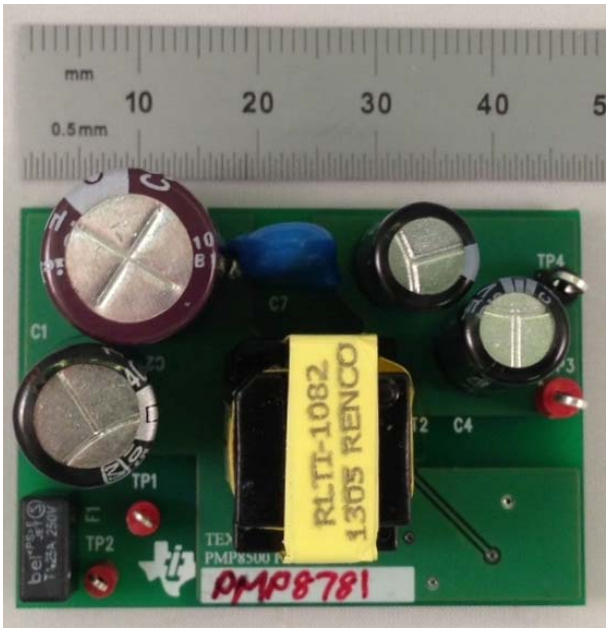
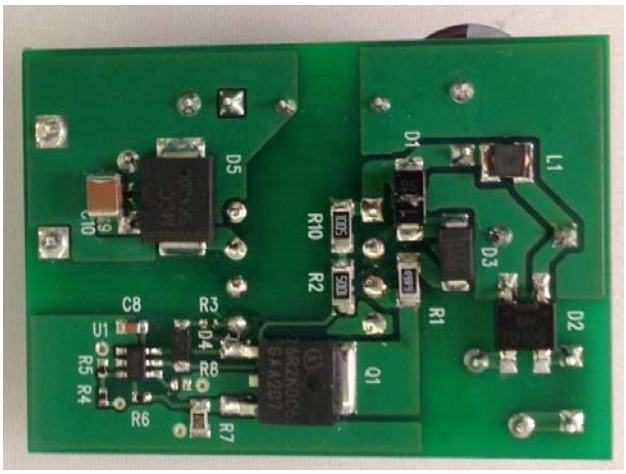
1 Photos

The photographs below show the PMP8781 Rev A prototype assembly. This circuit was built on a PMP8500 Rev A PCB.

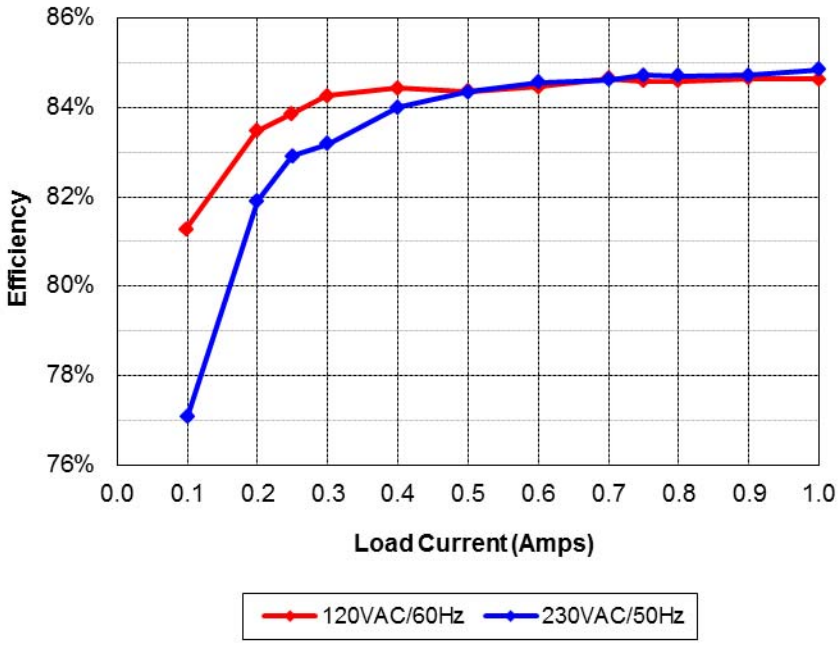




2 Standby Power

With no load attached to the output of the supply, the unit draws 37mW of input power with an 120VAC/60Hz input, and 46mW with a 230VAC/50Hz input.

