

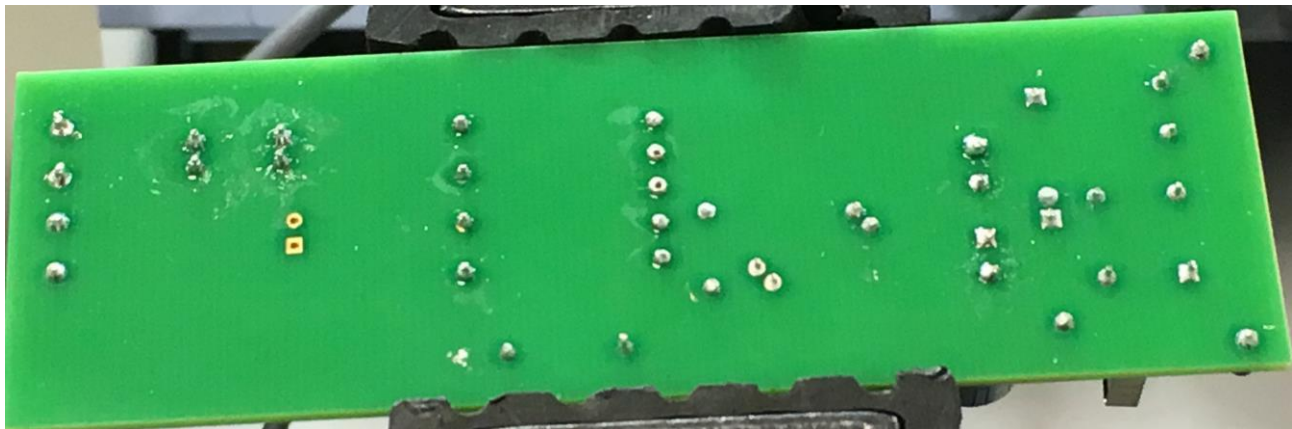
1 Photo

The photographs below show the PMP20869 Rev A assembly. This circuit was built on a PMP20315 Rev A PCB.

Top side



Bottom side



2 Cross regulation

Vin(VAC)	Pin(W)	Vout(V)	Iout(A)
108	22.1	11.5	1.5
108	0.158	11.97	0.00
Vin(V)	Pin(W)	Vout1(V)	Iout1(A)
115	21.9	11.47	1.5
115	0.157	11.87	0.00
Vin(V)	Pin(W)	Vout1(V)	Iout1(A)
138	21.77	11.47	1.5
138	0.184	11.88	0.00

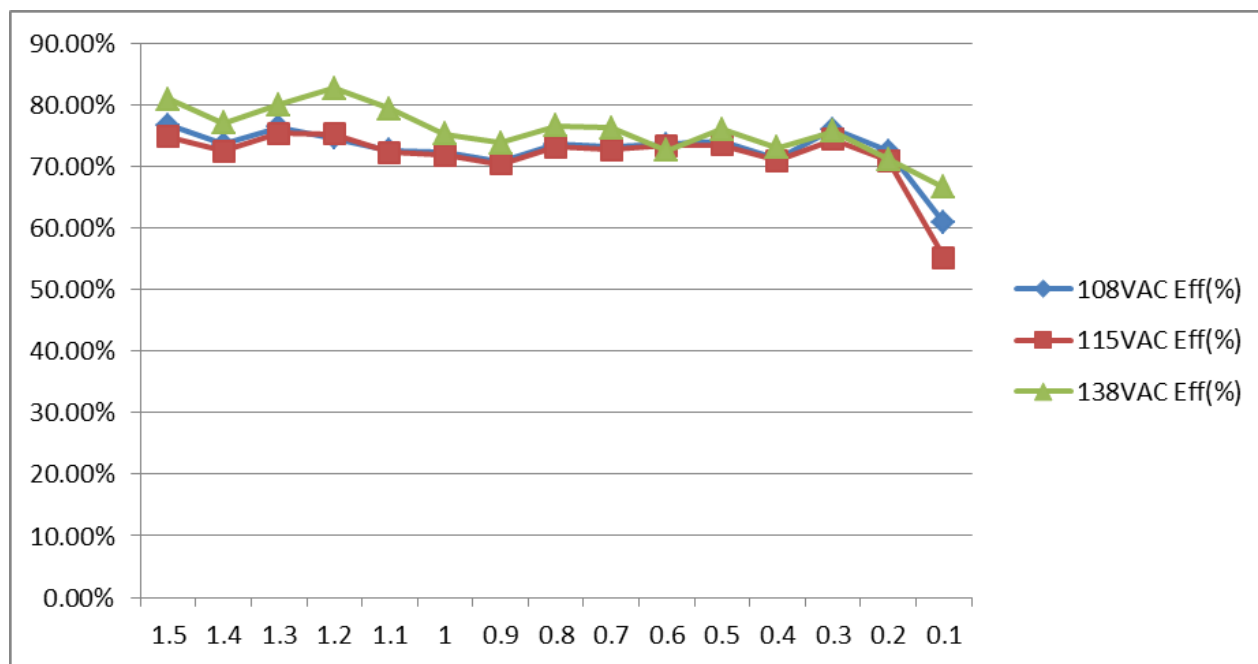
3 Converter efficiency

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

Vin(V)	Pin(W)	Vout (V)	Iout1(A)	Pout(W)	108VAC Eff(%)
108	22.4	11.45	1.5	17.175	76.67%
108	21.8	11.45	1.4	16.03	73.53%
108	19.5	11.45	1.3	14.885	76.33%
108	18.4	11.44	1.2	13.728	74.61%
108	17.3	11.42	1.1	12.562	72.61%
108	15.8	11.42	1	11.42	72.28%
108	14.5	11.41	0.9	10.269	70.82%
108	12.4	11.41	0.8	9.128	73.61%
108	10.9	11.41	0.7	7.987	73.28%
108	9.3	11.41	0.6	6.846	73.61%
108	7.7	11.39	0.5	5.695	73.96%
108	6.4	11.39	0.4	4.556	71.19%
108	4.5	11.4	0.3	3.42	76.00%
108	3.2	11.6	0.2	2.32	72.50%
108	1.9	11.55	0.1	1.155	60.79%

Vin(V)	Pin(W)	Vout (V)	Iout1(A)	Pout(W)	115VAC Eff(%)
115	23	11.47	1.5	17.205	74.80%
115	22.16	11.47	1.4	16.058	72.46%
115	19.8	11.47	1.3	14.911	75.31%
115	18.3	11.47	1.2	13.764	75.21%
115	17.4	11.43	1.1	12.573	72.26%
115	15.9	11.42	1	11.42	71.82%
115	14.6	11.42	0.9	10.278	70.40%
115	12.5	11.42	0.8	9.136	73.09%
115	11	11.42	0.7	7.994	72.67%
115	9.34	11.42	0.6	6.852	73.36%
115	7.75	11.39	0.5	5.695	73.48%
115	6.43	11.4	0.4	4.56	70.92%
115	4.6	11.4	0.3	3.42	74.35%
115	3.22	11.42	0.2	2.284	70.93%
115	2.1	11.58	0.1	1.158	55.14%

