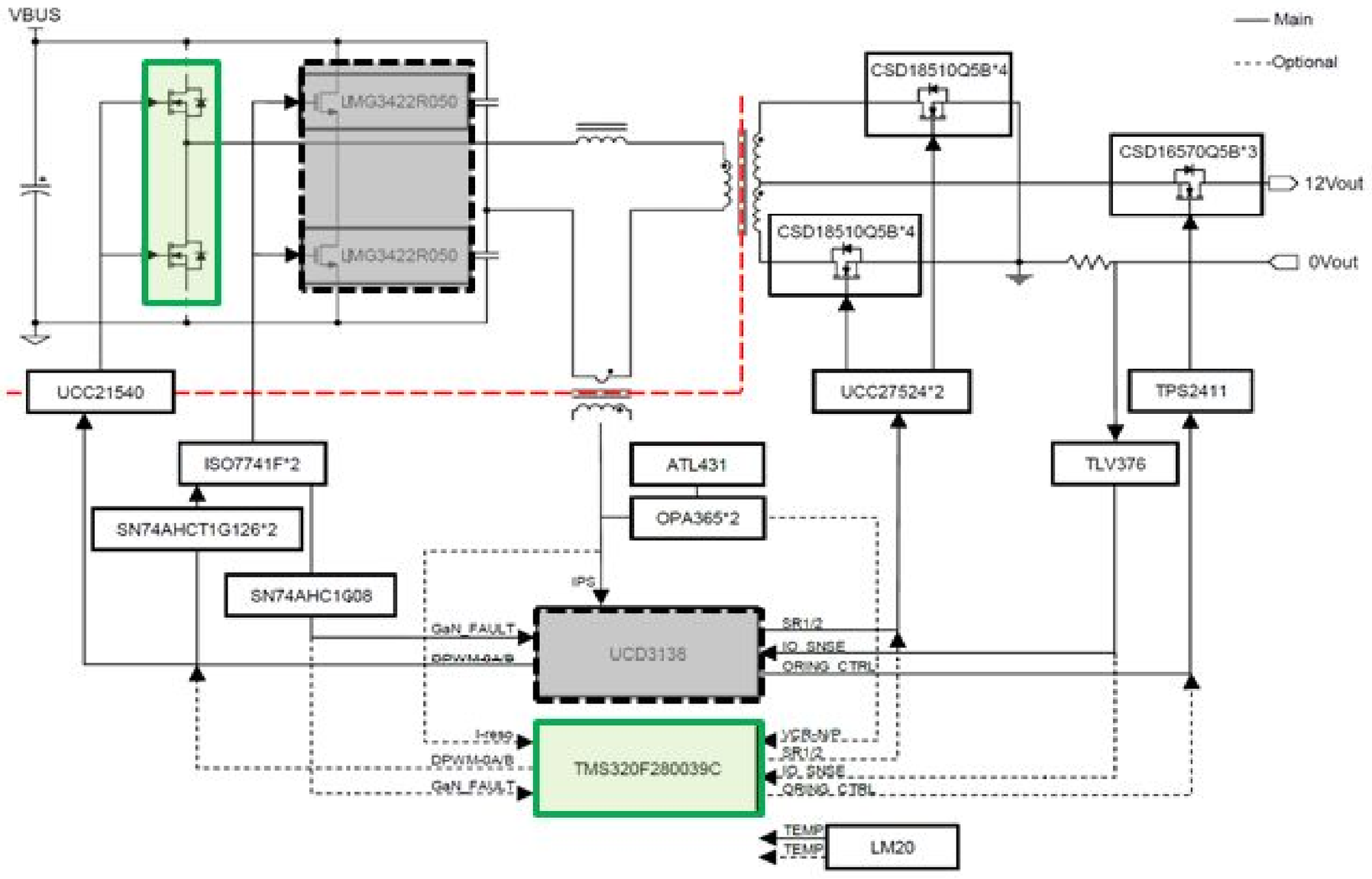
Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A	N/A



