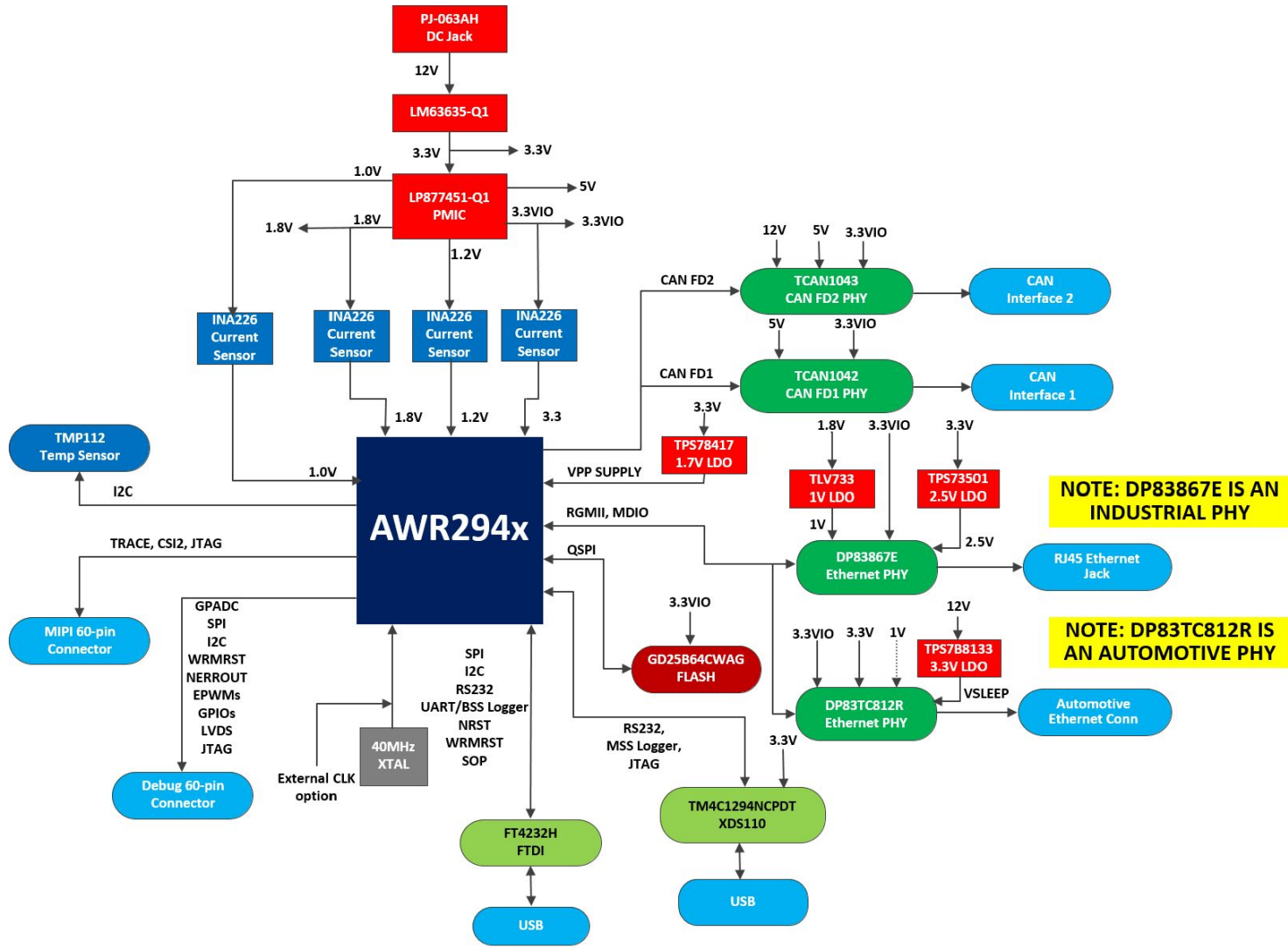


# BLOCK DIAGRAM



## Revision History

Rev	ECN #	Approved Date	Approved by	Notes
REV B	01	16-04-2021		Implemented PMIC review comments from TI
REV B	02	20-04-2021		Implemented Automotive Ethernet review comments from TI
REV B	03	20-05-2021		Updated assembly property of R196 to Fitted. Updated assembly property of R371 & R379 to Not Fitted.
REV B	04	21-05-2021		BSS_UARTA_TX signal is removed from XDS110 and connected to C port of FTDI Updated assembly property of R160 & R164 to Not Fitted. Updated assembly property of R131 to Fitted.
REV B	05	25-05-2021		Part number of R265, R270, R275, R281 and C167 changed Added 0 ohm resistors in the LVDS path Optional path for LVDS data lanes TX2 and TX3 added
REV B	06	03-06-2021		Auto Ethernet ESD Diodes (D18, D19) part number changed to TPD1E05
REV B	07	07-06-2021		10uF decap (C110) moved to 1V8_CLK supply from 1V8_VCO supply
REV B	08	14-06-2021		0 ohm resistor (R72) added in J19.13
REV B	09	16-06-2021		R20.2 net name changed to 1V0_RF2
REV B	10	17-06-2021		Updated assembly property of R244 to Not Fitted
REV B	11	21-06-2021		Removed snubber circuits from the PMIC Added provision for LC filter on 1.0V and 1.8V supplies Combined 1V0_RF1 & 1V0_RF2 into a single 1V0 supply and removed one of the current sensor
REV B	12	22-06-2021		GPADC2 input changed to 1V2
REV B	13	23-06-2021		Updated assembly property of C179, C181, J1, J5, C127, R71, R20, C55 & J4 Removed C122 and C143. Added provision for 10uF cap on VDDA supply R259 changed to BLM18KG601SH1. C154 & C182 replaced with 0.01uF cap
REV B	14	24-06-2021		AWR 3.3V supply changed to pre-regulator output by default (REGOUT_3V3) Added resistor option to take AWR 3.3V supply from Charlot VIO
REV B	15	06-07-2021		Updated R331 and R332 to 1k ohm resistor Updated R347, R262, R261, R263 to 510 ohm resistor VDDIO supply of Auto Ethernet PHY (U4,34) changed to 3V3_VIO Populated R116 by default and R199 changed to DNI
REV B	16	09-07-2021		FBI changed to BLM18AG102SHID
REV B	17	13-07-2021		Updated assembly property of C7, R14, R291, R67 & R70
REV B	18	16-07-2021		Block diagram updated
REV B	19	17-09-2021		R13 & R17 are made mountable to control CAN STB from PMIC INT

## TABLE OF CONTENTS

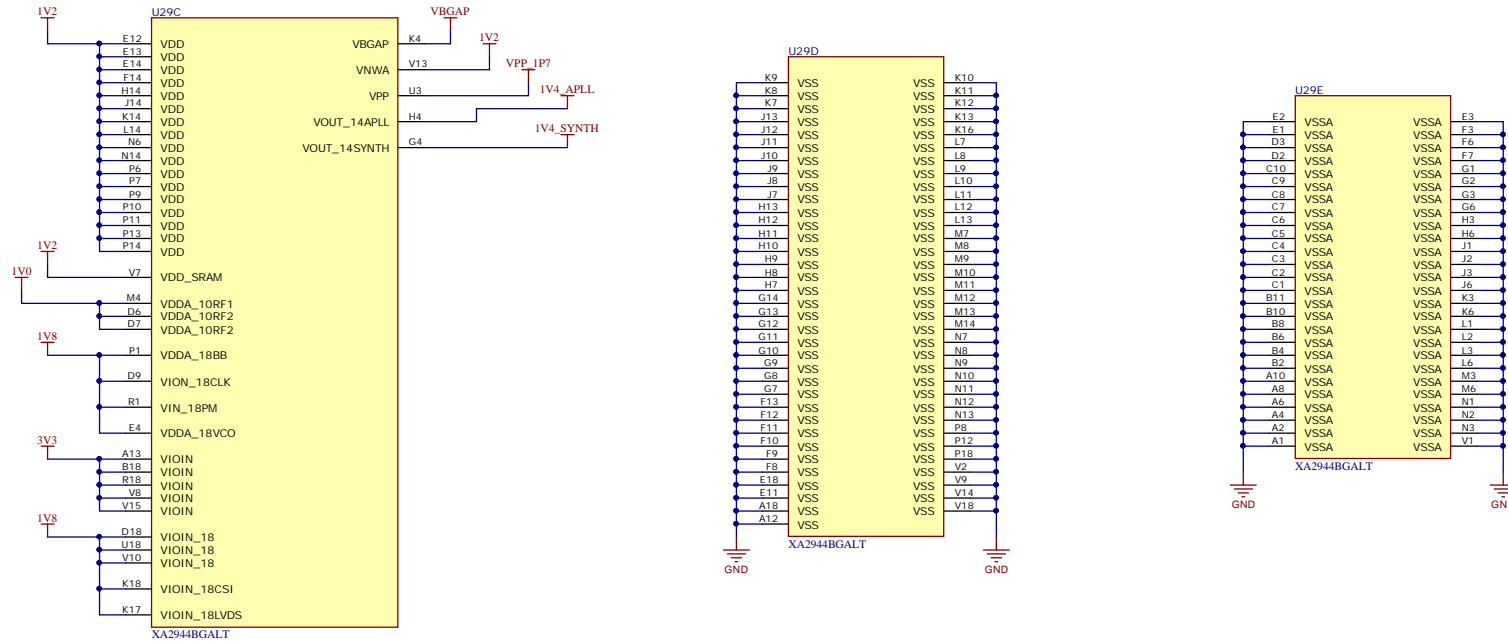
SHEET NO.	SHEET NAME
1	COVER SHEET
2	IO_REFERENCE
3	PWR_REFERENCE
4	DECOUPLING_REFERENCE
5	QSPI_FLASH_REFERENCE
6	PMIC_REFERENCE
7	3V3_SUPPLY_REFERENCE
8	SOP_REFERENCE
9	PWR_RST_LED
10	VPP_LDO
11	ETHERNET_PWR
12	ETHERNET_PHY
13	ETHERNET_MAGNETICS
14	AUTO_ETHERNET_PHY
15	AUTO_ETHERNET_CONN
16	FTDI_PWR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

