

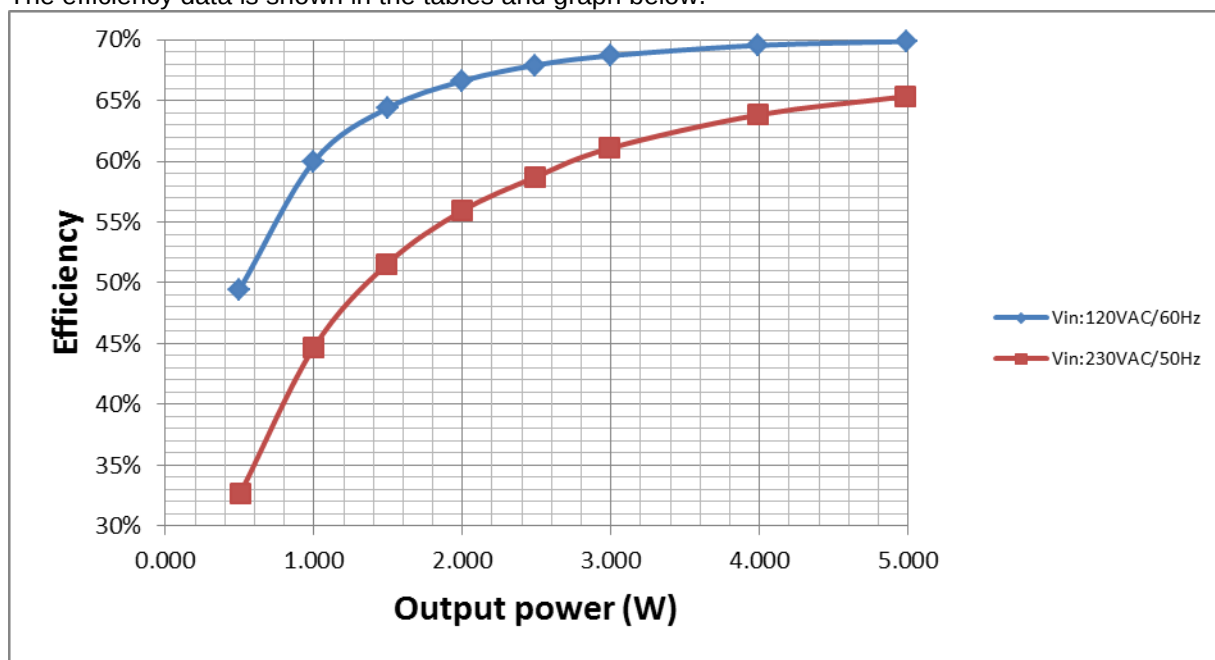
The photographs below show the PMP10834 Rev A assembly. This circuit was built on a PMP10834 Rev A PCB.

The image shows a green PCB populated with various electronic components. Key components include:

- Power Transformer:** A large black transformer with "473E" and "Coilcraft D" printed on it.
- Rectifier Bridge:** A black bridge rectifier with "50A" and "100V" markings.
- Capacitors:** Several electrolytic capacitors, including a large one labeled "470" and "337" (likely 470µF and 337µF), and smaller ones labeled "C1", "C2", "C3", "C4", "C5", "C6", "C7", "C8", "C9", "C10", "C11", "C12", "C13", "C14", "C15", "C16", "C17", "C18", "C19", "C20", "C21", "C22", "C23", "C24", "C25", "C26", "C27", "C28", "C29", "C30", "C31", "C32", "C33", "C34", "C35", "C36", "C37", "C38", "C39", "C40", "C41", "C42", "C43", "C44", "C45", "C46", "C47", "C48", "C49", "C50", "C51", "C52", "C53", "C54", "C55", "C56", "C57", "C58", "C59", "C60", "C61", "C62", "C63", "C64", "C65", "C66", "C67", "C68", "C69", "C70", "C71", "C72", "C73", "C74", "C75", "C76", "C77", "C78", "C79", "C80", "C81", "C82", "C83", "C84", "C85", "C86", "C87", "C88", "C89", "C90", "C91", "C92", "C93", "C94", "C95", "C96", "C97", "C98", "C99", "C100", "C101", "C102", "C103", "C104", "C105", "C106", "C107", "C108", "C109", "C110", "C111", "C112", "C113", "C114", "C115", "C116", "C117", "C118", "C119", "C120", 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2 Converter Efficiency

The efficiency data is shown in the tables and graph below.



