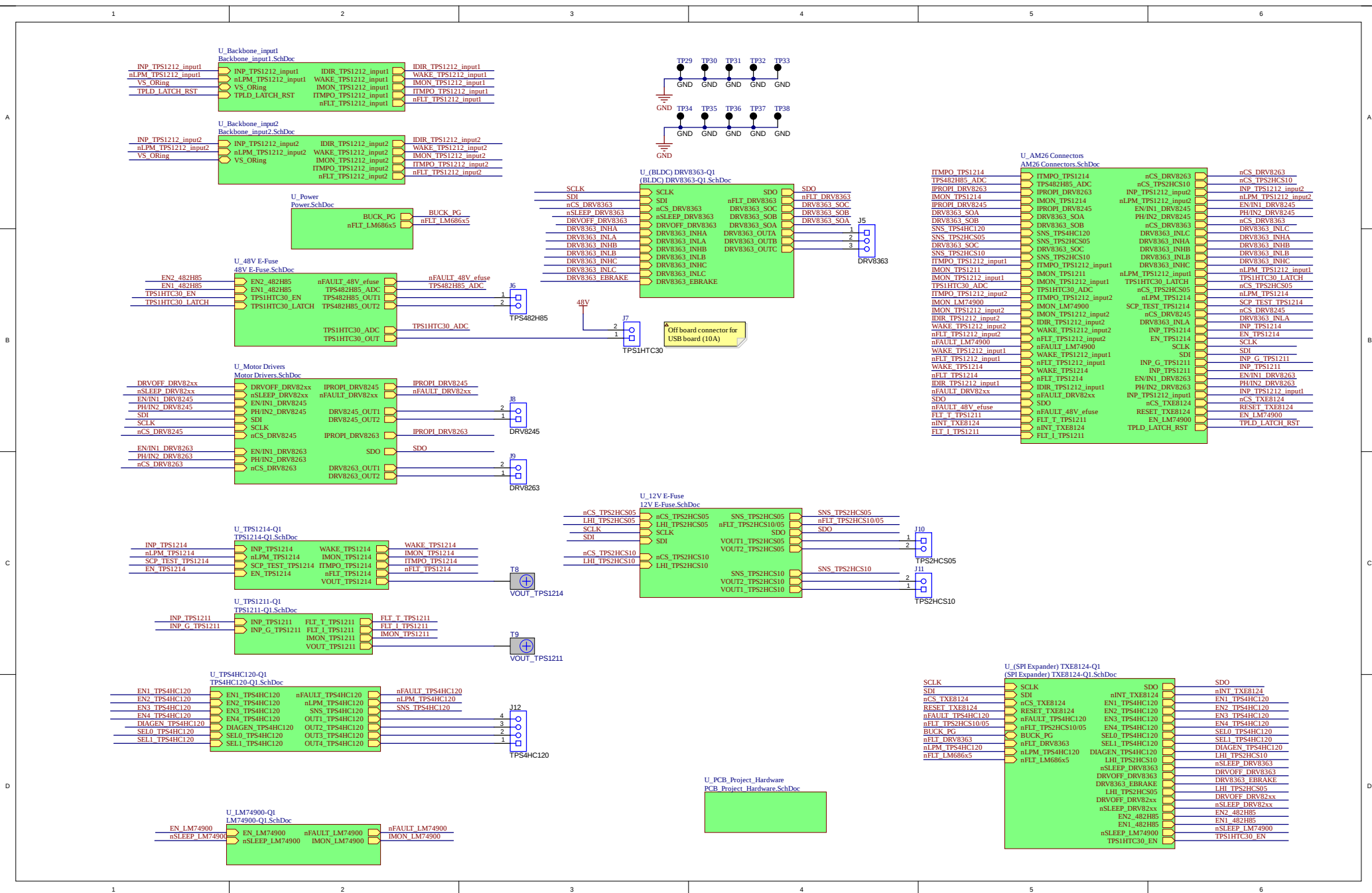
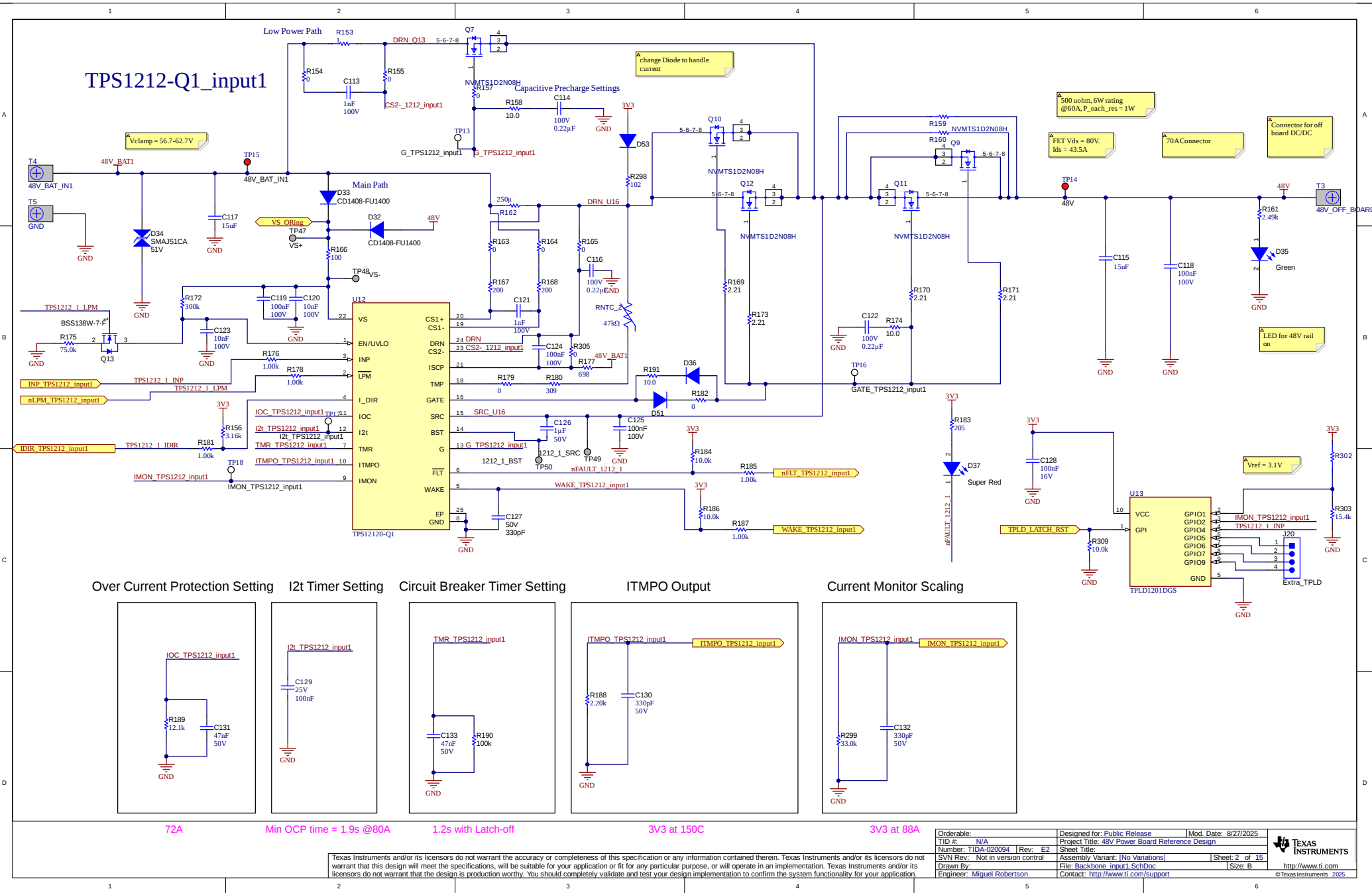
