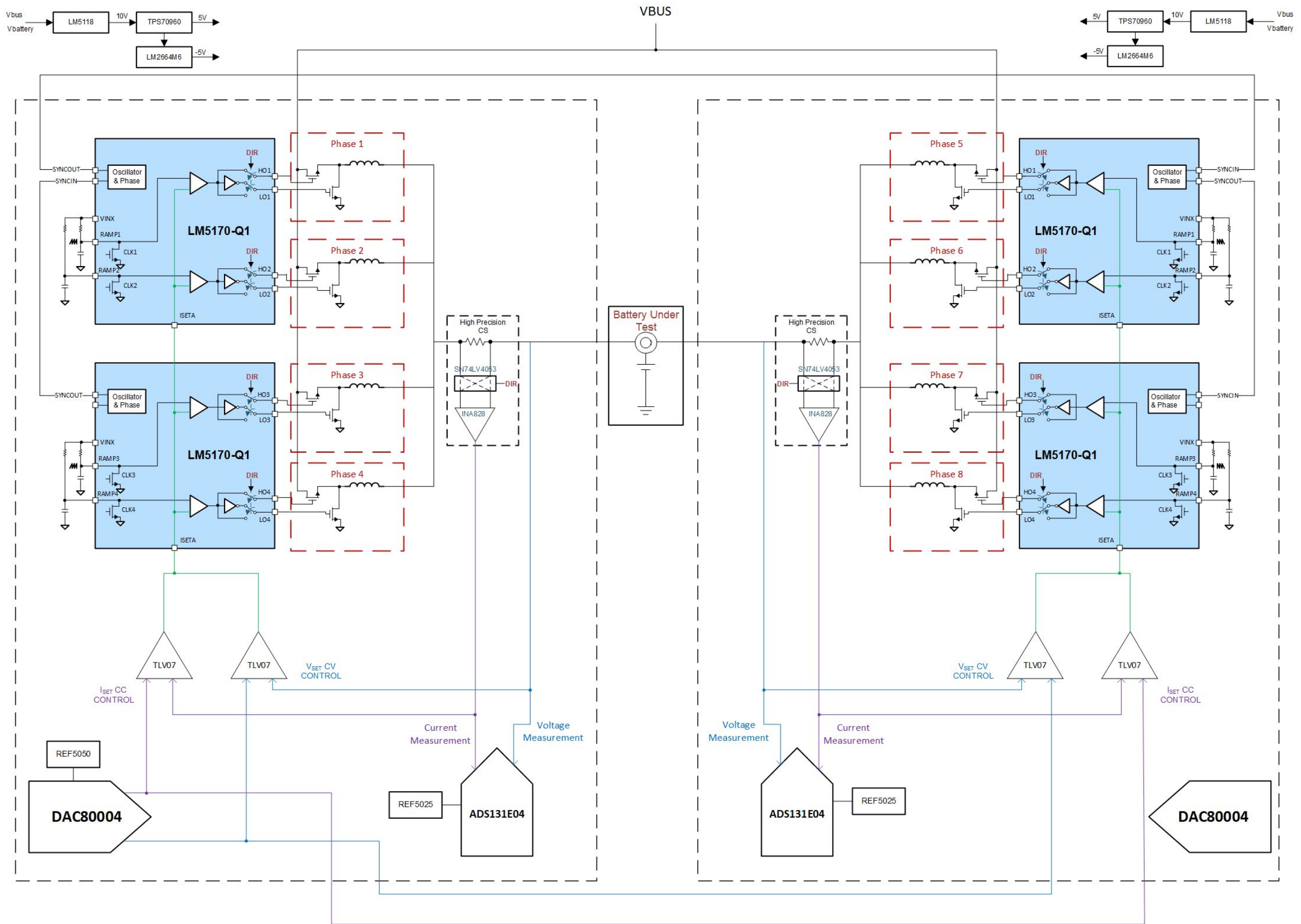


Revision History	
Revision	Notes



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H1 NY PMS 440 0025 PH H2 NY PMS 440 0025 PH H3 NY PMS 440 0025 PH H4 NY PMS 440 0025 PH H9 NY PMS 440 0025 PH H10 NY PMS 440 0025 PH

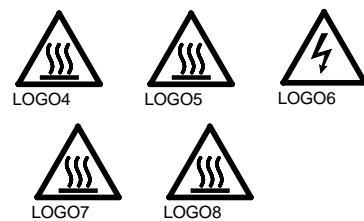
H5 2205 H6 2205 H7 2205 H8 2205 H11 2205 H12 2205

