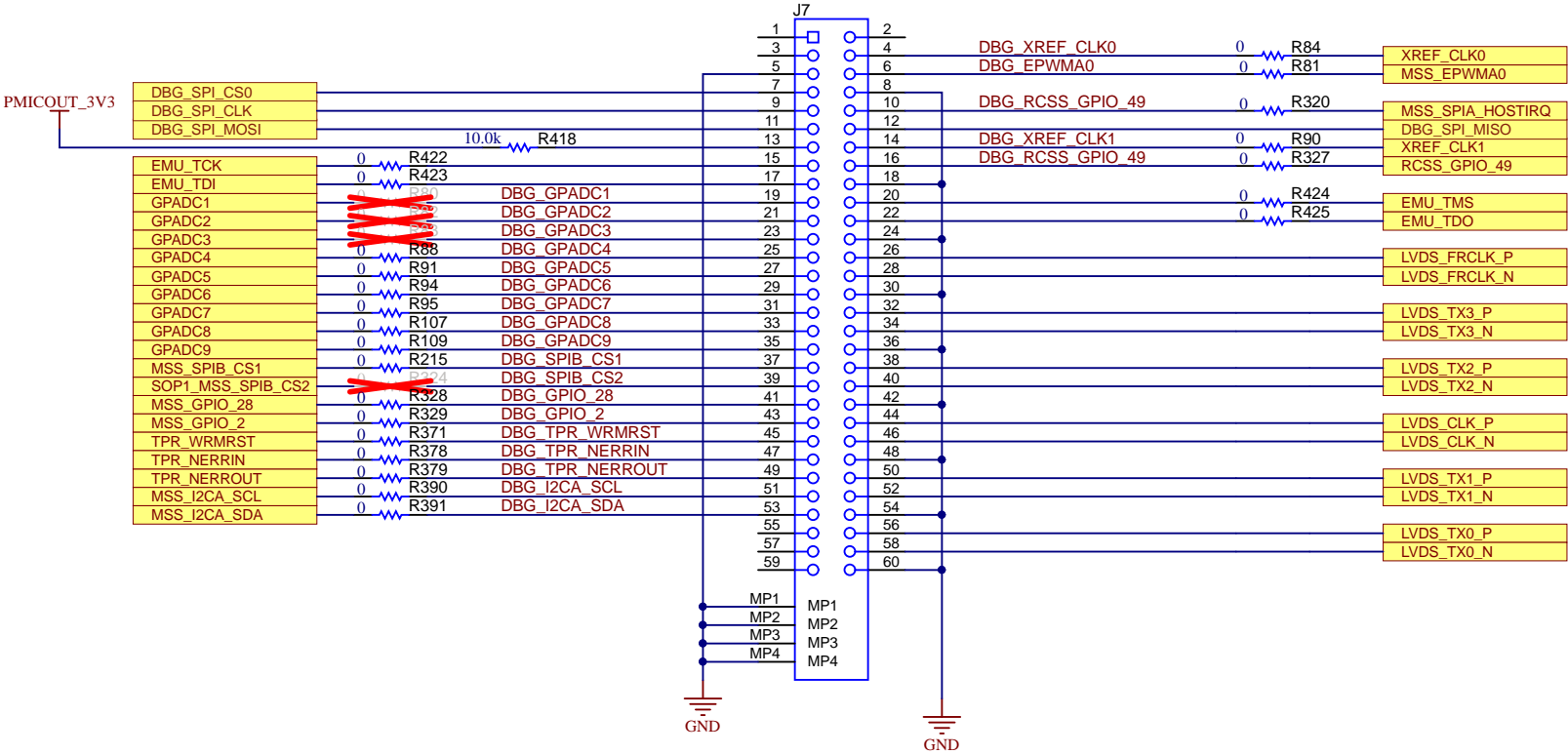


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Orderable: TPR12REVM	Designed for: Public Release	Mod. Date: 2/9/2021
TID #: N/A	Project Title: TPR12REVM	
Number: PROC103	Rev: B	Sheet Title: HD Connector
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 21 of 26
Drawn By: Adrian Ozer	File: PROC103B_HD Connector2.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: http://www.ti.com/support	