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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488 [Locally Modified]	Assembly Variant: 001	Sheet 1 of 25
Drawn By:	File: PROC113B_CoverSheet_SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	



# xWR2944 POWER REFERENCE

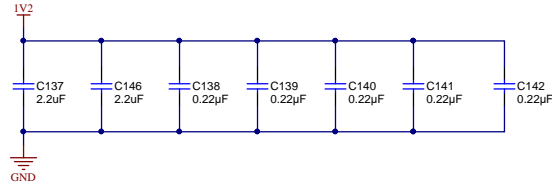


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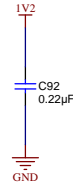
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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet 3 of 25
Drawn By:	File: PROC113B_PWR_Reference.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

# DECOUPLING REFERENCE

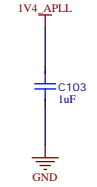
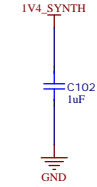
## 1.2V DIGITAL SUPPLY



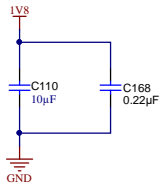
## SRAM SUPPLY



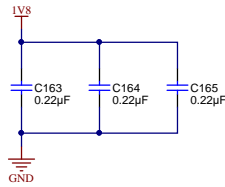
## VNWA SUPPLY



## 1.8V CLOCK SUPPLY



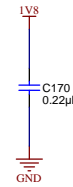
## 1.8V IO SUPPLY



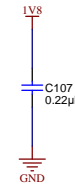
## 1.8V LVDS SUPPLY



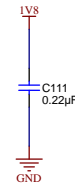
## 1.8V CSI SUPPLY



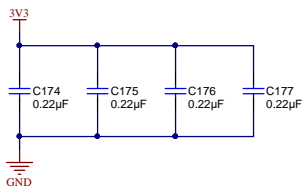
## 1.8V PM SUPPLY



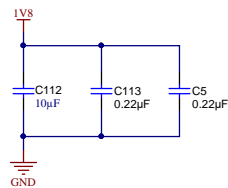
## 1.8V VCO SUPPLY



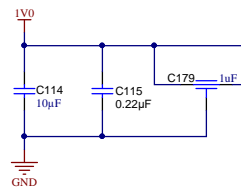
## 3.3V IO SUPPLY



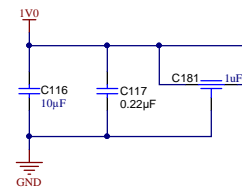
## 1.8V BB SUPPLY



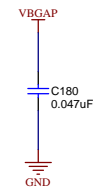
## RF1 SUPPLY



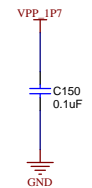
## RF2 SUPPLY



## BANDGAP SUPPLY



## VPP SUPPLY



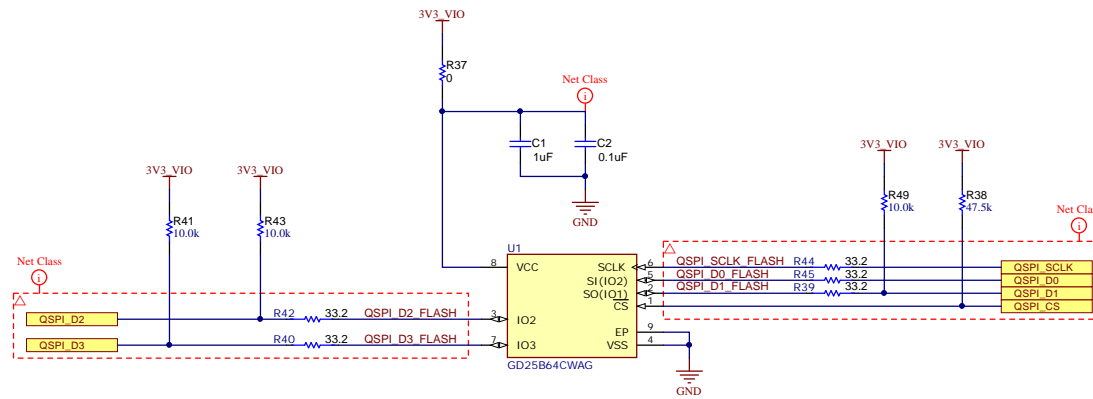
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Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 4 of 25
Drawn By:	File: PROC113B_Decoupling_Reference.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

References

[GD25B64CWAG Datasheet](#)

# QSPI FLASH REFERENCE



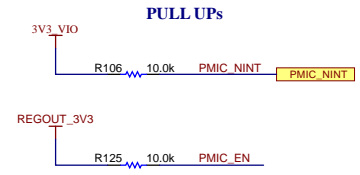
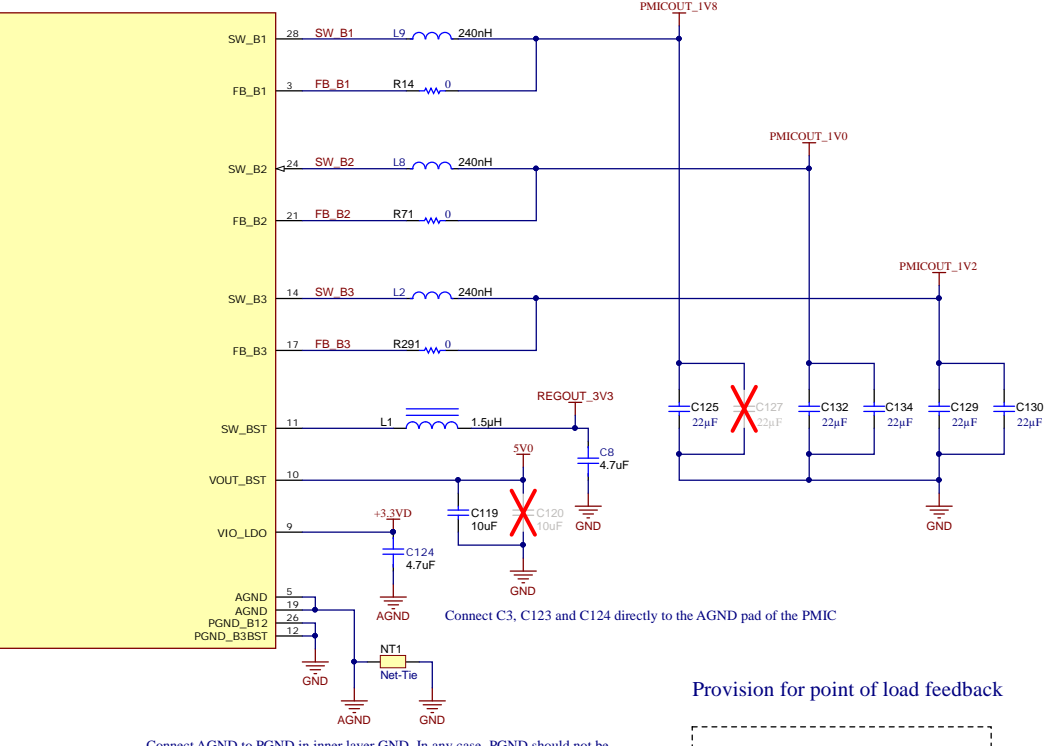
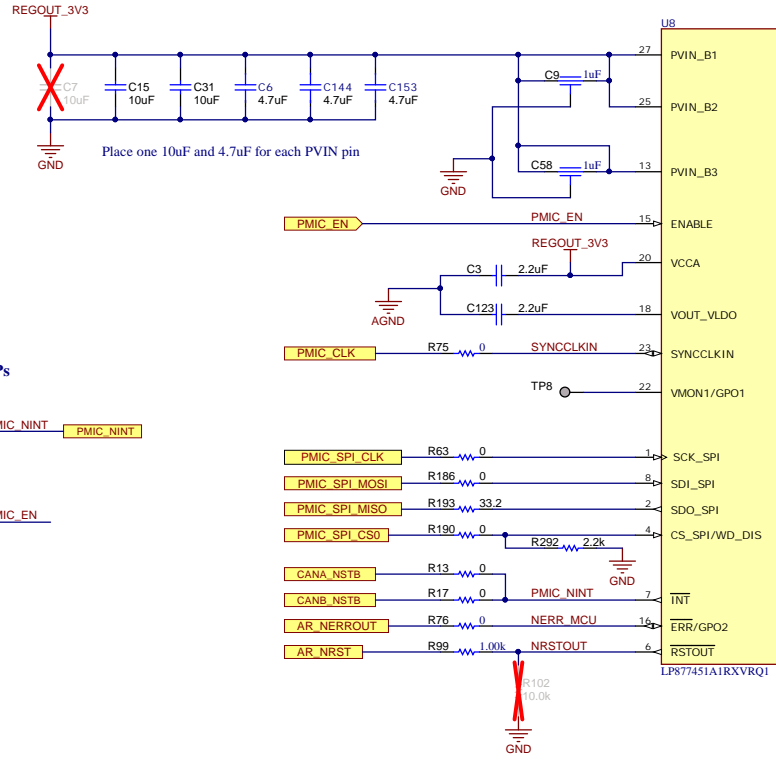
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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 5 of 25
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Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

