

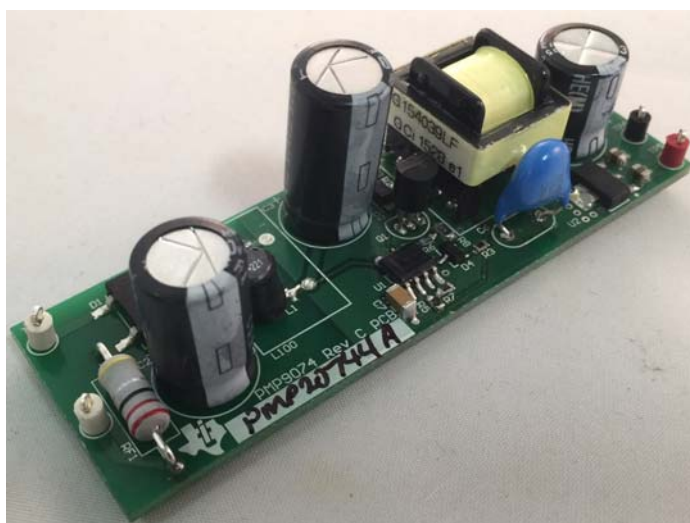
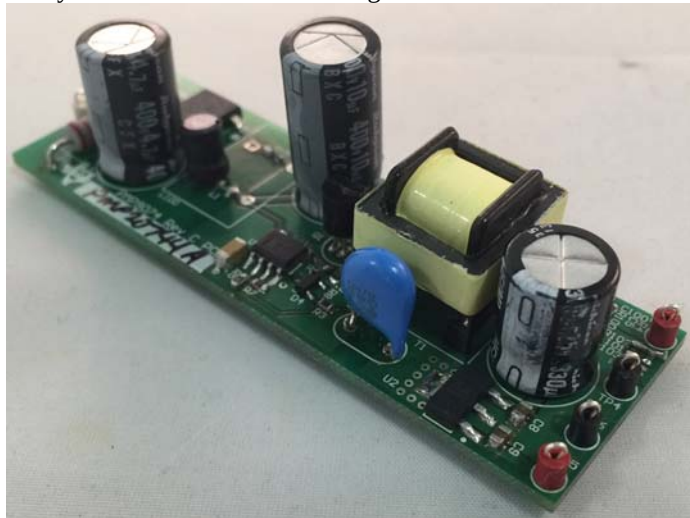
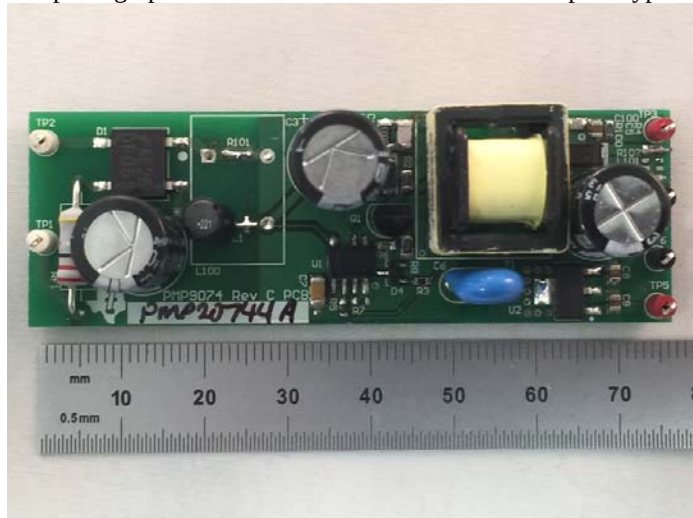
PMP20744 Rev A 12V-3W PSR Flyback with BJT Test Results

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1 Photos

The photographs below show the PMP20744 Rev A prototype assembly. This circuit was built using a PMP9074 Rev C PCB.

