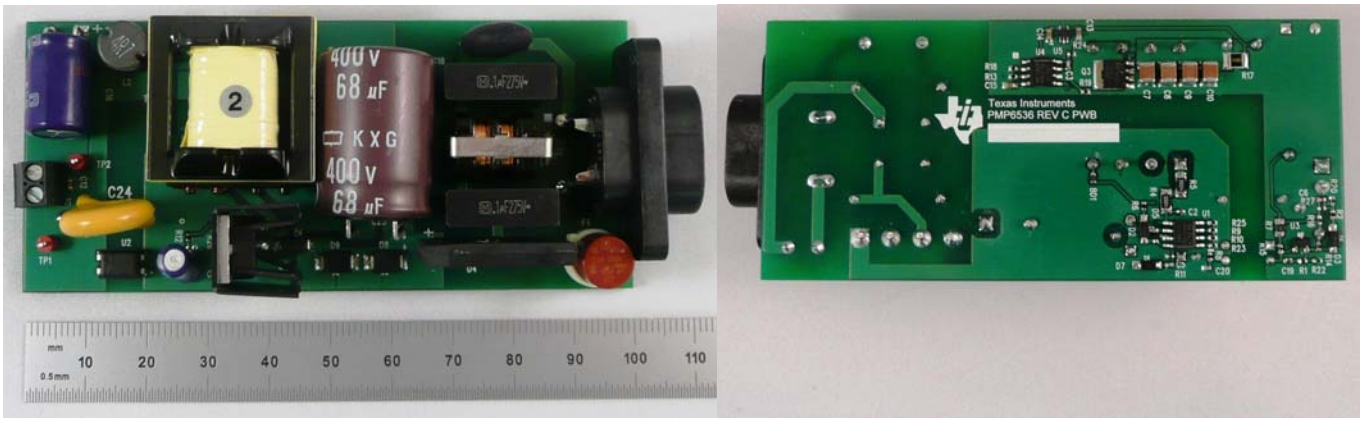
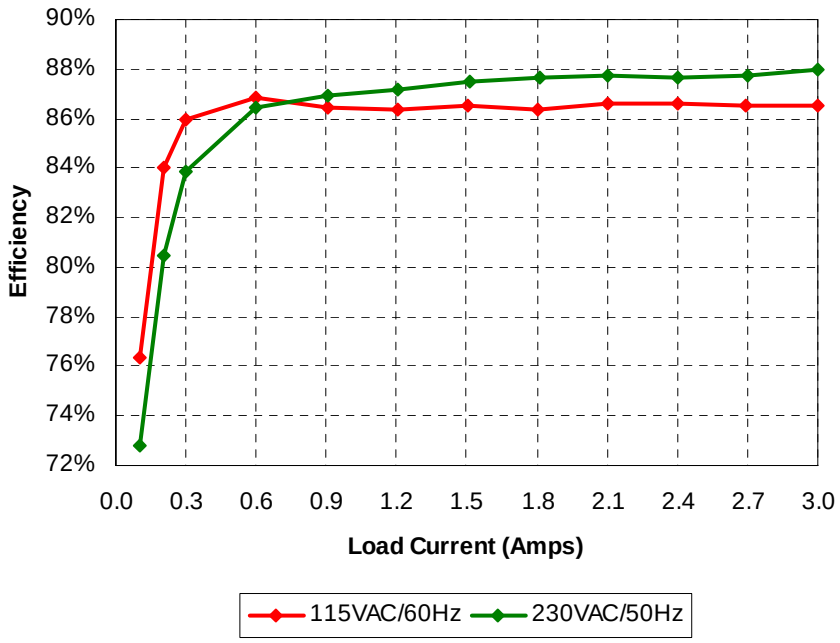
1 Photo

The photos below show the PMP6536 Rev C demo board.



2 Efficiency

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



115VAC/60Hz

Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	12.09	115.1	0.009	0.13	0.13	0.00	0.13	0.0%
0.103	12.09	115.1	0.042	1.63	0.34	1.25	0.38	76.4%
0.203	12.09	115.1	0.068	2.92	0.37	2.45	0.47	84.1%
0.303	12.09	115.1	0.094	4.26	0.40	3.66	0.60	86.0%
0.602	12.09	115.1	0.165	8.38	0.44	7.28	1.10	86.9%
0.902	12.09	115.0	0.233	12.62	0.47	10.91	1.71	86.4%
1.202	12.09	115.0	0.297	16.82	0.49	14.53	2.29	86.4%
1.502	12.09	115.0	0.359	20.98	0.51	18.16	2.82	86.6%
1.804	12.08	115.0	0.422	25.23	0.52	21.79	3.44	86.4%
2.103	12.08	115.0	0.480	29.34	0.53	25.40	3.94	86.6%
2.403	12.08	115.0	0.539	33.52	0.54	29.03	4.49	86.6%
2.693	12.08	115.0	0.595	37.60	0.55	32.53	5.07	86.5%
3.003	12.08	115.0	0.654	41.93	0.56	36.28	5.65	86.5%