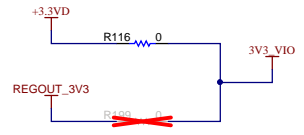
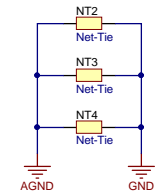
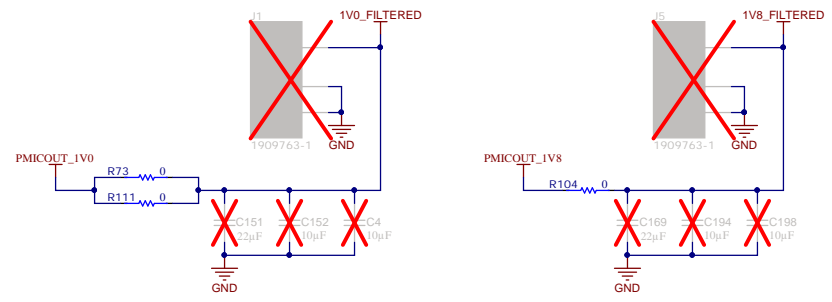
References

PMIC REFERENCE

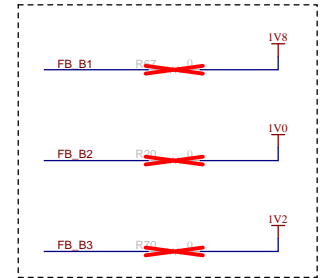
DEBUG TEST PINS



PMIC LC FILTER



Provision for point of load feedback



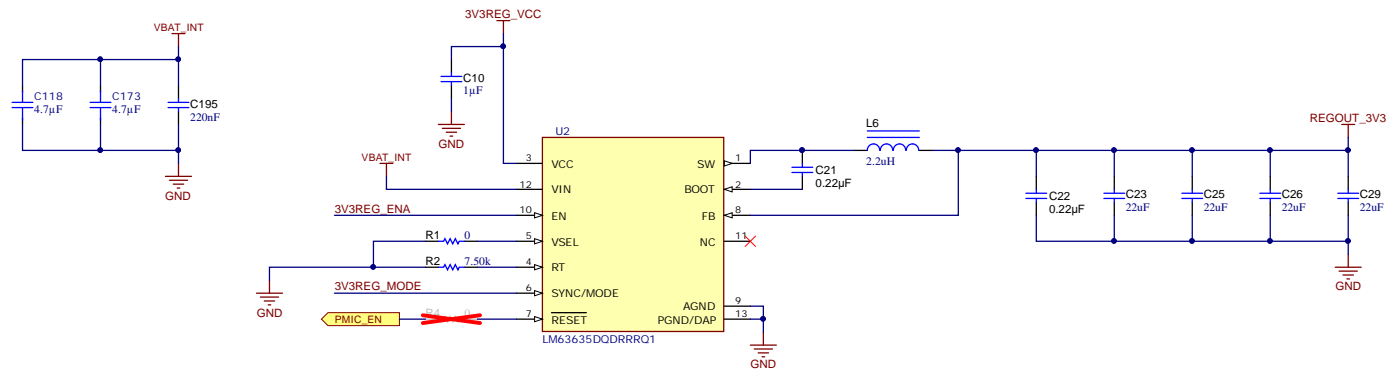
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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488 [Locally Modified]	Assembly Variant: 001	Sheet 6 of 25
Drawn By:	File: PROC113B_PMIC_Reference_SchDoc	Size: B
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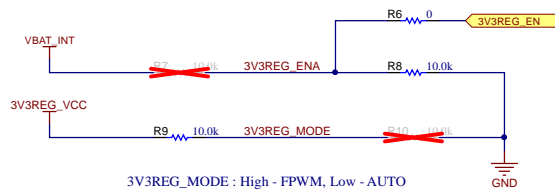


References

### 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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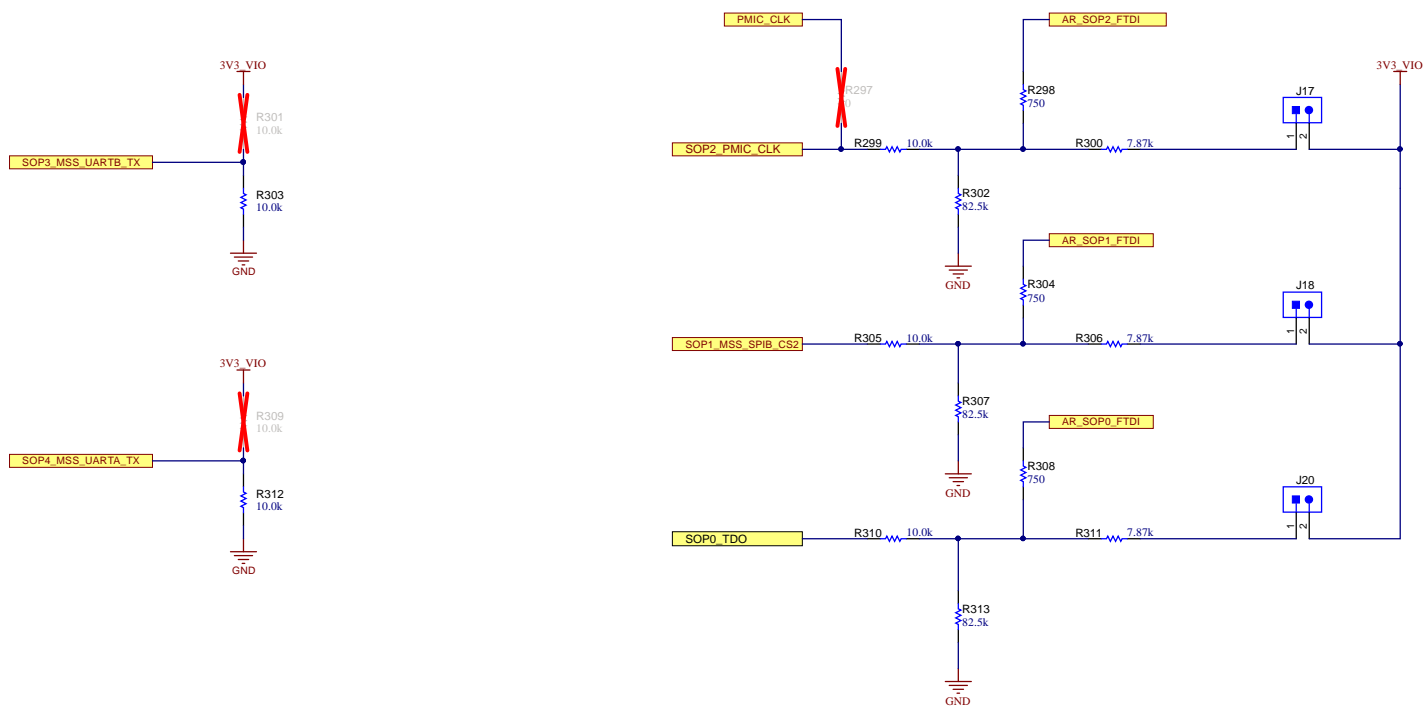
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Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 7 of 25
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Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