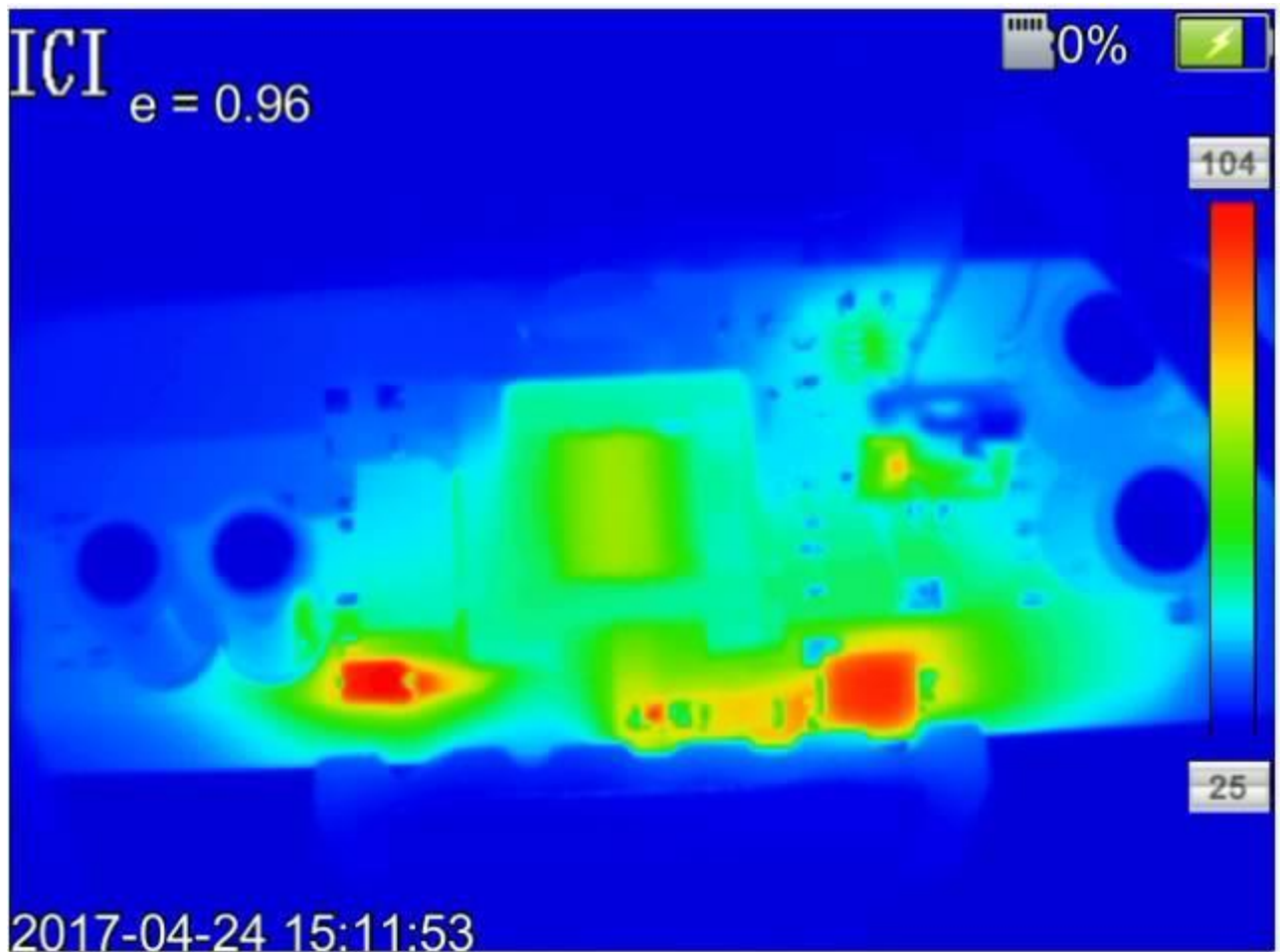
Vin(V)	Pin(W)	Vout (V)	Iout1(A)	Pout(W)	138VAC Eff(%)
138	22.14	11.47	1.5	17.91	73.10%
138	21.7	11.47	1.4	16.702	71.99%
138	19.4	11.45	1.3	15.509	71.34%
138	17.3	11.43	1.2	14.304	74.50%
138	16.5	11.42	1.1	13.09	74.59%
138	15.8	11.41	1	11.89	74.31%
138	14.5	11.41	0.9	10.701	72.30%
138	12.42	11.4	0.8	9.504	73.96%
138	10.9	11.39	0.7	8.309	73.08%
138	9.8	11.39	0.6	7.116	69.76%
138	7.8	11.38	0.5	5.925	72.70%
138	6.5	11.39	0.4	4.744	71.88%
138	4.7	11.39	0.3	3.555	70.54%
138	3.34	11.44	0.2	2.374	67.64%
138	1.8	11.56	0.1	1.199	62.12%



4 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 a 12V/1.5A load.