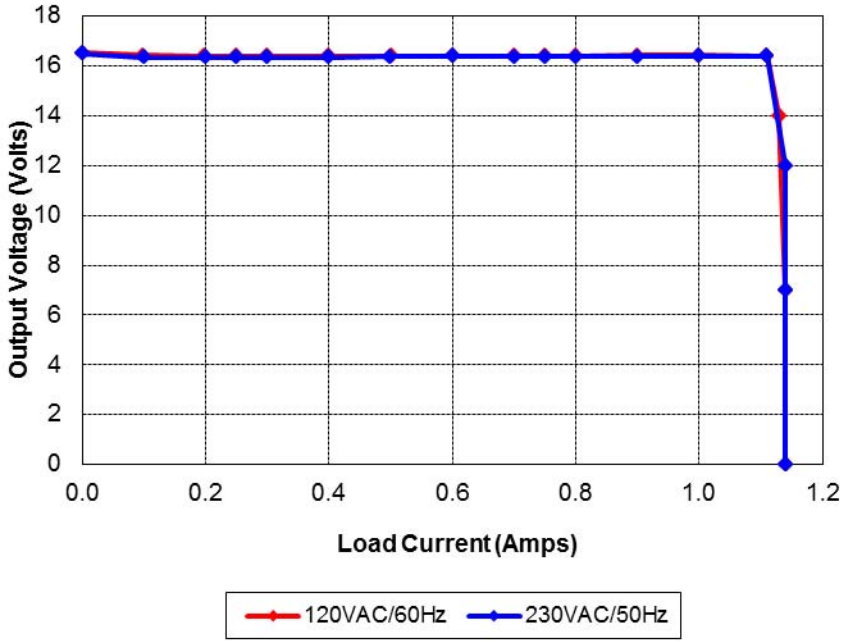
3 Efficiency



120VAC/60Hz								
Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	16.52	120.0	0.0017	0.037		0.00	0.04	0.0%
0.099	16.42	119.9	0.046	2.00	0.36	1.63	0.37	81.3%
0.199	16.40	119.9	0.081	3.91	0.41	3.26	0.65	83.5%
0.249	16.40	119.9	0.097	4.87	0.42	4.08	0.79	83.9%
0.299	16.40	119.9	0.112	5.82	0.43	4.90	0.92	84.3%
0.399	16.40	119.9	0.141	7.75	0.46	6.54	1.21	84.4%
0.501	16.40	119.9	0.170	9.74	0.48	8.22	1.52	84.4%
0.600	16.40	119.9	0.197	11.65	0.49	9.84	1.81	84.5%
0.700	16.41	119.9	0.223	13.57	0.51	11.49	2.08	84.6%
0.750	16.41	119.9	0.236	14.55	0.51	12.31	2.24	84.6%
0.800	16.41	119.9	0.249	15.52	0.52	13.13	2.39	84.6%
0.899	16.42	119.9	0.274	17.44	0.53	14.76	2.68	84.6%
1.000	16.42	119.9	0.299	19.40	0.55	16.42	2.98	84.6%
230VAC/50Hz								
Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	16.50	230.0	0.0150	0.046		0.00	0.05	0.0%
0.100	16.34	230.0	0.032	2.12	0.28	1.63	0.49	77.1%
0.200	16.34	230.0	0.055	3.99	0.32	3.27	0.72	81.9%
0.250	16.35	230.0	0.065	4.93	0.33	4.09	0.84	82.9%
0.300	16.36	230.0	0.076	5.90	0.34	4.91	0.99	83.2%
0.400	16.36	230.0	0.095	7.79	0.36	6.54	1.25	84.0%
0.500	16.38	230.0	0.114	9.71	0.37	8.19	1.52	84.3%
0.600	16.39	230.0	0.132	11.63	0.38	9.83	1.80	84.6%
0.700	16.38	230.0	0.149	13.55	0.40	11.47	2.08	84.6%
0.750	16.38	230.0	0.158	14.50	0.40	12.29	2.22	84.7%
0.800	16.38	230.0	0.166	15.47	0.41	13.10	2.37	84.7%
0.900	16.38	230.0	0.182	17.40	0.42	14.74	2.66	84.7%
1.000	16.40	230.0	0.198	19.33	0.43	16.40	2.93	84.8%

4 Current Limit

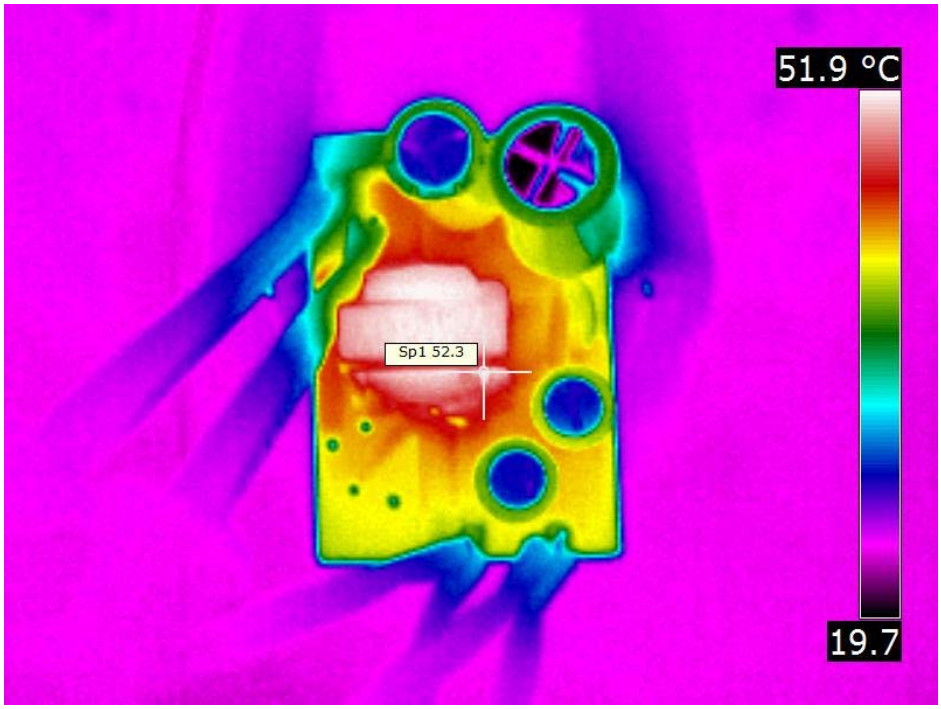
A plot of the output voltage versus load current is shown below.

