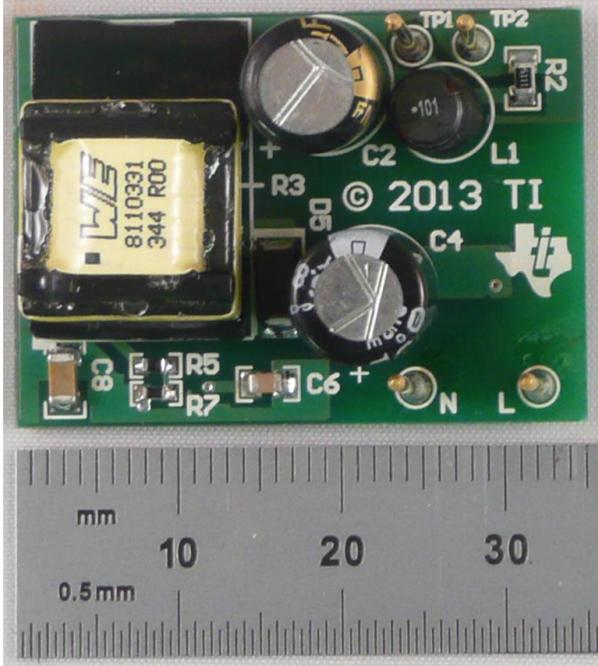


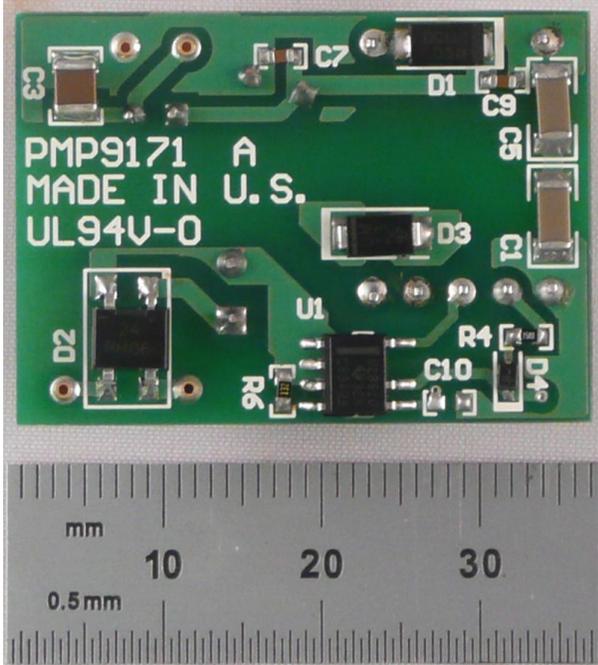
1 Photo

The photographs below show the PMP9171 Rev A assembly. This circuit was built on a PMP9171 Rev A PCB.

