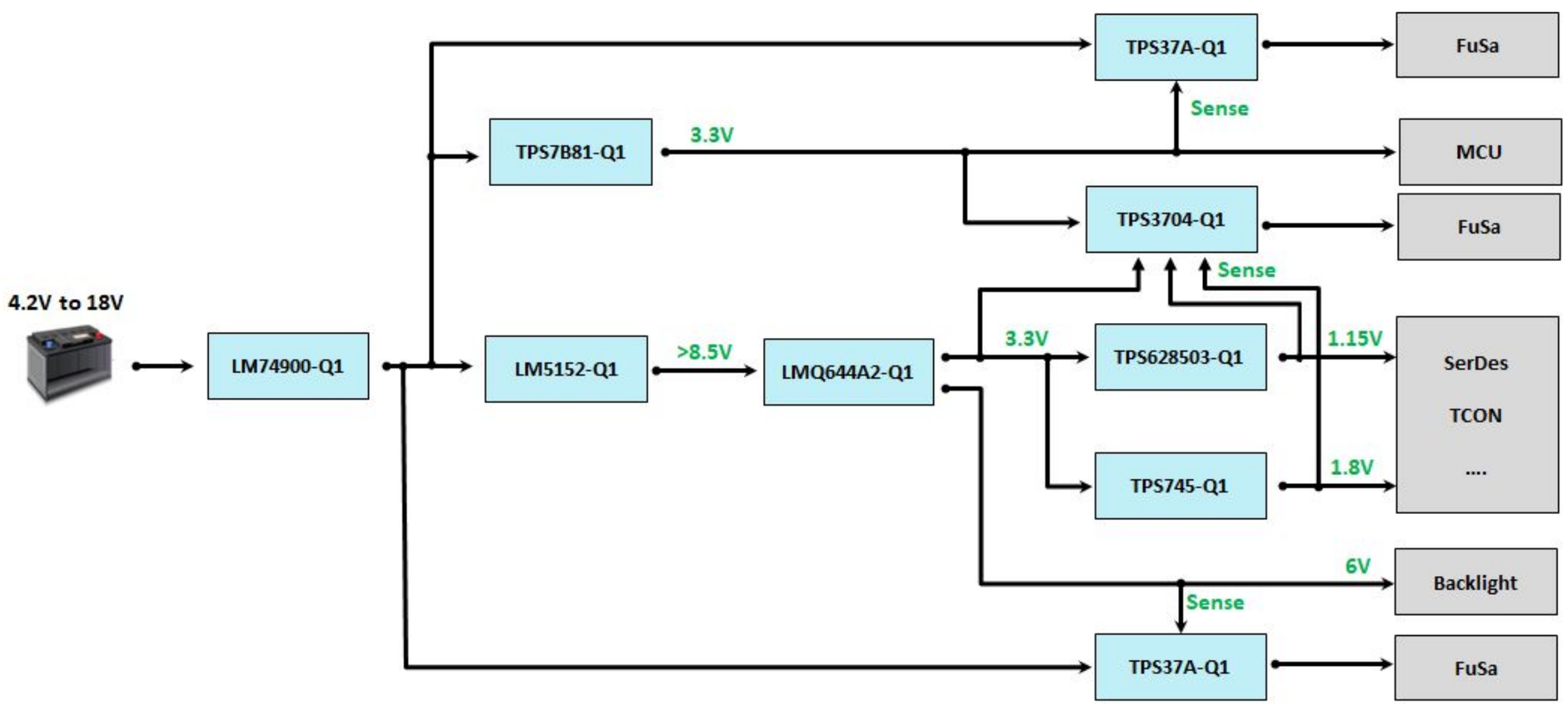
Revision History				
Rev	ECN #	Approved Date	Approved by	Notes
N/A	N/A	N/A	N/A	N/A



Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 1/15/2024
TID #: N/A	Project Title: PMP41085	
Number: PMP41085 Rev: A	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 1 of 8
Drawn By: Roy Chou	File: Functional block diagram.SchDoc	Size: B
Engineer: Roy Chou	Contact: http://www.ti.com/support	

