

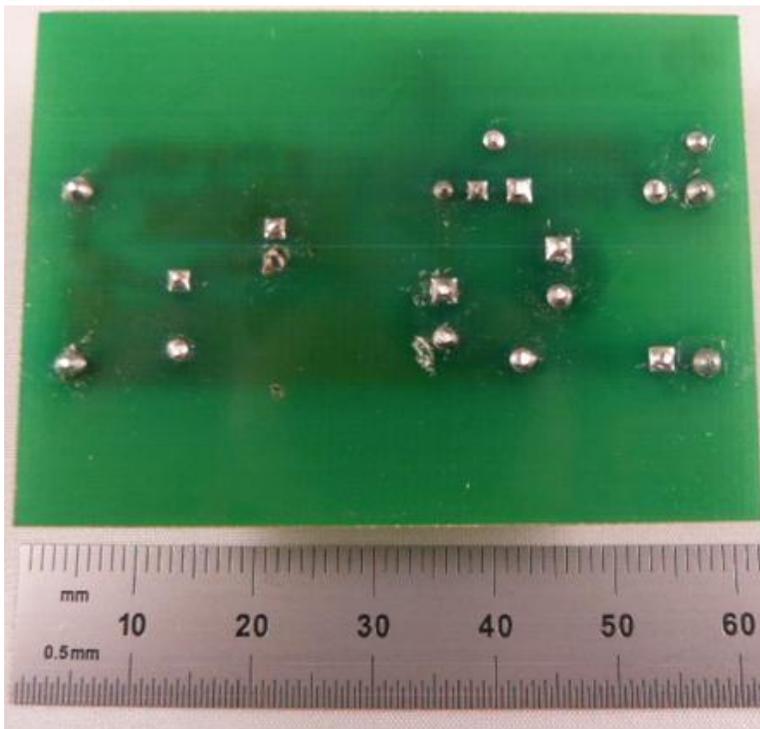
1 Photo

The photographs below show the PMP9073 Rev A assembly. This circuit was built on a PMP9073 Rev A PCB.

Top side

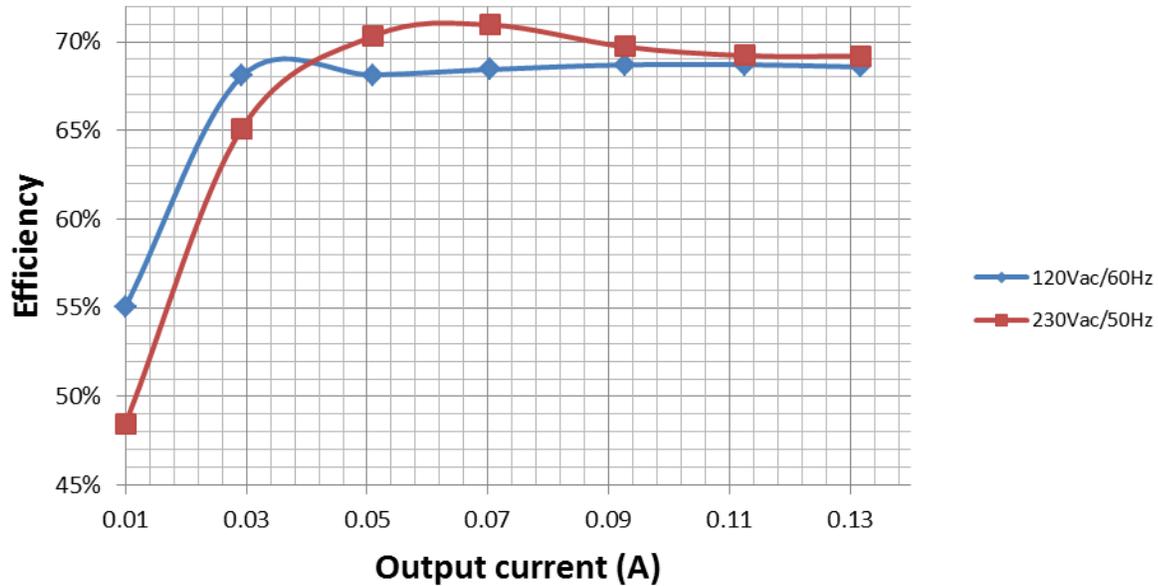


Bottom side



2 Converter Efficiency

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



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

Vin(V)	Iin(mA)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Efficiency (%)
120.01	79.63	3.501	18.23	0.1317	2.400891	1.100109	68.58%
119.92	68.94	2.993	18.28	0.1125	2.0565	0.9365	68.71%
120.02	58.61	2.468	18.31	0.0926	1.695506	0.772494	68.70%
119.94	46.59	1.884	18.34	0.0703	1.289302	0.594698	68.43%
119.95	35.52	1.375	18.37	0.051	0.93687	0.43813	68.14%
119.94	22.03	0.7916	18.41	0.02927	0.538861	0.2527393	68.07%
120.03	10.314	0.3381	18.62	0.01	0.1862	0.1519	55.07%
120.07	3.395	0.10576	19.67	0	0	0.10576	0.00%