- **Top side** Vin : 115Vac



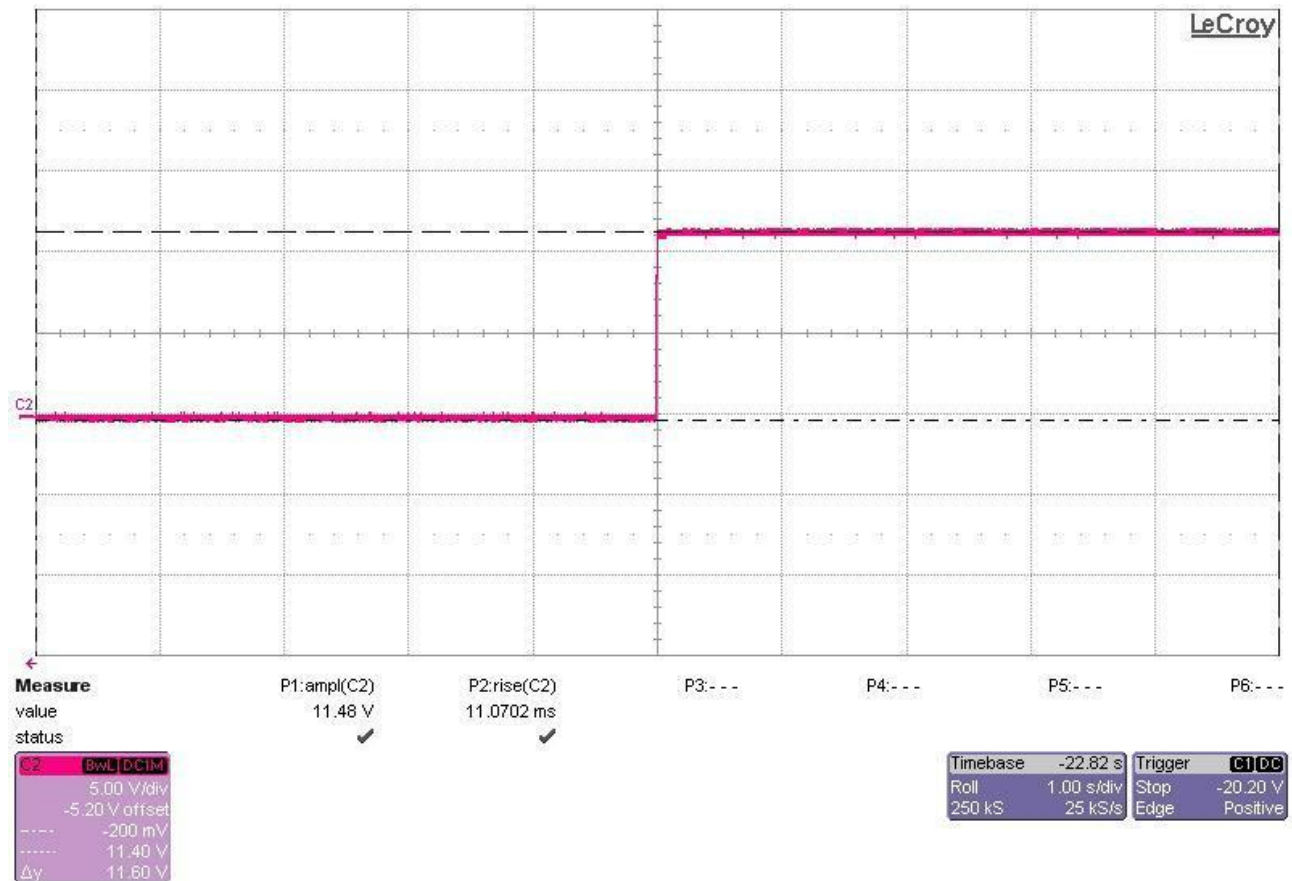
- **Top side** Vin : 138Vac

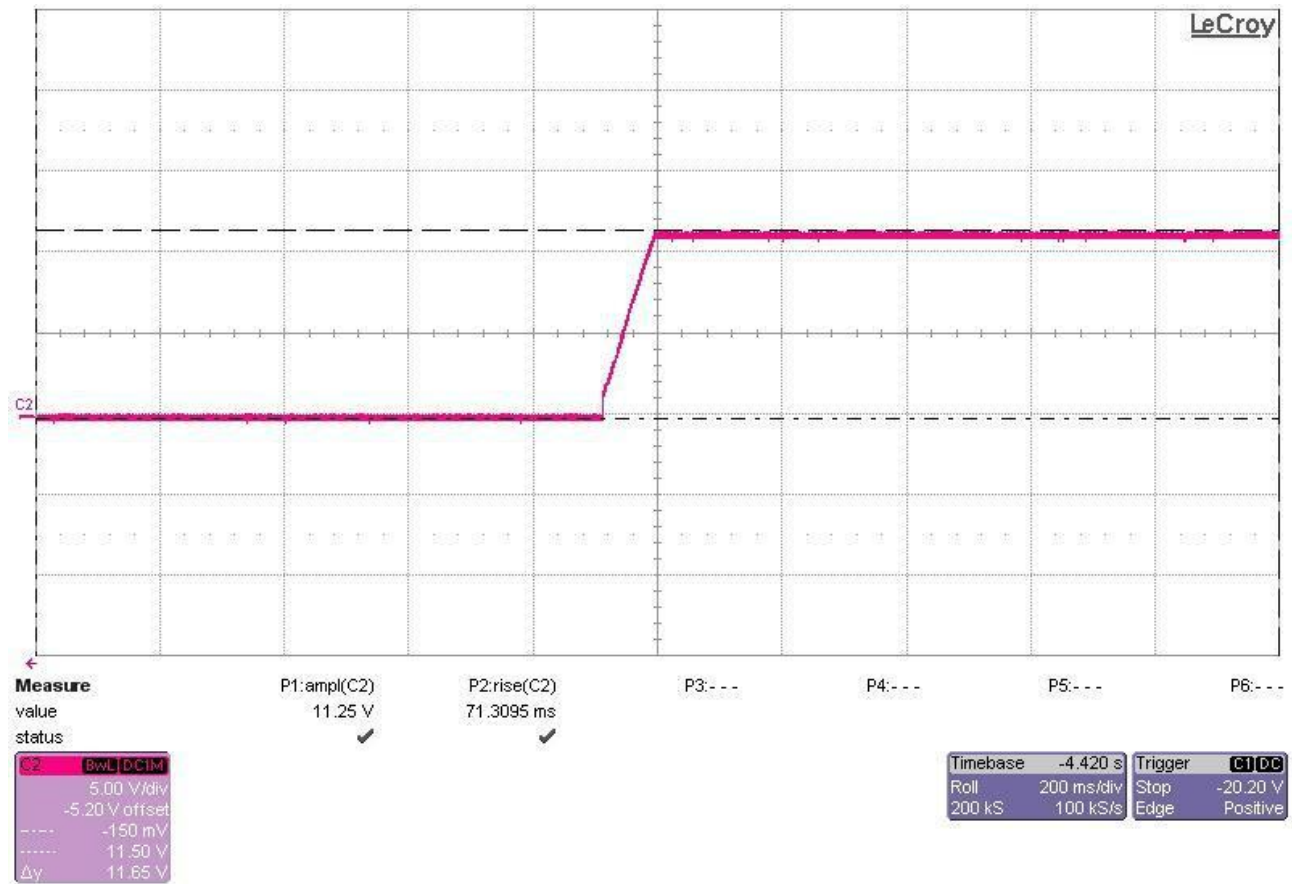


