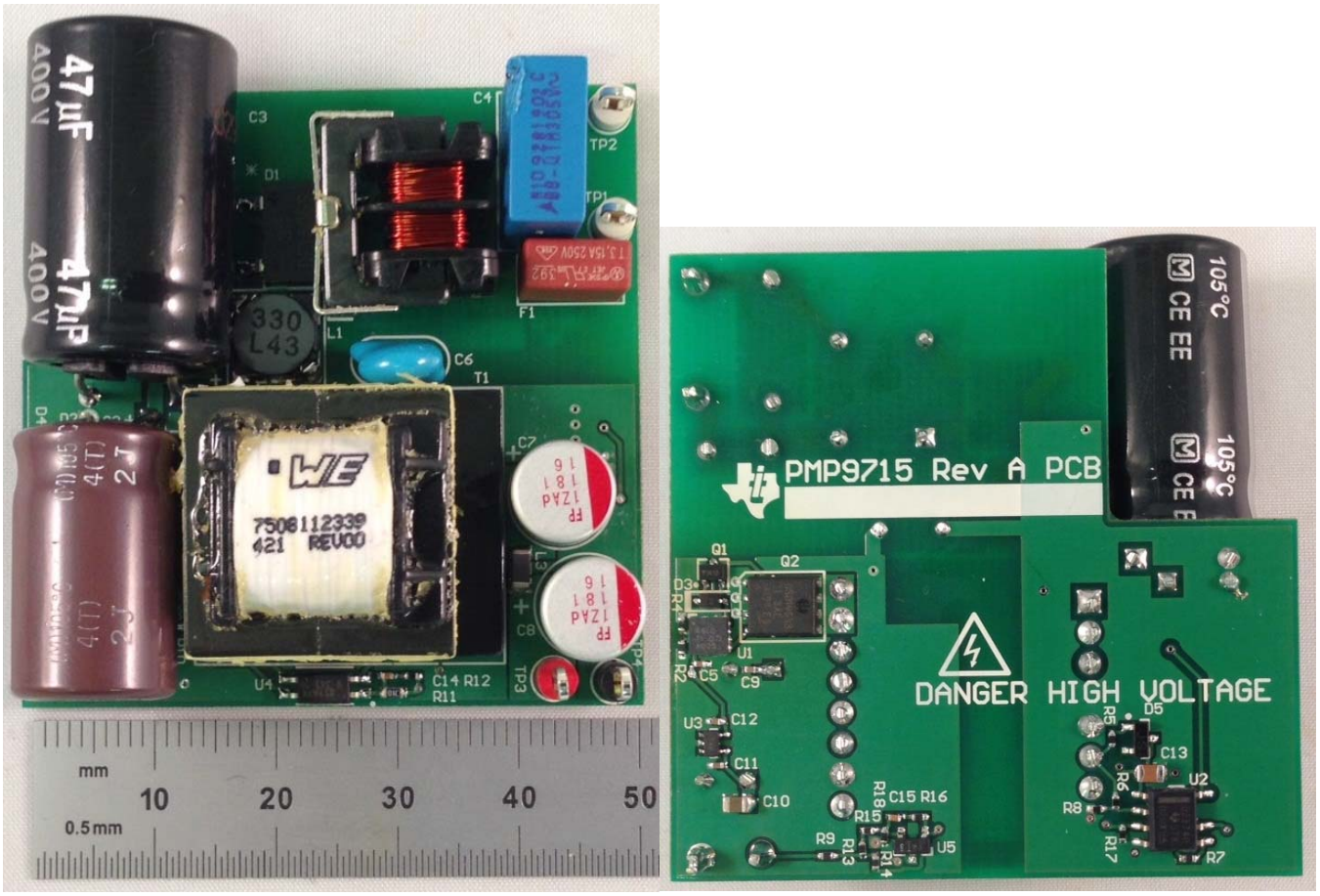
1 Photos

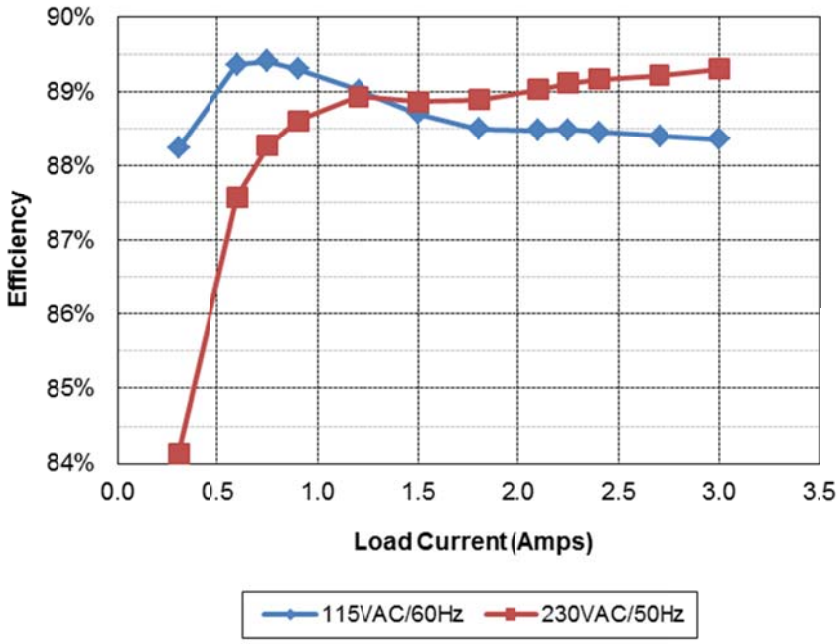
The photograph below shows the PMP9715 Rev A prototype assembly.



2 Standby Power

With no load attached to the output of the supply, the unit draws 89mW of input power with an 115VAC/60Hz input, and 103mW with a 230VAC/50Hz input.

3 Efficiency



115VAC/60Hz

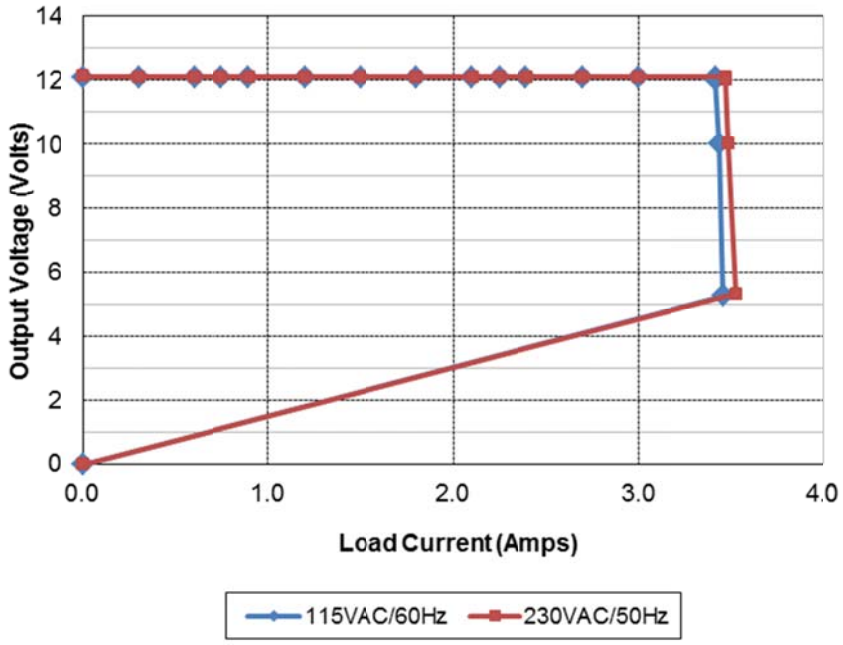
Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	12.10	115.0	0.0058	0.089		0.00	0.09	
0.299	12.10	114.9	0.104	4.10	0.34	3.62	0.48	88.2%
0.599	12.10	114.9	0.188	8.11	0.38	7.25	0.86	89.4%
0.750	12.10	114.9	0.226	10.15	0.39	9.08	1.08	89.4%
0.899	12.10	114.9	0.262	12.18	0.40	10.88	1.30	89.3%
1.200	12.10	114.9	0.330	16.31	0.43	14.52	1.79	89.0%
1.500	12.10	114.9	0.393	20.46	0.45	18.15	2.31	88.7%
1.800	12.10	114.9	0.455	24.61	0.47	21.78	2.83	88.5%
2.101	12.10	114.9	0.514	28.73	0.49	25.42	3.31	88.5%
2.251	12.10	114.9	0.543	30.78	0.49	27.24	3.54	88.5%
2.400	12.10	114.8	0.571	32.83	0.50	29.04	3.79	88.5%
2.701	12.10	114.8	0.628	36.97	0.51	32.68	4.29	88.4%
3.000	12.10	114.8	0.684	41.08	0.52	36.30	4.78	88.4%

