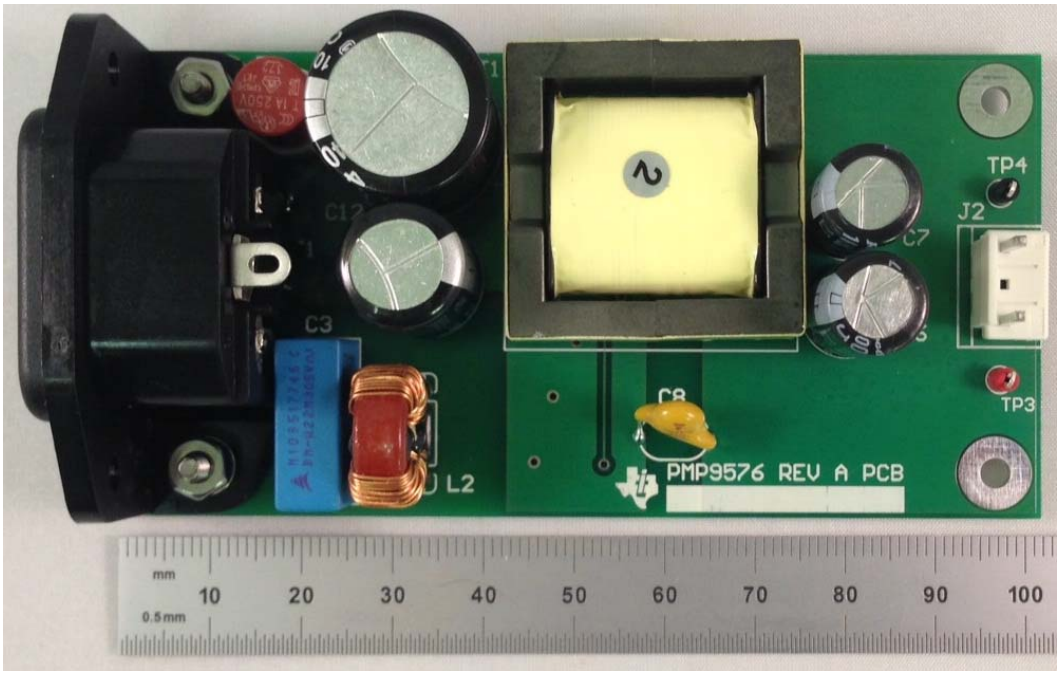
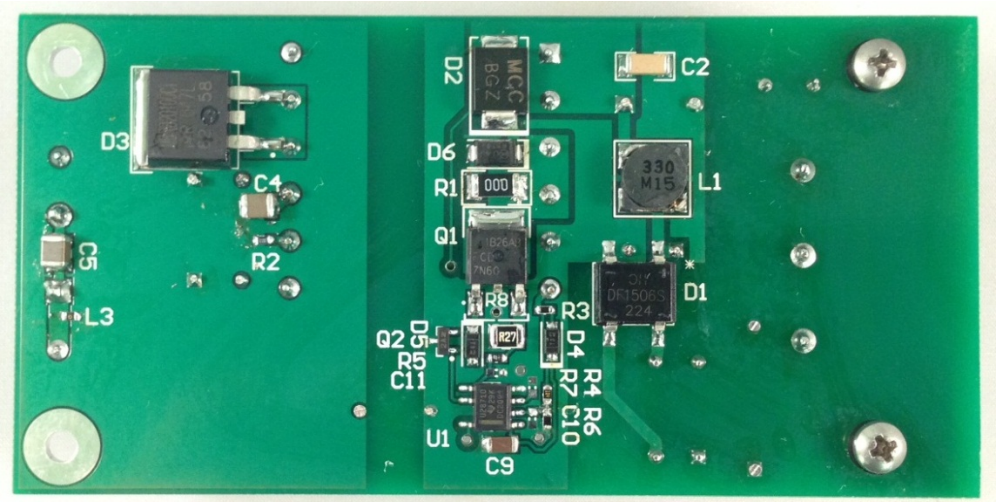
1 Photos

The photographs below show the PMP9576 Rev A prototype assembly.

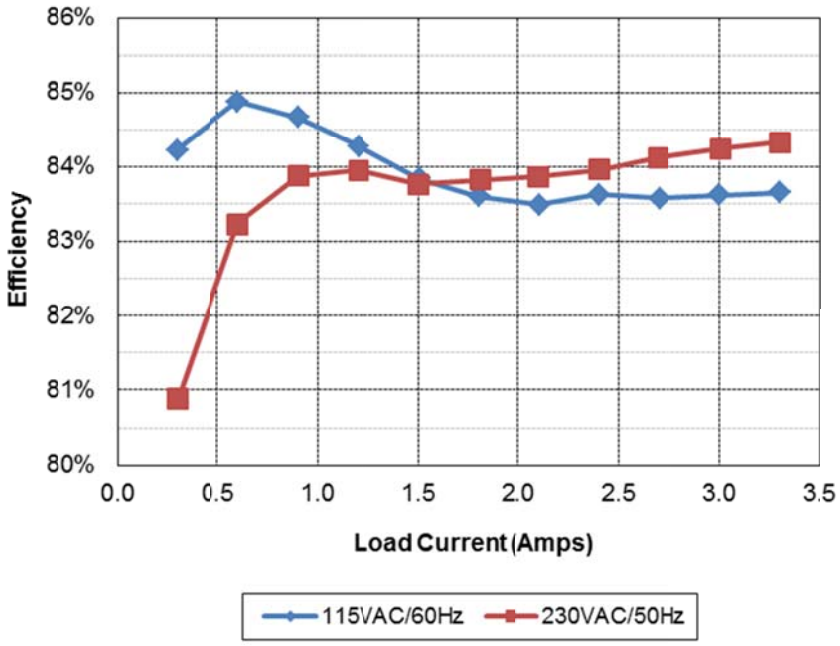




2 Standby Power

With no load attached to the output of the supply, the unit draws 65mW of input power with an 115VAC/60Hz input, and 72mW with a 230VAC/50Hz input.

