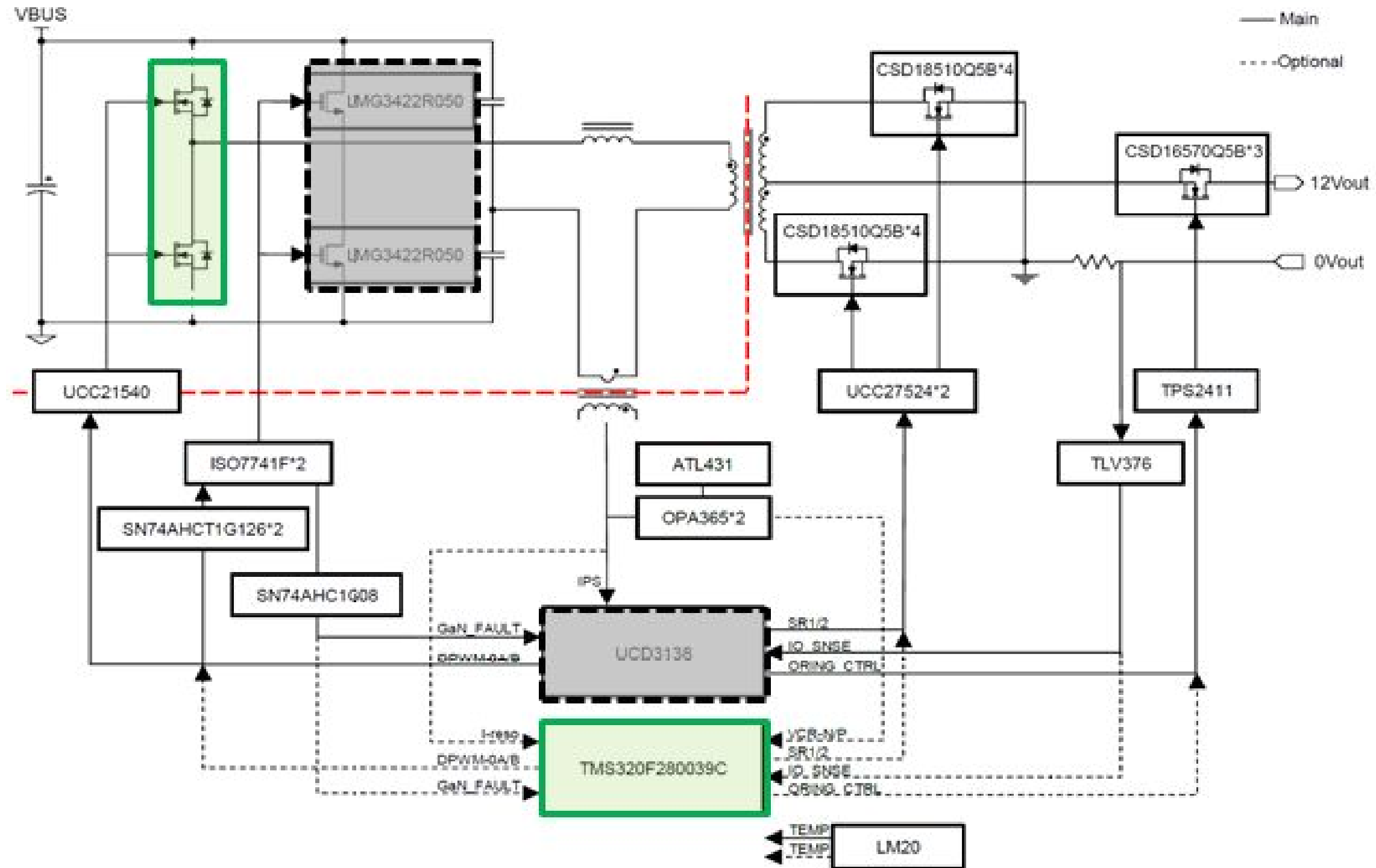


Revision History

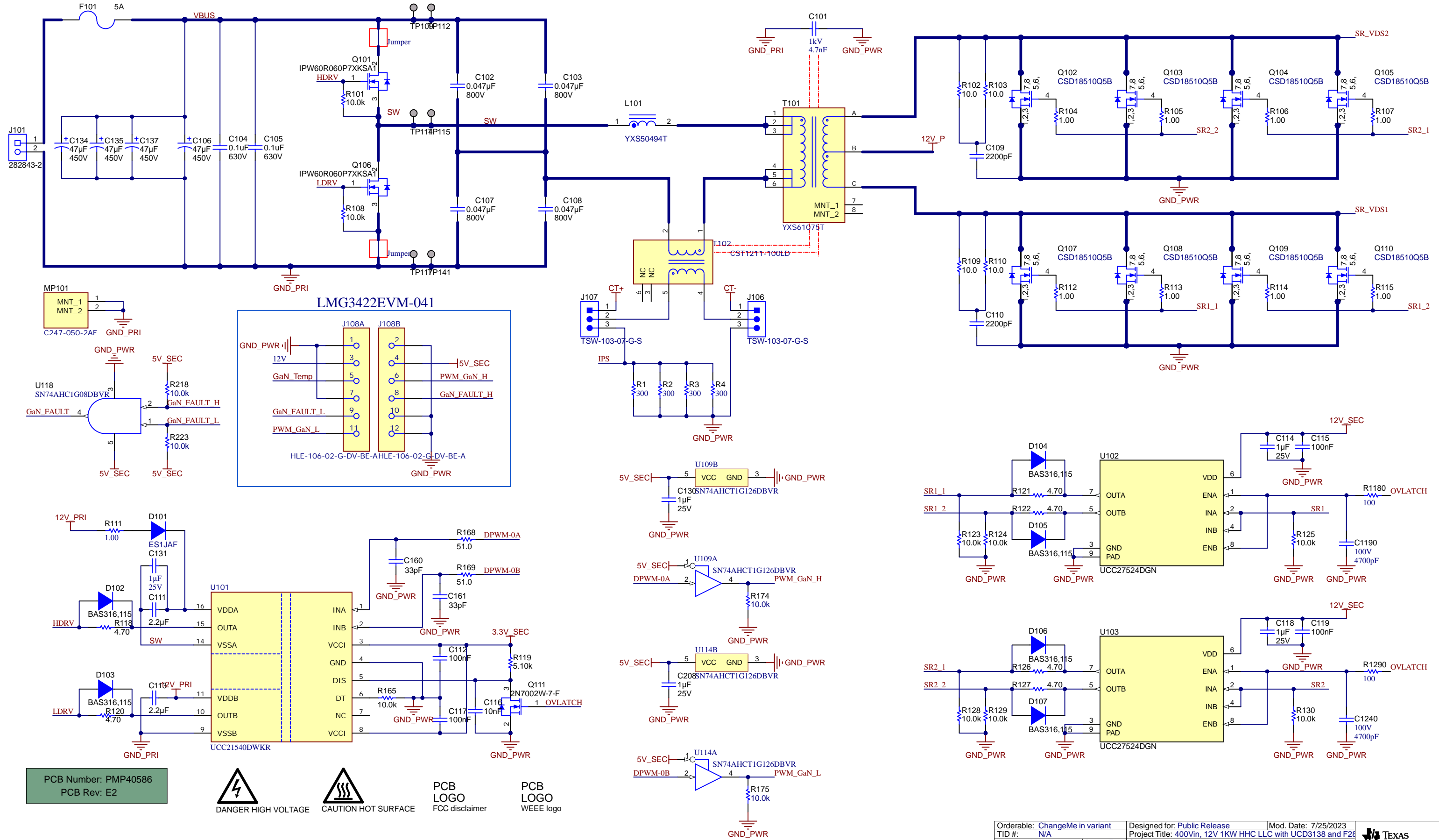
Rev	ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A	N/A



Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 8/14/2023	 http://www.ti.com © Texas Instruments 2023
TID #: N/A	Project Title: 400Vin, 12V 1KW HHC LLC with UCD3138 and F280039C		
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		