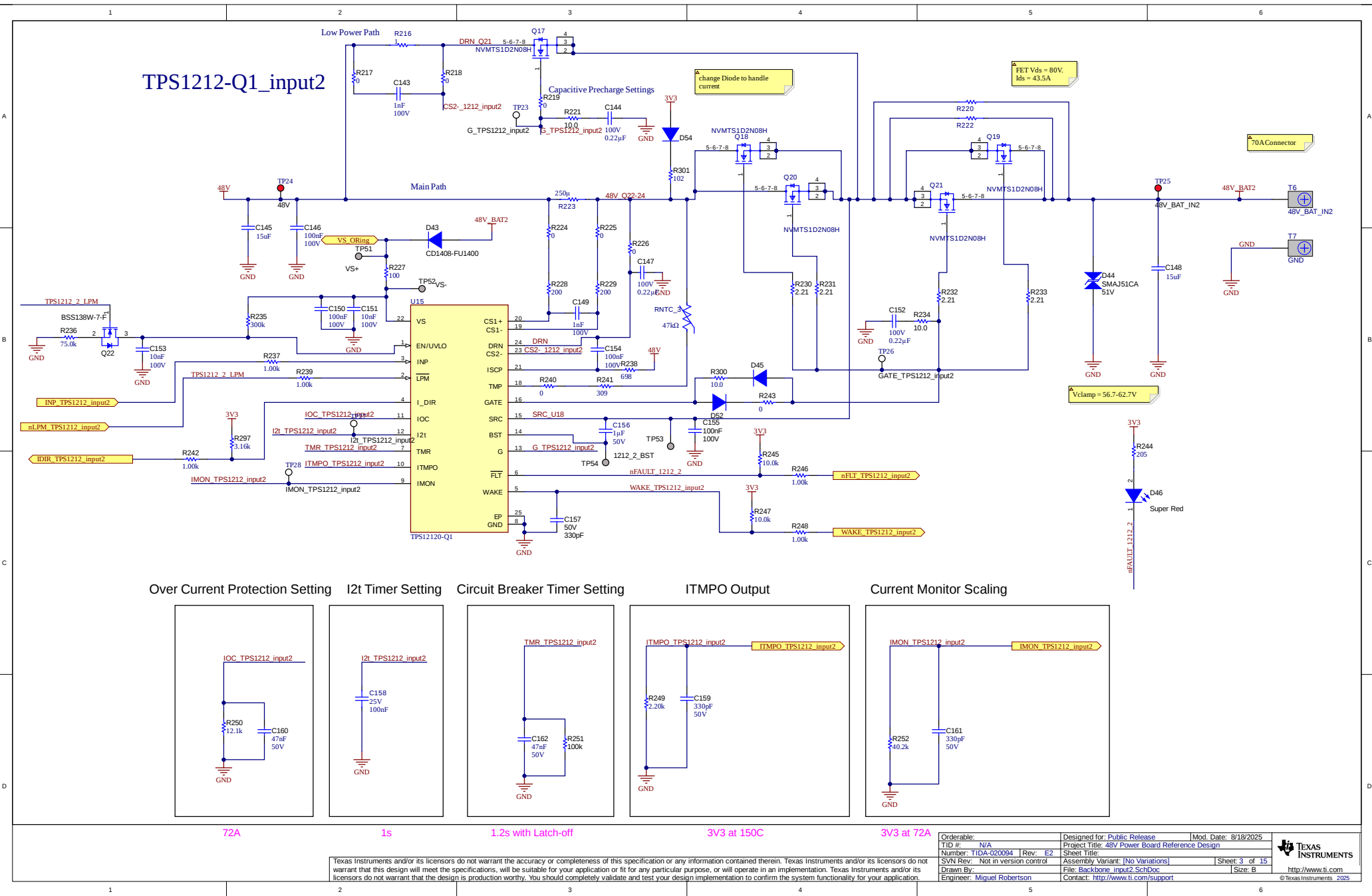
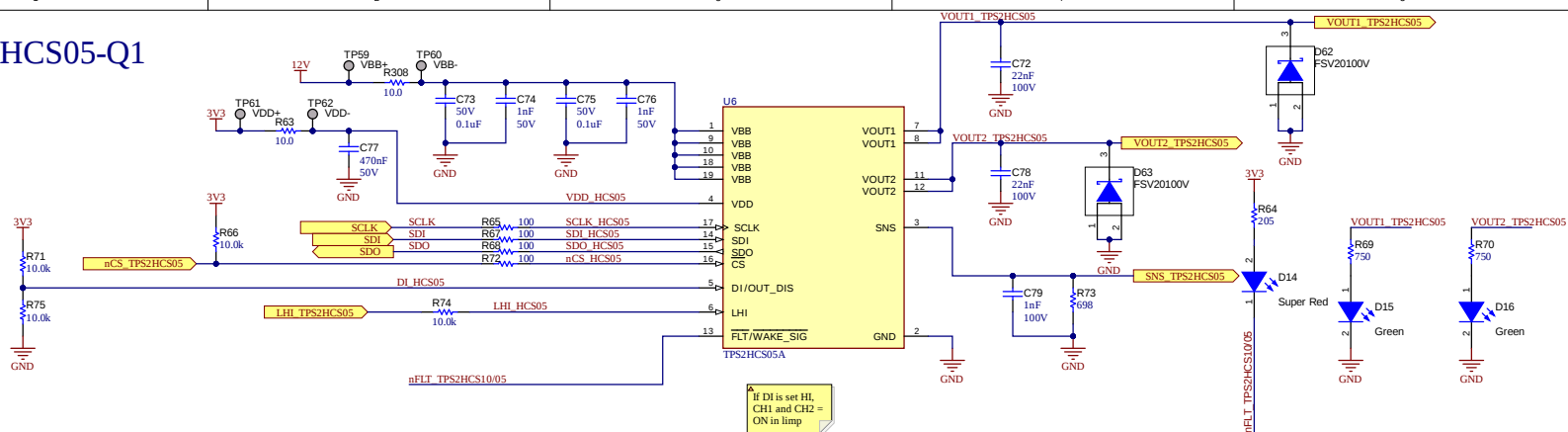