Top side

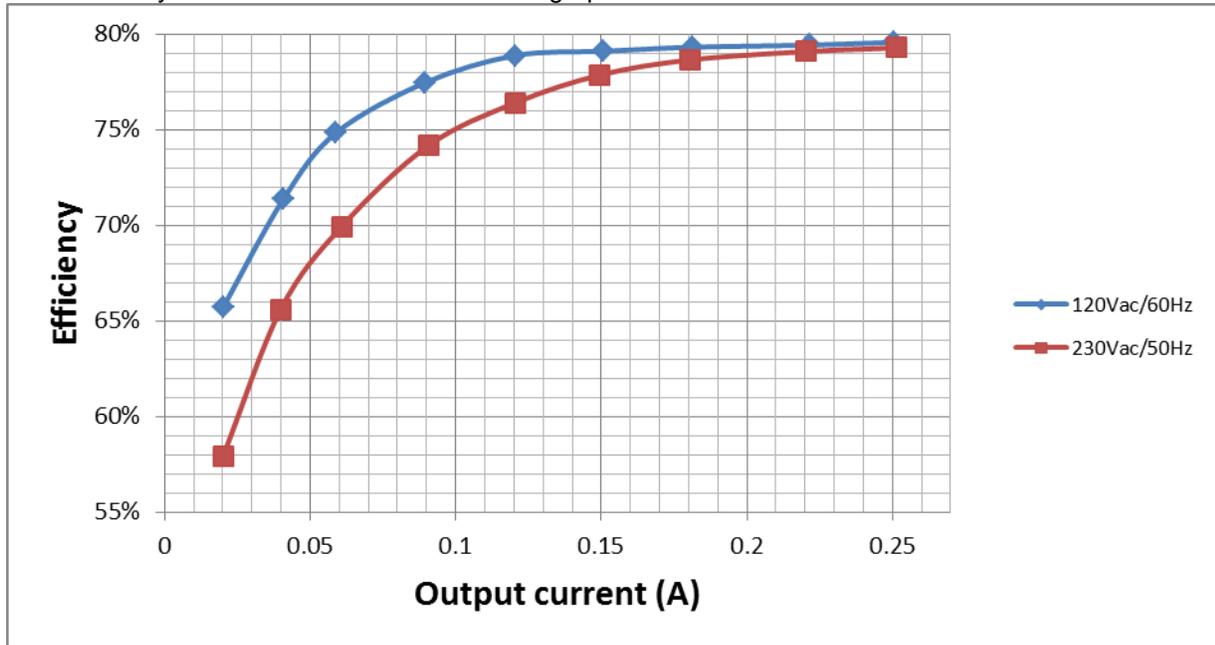


Bottom side



2 Converter Efficiency

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



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

V _{in} (V)	I _{in} (mA)	P _{in} (W)	V _{out} (V)	I _{out} (A)	P _{out} (W)	Losses(W)	Efficiency (%)
120.07	76.48	4.798	15.24	0.2505	3.81762	0.98038	79.57%
120.09	69.38	4.253	15.25	0.2215	3.377875	0.875125	79.42%
120.11	59.24	3.493	15.28	0.1813	2.770264	0.722736	79.31%
120.12	51.18	2.911	15.29	0.1506	2.302674	0.608326	79.10%
120.15	42.99	2.339	15.31	0.1205	1.844855	0.494145	78.87%
120.17	34.42	1.772	15.32	0.0896	1.372672	0.399328	77.46%
120.18	25.26	1.204	15.32	0.0588	0.900816	0.303184	74.82%
120.19	19.58	0.877	15.34	0.0408	0.625872	0.251128	71.37%
120.2	11.454	0.4702	15.38	0.02009	0.308984	0.1612158	65.71%
120.21	2.024	0.07865	15.43	0	0	0.07865	0.00%

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

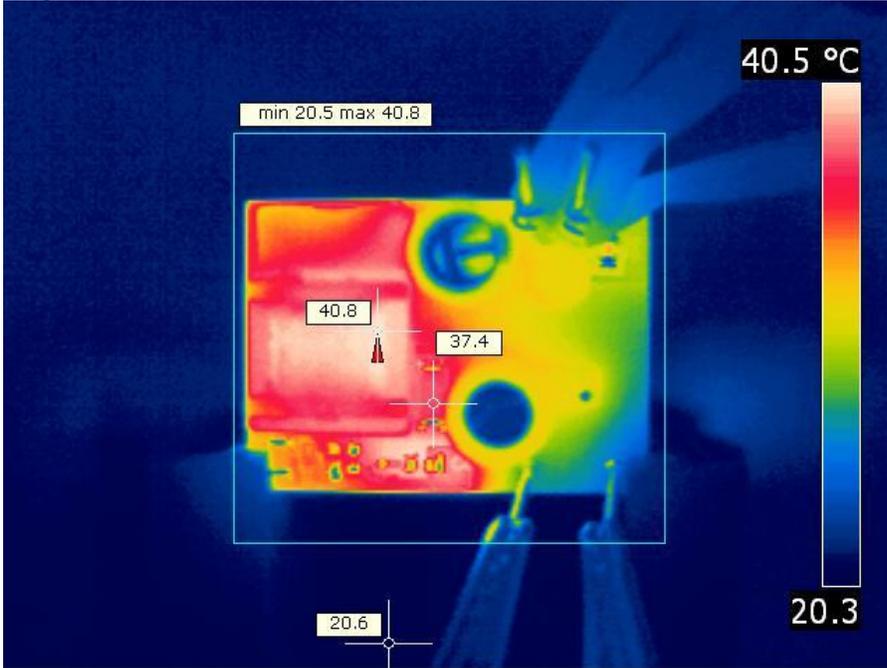
Vin(V)	Iin(mA)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Efficiency (%)
230	50.99	4.838	15.25	0.2515	3.835375	1.002625	79.28%
230	46.08	4.251	15.26	0.2203	3.361778	0.889222	79.08%
230	39.45	3.505	15.28	0.1804	2.756512	0.748488	78.65%
230	34.24	2.936	15.28	0.1496	2.285888	0.650112	77.86%
230	29.37	2.413	15.3	0.1205	1.84365	0.56935	76.40%
230	24.07	1.869	15.3	0.0906	1.38618	0.48282	74.17%
230.1	18.057	1.332	15.32	0.0608	0.931456	0.400544	69.93%
230.1	13.033	0.933	15.34	0.0399	0.612066	0.320934	65.60%
230.1	7.659	0.5342	15.39	0.02011	0.309493	0.2247071	57.94%
230.1	1.563	0.12234	15.44	0	0	0.12234	0.00%

