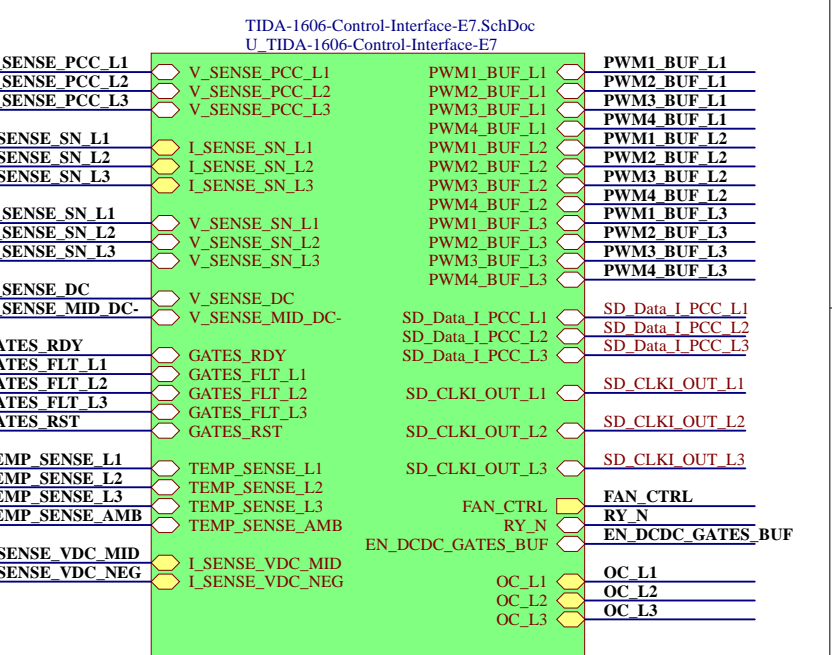
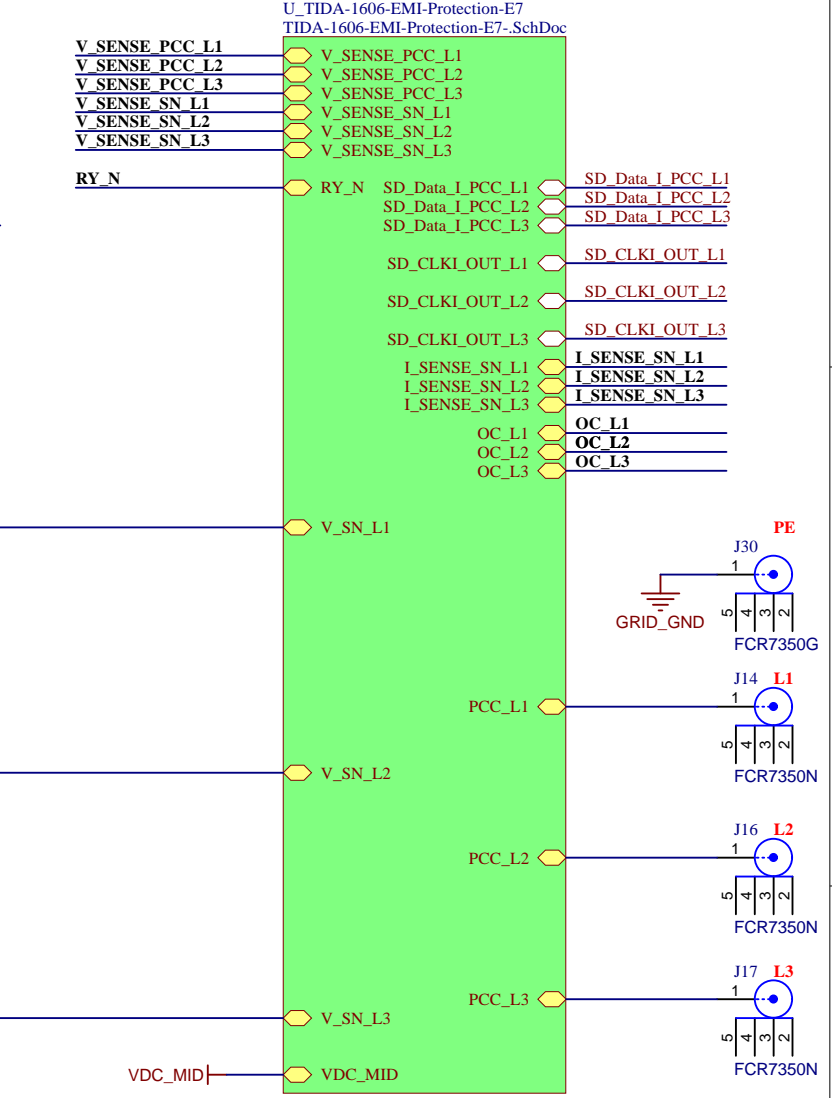


Revision History			
ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A



Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 1 of 16
Drawn By:	File: TIDA-1606-Overview-E7.SchDoc	Size: B
Engineer: Le Ruffo	Contact: http://www.ti.com/support	

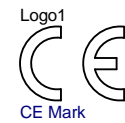
Balancing Resistance of 510 kOhm/2
 Total Dissipated Power of 0.7 W @ 850 V
 Costant Time of the DC LINK: around 65 second.

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PCB Number: TIDA-01606
PCB Rev: E7

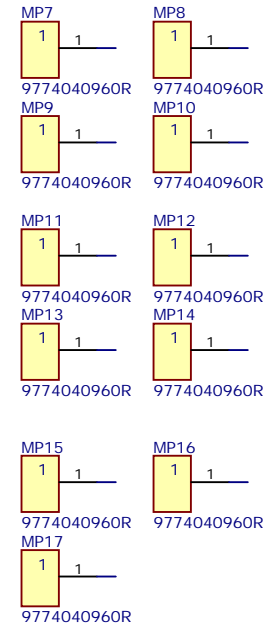


PCB LOGO
FCC disclaimer

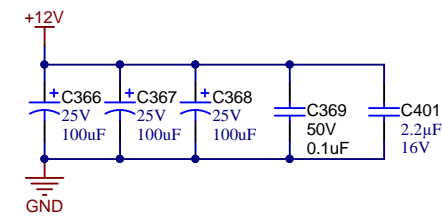
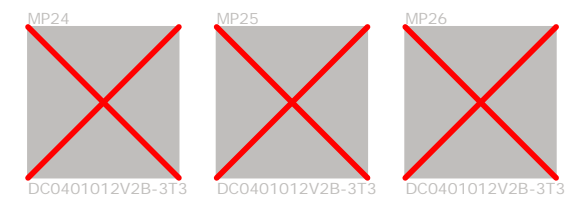
Logo4 PCB LOGO
WEEE logo



CAUTION HOT SURFACE CAUTION HOT SURFACE CAUTION HOT SURFACE



Fan mount brackets
35mm spacing for mount



Variant/Label Table	
Variant	Label Text
001	ChangeMe!
002	ChangeMe!

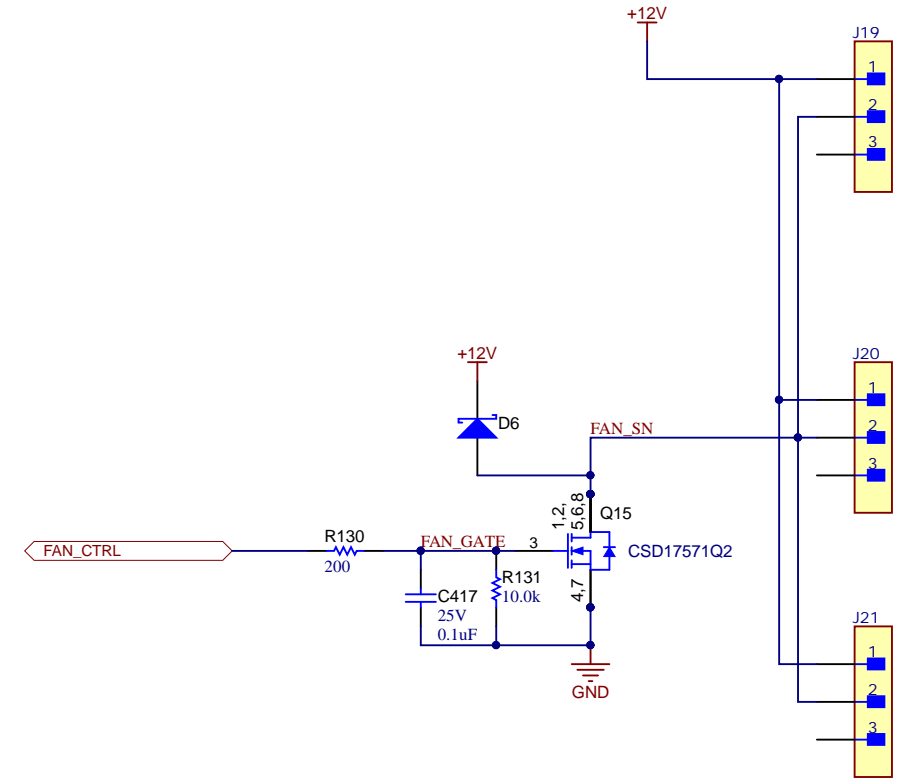
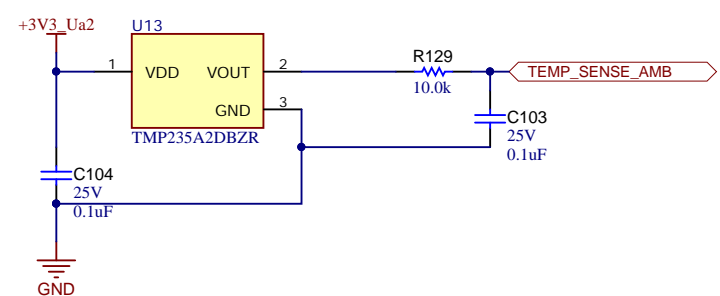
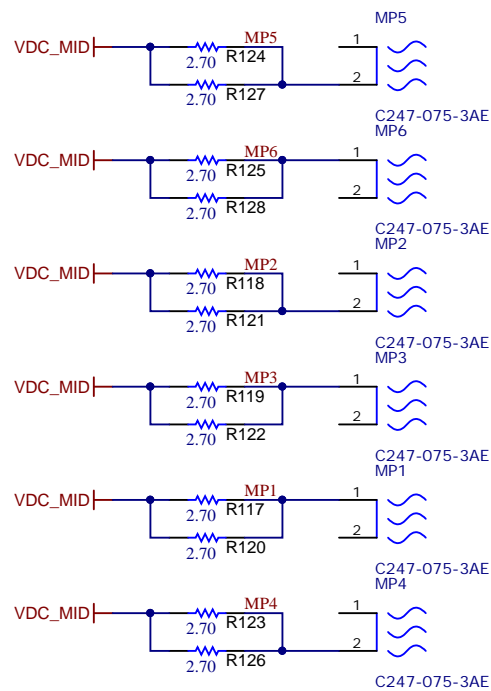
LBL1
PCB Label
THT-14-423-10
Size: 0.65" x 0.20 "

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.