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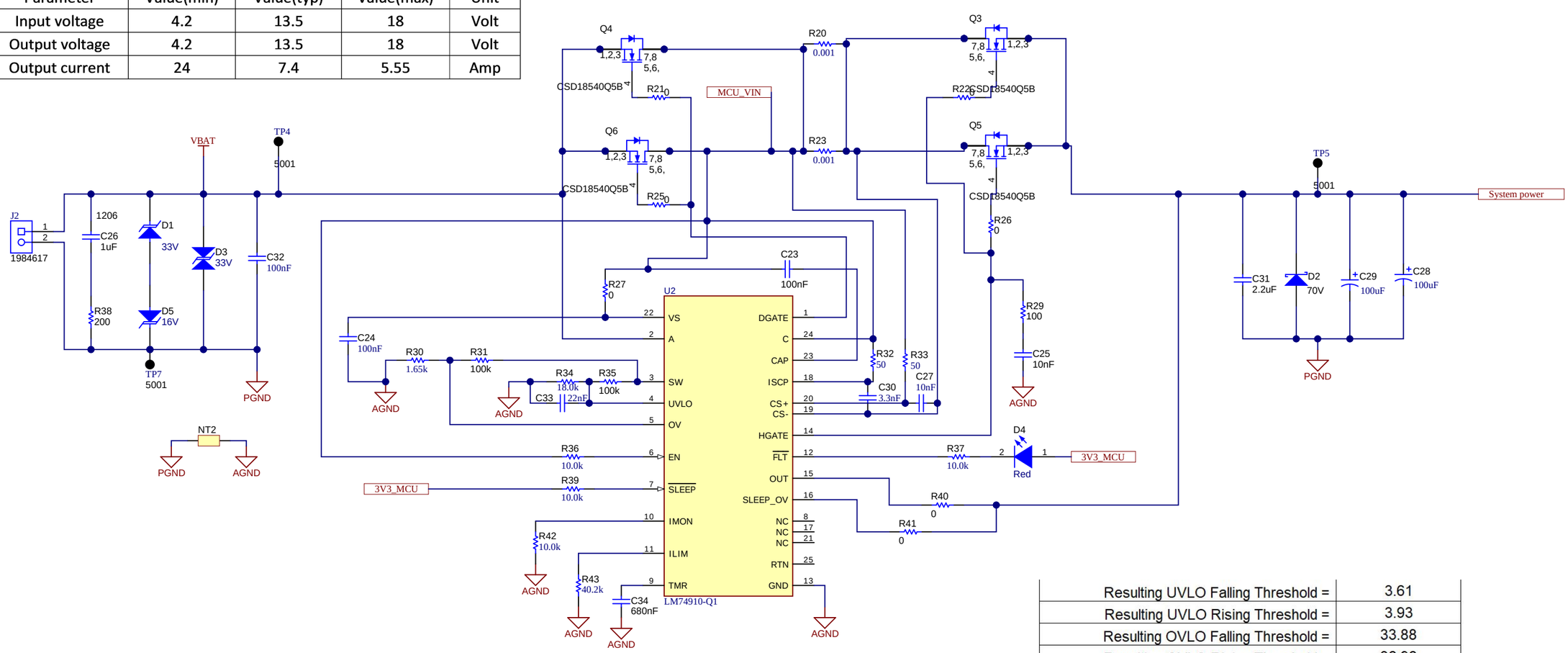
Device	Parameter	Value(min)	Value(typ)	Value(max)	Unit
LM74900-Q1	Input voltage	4.2	13.5	18	Volt
	Output voltage	4.2	13.5	18	Volt
	Output current	24	7.4	5.55	Amp



Resulting UVLO Falling Threshold =	3.61
Resulting UVLO Rising Threshold =	3.93
Resulting OVLO Falling Threshold =	33.88
Resulting OVLO Rising Threshold =	36.96

Enter the Value of Sense Resistor R_{SNS}	0.5	mΩ
Enter value of R_{SET}	50	Ω
Suggested value of R_{ILIM}	48.00	kΩ
Enter R_{ILIM}	40.20	kΩ
Resulting Minimum Current Limit	26.9	A
Resulting Typical Current Limit	29.9	A
Resulting Maximum Current Limit	32.8	A