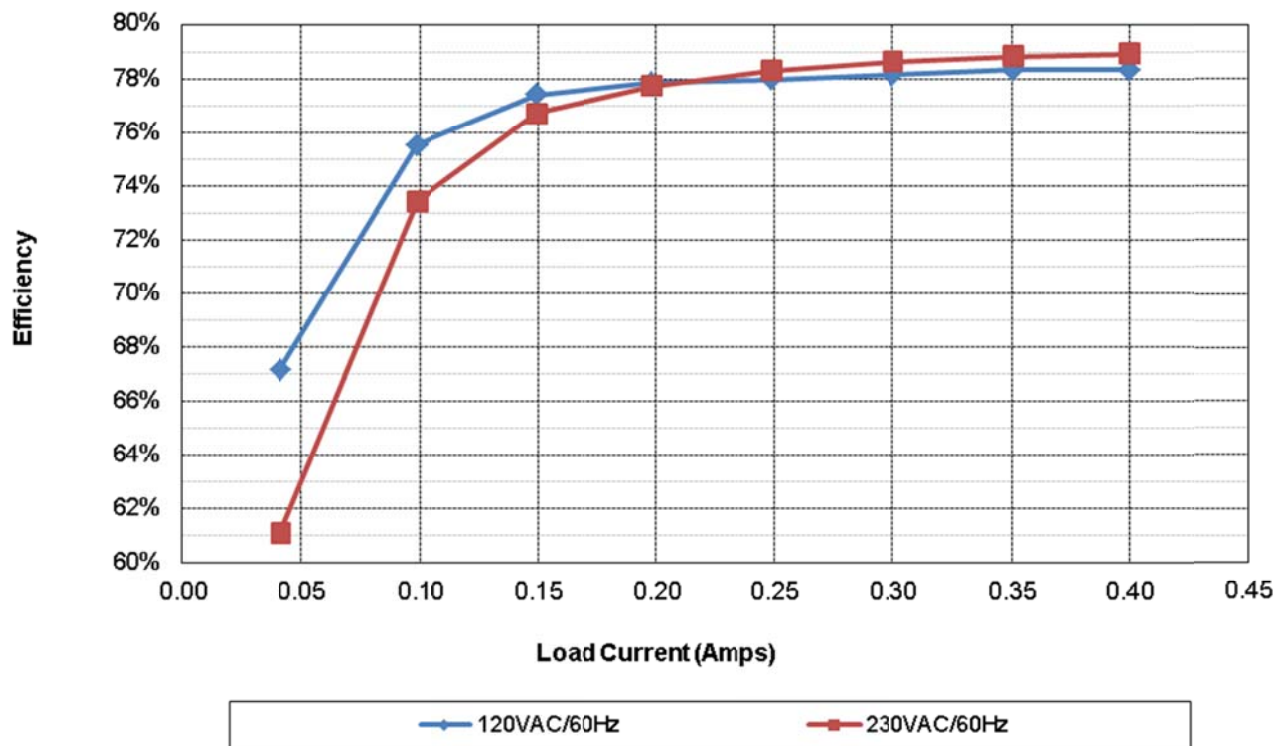


2 Efficiency

2.1 Average Efficiency

Vin	Pin	Vout	Iout	Load	Efficiency	Avg. Eff.
120VAC/60Hz	0.75	12.16	0.041	10%	67.14%	
	1.58	12.12	0.099	25%	75.52%	77.46%
	3.09	12.12	0.198	50%	77.86%	
	4.65	12.11	0.300	75%	78.14%	
	6.19	12.12	0.400	100%	78.33%	
230VAC/50Hz	0.80	12.15	0.040	10%	61.07%	
	1.64	12.11	0.099	25%	73.40%	77.17%
	3.09	12.10	0.199	50%	77.73%	
	4.61	12.11	0.299	75%	78.62%	
	6.15	12.11	0.401	100%	78.93%	

2.2 Chart



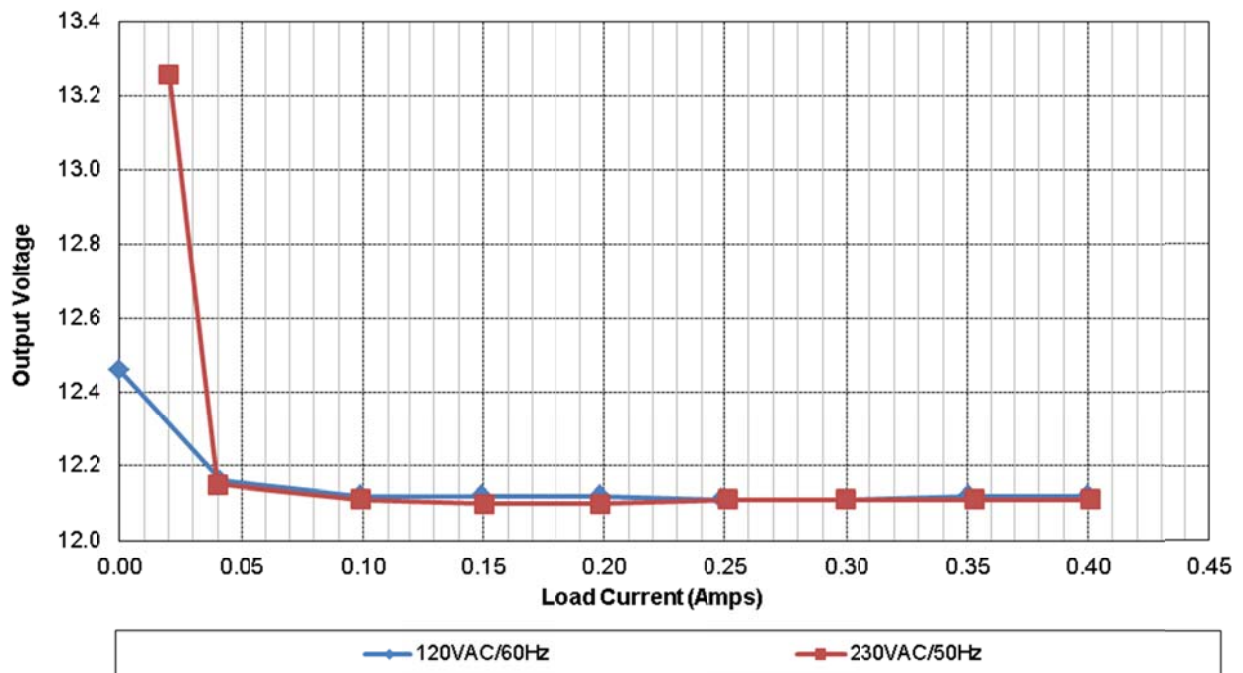
2.3 Raw Data

120VAC/60Hz							
Iout	Vout	Vin	Iin	Pin	Pout	Losses	Efficiency
0.000	12.46	119.9	0.0022	0.0675	0.00	0.07	0.0%
0.0413	12.16	119.9	0.0153	0.748	0.50	0.25	67.1%
0.0987	12.12	119.9	0.029	1.584	1.20	0.39	75.5%
0.1495	12.12	119.9	0.040	2.341	1.81	0.53	77.4%
0.1983	12.12	119.9	0.050	3.087	2.40	0.68	77.9%
0.2489	12.11	119.9	0.060	3.866	3.01	0.85	78.0%
0.2999	12.11	119.9	0.070	4.648	3.63	1.02	78.1%
0.3507	12.12	119.9	0.080	5.426	4.25	1.18	78.3%
0.4001	12.12	119.9	0.089	6.191	4.85	1.34	78.3%

230VAC/50Hz							
I _{out}	V _{out}	V _{in}	I _{in}	P _{in}	P _{out}	Losses	Efficiency
0.000	23.74	229.8	0.033	0.1855	0.00	0.19	0.0%
0.0400	12.15	229.8	0.011	0.795	0.49	0.31	61.1%
0.0991	12.11	229.8	0.019	1.635	1.20	0.43	73.4%
0.1505	12.10	229.8	0.026	2.374	1.82	0.55	76.7%
0.1985	12.10	229.8	0.033	3.090	2.40	0.69	77.7%
0.2513	12.11	229.8	0.039	3.887	3.04	0.84	78.3%
0.2993	12.11	229.8	0.045	4.610	3.62	0.99	78.6%
0.3527	12.11	229.8	0.052	5.419	4.27	1.15	78.8%
0.4009	12.11	229.8	0.057	6.151	4.85	1.30	78.9%