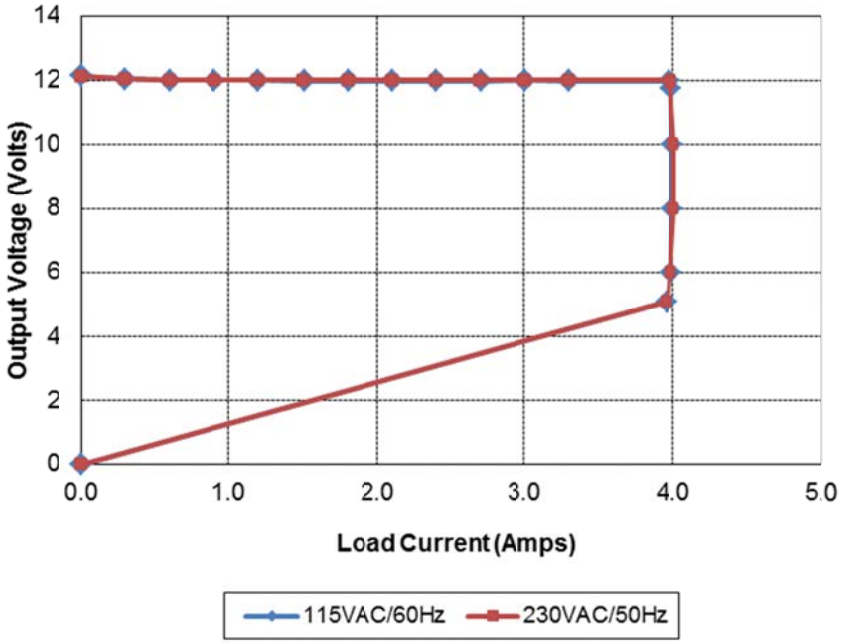
3 Efficiency



115VAC/60Hz								
Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	12.15	115.0	0.0094	0.065		0.00	0.07	0.0%
0.295	12.05	115.1	0.108	4.22	0.34	3.55	0.67	84.2%
0.601	12.02	115.0	0.198	8.51	0.37	7.22	1.29	84.9%
0.901	12.01	115.0	0.274	12.78	0.41	10.82	1.96	84.7%
1.200	12.01	115.0	0.342	17.10	0.44	14.41	2.69	84.3%
1.505	12.00	115.0	0.409	21.54	0.46	18.06	3.48	83.8%
1.799	11.99	115.0	0.472	25.80	0.47	21.57	4.23	83.6%
2.105	11.99	115.0	0.535	30.23	0.49	25.24	4.99	83.5%
2.401	12.00	115.0	0.594	34.45	0.51	28.81	5.64	83.6%
2.699	12.00	114.9	0.653	38.75	0.52	32.39	6.36	83.6%
3.001	12.01	114.9	0.712	43.10	0.53	36.04	7.06	83.6%
3.299	12.00	114.9	0.769	47.32	0.54	39.59	7.73	83.7%
230VAC/50Hz								
Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	12.14	230.0	0.0144	0.072		0.00	0.07	0.0%
0.296	12.05	230.0	0.069	4.41	0.28	3.57	0.84	80.9%
0.599	12.02	230.0	0.121	8.65	0.31	7.20	1.45	83.2%
0.901	12.01	230.0	0.171	12.90	0.33	10.82	2.08	83.9%
1.201	12.01	230.0	0.220	17.18	0.34	14.42	2.76	84.0%
1.501	12.01	230.0	0.268	21.52	0.35	18.03	3.49	83.8%
1.807	12.01	230.0	0.314	25.89	0.36	21.70	4.19	83.8%
2.102	12.01	230.0	0.356	30.10	0.37	25.25	4.85	83.9%
2.403	12.01	230.0	0.395	34.37	0.38	28.86	5.51	84.0%
2.697	12.01	230.0	0.431	38.50	0.39	32.39	6.11	84.1%
3.008	12.01	230.0	0.468	42.88	0.40	36.13	6.75	84.2%
3.301	12.01	230.0	0.502	47.01	0.41	39.65	7.36	84.3%

4 Current Limit

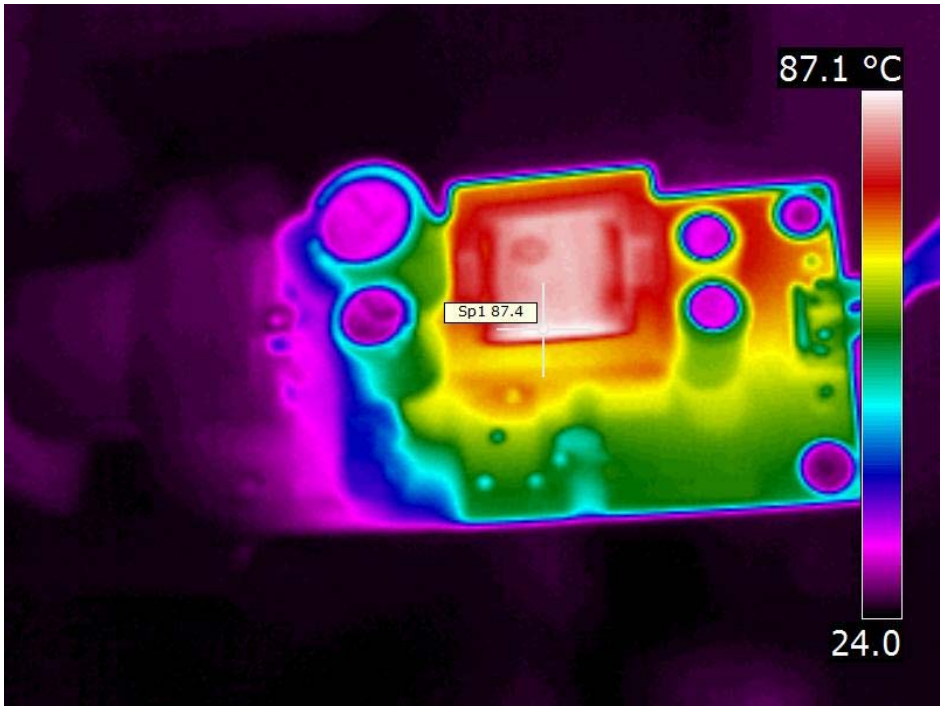
A plot of the output voltage versus load current is shown below.