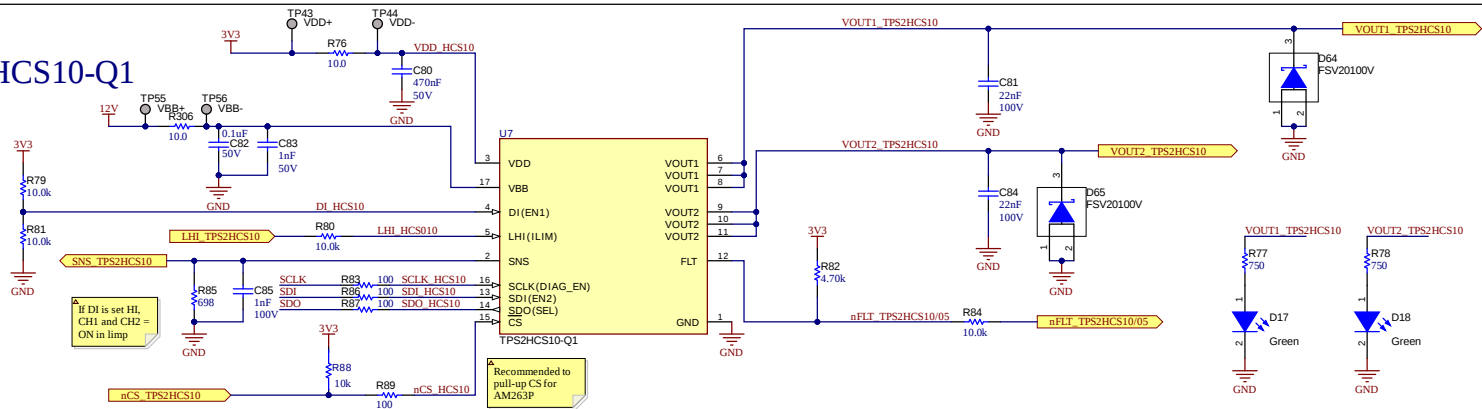




TPS2HCS05-Q1



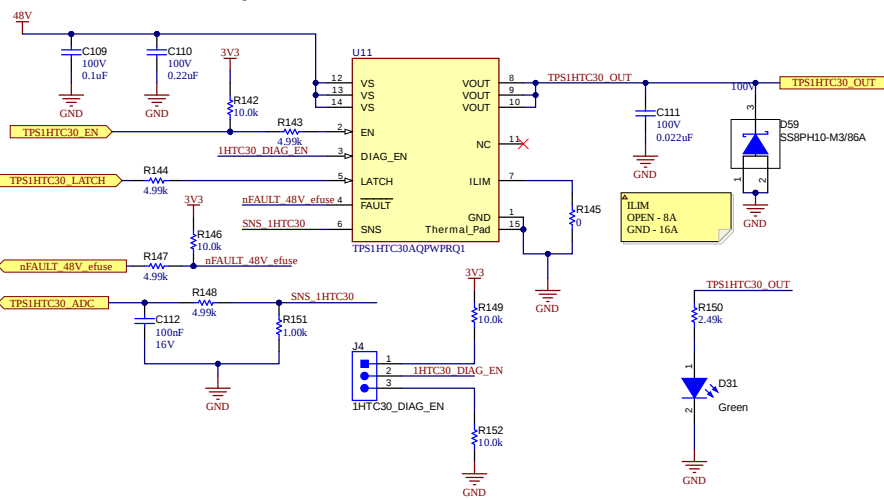
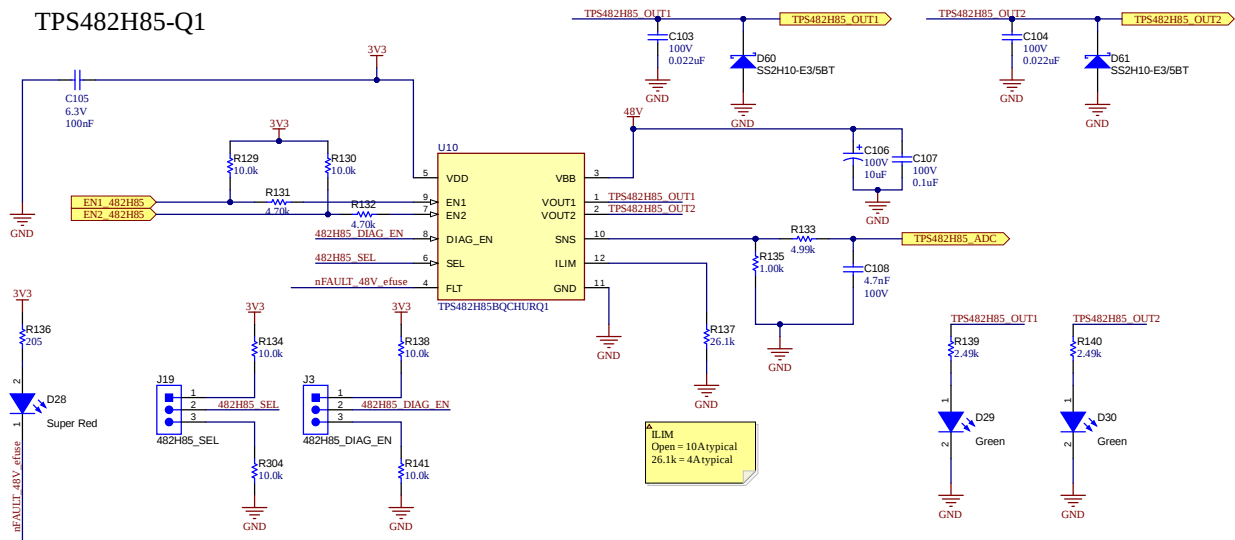
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Number: TIDA-020094 Rev: E2	Sheet Title:		
SVN Rev: Not in version control	Assembly Variant: [No Variations]	Sheet: 4 of 15	
Drawn by: Miguel Robertson	File: 12V E-Fuse SchDoc	Size: B	
Contact: http://www.ti.com/support			