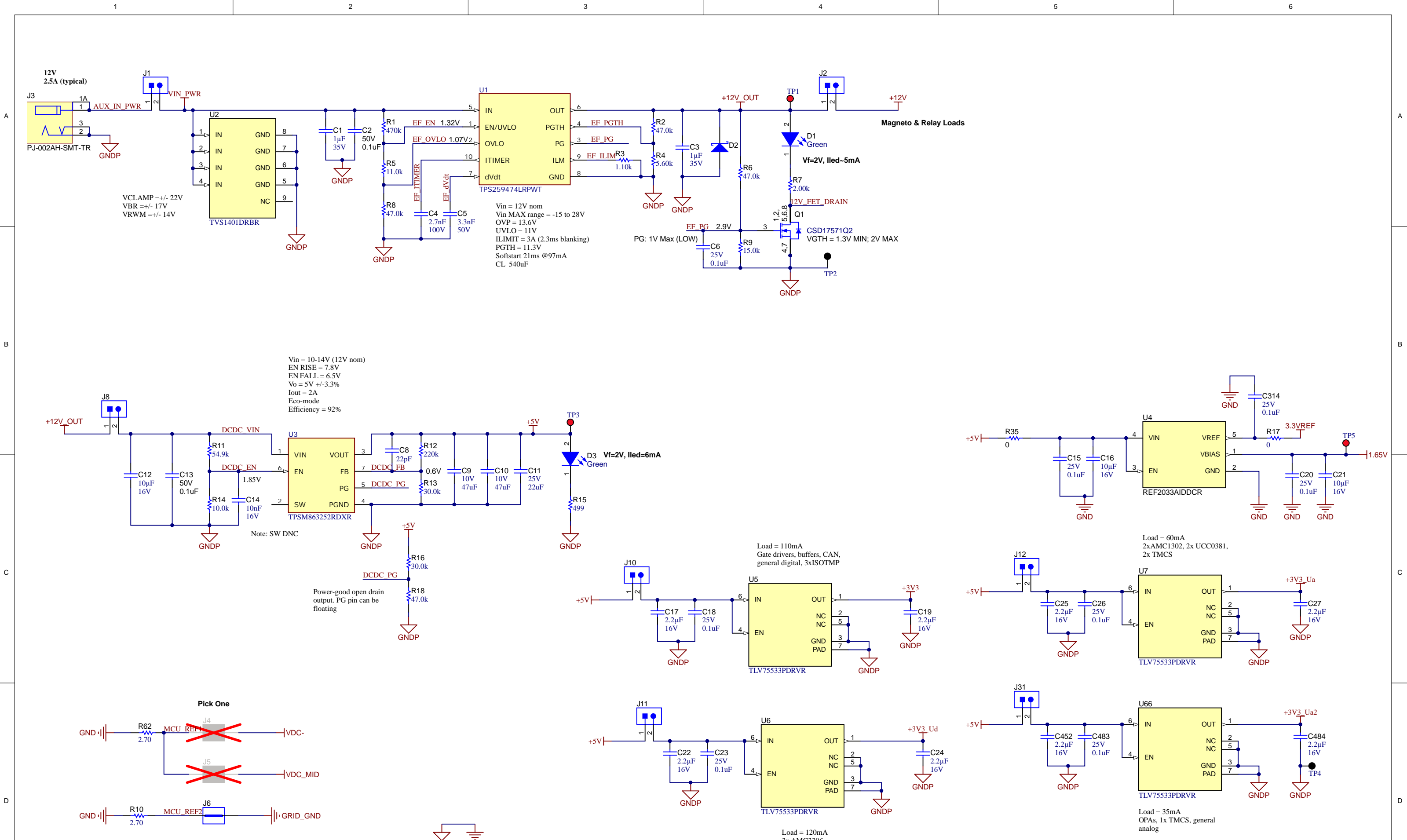


Fan 40 x 40 mm
T3 config:
P1+
P2 -
P3 Tach

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Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 2 of 16
Drawn By:	File: TIDA-1606-Hardware-E7.SchDoc	Size: B
Engineer: Le Ruffo	Contact: http://www.ti.com/support	



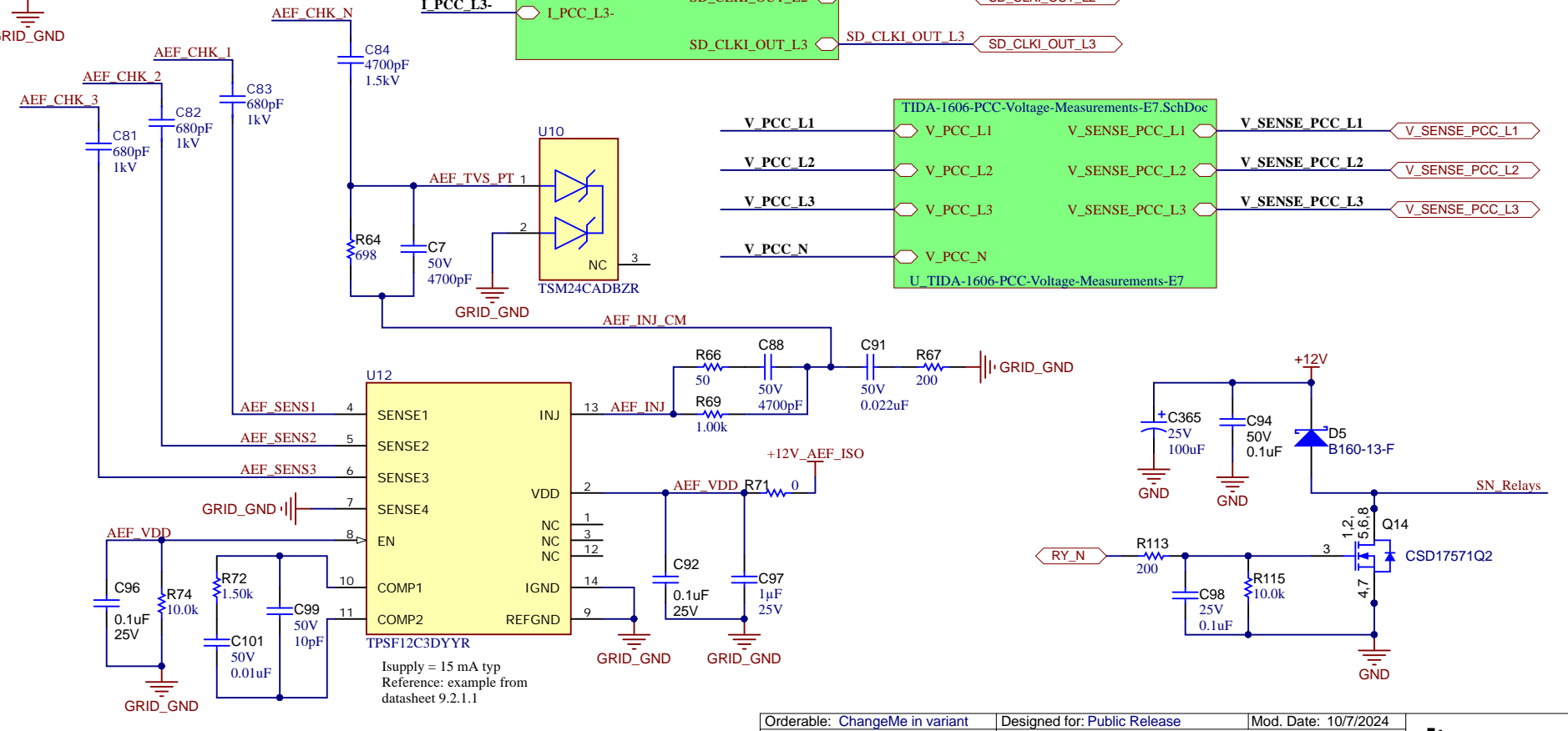
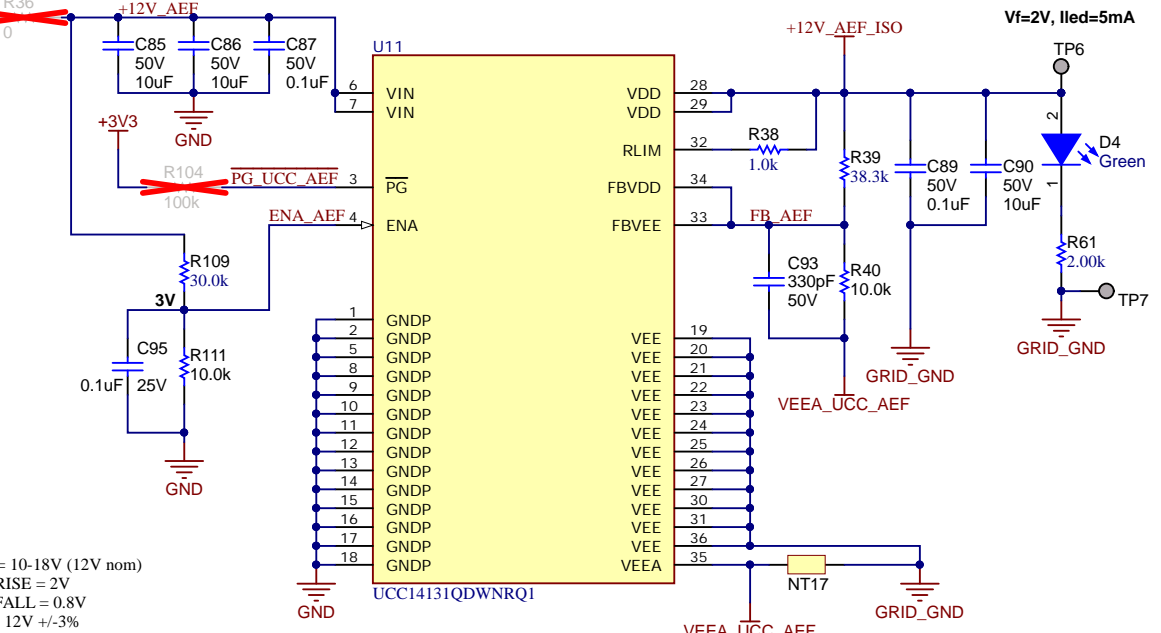
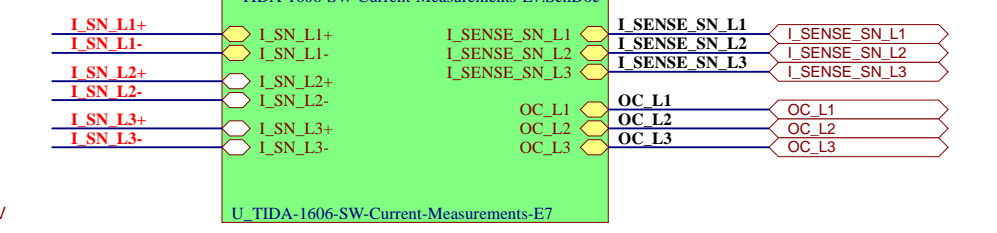
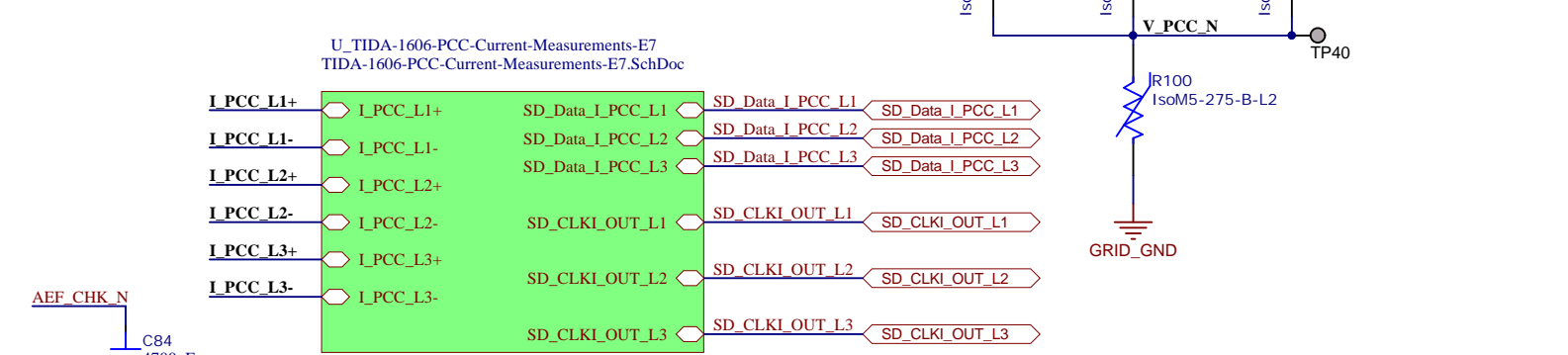
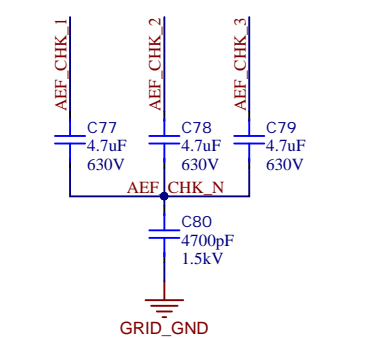
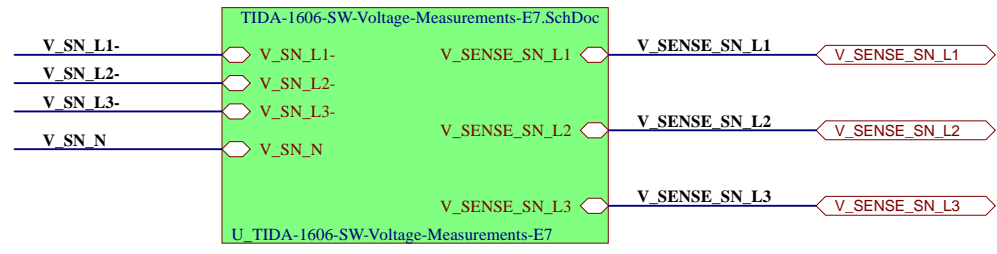
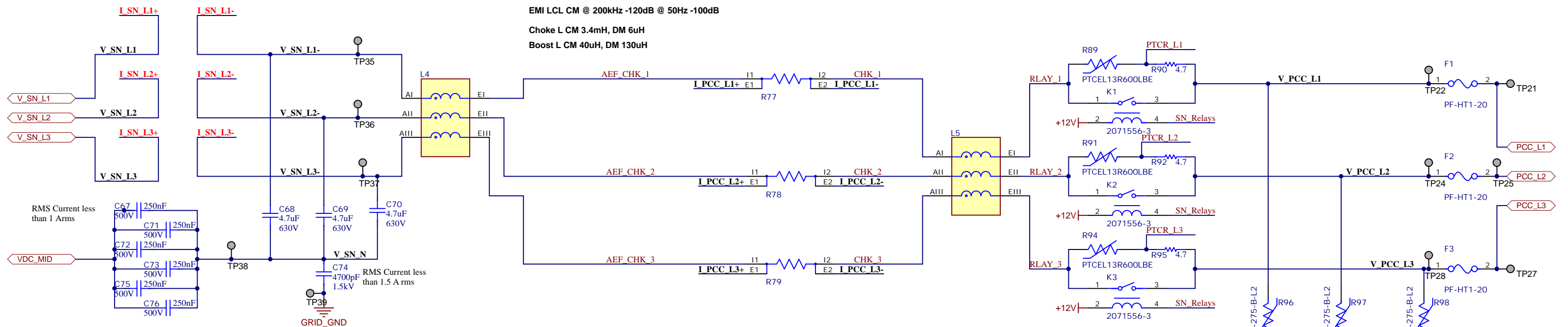