3 Thermal Images

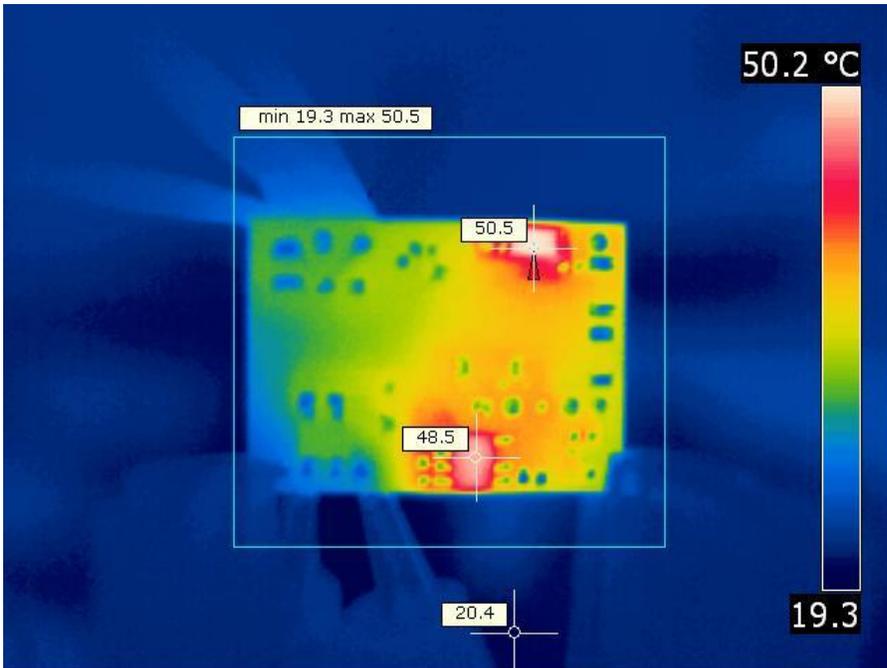
The thermal images below show a top view and bottom view of the board. The ambient temperature was 20°C with no forced air flow. The output was at full load: 15V/0.25A.