Orderable: ChangeMe in variant		Designed for: Public Release	Mod. Date: 8/14/2023
TID #: N/A		Project Title: 400Vin, 12V 1KW HHC LLC with UCD3138 and F28	
Number: PMP40586	Rev: E2	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 1 of 5
Drawn By: Morty Xu		File: PCB_Project_PMP40586_CoverSheet.SchDoc	Size: B
Engineer: Morty Xu		Contact: http://www.ti.com/support	

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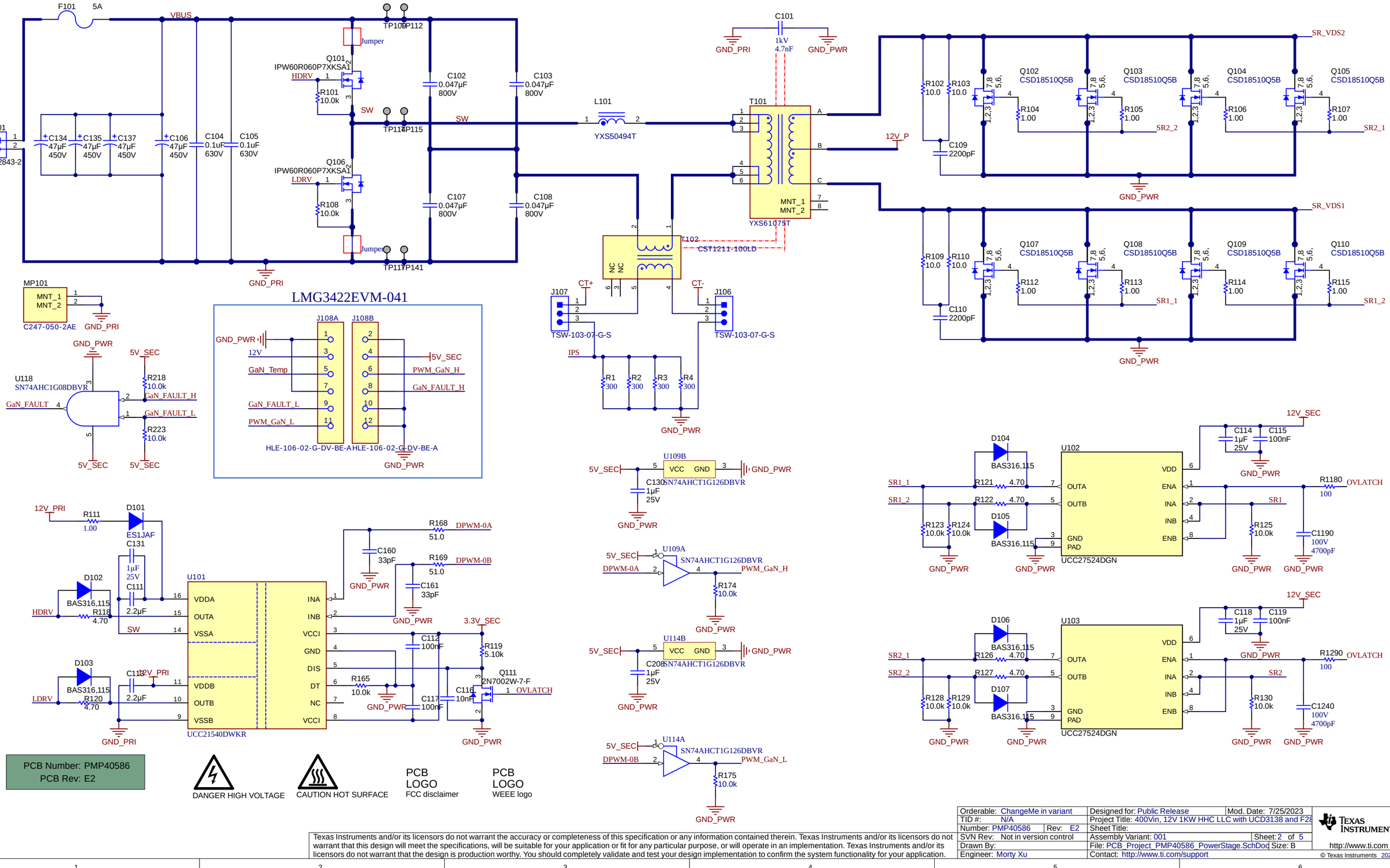