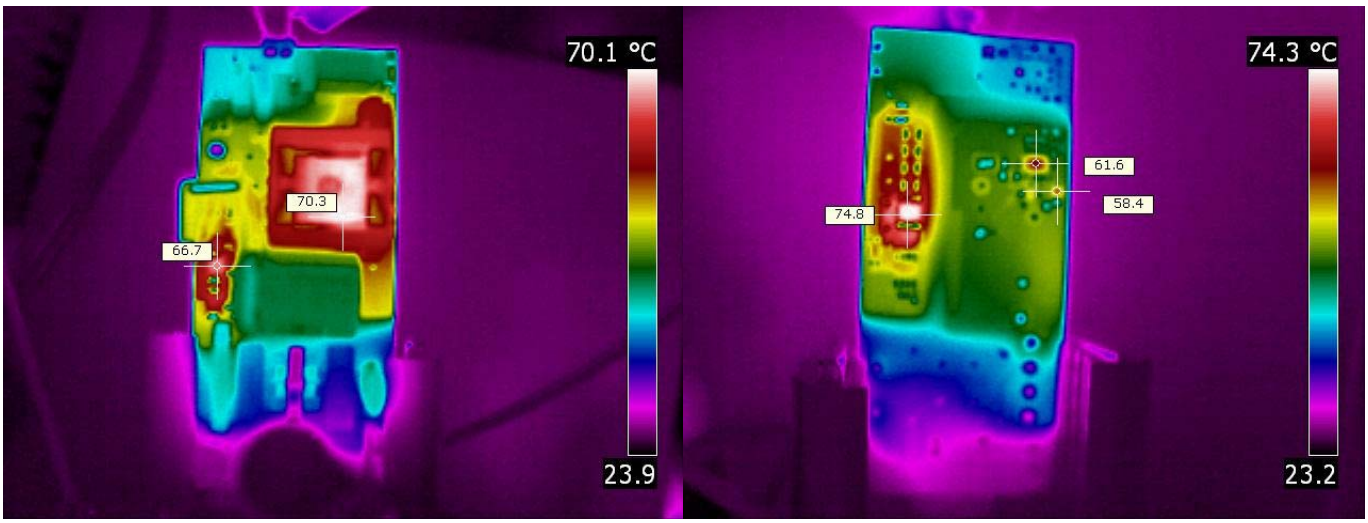
230VAC/50Hz

Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	12.09	230.0	0.014	0.27	0.08	0.00	0.27	0.0%
0.103	12.09	230.0	0.032	1.71	0.24	1.25	0.46	72.8%
0.203	12.09	230.0	0.047	3.05	0.28	2.45	0.60	80.5%
0.303	12.09	230.0	0.063	4.37	0.30	3.66	0.71	83.8%
0.602	12.09	230.0	0.106	8.42	0.34	7.28	1.14	86.4%
0.902	12.09	230.0	0.148	12.55	0.37	10.91	1.64	86.9%
1.202	12.09	230.0	0.187	16.67	0.39	14.53	2.14	87.2%
1.512	12.09	230.0	0.226	20.89	0.40	18.28	2.61	87.5%
1.812	12.09	230.0	0.263	24.98	0.41	21.91	3.07	87.7%
2.103	12.08	230.0	0.298	28.95	0.42	25.40	3.55	87.8%
2.403	12.08	230.0	0.334	33.11	0.43	29.03	4.08	87.7%
2.703	12.08	230.0	0.369	37.20	0.44	32.65	4.55	87.8%
3.003	12.08	230.0	0.403	41.25	0.45	36.28	4.97	87.9%

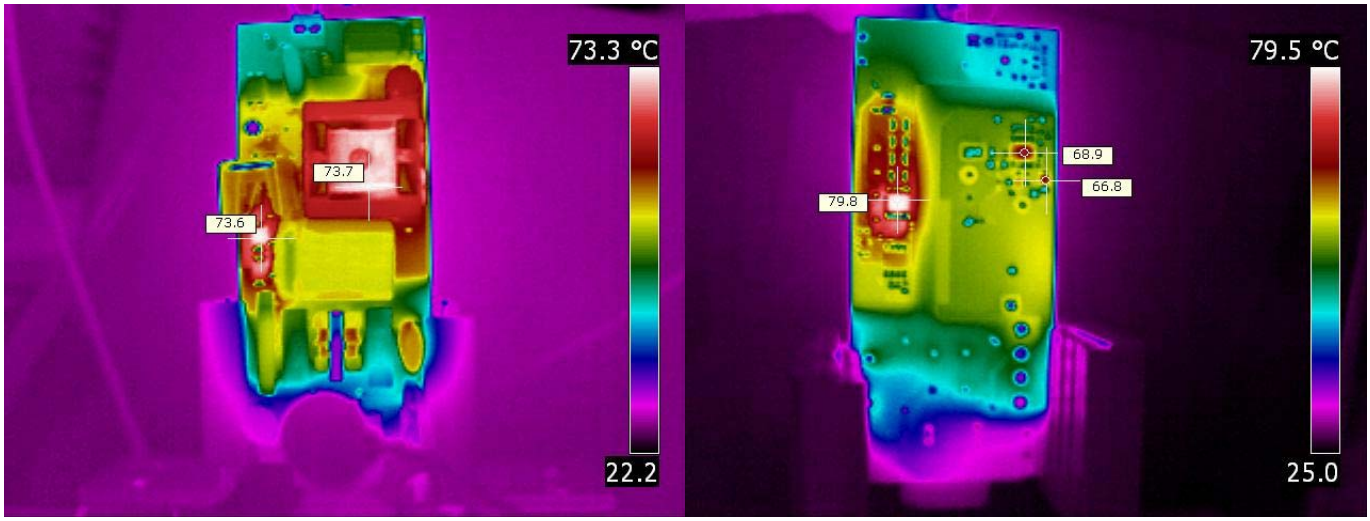
3 Thermal Images

The thermal images below show the top and bottom of the board with a 3A load and no forced air flow. The ambient temperature was 25ºC.