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

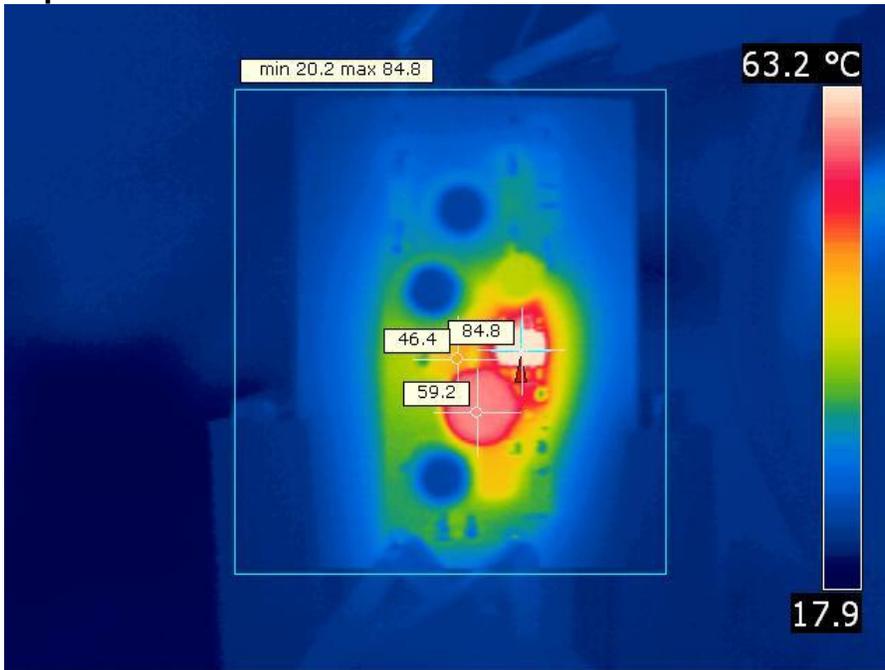
Vin(V)	Iin(mA)	Pin(W)	Vout(V)	Iout(A)	Pout(W)	Losses(W)	Efficiency (%)
230	51.08	3.474	18.25	0.1317	2.403525	1.070475	69.19%
230	44.72	2.971	18.28	0.1125	2.0565	0.9145	69.22%
230	37.7	2.432	18.31	0.0926	1.695506	0.736494	69.72%
230	29.12	1.816	18.33	0.0703	1.288599	0.527401	70.96%
230	22.05	1.329	18.34	0.05096	0.934606	0.3943936	70.32%
230	14.243	0.827	18.4	0.02927	0.538568	0.288432	65.12%
230	6.742	0.3842	18.63	0.01	0.1863	0.1979	48.49%
230	2.335	0.15156	19.74	0	0	0.15156	0.00%