# 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



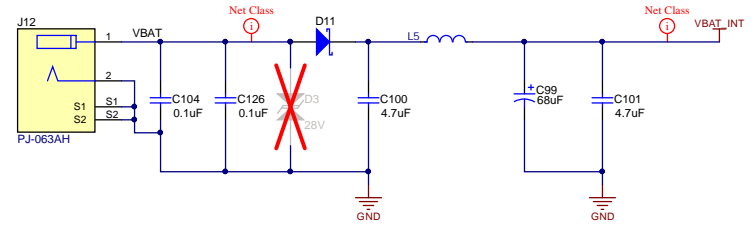
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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 8 of 25
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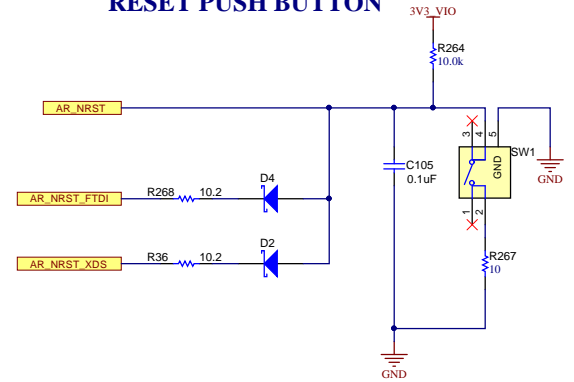


# POWER IN, RESETS, AND LEDS

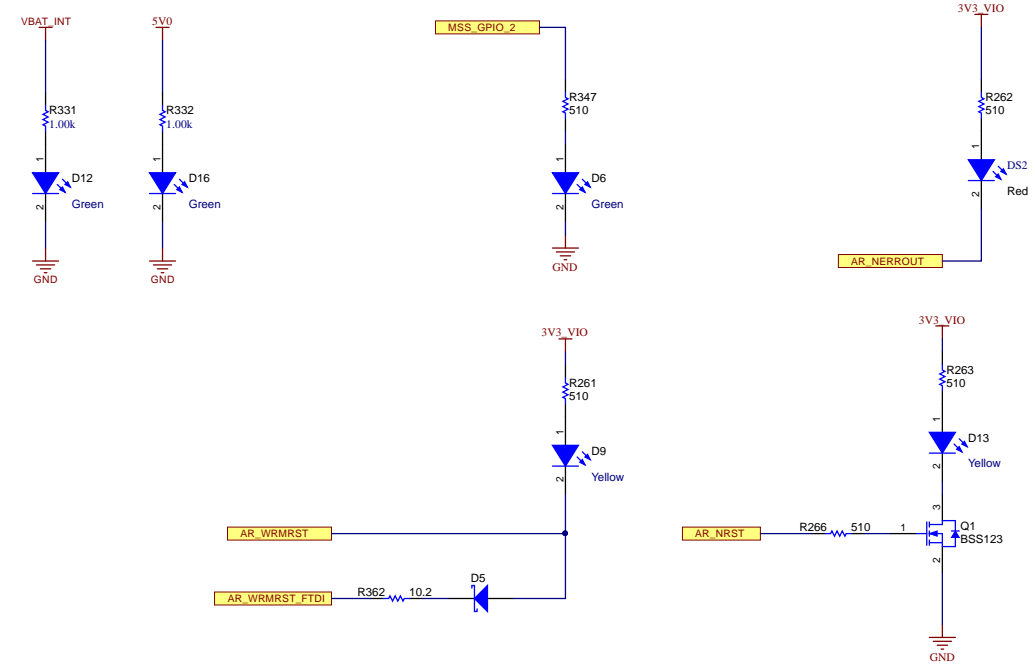
## POWER JACK



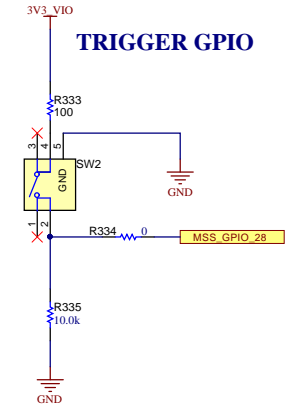
## RESET PUSH BUTTON



## INDICATION LEDS



## TRIGGER GPIO



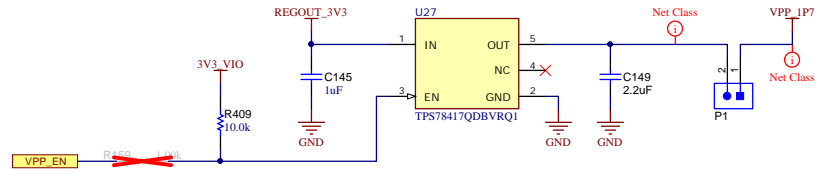
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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 9 of 25
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Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	



References

VPP LDO



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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 10 of 25
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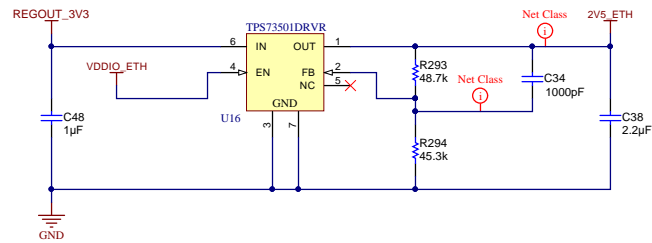
# ETHERNET POWER

## References

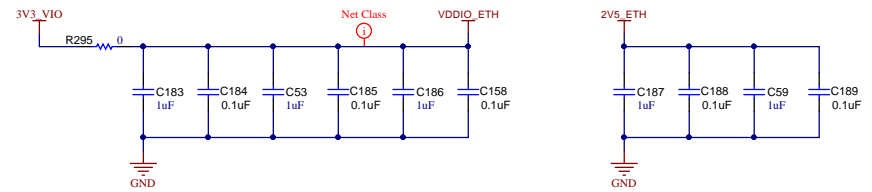
[TPS73501 Datasheet](#)

[TLV733P Datasheet](#)

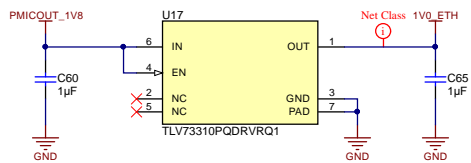
## 2.5V ANALOG SUPPLY



## DECOUPLING CAPS



## 1V ANALOG SUPPLY



Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 11 of 25
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Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

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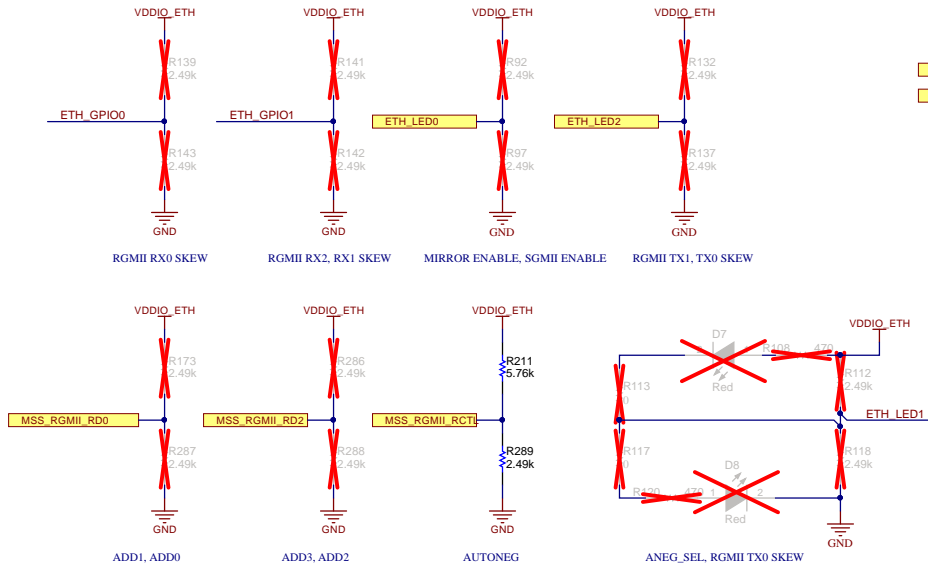
References