$V_{in}=120V_{AC}/60HZ$

Vin(ac)	Iin(A)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Eff. (%)
120.13	0.15404	7.143	4.990	1.00	4.990	69.86%
120.20	0.12794	5.741	4.990	0.80	3.992	69.53%
120.01	0.10192	4.366	4.990	0.60	2.999	68.69%
120.03	0.08838	3.667	4.990	0.50	2.490	67.90%
120.04	0.07562	3.004	4.990	0.40	2.001	66.61%
120.06	0.06258	2.325	4.990	0.30	1.497	64.39%
120.07	0.04858	1.664	4.990	0.20	0.998	59.98%
120.08	0.03089	1.009	4.990	0.10	0.499	49.45%
120.09	0.02117	0.666	4.990	0.05	0.235	35.21%
120.09	0.01003	0.286	4.990	0.00	0.000	0.00%

V_{in}=230V_{AC}/50Hz

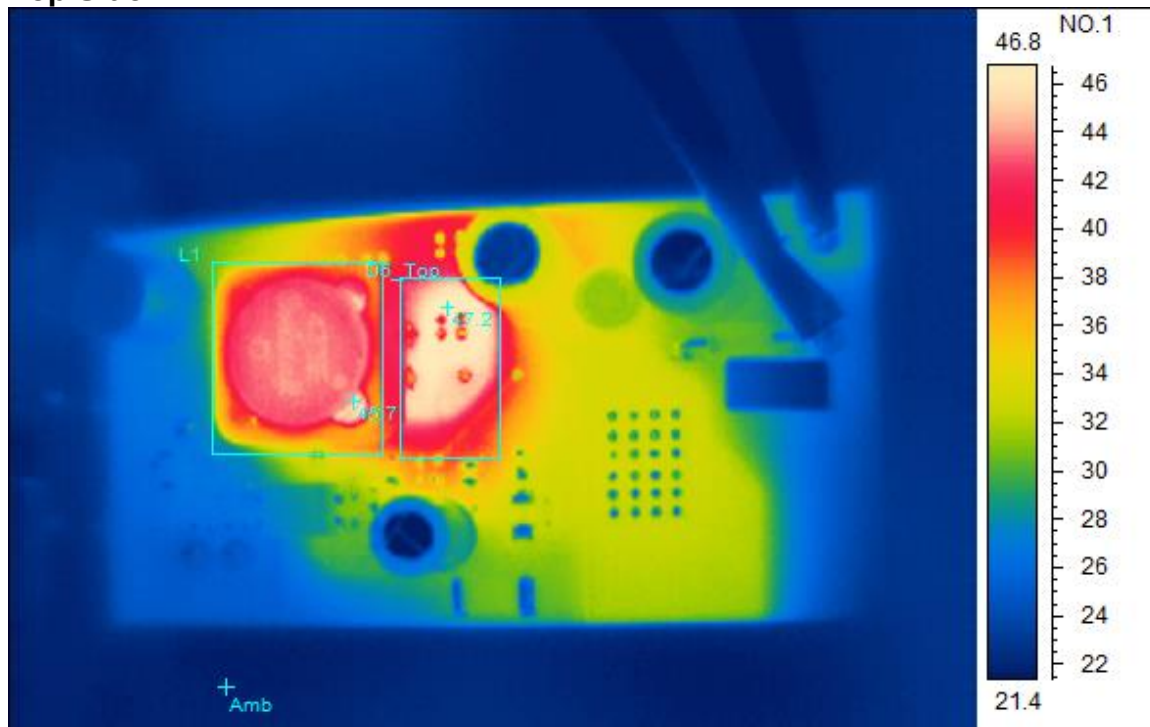
Vin(ac)	Iin(A)	Pin(W)	Vo1(V)	Io1(A)	Pout(W)	Eff. (%)
230.00	0.10347	7.630	4.980	1.00	4.985	65.33%
230.00	0.08907	6.255	4.990	0.80	3.992	63.82%
230.00	0.07421	4.895	4.990	0.60	2.989	61.06%
230.00	0.06681	4.242	4.990	0.50	2.490	58.70%
230.10	0.05829	3.570	4.990	0.40	1.996	55.91%
230.10	0.04841	2.894	4.990	0.30	1.492	51.56%
230.10	0.03831	2.234	4.990	0.20	0.998	44.67%
230.10	0.02757	1.542	4.990	0.10	0.504	32.68%
230.10	0.01839	0.999	4.990	0.05	0.254	25.47%
230.10	0.00845	0.401	4.990	0.00	0.000	0.00%

3 Thermal Images

The thermal images below show a top view and bottom view of the board under 120V_{AC}/60Hz and 230V_{AC}/50Hz input conditions. The ambient temperature was 20°C with no forced air flow.