3.1 115VAC/60Hz Input



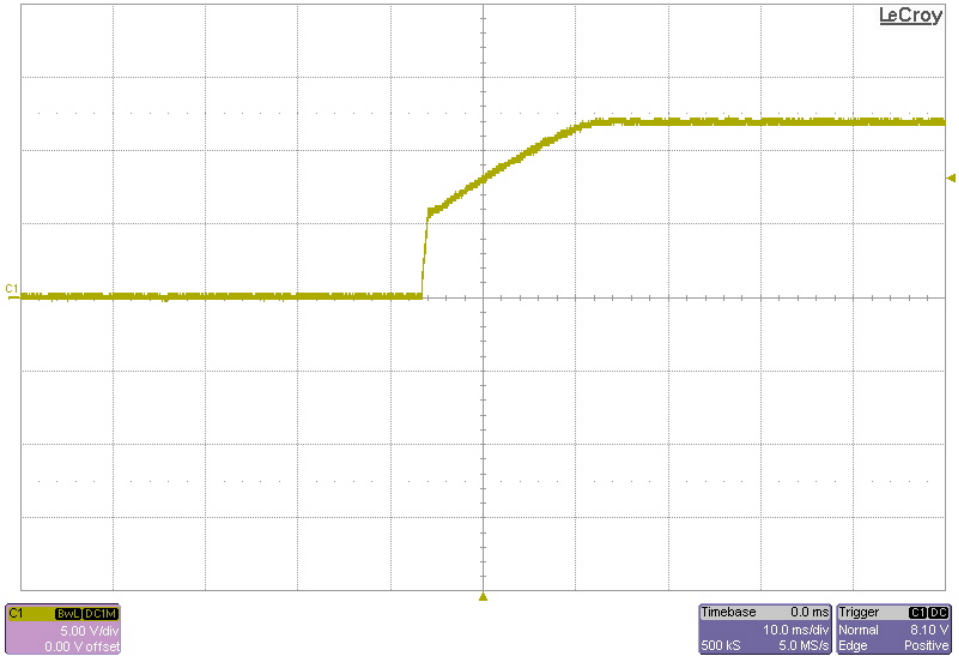
3.2 230VAC/50Hz Input



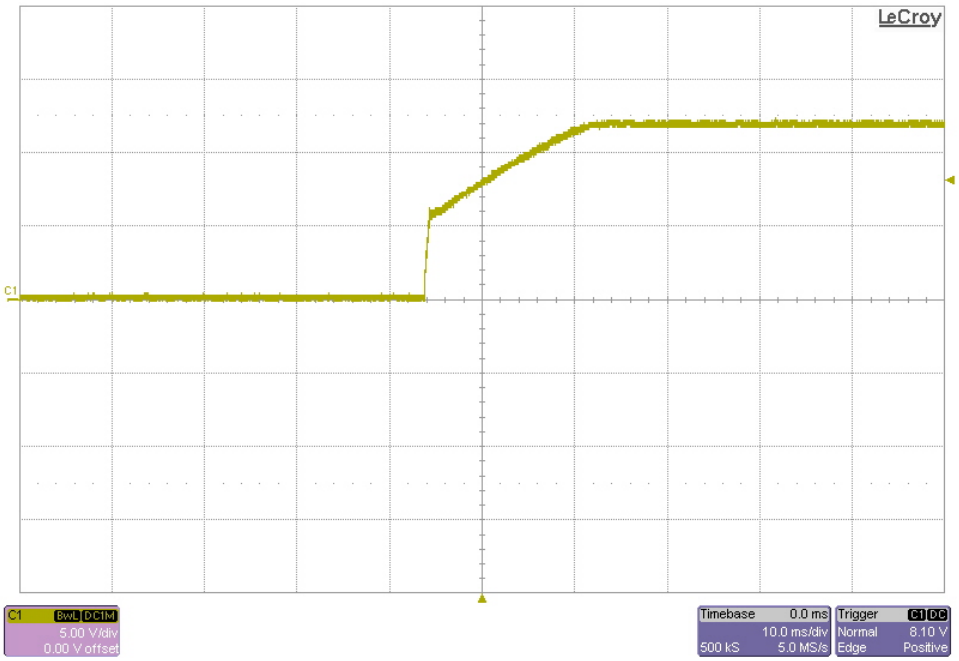
4 Startup

The output voltage at startup is shown in the images below.