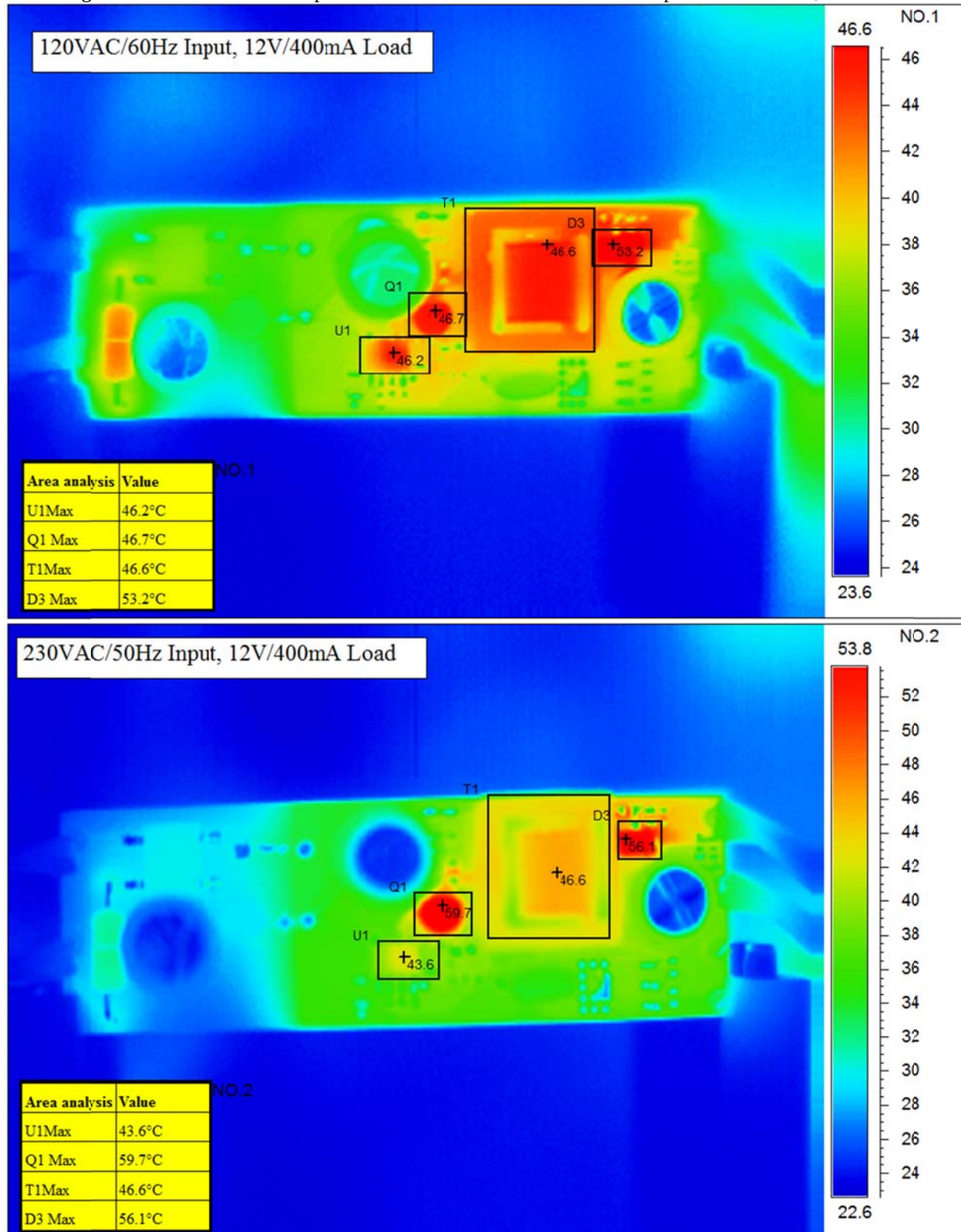
3 Regulation

Measured at TP3/TP4. Minimum load of 20mA required at 230V input.



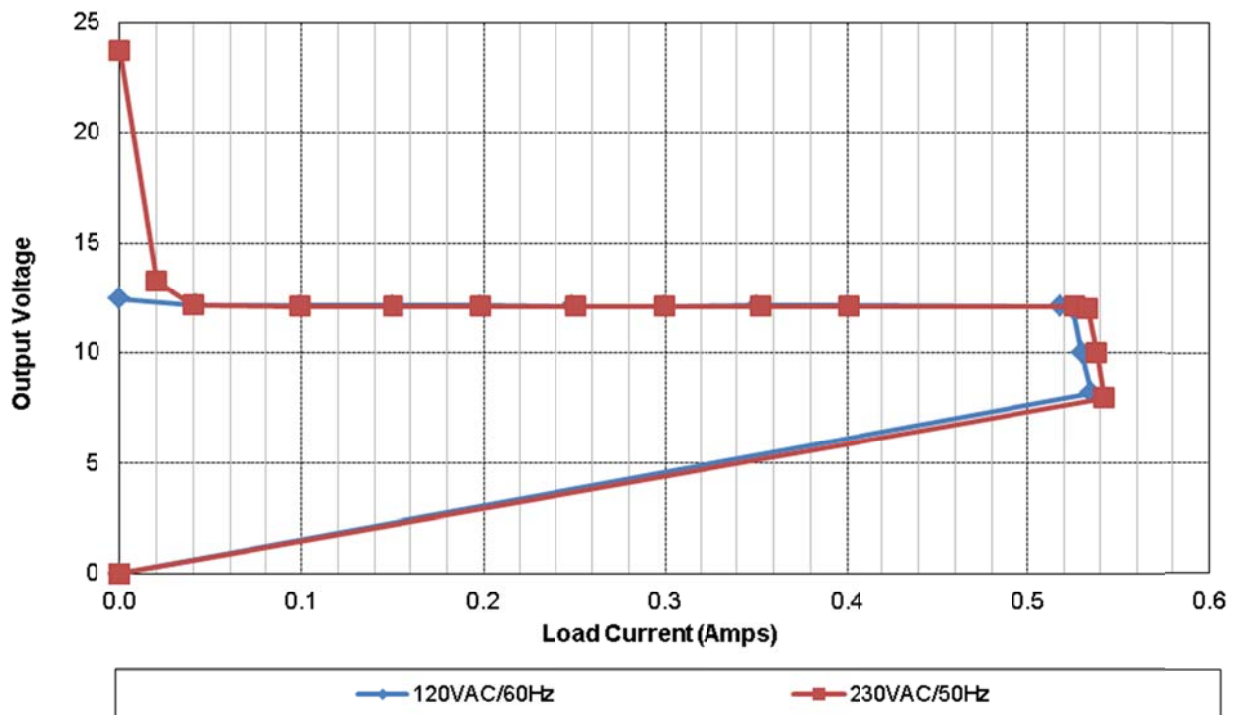
4 Thermal Images

The thermal images below show the 12V output loaded with 400mA. The ambient temperature was 25°C, with no airflow.