Input: 340-420VDC



PCB Number: PMP40586
 PCB Rev: E2



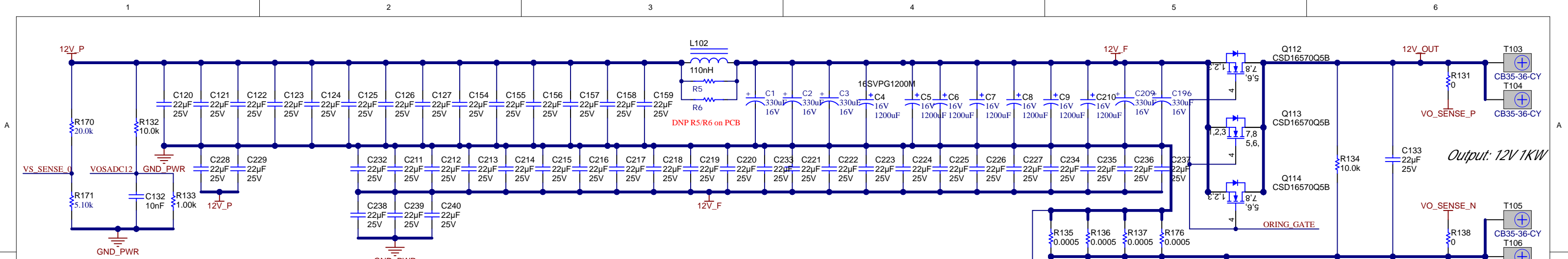
PCB LOGO
 FCC disclaimer

PCB LOGO
 WEEE logo

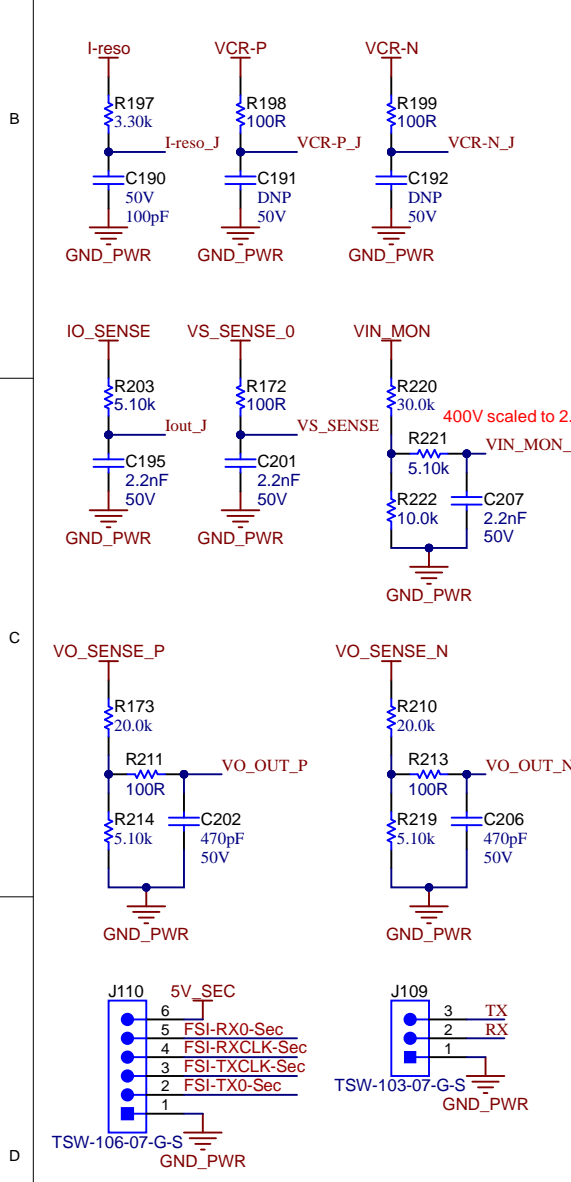
Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 7/25/2023
TID #: N/A	Project Title: 400Vin, 12V 1KW HHC LLC with UCDC3138 and F28	
Number: PMP40586	Rev: E2	Sheet: 2 of 5
SVN Rev: Not in version control	Assembly Variant: 001	File: PCB_Project_PMP40586_PowerStage.SchDoc
Drawn By:	Engineer: Morty Xu	Contact: http://www.ti.com/support