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Orderable: ChangeMe in variant		Designed for: Public Release	Mod. Date: 7/25/2023
TID #: N/A		Project Title: 400Vin, 12V 1KW HHC LLC with UCD3138 and F28	
Number: PMP40586	Rev: E2	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 2 of 5
Drawn By:		File: PCB_Project_PMP40586_PowerStage.SchDoc	Size: B
Engineer: Morty Xu		Contact: http://www.ti.com/support	

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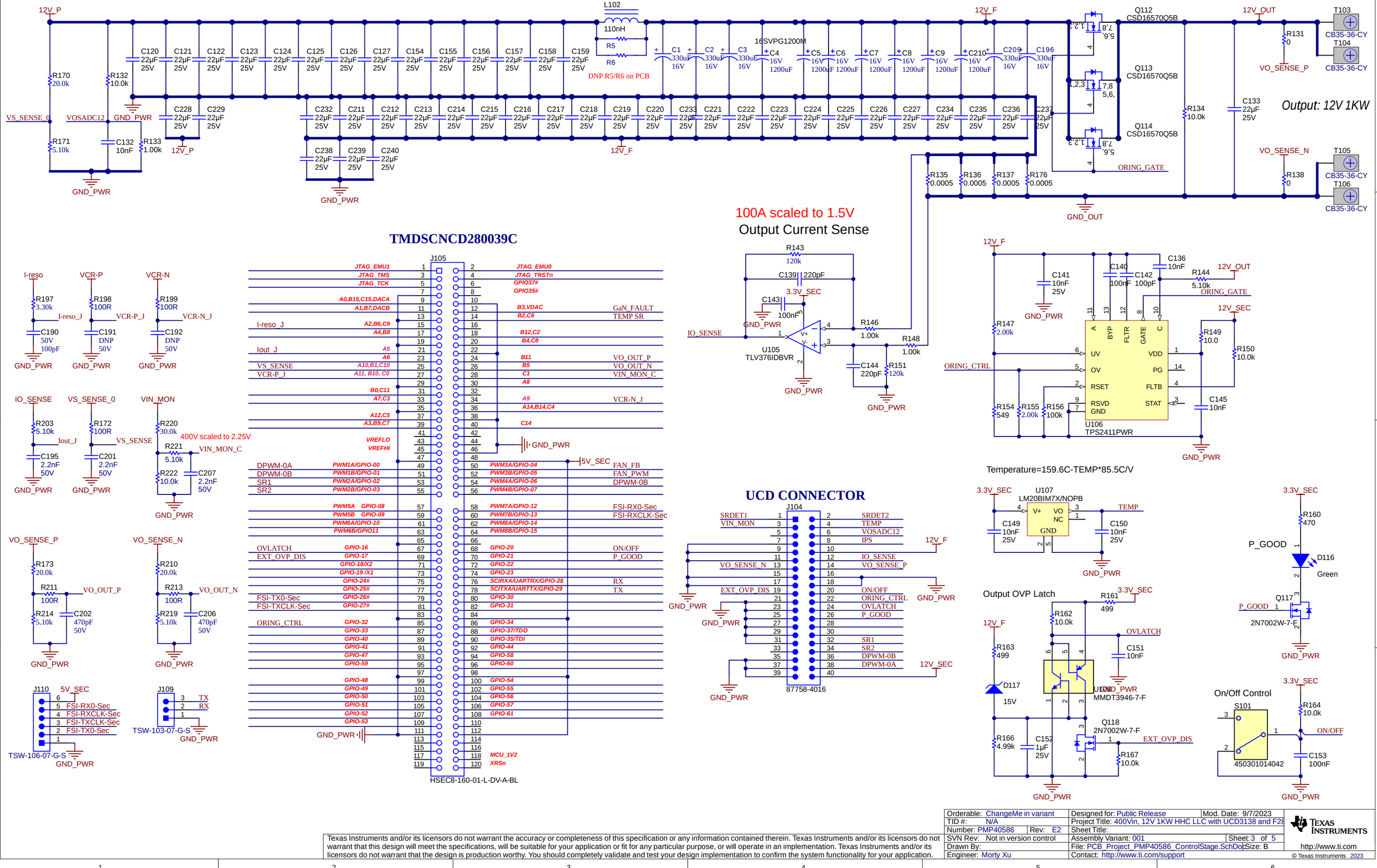
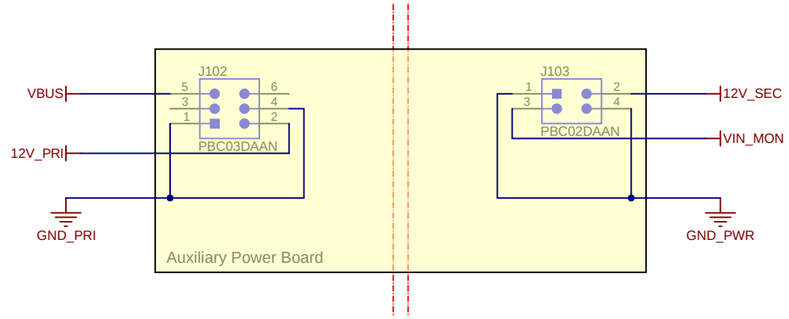
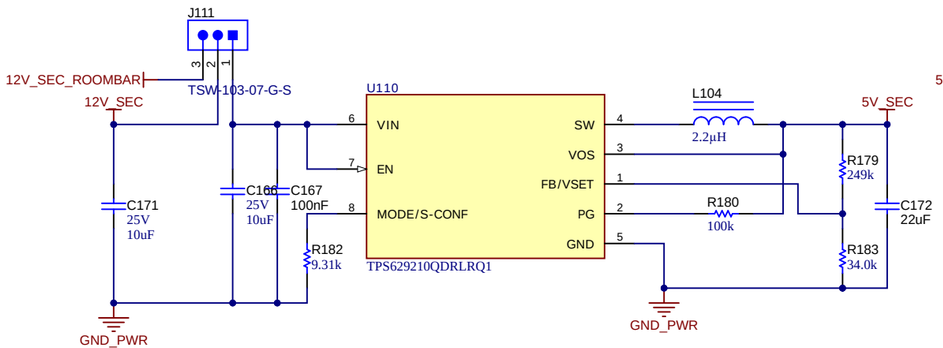
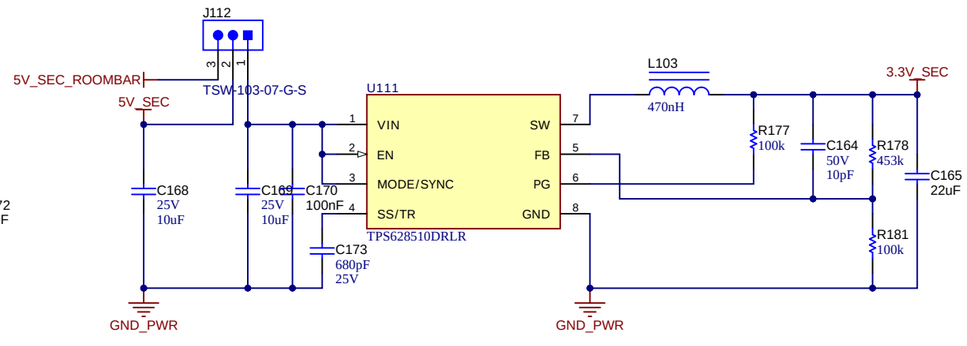
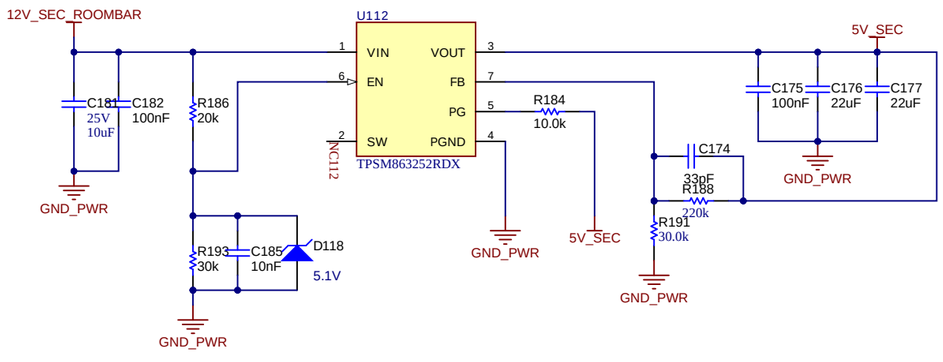