FID1 FID2 FID3 FID4 FID5 FID6

PCB Number: TIDA-01042
PCB Rev: A

Logo2
PCB
LOGO
Pb-Free Symbol

PCB
LOGO
FCC disclaimer



Label Table

Variant	Label Text
001	
002	

LBL1

PCB Label

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

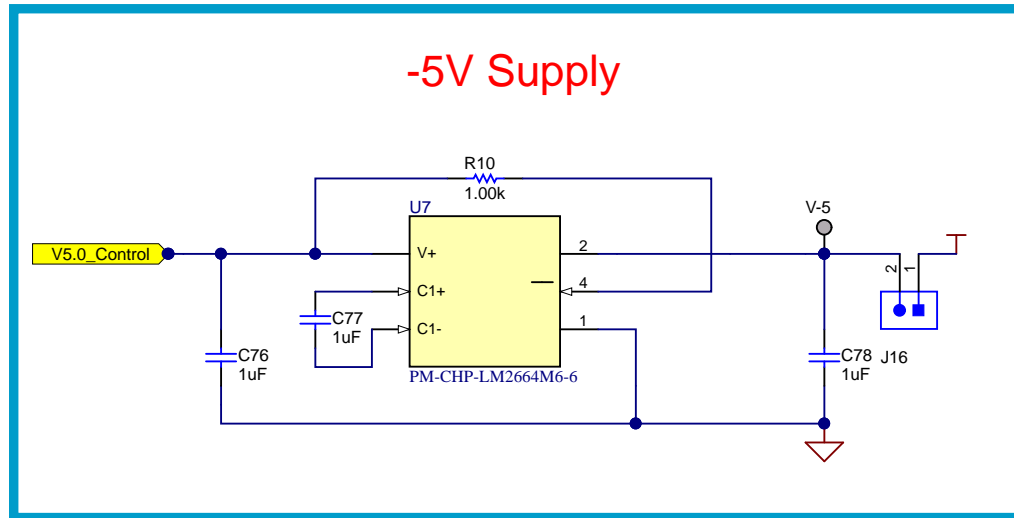
Assembly Note

These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

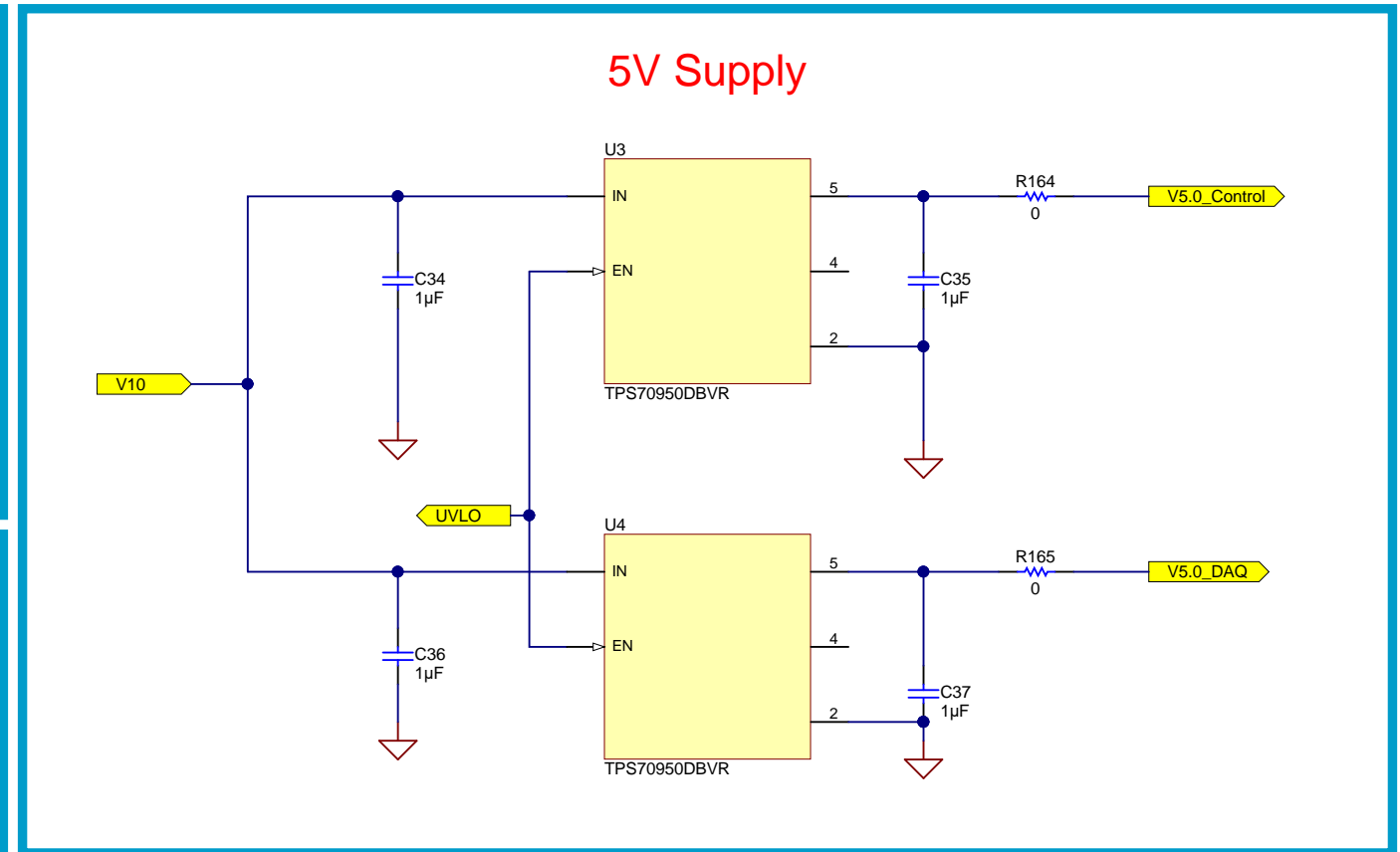
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TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A Ap	
Number: TIDA-01042	Rev: A	Sheet Title: Hardware
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 2 of 11
Drawn By:	File: SV601272A-HW_SchDoc	Size: B
Engineer: Taras Dudar, Arash Sabet	Contact: http://www.ti.com/support	