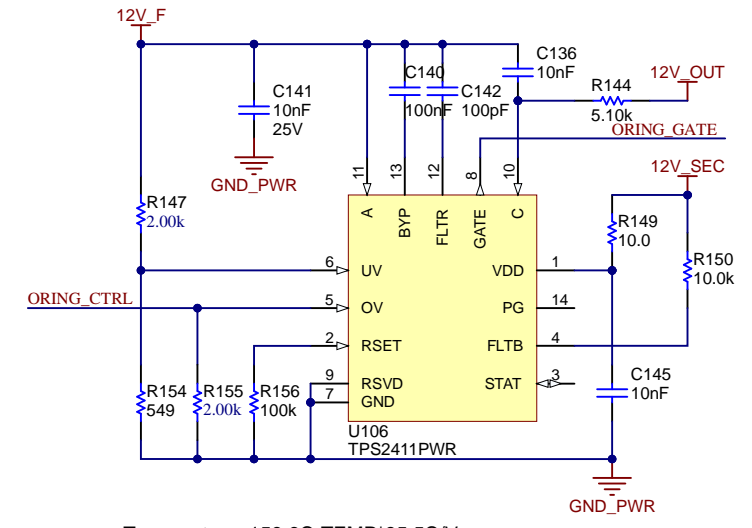
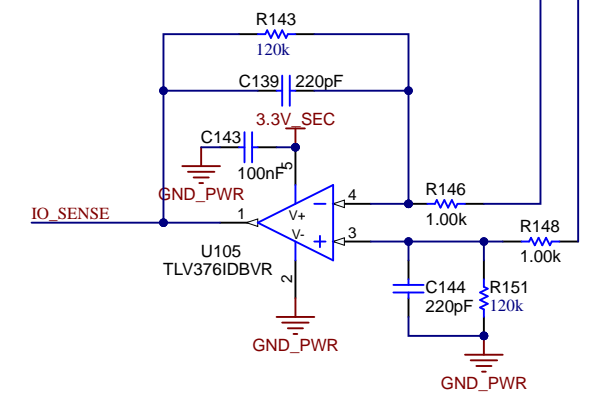