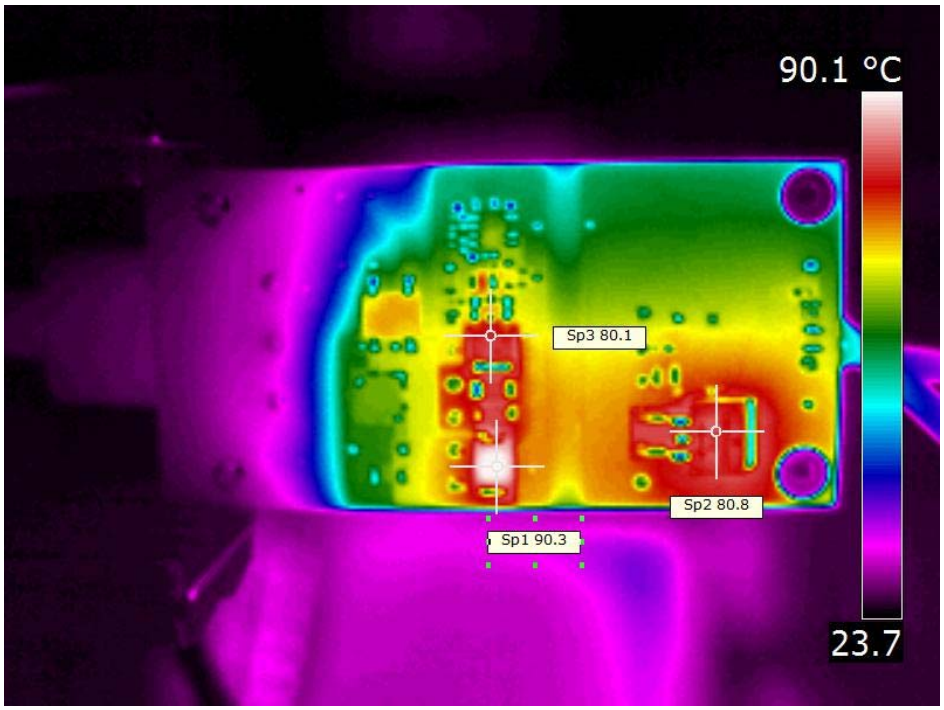


5 Thermal Images

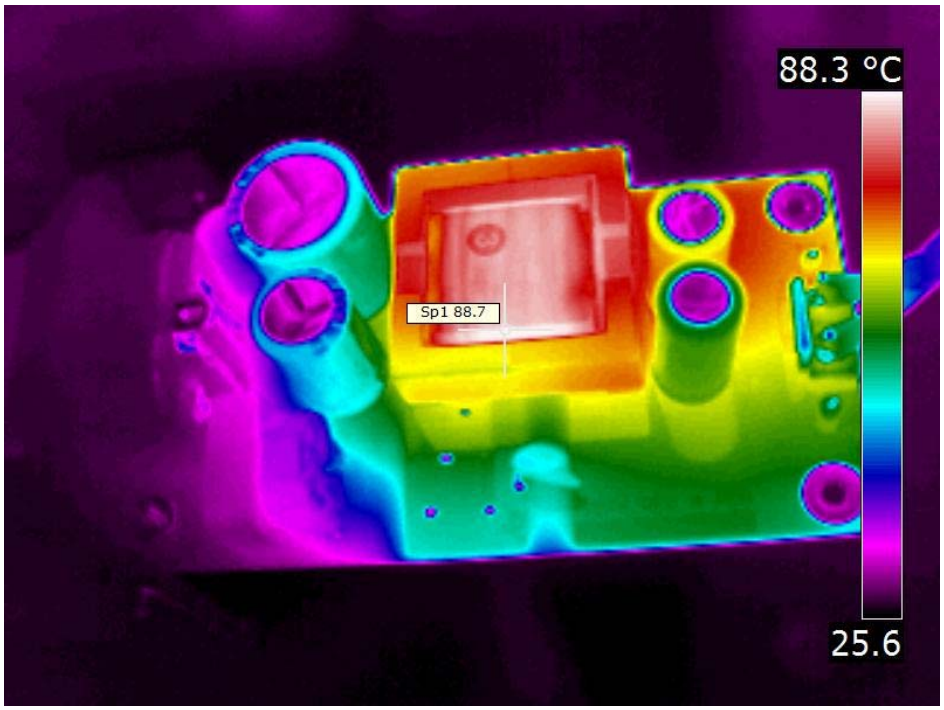
The ambient temperature was 25ºC. The output was loaded with 3.3A.