230VAC/50Hz								
Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	12.11	229.7	0.0071	0.103		0.00	0.10	
0.299	12.10	229.7	0.067	4.30	0.28	3.62	0.68	84.1%
0.600	12.10	229.7	0.115	8.29	0.31	7.26	1.03	87.6%
0.750	12.10	229.7	0.139	10.28	0.32	9.08	1.21	88.3%
0.900	12.10	229.7	0.163	12.29	0.33	10.89	1.40	88.6%
1.201	12.10	229.7	0.209	16.34	0.34	14.53	1.81	88.9%
1.499	12.10	229.7	0.254	20.41	0.35	18.14	2.27	88.9%
1.800	12.10	229.7	0.297	24.50	0.36	21.78	2.72	88.9%
2.103	12.10	229.7	0.368	28.58	0.37	25.45	3.13	89.0%
2.250	12.10	229.7	0.358	30.55	0.37	27.23	3.33	89.1%
2.401	12.10	229.7	0.377	32.58	0.38	29.05	3.53	89.2%
2.701	12.10	229.7	0.414	36.63	0.39	32.68	3.95	89.2%
3.001	12.10	229.7	0.450	40.66	0.39	36.31	4.35	89.3%

Vin	Pin	Vout	Iout	Load	Efficiency	Avg. Eff.
115VAC/60Hz	10.15	12.10	0.750	25%	89.41%	**88.74%**
	20.46	12.10	1.500	50%	88.71%	
	30.78	12.10	2.251	75%	88.49%	
	41.08	12.10	3.000	100%	88.36%	
230VAC/50Hz	10.28	12.10	0.750	25%	88.28%	**88.89%**
	20.41	12.10	1.499	50%	88.87%	
	30.55	12.10	2.250	75%	89.12%	
	40.66	12.10	3.001	100%	89.31%	

4 Current Limit

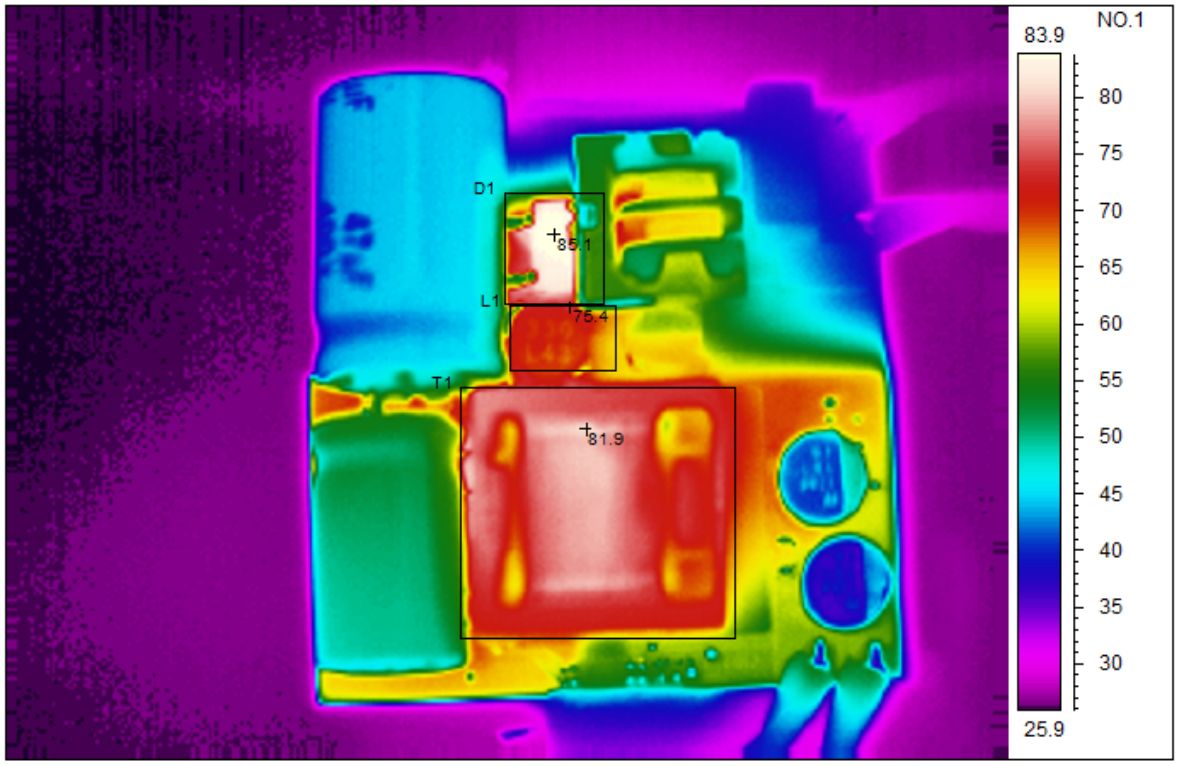
A plot of the output voltage versus load current is shown below.