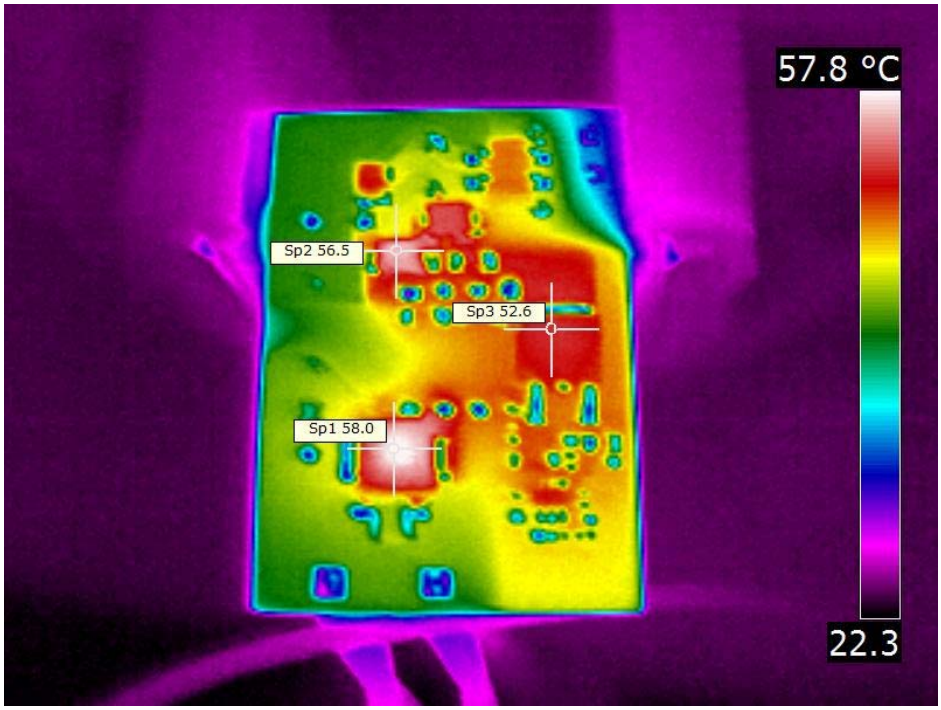


5 Thermal Images

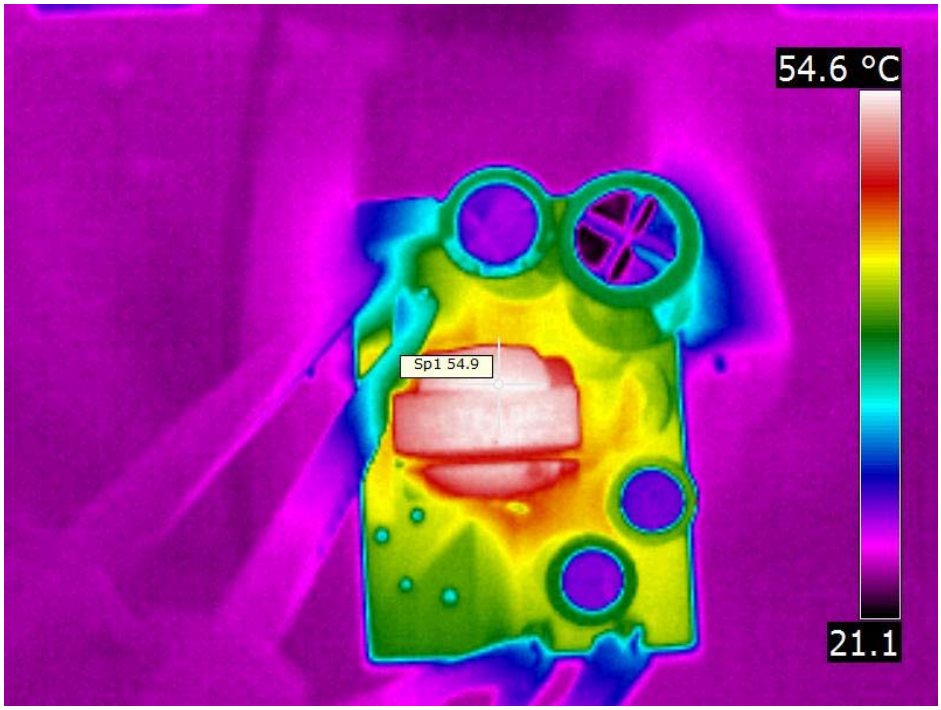
The ambient temperature was 25ºC.