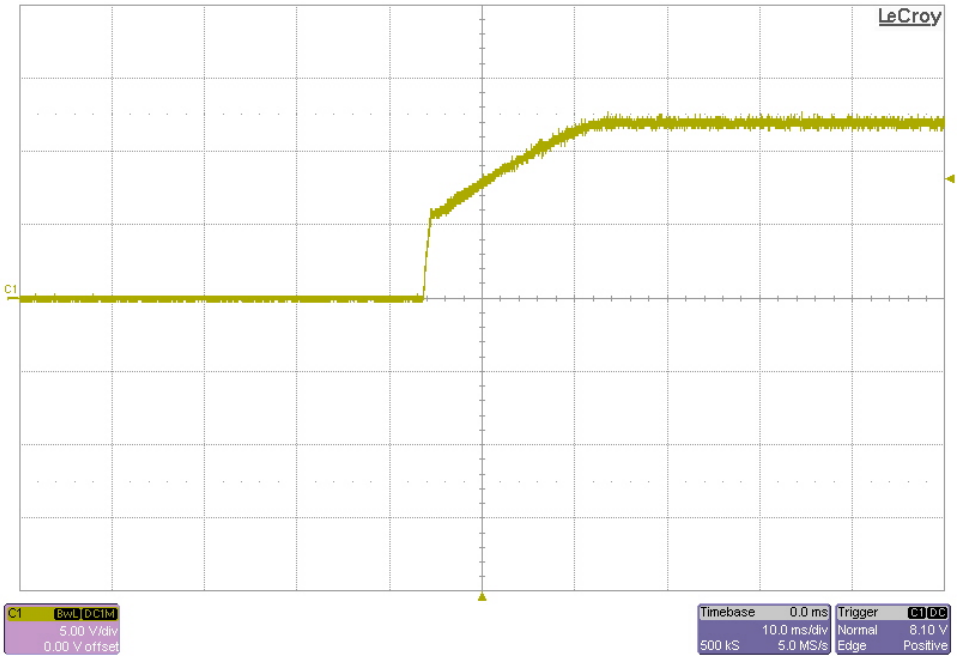
4.1 115VAC/60Hz Input – No Load



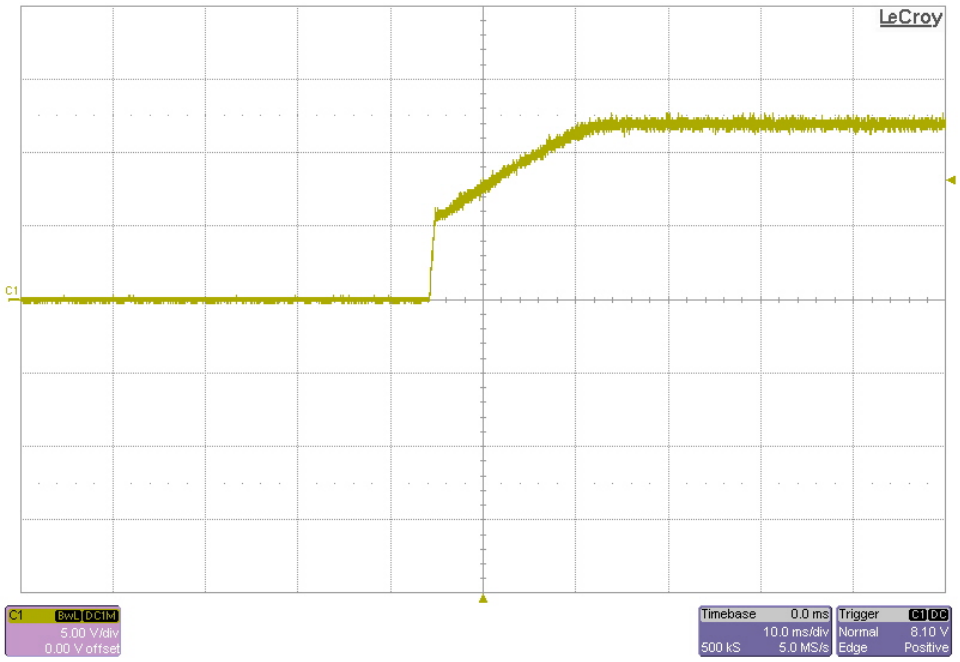
4.2 230VAC/50Hz Input- No Load



4.3 115VAC/60Hz Input – 3A Load

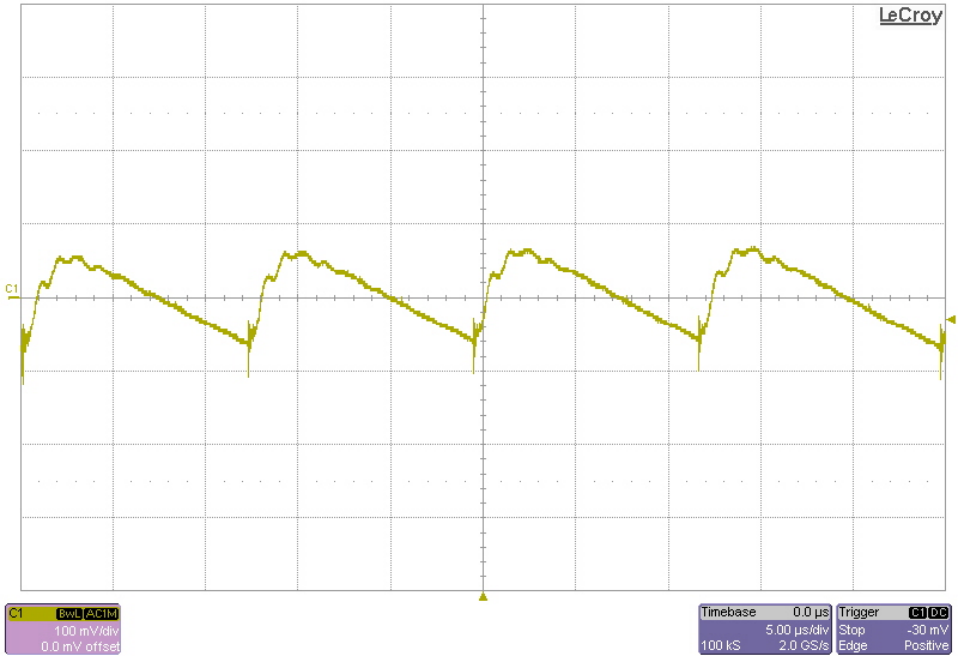


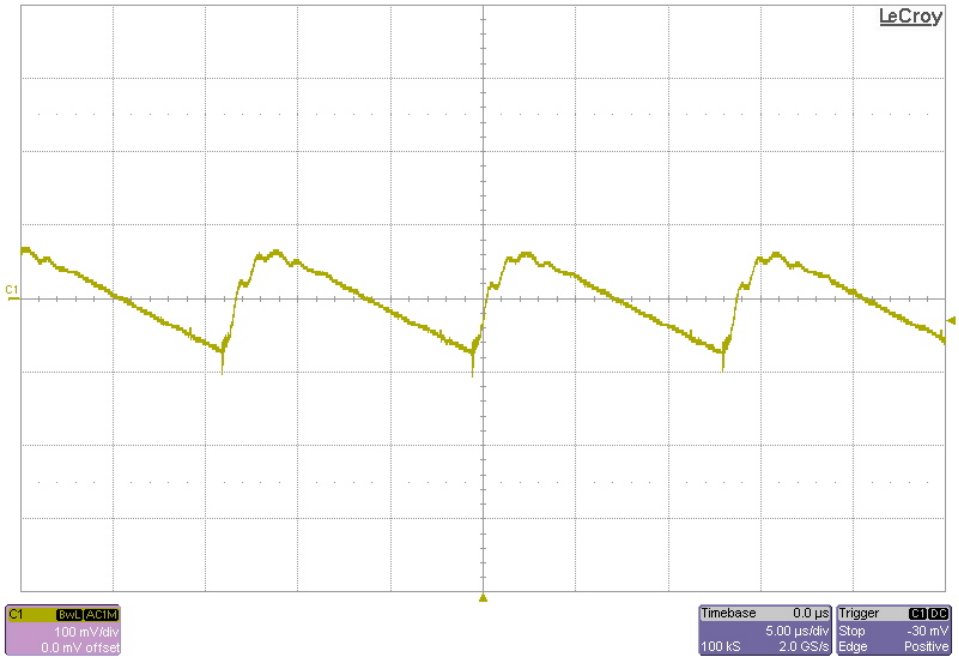
4.4 230VAC/50Hz Input – 3A Load