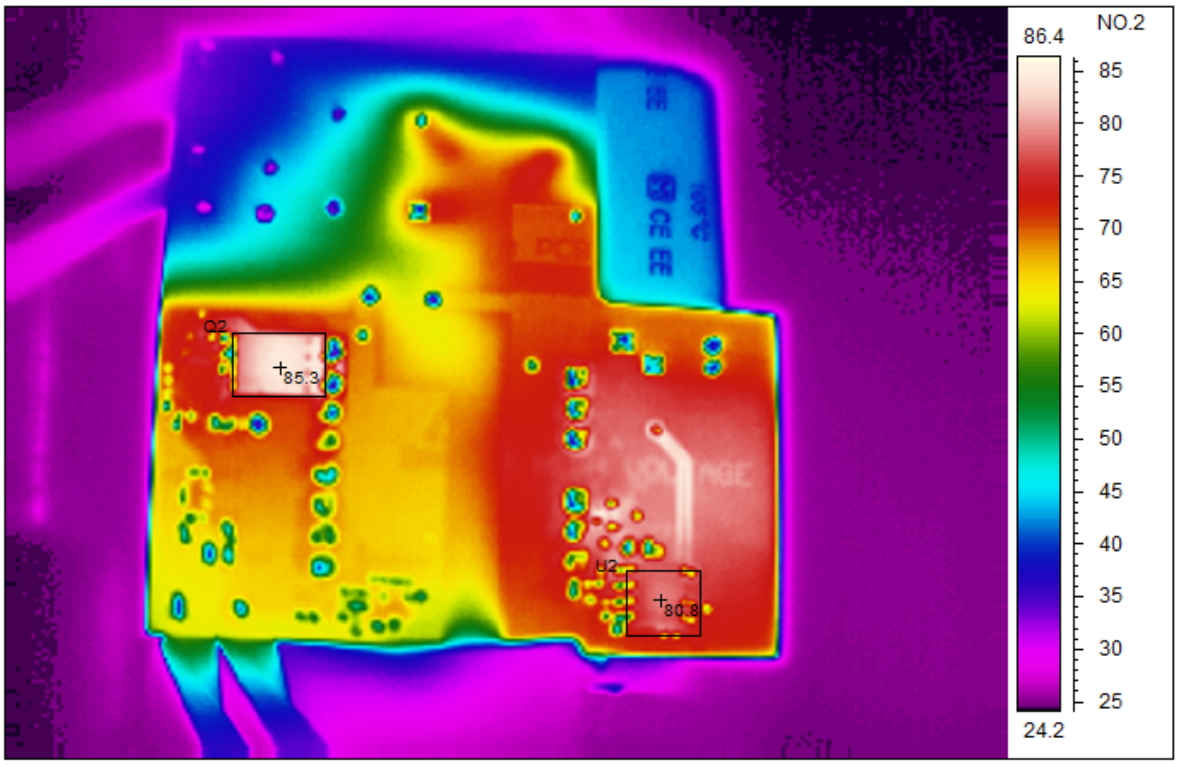


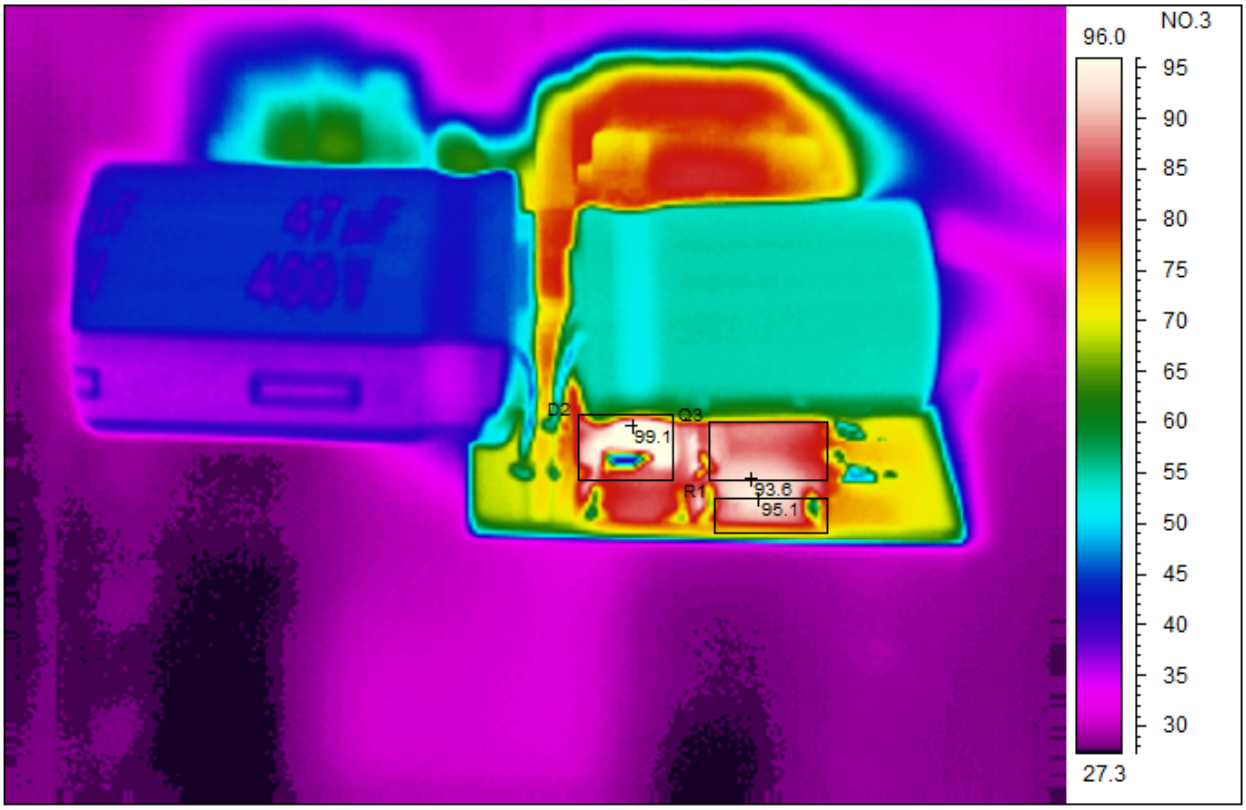
5 Thermal Images

The ambient temperature was 25ºC. The output was loaded with 3A.