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

Top Side

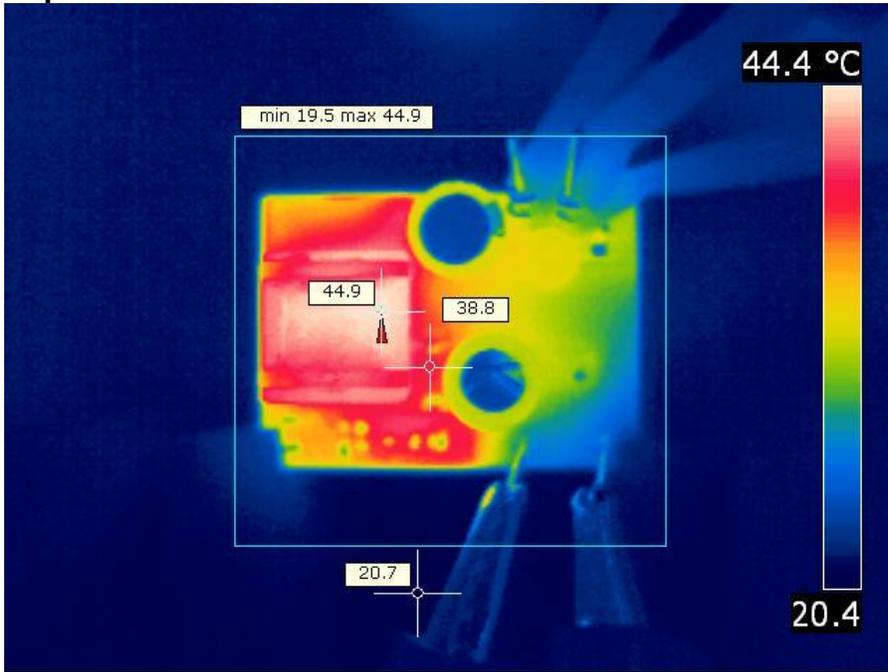


Bottom Side

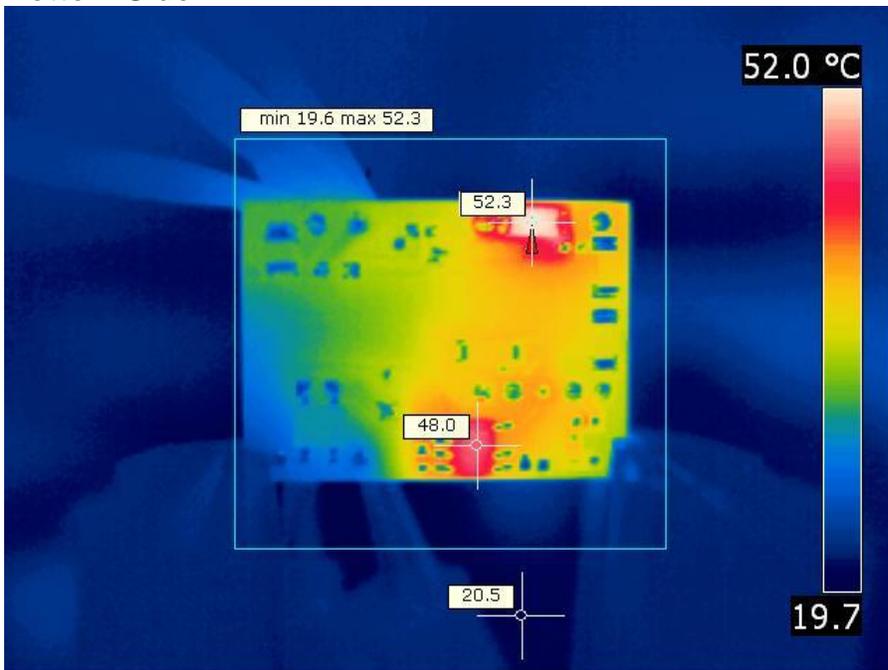


$V_{in}=230V_{AC}/50Hz$

Top Side



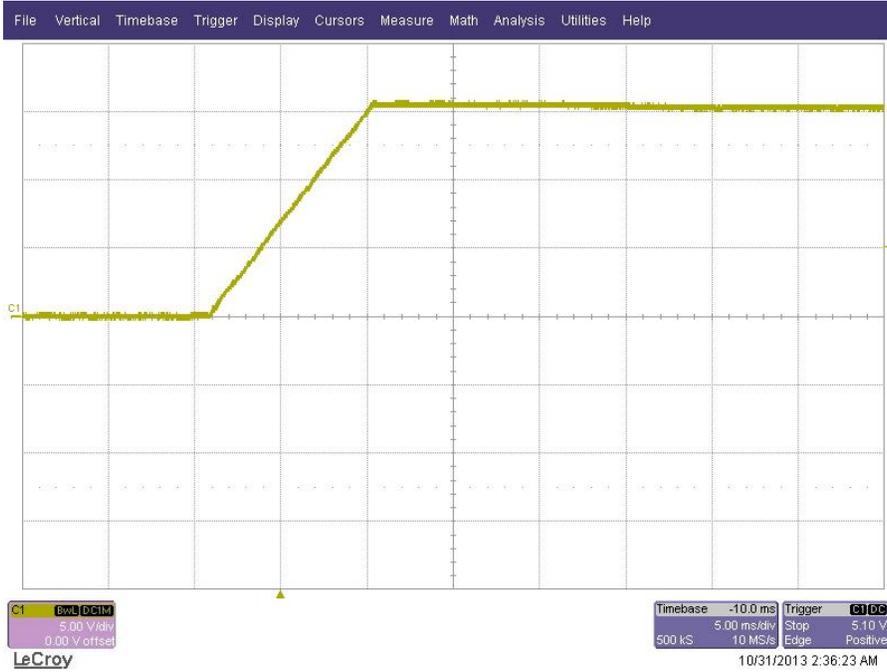
Bottom Side