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Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 2/4/2025
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 3 of 16
Drawn By:	File: TIDA-1606-Aux-Supply-E7.SchDoc	Size: B
Engineer: Le Ruffo	Contact: http://www.ti.com/support	



EMI LCL DM f3db ~ 4.5kHz, @ 200kHz -90dB
 EMI LCL CM @ 200kHz -120dB @ 50Hz -100dB
 Choke L CM 3.4mH, DM 6uH
 Boost L CM 40uH, DM 130uH



Vin = 10-18V (12V nom)
 EN RISE = 2V
 EN FALL = 0.8V
 Vo = 12V +/-3%
 Pload max = 1.25W
 Efficiency = 35%

$$V_{OUT} = (V_{IN} / V_{Clipping}) \times V_{REFIN} / 2 + V_{REFIN} / 2.$$

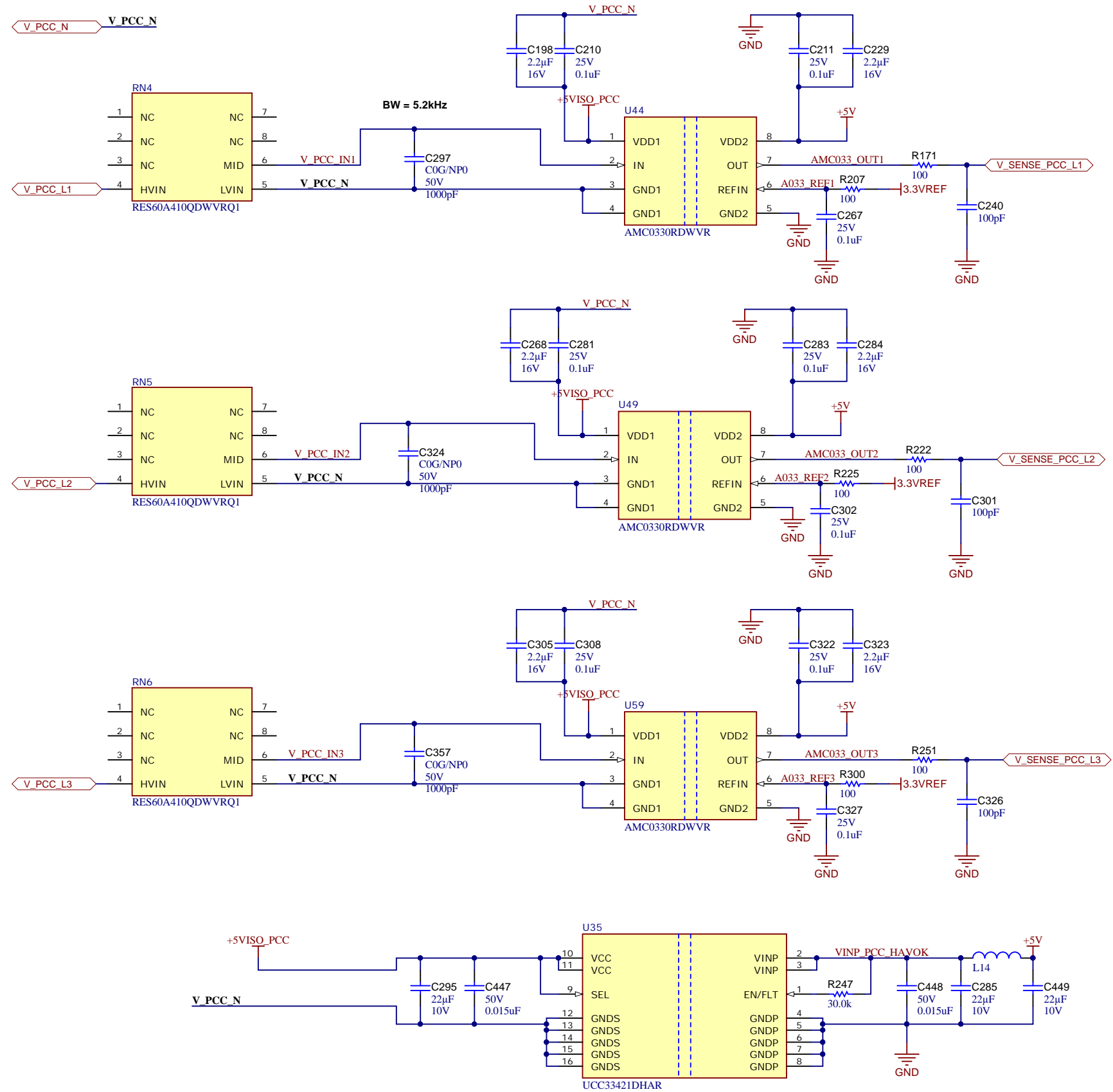
$$V_{Clipping} = \pm 1.25V$$

$$G = 1/410 \quad V_{in} = 410V \text{ max}$$

$$R_{HV} = 12.5 \text{ Mohm}$$

$$R_{LV} = 30.5 \text{ kohm}$$

Point of Common Coupling Voltages



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Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 5 of 16
Drawn By:	File: TIDA-1606-PCC-Voltage-Measurements-E7.Sch	Size: A3
Engineer: Le Ruffo	Contact: http://www.ti.com/support	