5.1 115VAC/60Hz Input







NO.1

Area analysis	Value
T1 Max	81.9°C
D1Max	85.1°C
L1 Max	75.4°C

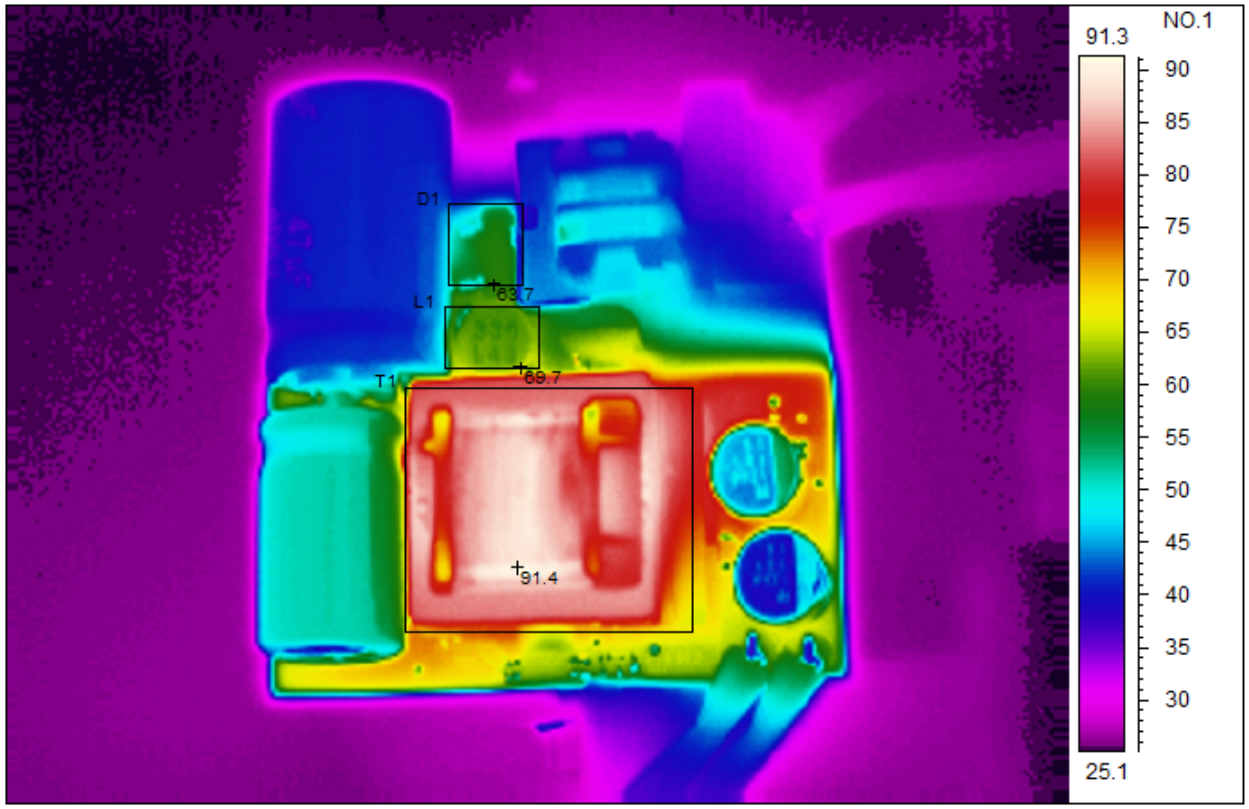
NO.2

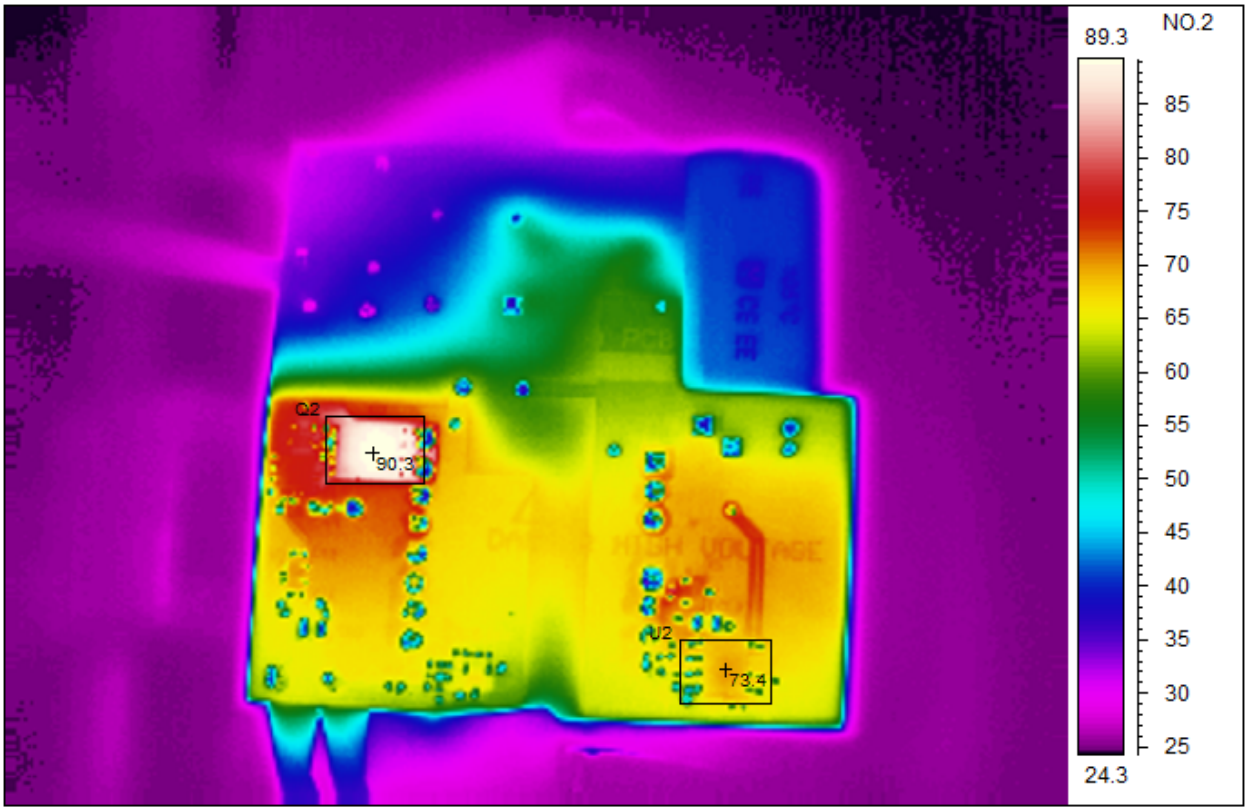
Area analysis	Value
Q2 Max	85.3°C
U2 Max	80.8°C