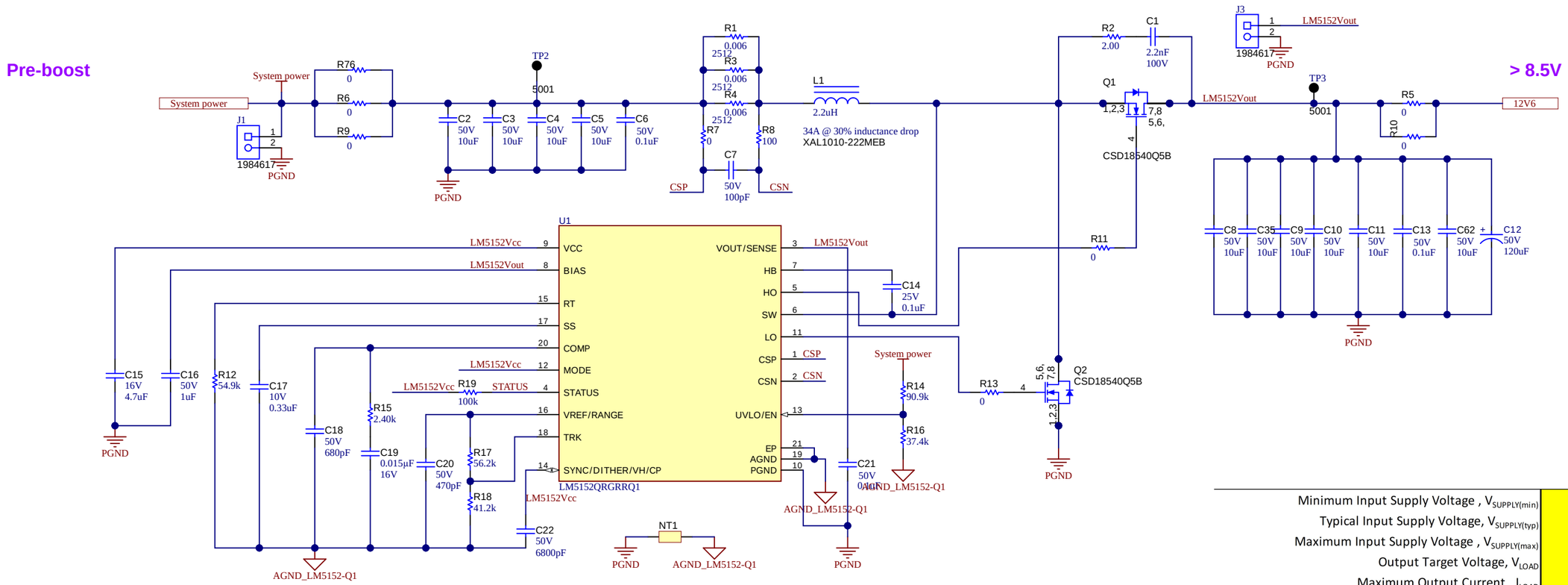
9.3.3.4 Analog Current Monitor Output (IMON)

LM749x0 features analog load current monitor output (IMON) with adjustable gain. The resistor connected from IMON pin to ground sets the current monitor output voltage given by Equation 7.

$$V_{IMON} = \frac{0.9 \times V_{SENSE} \times R_{IMON}}{R_{SET}} \quad (7)$$

Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 1/15/2024
TID #: N/A	Project Title: PMP41085	
Number: PMP41085 Rev: A	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 2 of 8
Drawn By:	File: LM74900-Q1.SchDoc	Size: B
Engineer: Roy Chou	Contact: http://www.ti.com/support	

Device	Parameter	Value(min)	Value(typ)	Value(max)	Unit
LM5152-Q1	Input voltage	4.2	13.5	18	Volt
	Output voltage	8.5	13.5	18	Volt
	Output voltage	11.76	7.4	5.55	Volt
	Switching frequency		440		kHz



Minimum Input Supply Voltage , $V_{SUPPLY(min)}$	4.2	V
Typical Input Supply Voltage, $V_{SUPPLY(typ)}$	13.5	V
Maximum Input Supply Voltage , $V_{SUPPLY(max)}$	28	V
Output Target Voltage, V_{LOAD}	8.5	V
Maximum Output Current , I_{LOAD}	12.00	A
Light load operation switching mode	FPWM	
Free Running Switching Frequency, F_{SW}	400	kHz
Free running Oscillator Set Resistor, R_T	54.30	kΩ
Output Power, P_{OUT}	102.0	W
Boost Converter Duty Cycle Limit of LM5152 at $V_{SUPPLY(MIN)}$	88.0	%
Ideal Duty Cycle at $V_{SUPPLY(MIN)}$	50.6	%

Peak Current Limit Margin	5	%
Selected Peak Current limit(IL_{PK_select})	28.11	A
Recommended current sense Resistor (R_S)	2.13	mΩ
Selected current sense Resistor (R_S)	2	mΩ
Actual inductor peak current limit	30.00	A