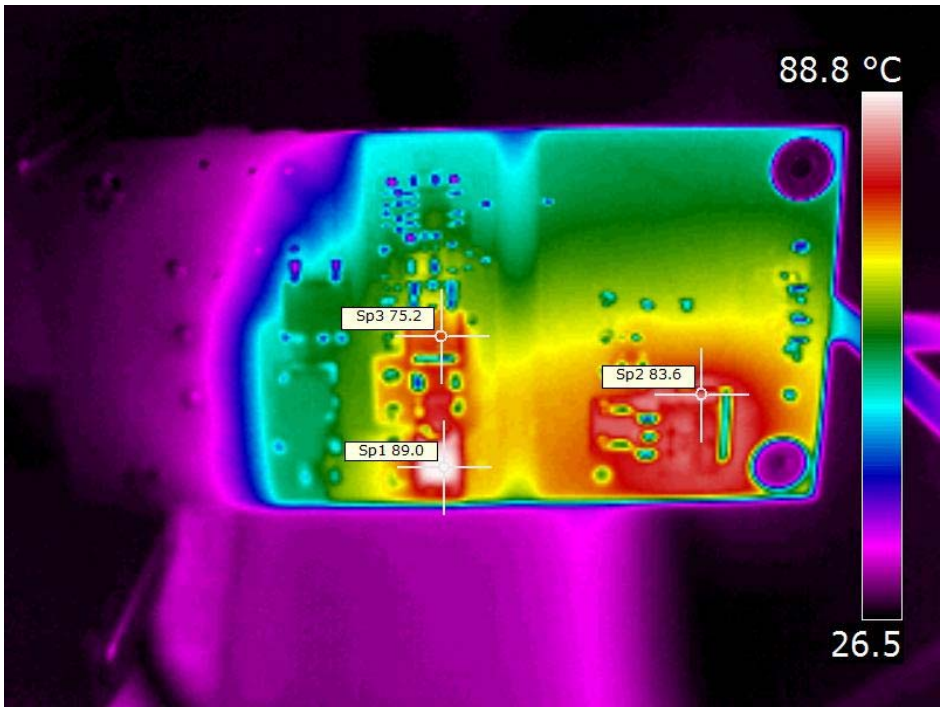
5.1 115VAC/60Hz Input





5.2 230VAC/50Hz Input

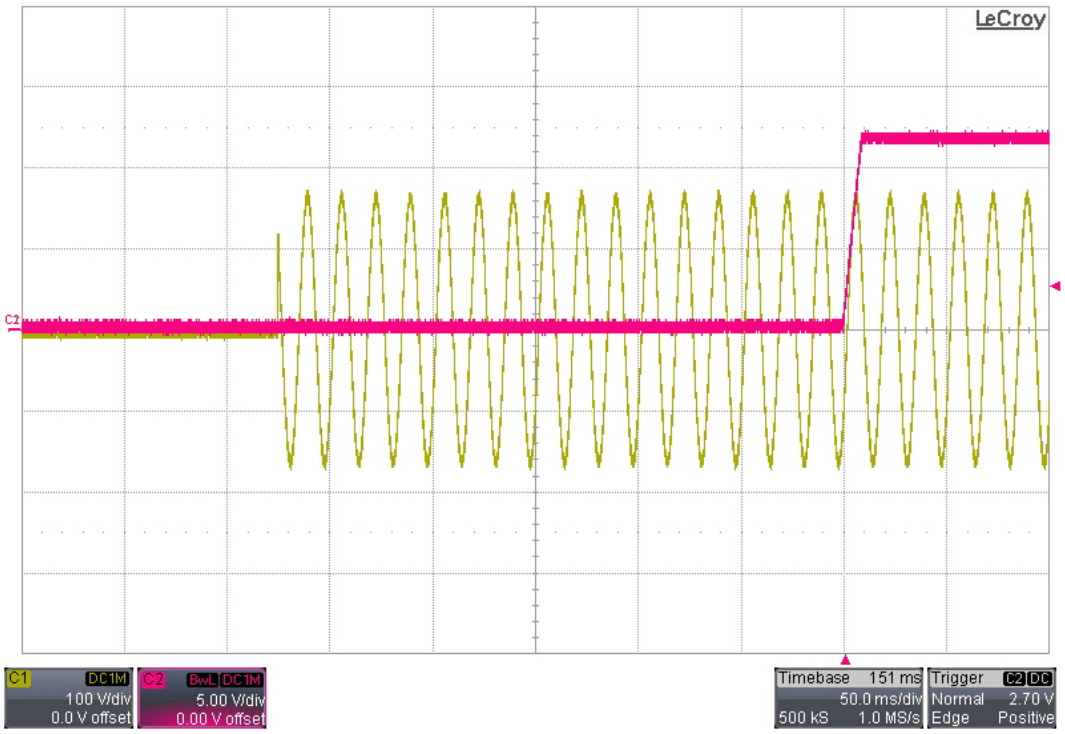




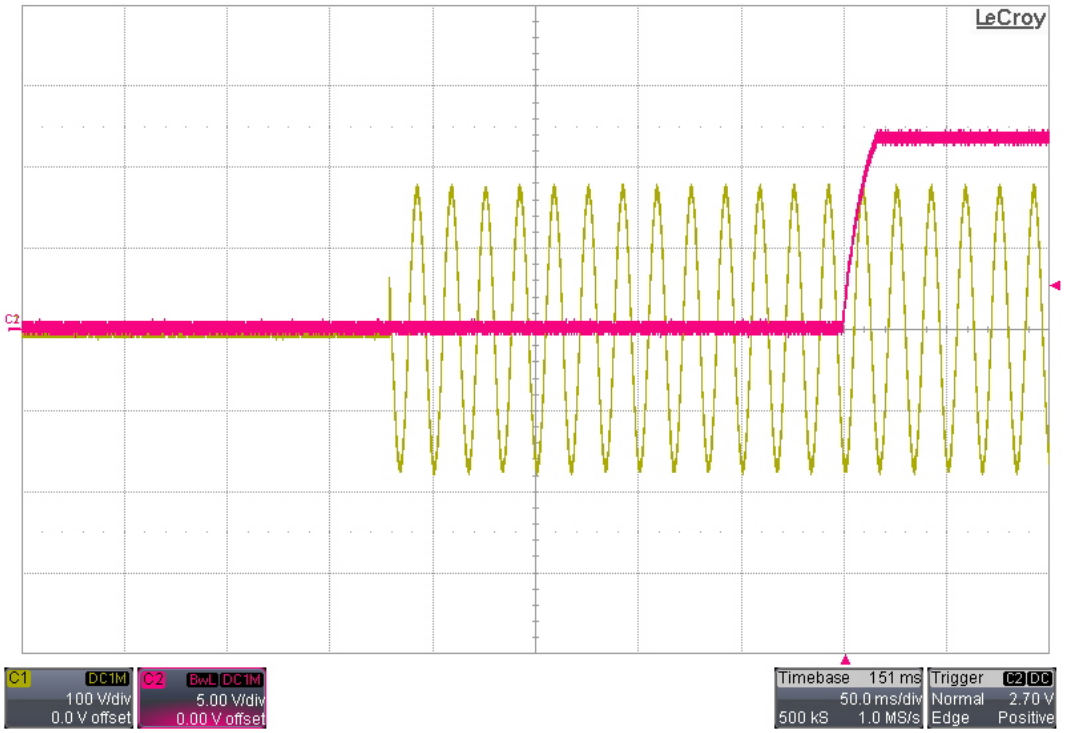
6 Startup

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

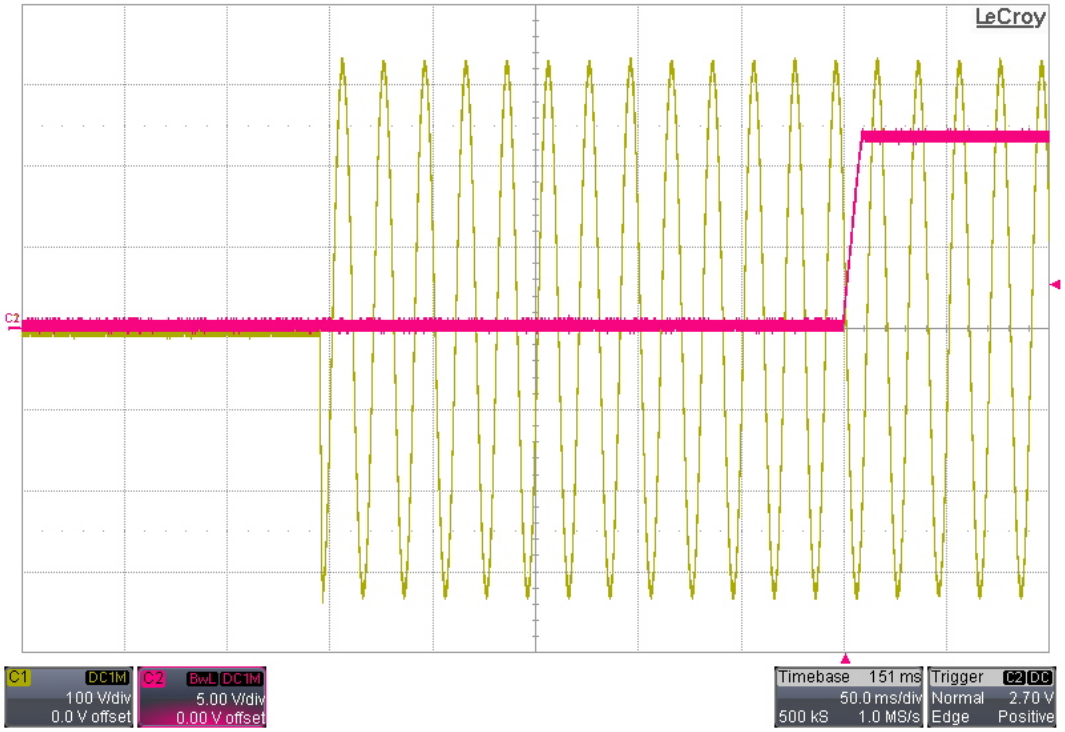
6.1 115VAC/60Hz Startup – 0A Load



