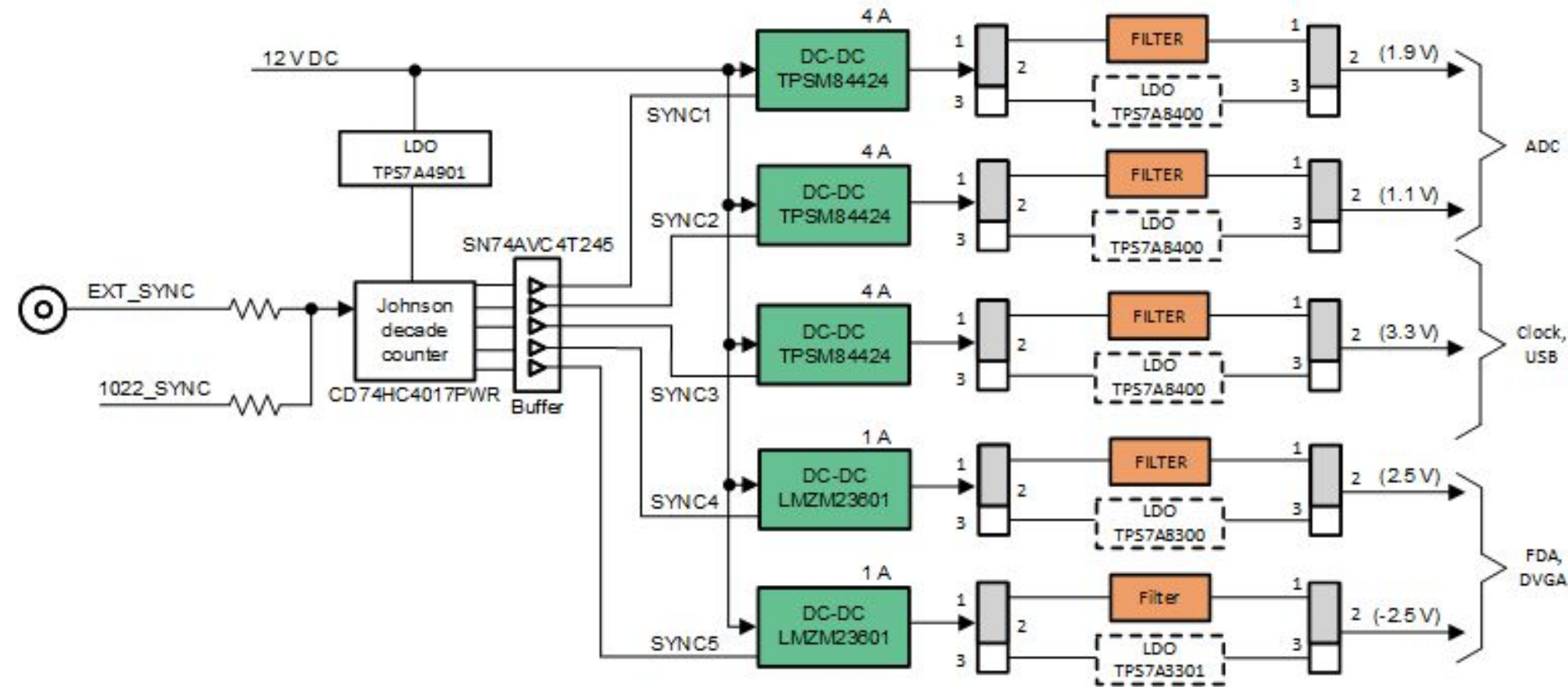


Revision History

Rev	ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A	N/A

# TIDA-01027 Block Diagram

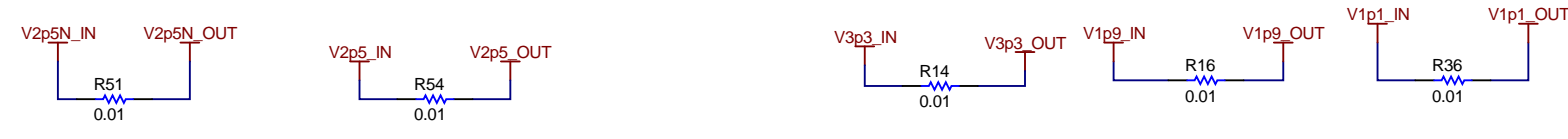
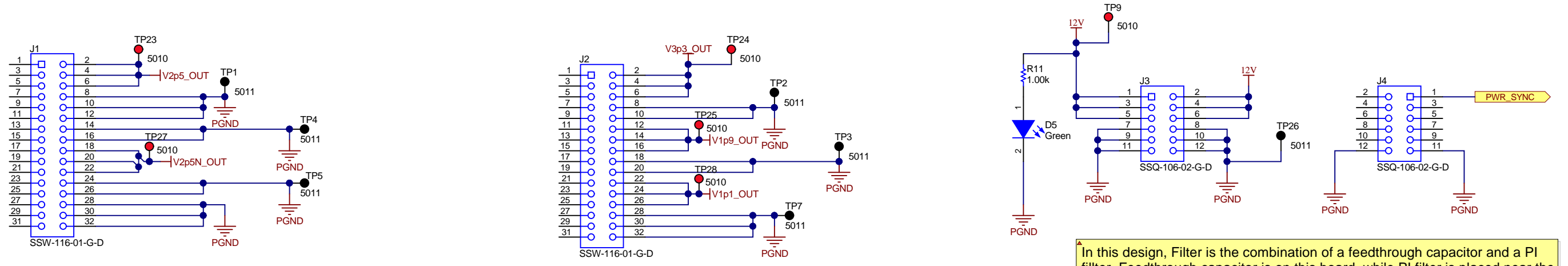


TIDA-01022 hardware is used to measure impact of power supply(TIDA-01027 board) on the AFE performance. This is a high speed multi-channel data capture board, capable of capturing data at maximum 12.8 GSPS speed. Please refer to [TIDA-01022](#) & [TIDA-01028](#) reference designs for more information.

Following changes will be required in the TIDA-01022 hardware to disable on board power supply and use TIDA-01027 power board:  
 Remove: L92, L74, R186, L83, R174, L84, R181, L85, R204, R207, L86, R215, R188, L89, L87, L88, L90 and L91  
 Install: Connect TIDA-01027 board to J60, J59 and J63 connectors.  
 Please refer to [TIDA-01022 Schematic](#)