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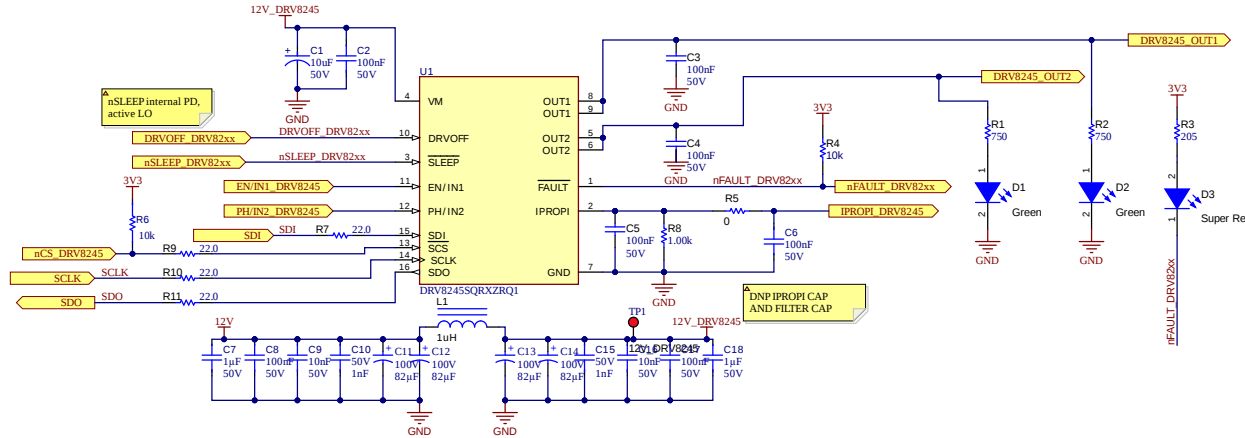


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SVN Rev: Not in version control	File: 48V E-Fuse SchDoc Size: B		
Drawn by: Miguel Robertson	Contact: http://www.ti.com/support		

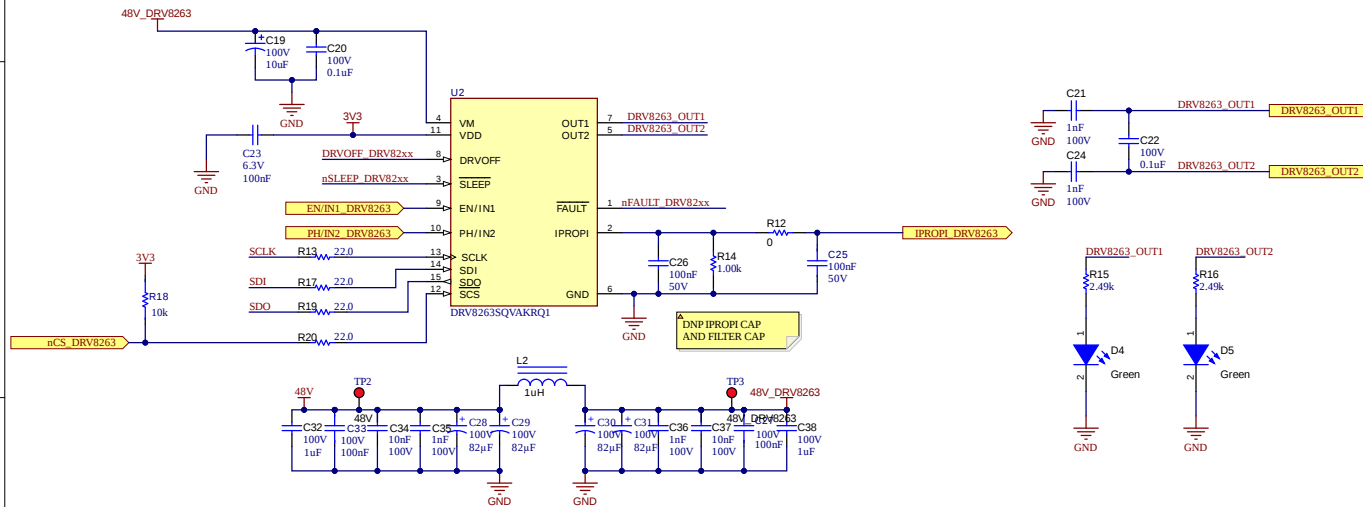
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DRV8245-Q1