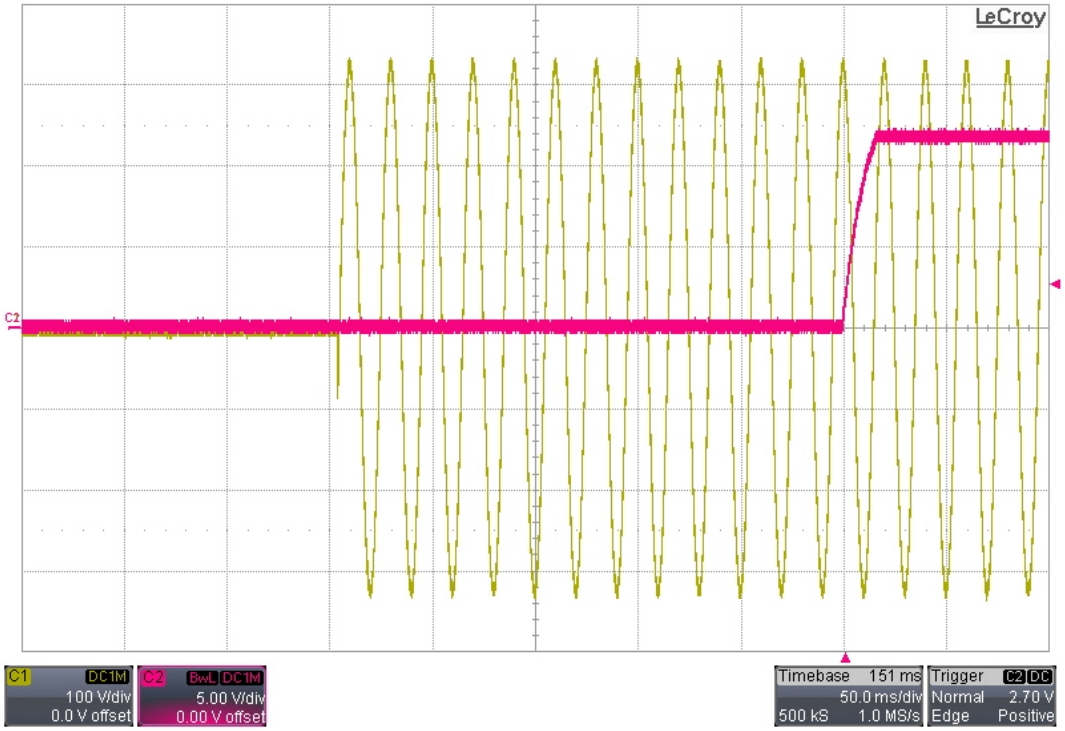
6.2 115VAC/60Hz Startup – 4Ω Load



6.3 230VAC/50Hz Startup – 0A Load



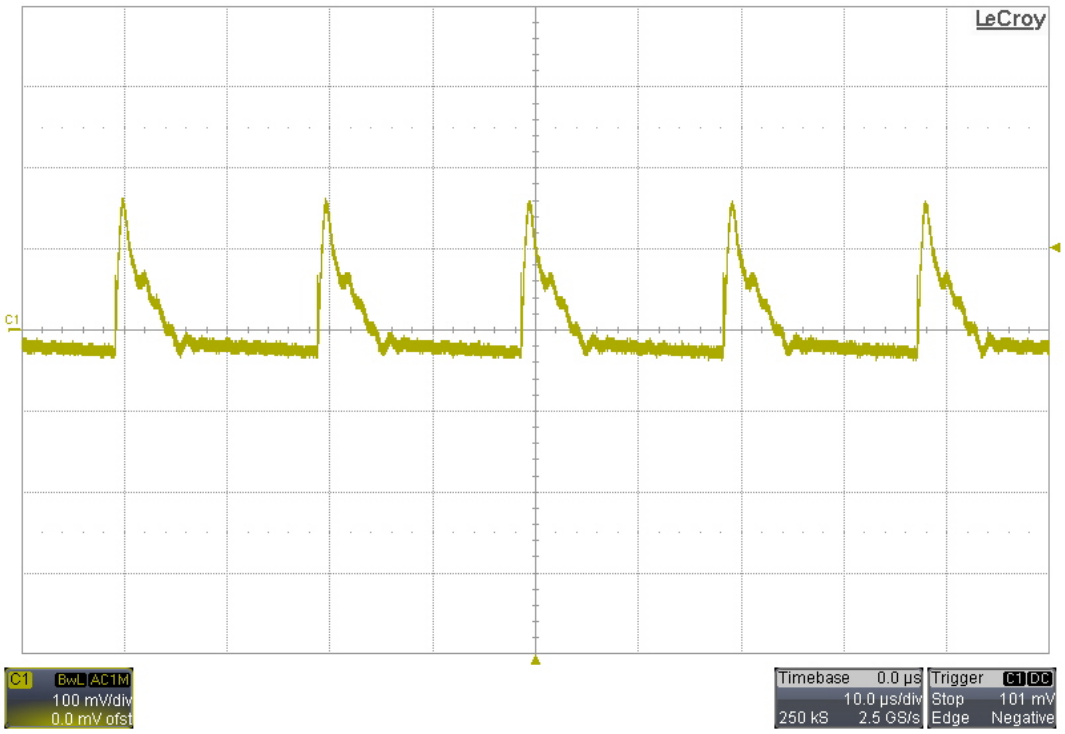
6.4 230VAC/50Hz Startup – 4Ω Load



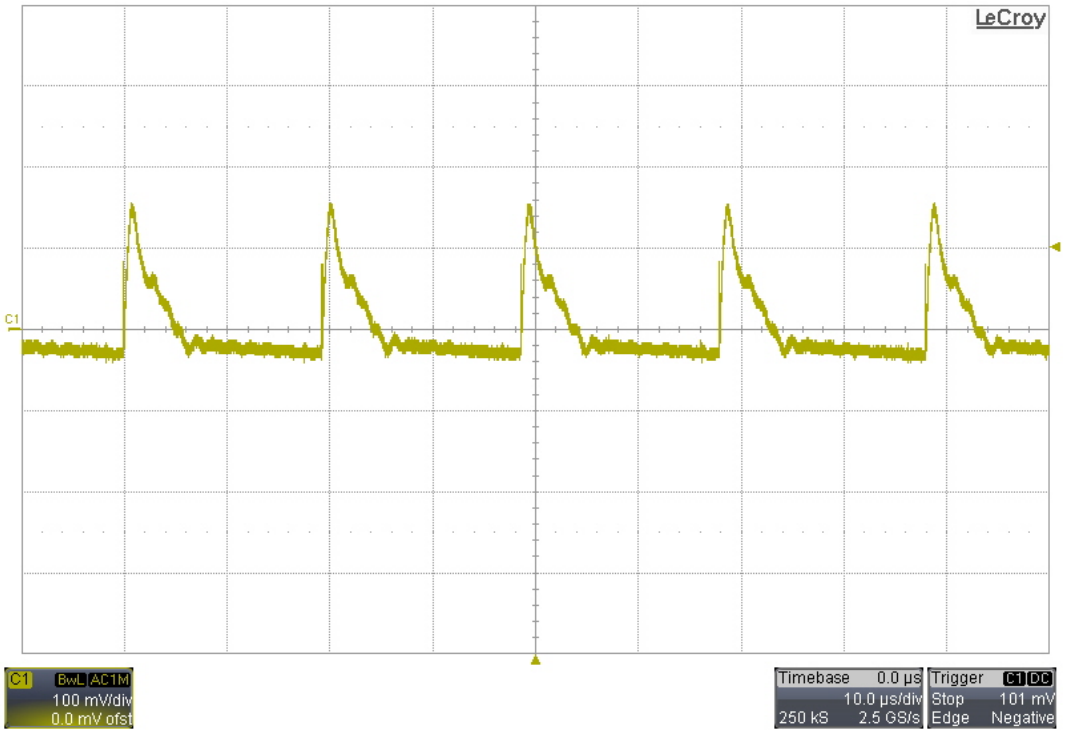
7 Output Ripple Voltage

The output was loaded with 3.3A.