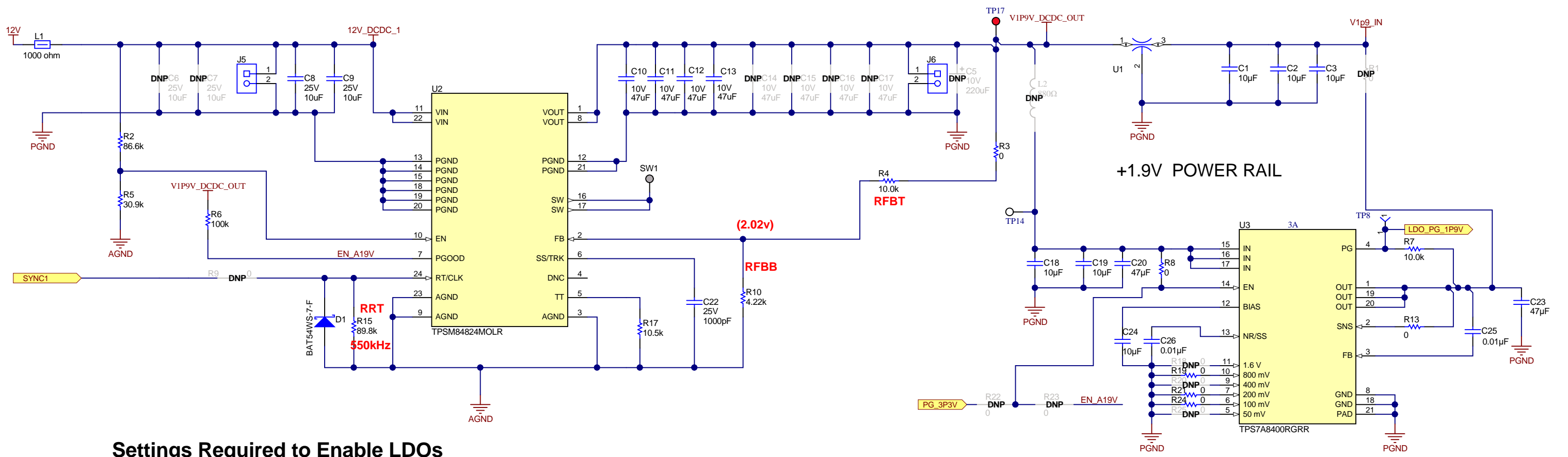
**Documentation and Support**

TPSM84424 Product Documentation	<a href="#">TPSM84424 TI.com Product Folder</a>
TPSM84424 Support & Questions	<a href="#">TPSM84424 Previous Questions and Answers</a>
TIDA-01027 Ref. Design Documentation	<a href="#">TIDA-01027 TI.com Ref. Design Folder</a>
TIDA-01027 Ref. Design Feedback & Questions	<a href="#">TIDA-01027 Previous Questions and Answers</a>
TIDA-01022 Ref. Design Documentation	<a href="#">TIDA-01022 Ref. Design Folder</a>
TIDA-01022 Ref. Design Feedback & Questions	<a href="#">TIDA-01022 Previous Questions and Answers</a>