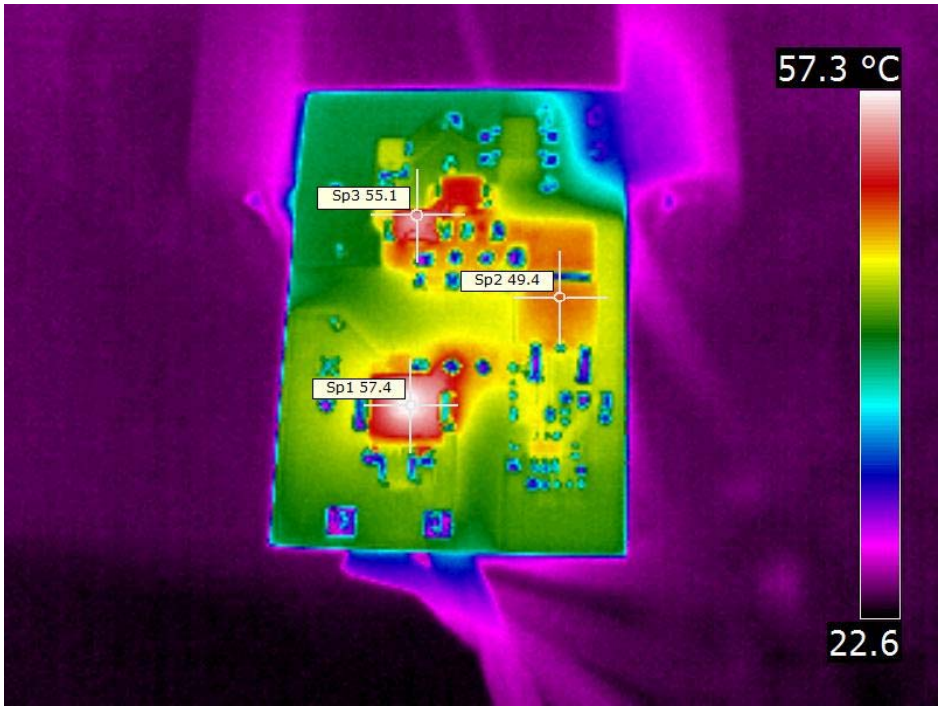
5.1 120VAC/60Hz Input – 11W Load



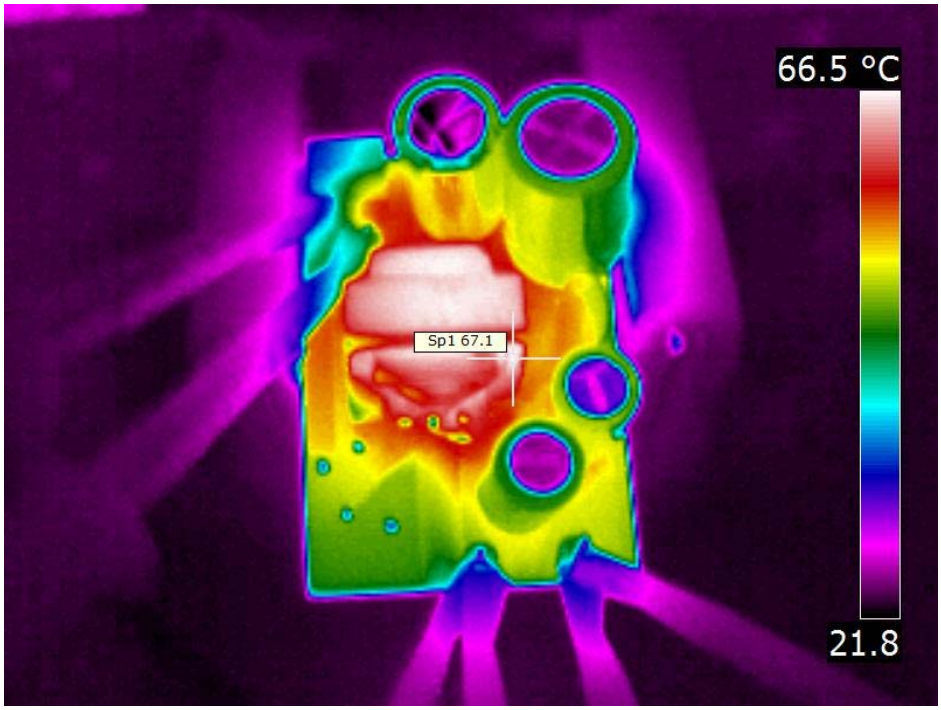


5.2 230VAC/50Hz Input – 11W Load

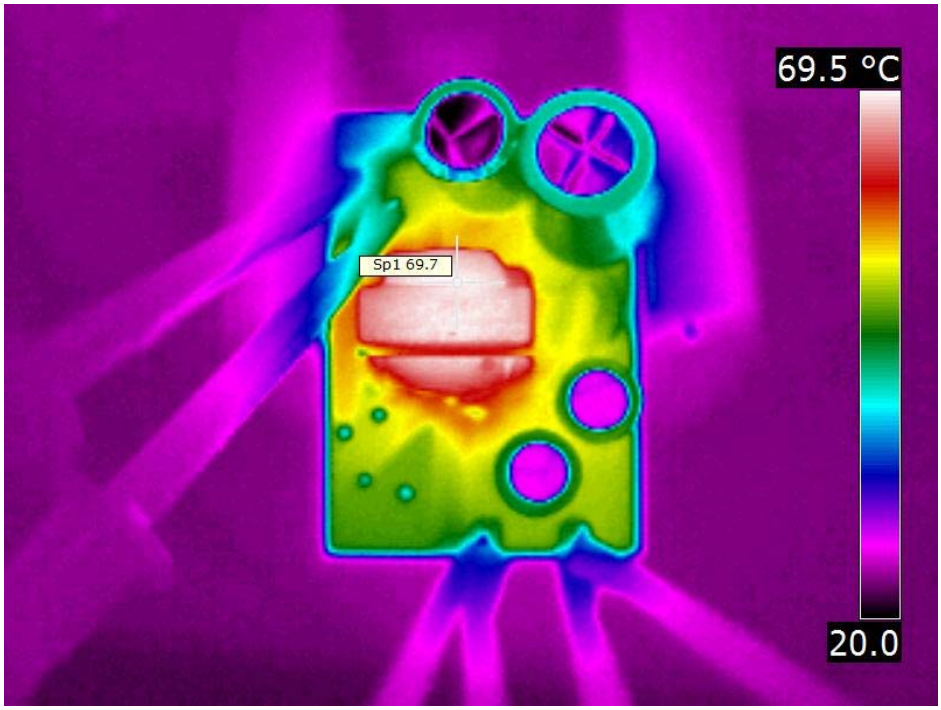


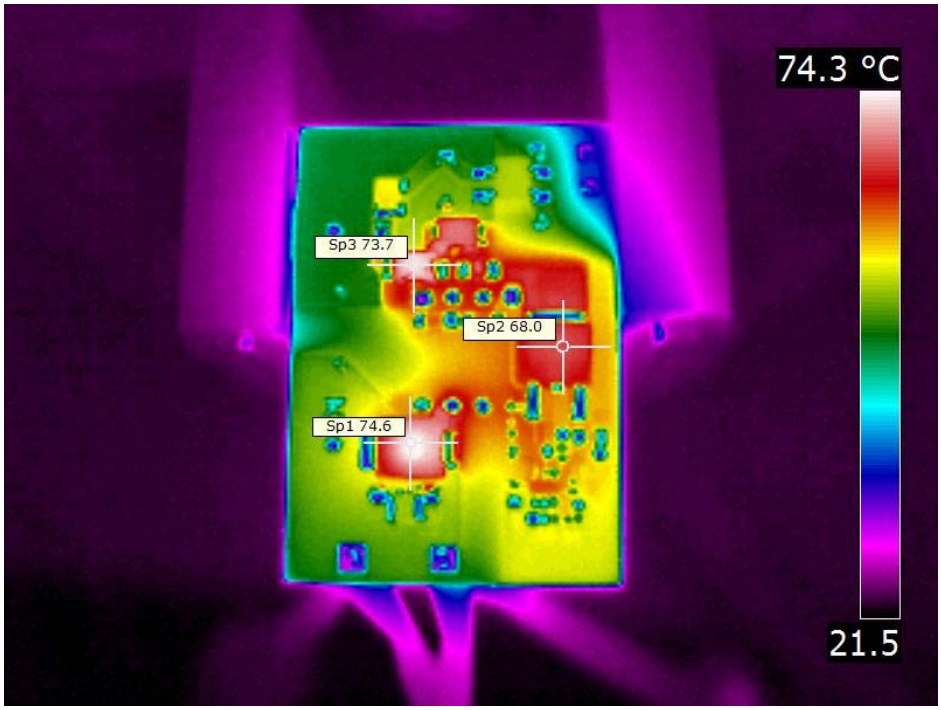