TMDSNCD280039C



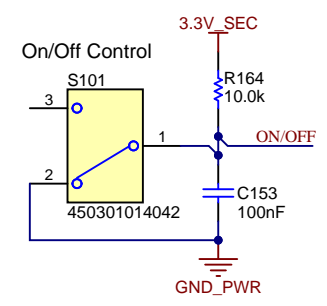
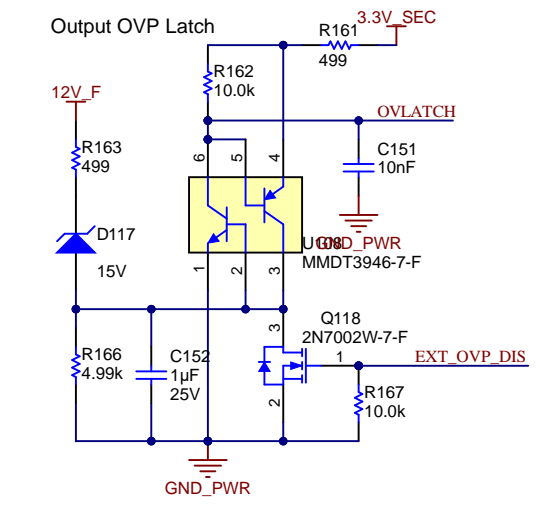
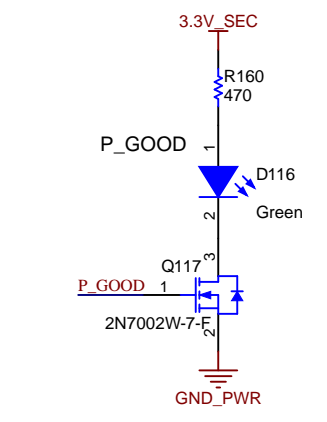
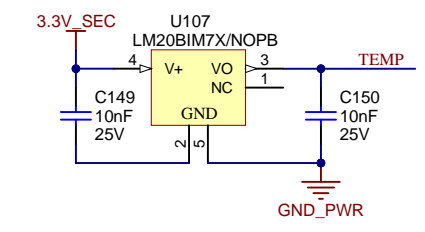
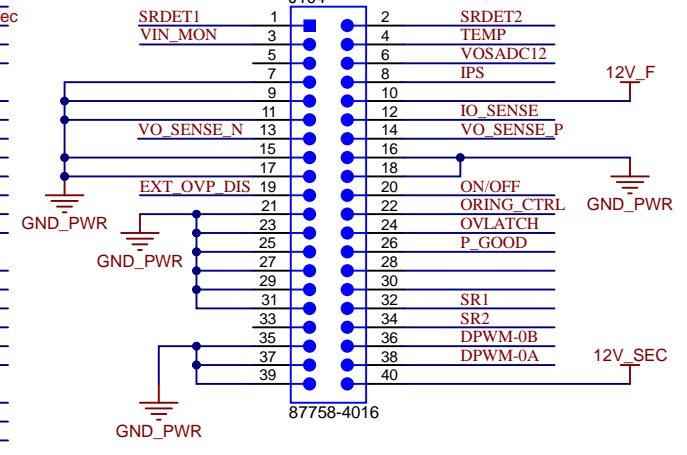
J105	1	JTAG_EMU1	2	JTAG_EMU0
	3	JTAG_TMS	4	JTAG_TRSTn
	5	JTAG_TCK	6	GPIO37#
	7		8	GPIO35#
	9	A0,B15,C15,DACA	10	
	11	A1,B7,DACB	12	B3,VDAC
	13		14	B2,C6
	15	A2,B6,C9	16	
	17	A4,B8	18	B12,C2
	19		20	B4,C8
	21	A5	22	
	23	A6	24	B11
	25	A10,B1,C10	26	B5
	27	A11,B10,C0	28	C1
	29		30	A8
	31	B0,C11	32	
	33	A7,C3	34	A9
	35		36	A14,B14,C4
	37	A12,C5	38	
	39	A3,B9,C7	40	C14
	41	VREFLO	42	
	43	VREFHI	44	
	45		46	
	47		48	
	49	DPWM-0A	50	PWM3A/GPIO-04
	51	DPWM-0B	52	PWM3B/GPIO-05
	53	SR1	54	PWM4A/GPIO-06
	55	SR2	56	PWM4B/GPIO-07
	57	PWM5A	58	PWM7A/GPIO-12
	59	PWM5B	60	PWM7B/GPIO-13
	61	PWM6A/GPIO-10	62	PWM8A/GPIO-14
	63	PWM6B/GPIO-11	64	PWM8B/GPIO-15
	65		66	
	67	OVLATCH	68	GPIO-20
	69	EXT_OVP_DIS	70	GPIO-21
	71		72	GPIO-22
	73	GPIO-19/X1	74	GPIO-23
	75	GPIO-24#	76	SCIRXA/UARTTX/GPIO-28
	77	GPIO-25#	78	SCITXA/UARTTX/GPIO-29
	79	FSI-TX0-Sec	80	GPIO-30
	81	FSI-TXCLK-Sec	82	GPIO-31
	83		84	
	85	ORING_CTRL	86	GPIO-34
	87		88	GPIO-37/TDO
	89		90	GPIO-35/TDI
	91		92	GPIO-44
	93		94	GPIO-58
	95		96	GPIO-60
	97		98	
	99		100	GPIO-54
	101		102	GPIO-55
	103		104	GPIO-56
	105		106	GPIO-57
	107		108	GPIO-61
	109		110	
	111		112	
	113		114	
	115		116	
	117		118	MCU_1V2
	119		120	XRSn