5 Output Ripple Voltage – Full Load

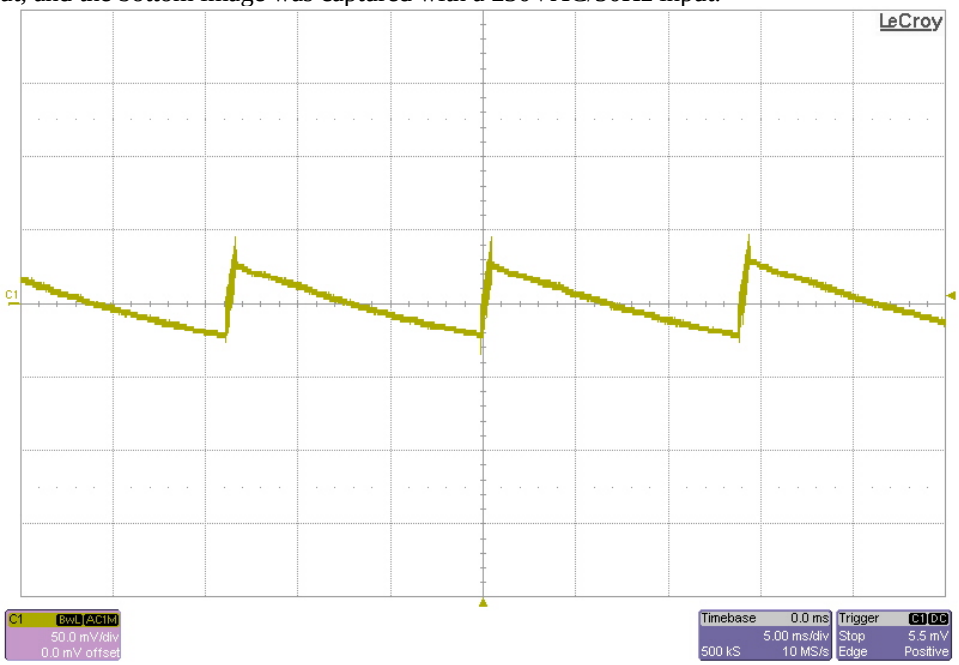
The output ripple voltage during full load operation (3A load) is shown in the images below. The top image was captured with an 115VAC/60Hz input, and the bottom image was captured with a 230VAC/50Hz input.