5.3 120VAC/60Hz Input – 16W Load



5.4 230VAC/50Hz Input – 16W Load

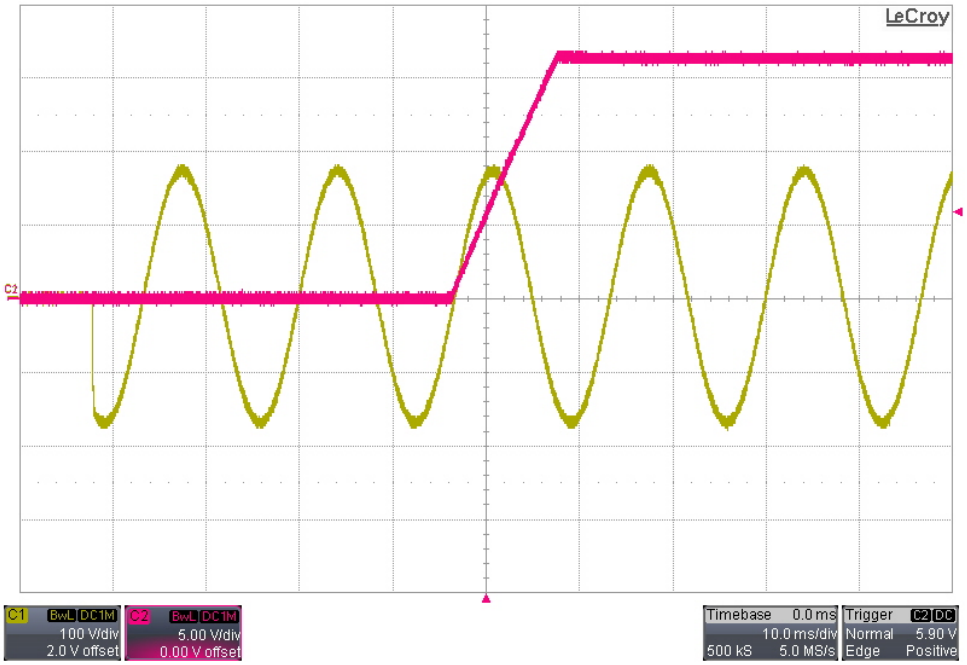




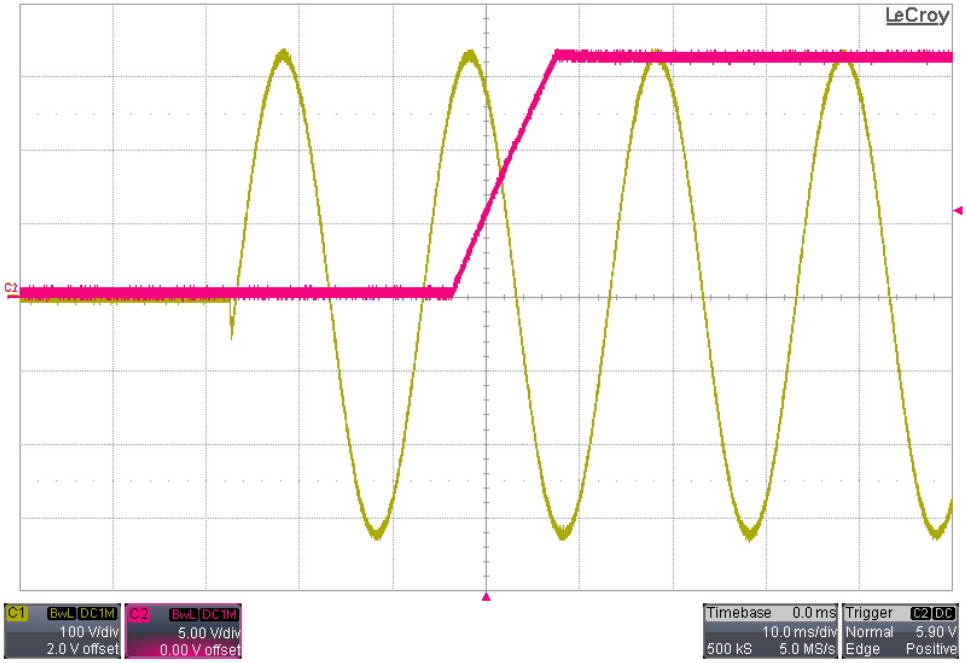
6 Startup

Channel 1 shows the AC input voltage. Channel 2 shows the output voltage.