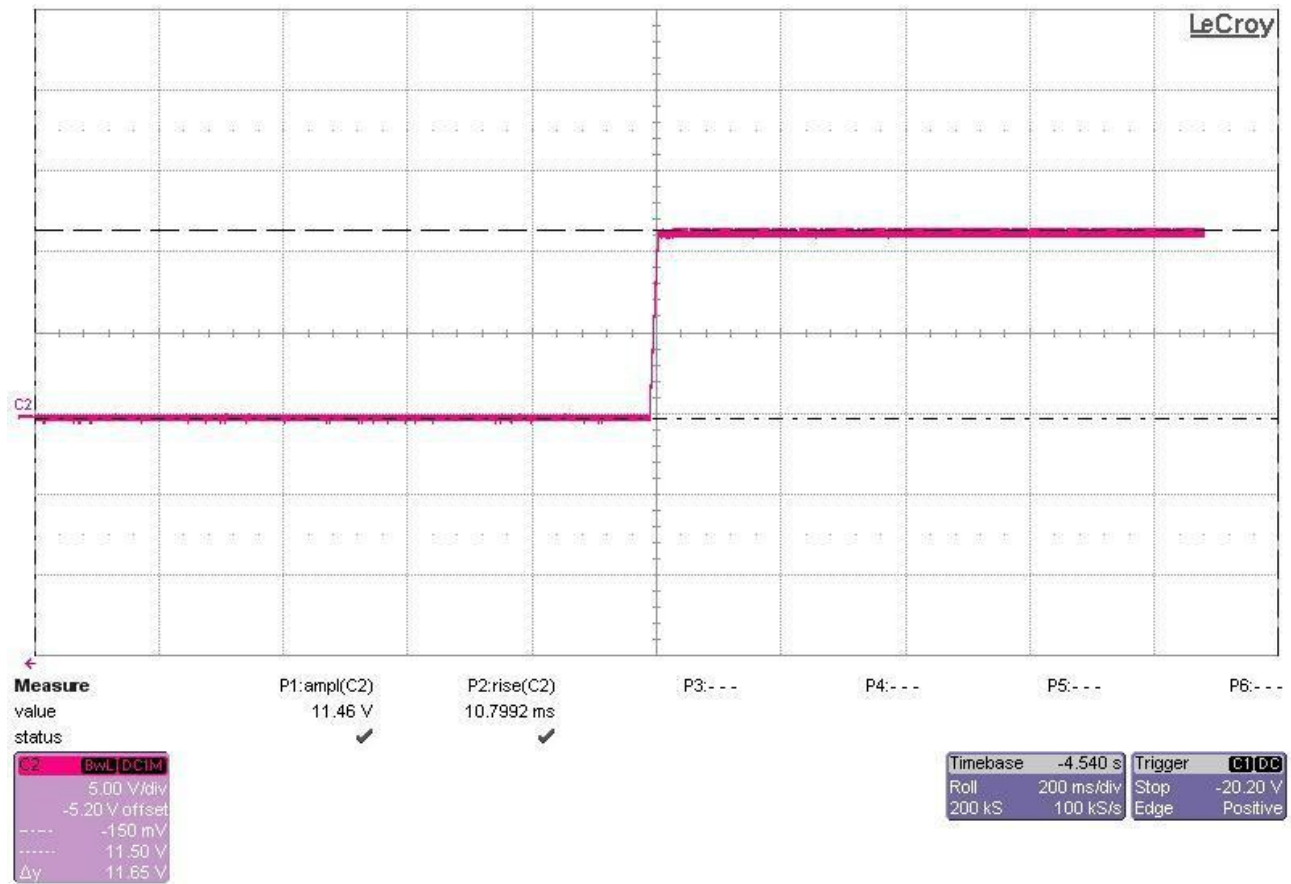
5 Startup

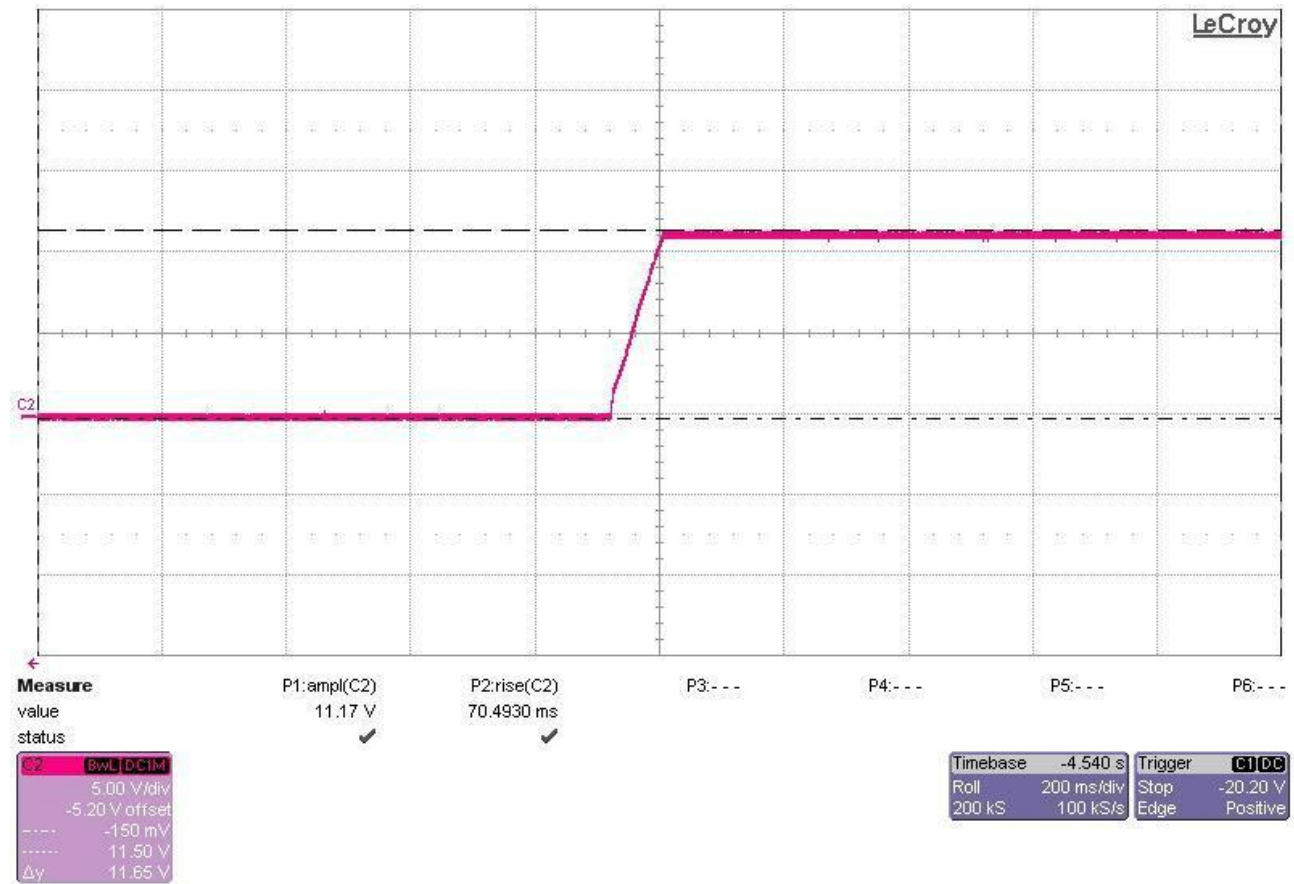
The output voltages at startup are shown in the images below.