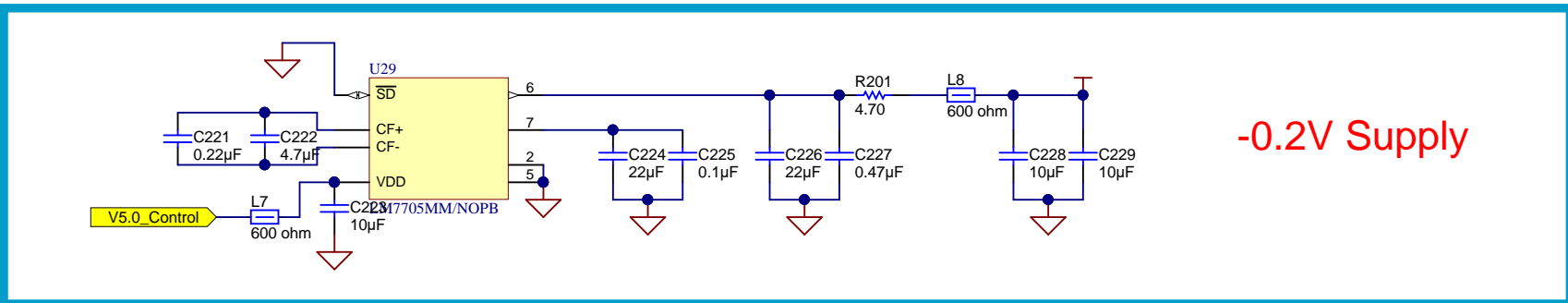
-5V Supply



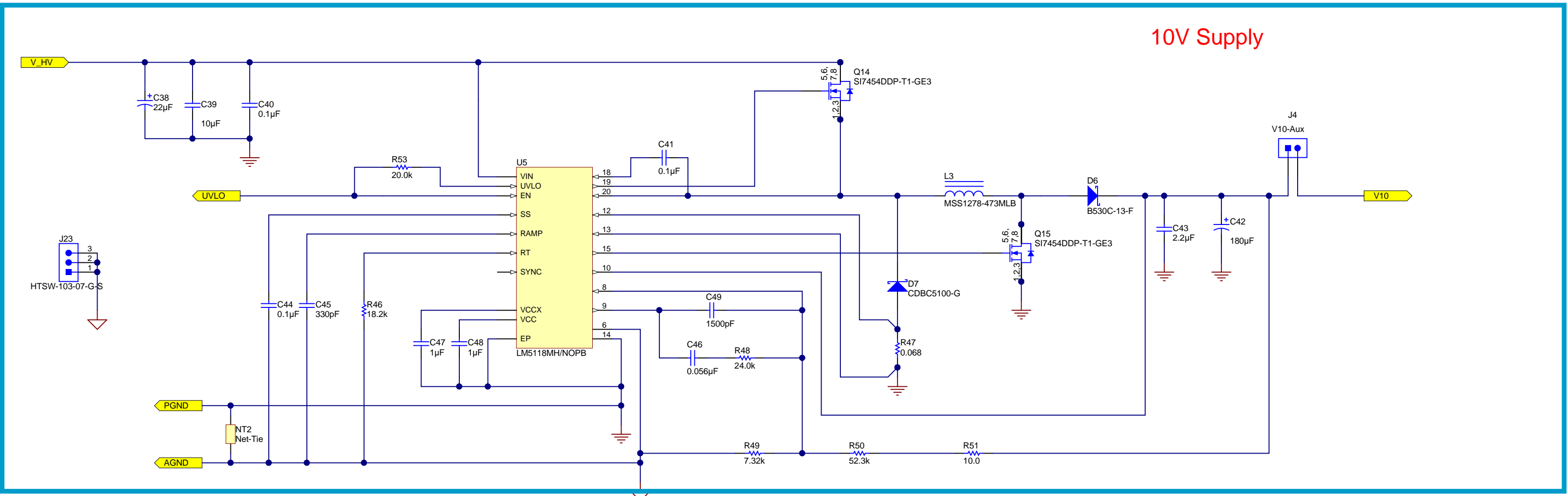
5V Supply



-0.2V Supply



10V Supply

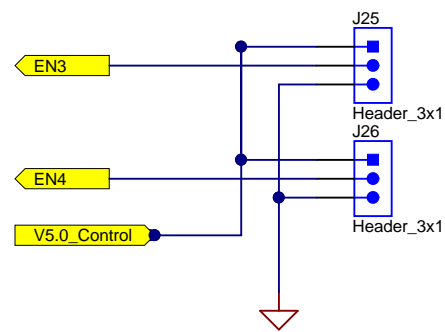


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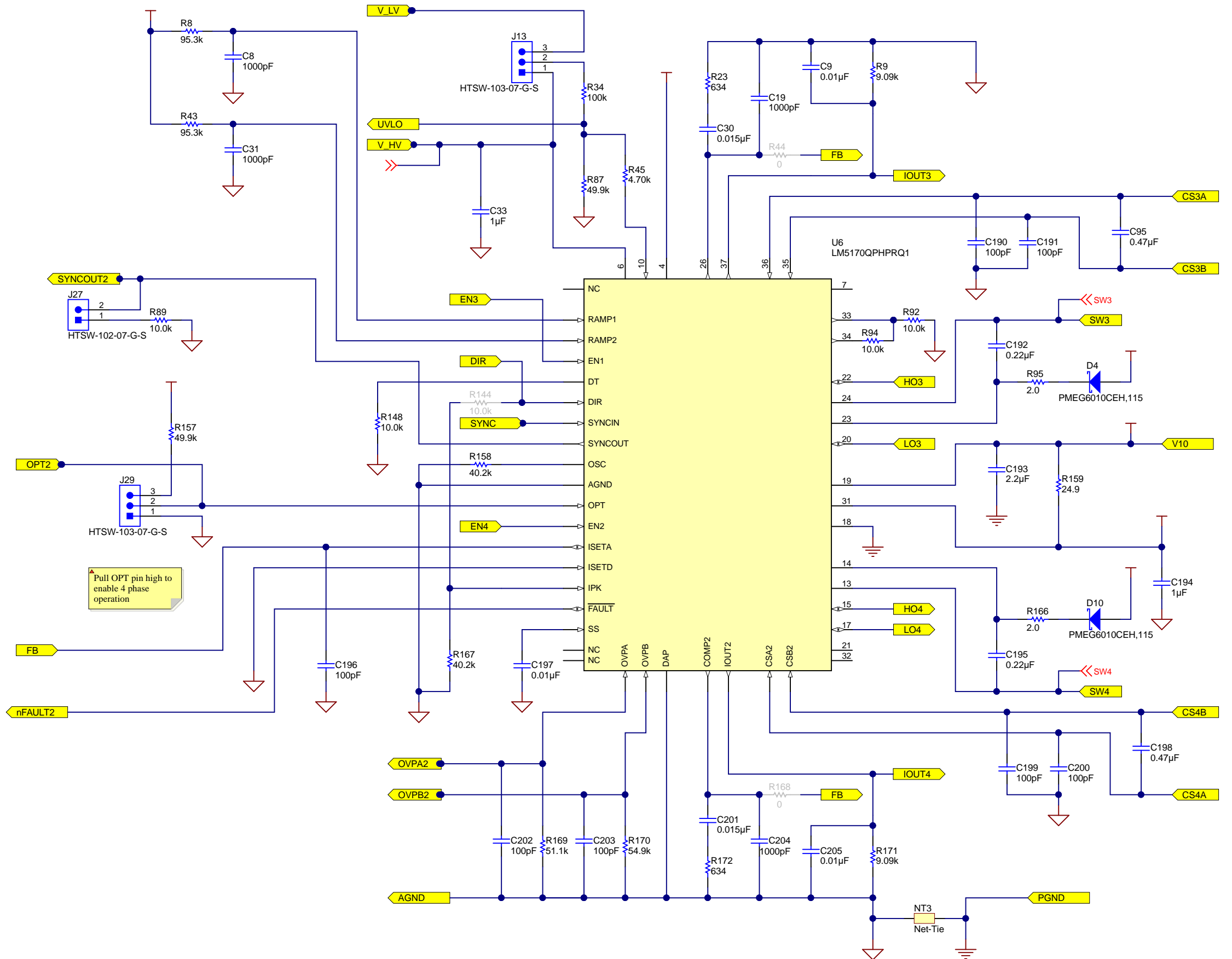
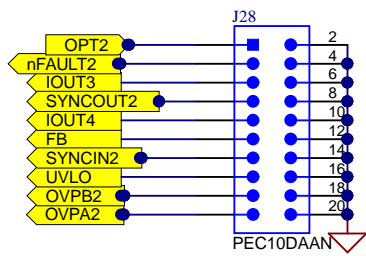
Orderable: N/A	Designed for: Public Release	Mod. Date: 4/4/2019
TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A App	
Number: TIDA-01042	Rev: A	Sheet Title: Bias Supply
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 3 of 11
Drawn By:	File: SV601272A-Bias.SchDoc	Size: B
Engineer: Taras Dudar, Arash Sabet	Contact: http://www.ti.com/support	



Enable Jumpers

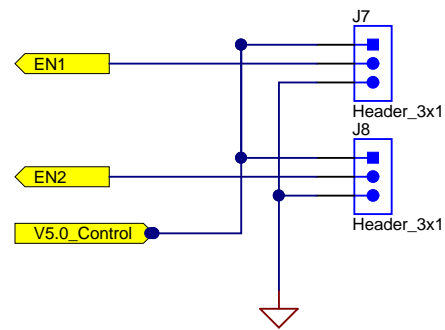


Optional Ground Jumpers

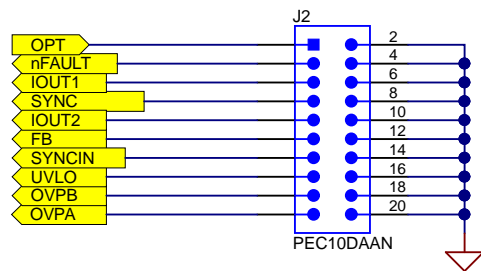


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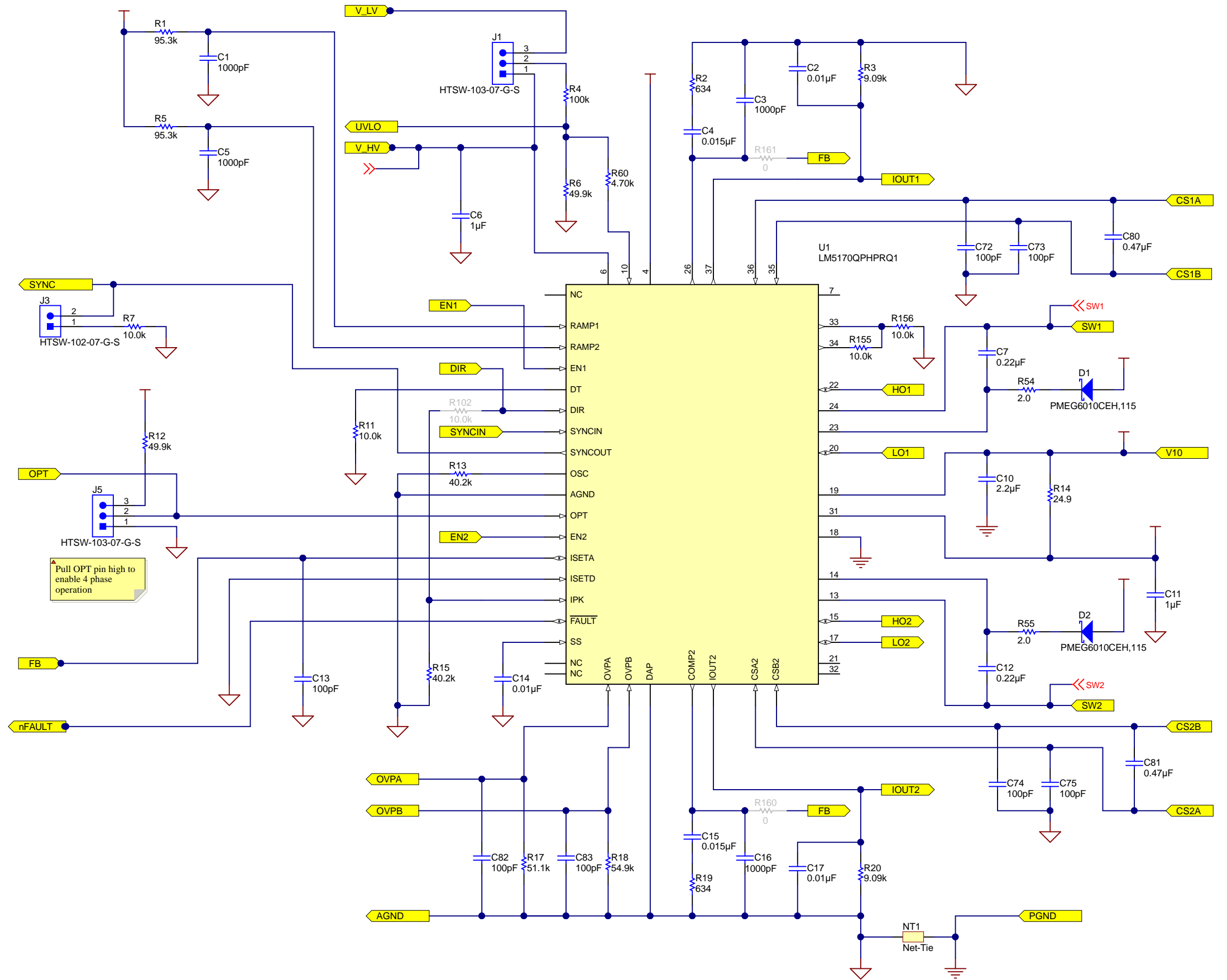
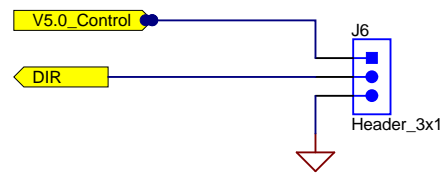
Enable Jumpers