5 Current Limit

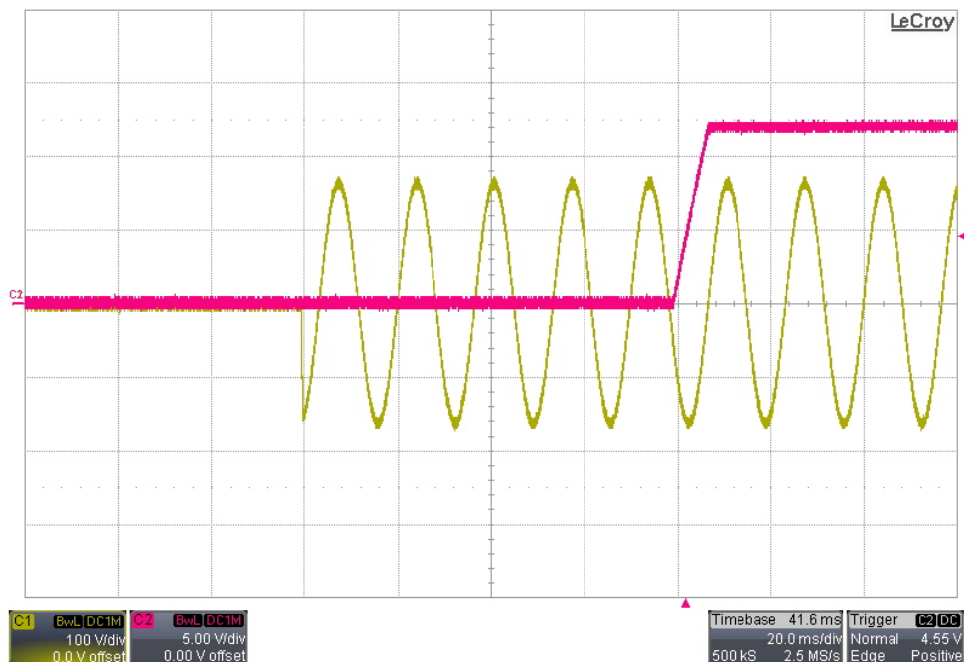
The plot below shows the output voltage on TP3/TP4 versus output current as the load is increased into current limit.

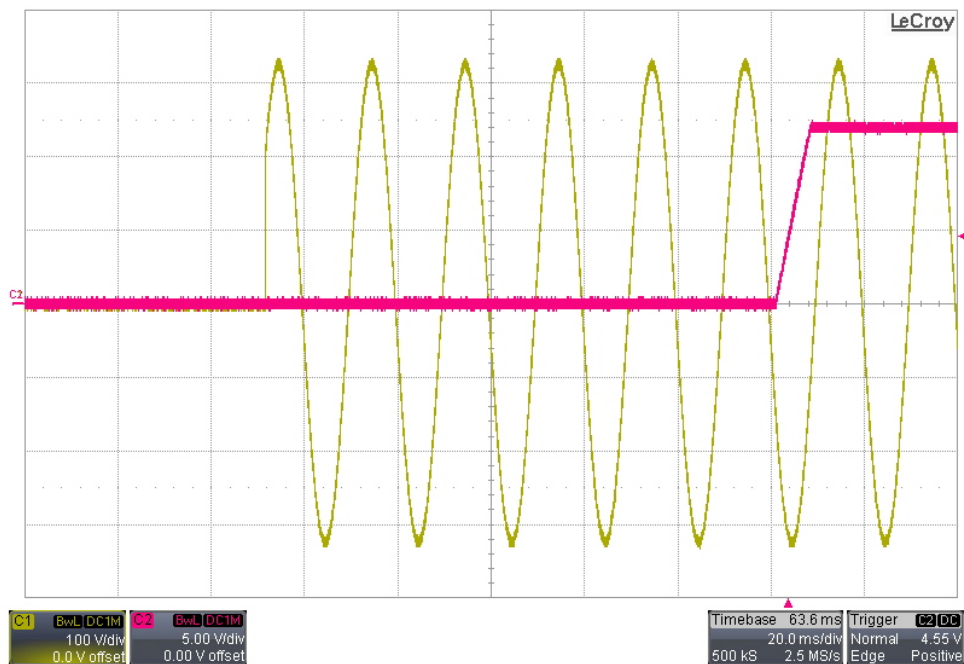
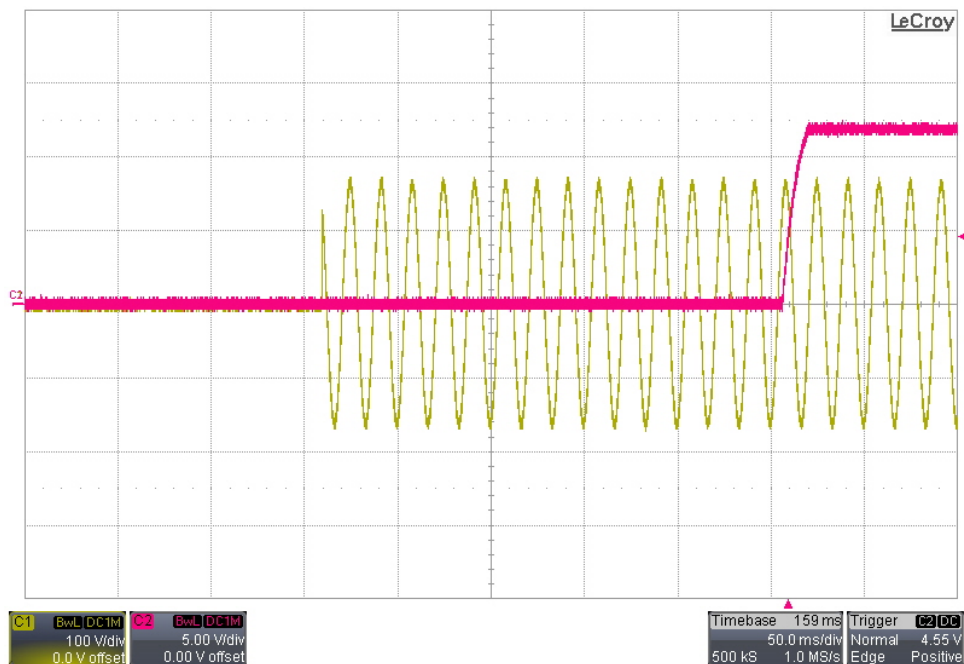