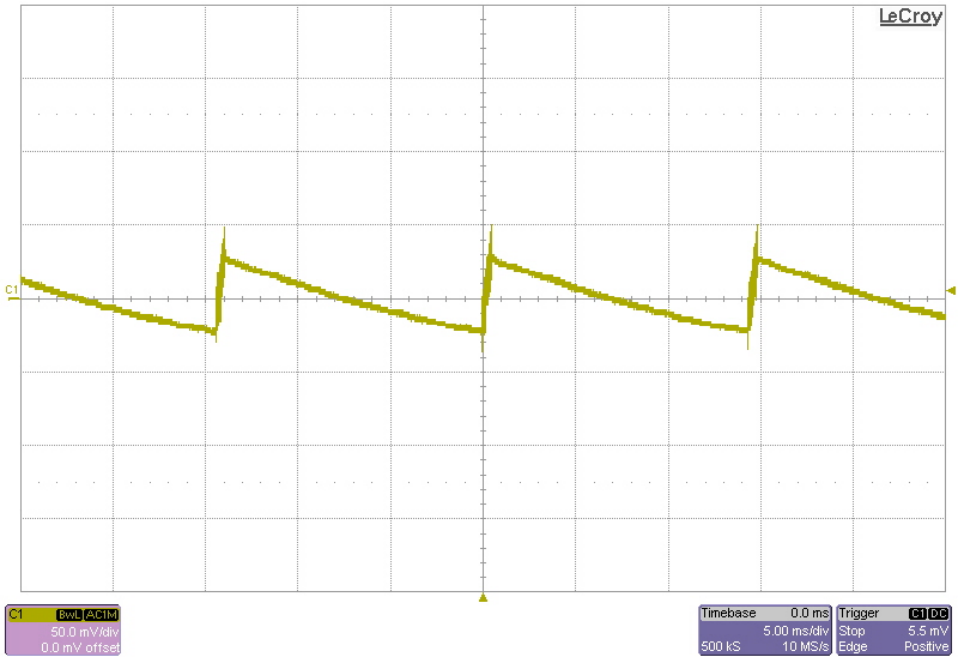




6 Output Ripple Voltage – No Load

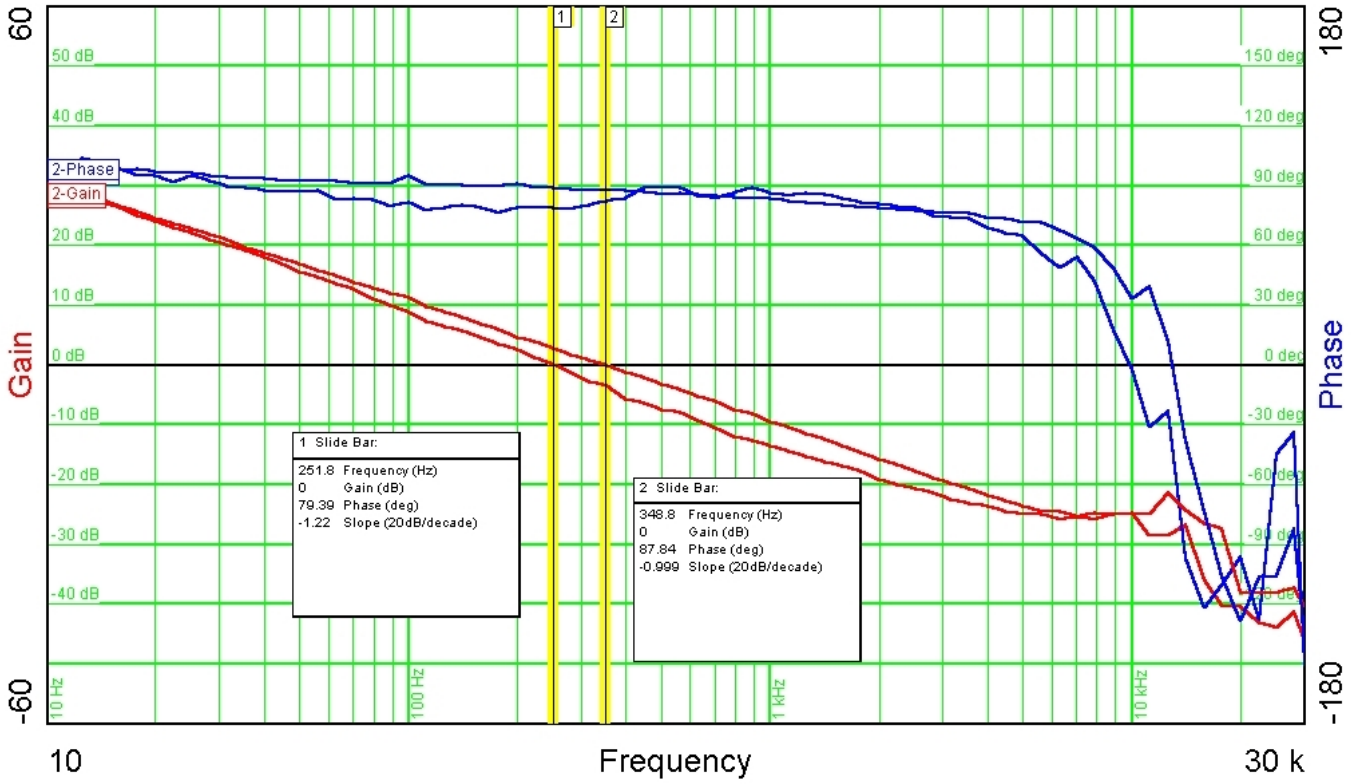
The output ripple voltage during no load operation is shown in the images below. The top image was captured with an 115VAC/60Hz input, and the bottom image was captured with a 230VAC/50Hz input.