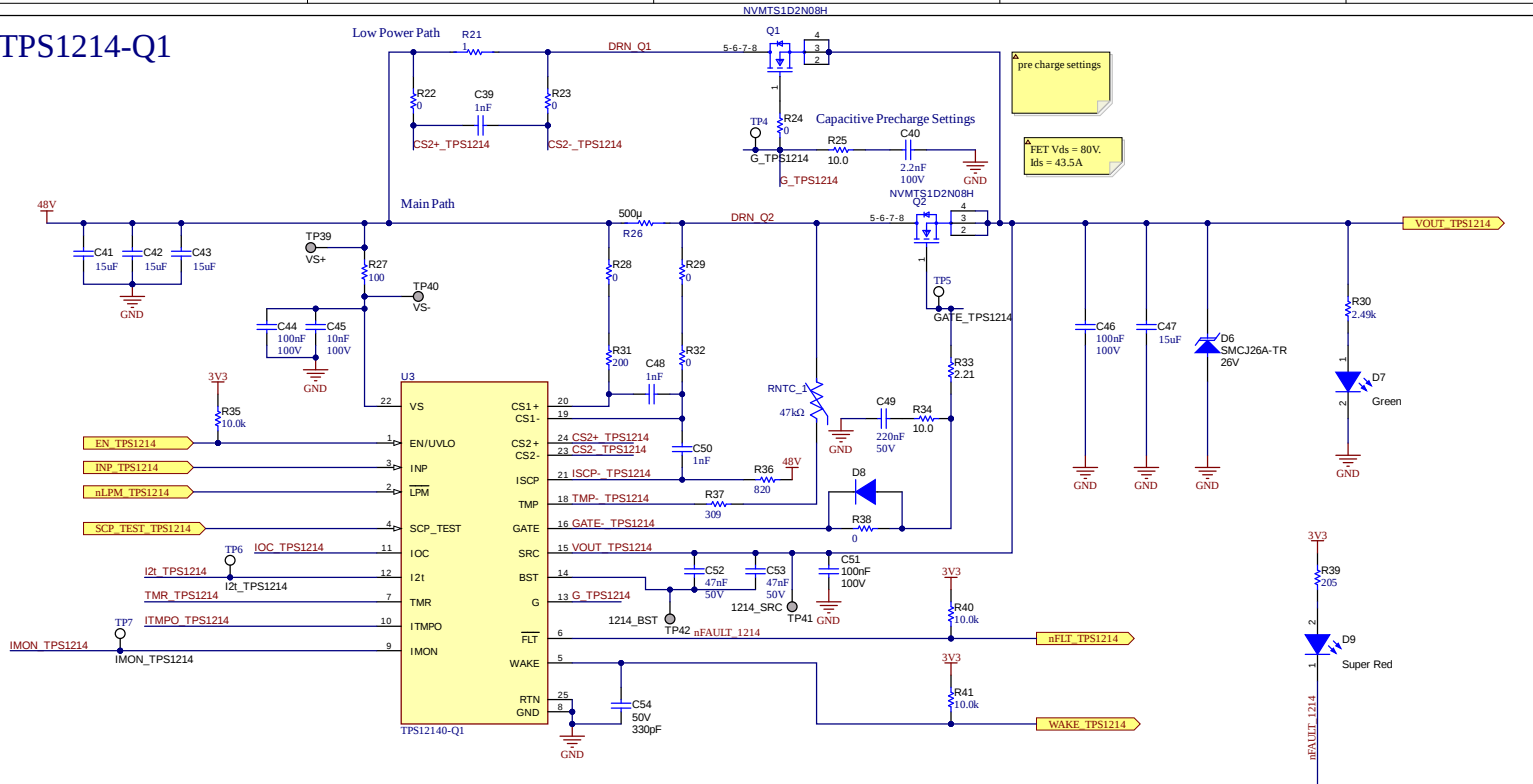
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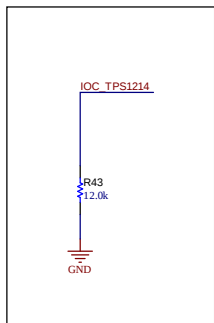
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SVN Rev: Not in version control	Assembly Variant: [No Variations]	Sheet: 6 of 15
Drawn By:	File: Motor Drivers.SchDoc	Size: B
Engineer: Miguel Robertson	Contact: http://www.ti.com/support	http://www.ti.com