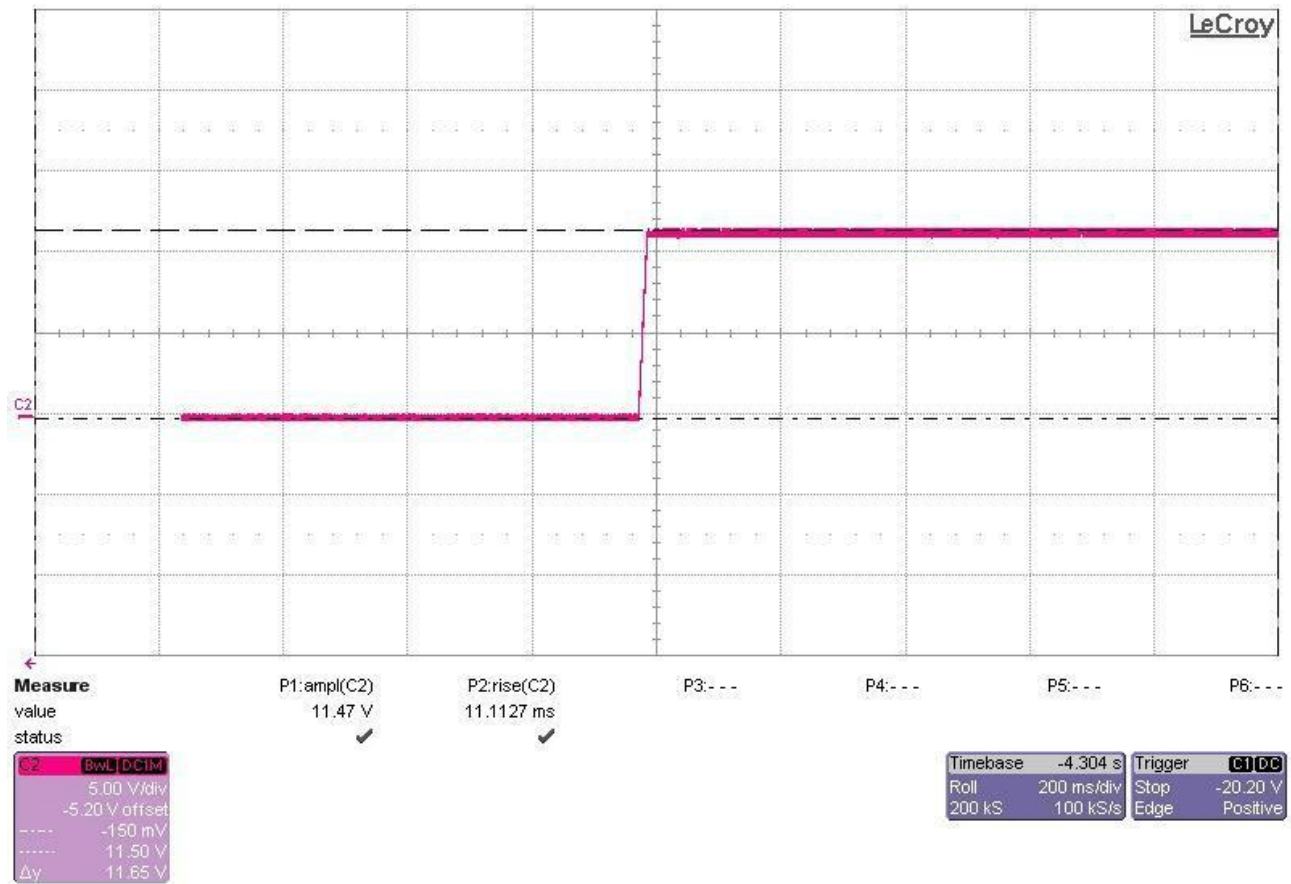
5.1.1 Start Up @ 108V_{AC}: 12V/0A

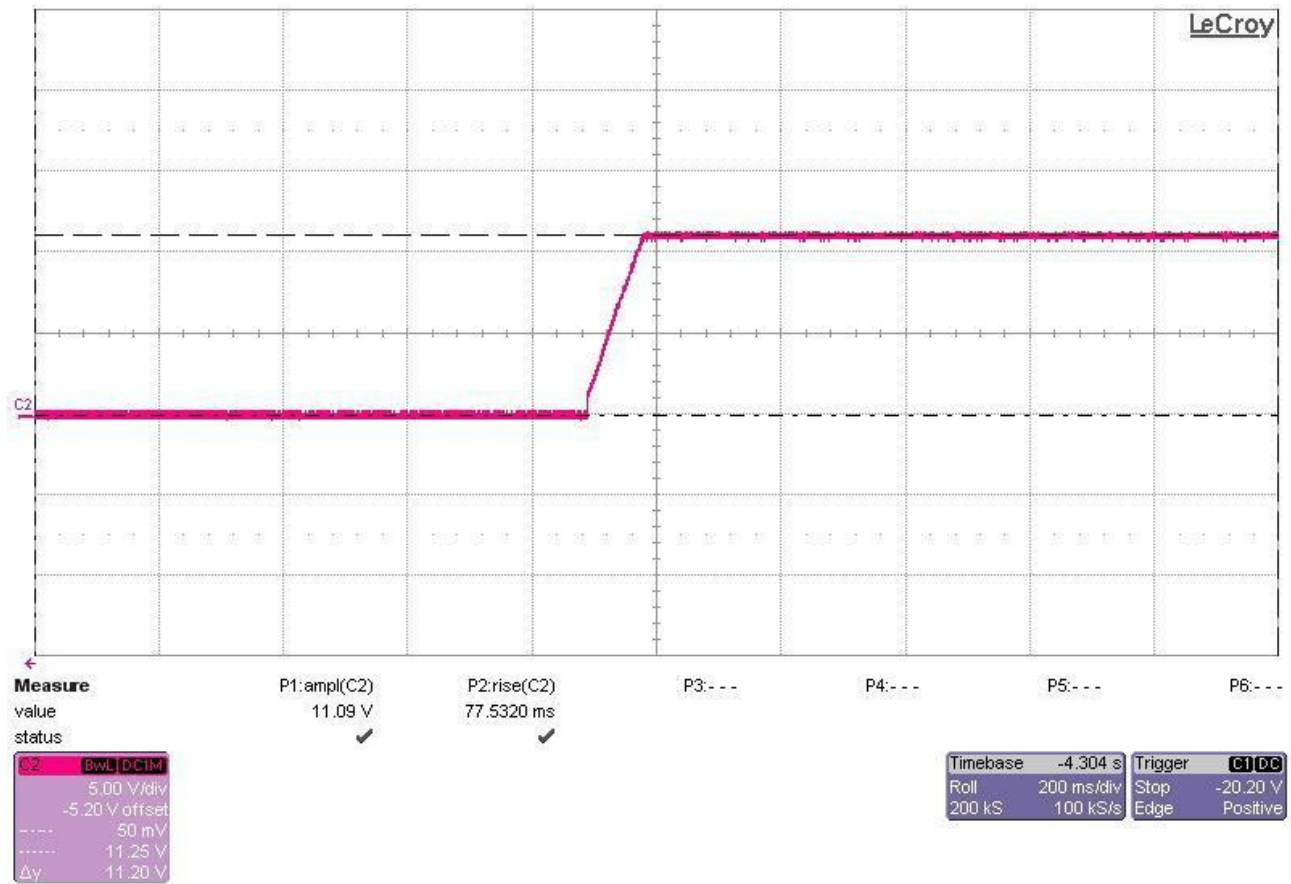


5.1.2 Start Up @ 108V_{AC}: 12V/1.5A

5.1.3 Start Up @ 115V_{AC}: 12V/0A

5.1.4 Start Up @ 115V_{AC}: 12V/1.5A

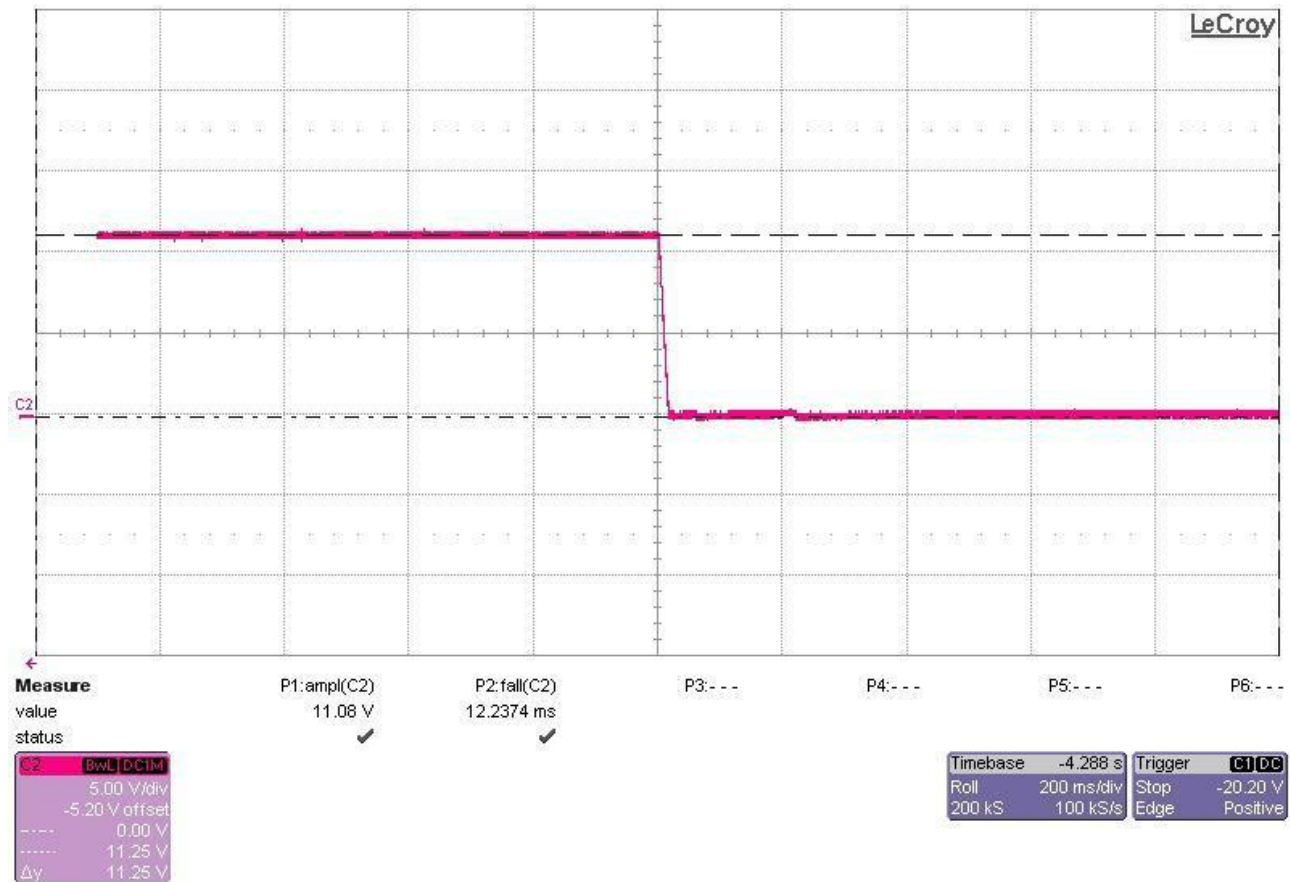