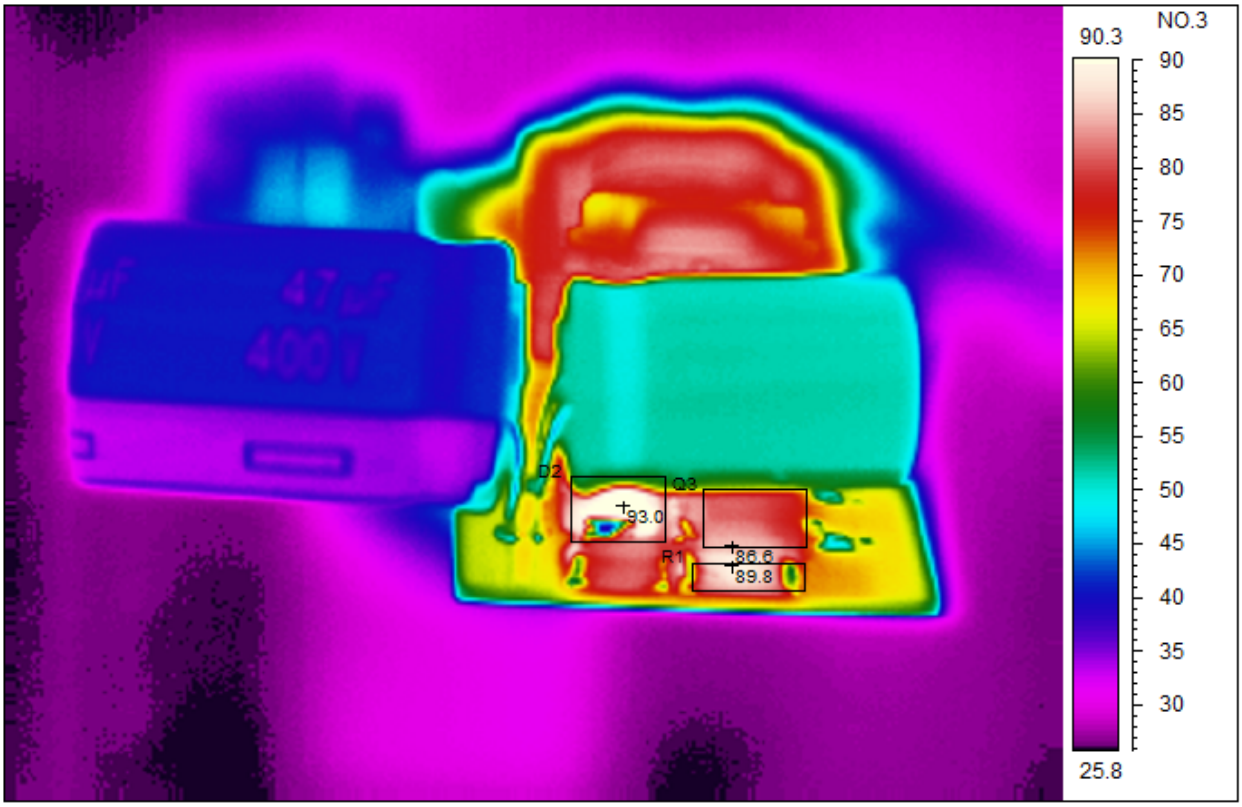
NO.3

Area analysis	Value
D2 Max	99.1°C
Q3 Max	93.6°C
R1 Max	95.1°C

5.2 230VAC/50Hz Input







NO.1

Area analysis	Value
T1 Max	91.4°C
D1Max	63.7°C
L1 Max	69.7°C

NO.2

Area analysis	Value
Q2 Max	90.3°C
U2 Max	73.4°C

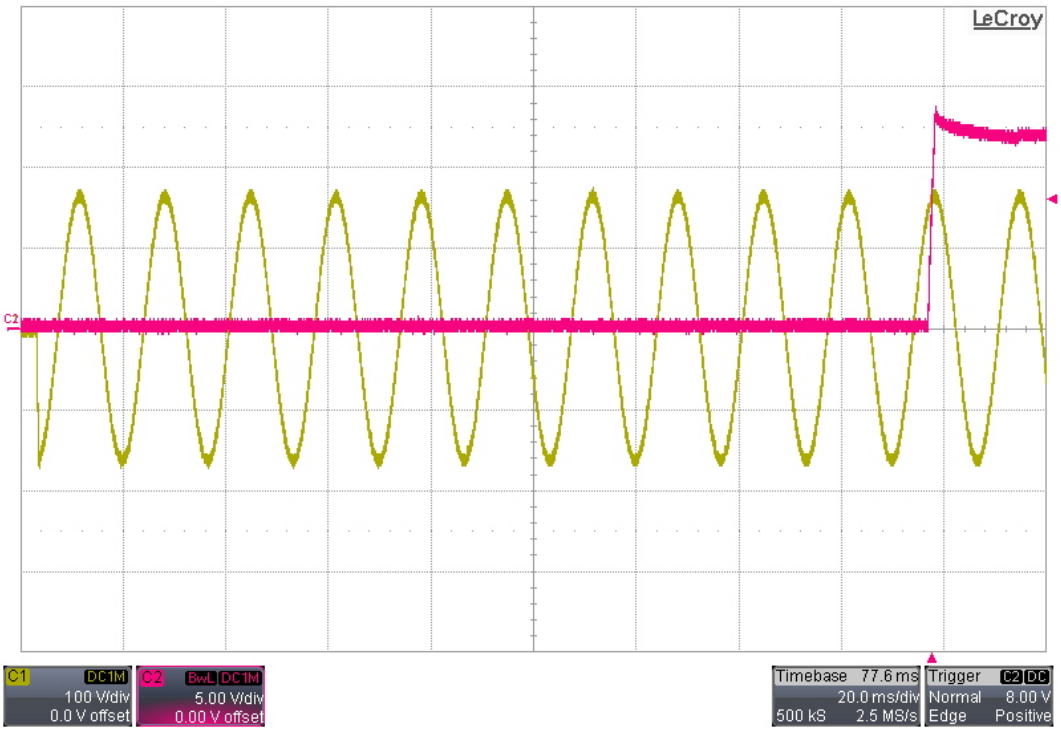
NO.3

Area analysis	Value
D2 Max	93.0°C
Q3 Max	86.6°C
R1 Max	89.8°C

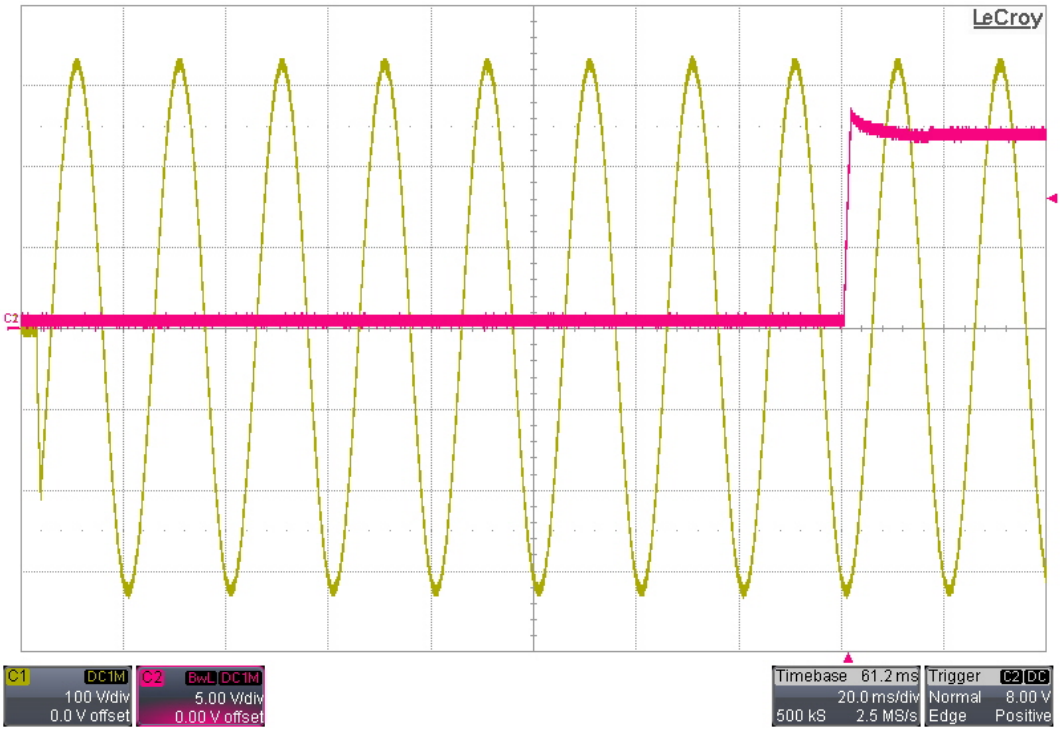
6 Startup