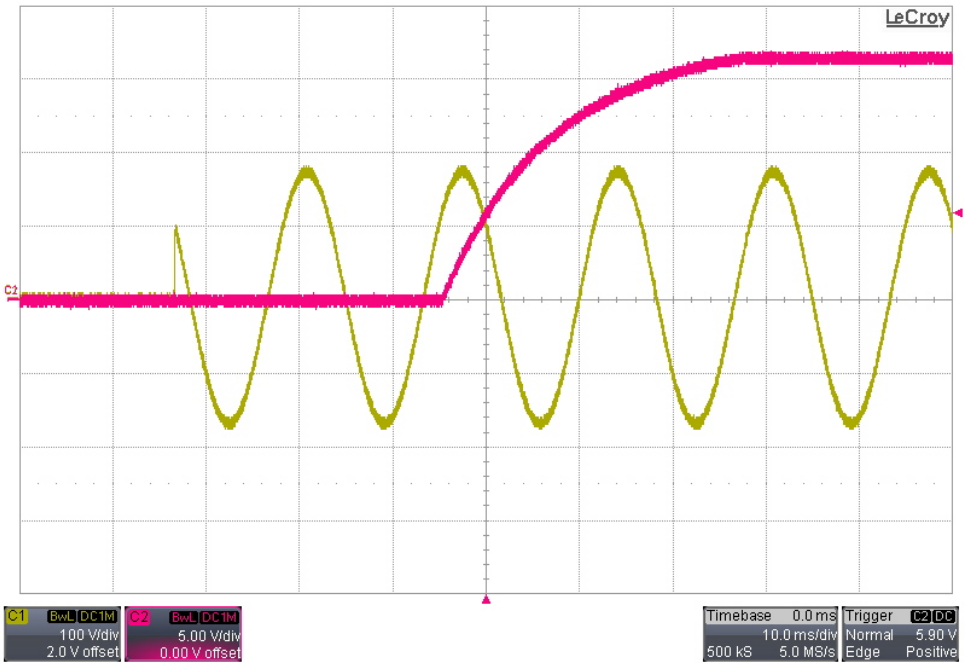
6.1 120VAC/60Hz Startup – 0A Load



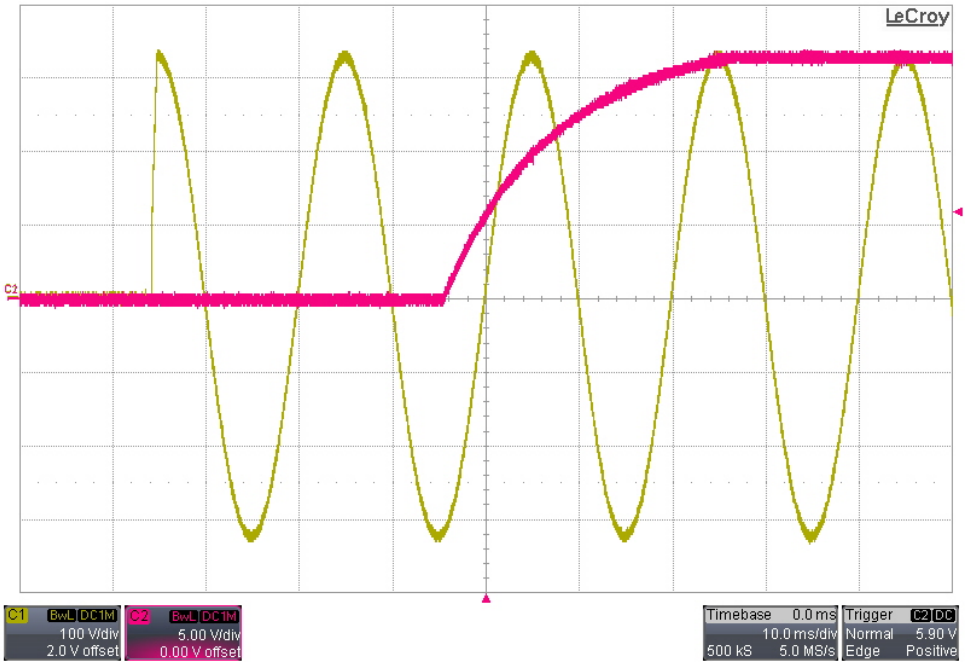
6.2 230VAC/50Hz Startup – 0A Load



6.3 120VAC/60Hz Startup – 16Ω Load



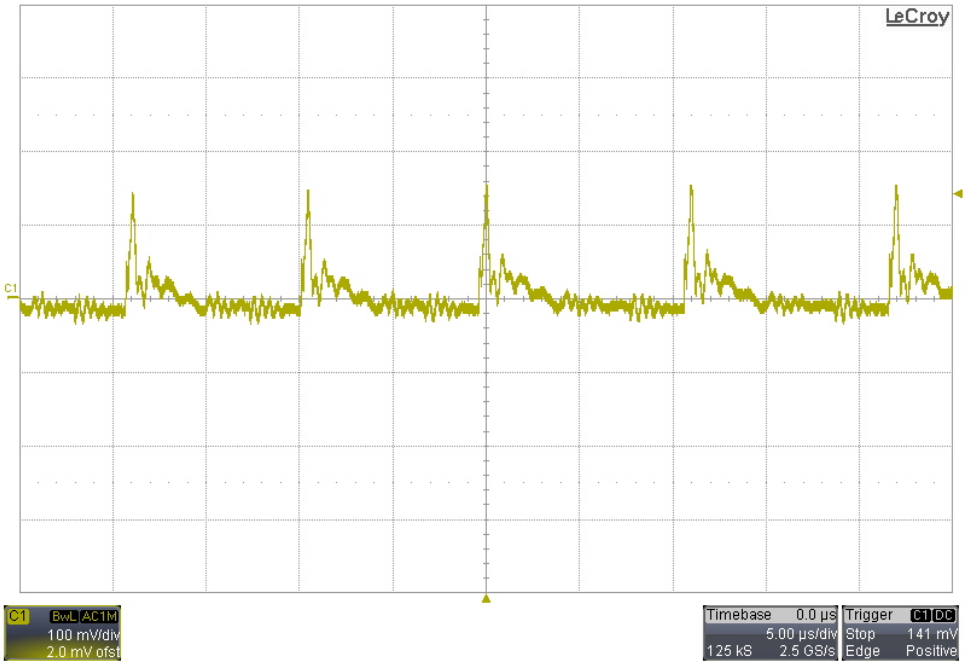
6.4 230VAC/50Hz Startup – 16Ω Load



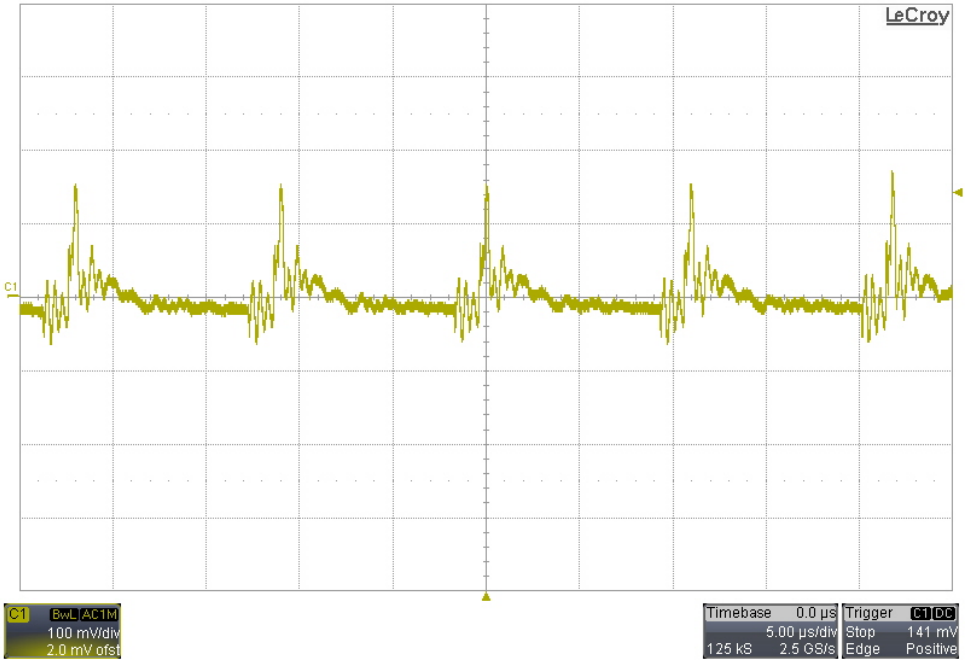
7 Output Ripple Voltage

The output was loaded with 1A.