DP83867E Datasheet

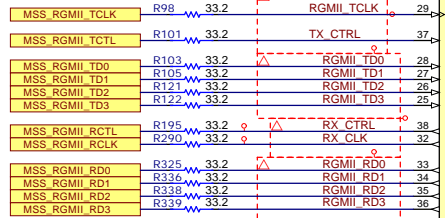
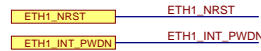
ETHERNET PHY

BOOTSTRAP CONFIGURATION PINS

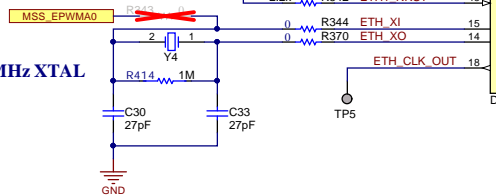
Resistor Values must be changed to change Modes, refer to datasheet for proper values



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



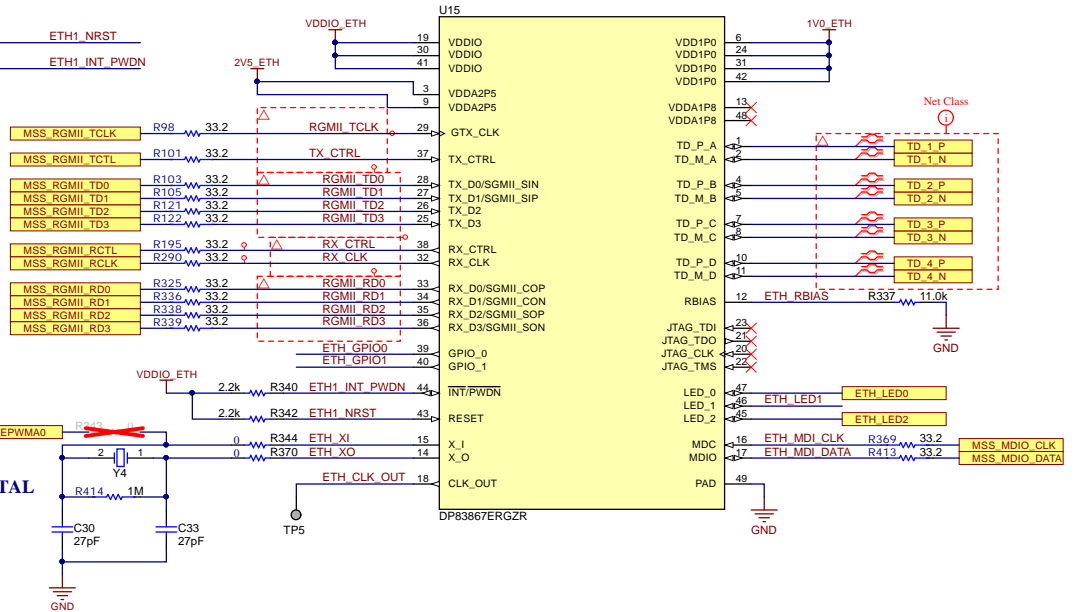
25MHz XTAL



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

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

ETHERNET PHY

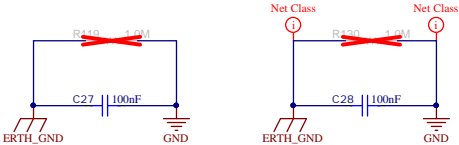
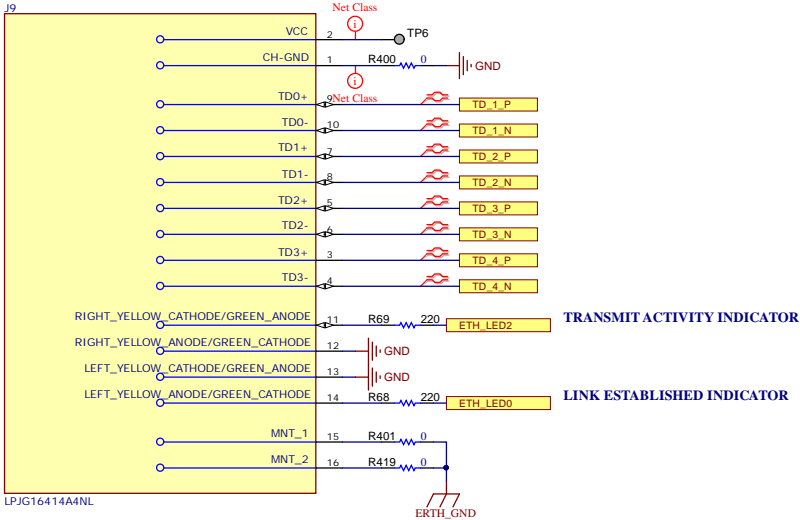


Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 12 of 25
Drawn By:	File: PROC113B_Ethernet_PHY_SchDoc	Size: B
Engineer: Adrian Ozer	Contact: http://www.ti.com/support	

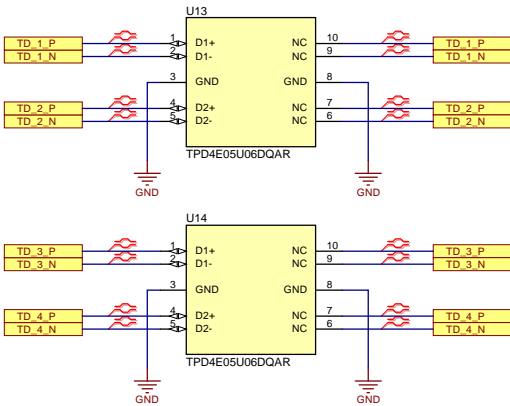
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# ETHERNET MAGNETICS

## RJ45 WITH MAGJACK



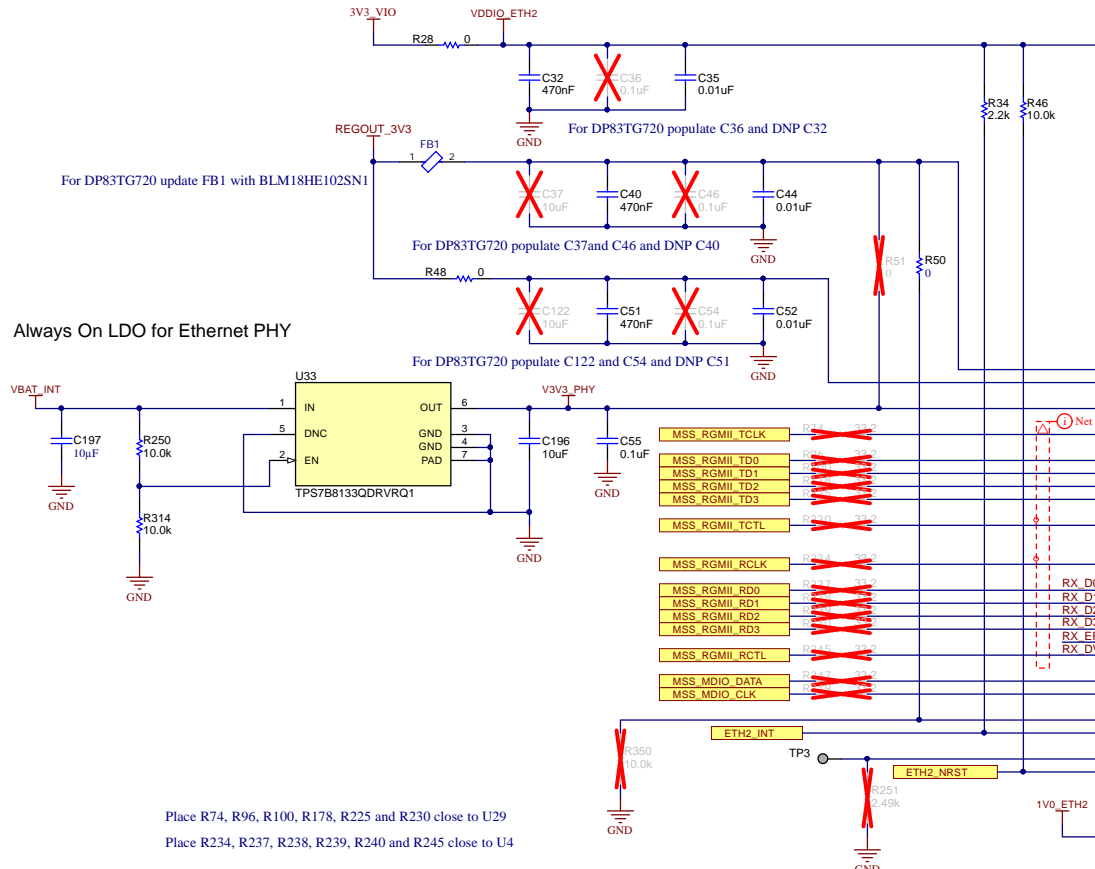
## ETHERNET ESD PROTECTION



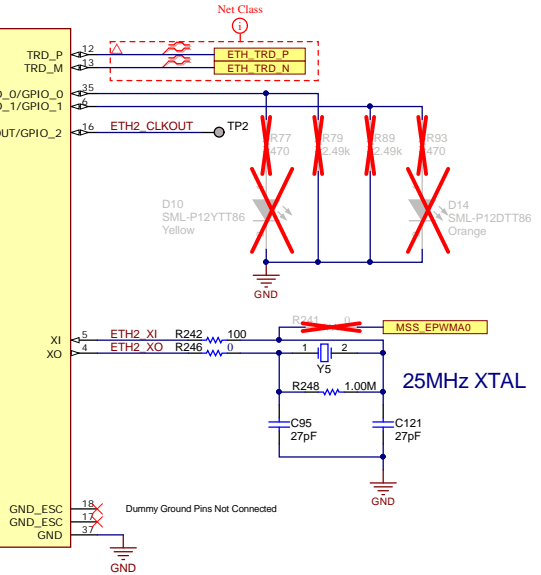
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Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 13 of 25
Drawn By:	File: PROC113B_Ethernet_Magnetics.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