7 Loop Response

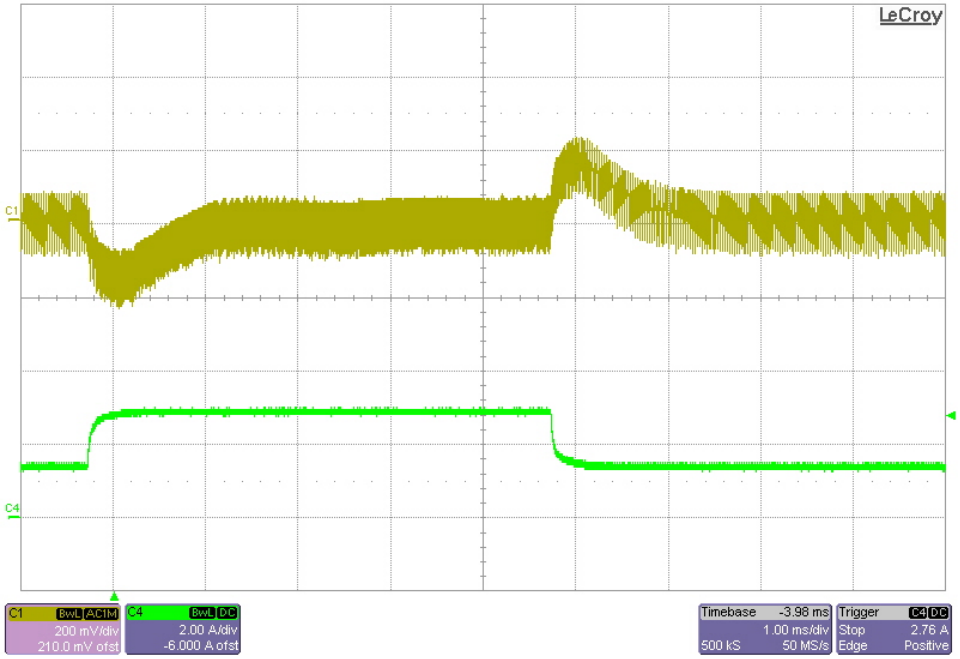
The image below shows the loop response of the converter. For plot #1, the input was 115VAC/60Hz. For plot #2, the input was 230VAC/50Hz. The output was loaded with 3A. The loop was broken and measured across R16.

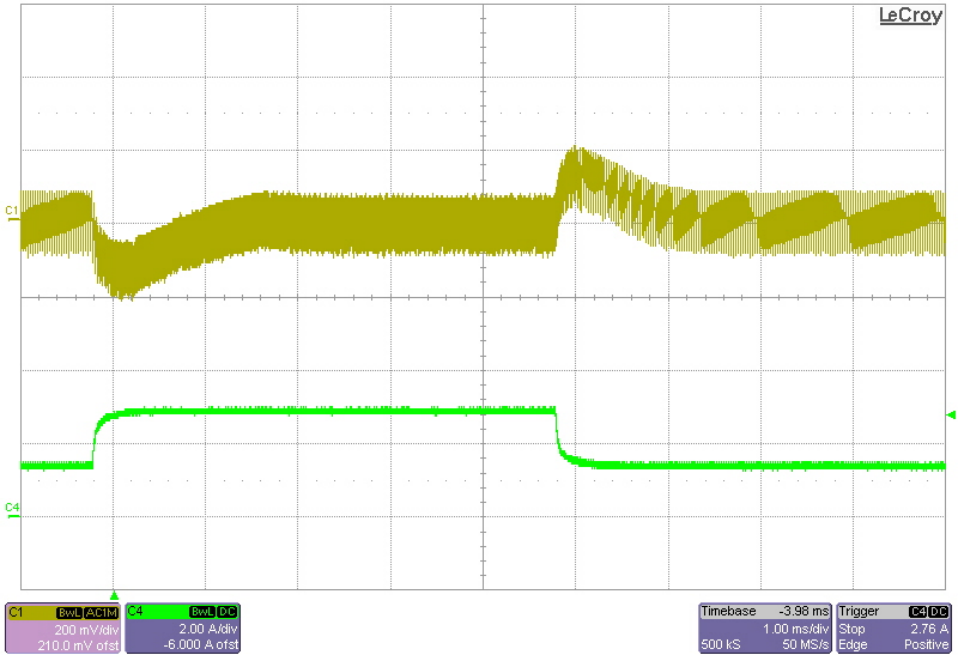


8 Load Transients

The images below show the response to a 1.5A to 3A load transient. For the top image, the input voltage was set to 115VAC/60Hz. For the bottom image, the input voltage was set to 230VAC/50Hz.