7.1 120VAC/60Hz Output Ripple Voltage

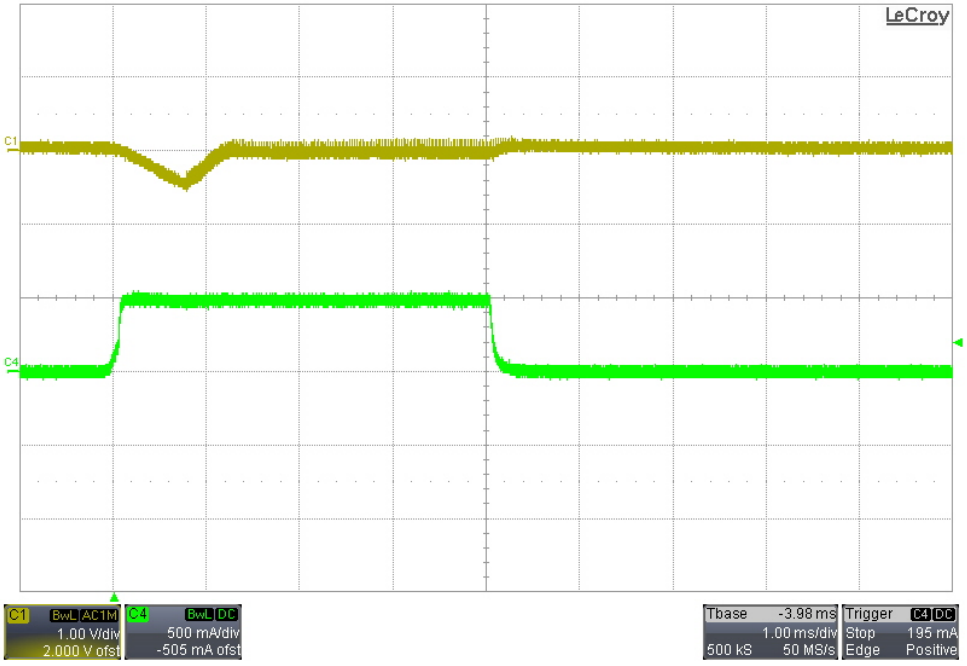


7.2 230VAC/50Hz Output Ripple Voltage

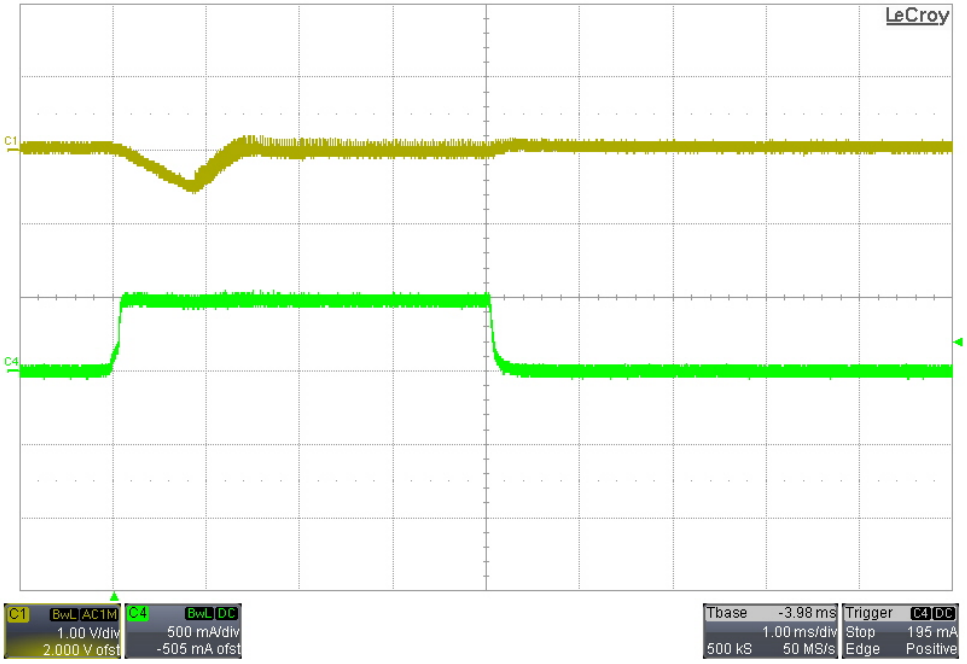


8 Load Transients

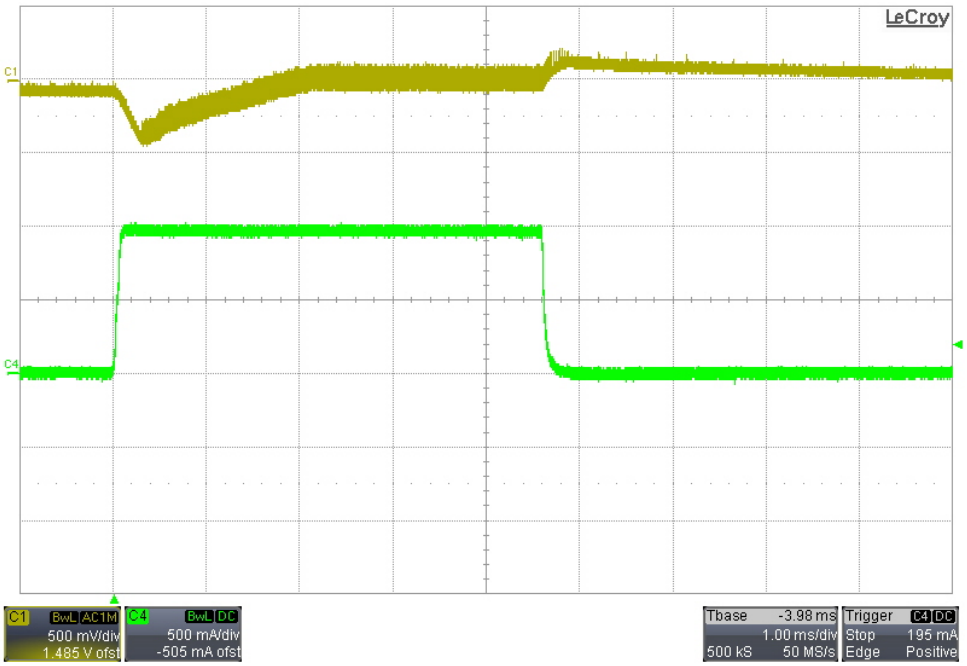
8.1 0A to 0.5A Transient – 120VAC/60Hz Input