V_{in}=120V_{AC}/60Hz, V_{out}=5V/1A

Top Side



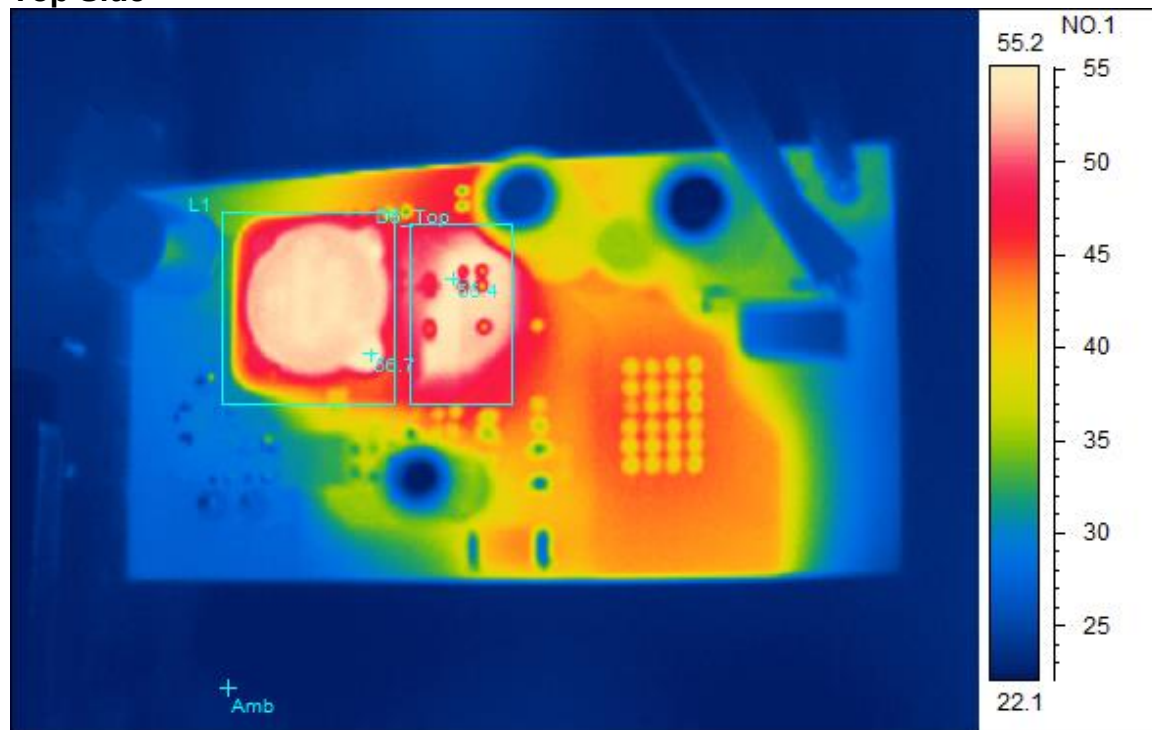
Spot analysis	Value
Amb Temperature	21.6°C
Area analysis	Value
L1 Max	45.7°C
D5_TopMax	47.2°C

$V_{in}=120V_{AC}/60Hz$, $V_{out}=5V/1A$ **Bottom Side**

Spot analysis	Value
Amb Temperature	24.7°C
Area analysis	Value
Q1Max	39.7°C
D5 Max	60.7°C