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

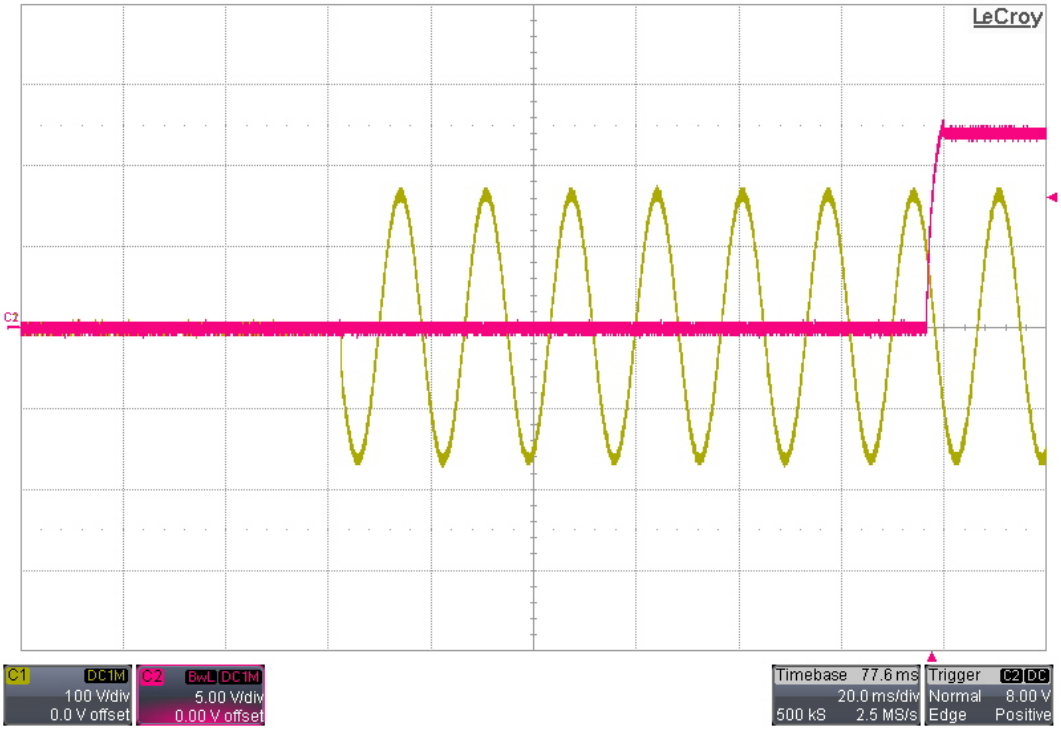
6.1 115VAC/60Hz Startup – 0A Load



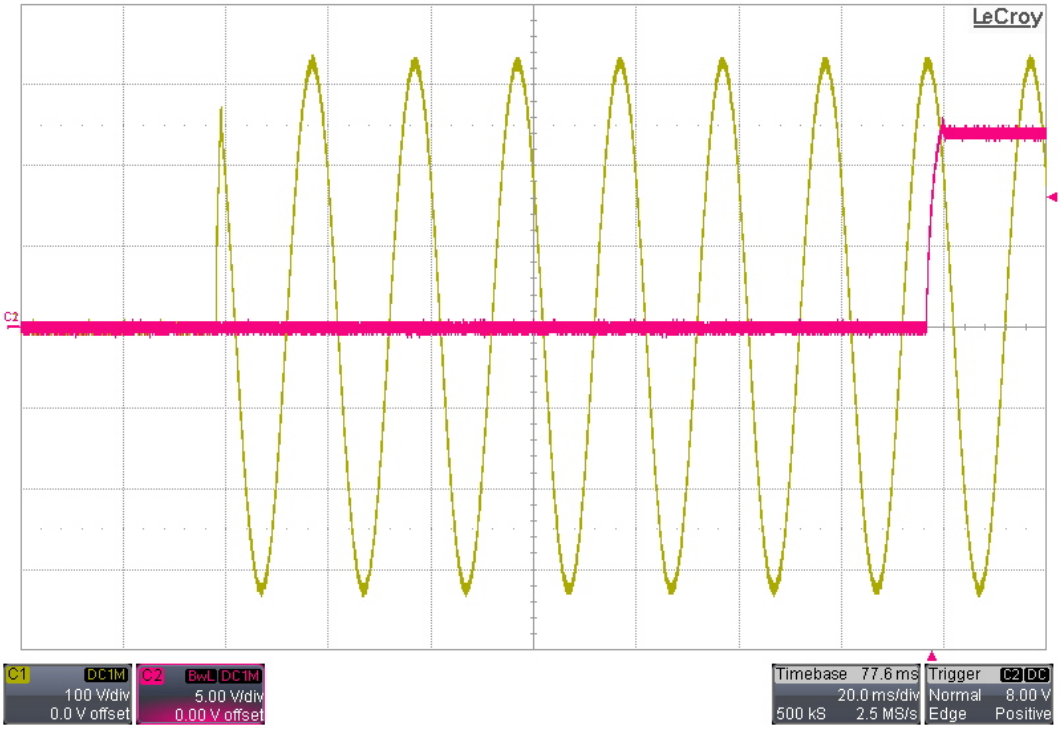
6.2 230VAC/50Hz Startup – 0A Load



6.3 115VAC/60Hz Startup – 4Ω Load



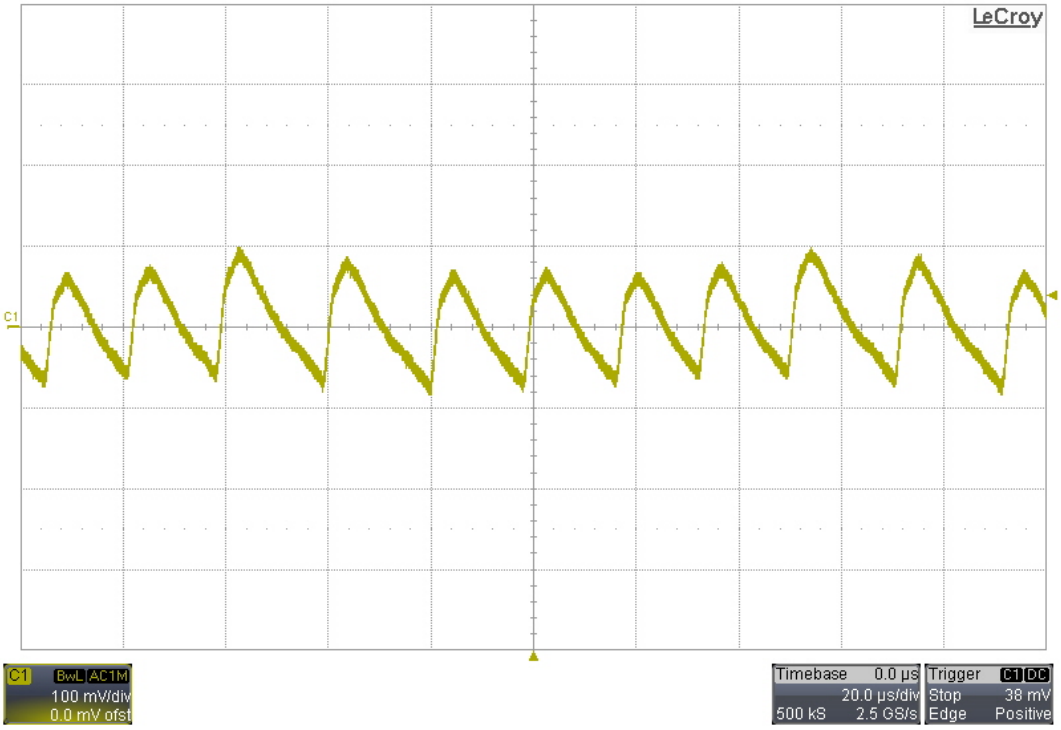
6.4 230VAC/50Hz Startup – 4Ω Load



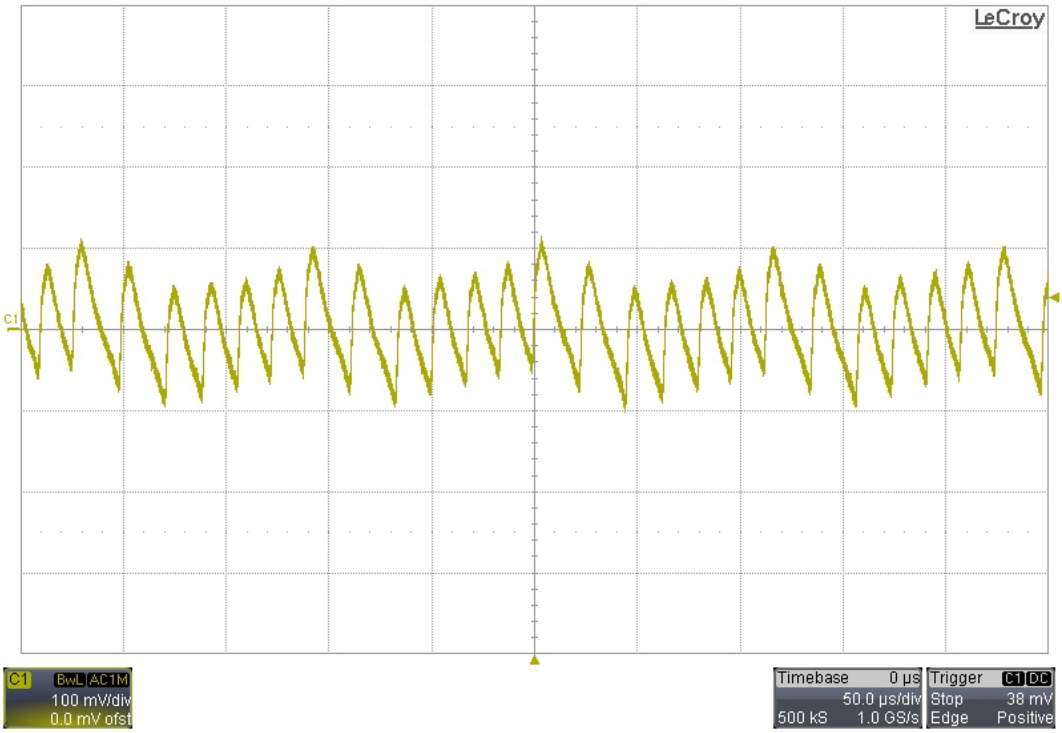
7 Output Ripple Voltage

The output was loaded with 3A.