# ETHERNET



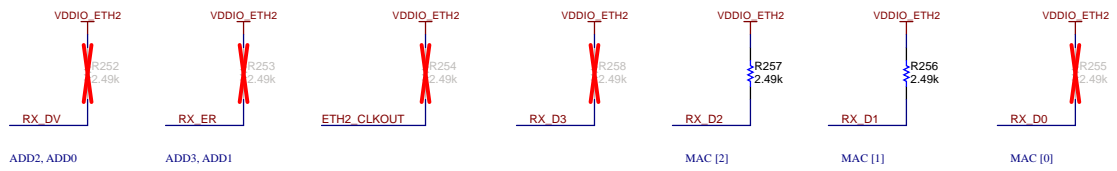
# ETHERNET PHY



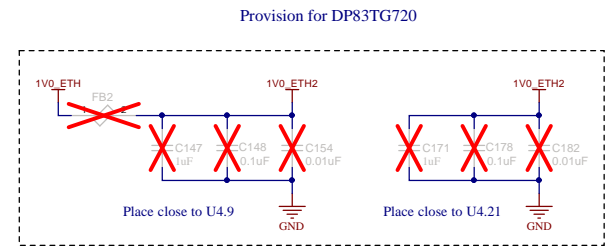
Place R74, R96, R100, R178, R225 and R230 close to U29  
Place R234, R237, R238, R239, R240 and R245 close to U4

## BOOTSTRAP CONFIGURATION PINS

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



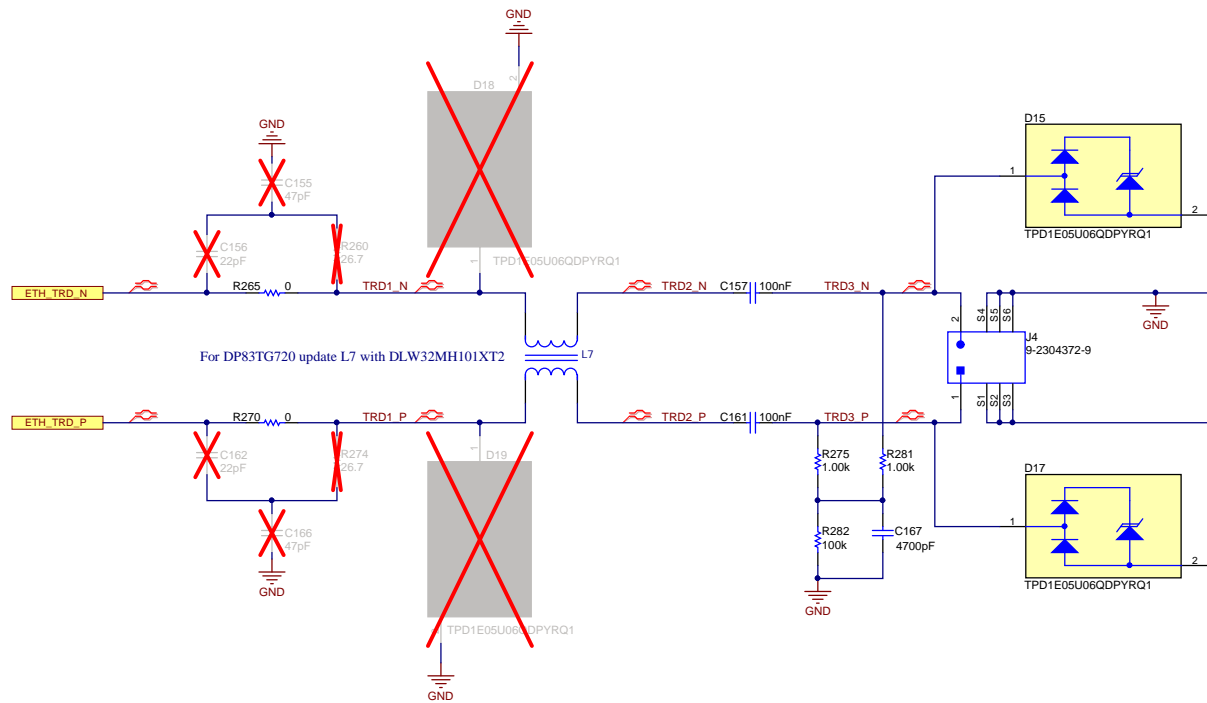
MAC Interface Selection Bootstraps  
MAC[2:0] - 1 1 0 RGMII (TX and RX Internal Delay Mode)



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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 14 of 25
Drawn By:	File: PROC113B_Auto_Ethernet_PHY_SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

# ETHERNET CONNECTOR

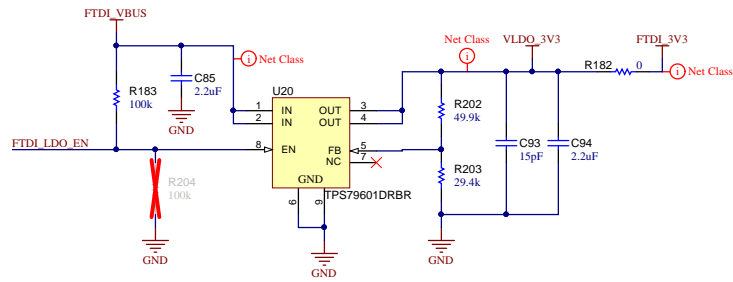


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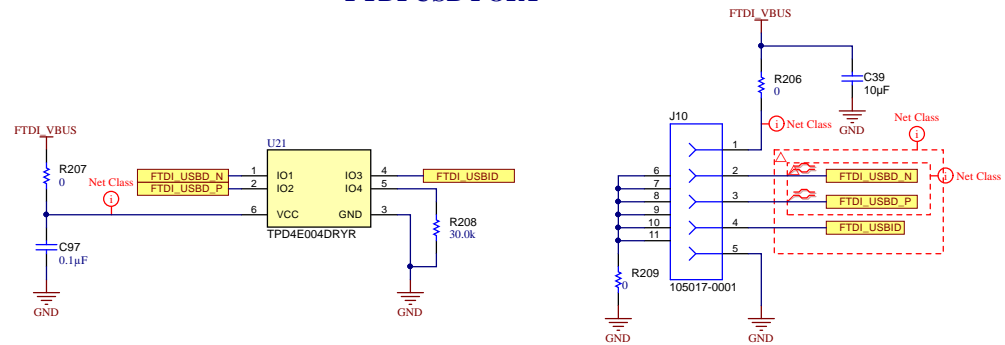
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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 15 of 25
Drawn By:	File: PROC113B_Auto_Ethernet_conn.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

# FTDI (1/2)

## 3.3V LDO FOR FTDI



## FTDI USB PORT



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Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 16 of 25
Drawn By:	File: PROC113B_FTDI_PWR_SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	



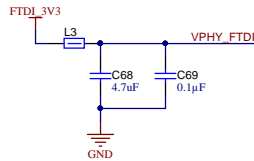
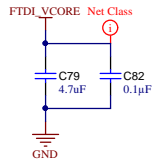
# FTDI (2/2)

## References

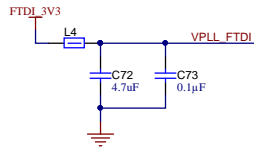
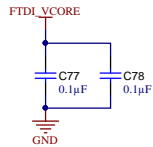
[FT4232H Datasheet](#)