$V_{in}=230V_{AC}/50Hz$, $V_{out}=5V/1A$

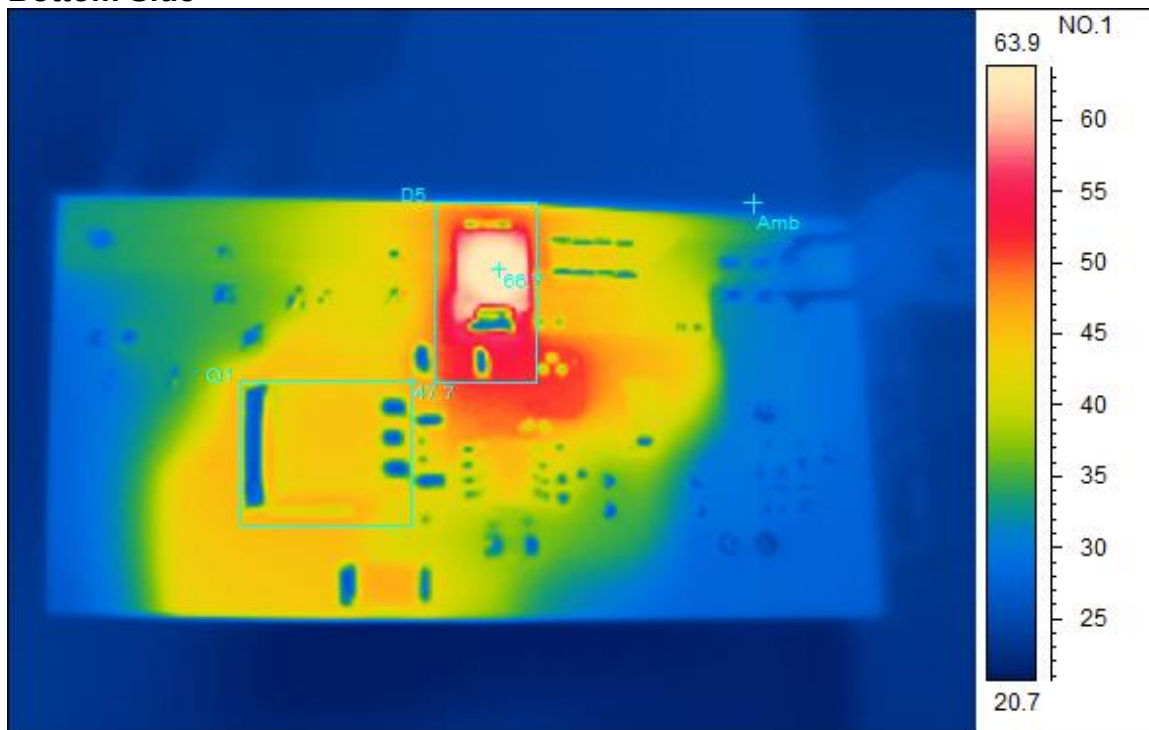
Top Side



Spot analysis	Value
Amb Temperature	22.7°C
Area analysis	Value
L1 Max	56.7°C
D5_TopMax	55.4°C

$V_{in}=230V_{AC}/50Hz$, $V_{out}=5V/1A$

Bottom Side

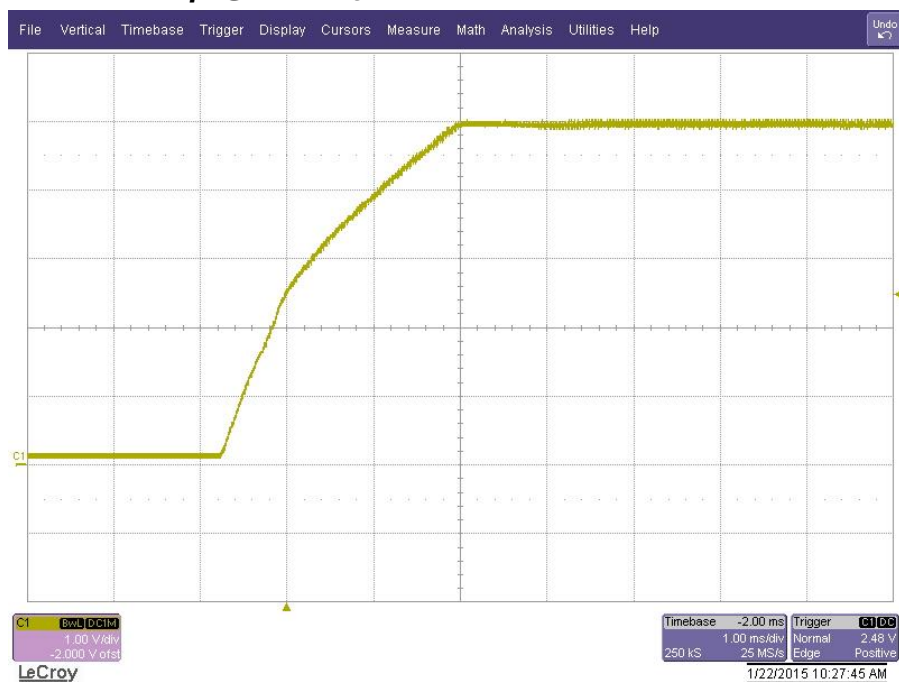


Spot analysis	Value
Amb Temperature	26.3°C
Area analysis	Value
Q1Max	47.7°C
D5 Max	66.7°C