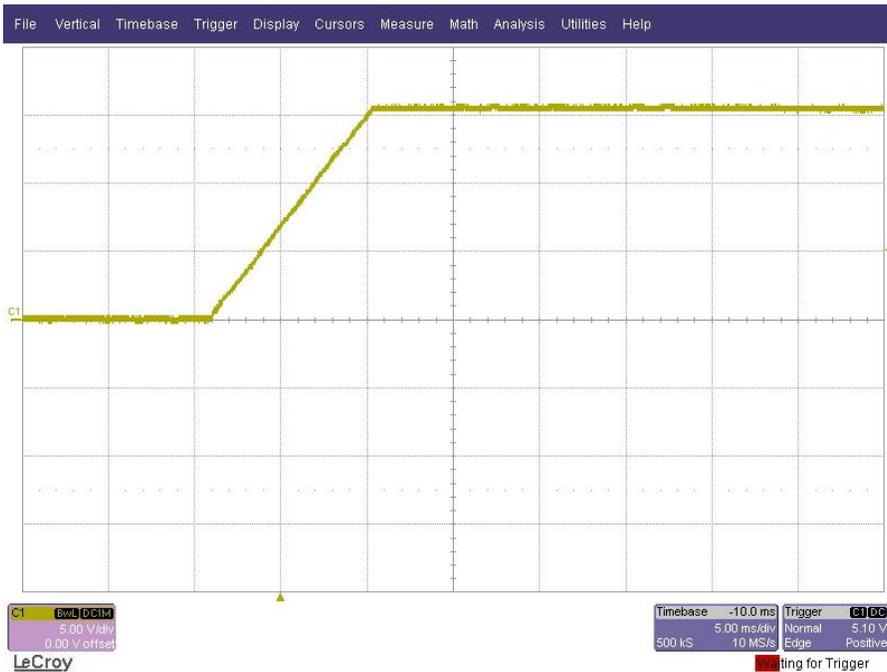
4 Startup

The output voltages at startup are shown in the images below.

4.1 Start Up @ 120V_{ac}/60Hz: 15V/0.25A.



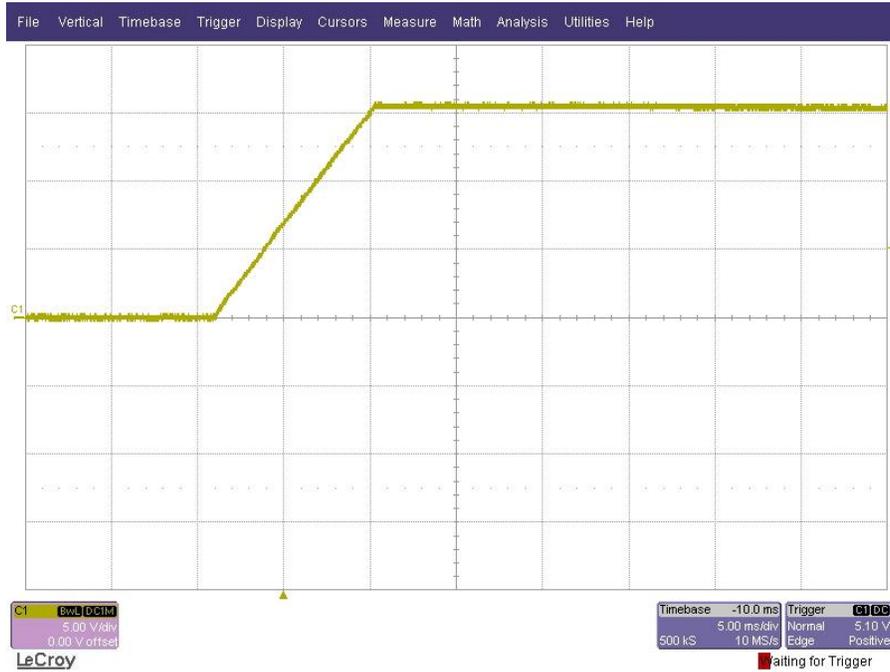
4.2 Start Up @ 120V_{ac}/60Hz: no load.