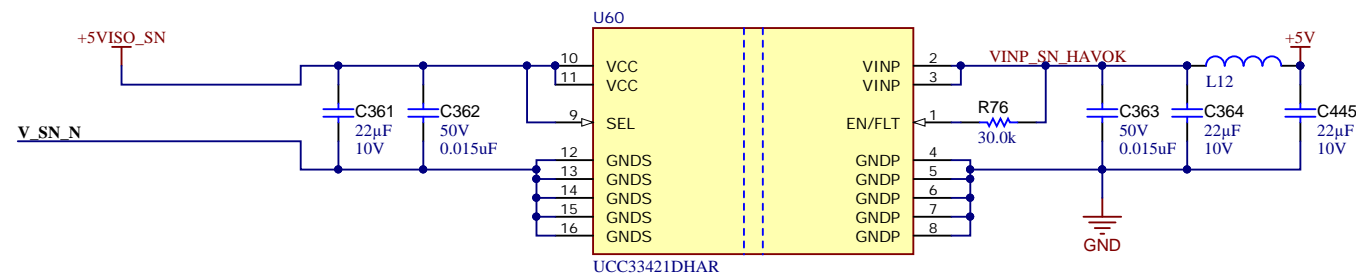
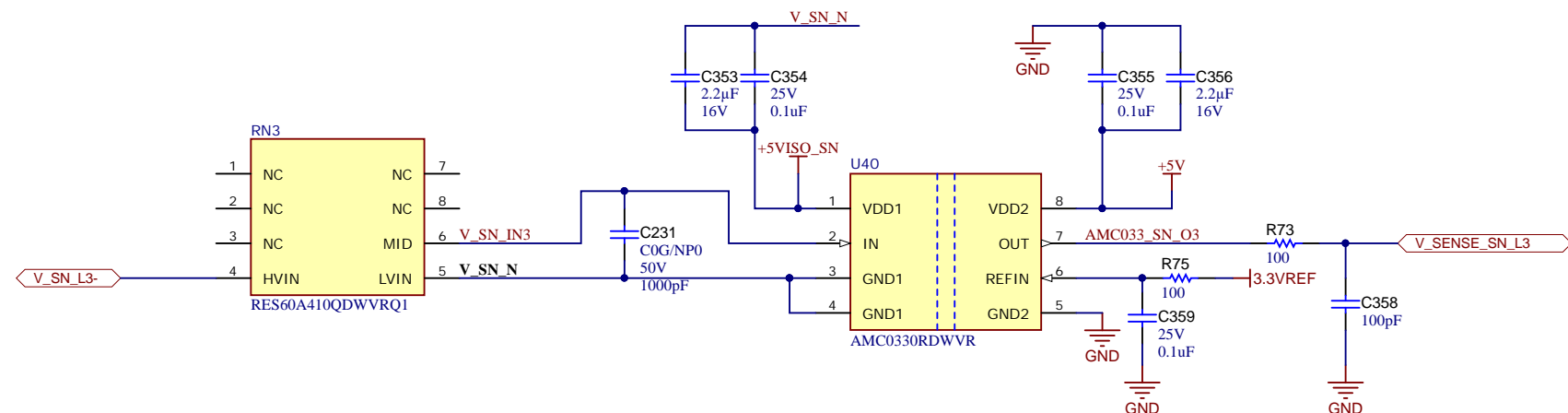
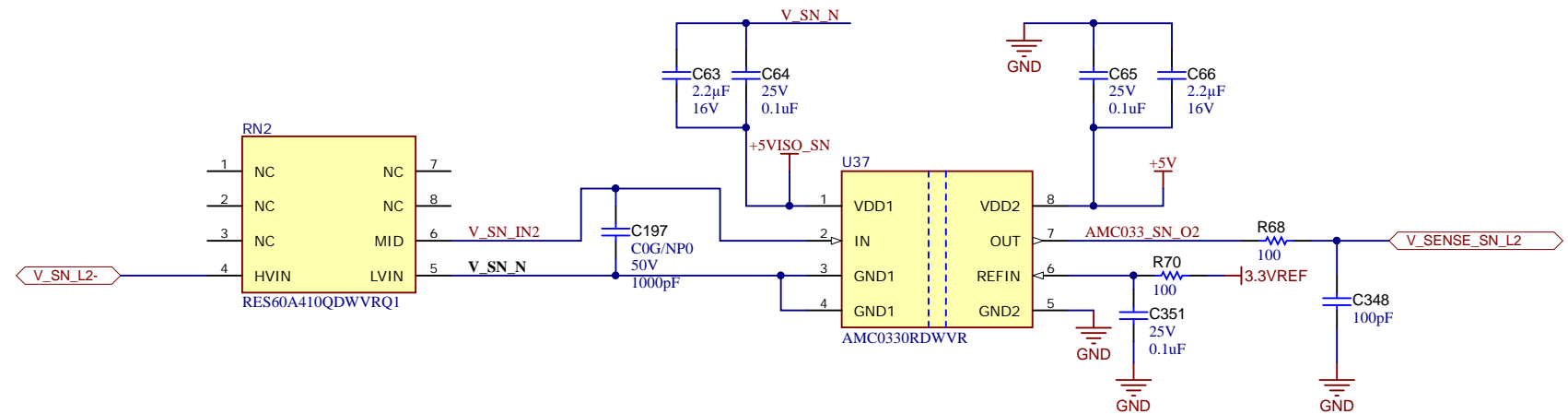
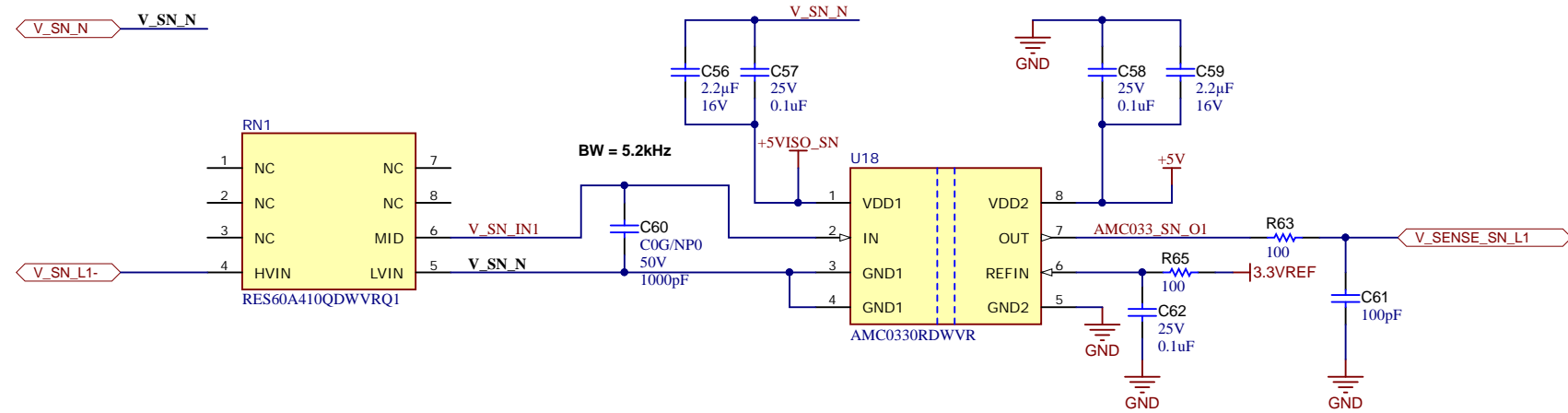
$$V_{OUT} = (V_{IN} / V_{Clipping}) \times V_{REFIN} / 2 + V_{REFIN} / 2.$$

VClipping = +/-1.25V

G = 1/410 Vin = 410V max

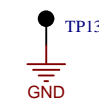
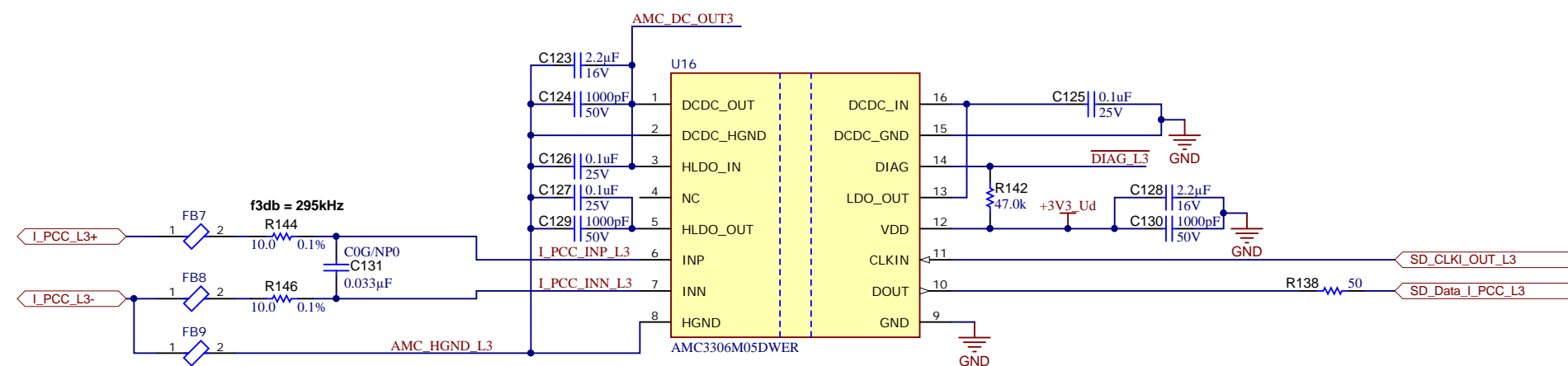
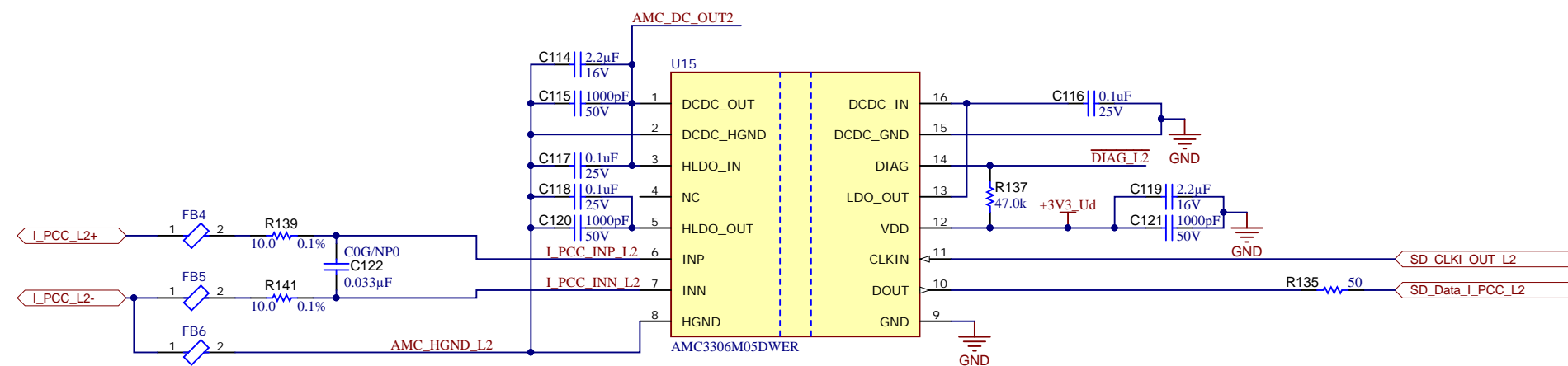
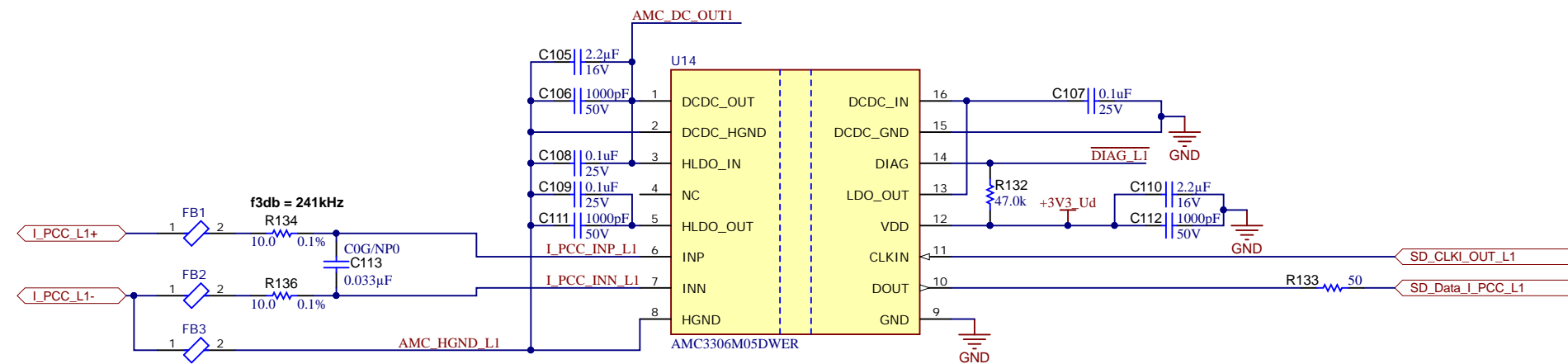
RHV = 12.5 Mohm

RLV = 30.5kohm



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Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 6 of 16
Drawn By:	File: TIDA-1606-SW-Voltage-Measurements-E7-Sch Size: B	Engineer: Le Ruffo
	Contact: http://www.ti.com/support	