TPS1214-Q1

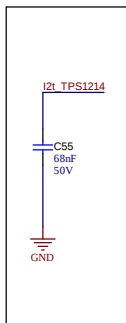


Over Current Protection Setting



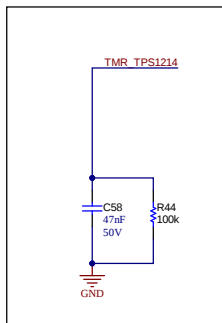
36A

I2t Timer Setting



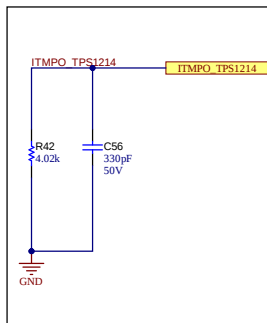
1s

Circuit Breaker Timer Setting



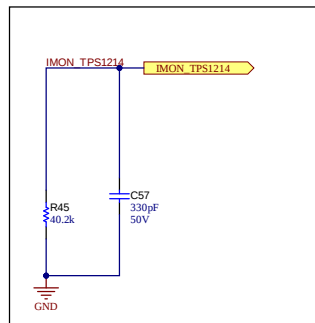
12s with Latch-off

ITMPO Output



3V3 at 150C

Current Monitor Scaling



3V3 at 36A

8.3.2 Short-circuit Protection (ISCP, CS1-)

Connect a resistor, R_{ISCP} as shown in Figure. Use Equation to calculate the required R_{ISCP} value.

$$R_{\text{ISCP}} (\Omega) = \frac{I_{\text{SC}} \times R_{\text{SNS}}}{\text{TBD} \mu} - \text{TBD}$$

$$V_{ITMPO} = (V_{REF_TMP} + V_{TMP_OFFSET}) \times \frac{R_{ITMPO}}{(R_{NTC} + R_{TMP})}$$

Use Equation to calculate the IIRUSH:

$$I_{\text{INRUSH}} = C_{\text{LOAD}} \times \frac{V_{\text{BATT}}}{T_{\text{charge}}}$$

* INRUSH should be set less than IBYP_SCP

Use Equation to calculate the required C_g value

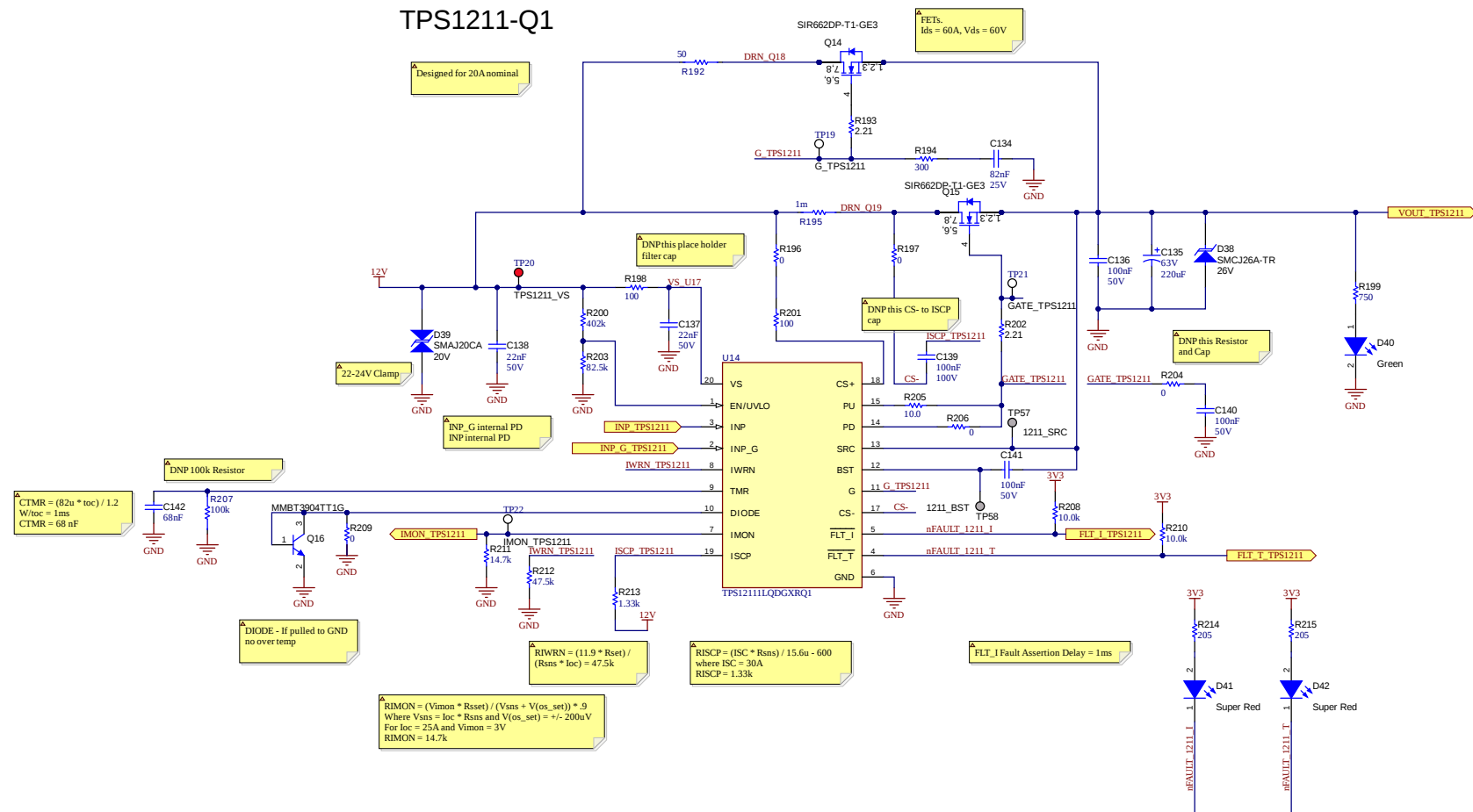
$$C_f = \frac{C_{LOAD} \times I_{(G)}}{I_{INRUSH}}$$

Where,
 $I(G)$ is 100 μA (typical),
 C_{LOAD} is the load capacitance,
 V_{BATT} is the input voltage and T_{charge} is the charge time