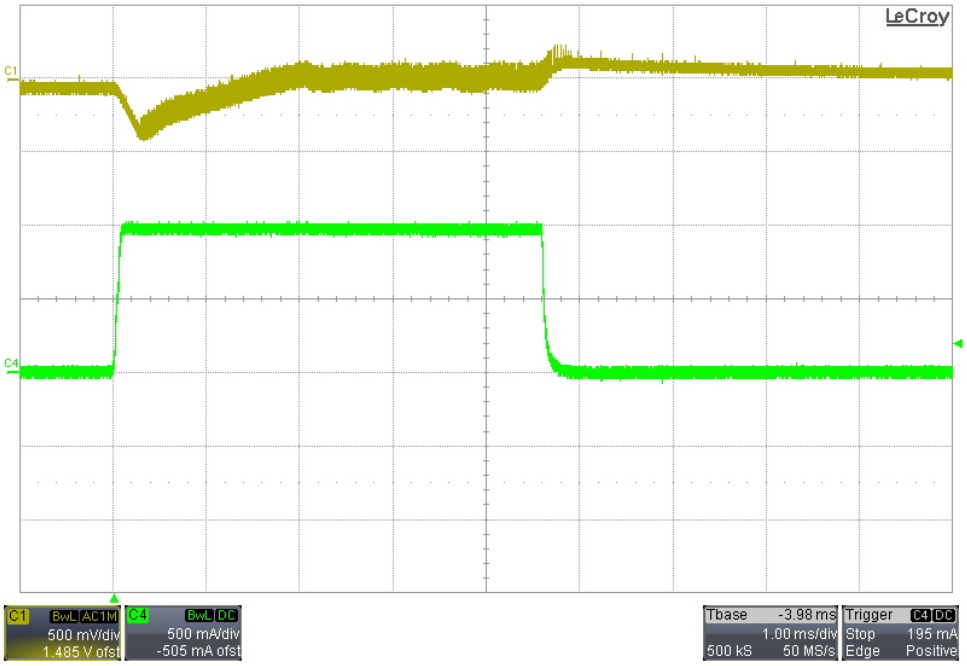
8.2 0A to 0.5A Transient – 230VAC/50Hz Input



8.3 10mA to 1A Transient – 120VAC/60Hz Input



8.4 10mA to 1A Transient – 230VAC/50Hz Input

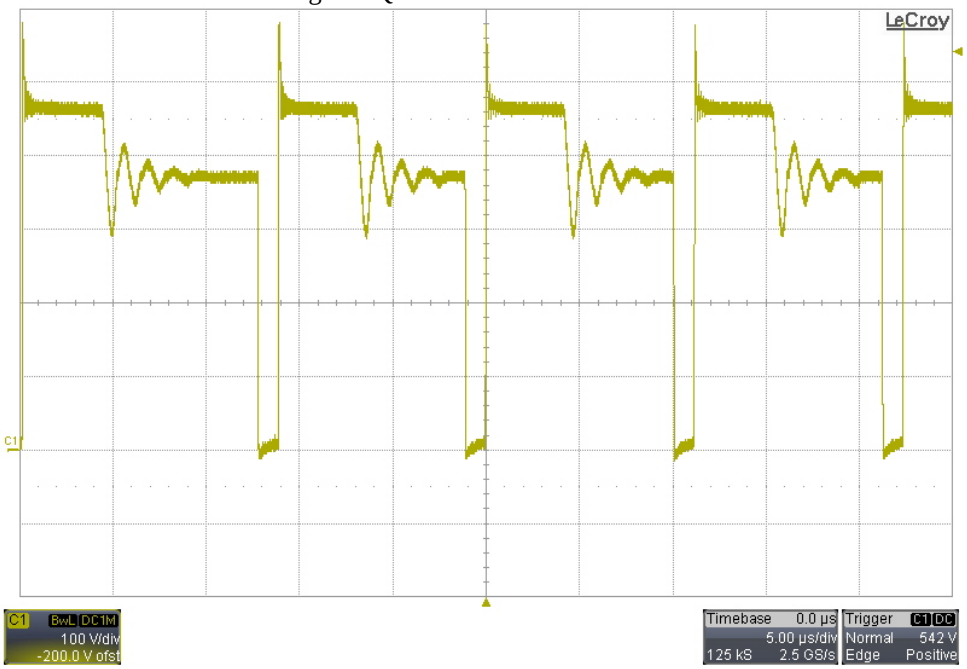


9 Switching Waveforms

The images below show the voltage waveforms on the switching devices within the supply. The input was 265VAC/50Hz. The output was loaded 1A.

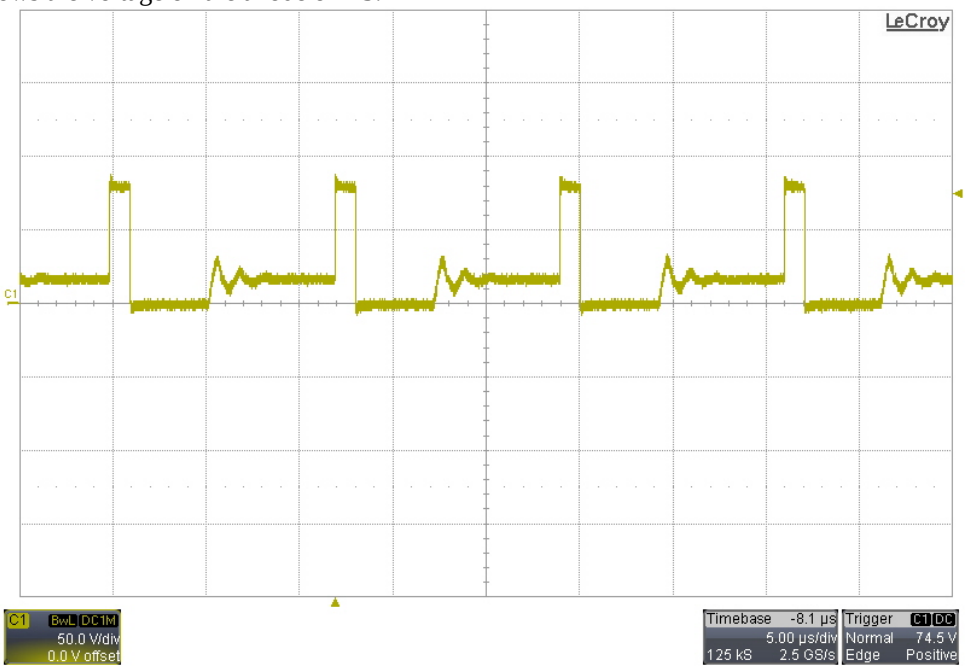
9.1 Primary Waveforms

The image below shows the drain-to-source voltage on Q1.



9.2 Secondary Waveforms

The image below shows the voltage on the anode of D5.



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