5.1.5 Start Up @ 138V_{AC}: 12V/0A

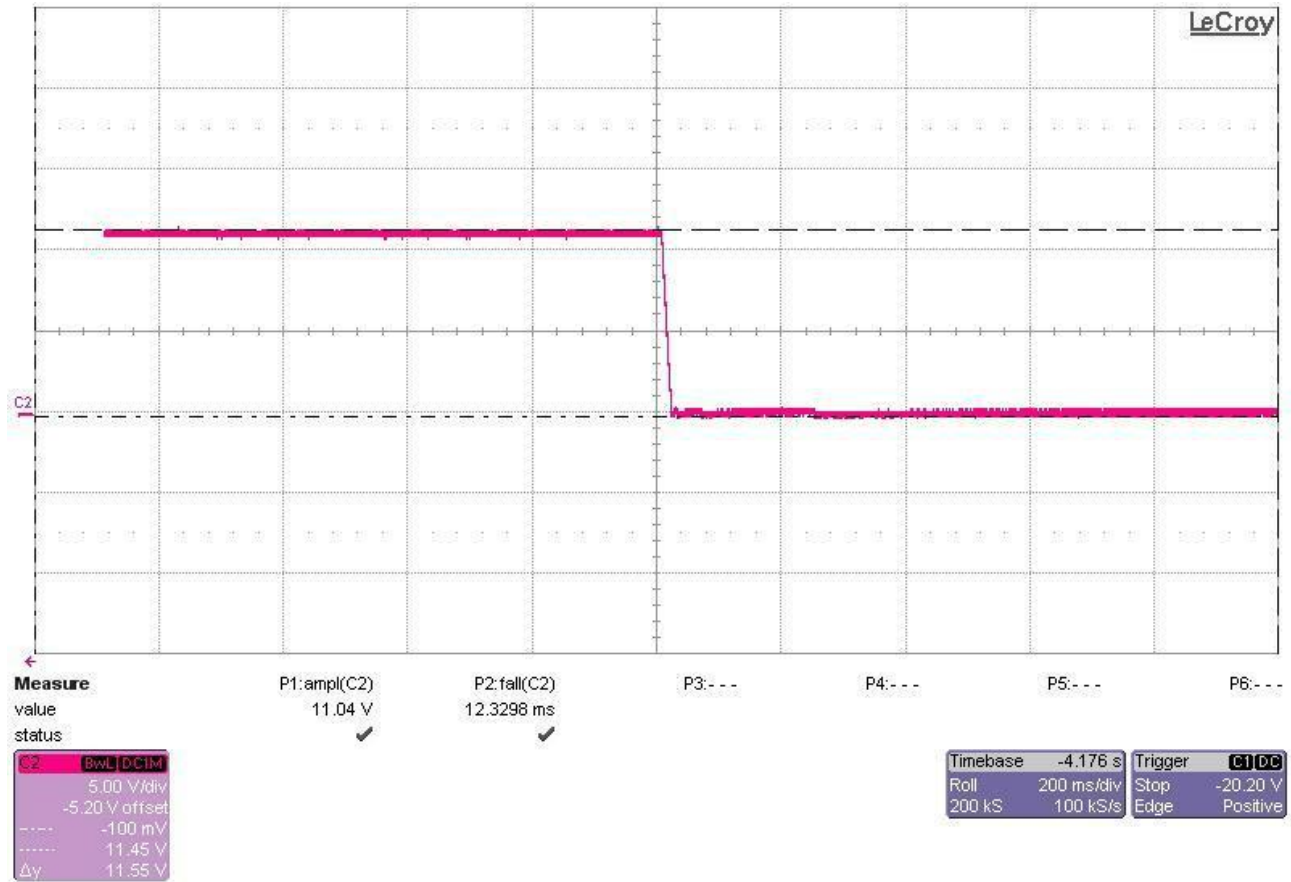
5.1.6 Start Up @ 138V_{AC}: 12V/1.5A

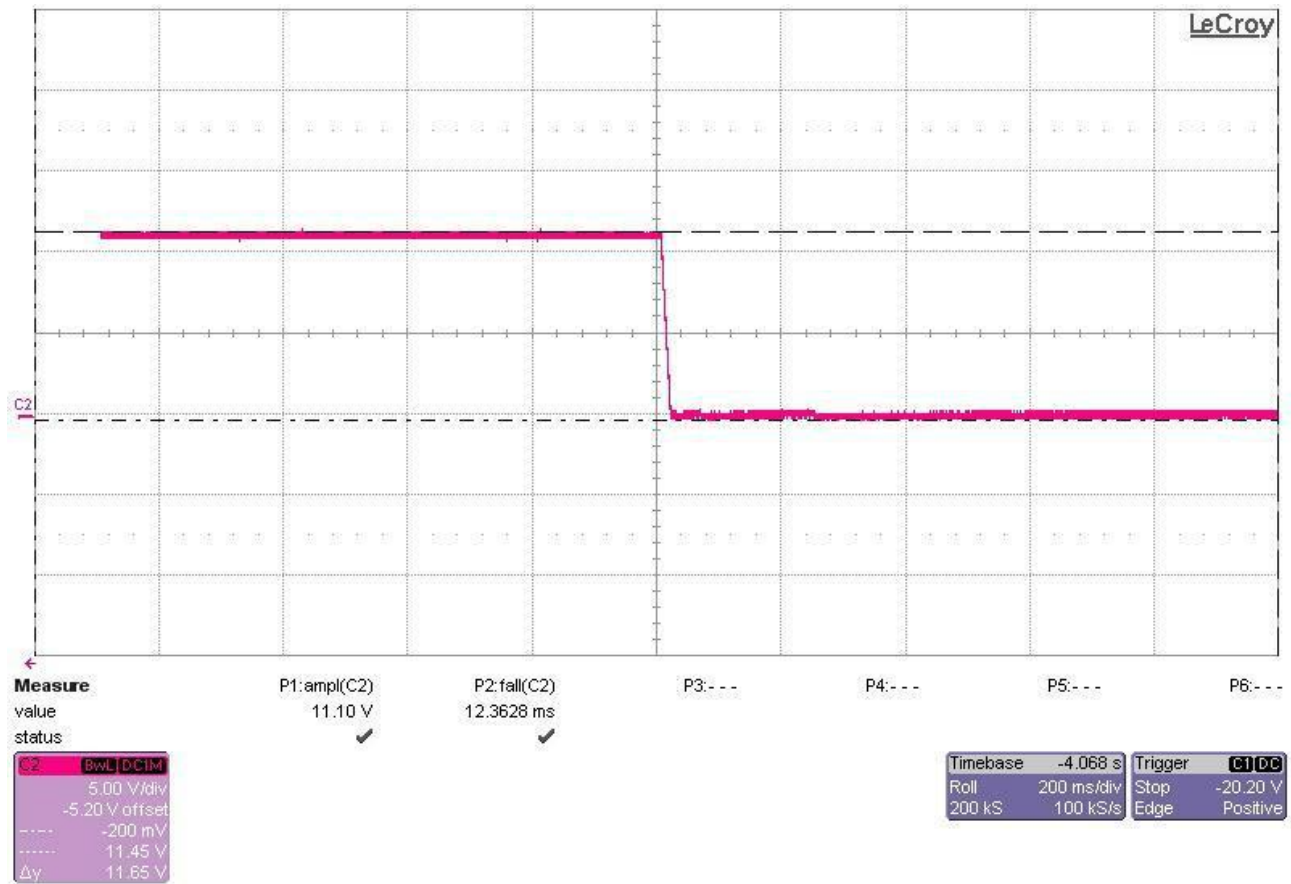
6 Turnoff

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

6.1.1 Turnoff @ 108V_{AC}: 12V/1.5A