Desired voltage On (V_{UVLO_ON})	4	V
Desired voltage OFF (V_{UVLO_OFF})	3.5	V
Calculated top UVLO resistor value (R_{UVT_CALC})	40.91	kΩ
Selected top UVLO resistor value (R_{UVLOT})	90.9	kΩ
Bottom UVLO Resistor (R_{UVLOB})	34.479	kΩ

Switching mode at $V_{SUPPLY(min)}$	CCM	
Desired Maximum Inductor Current Ripple Ratio	20	%
Recommended Inductance (L_{M_CALC})	1.312	uH
User Selection. Inductance, (L_M)	2.2	uH
Max Inductor DCR, R_{DCR}	2.8	mΩ
Peak inductor current, IL_{PK}	25.49	A

Orderable: ChangeMe in variant		Designed for: Public Release	Mod. Date: 12/22/2023
TID #: N/A		Project Title: PMP41085	
Number: PMP41085	Rev: A	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 3 of 8
Drawn By:		File: LM5152-Q1.SchDoc	Size: B
Engineer: Roy Chou		Contact: http://www.ti.com/support	

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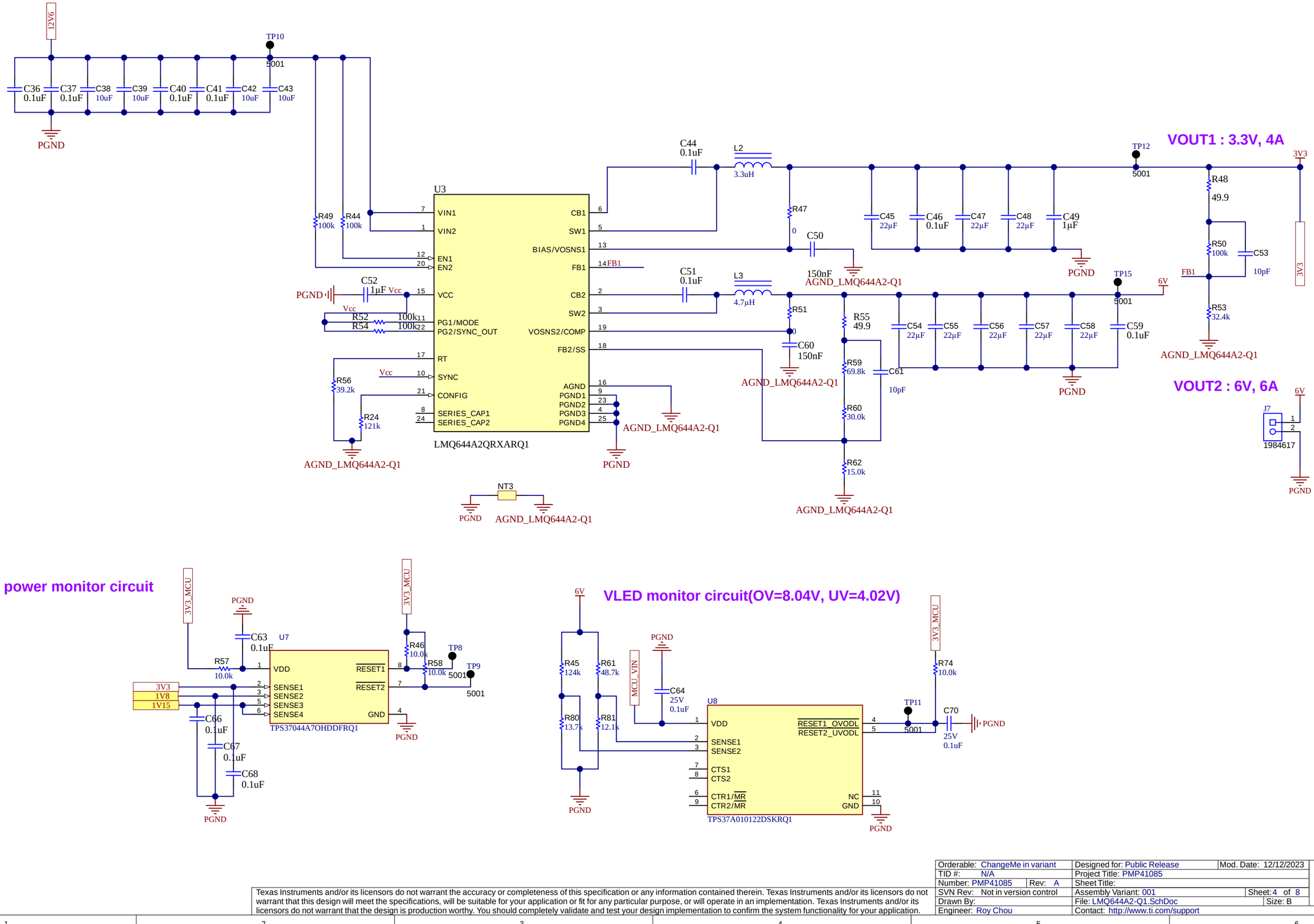
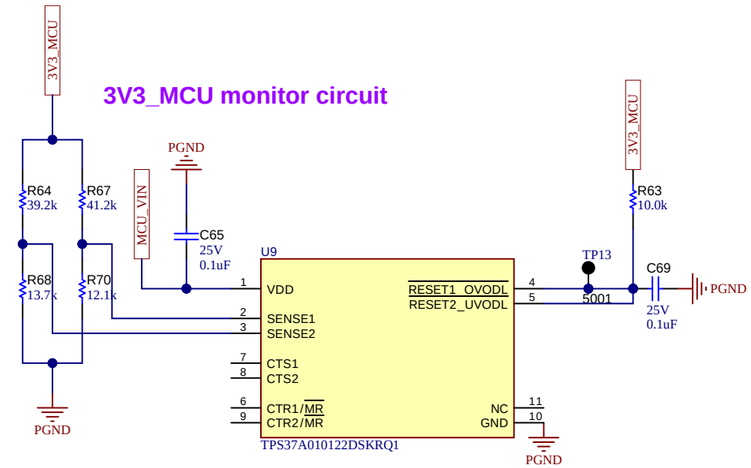
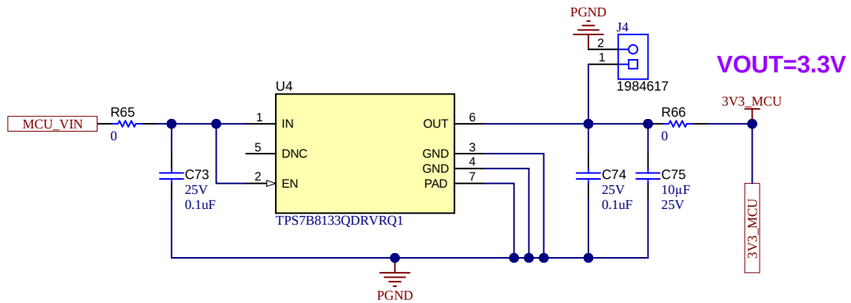