Optional Ground Jumpers

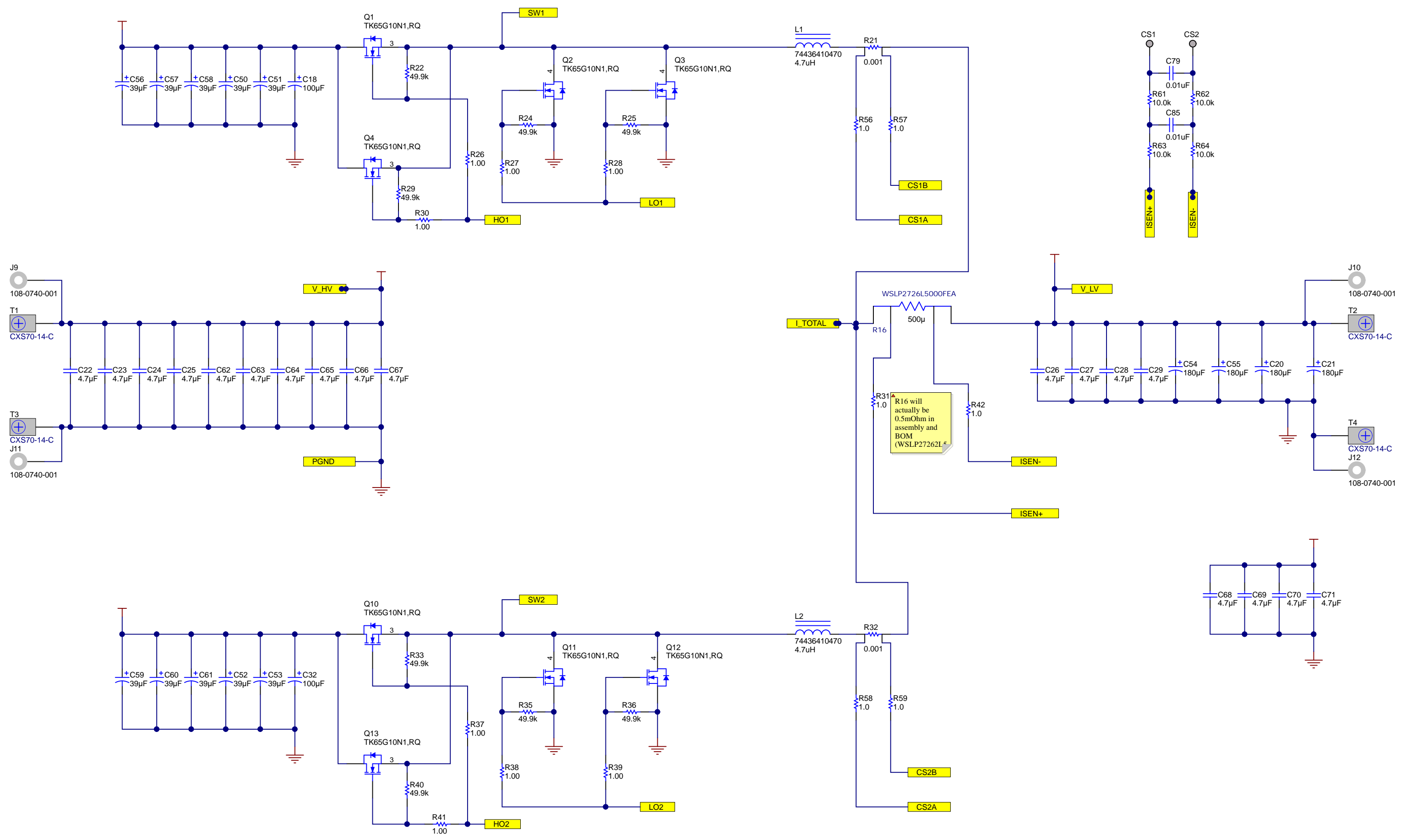


Direction Control



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TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A App	
Number: TIDA-01042	Rev: A	Sheet Title: Controller
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 4 of 11
Drawn By:	File: SV601272A-Controller1.SchDoc	Size: B
Engineer: Taras Dudar, Arash Sabet	Contact: http://www.ti.com/support	

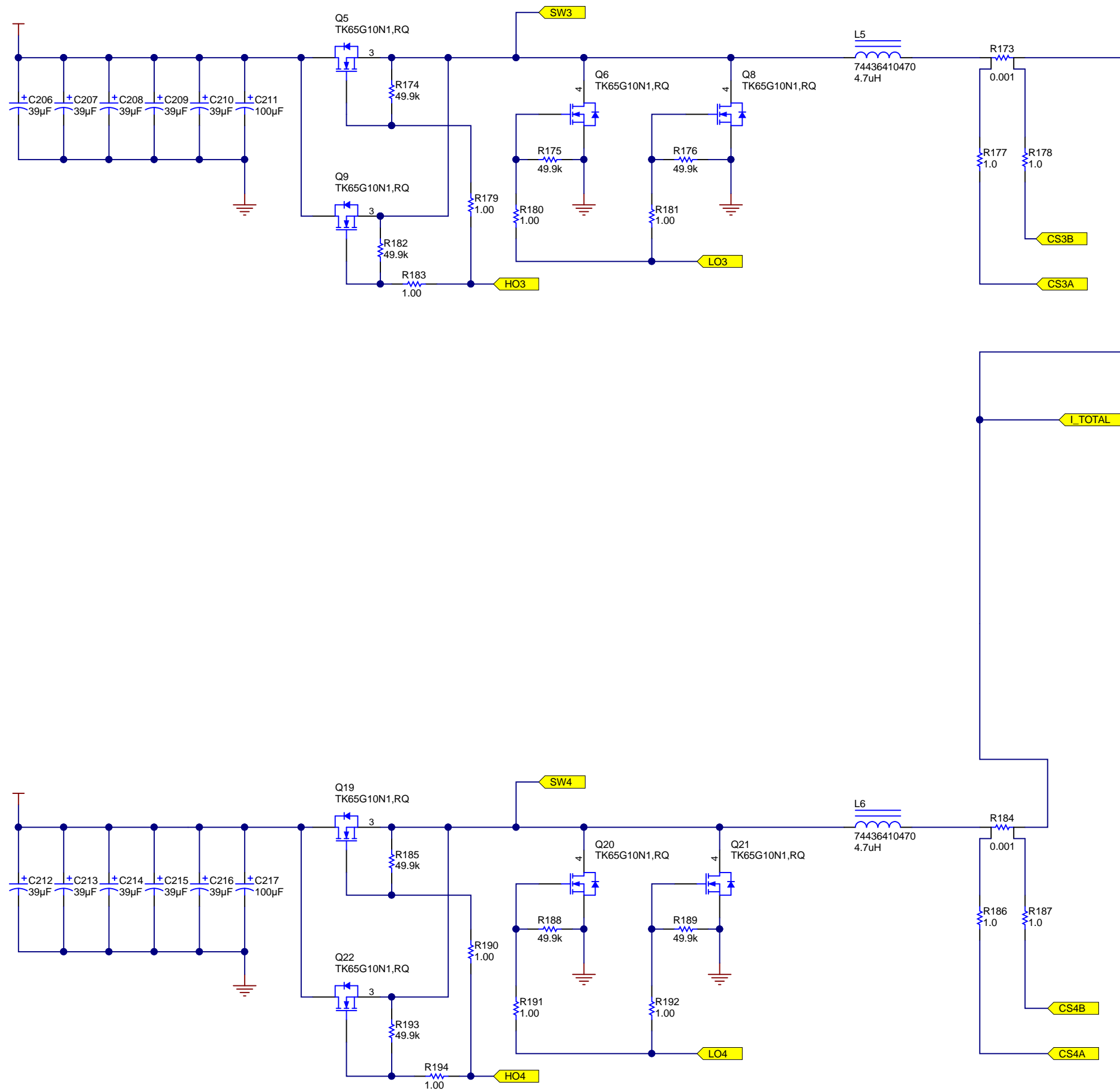


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TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A Ap	
Number: TIDA-01042	Rev: A	Sheet Title: Power Stage
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 5 of 11
Drawn By:	File: SV601272A-Power.SchDoc	Size: B
Engineer: Taras Dudar, Arash Sabati	Contact: http://www.ti.com/support	