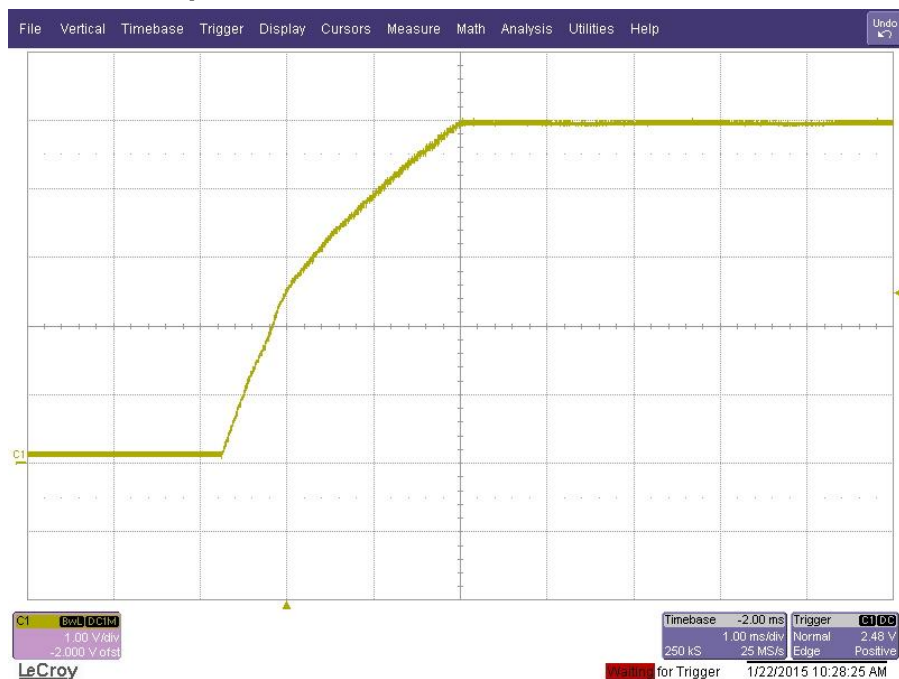
4 Startup Waveforms

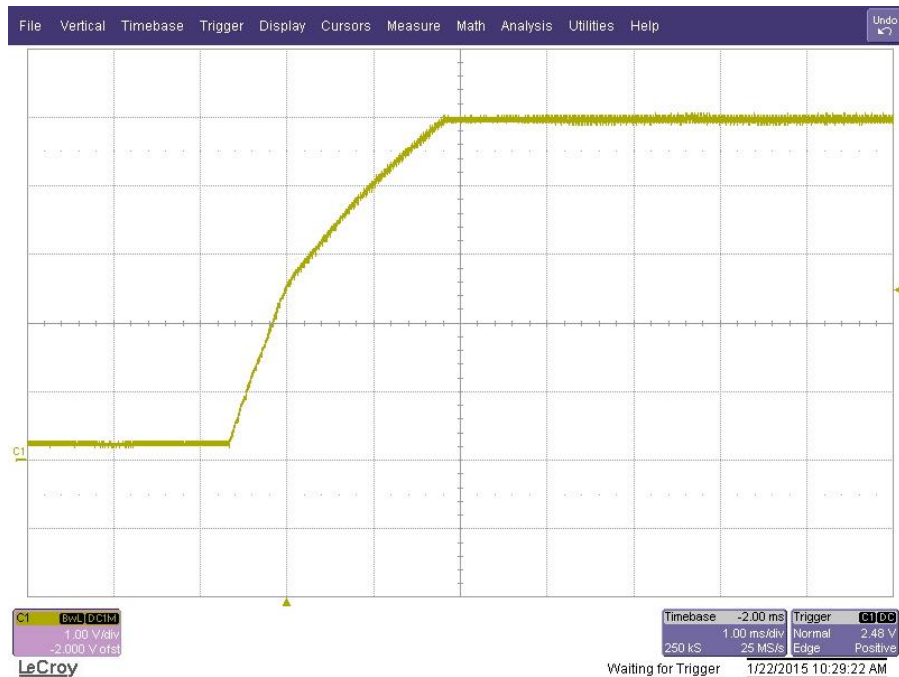
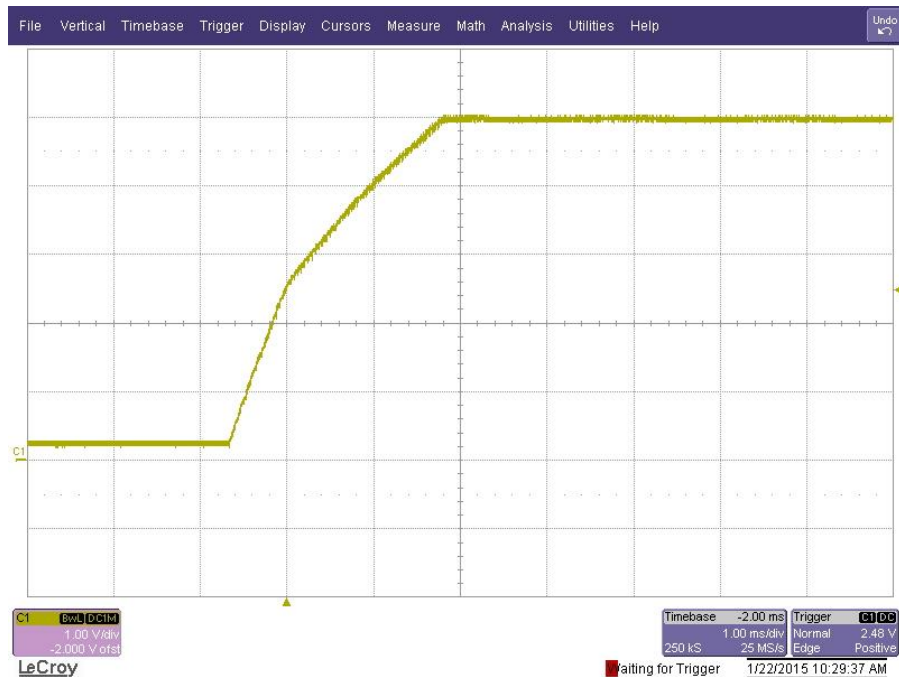
The output voltages at startup with constant current load are shown in the images below.