7.1 115VAC/60Hz Input

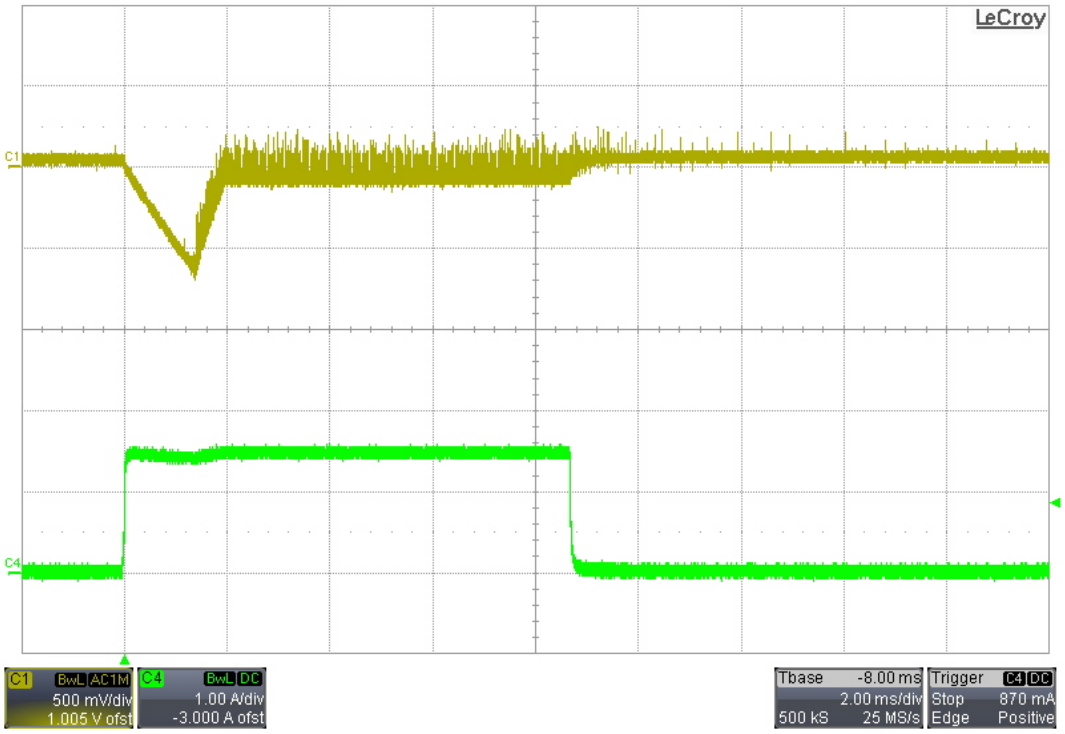


7.2 230VAC/50Hz Input

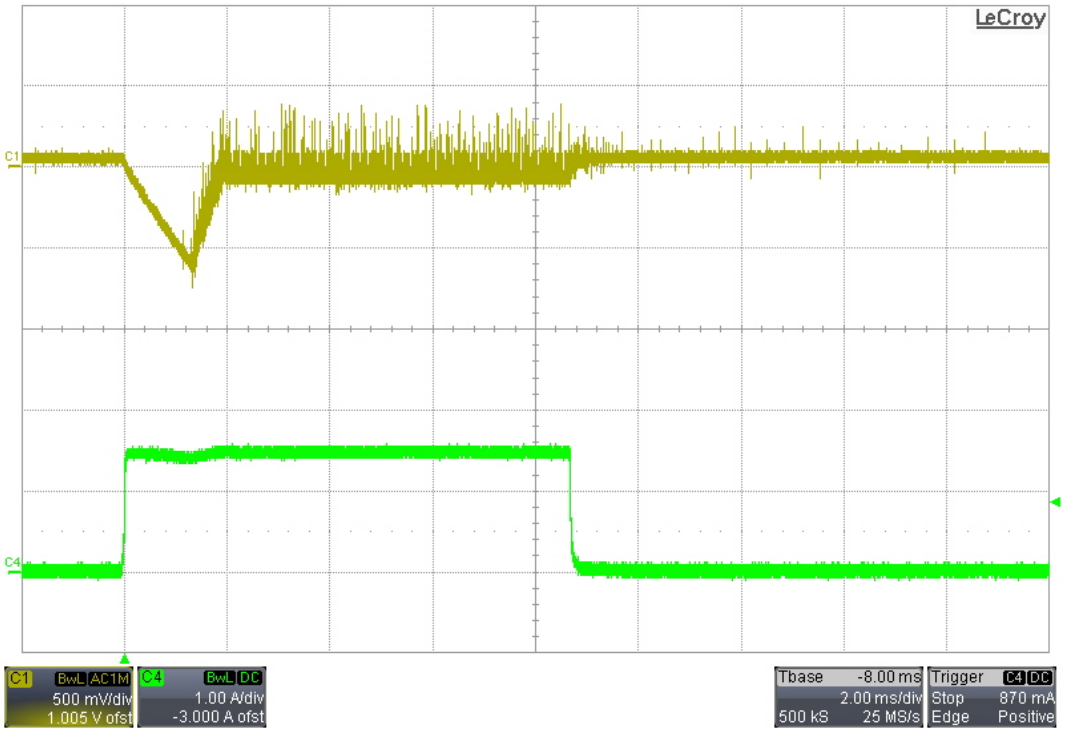


8 Load Transients

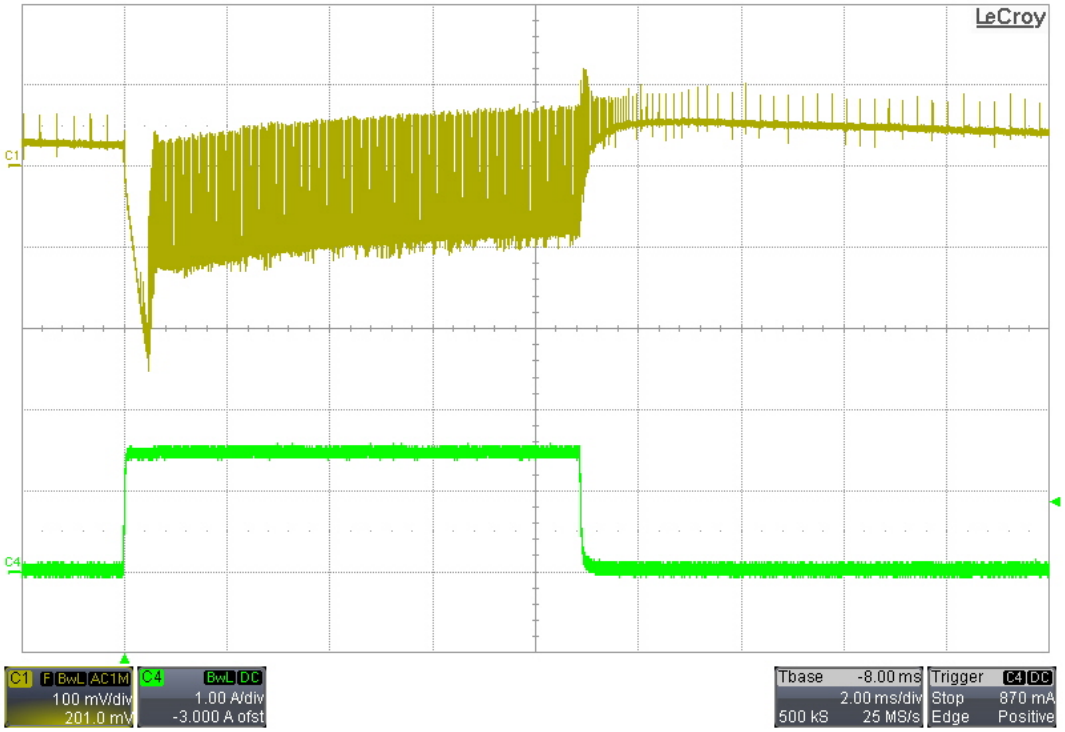
8.1 0A to 1.5A Transient – 115VAC/60Hz Input