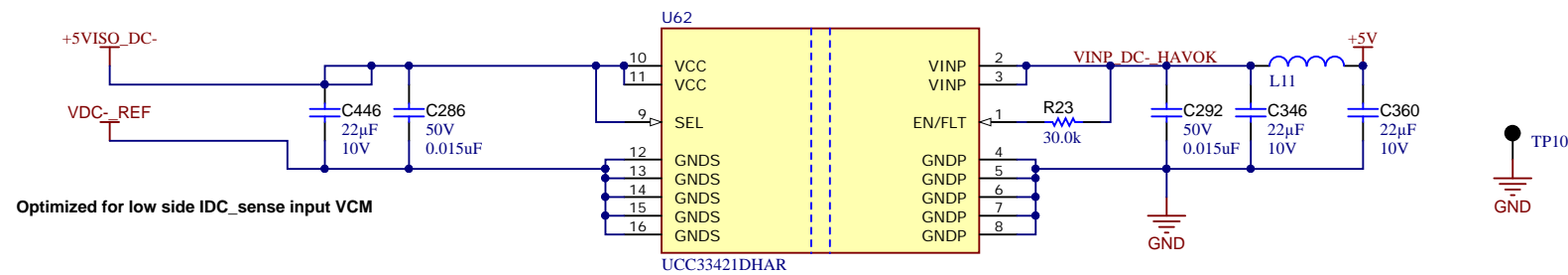
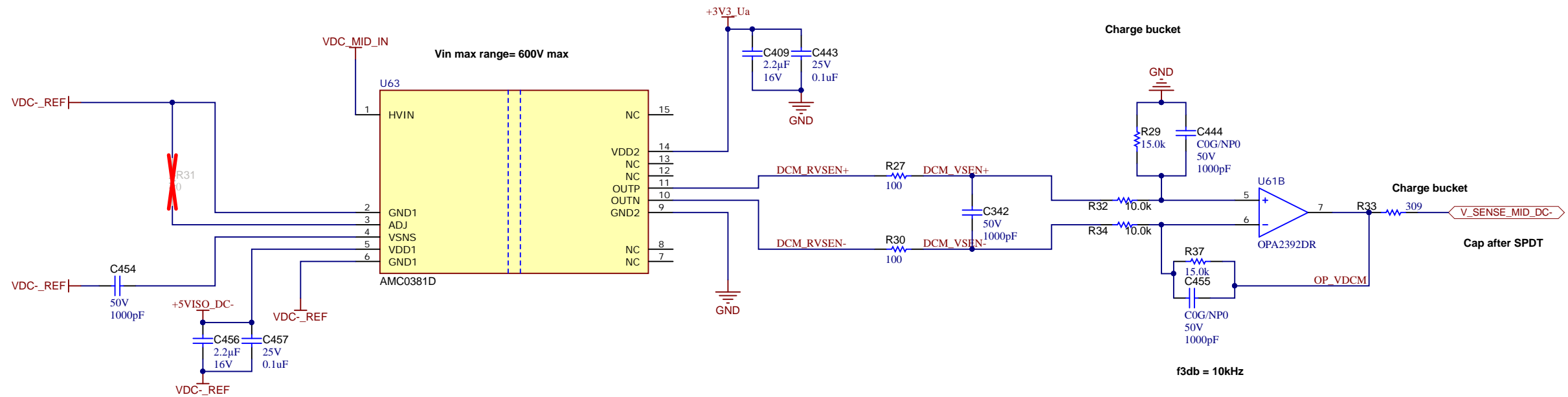
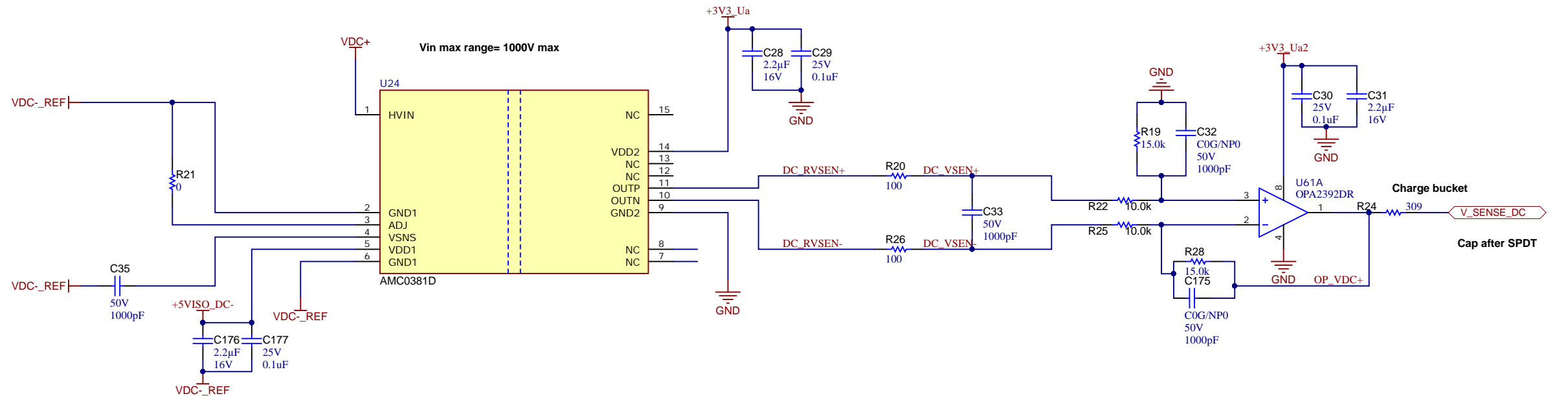


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Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet Title: *
SVN Rev: * Version control disabled	Assembly Variant: 001	Sheet: 7 of 16
Drawn By: *	File: TIDA-1606-PCC-Current-Measurements-E7.Sch	Size: B
Engineer: Le Ruffo	Contact: http://www.ti.com/support	



VOUT = +/-2V Differential
Vlinear= 1000
G=1/602, 1/1000 Vin max range= 1000V max
float ADJ pin for Gain = 1/602