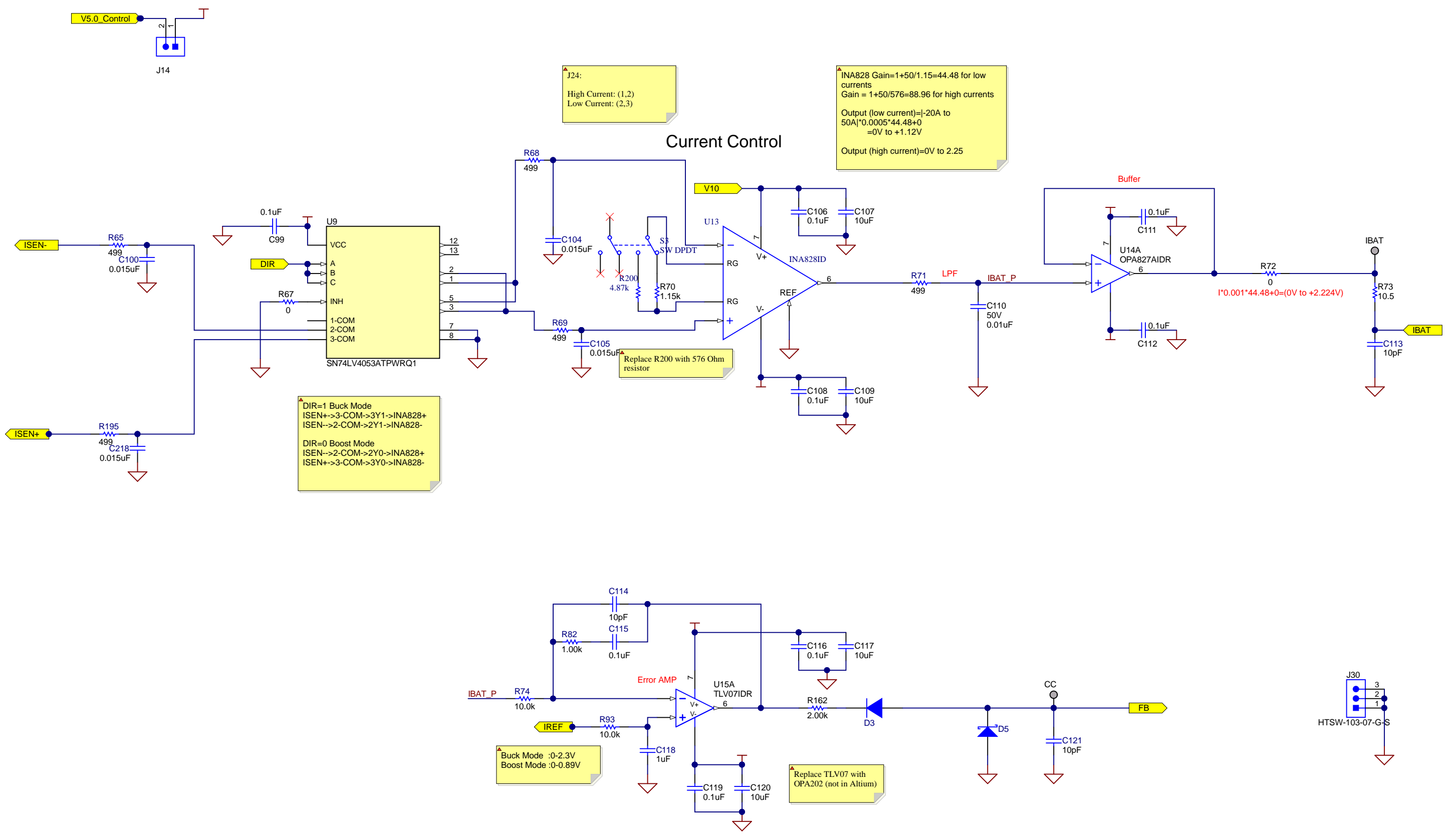


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TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A Ap	
Number: TIDA-01042	Rev: A	Sheet Title: Power Stage
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 5 of 11
Drawn By:	File: SV601272A-Power2 REV2.SchDoc	Size: B
Engineer: Taras Dudar, Arash Sabet	Contact: http://www.ti.com/support	



J24:
High Current: (1,2)
Low Current: (2,3)

INA828 Gain=1+50/1.15=44.48 for low currents
Gain = 1+50/576=88.96 for high currents
Output (low current)=-20A to 50A*0.0005*44.48+0 =0V to +1.12V
Output (high current)=0V to 2.25

Current Control

DIR=1 Buck Mode
ISEN+ -> 3-COM -> 3Y1 -> INA828+
ISEN- -> 2-COM -> 2Y1 -> INA828-
DIR=0 Boost Mode
ISEN- -> 2-COM -> 2Y0 -> INA828+
ISEN+ -> 3-COM -> 3Y0 -> INA828-

Replace R200 with 576 Ohm resistor

Buck Mode :0-2.3V
Boost Mode :0-0.89V

Replace TLV07 with OPA202 (not in Altium)

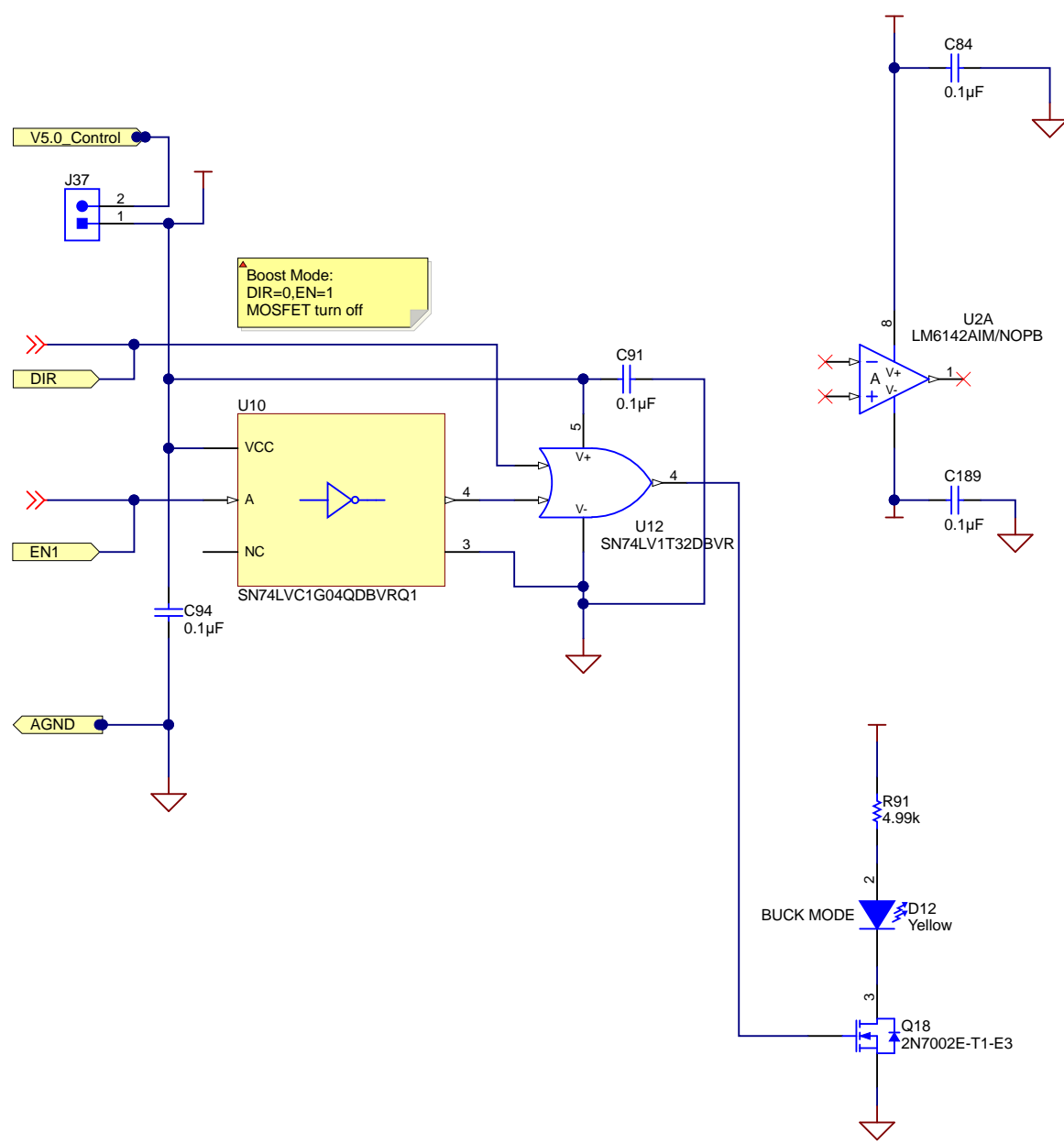
$I * 0.001 * 44.48 + 0 = (0V \text{ to } +2.224V)$