7.1 115VAC/60Hz Output Ripple Voltage

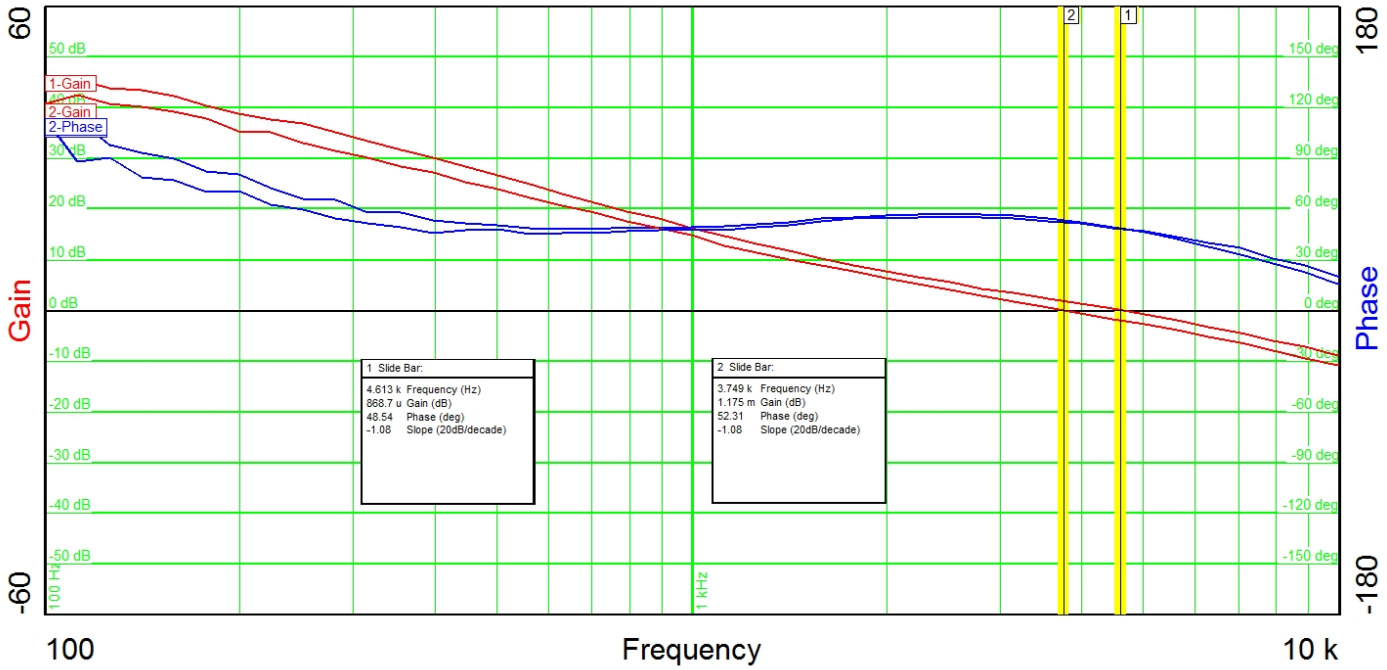


7.2 230VAC/50Hz Output Ripple Voltage



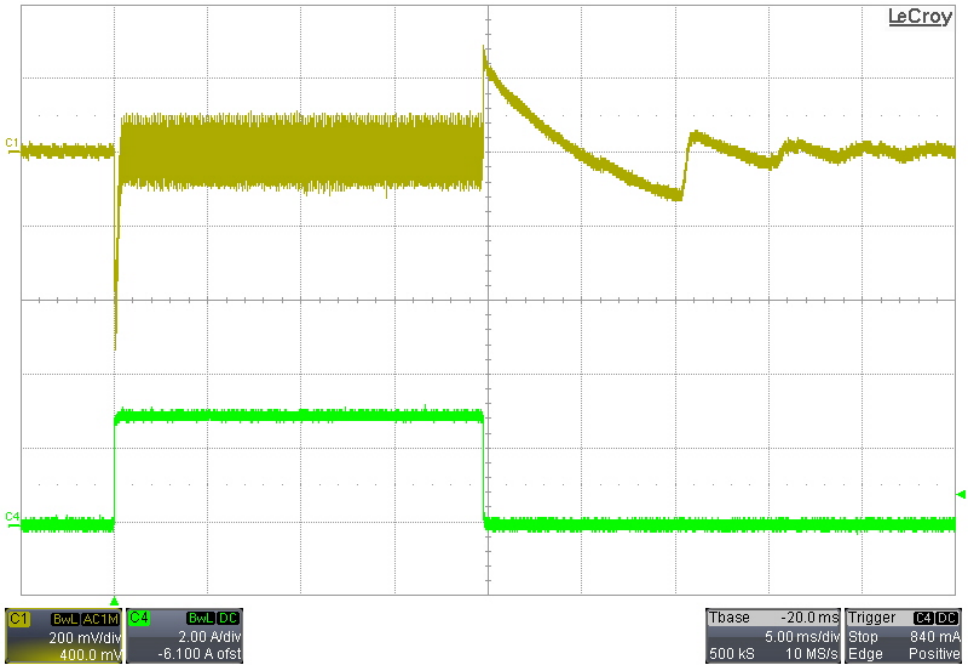
8 Frequency Response

The frequency response of the feedback loop measured at R9 is shown below. For the gain/phase plot #1, the input was set to 115VAC/60Hz. For the gain/phase plot #2, the input was set to 230VAC/50Hz. The output was loaded with 3A.