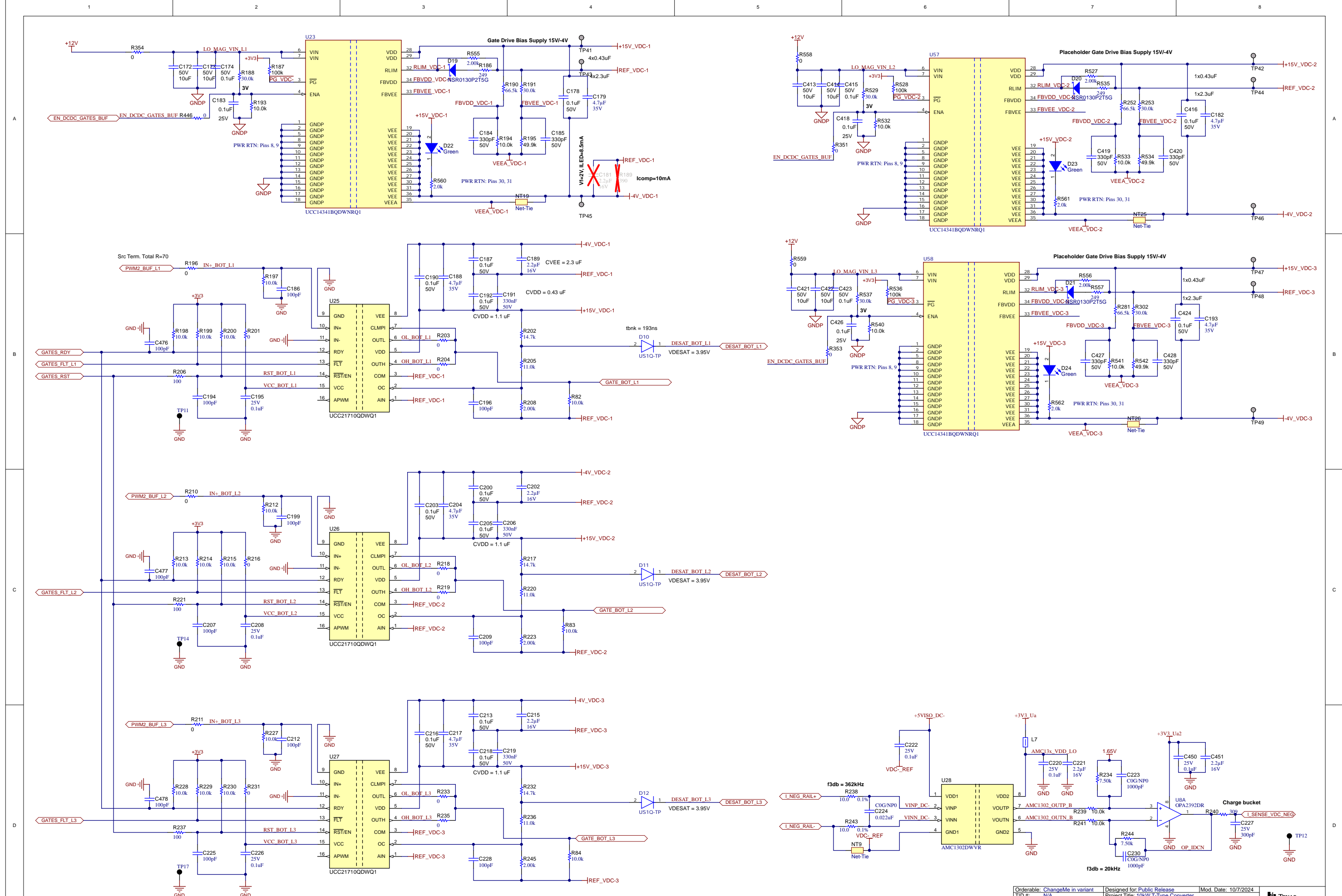


Optimized for low side IDC_sense input VCM

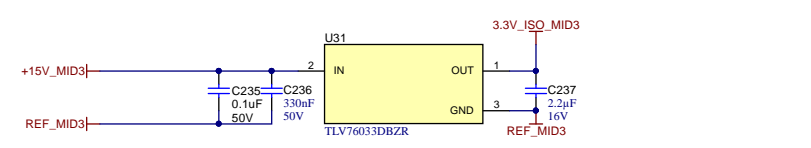
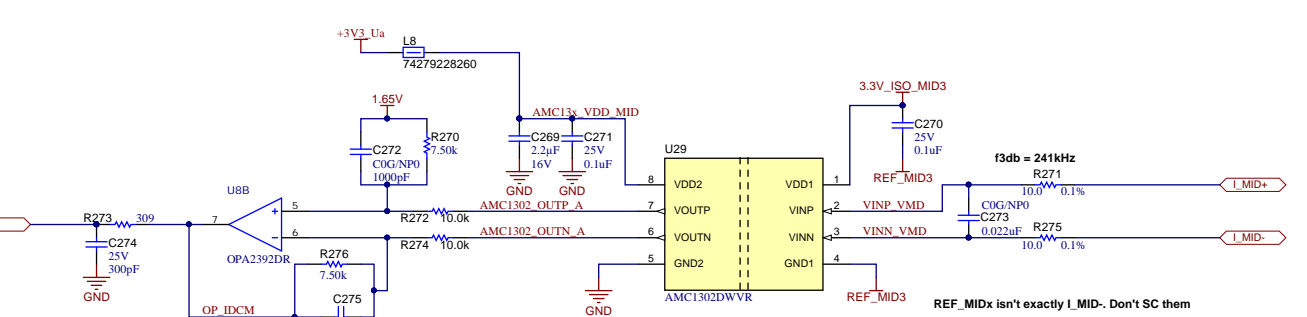
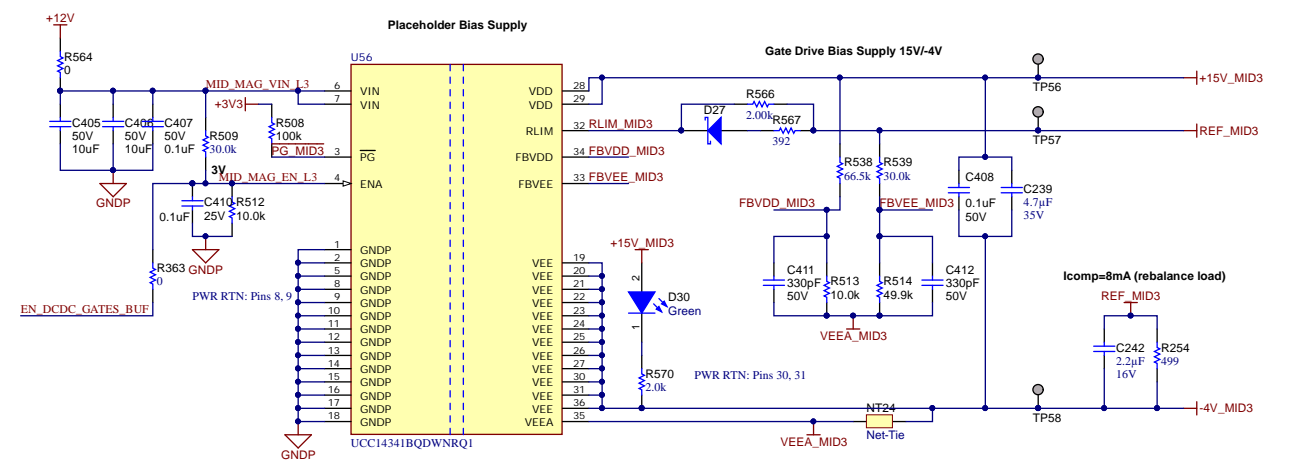
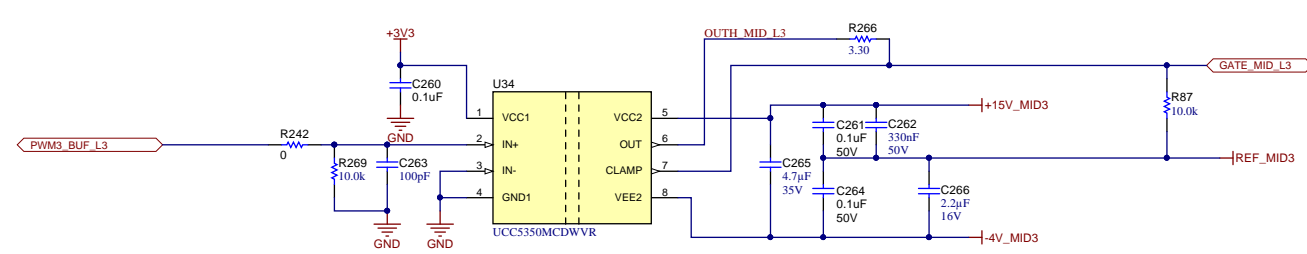
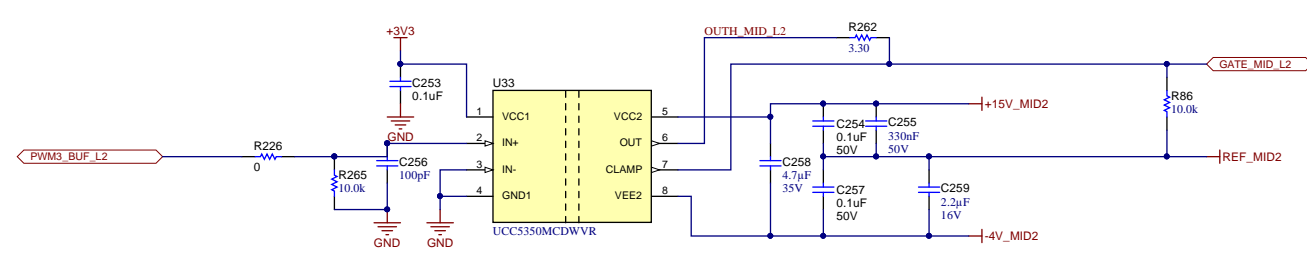
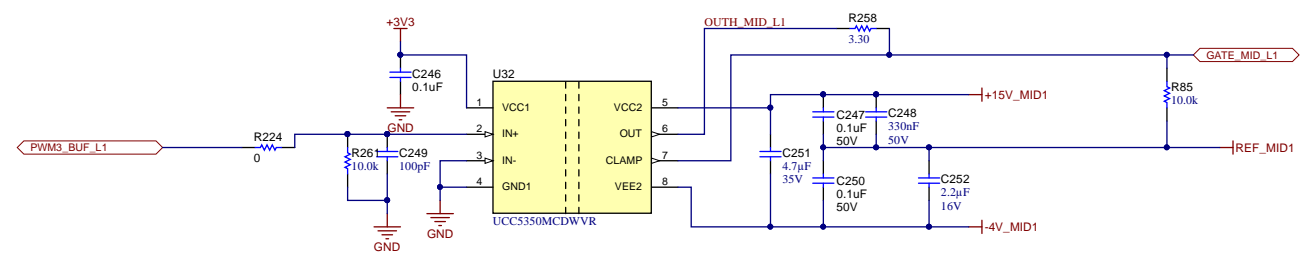
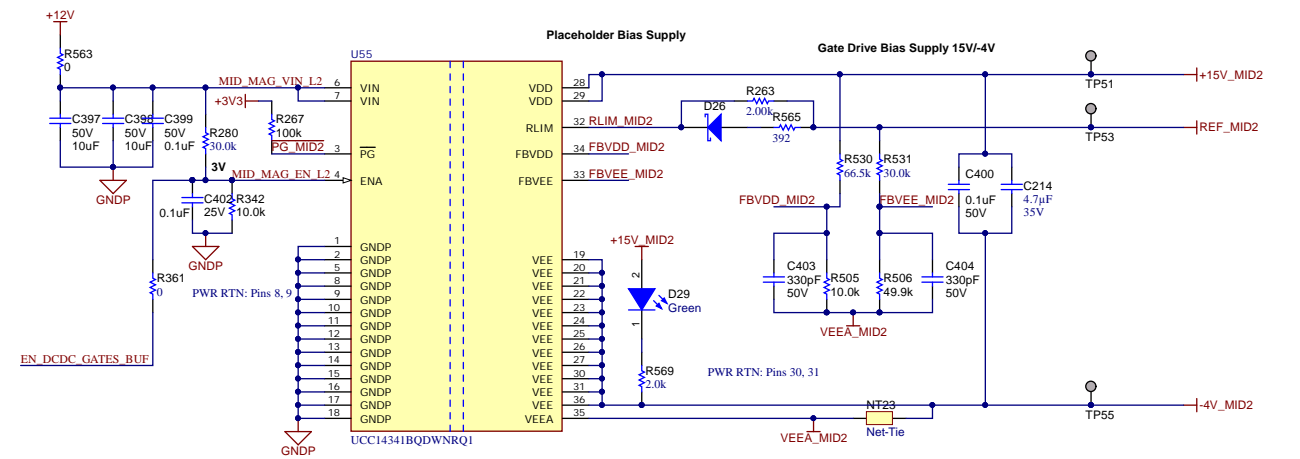
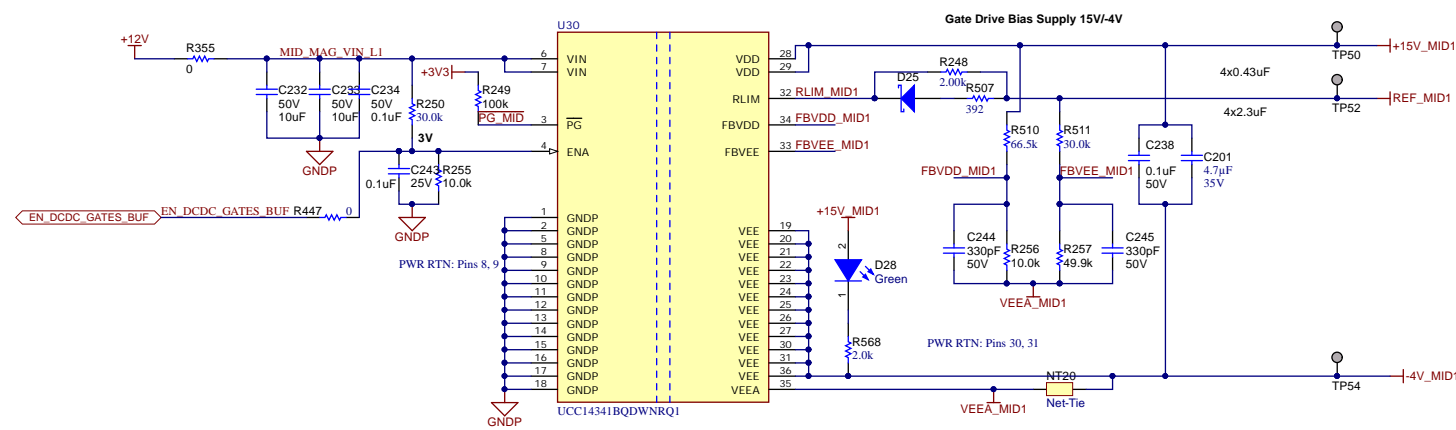
Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet: 8 of 16
SVN Rev: Version control disabled	File: TIDA-1606-DC-Voltage-Measurements-E7-Sch Size: B	Sheet: 8 of 16
Drawn By:	Engineer: Le Ruffo	Contact: http://www.ti.com/support