Orderable: N/A	Designed for: Public Release	Mod. Date: 4/4/2019
TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A App	
Number: TIDA-01042	Rev: A	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 6 of 11
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Engineer: Taras Dudar, Arash Sabat	Contact: http://www.ti.com/support	

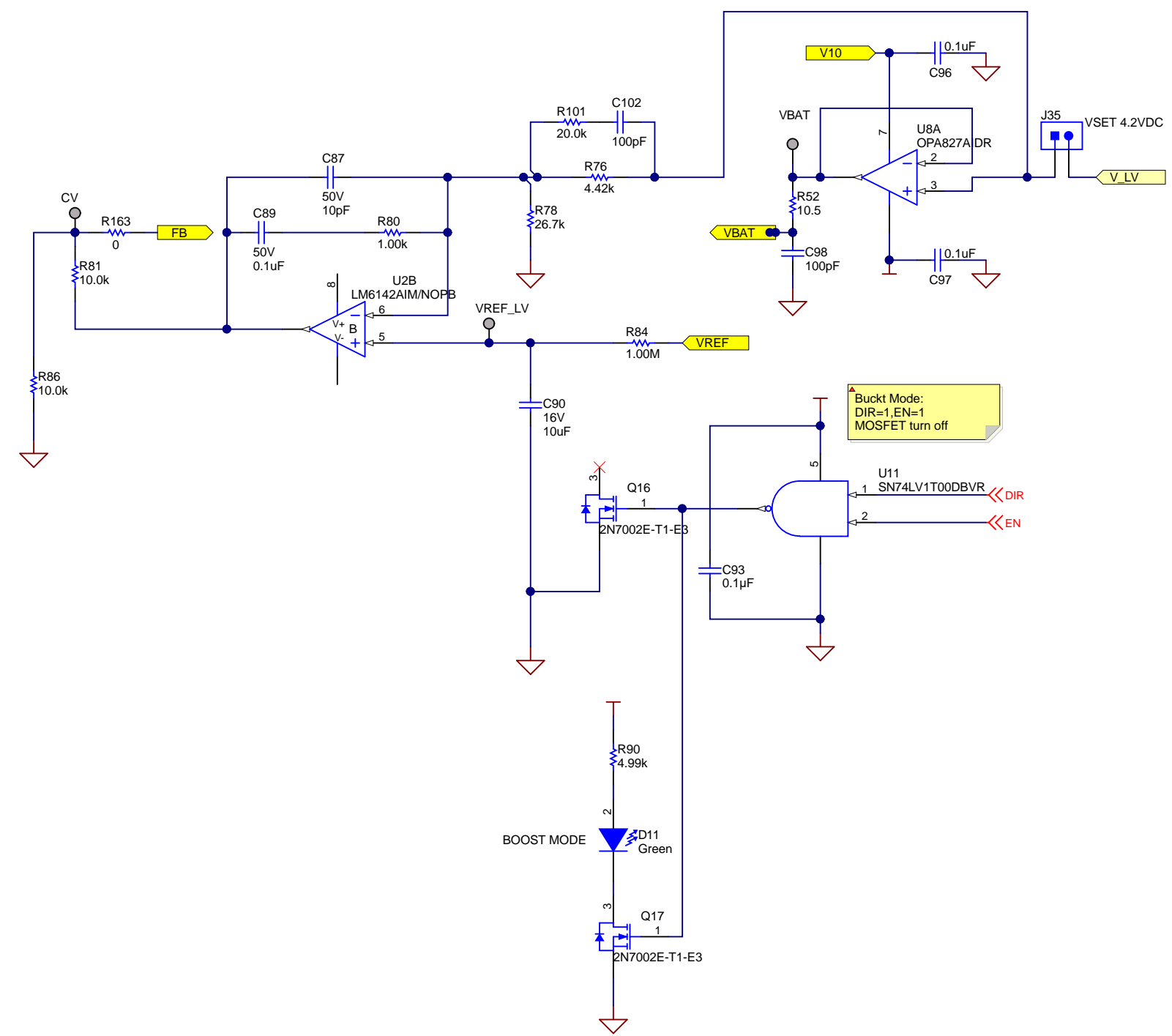
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BOOST CONTROL



BUCK CONTROL



Boost Mode:
DIR=0,EN=1
MOSFET turn off

Buckt Mode:
DIR=1,EN=1
MOSFET turn off

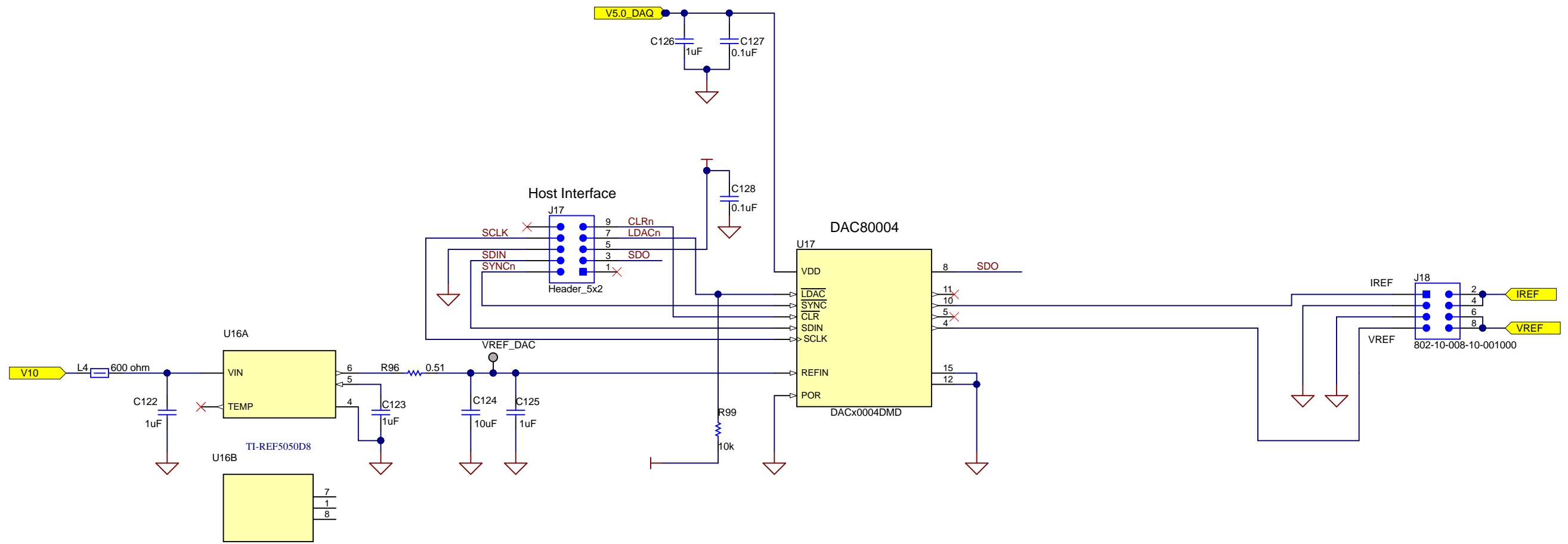
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TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A Appl	
Number: TIDA-01042	Rev: A	Sheet Title: Analog Loop Controller
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 7 of 11
Drawn By:	File: SV601272A-Analog.SchDoc	Size: B
Engineer: Taras Dudar, Arash Sabet	Contact: http://www.ti.com/support	