60 PIN DEBUG CONNECTOR

SPI MUX BETWEEN PMIC AND 60 PIN DEBUG CONNECTOR



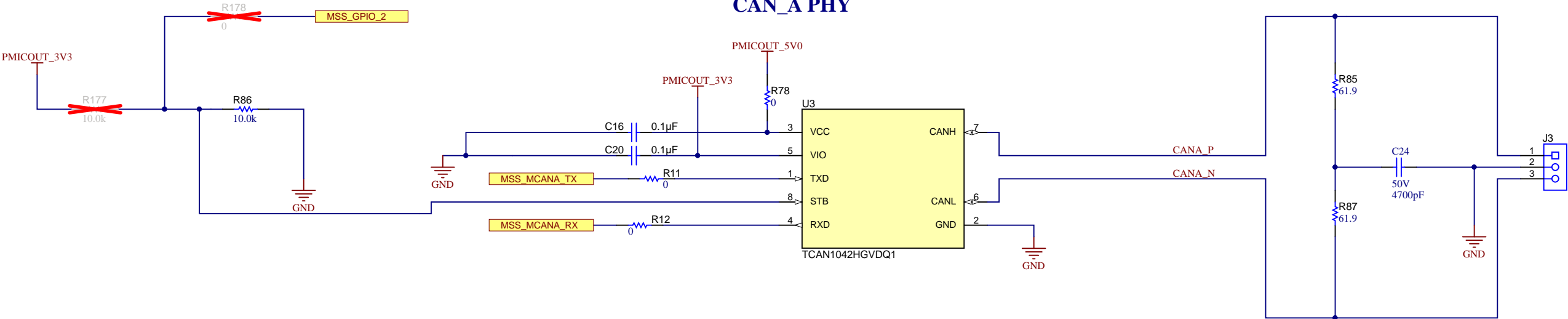
PLACE DBG SERIES RESISTORS NEAR 60 PIN CONNECTOR
PLACE PMIC SERIES RESISTORS NEAR PMIC

References

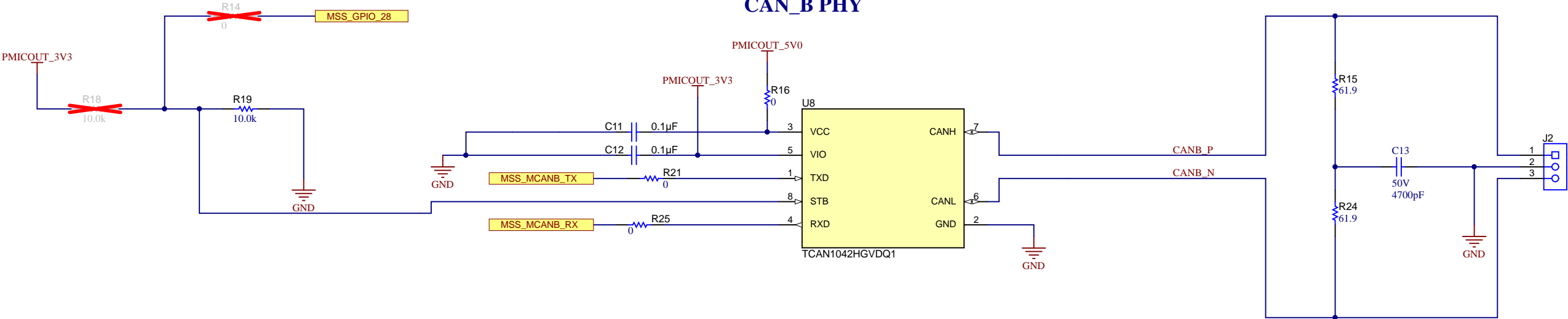
[TCAN1042 Datasheet](#)