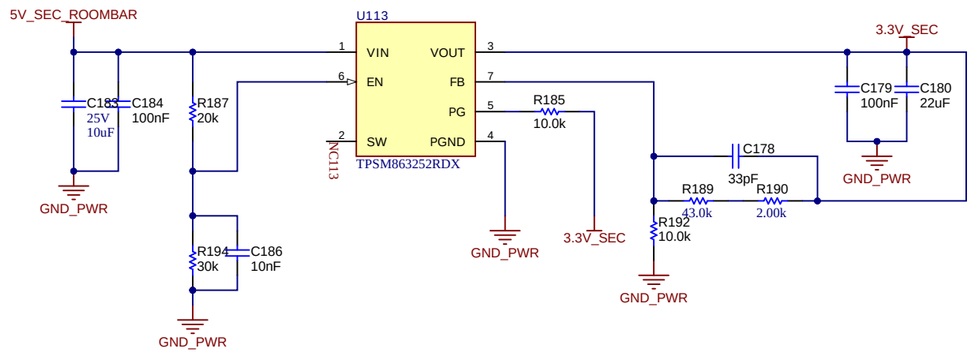
Orderable: ChangeMe in variant		Designed for: Public Release	Mod. Date: 9/7/2023
TID #: N/A		Project Title: 400Vin, 12V 1KW HHC LLC with UCD3138 and F28	
Number: PMP40586	Rev: E2	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 3 of 5
Drawn By:		File: PCB_Project_PMP40586_ControlStage.SchDoc	Size: B
Engineer: Morty Xu		Contact: http://www.ti.com/support	











Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 5/16/2023
TID #: N/A	Project Title: 400Vin, 12V 1KW HHC LLC with UCD3138 and F28	
Number: PMP40586 Rev: E2	Sheet Title: *	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 4 of 5
Drawn By:*	File: PCB_Project_PMP40586_Bias.SchDoc	Size: B
Engineer: Morty Xu	Contact: http://www.ti.com/support	