4.3 Start Up @ 230V_{ac}/50Hz: 15V/0.25A.



4.4 Start Up @ 230V_{ac}/50Hz: no load.



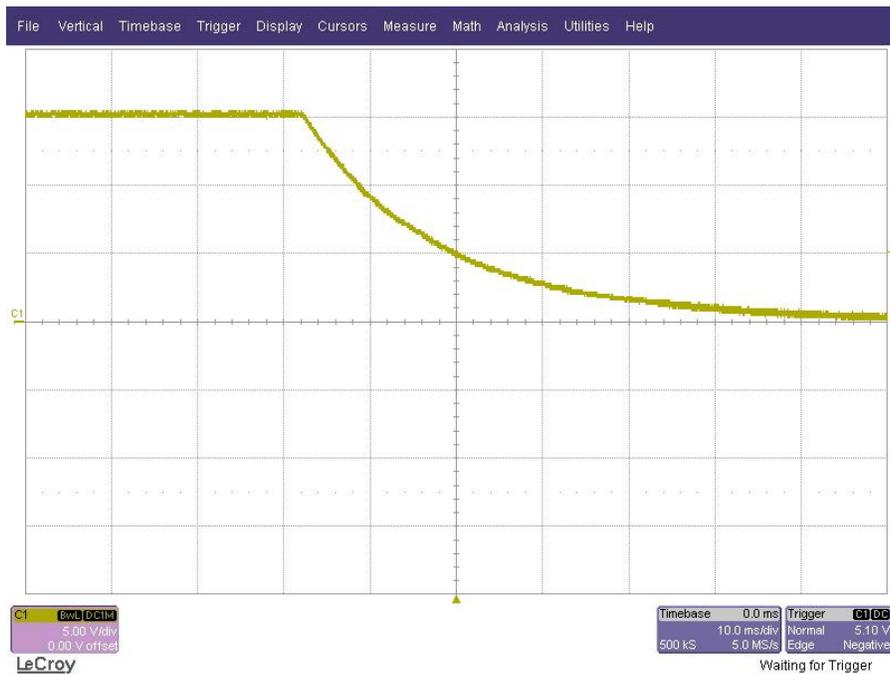
5 Turn off

The output voltage at turn off transient is shown in the image below at full load (15V/0.25A).

5.1 Turn off @ 120V_{ac}: 15V/0.25A.



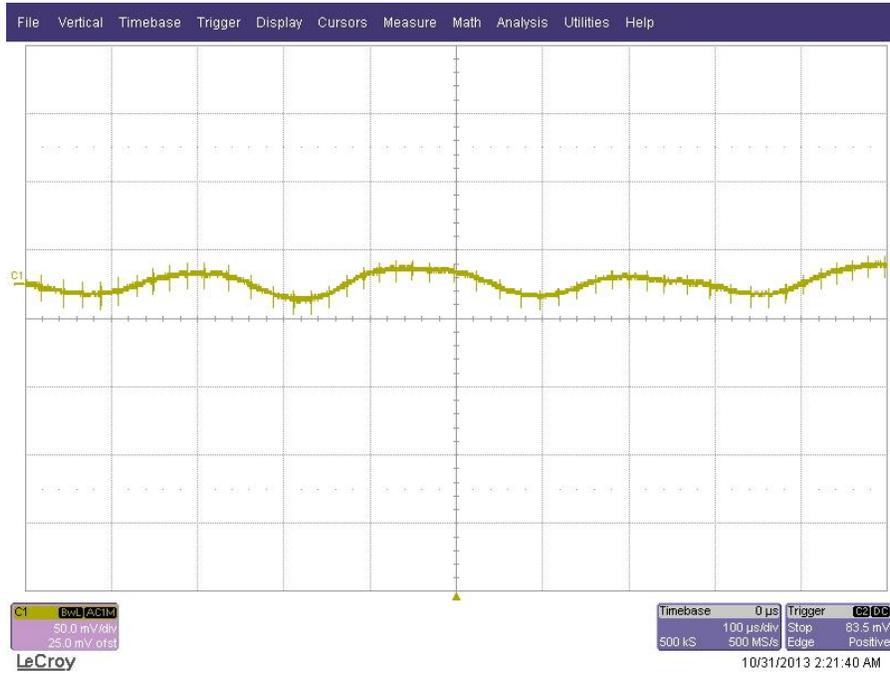
5.2 Turn off @ 230V_{ac}: 15V/0.25A.



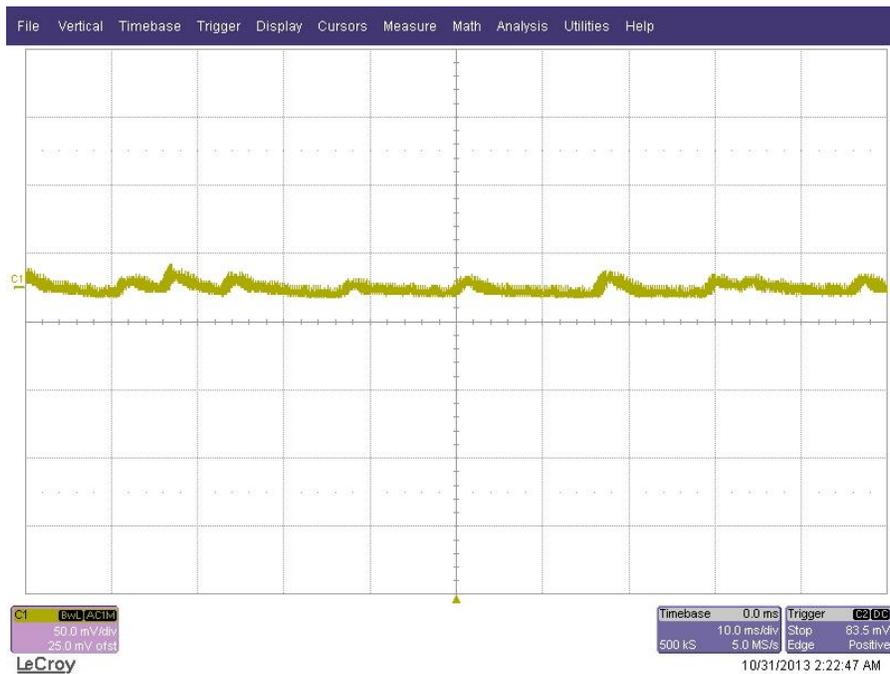
6 Output Ripple Voltages

The output ripple voltages are shown in the plots below.