4.1 Start Up @ 120V_{AC}/60Hz: 5V/1A.



4.2 Start Up @ 120V_{AC}/60Hz: no load.

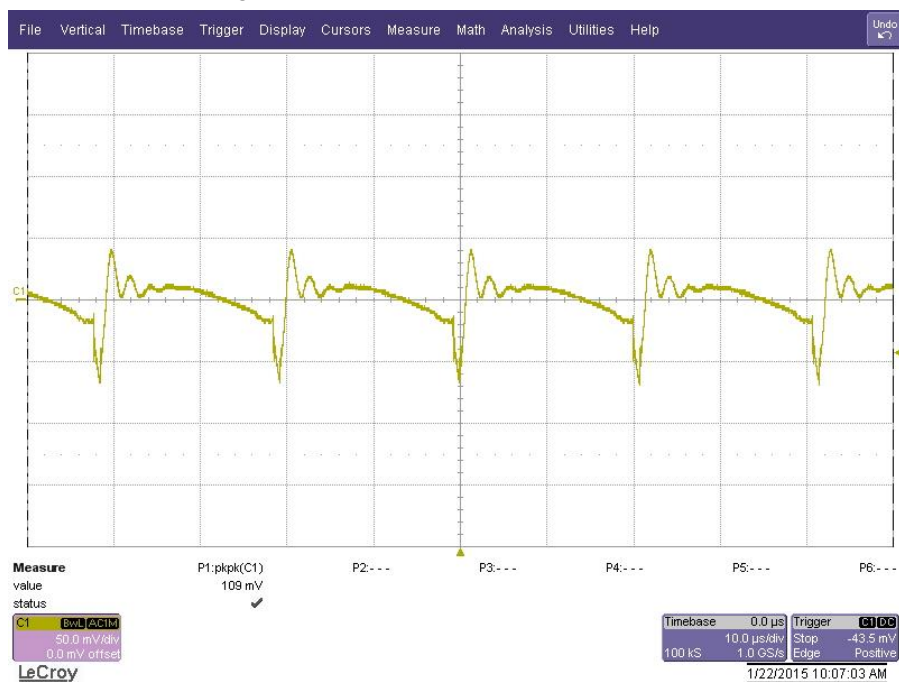


4.3 Start Up @ 230V_{AC}/50Hz: 5V/1A.**4.4 Start Up @ 230V_{AC}/50Hz: no load.**

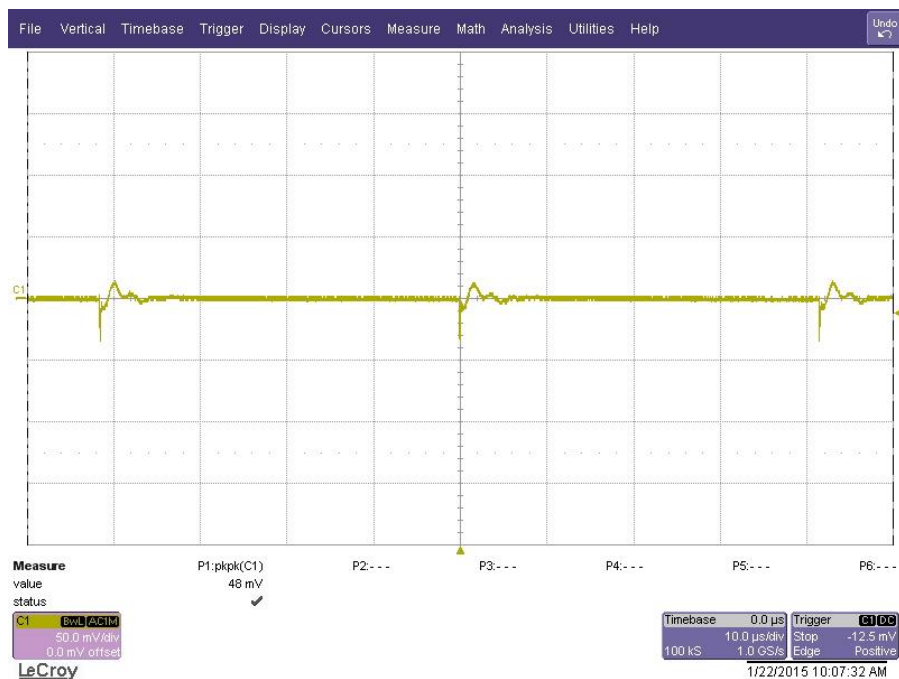
5 Output Ripple Voltages

The output ripple voltages are shown in the plots below.