Channel 1: Vout (ac coupled) 200mV/div Channel 4: Iout 2A/div

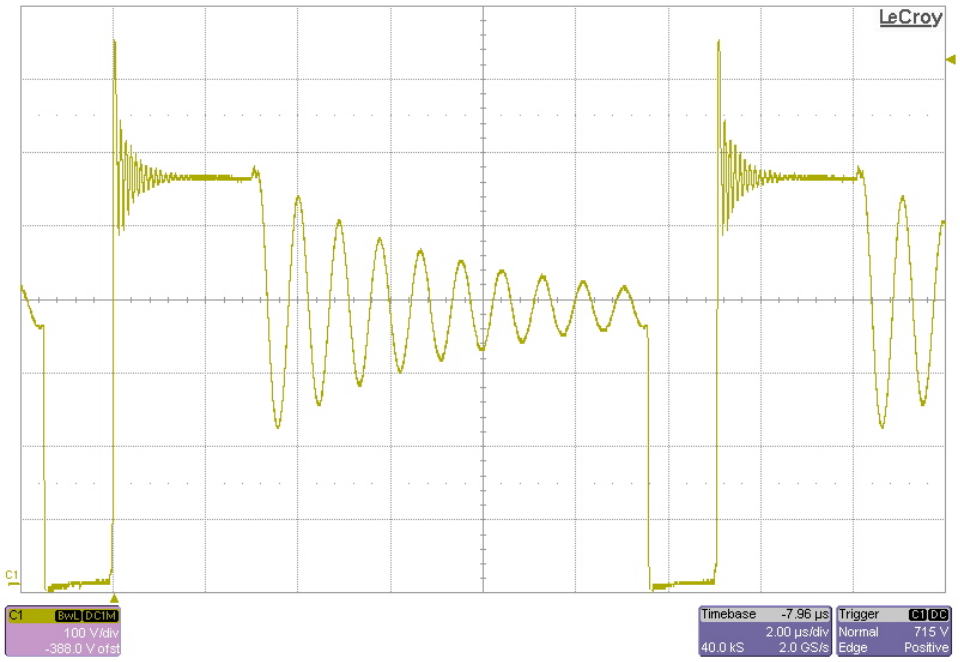




9 Switching Waveforms

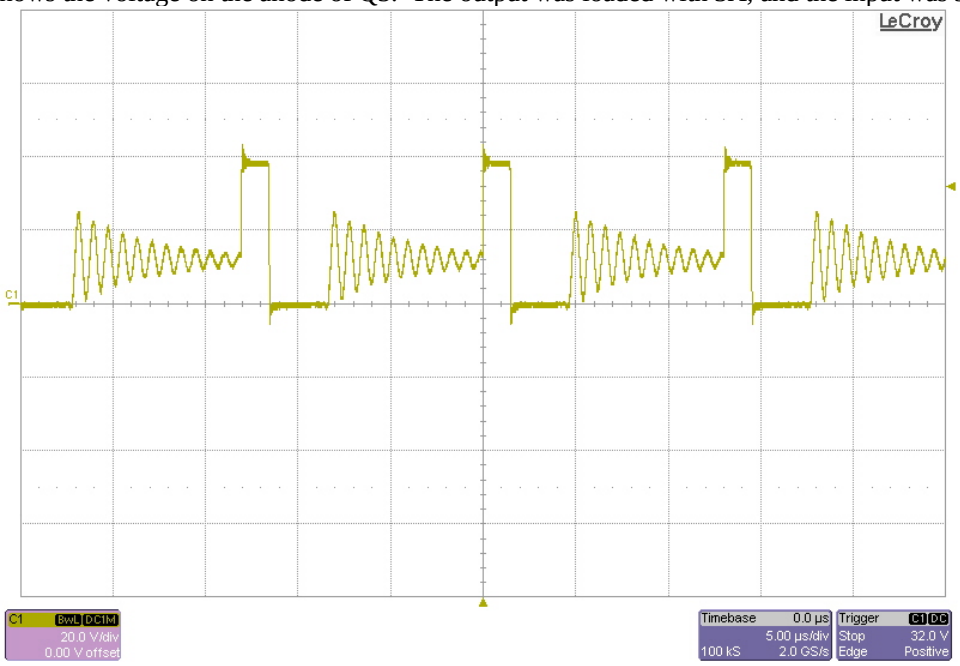
9.1 Power MOSFET

The image below shows the voltage waveform on the drain of Q1. The output was loaded with 3A, and the input was set to 265VAC.



9.2 Synchronous Rectifier

The image below shows the voltage on the anode of Q3. The output was loaded with 3A, and the input was set to 265VAC.



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