3 Thermal Images

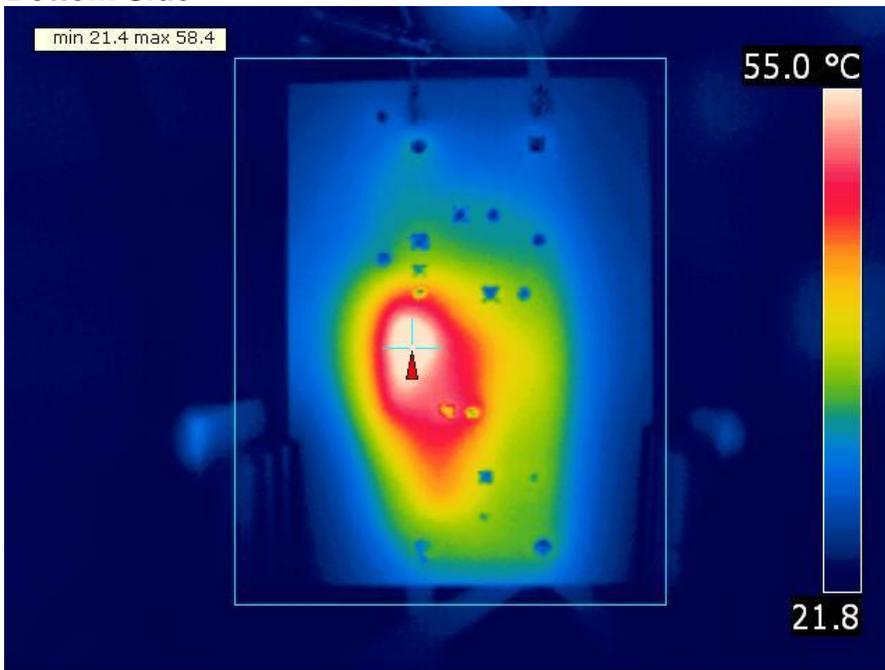
The thermal images below show a top view and bottom view of the board under 120V_{ac}/60Hz and 230V_{ac}/50Hz input conditions. The ambient temperature was 20°C with no forced air flow. The output was at full load: 18V/0.13A.