System power monitor circuit

VLED monitor circuit(OV=8.04V, UV=4.02V)

Orderable: ChangeMe in variant		Designed for: Public Release	Mod. Date: 12/12/2023
TID #: N/A		Project Title: PMP41085	
Number: PMP41085	Rev: A	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 4 of 8
Drawn By:		File: LMQ644A2-Q1.SchDoc	Size: B
Engineer: Roy Chou		Contact: http://www.ti.com/support	





Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 11/10/2023
TID #: N/A	Project Title: PMP41085	
Number: PMP41085 Rev: A	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 5 of 8
Drawn By:	File: TPS7B8133-Q1.SchDoc	Size: B
Engineer: Roy Chou	Contact: http://www.ti.com/support	

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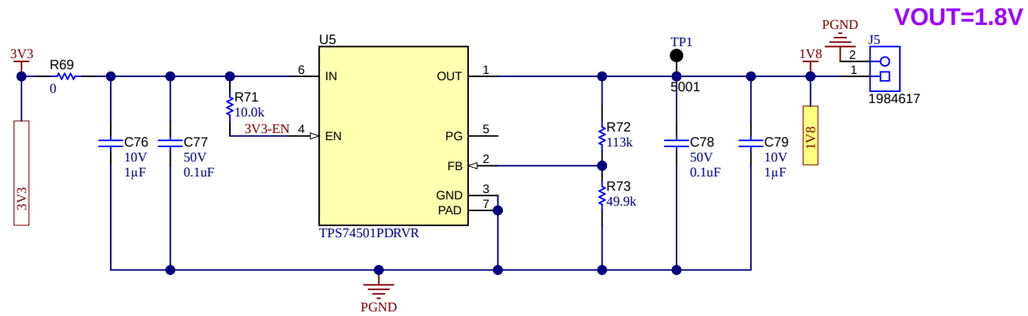