5.1 $V_{in}=120V_{AC}/60Hz$: 5V/1A.



5.2 $V_{in}=120V_{AC}/60Hz$: No load.



5.3 $V_{in}=230V_{AC}/50Hz$: 5V/1A.

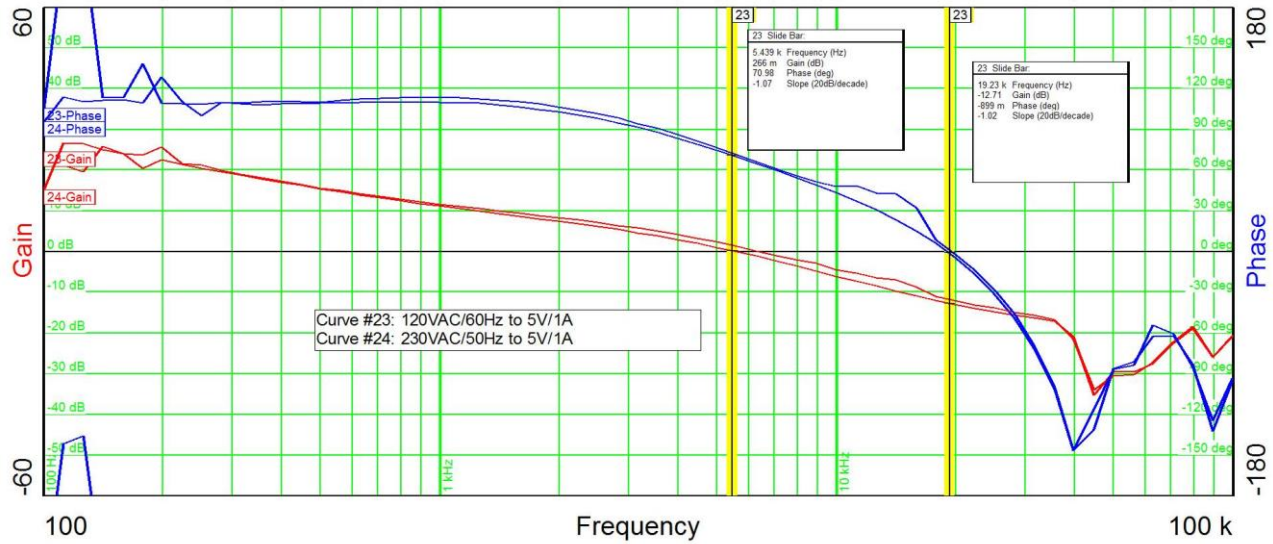


5.4 $V_{in}=230V_{AC}/50Hz$: No load.



6 Frequency response

The frequency response is measured with 5V/1A output.