CAN INTERFACE

CAN_A PHY



CAN_B PHY



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Orderable: TPR12REVM	Designed for: Public Release	Mod. Date: 2/9/2021
TID #: N/A	Project Title: TPR12REVM	
Number: PROC103	Rev: B	Sheet Title: CAN Interface
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 23 of 26
Drawn By: Adrian Ozer	File: PROC103B_CAN_Interface.SchDoc	Size: B
	Contact: http://www.ti.com/support	

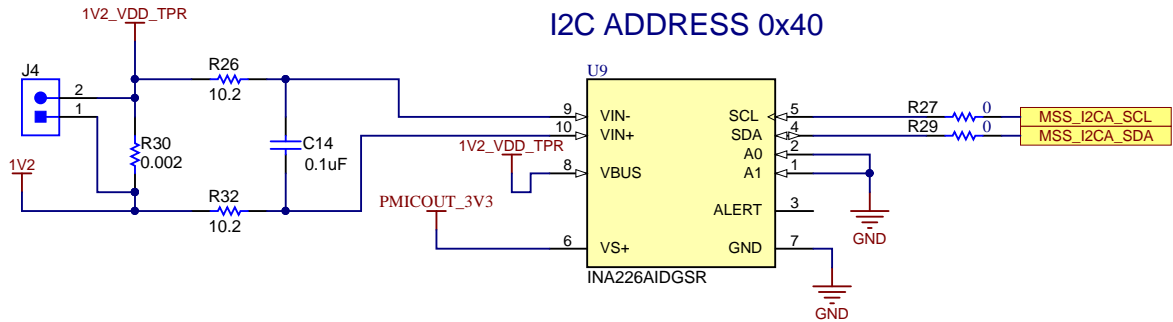
CURRENT SENSORS

References

INA226 Datasheet

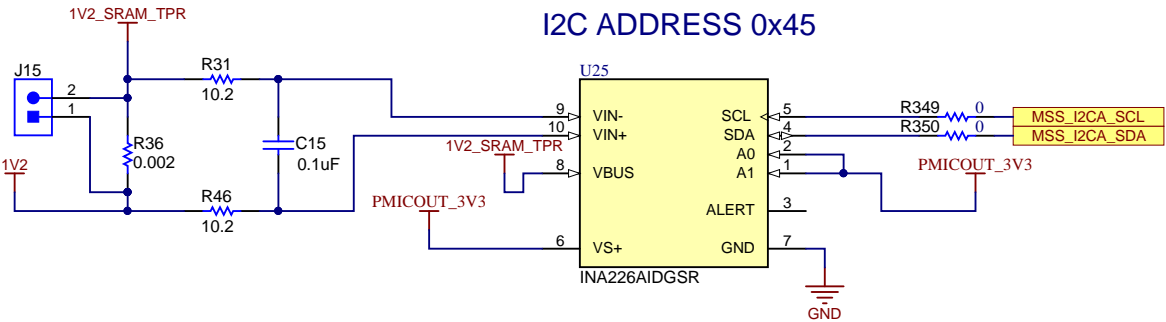
1.2V DIGITAL SUPPLY CURRENT SENSOR

I2C ADDRESS 0x40



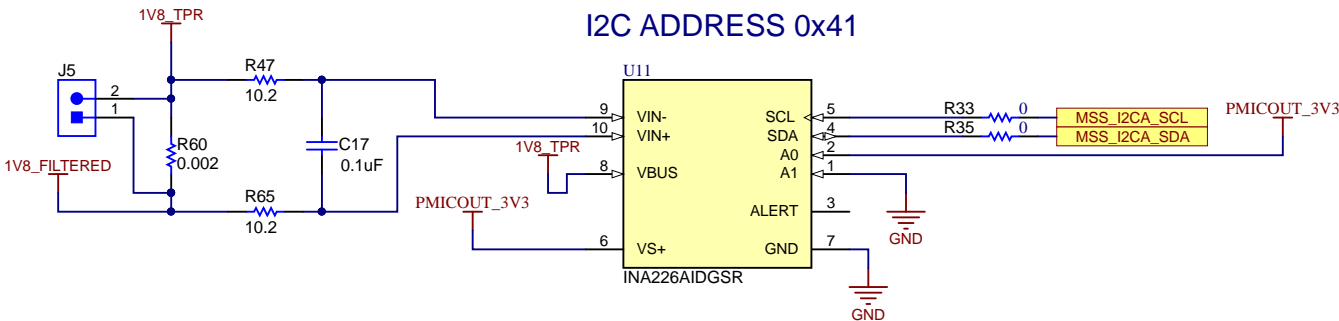
1.2V SRAM SUPPLY CURRENT SENSOR

I2C ADDRESS 0x45



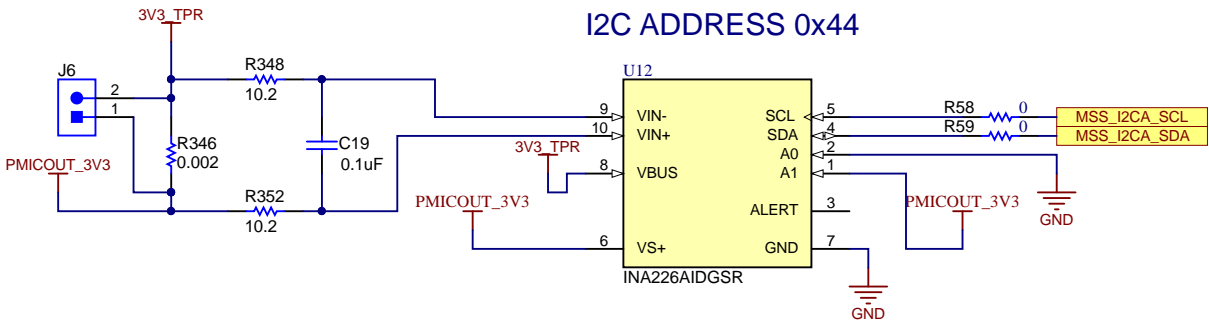
1.8V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x41



3.3V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x44



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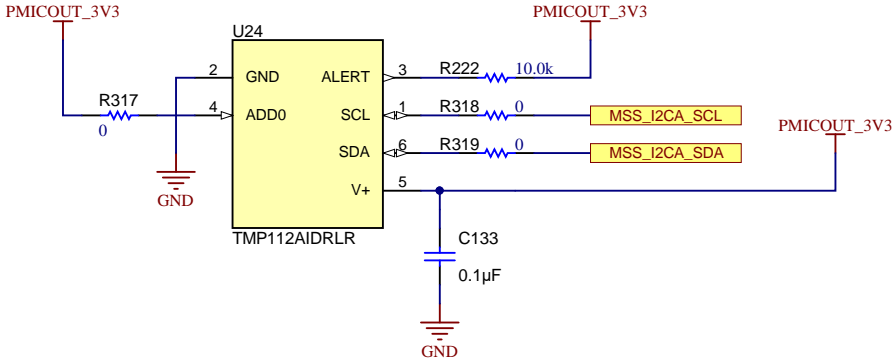
Orderable: TPR12REVM	Designed for: Public Release	Mod. Date: 2/9/2021
TID #: N/A	Project Title: TPR12REVM	
Number: PROC103	Rev: B	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 24 of 26
Drawn By:	File: PROC103B_Current_Sensors.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: http://www.ti.com/support	

TEMP SENSOR

References


[TMP112 Datasheet](#)

I2C ADDRESS 0x49



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Orderable: TPR12REVM		Designed for: Public Release		Mod. Date: 2/9/2021	
TID #: N/A		Project Title: TPR12REVM			
Number: PROC103		Rev: B			
SVN Rev: Not in version control		Sheet Title:		Assembly Variant: 001	
Drawn By:		File: PROC103B_Temp_Sensor.SchDoc		Sheet: 25 of 26	
Engineer: Adrian Ozer		Size: B		Contact: http://www.ti.com/support	

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PCB Number: PROC103
PCB Rev: B

PCB
LOGO
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PCB
LOGO
FCC disclaimer

PCB
LOGO
WEEE logo

PCB
LOGO
ESD Susceptible



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	TPR12REVM

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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