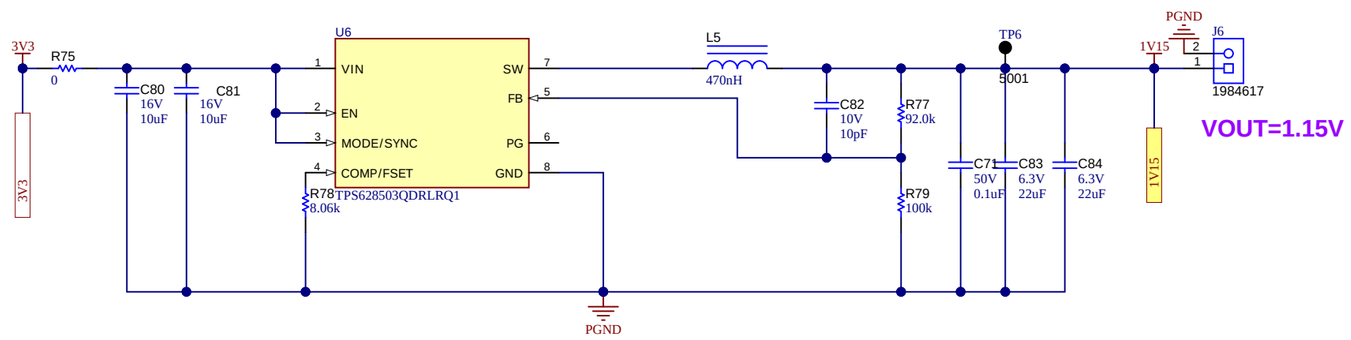

Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 11/10/2023
TID #: N/A	Project Title: PMP41085	
Number: PMP41085 Rev: A	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 6 of 8
Drawn By:	File: TPS745-Q1&TPS628503-Q1.SchDoc	Size: B
Engineer: Roy Chou	Contact: http://www.ti.com/support	

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H1 1 NY PMS 440 0025 PH

H2 1 NY PMS 440 0025 PH

H3 1 NY PMS 440 0025 PH

H4 1 NY PMS 440 0025 PH

H5 1902C

H6 1902C

H7 1902C

H8 1902C

PCB Number: PMP41085
PCB Rev: A

PCB LOGO
FCC disclaimer

PCB LOGO
WEEE logo

You should delete the nylon screws/standoffs and/or the bumpons as needed for your design (or substitute other parts from Hardware.IntLib). Bumpons are cheaper, but provide less clearance.

Deleting anything else from this page may result in your EVM submission being rejected (until you add them back).

Update the Label Text in the Label Table as needed for each Assembly Variant.

You should delete this note too.

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

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.

Orderable: ChangeMe in variant		Designed for: Public Release	Mod. Date: 11/23/2023
TID #: N/A		Project Title: PMP41085	
Number: PMP41085	Rev: A	Sheet Title:	
SVN Rev: Not in version control		Assembly Variant: 001	Sheet: 7 of 8
Drawn By:		File: PMP41085_Hardware.SchDoc	Size: B
Engineer: Roy Chou		Contact: http://www.ti.com/support	

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Device	Parameter	Value(min)	Value(typ)	Value(max)	Unit
LM74900-Q1	Input voltage	4.2	13.5	18	Volt
	Output voltage	4.2	13.5	18	Volt
	Output current	24	7.4	5.55	Amp
LM5152-Q1	Input voltage	4.2	13.5	18	Volt
	Output voltage	8.5	13.5	18	Volt
	Output current	11.76	7.4	5.55	Amp
	Switching frequency		440		kHz
TPS7B8133-Q1	Input voltage	4.2	13.5	18	Volt
	Output voltage		3.3		Volt
	Output current		150m		Amp
LMQ644A2-Q1	Input voltage	8.5	13.5	18	Volt
	Output voltage_1		3.3		Volt
	Output current_1		4		Amp
	Output voltage_2		6		Volt
	Output current_2		6		Amp
	Switching frequency		440		kHz
TPS628503-Q1	Input voltage		3.3		Volt
	Output voltage		1.15		Volt
	Output current		3		Amp
	Switching frequency		2200		kHz
TPS745-Q1	Input voltage		3.3		Volt
	Output voltage		1.8		Volt
	Output current		0.5		Amp

Orderable: ChangeMe in variant	Designed for: Public Release	Mod. Date: 12/28/2023
TID #: N/A	Project Title: PMP41085	
Number: PMP41085 Rev: A	Sheet Title:	
SVN Rev: Not in version control	Assembly Variant: 001	Sheet: 8 of 8
Drawn By:	File: Condition.SchDoc	Size: B
Engineer: Roy Chou	Contact: http://www.ti.com/support	

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