6 Startup

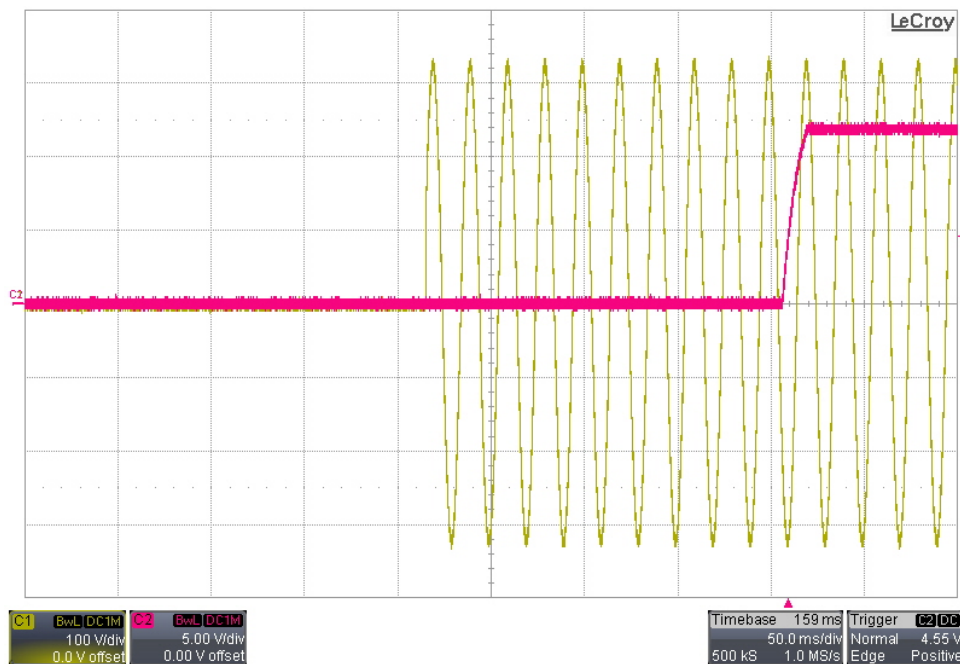
Channel 1 shows the AC input voltage. Channel 2 shows the output voltage.