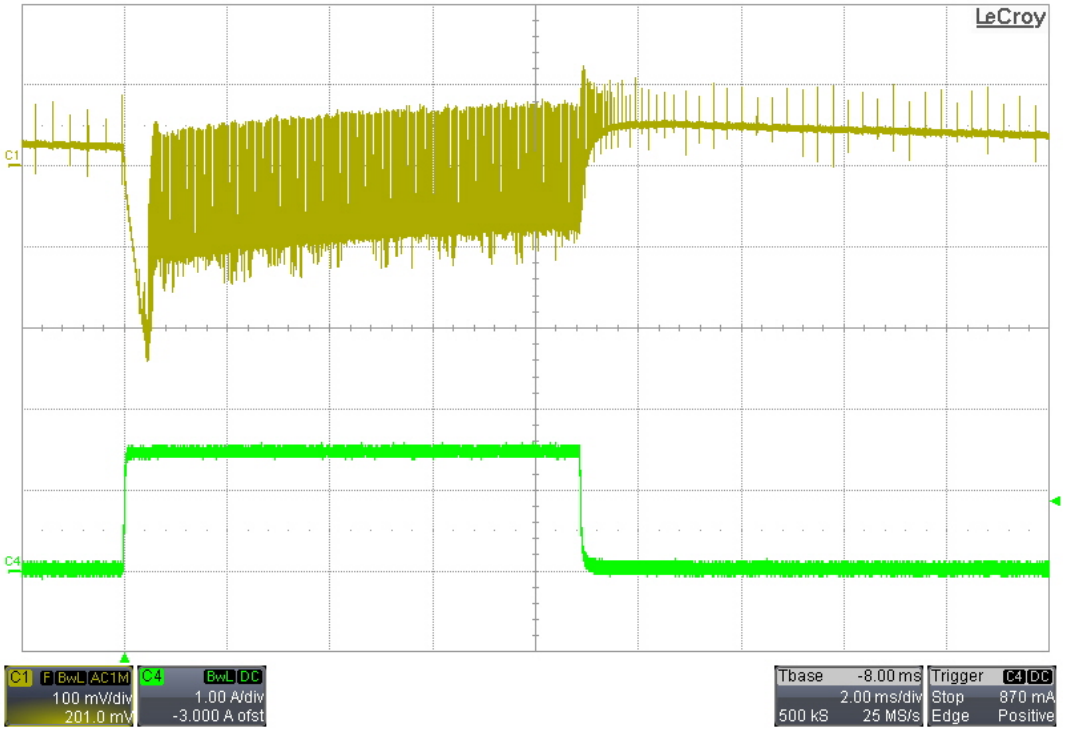
8.2 0A to 1.5A Transient – 230VAC/50Hz Input



8.3 10mA to 1.5A Transient – 115VAC/60Hz Input



8.4 10mA to 1.5A Transient – 230VAC/50Hz Input

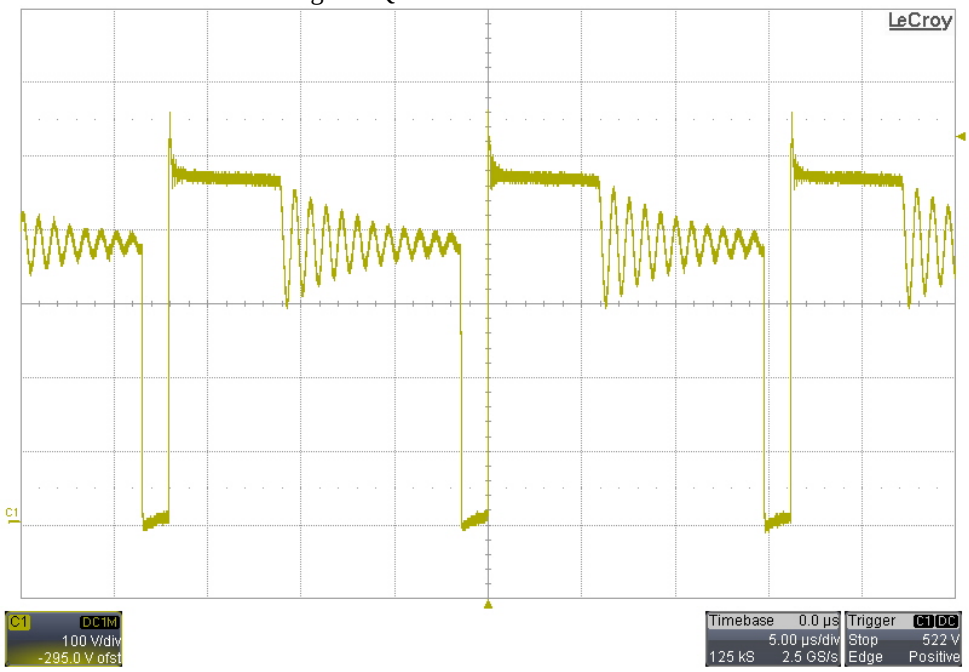


9 Switching Waveforms

The images below show the voltage waveforms on the switching devices within the supply. The input was 265VAC/50Hz. The output was loaded 3.3A.