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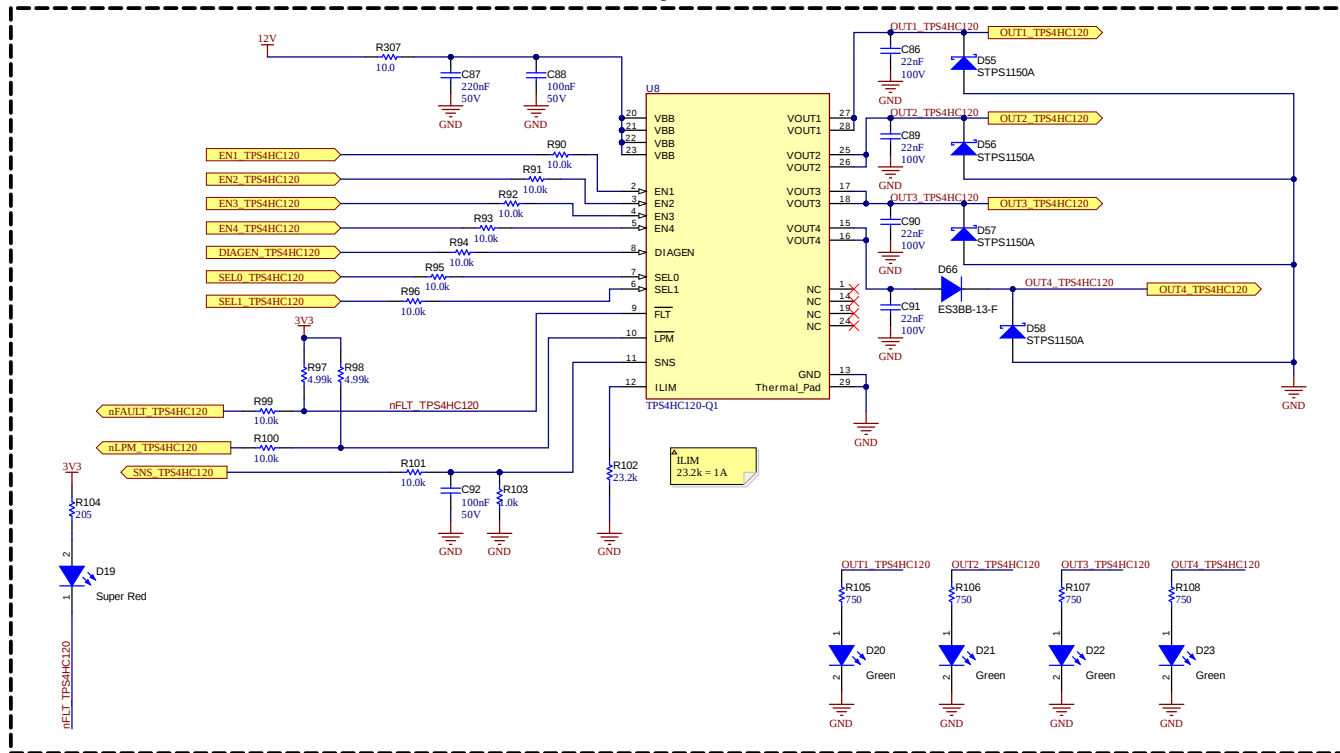
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Number: TIDA-020094	Rev: E2	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: [No Variations]	Sheet: 7 of 15
Drawn By:	File: TPS1214-Q1 SchDoc	Size: B
Engineer: Miguel Robertson	Contact: http://www.ti.com/support	





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SVN Rev: N/A Not in version control	Assembly Variant: [No Variations]	Sheet 8 of 15	
Drawn by:	File: TPS1211-Q1 SchDoc	Size: B	
Engineer: Miguel Robertson	Contact: http://www.ti.com/support		