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

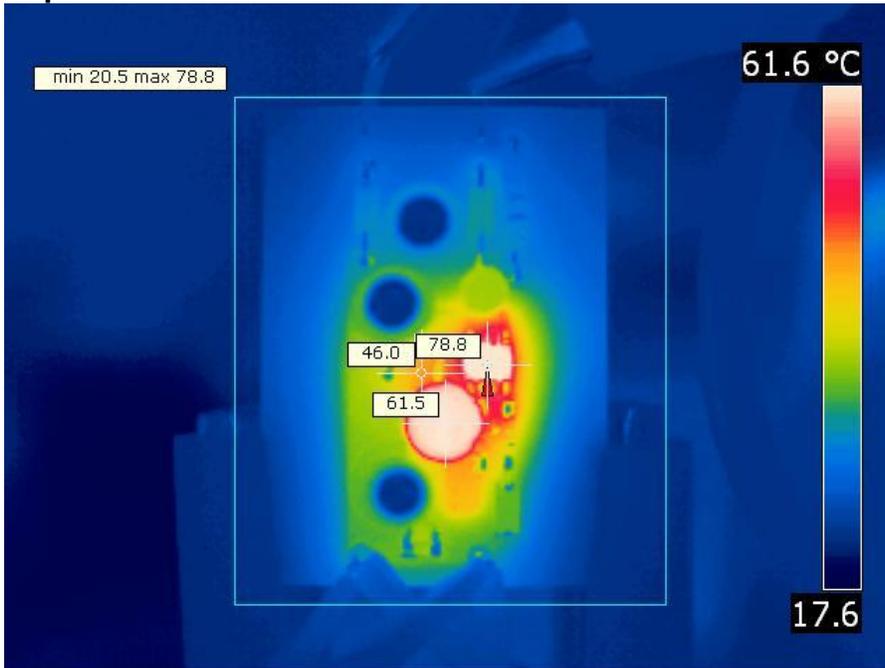
Top Side



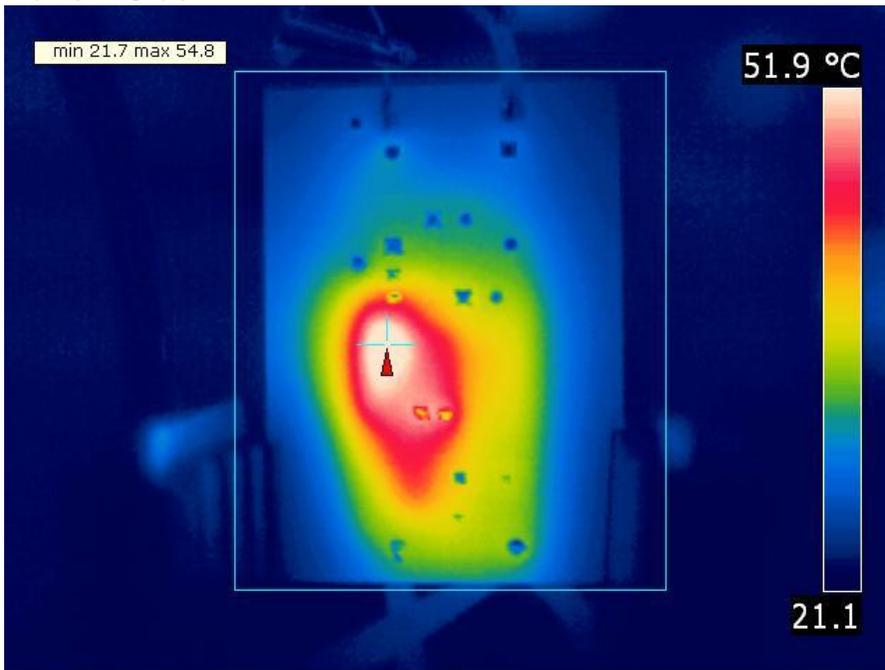
Bottom Side



$V_{in}=230V_{AC}/60Hz$
Top Side



Bottom Side



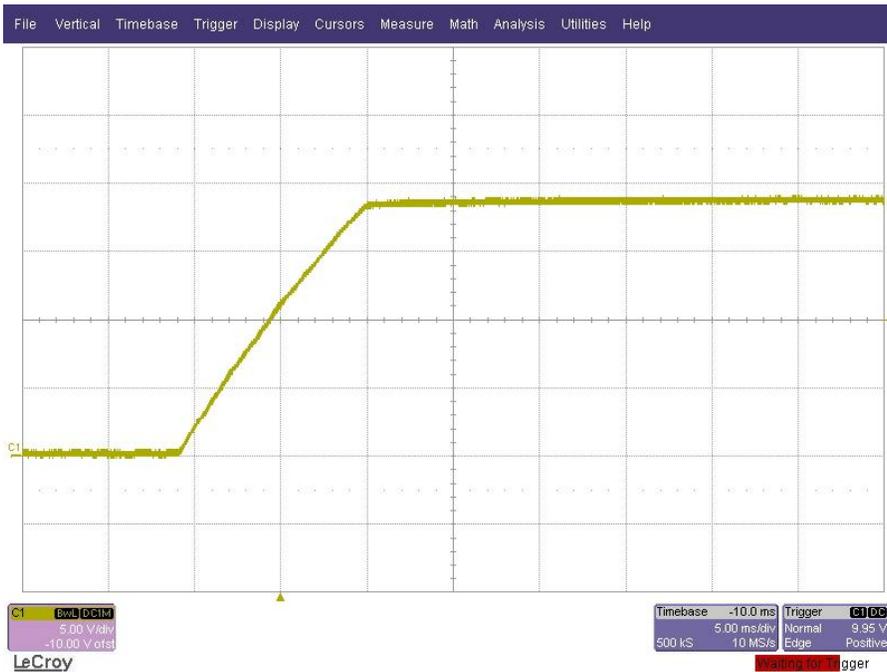
4 Startup Waveforms

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

4.1 Start Up @ 120V_{ac}: 18V/0.13A.



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



4.3 Start Up @ 230V_{ac}: 18V/0.13A.



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



5 Turn off

The output voltage at turn off transient is shown in the image below at full load (18V/0.13A).

5.1 Turn off @ 120V_{ac}: 18V/0.13A.



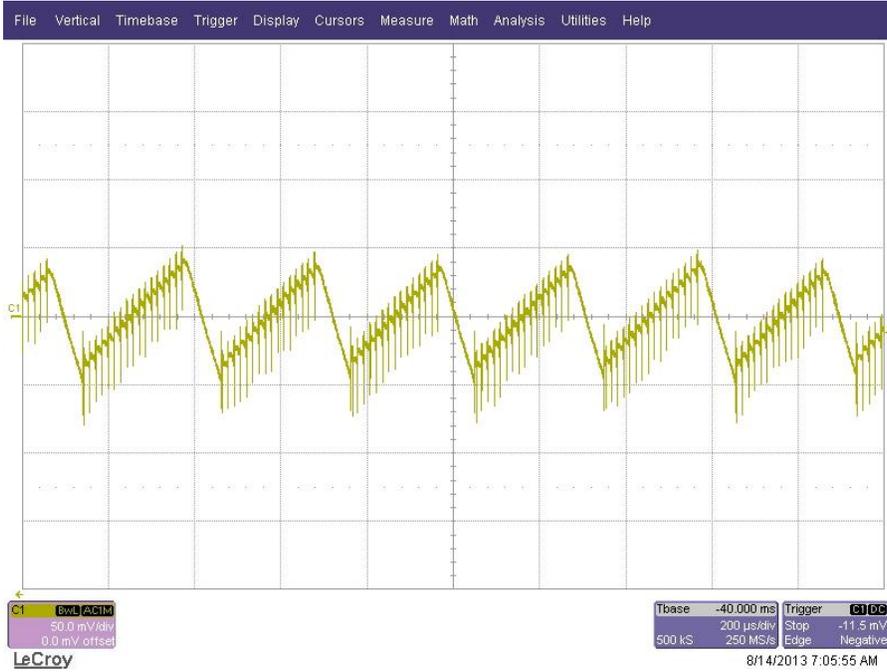
5.2 Turn off @ 230V_{ac}: 18V/0.13A.