In this design, Filter is the combination of a feedthrough capacitor and a PI filter. Feedthrough capacitor is on this board, while PI filter is placed near the ADC(not on this board). PI filter consist of a ferrite bead (BLM41PG102SN1) and two 0.1uF capacitors. If required, ferrite bead can placed on the TIDA-01027 board. In that case, resistors R14, R16, R36, R51 and R54 are replaced with 74279252 WURTH ELEKTRONIK ferrite beads.

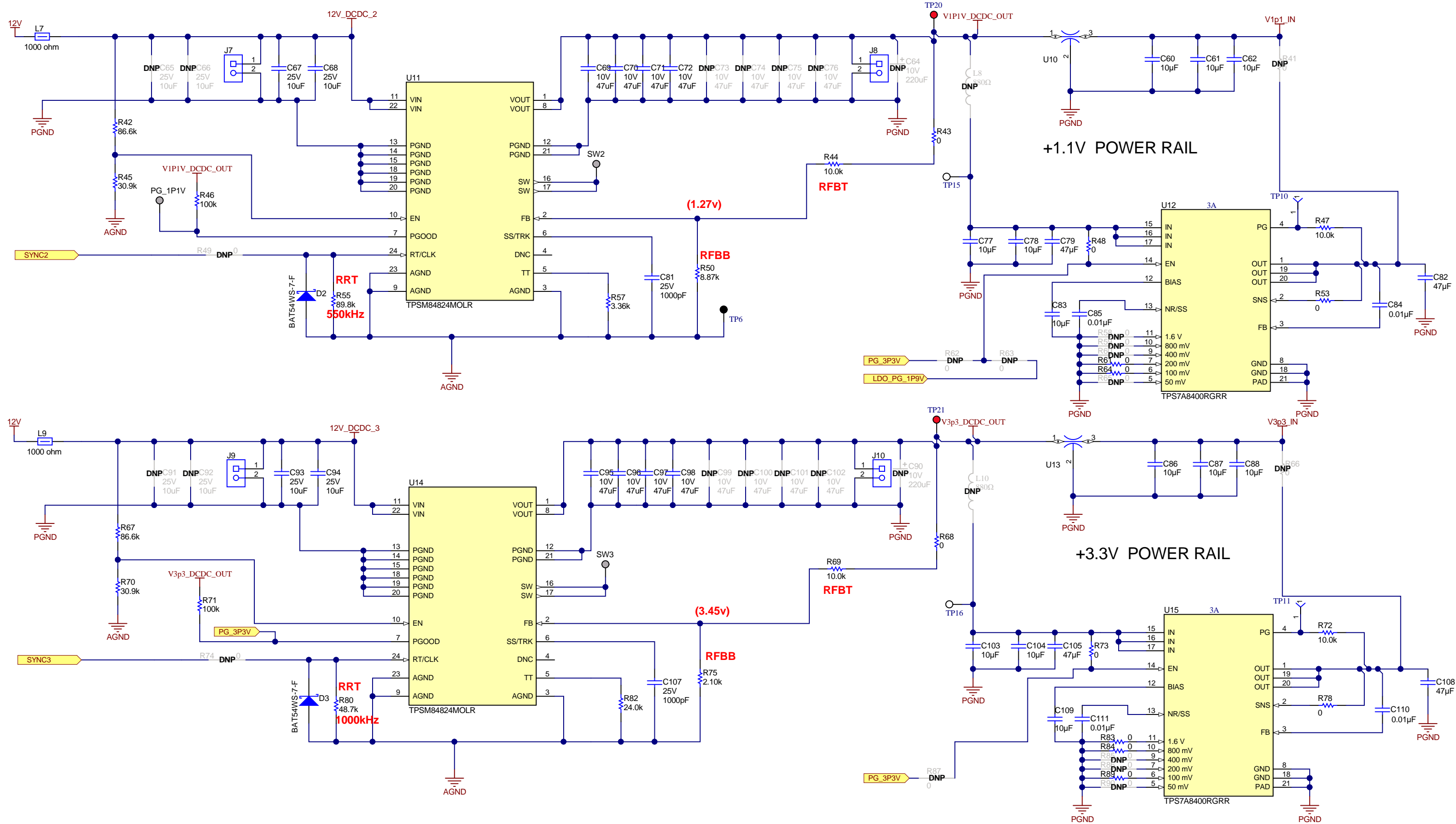
10mOhm resistors R14, R16, R36, R51 and R54, are used to measure output current of the DC/DC converters.