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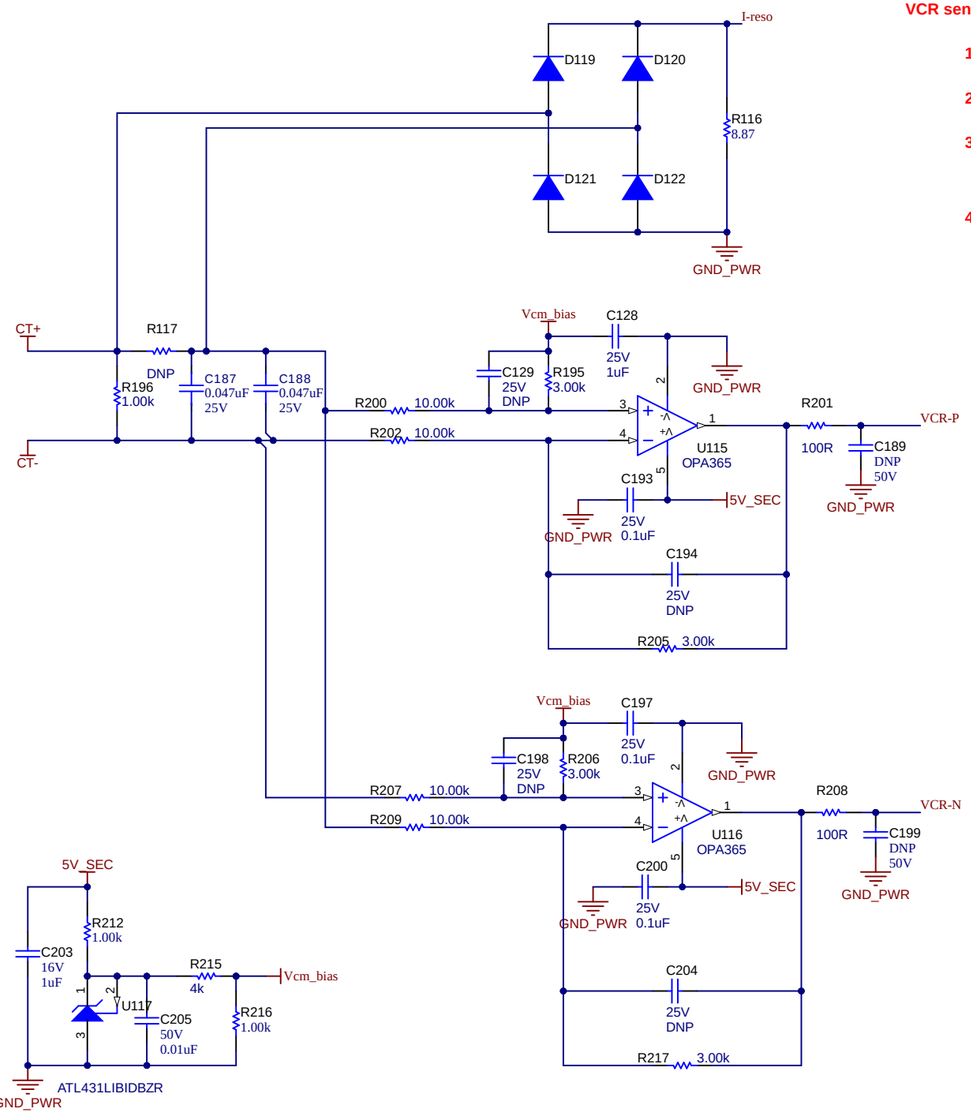

VCR sensing design process:

1, get the peak-peak voltage of the Cr (resonant CAP) @ min Vin and full load;

2, select the CT and its turn ratio N:1;

3, select Cs (sensing CAP) by keeping the CT within its volt-sec;

$$Vs\_pp = Vcr\_pp * Cr / (N*Cs)$$

4, select Ks (ratio of OPA circuits) to adjust the sensing volt to 2.0V max;

$$VCR\_sense\_p = Vcm + 0.5*Vcr\_pp * Cr / (N*Cs) * Ks$$

Min volt is clamped by Vcm, and Vcm is set at 0.5V by default.

Orderable: ChangeMe in variant		Designed for: Public Release	Mod. Date: 8/14/2023
TID #: N/A		Project Title: 400Vin, 12V 1KW HHC LLC with UCD3138 and F28	
Number: PMP40586	Rev: E2	Sheet Title: *	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 5 of 5
Drawn By:*		File: PCB_Project_PMP40586_CT_Connector.SchDoc	Size: B
Engineer: Morty Xu		Contact: http://www.ti.com/support	

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