6.1 115VAC/60Hz Startup – 0A Load



6.2 230VAC/50Hz Startup – 0A Load**6.3 115VAC/60Hz Startup – 30Ω Load**

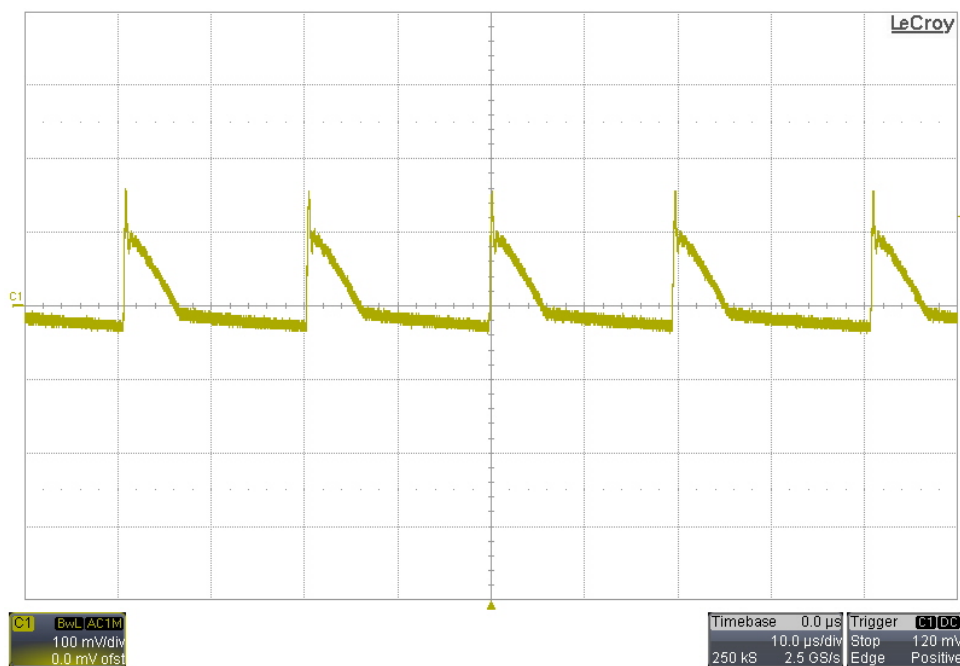
6.4 230VAC/50Hz Startup – 30Ω Load



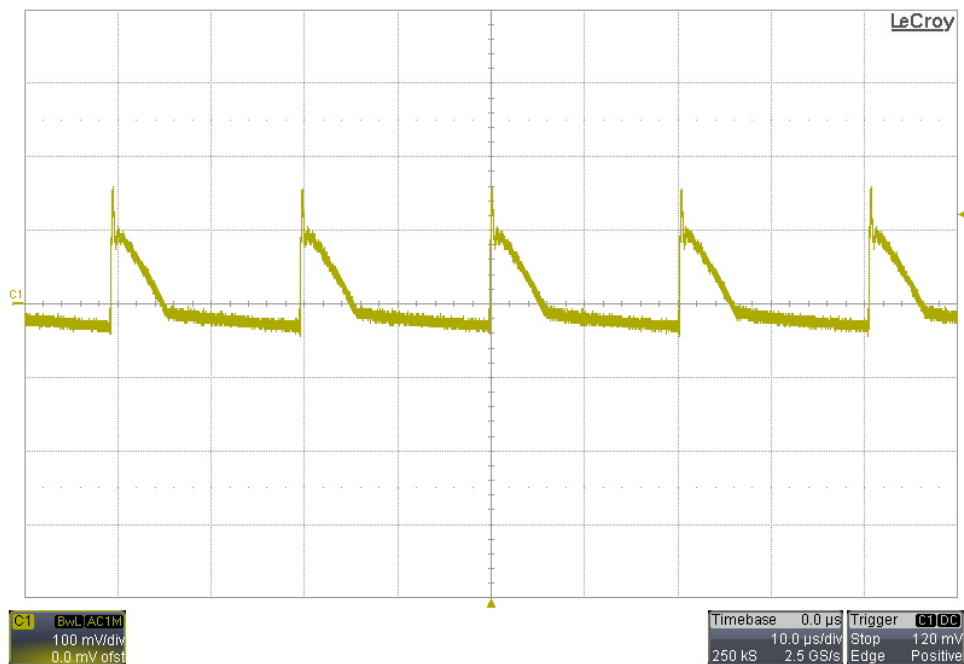
7 Output Ripple Voltage

The output was loaded with 0.4A.