### Settings Required to Enable LDOs

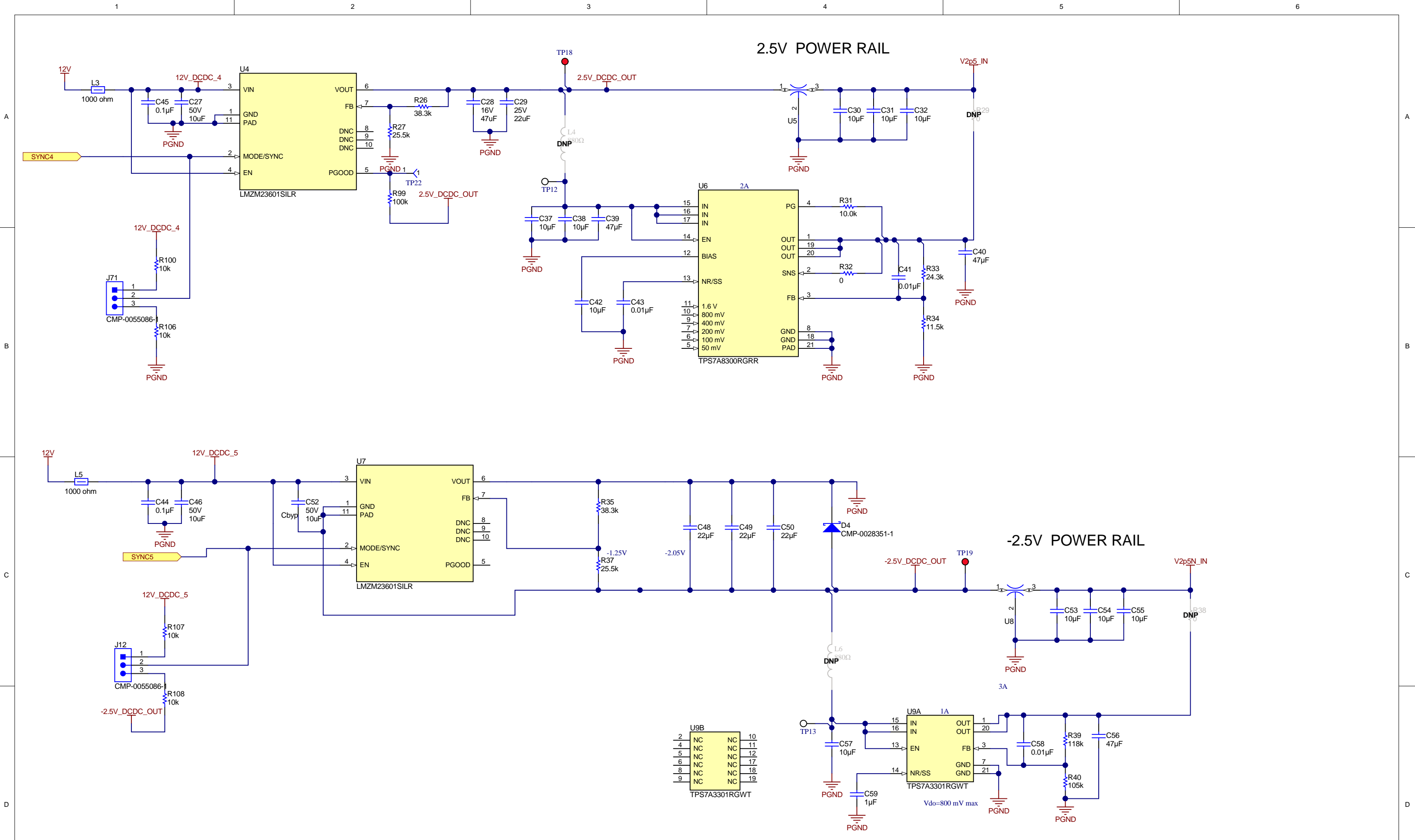
POWER RAIL	REMOVE	INSTALL
+1.9 V	U1, C1, R18, R20 and R25 U10, C60, R58, R59, R60 and R65	L2 and R1 L8 and R41
+3.3V	U13, C86, R85, R86 and R90	L10 and R66
+2.5V	U5 and C30	L4 and R29
-2.5V	U9 and C53	L6 and R38