### FTDI SUPPLY DECAPS

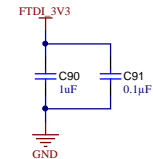
#### VCORE DECAPS



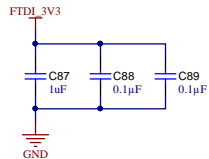
#### VREGOUT DECAPS



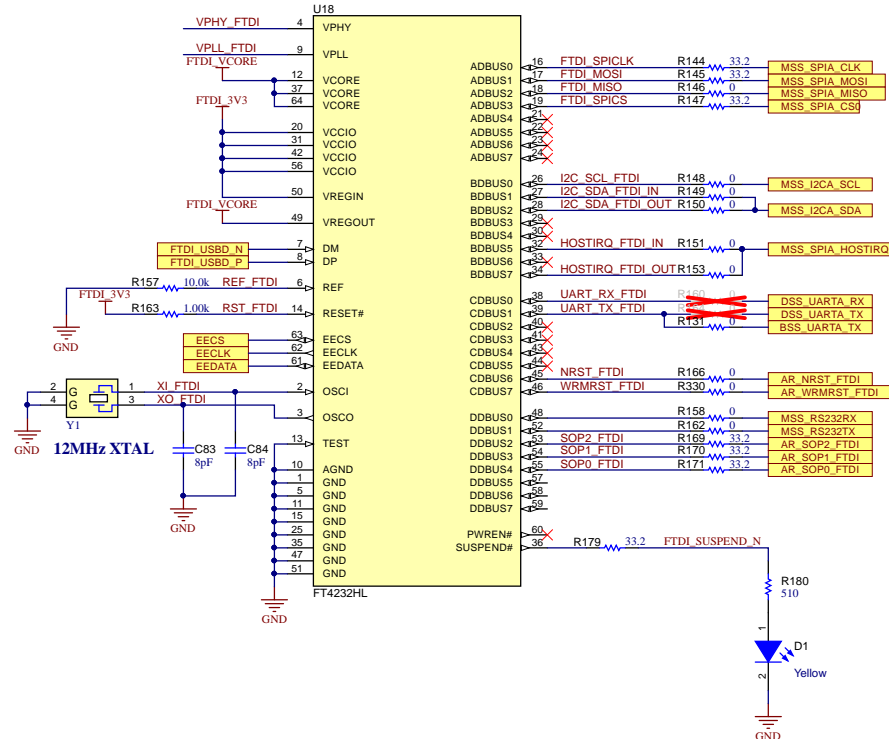
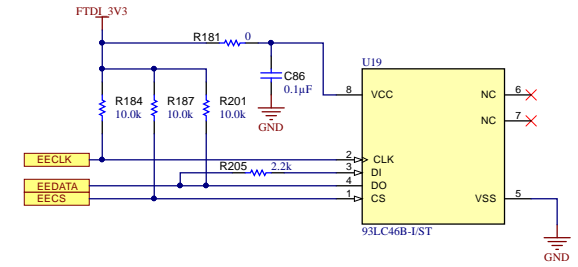
#### VREGIN DECAPS



#### VCCIO DECAPS



### FTDI EEPROM



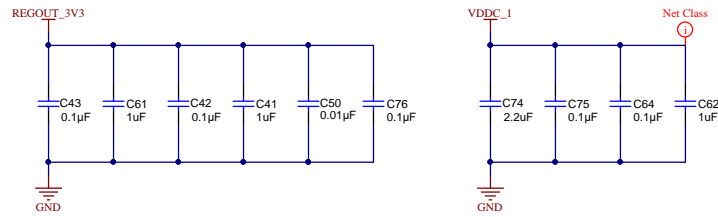
Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet 17 of 25
Drawn By:	File: PROC113B_FTDI_SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

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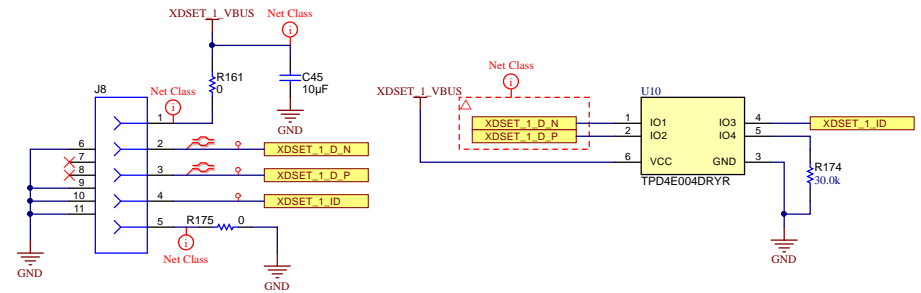


# XDS110(1/2)

## XDS110 DECOUPLING CAPS



## XDS110 USB PORT



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Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 18 of 25
Drawn By:	File: PROC113B_XDS110 Interface_1A.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	



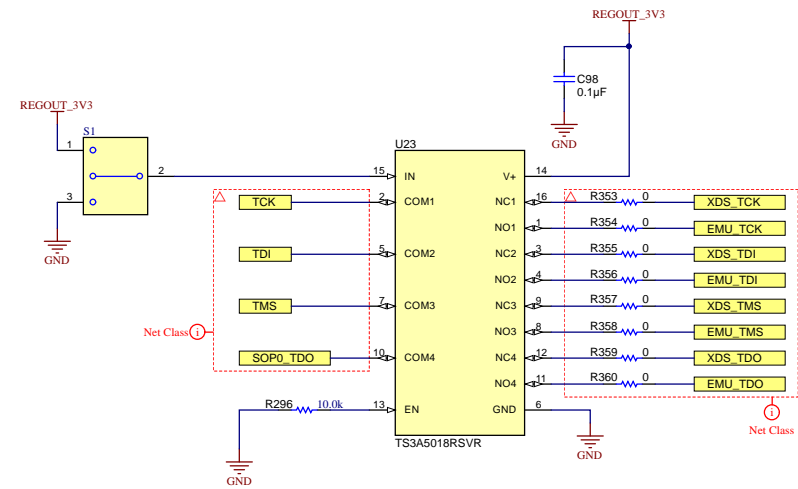
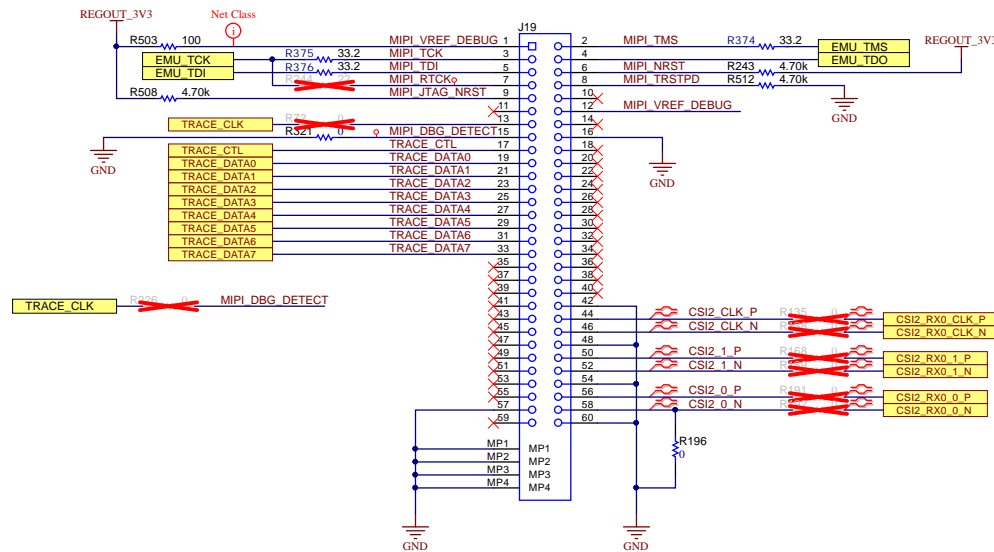
# References

[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: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 20 of 25
Drawn By:	File: PROC113B_JTAG_EMU_Connector.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