7.1 115VAC/60Hz Output Ripple Voltage

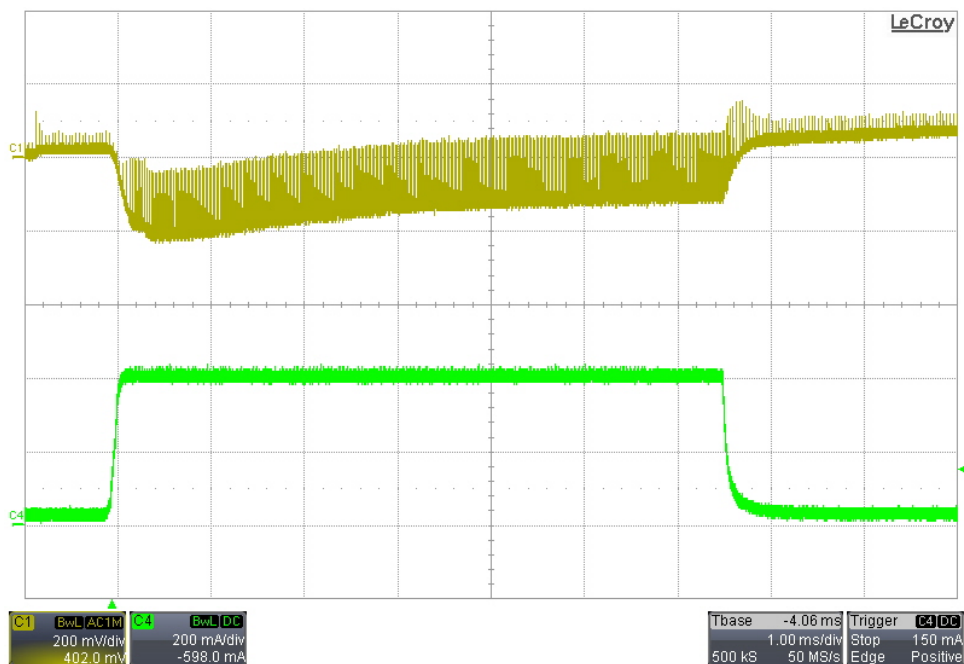


7.2 230VAC/50Hz Output Ripple Voltage

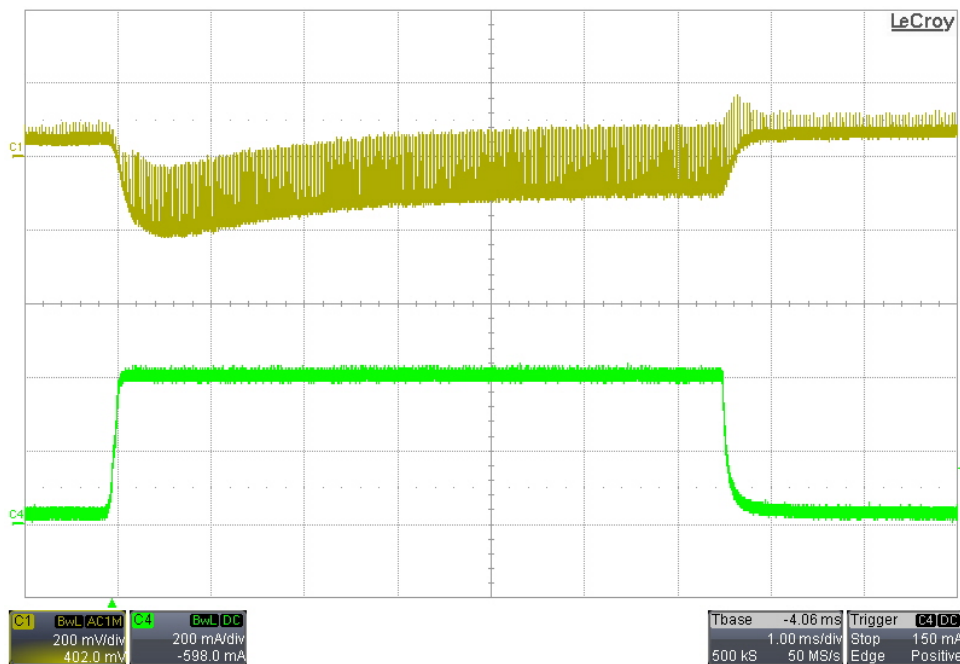


8 Load Transients

8.1 10mA to 0.4A Transient – 115VAC/60Hz Input



8.2 10mA to 0.4A Transient – 230VAC/50Hz Input

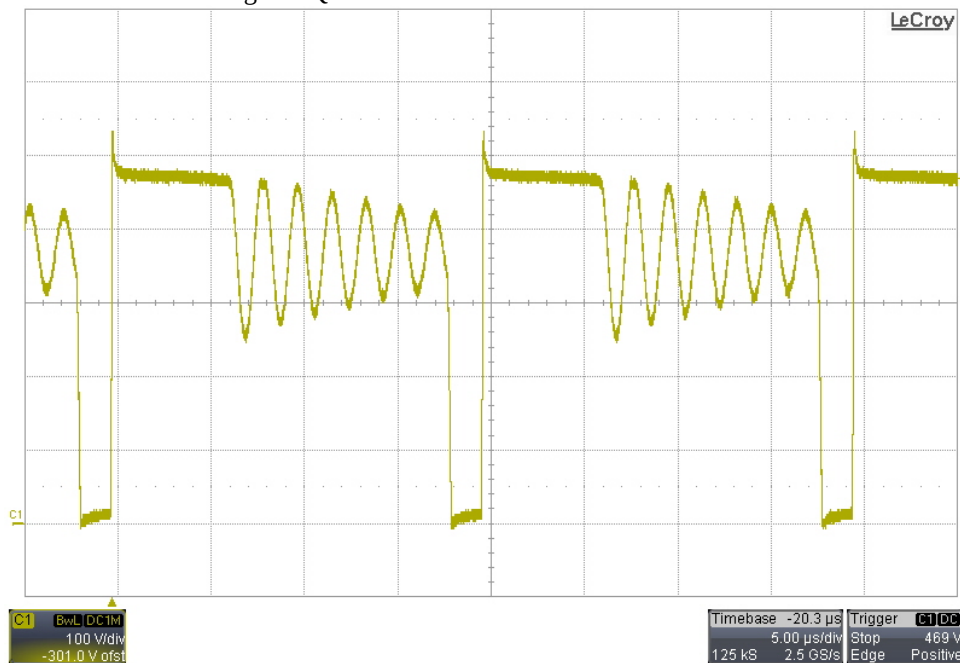


9 Switching Waveforms

The images below show the voltage waveforms on the switching devices within the supply. The input was 265VAC/50Hz. The output was loaded 0.4A.

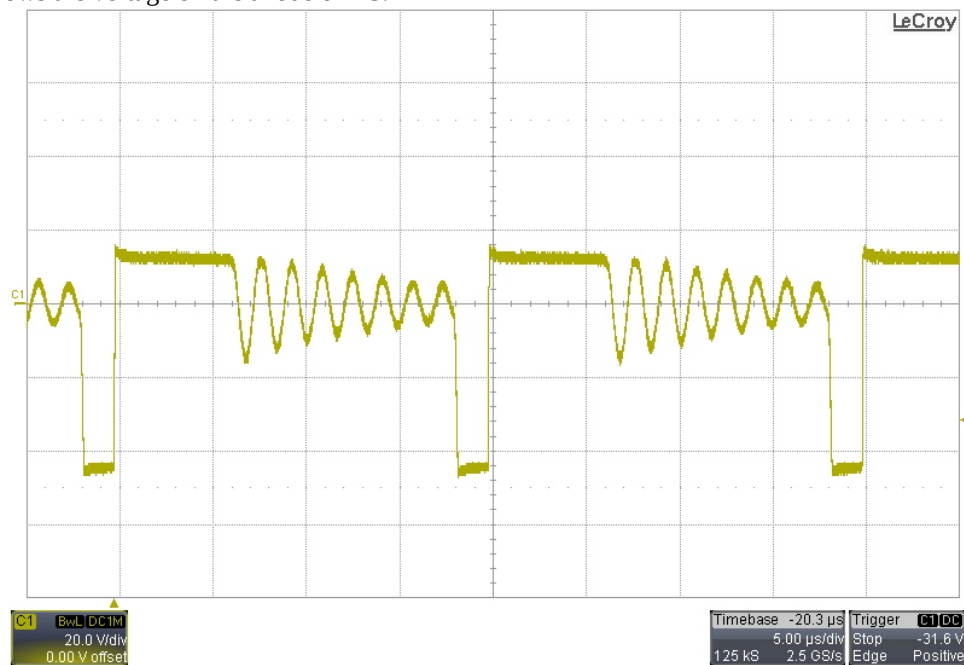
9.1 Primary Waveforms

The image below shows the collector voltage on Q1.