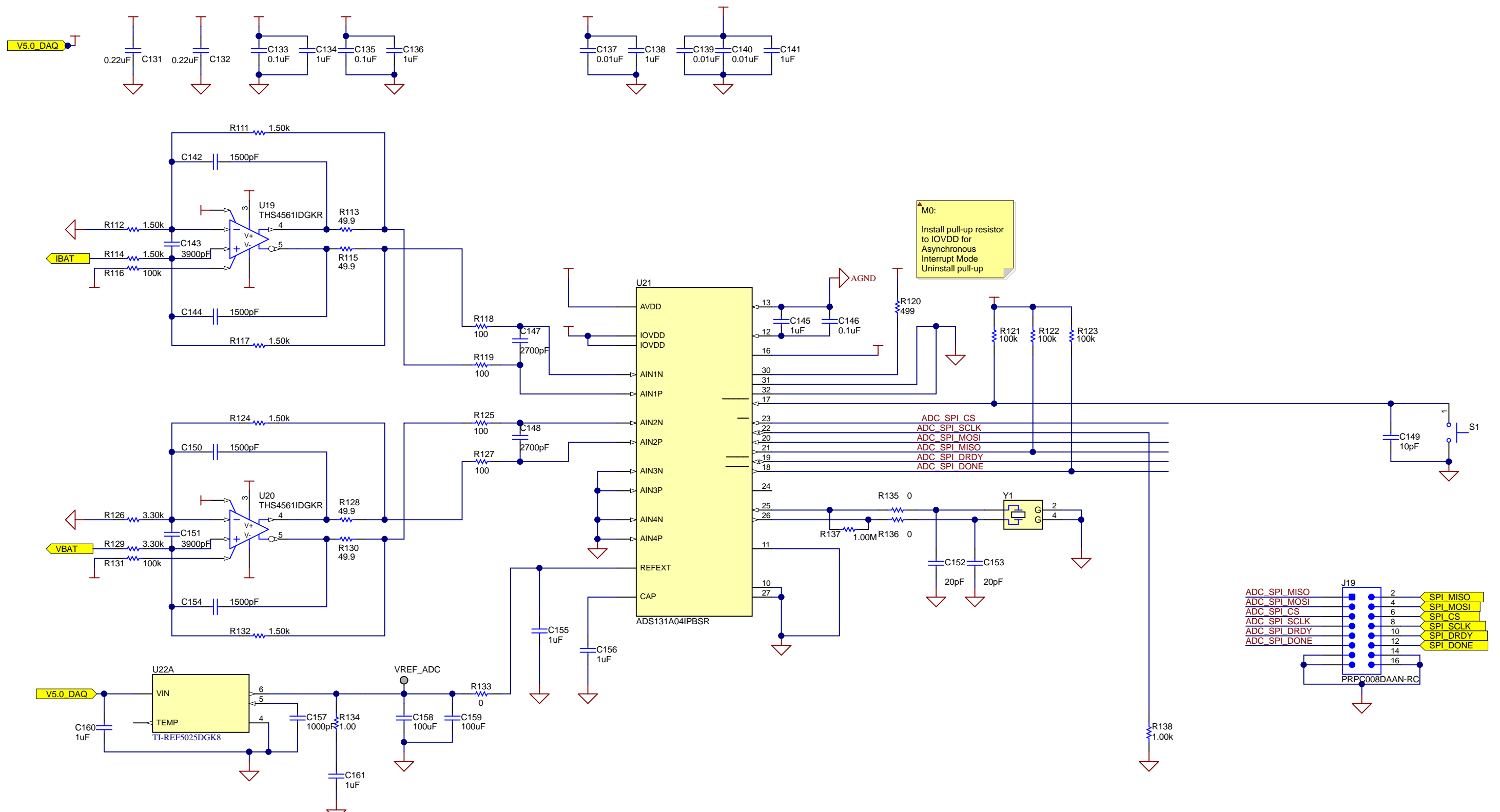
DAC

IREF
Output Range:0V-2.3V
VREF
Output Range:0V-4.1V



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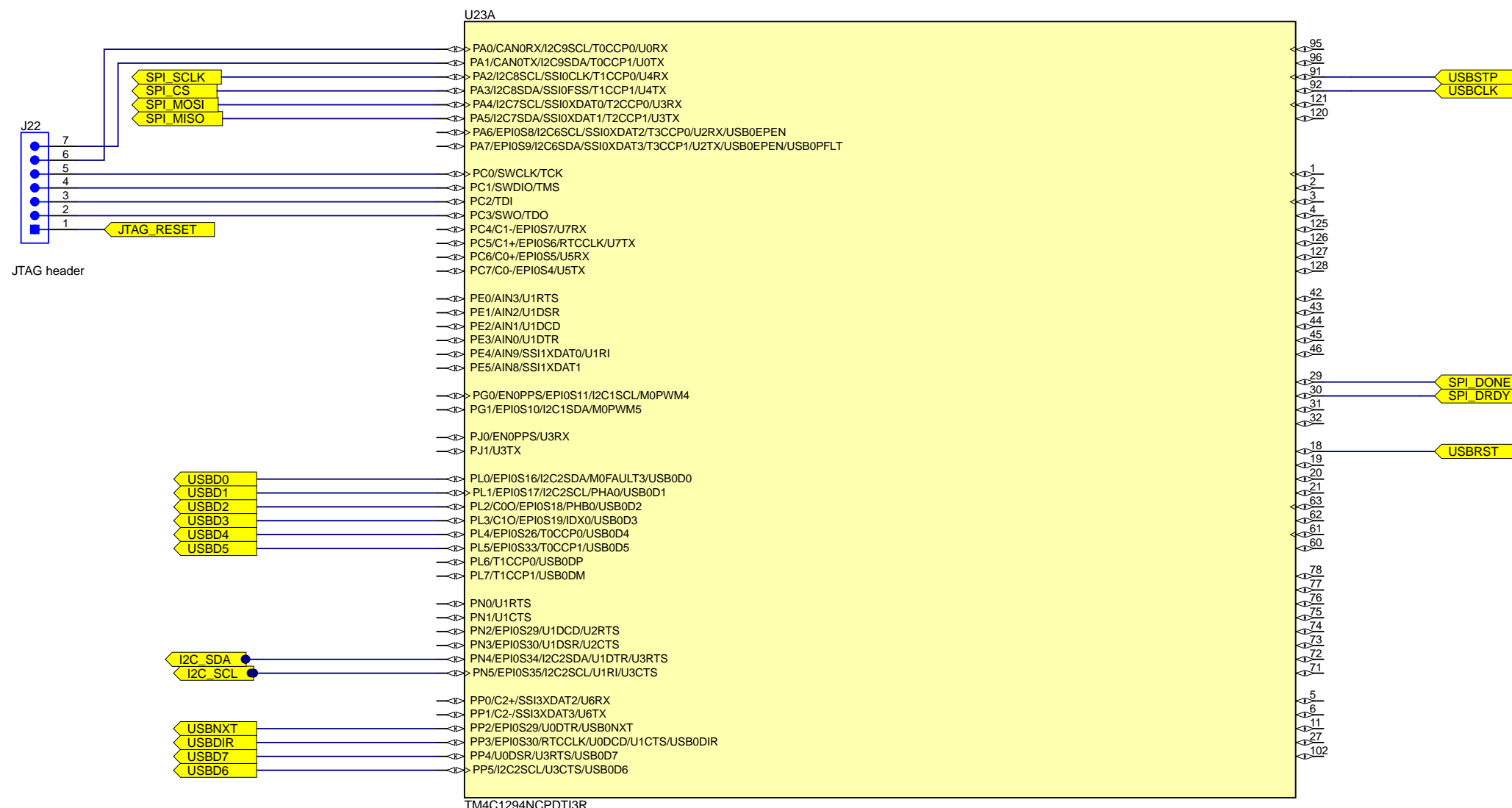
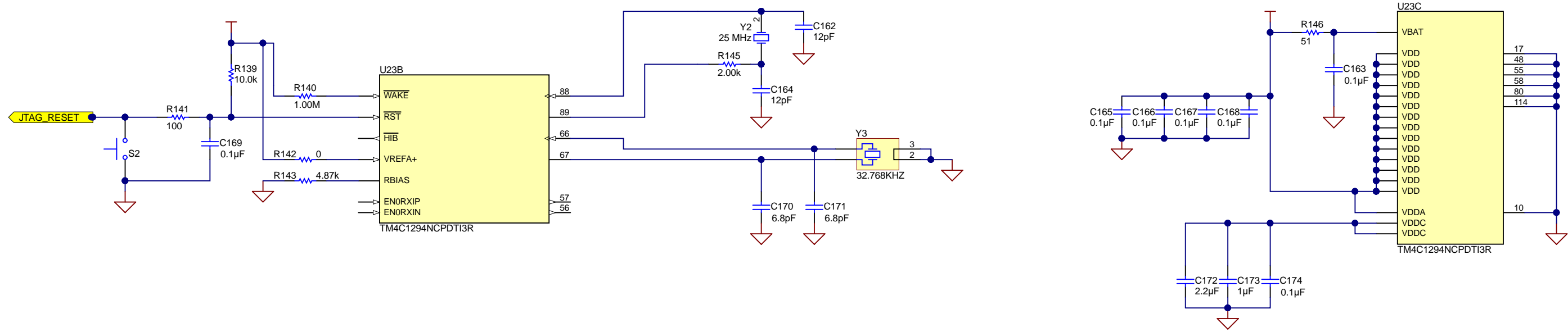
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Number: TIDA-01042	Rev: A	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 8 of 11
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Engineer: Taras Dudar, Arash Sabet-Pour	Contact: http://www.ti.com/support	