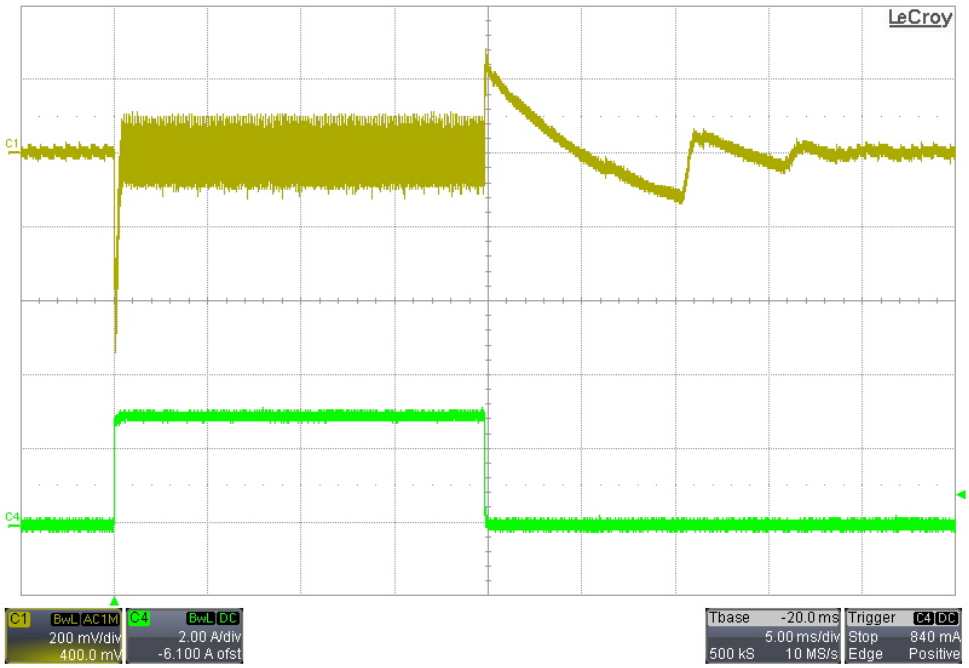


9 Load Transients

9.1 0A to 3A Transient – 115VAC/60Hz Input



9.2 0A to 2A Transient – 230VAC/50Hz Input

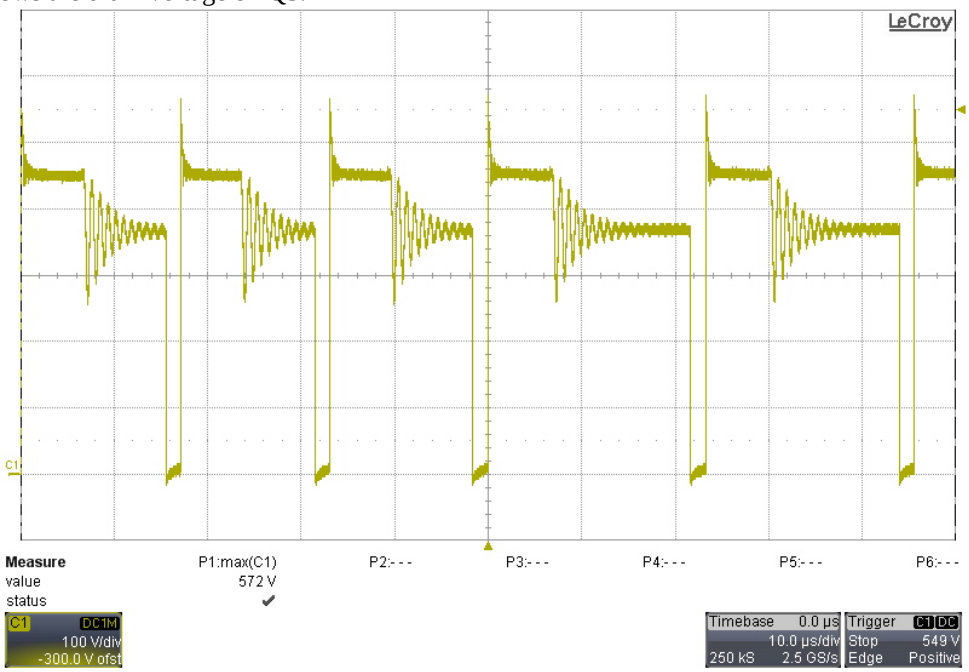


10 Switching Waveforms

The images below show the voltage waveforms on the switching devices within the supply. The input was 265VAC/50Hz. The output was loaded 3A.

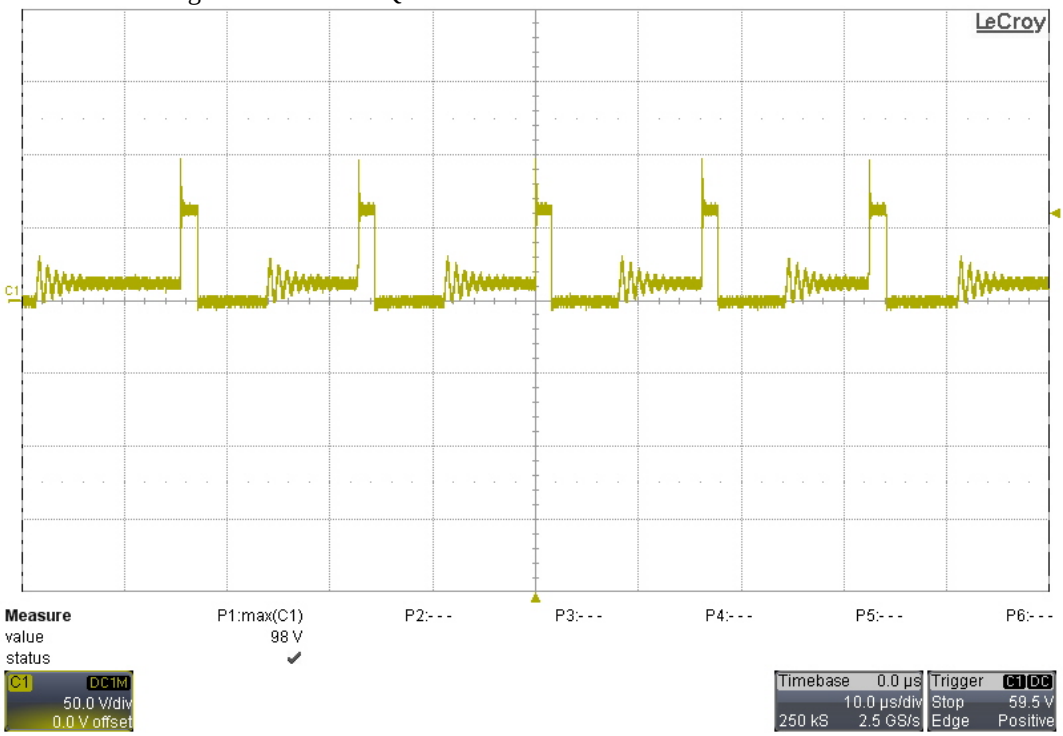
10.1 Primary Waveforms

The image below shows the drain voltage on Q3.



10.2 Secondary Waveforms

The image below shows the voltage on the drain of Q2.



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