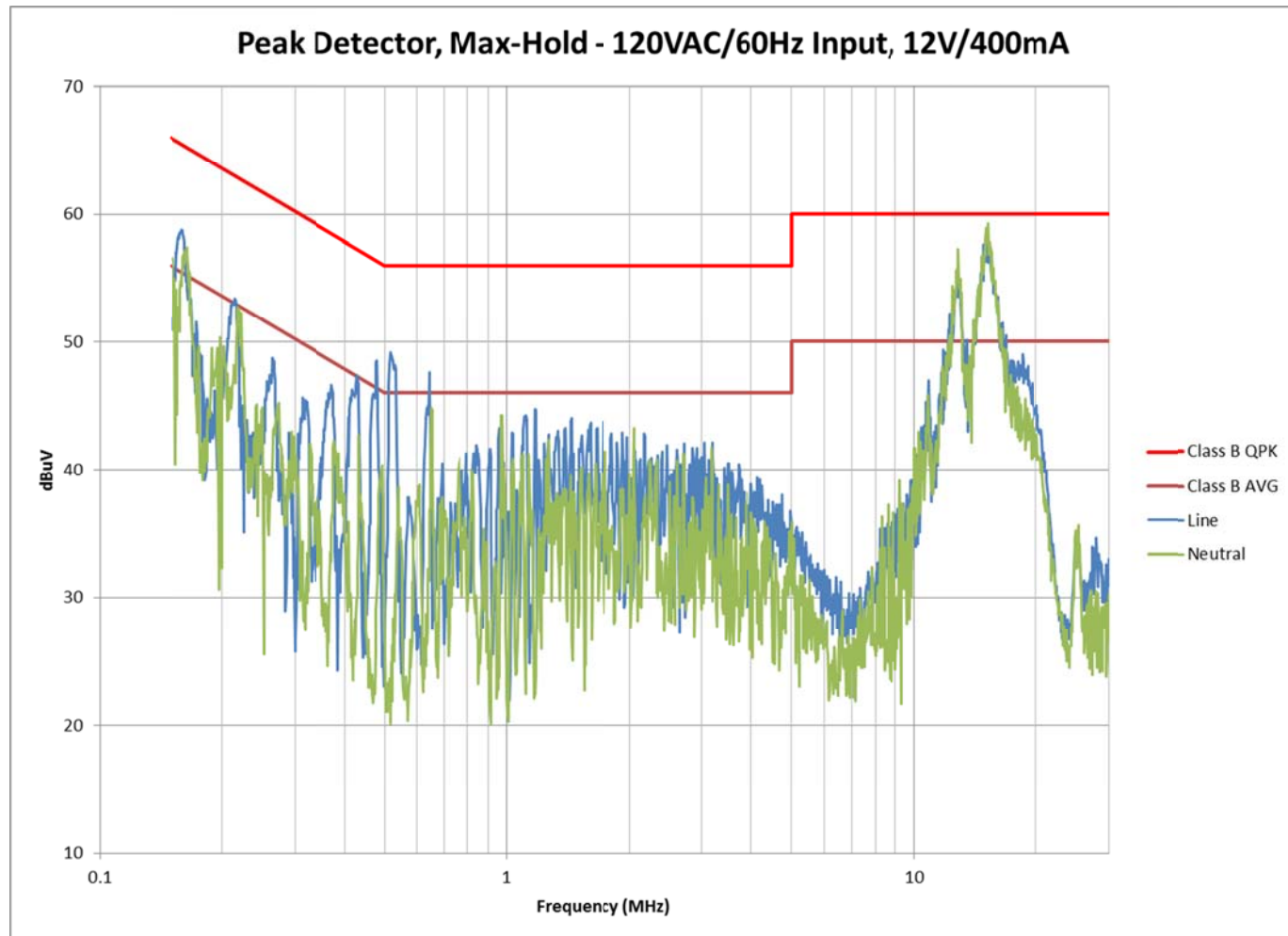


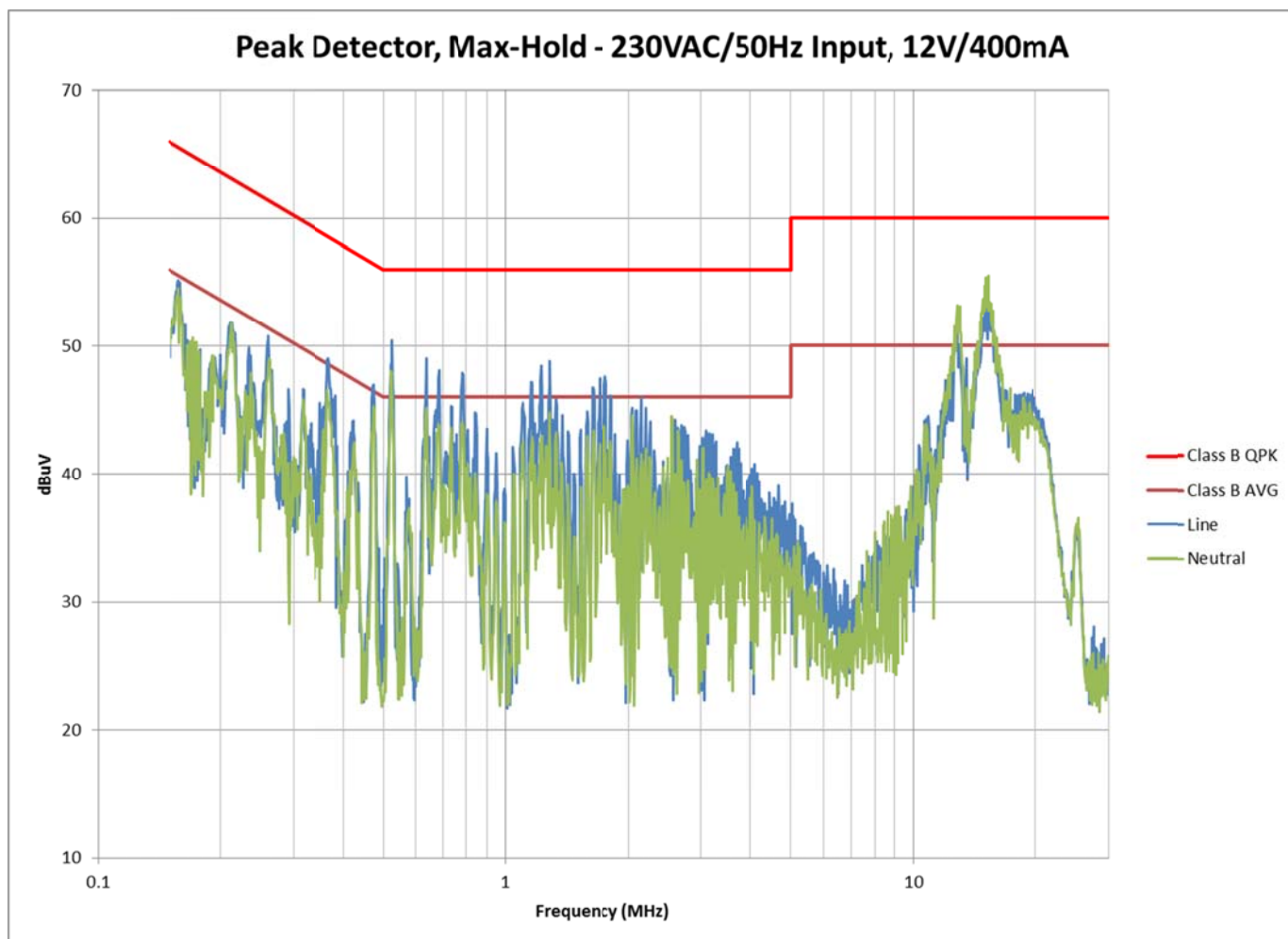
9.2 Secondary Waveforms

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



10 Conducted Emissions





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