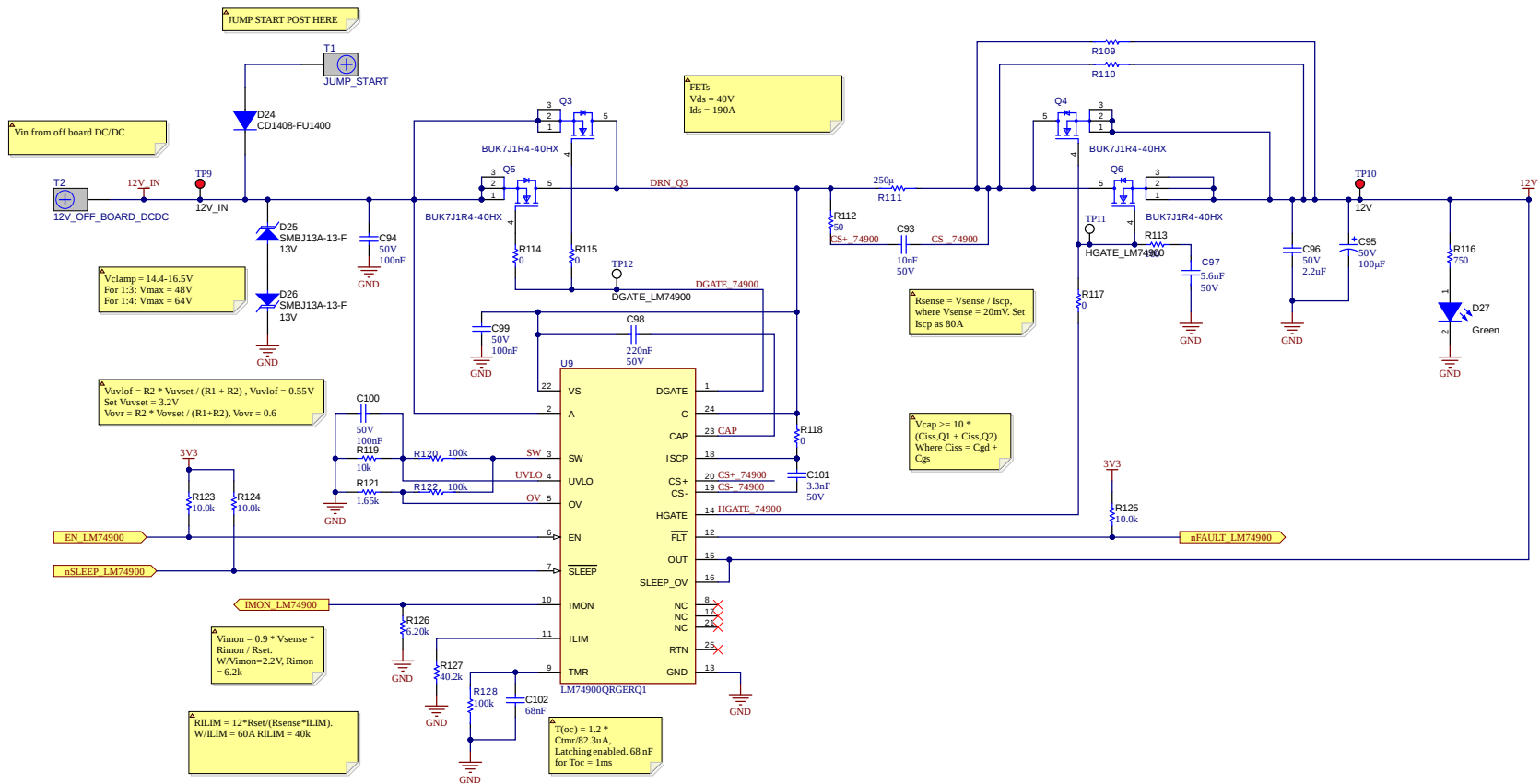
TPS4HC120-Q1



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SVN Rev: Not in version control	Assembly Variant: [No Variations]	Sheet: 9 of 15
Drawn By:	File: TPS4HC120-Q1_SchDoc	Size: B
Engineer: Miguel Robertson	Contact: http://www.ti.com/support	

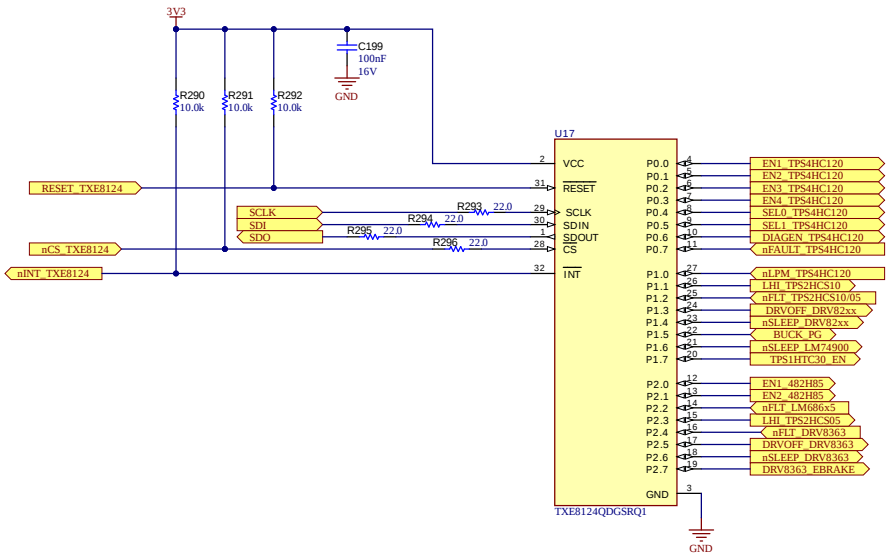
LM74900-Q1



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SVN Rev: Not in version control	Sheet Title:		
Drawn By:	Assembly Variant: [No Variations]	Sheet: 11 of 15	
Engineer: Miguel Robertson	File: LM74900-Q1_SchDoc	Size: B	
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(SPI IO Expander) TXE8124-Q1



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Number: TIDA-020094	Rev: E2	Sheet Title:
SVN Rev: Not in version control	Assembly Variant: [No Variations]	Sheet: 13 of 15
Drawn By:	File: (SPI Expander) TXE8124-Q1.SchDoc	Size: B
Engineer: Miguel Robertson	Contact: http://www.ti.com/support	

H1
NY PMS 440 0025 PH

H2
NY PMS 440 0025 PH

H3
NY PMS 440 0025 PH

H4
NY PMS 440 0025 PH

H5
NY PMS 440 0025 PH

H6
1902C

H7
1902C

H8
1902C

H9
1902C

H10
1902C

SH-J1

SH-J2

SH-J3

SH-J4

LOGO1

CAUTION HOT SURFACE

PCB Number: TIDA-020094
PCB Rev: E3

PCB
LOGO

Texas Instruments

CE Mark

PCB
LOGO

FCC disclaimer

PCB
LOGO

WEEE logo

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.

A

You should delete the nylon screws/standoffs and/or the bumpsons as needed for your design (or substitute other parts from Hardware.IntLib). Bumpsons are cheaper, but provide less clearance.

Deleting anything else from this page may result in your EVM submission being rejected (until you add them back).

Update the Label Text in the Label Table as needed for each Assembly Variant.

You should delete this note too.

Variant	Label Text
001	ChangeMe!
002	ChangeMe!

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Orderable:
TID #:
Number:
Drawn By:
Engineer:

N/A
TIDA-020094
Not in version control
Miquel Robertson

Designed for: Public Release
Project Title: 48V Power Board Reference Design
Sheet Title:
Assembly Variant: [No Variations]
File: PCB_Project_Hardware.SchDoc
Contact: <http://www.ti.com/support>

Mod. Date: 6/19/2025
Rev: E2
[No Variations]
Size: B

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Board Stack Report

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