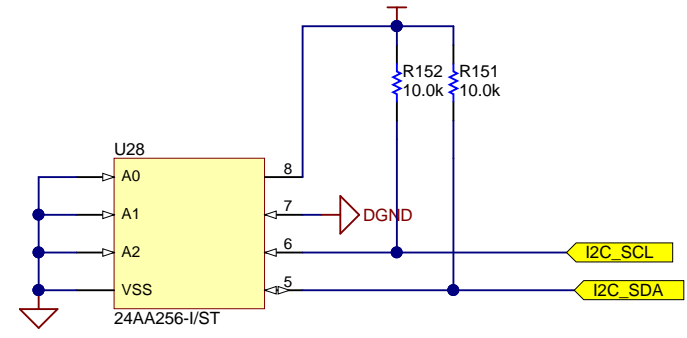
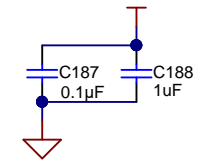
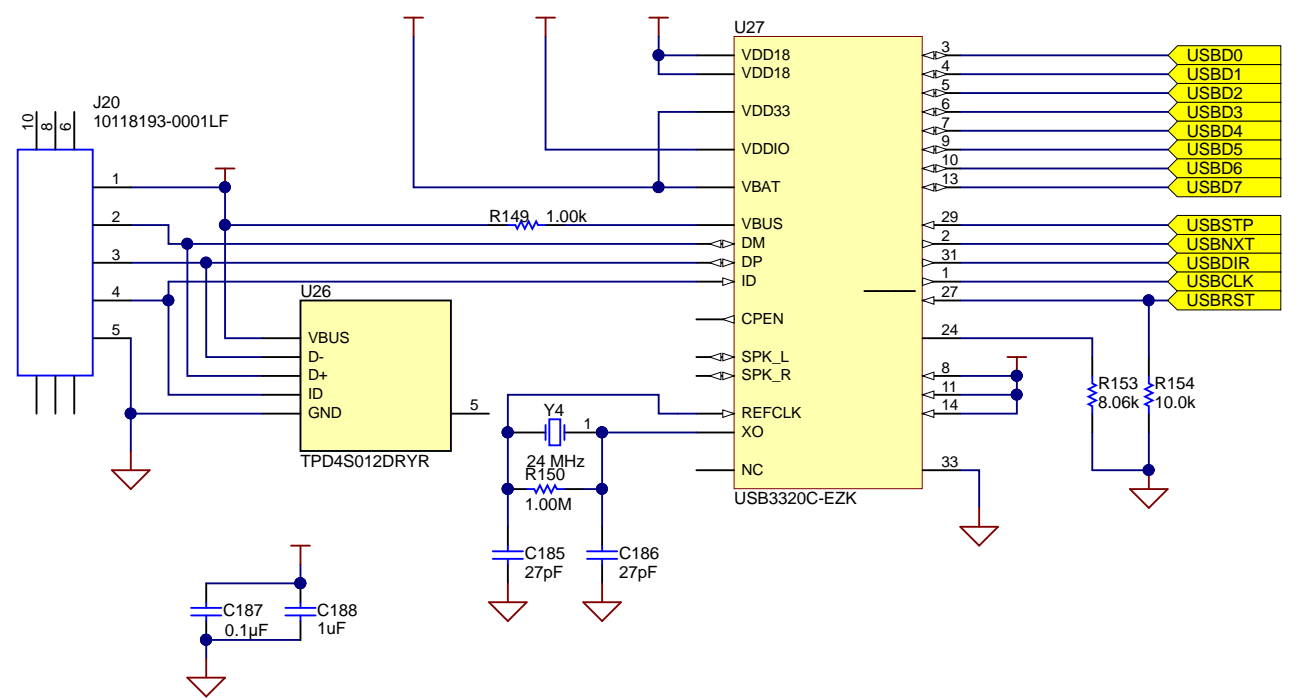
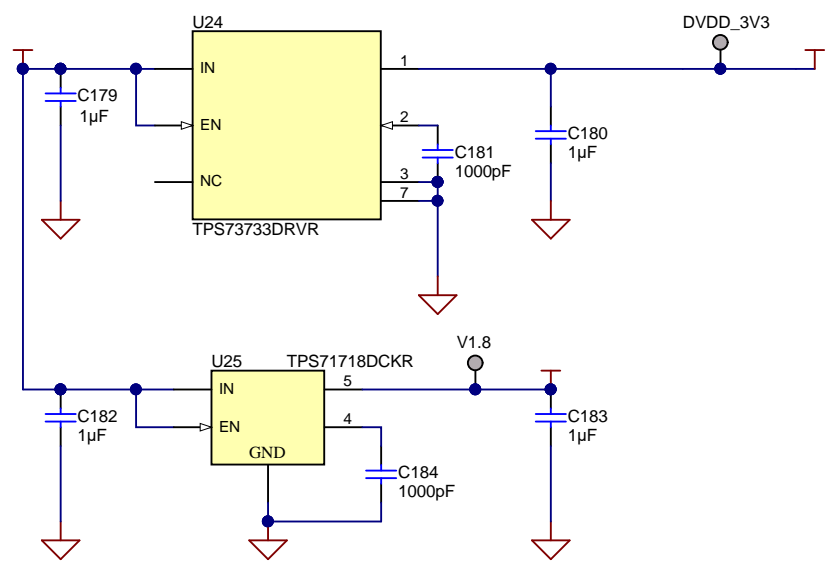
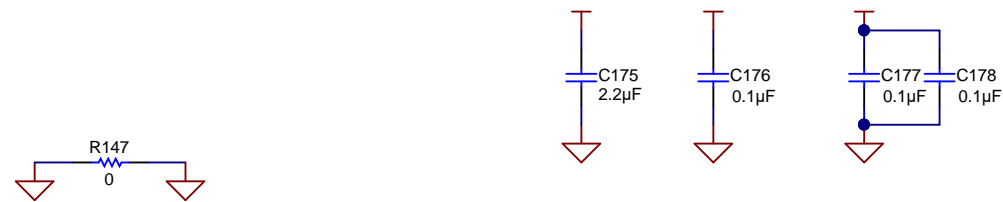
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TID #: TIDA-01042	Project Title: Modular Battery Tester for 50A, 100A, and 200A Appl	
Number: TIDA-01042	Rev: A	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 9 of 11
Drawn By:	File: SV601272A-ADC.SchDoc	Size: B
Engineer: Taras Dudar, Arash Sabati	Contact: http://www.ti.com/support	

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