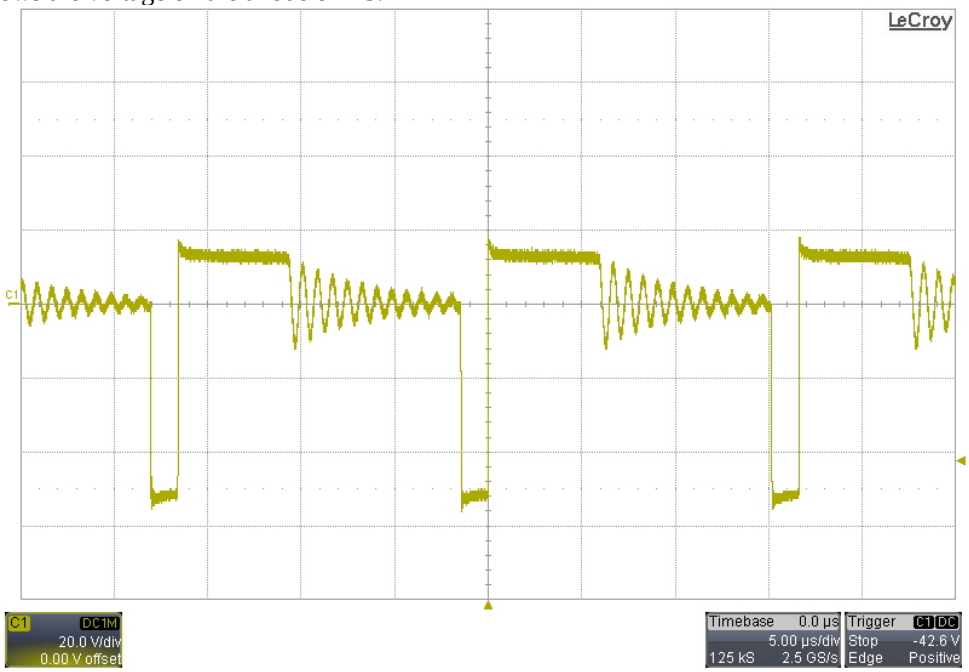
9.1 Primary Waveforms

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

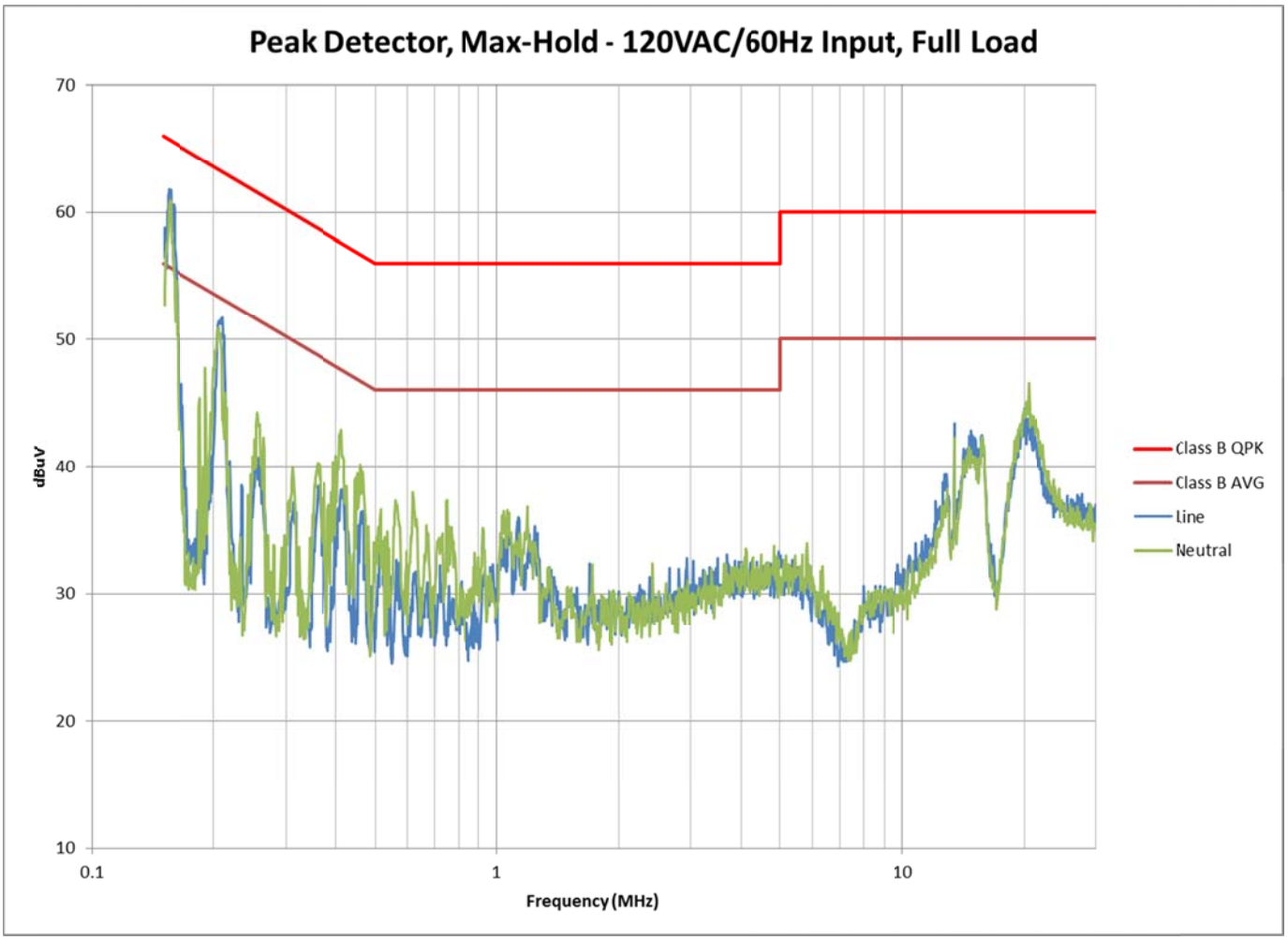


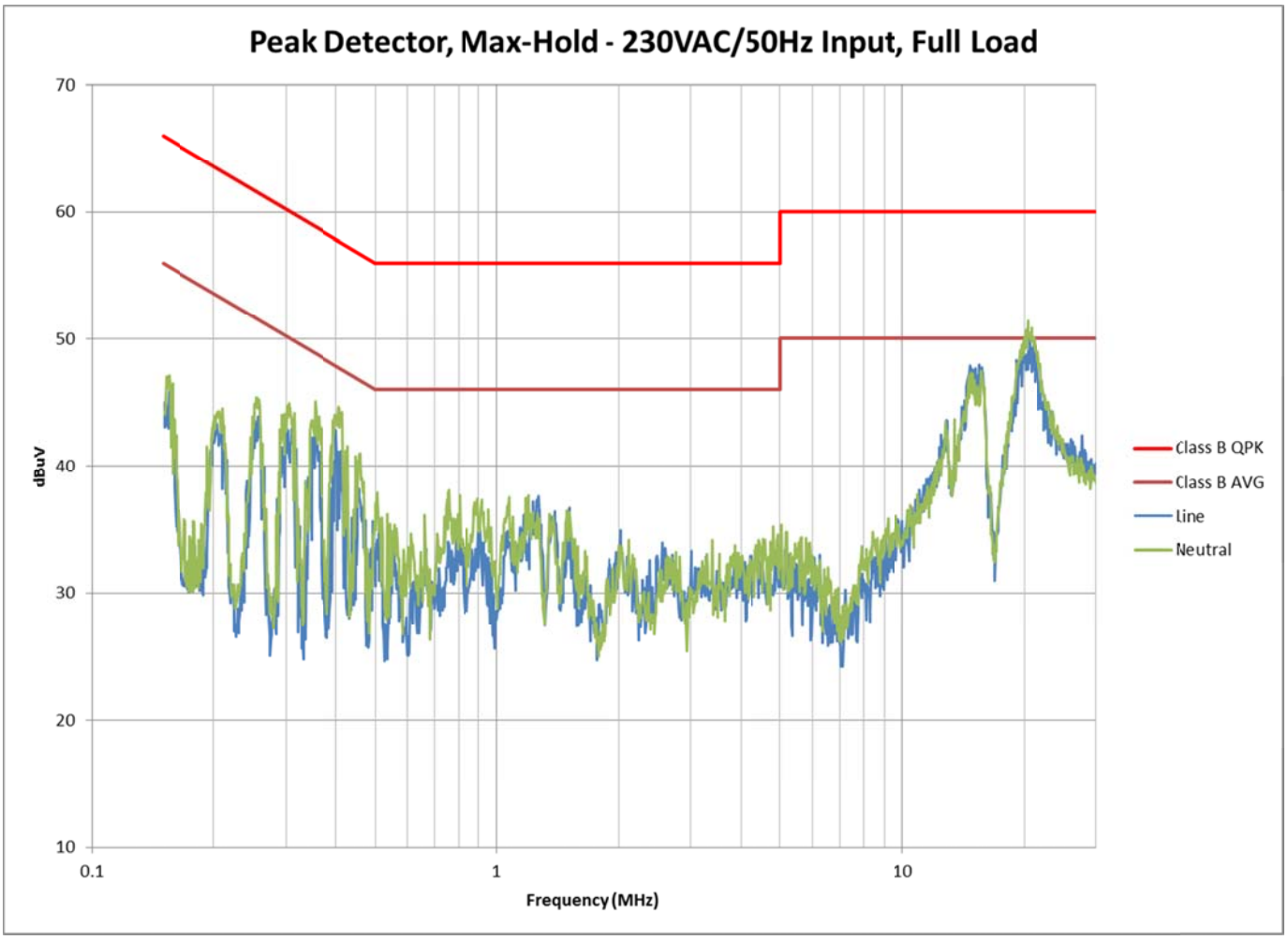
9.2 Secondary Waveforms

The image below shows the voltage on the anode of D3.



10 Conducted EMI




Peak Detector, Max-Hold - 230VAC/50Hz Input, Full Load
70
60
50
40
30
20
10
dBuV
0.1
1
10
Frequency (MHz)
Class B QPK
Class B AVG
Line
Neutral

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