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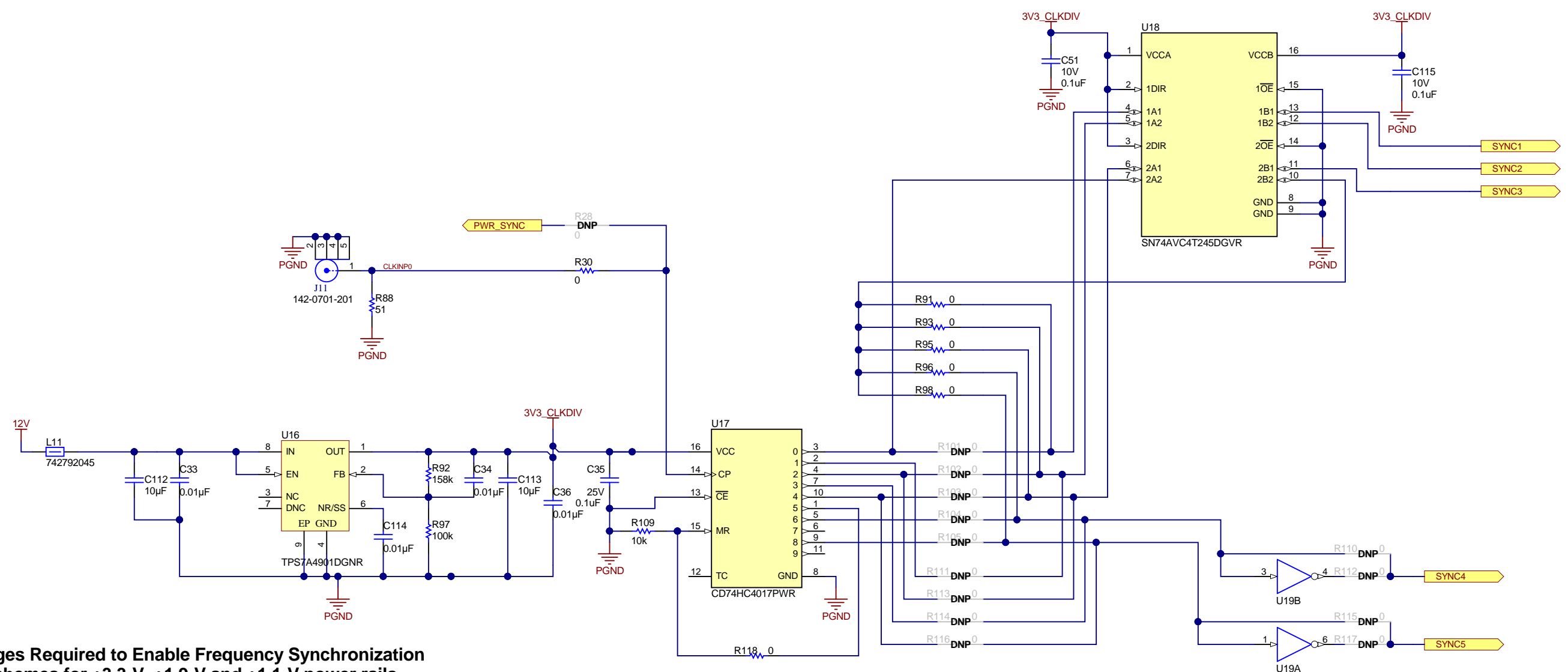
Orderable: NA	Designed for: Public Release	Mod. Date: 2/18/2019
TID #: 01027	Project Title: Low-noise power-supply reference design	
Number: TIDA-01027	Rev: E1	Sheet Title: PWR2
SVN Rev: Not in version control	Assembly Variant: DC-DC	Sheet: 3 of 6
Drawn By: Avinash N	File: TIDA-01027-E1_PWR2_SchDoc	Size: B
Engineer: ANBU MANI	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	