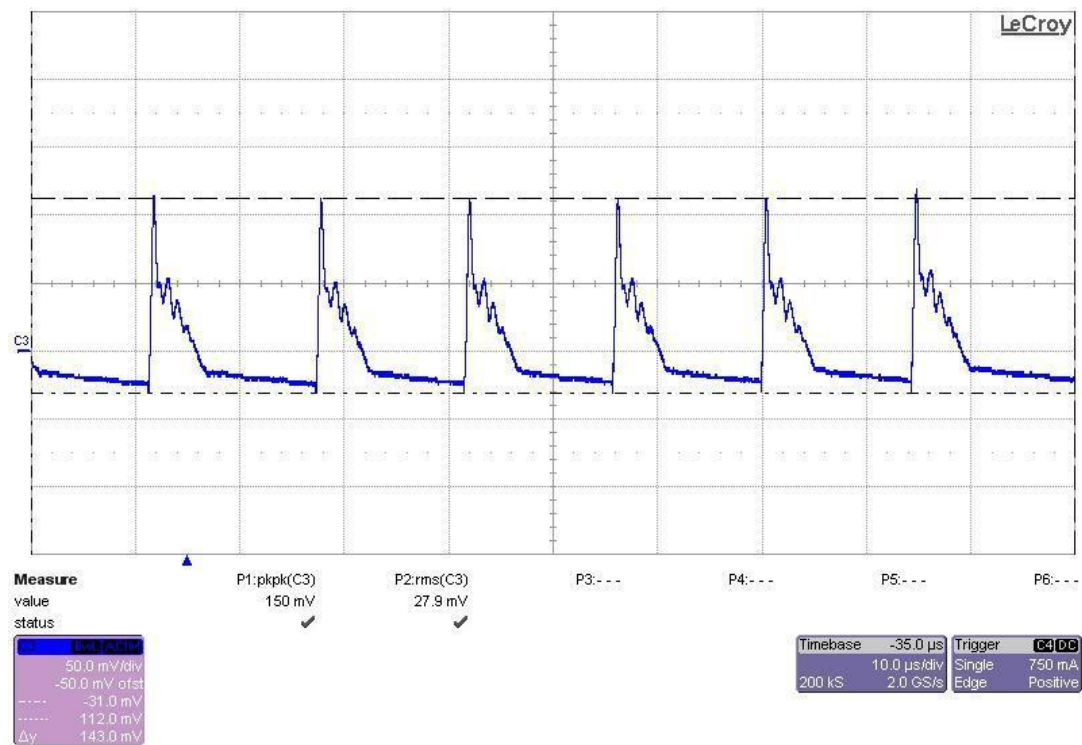


6.1.2 Turnoff @ 115V_{AC}: 12V/1.5A

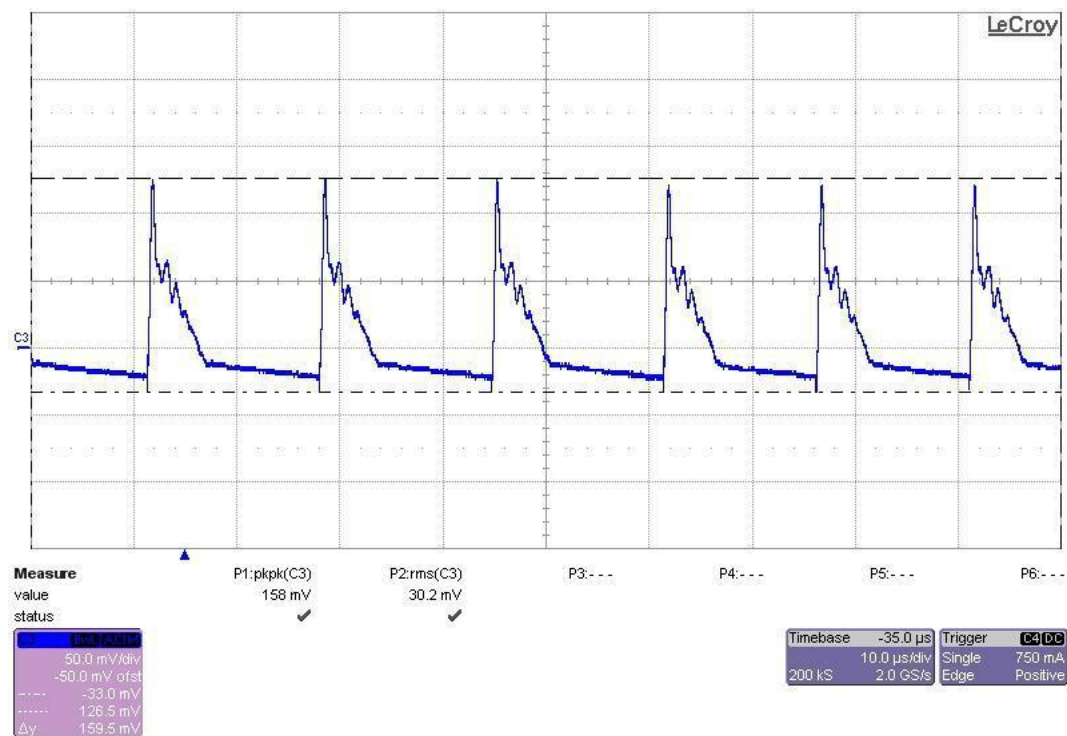
6.1.3 Turnoff @ 138V_{AC}: 12V/1.5A

7 Output Ripple Voltage

7.1.1 Output Ripple 12V @ 115V_{AC}: 12V/1.5A

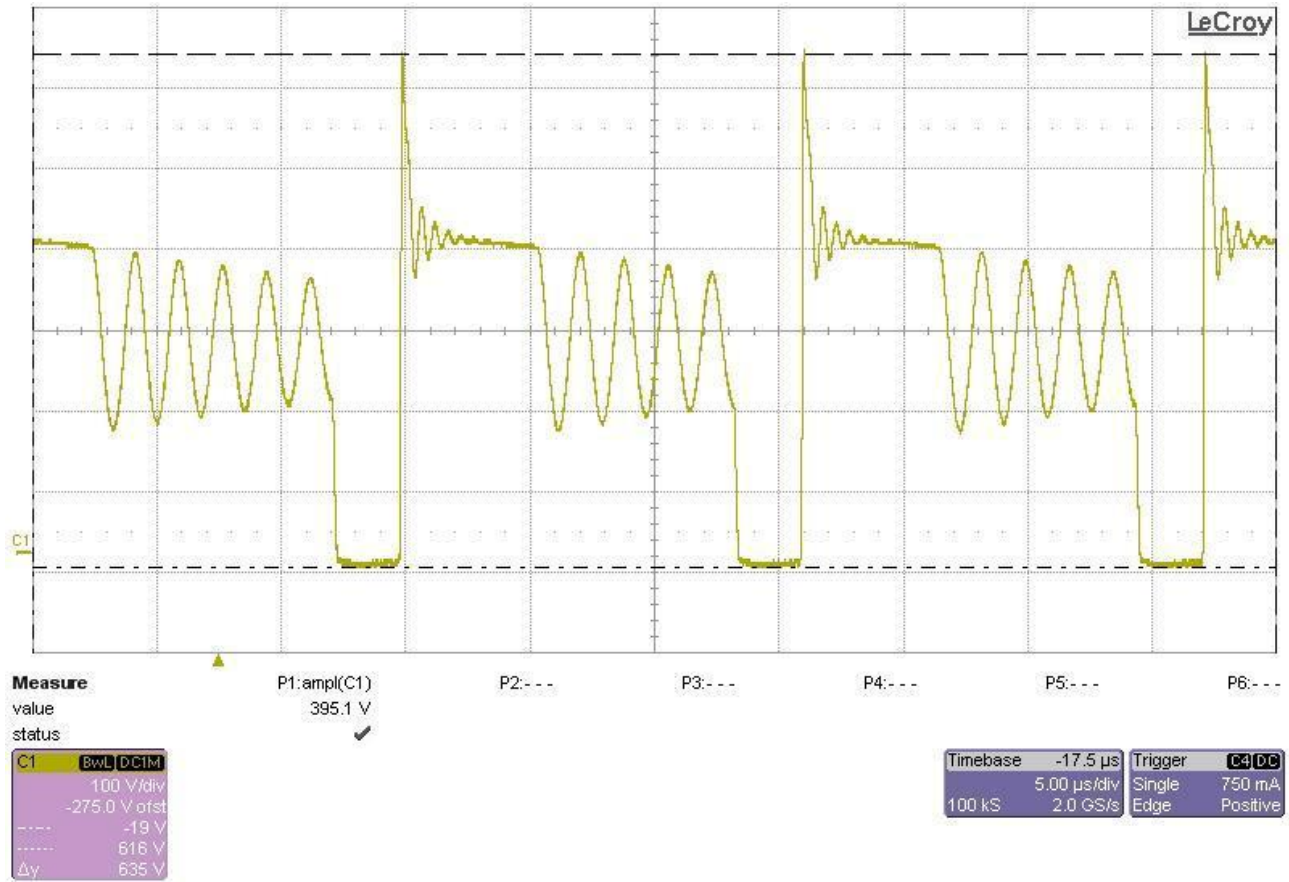