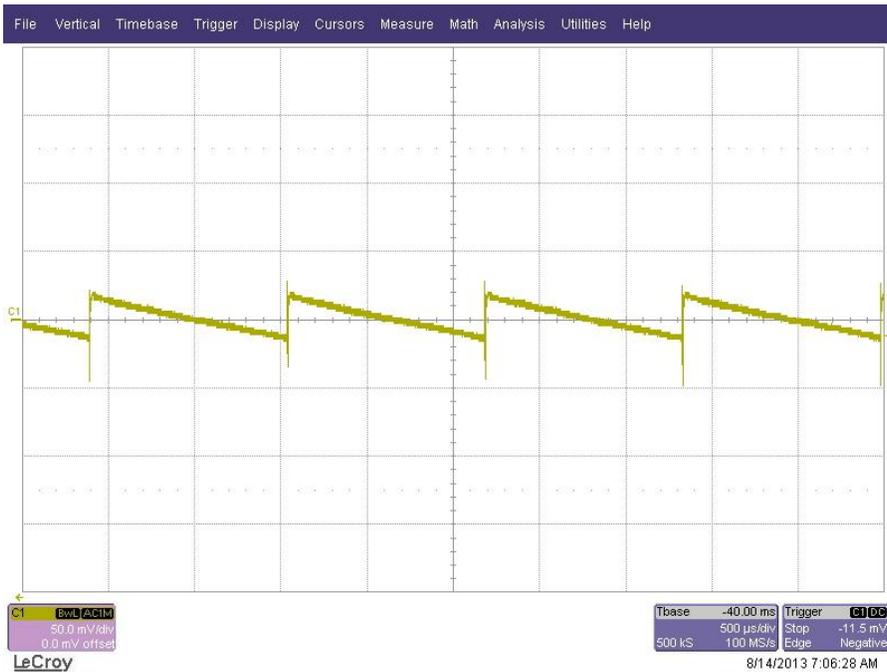
6 Output Ripple Voltages

The output ripple voltages are shown in the plots below.

6.1 120V_{ac}: 18V/0.13A:



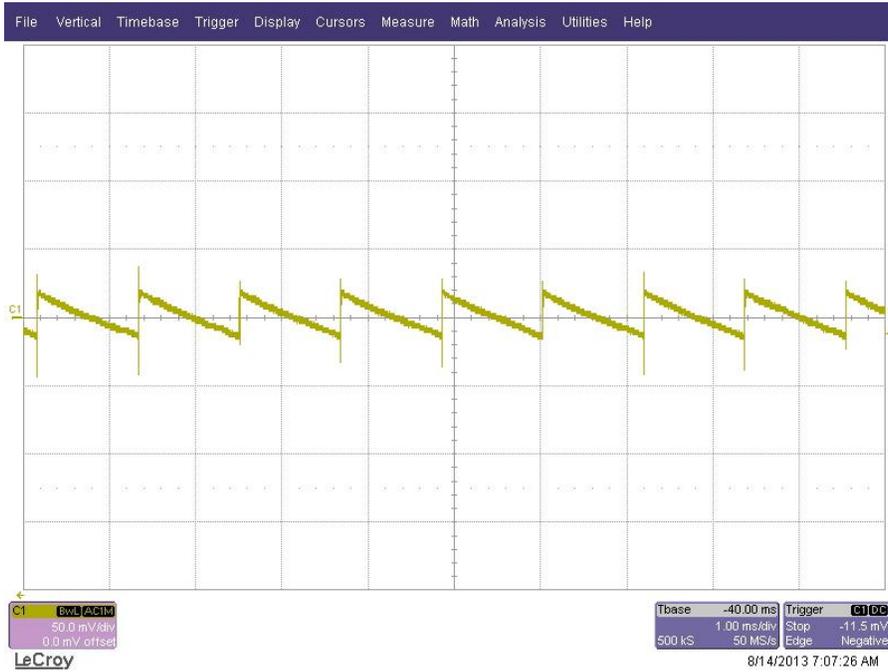
6.2 120V_{ac}: no load:



6.3 230V_{ac}: 18V/0.13A:



6.4 230V_{ac}: no load:



7 Load Transient

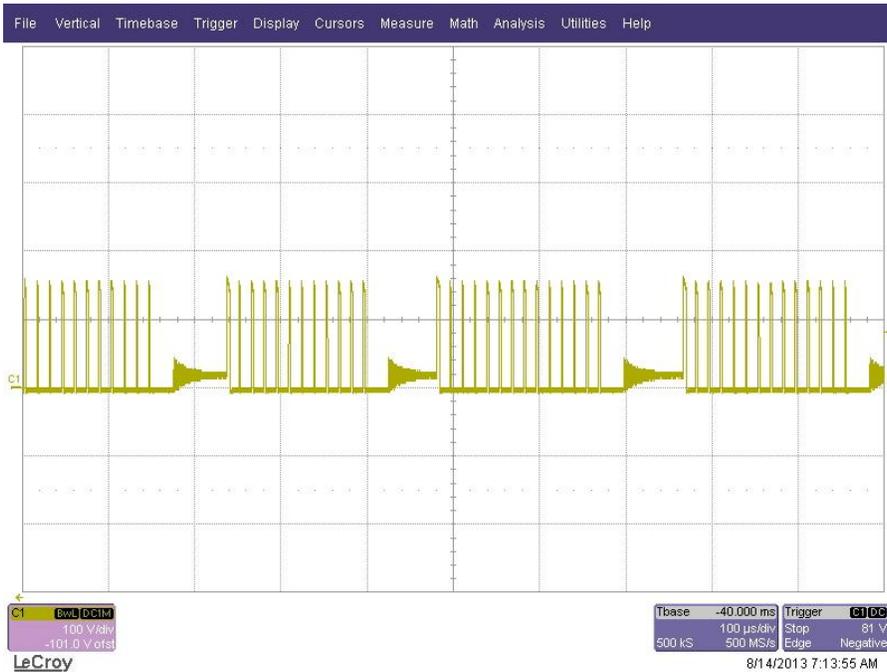
The image below shows $18V_{out}$ voltage response to a **0.06A** to **0.13A** load transient at $120V_{ac}/60Hz$.



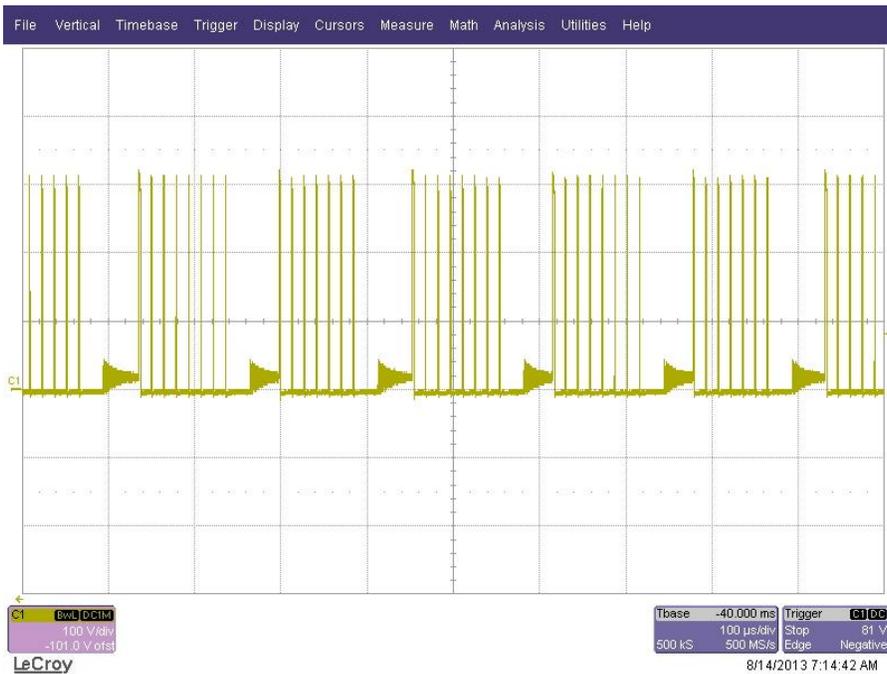
8 Switching Waveforms

The images below show key switching waveforms of PMP9073RevA. The waveforms are measured with 0.13A full load.

8.1 Diode D3 @ 120V_{ac}/60Hz



8.2 Diode D3 @ 230V_{ac}/60Hz



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