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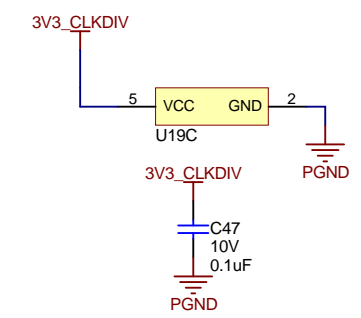
Orderable: NA	Designed for: Public Release	Mod. Date: 2/18/2019
TID #: 01027	Project Title: Low-noise power-supply reference design	
Number: TIDA-01027	Rev: E1	Sheet Title: PWR3
SVN Rev: Not in version control	Assembly Variant: DC-DC	Sheet: 4 of 6
Drawn By: Avinash N	File: TIDA-01027-E1_PWR3_SchDoc	Size: B
Engineer: ANBU MANI	Contact: <a href="http://www.ti.com/support">http://www.ti.com/support</a>	





**Changes Required to Enable Frequency Synchronization Schemes for +3.3-V, +1.9-V and +1.1-V power rails**

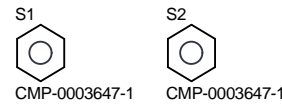
FREQUENCY SYNCHRONIZATION SCHEMES	INSTALL	REMOVE	DC/DC FREQUENCY
Free Running (Default), No external frequency sync is required	-	Make sure R9, R49 and R74 are not populated	3.3 V at 1000 kHz, 1.9 V and 1.1 V at 550 kHz
Phase-Aligned	R9, R49, R74, R91, R93 and R95. Connect a wire from pin 7 of decade counter to its Reset pin	L3, L5, R109, R91, R93, R95, R96, R98, R102, R103, R104, R105, R114 and R116	Switching frequency in this mode will be (external sync frequency)/3
Phase-Shifted	R9, R49, R74, R101, R111 and R113. Connect a wire from pin 7 of decade counter to its Reset pin	L3, L5, R109, R91, R93, R95, R96, R98, R102, R103, R104, R105, R114 and R116	Switching frequency in this mode will be (external sync frequency)/3



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A

A



PCB Number: TIDA-01027  
PCB Rev: E1

PCB LOGO  
Pb-Free Symbol

PCB LOGO  
FCC disclaimer



PCB LOGO  
WEEE logo

B

B

Variant/Label Table	
Variant	Label Text
DC/DC	Only DC/DC
LDO	DC/DC+LDO

LBL1  
PCB Label  
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.

C

C

D

D



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