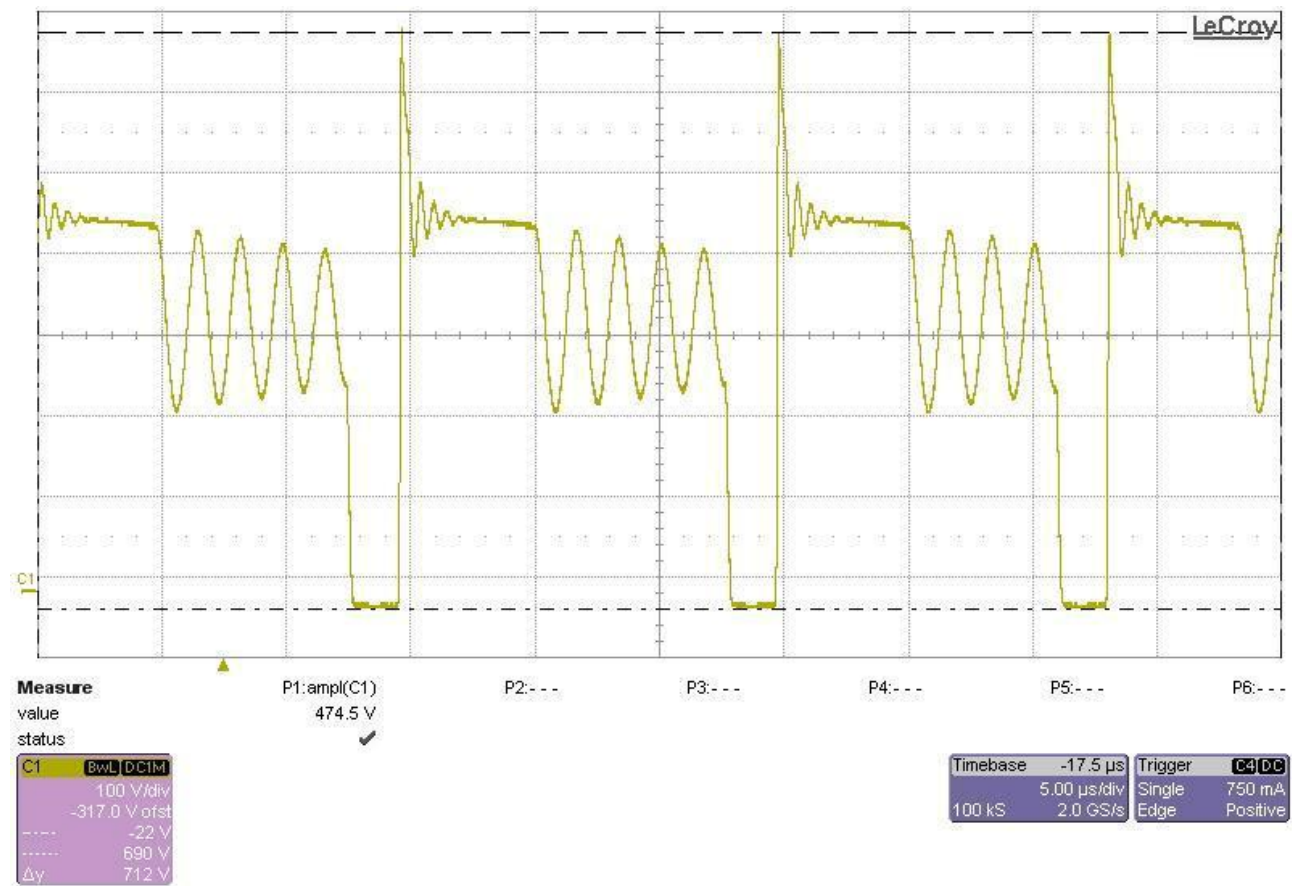
7.1.2 Output Ripple 12V @ 138V_{AC}: 12V/1.5A



8 Switching Waveforms

8.1.1 Switching Waveform @ 115V_{AC}: 12V/1.5A



8.1.2 Switching Waveform @ 138V_{AC}: 12V/1.5A

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