6.1 120V_{ac}/60Hz – 15V/0.25A



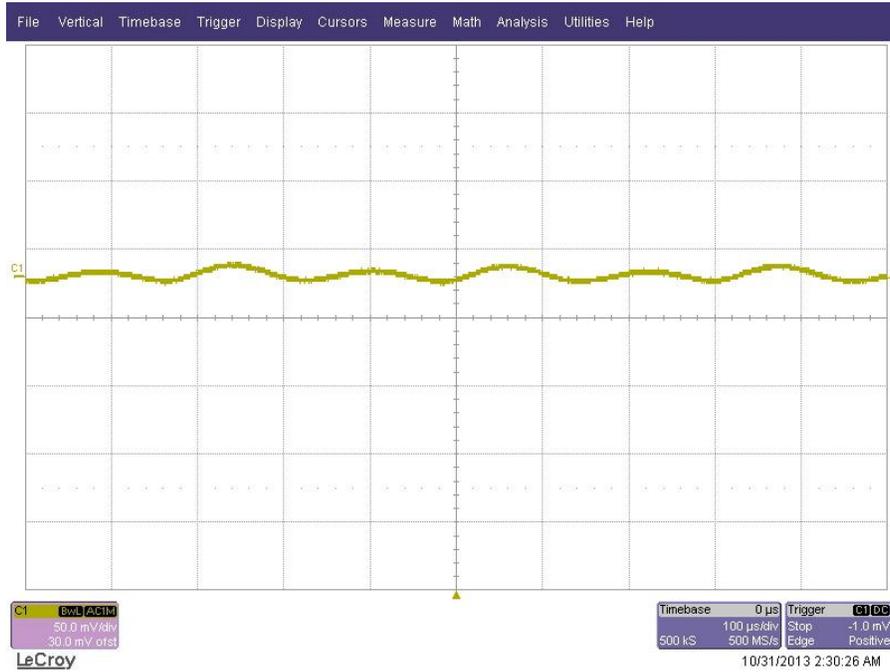
6.2 120V_{ac}/60Hz – 15V/ No load



6.3 230V_{ac}/50Hz – 15V/0.25A

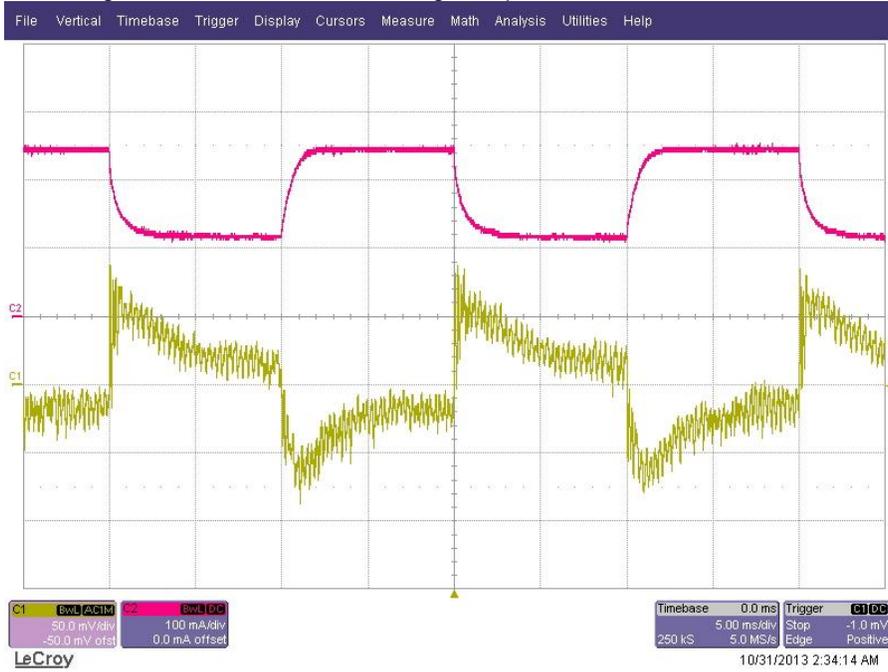


6.4 230V_{ac}/50Hz – 15V/ No load



7 Load Transient

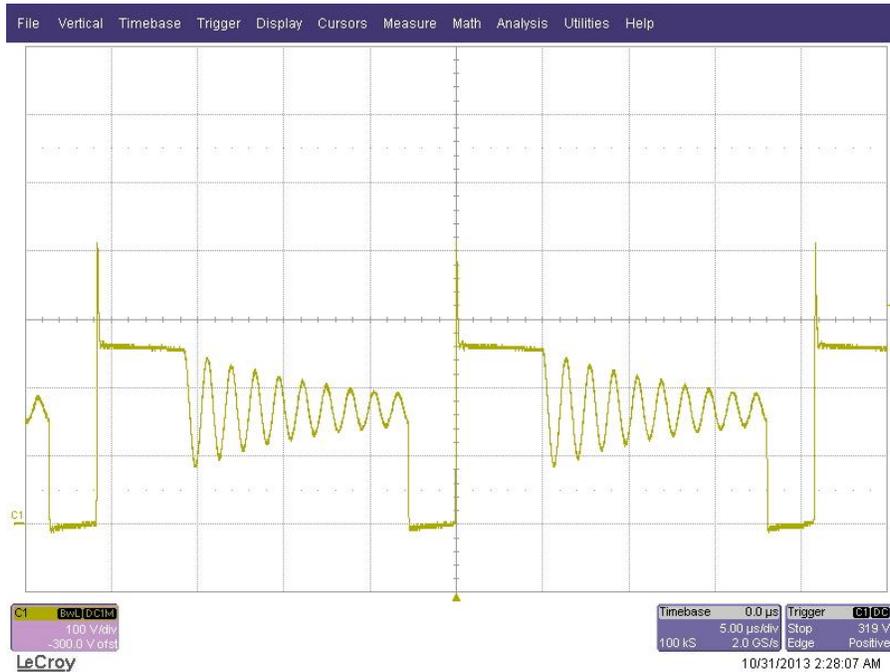
The image below shows $16V_{out}$ voltage response to a **0.12A** to **0.25A** load transient at a $120V_{ac}/60Hz$ input.