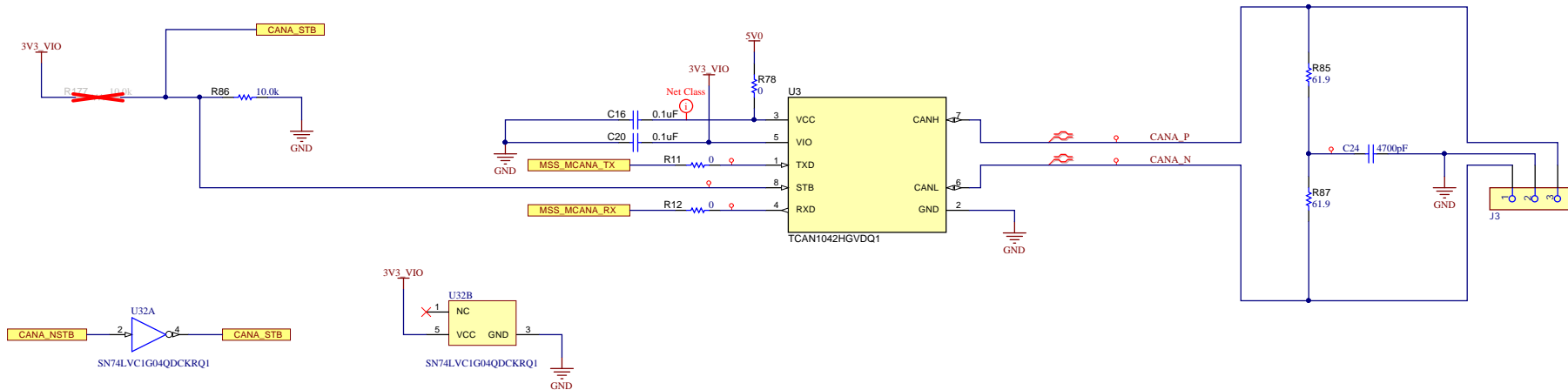


# CAN INTERFACE

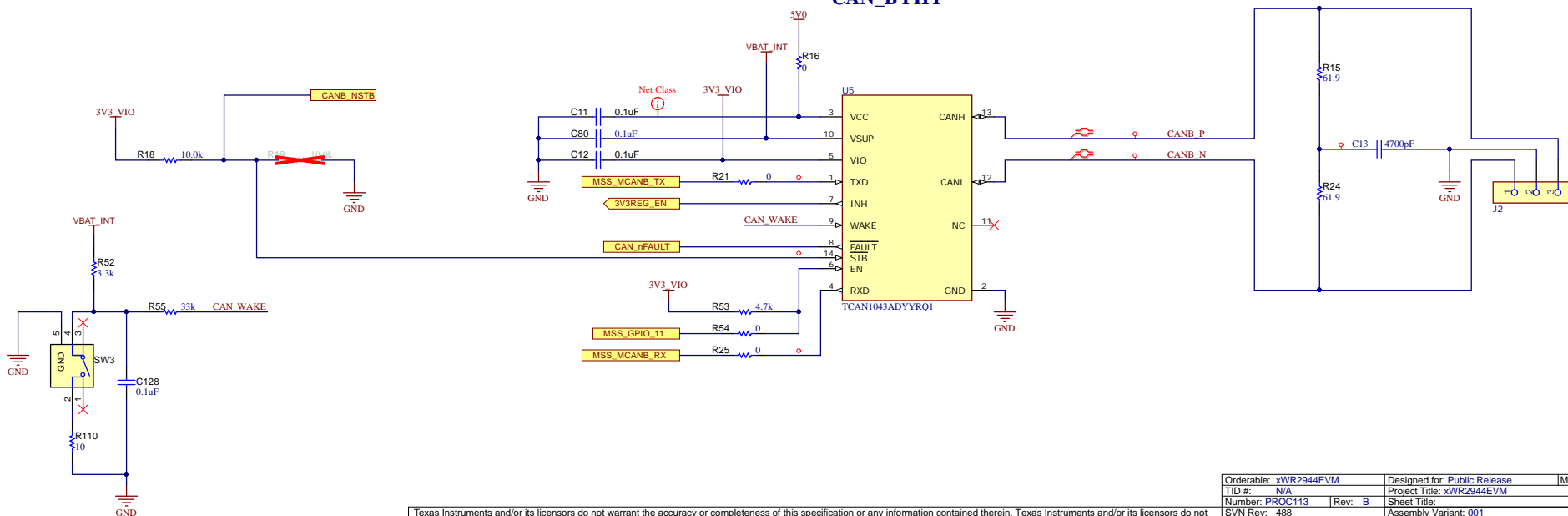
## References

[TCAN1042 Datasheet](#)

### CAN\_A\_PHY



### CAN\_B\_PHY



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Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 22 of 25
Drawn By:	File: PROC113B_CAN Interface.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

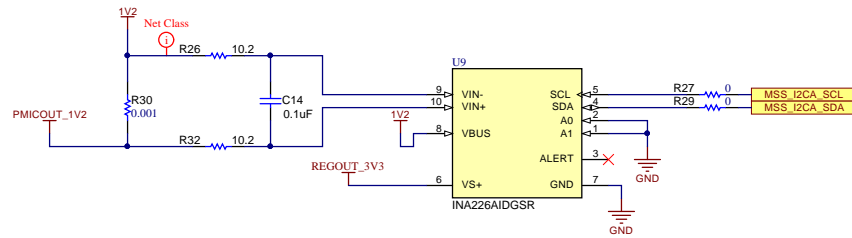
# CURRENT SENSORS

## References

[INA226 Datasheet](#)

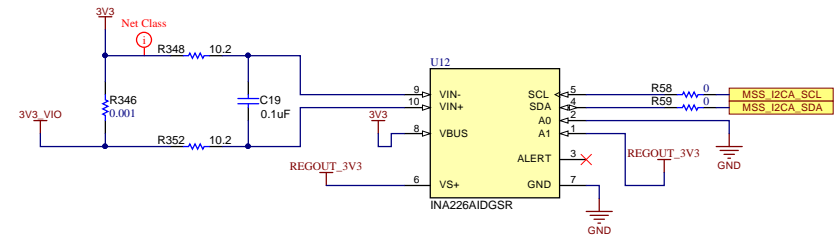
### 1.2V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x40



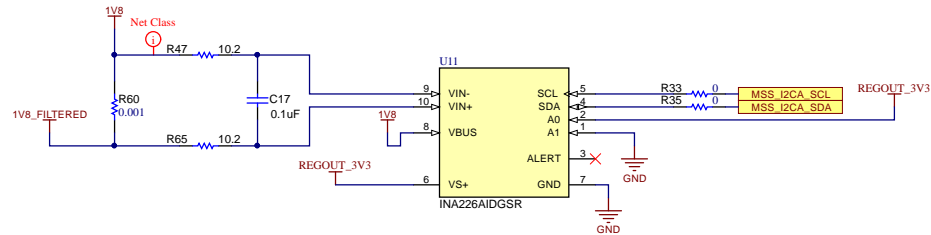
### 3.3V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x44



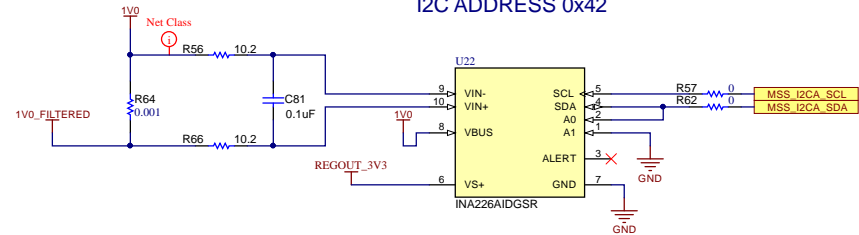
### 1.8V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x41



### 1.0V SUPPLY CURRENT SENSOR

I2C ADDRESS 0x42



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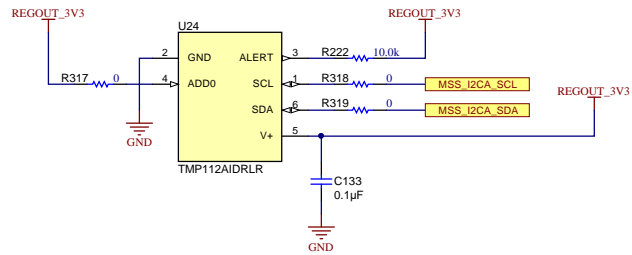
Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet 23 of 25
Drawn By:	File: PROC113B_Current_Sensors.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

# TEMP SENSOR

## References

[TMP112 Datasheet](#)

I2C ADDRESS 0x49



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Orderable: xWR2944EVM	Designed for: Public Release	Mod. Date: 17-09-2021
TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 24 of 25
Drawn By:	File: PROC113B_Temp_Sensor_SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	





PCB Number: PROC113  
PCB Rev: B

PCB LOGO  
Texas Instruments

PCB LOGO  
FCC disclaimer

PCB LOGO  
WEEE logo

PCB LOGO  
ESD Susceptible



Variant/Label Table	
Variant	Label Text
001	xWR2944EVM

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.

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TID #: N/A	Project Title: xWR2944EVM	
Number: PROC113	Rev: B	Sheet Title:
SVN Rev: 488	Assembly Variant: 001	Sheet: 25 of 25
Drawn By:	File: PROC113B_Hardware.SchDoc	Size: B
Engineer: Adrian Ozer	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	

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