100A scaled to 1.5V Output Current Sense

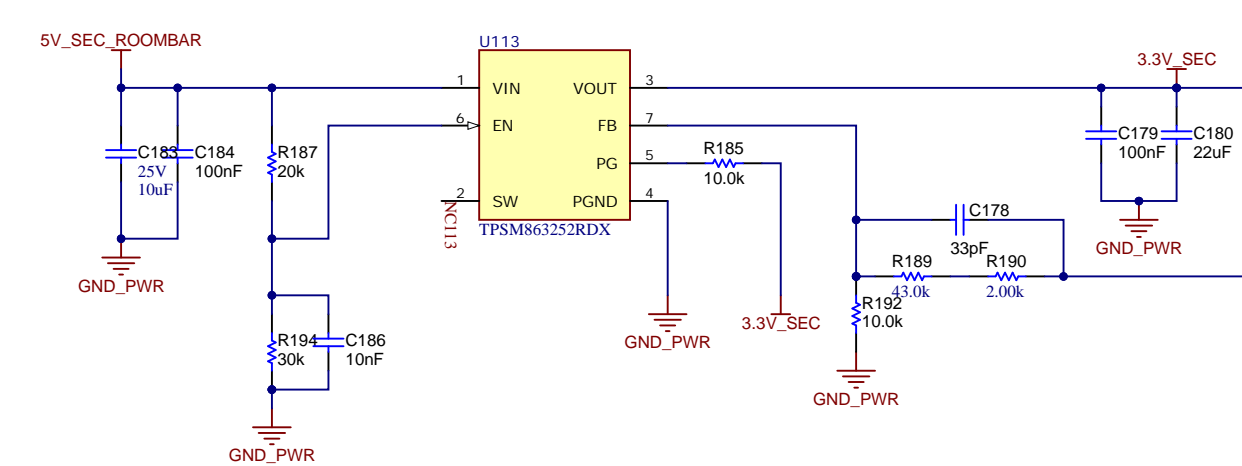
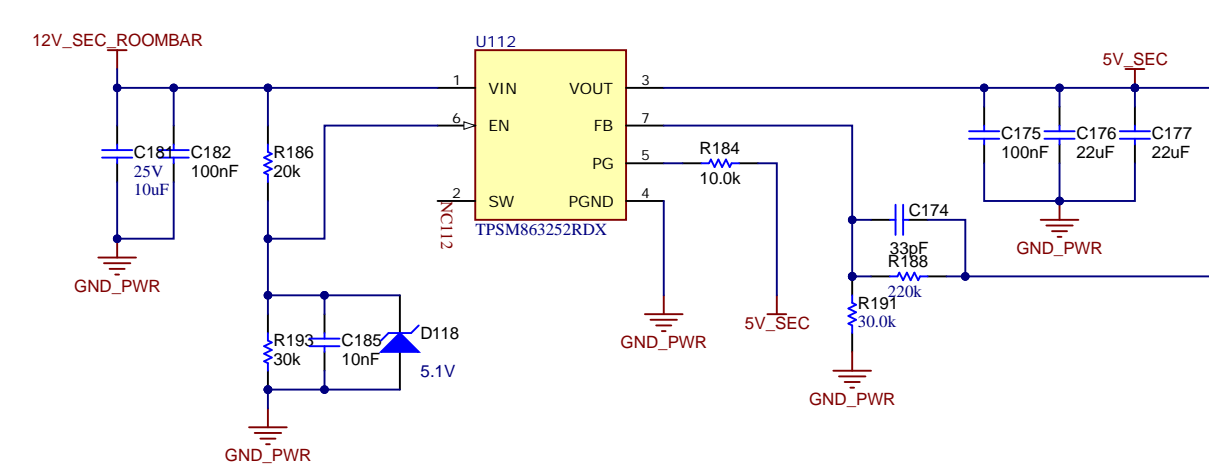