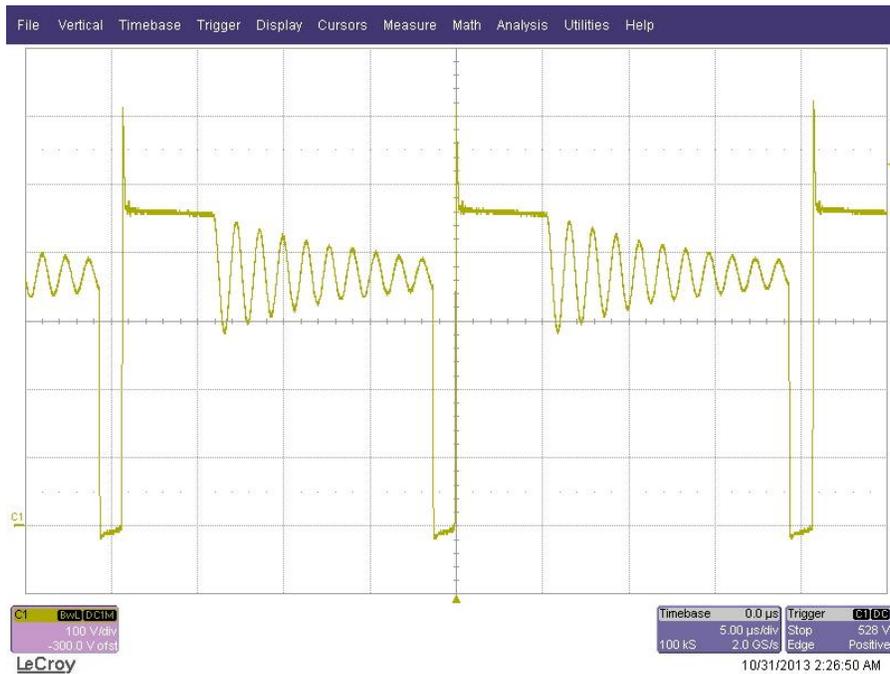
8 Switching Waveforms

The images below show key switching waveforms of PMP9171RevA. The waveforms are measured with 0.25A full load.

8.1 Primary MOSFET U1 pin8 @ 120V_{ac}/60Hz



8.2 Primary MOSFET U1 pin8 @ 265V_{ac}/50Hz



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