7 Load dynamic response

The load dynamic response is measured with 5V/1A output. Load step from 0.015A to 1A

$V_{in}=120V_{AC}/60Hz$



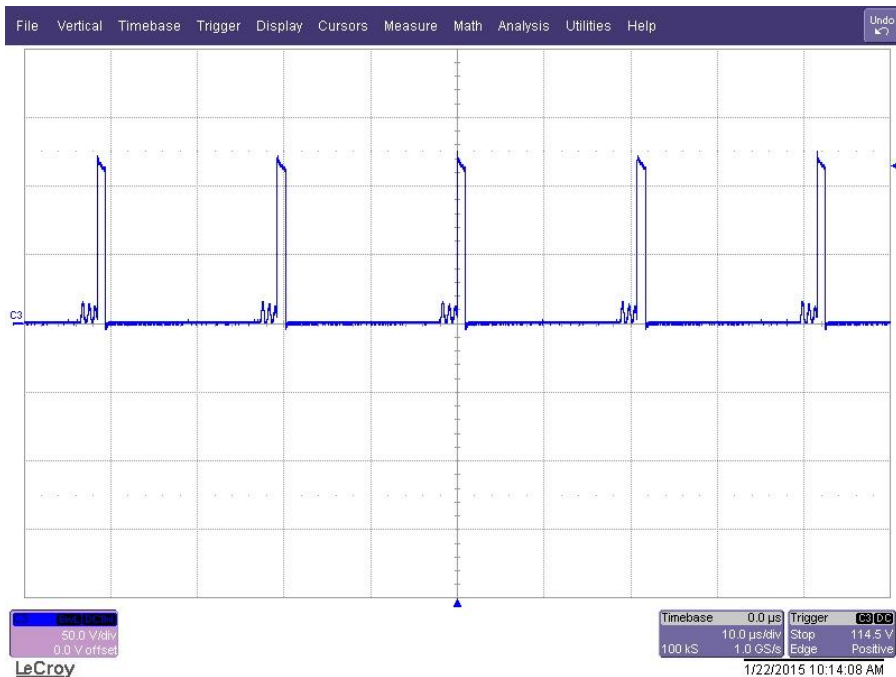
$V_{in}=230V_{AC}/50Hz$



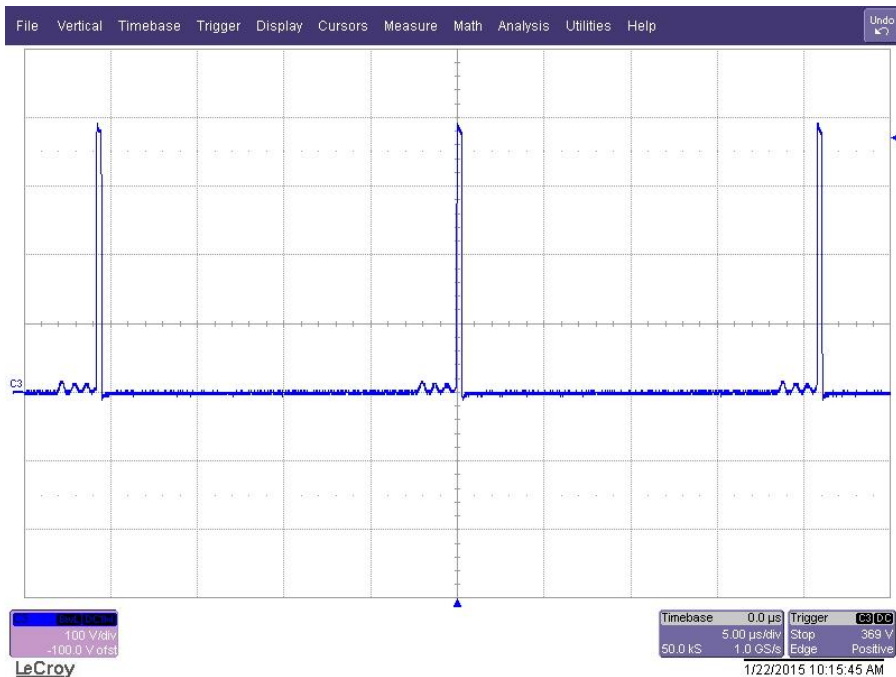
8 Switching Waveforms

The images below show key switching waveforms of PMP10834RevA. The waveforms are measured with 1A full load.

8.1 $V_{in} = 90V_{AC}/60Hz$:



8.2 $V_{in} = 264V_{AC}/50Hz$:



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