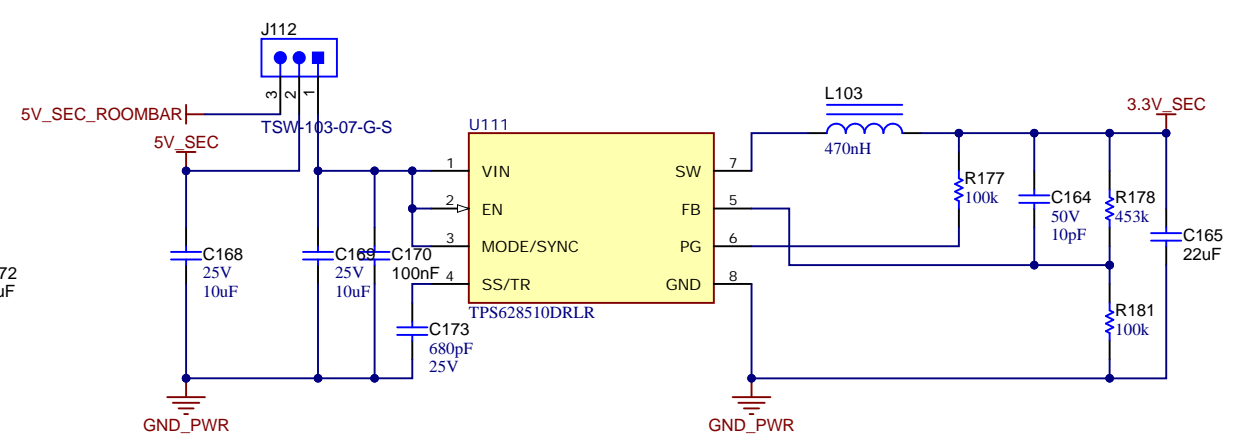
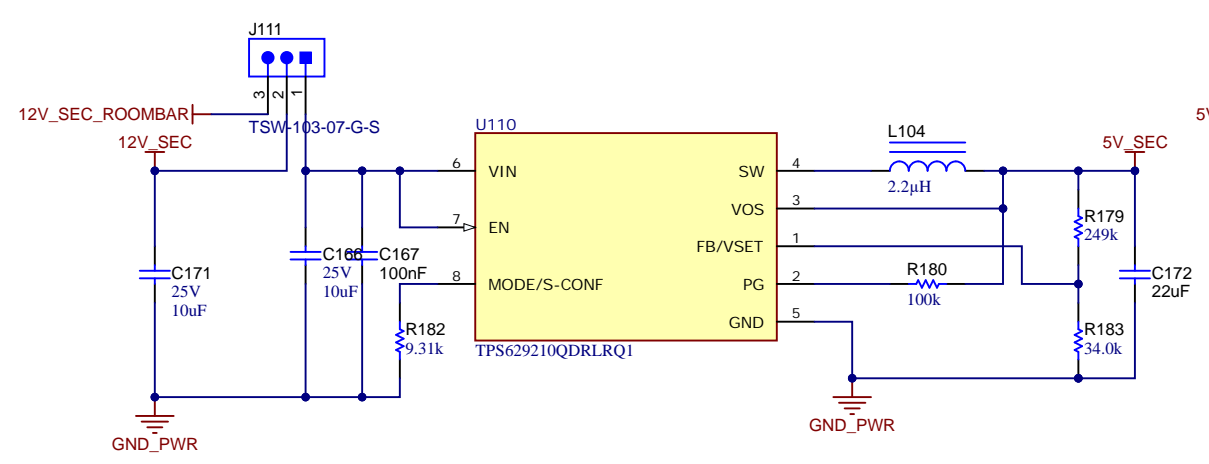
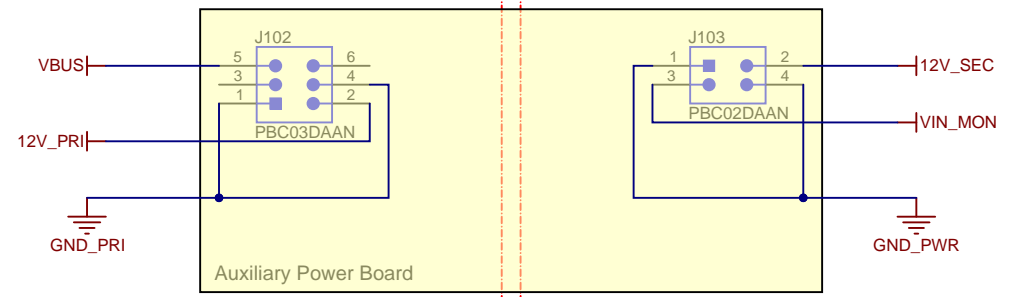