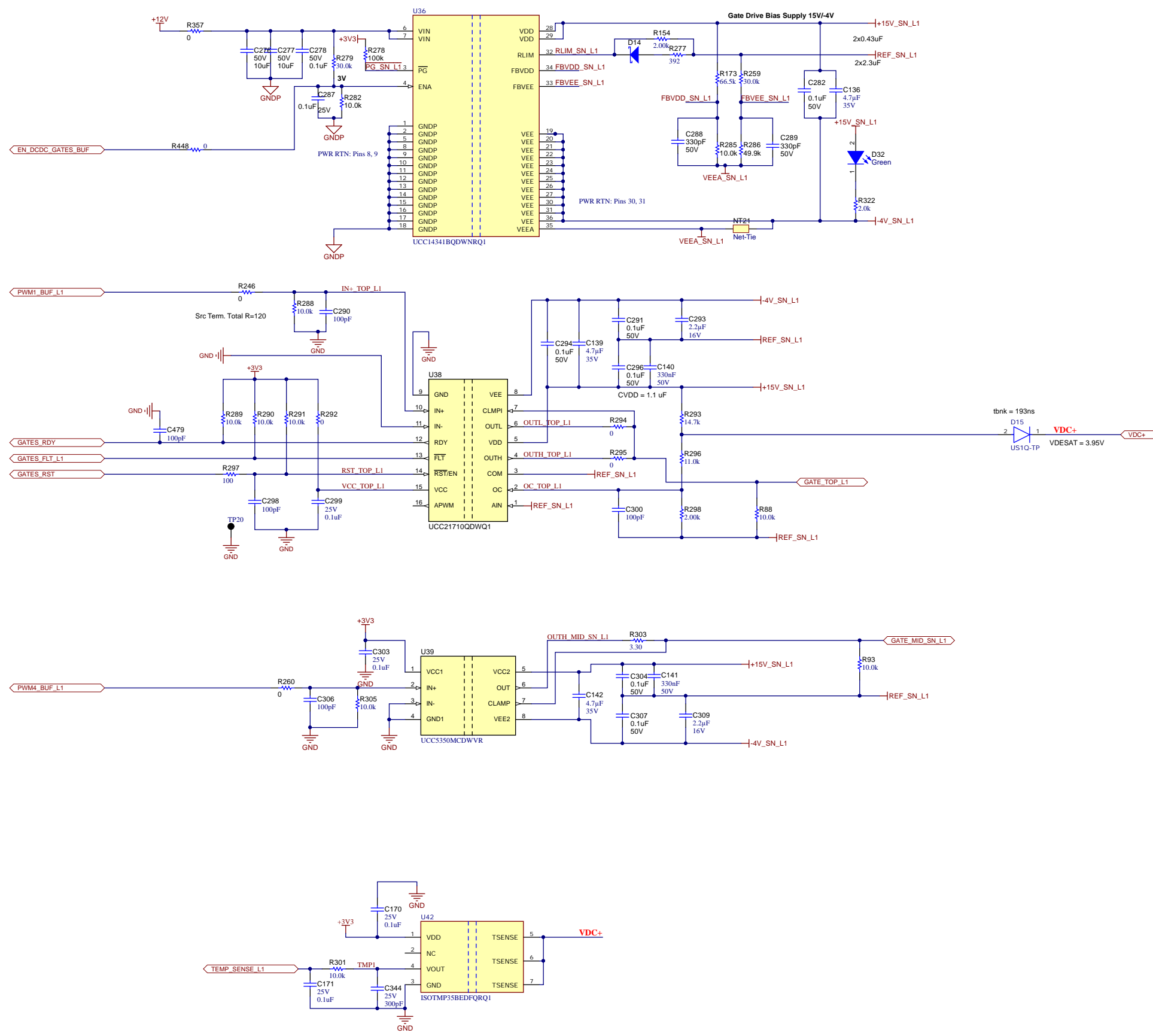
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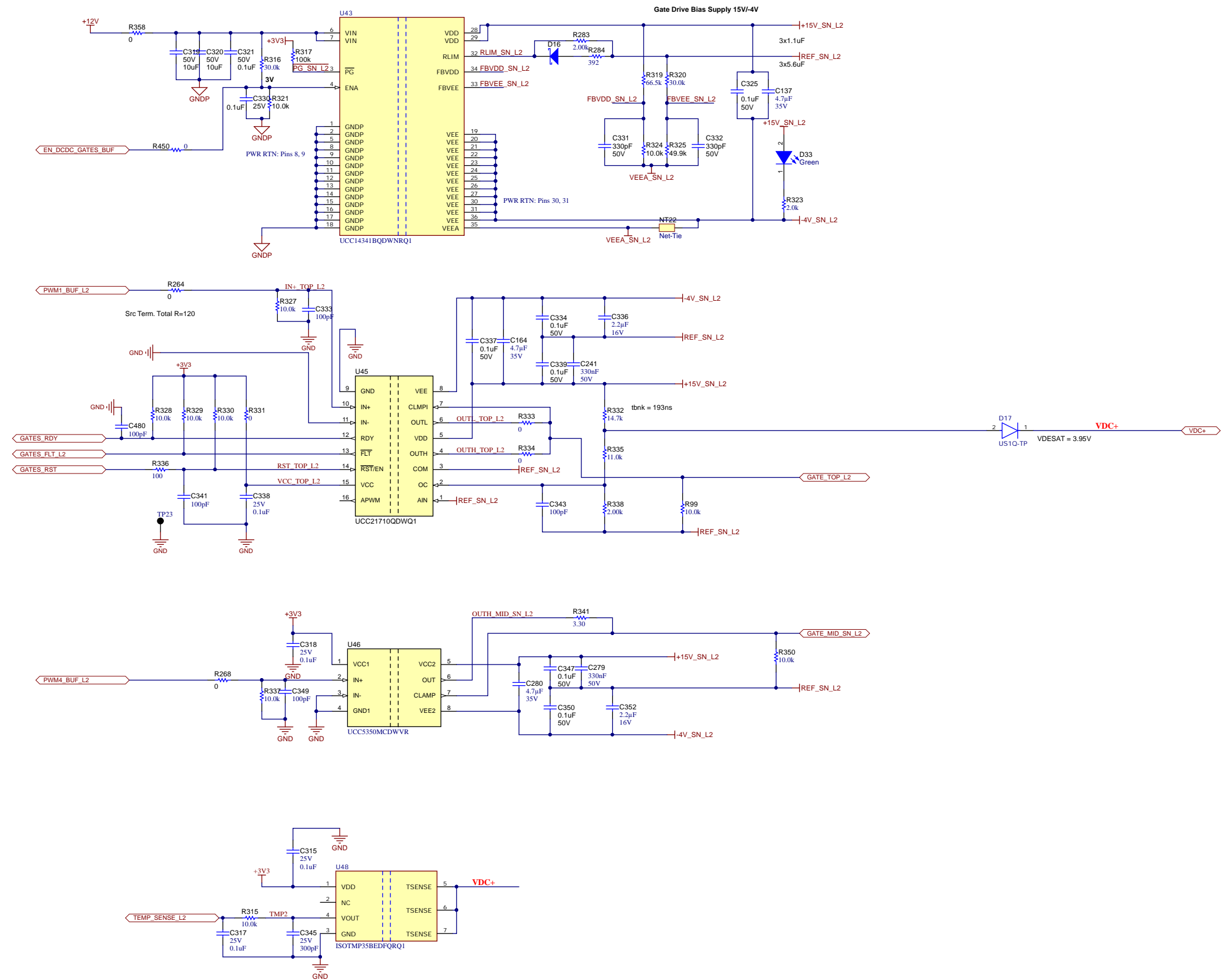




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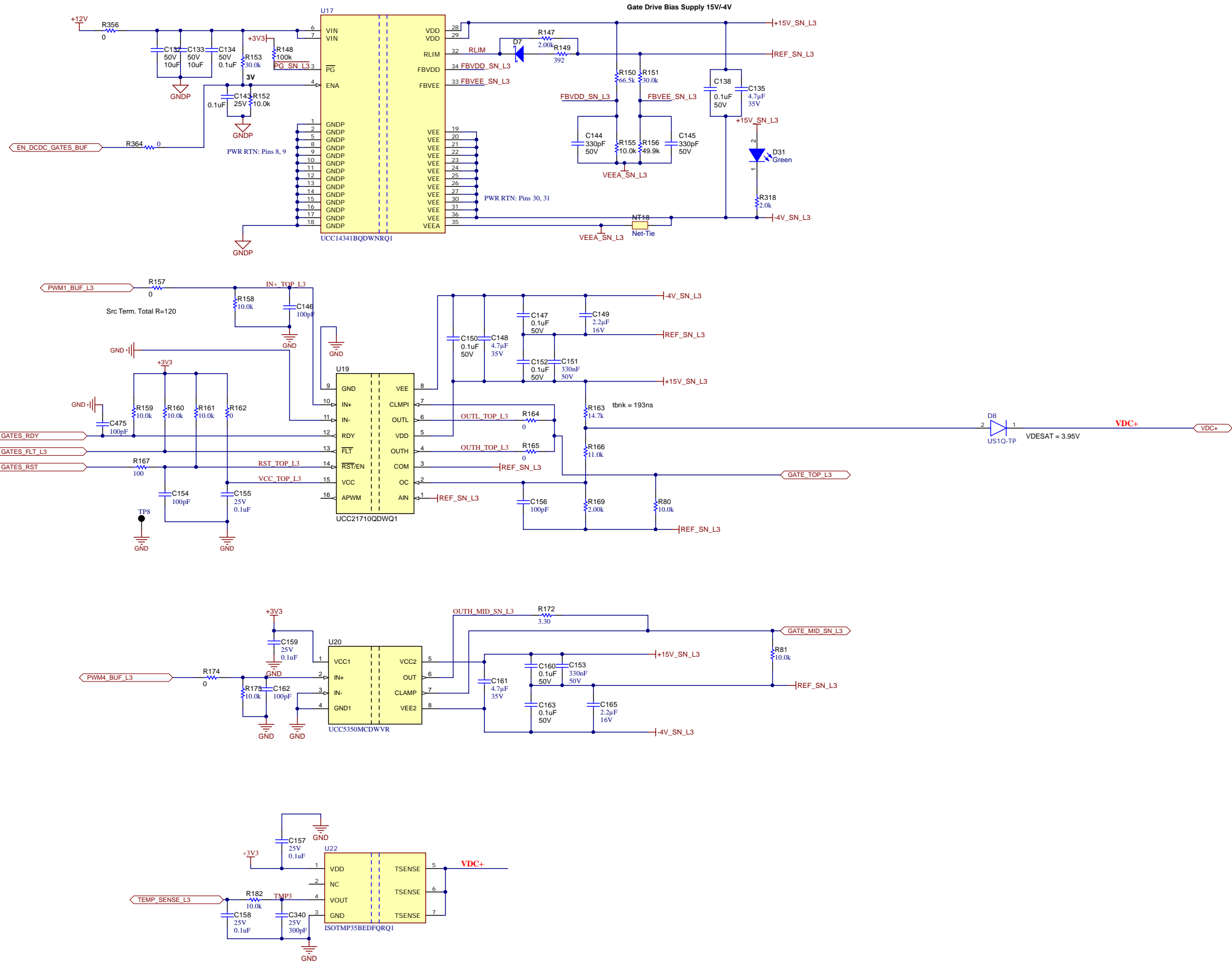


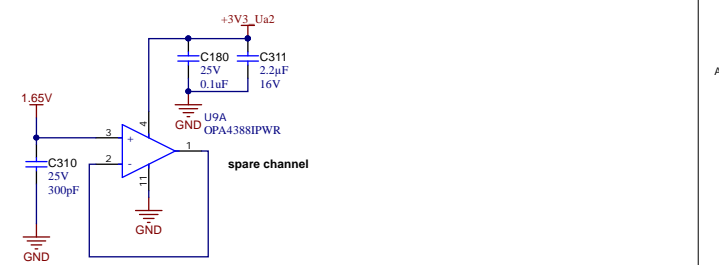
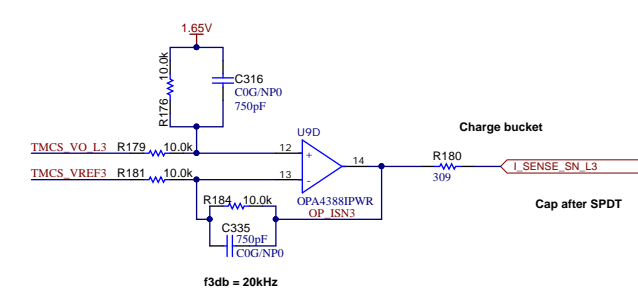
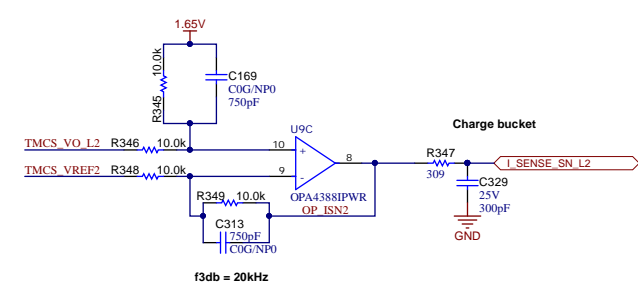
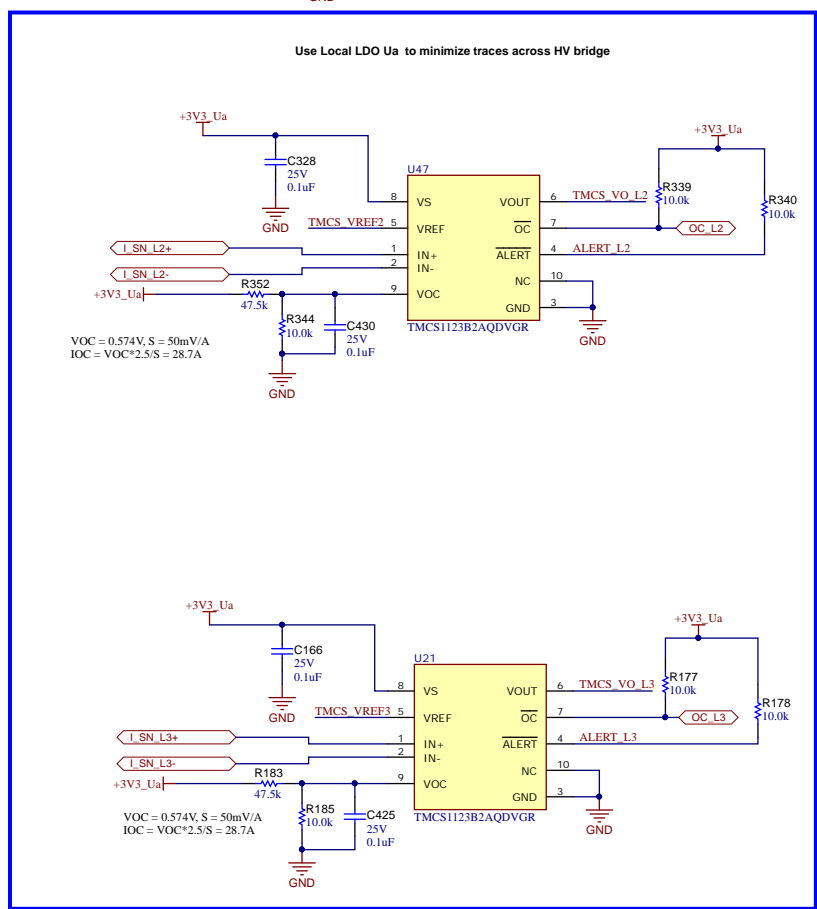
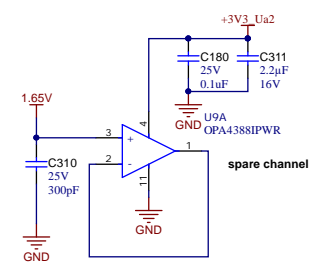
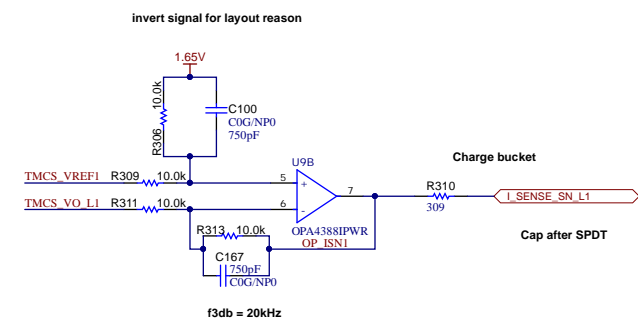
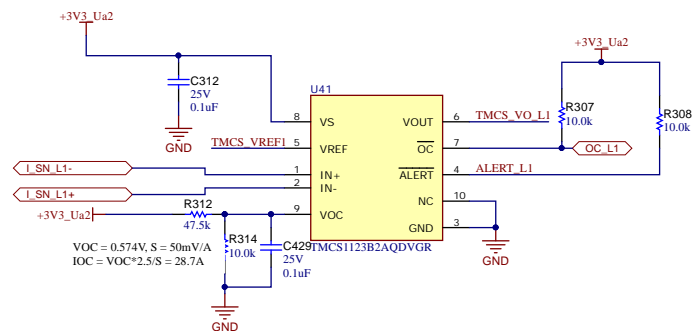


Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606 Rev: E7	Sheet Title:	
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 12 of 16
Drawn By:	File: TIDA-1606-Switching-Node-L2-E7.SchDoc	Size: A2
Engineer: Le Ruffo	Contact: http://www.ti.com/support	

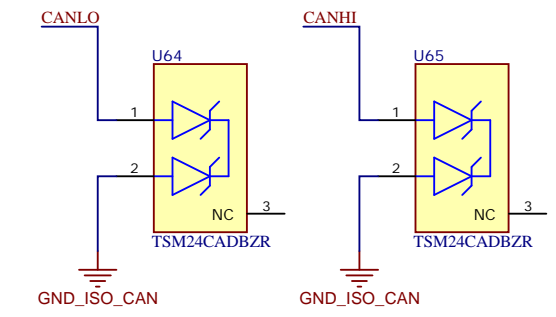
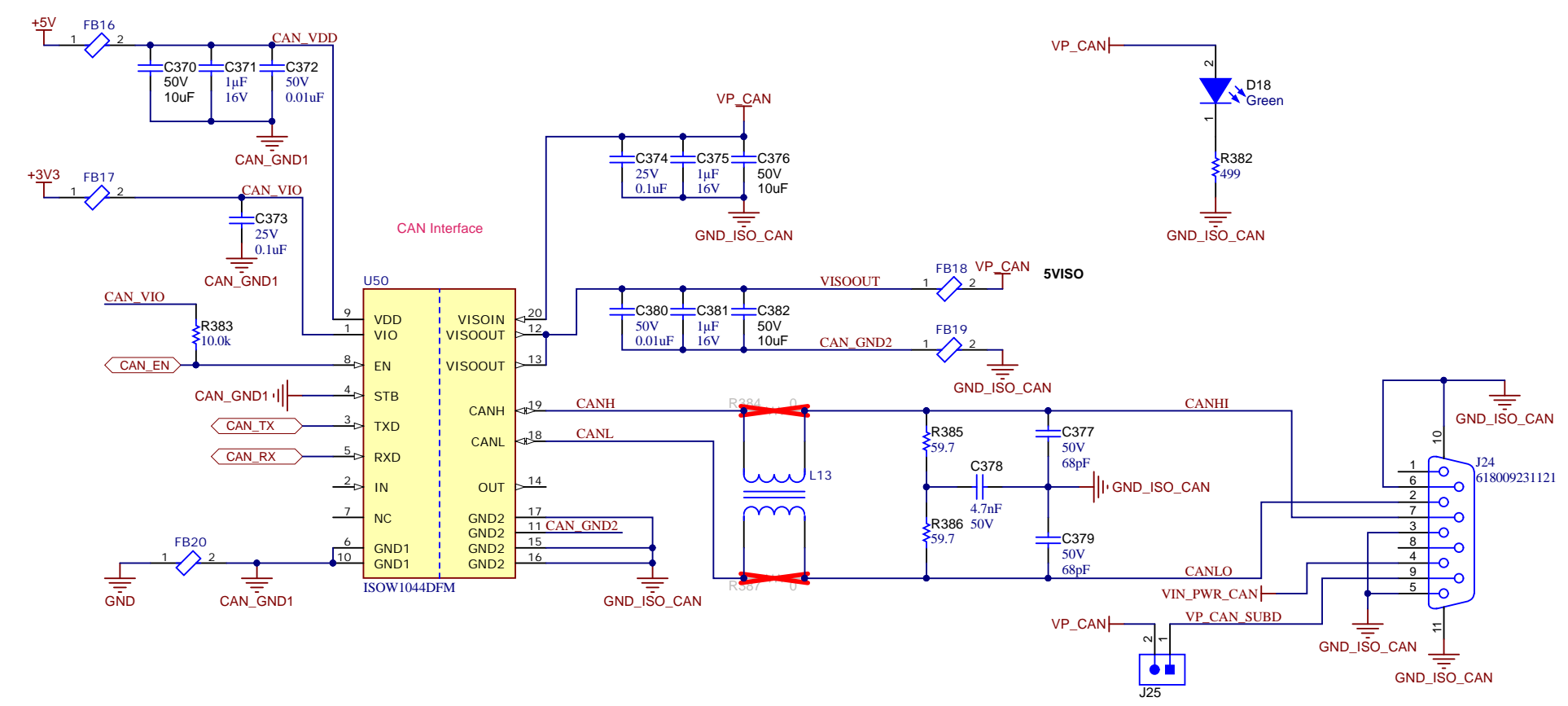
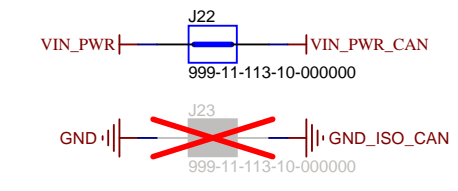
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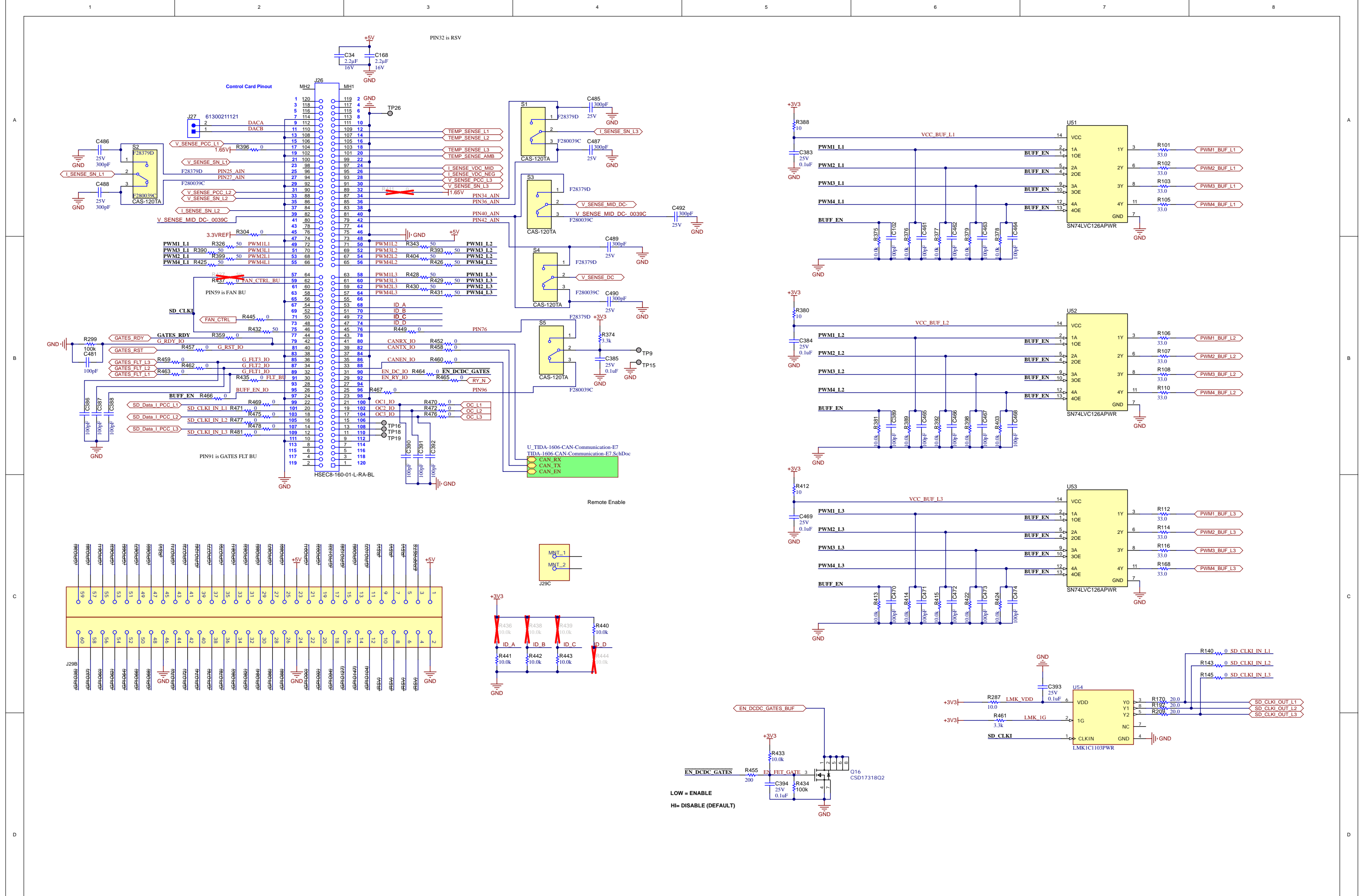
Daisy Chain Aux PWR to Another System



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Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 10/7/2024
TID #: N/A	Project Title: 10kW T-Type Converter	
Number: TIDA-01606	Rev: E7	Sheet Title:
SVN Rev: Version control disabled	Assembly Variant: 001	Sheet: 15 of 16
Drawn By:	File: TIDA-1606-CAN-Communication-E7.SchDoc	Size: A3
Engineer: Le Ruffo	Contact: http://www.ti.com/support	





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