Temperature=159.6C-TEMP*85.5C/V

UCD CONNECTOR

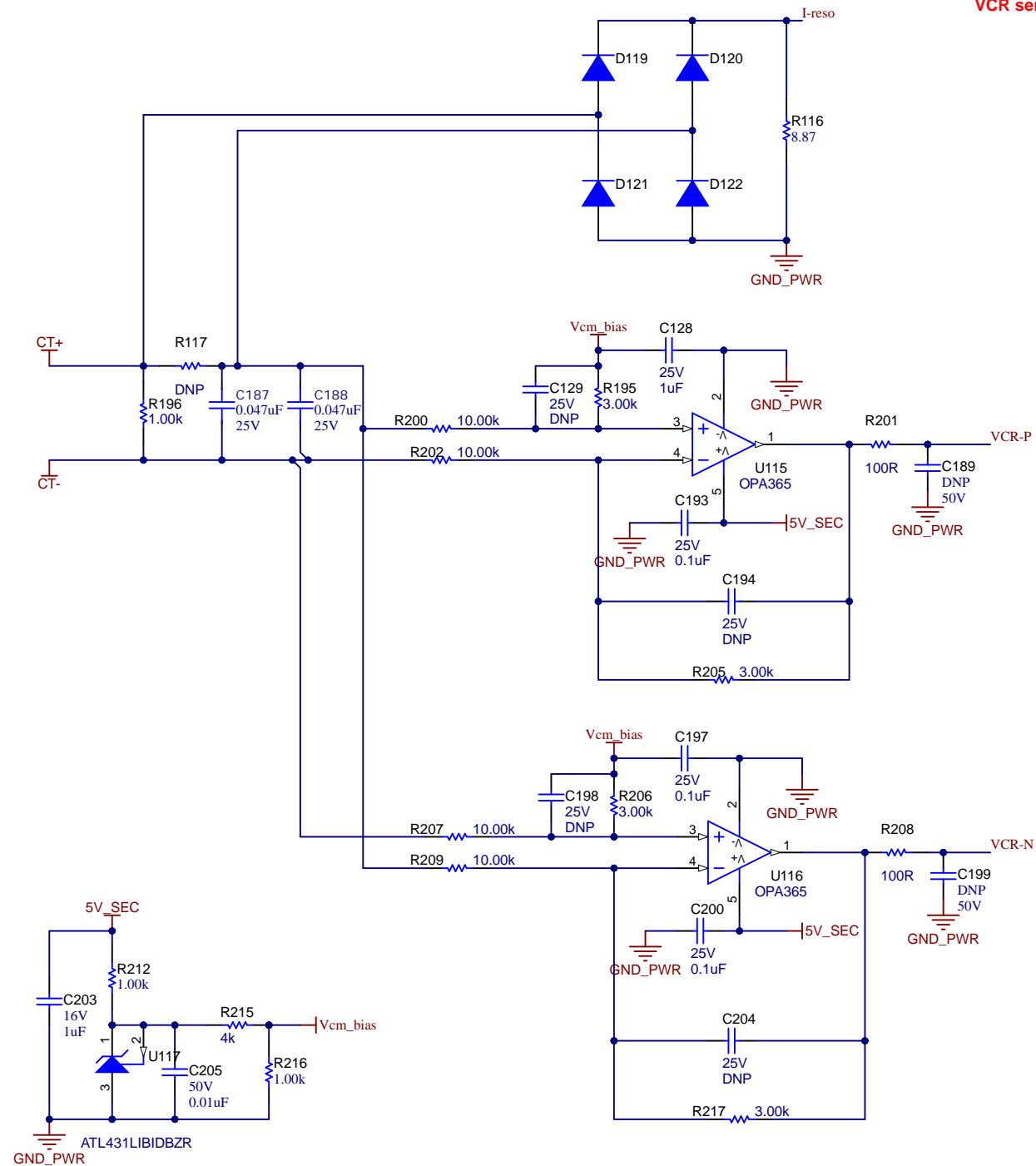


Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.



Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

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	Sheet Title: *	
Number: PMP40586	Rev: E2	Assembly Variant: 001	Sheet: 4 of 5
SVN Rev: Not in version control	File: PCB_Project_PMP40586_Bias.SchDoc	Size: B	http://www.ti.com
Drawn By: *	Engineer: Morty Xu	Contact: http://www.ti.com/support	© Texas Instruments 2023



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;

$$V_{s_pp} = V_{cr_pp} * Cr / (N * Cs)$$

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

$$V_{CR_sense_p} = V_{cm} + 0.5 * V_{cr_pp} * Cr / (N * Cs) * K_s$$

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

Texas Instruments and/or its licensors do not warrant the accuracy or completeness of this specification or any information contained therein. Texas Instruments and/or its licensors do not warrant that this design will meet the specifications, will be suitable for your application or fit for any particular purpose, or will operate in an implementation. Texas Instruments and/or its licensors do not warrant that the design is production worthy. You should completely validate and test your design implementation to confirm the system functionality for your application.

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	

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](https://www.ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2023, Texas Instruments Incorporated