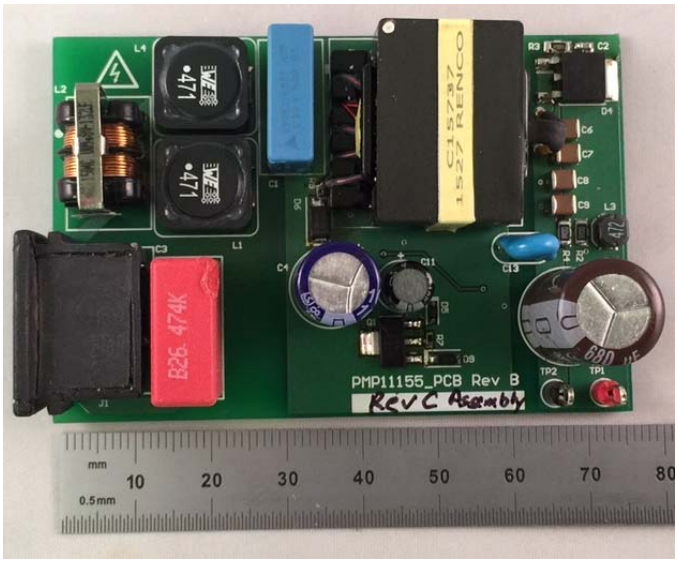
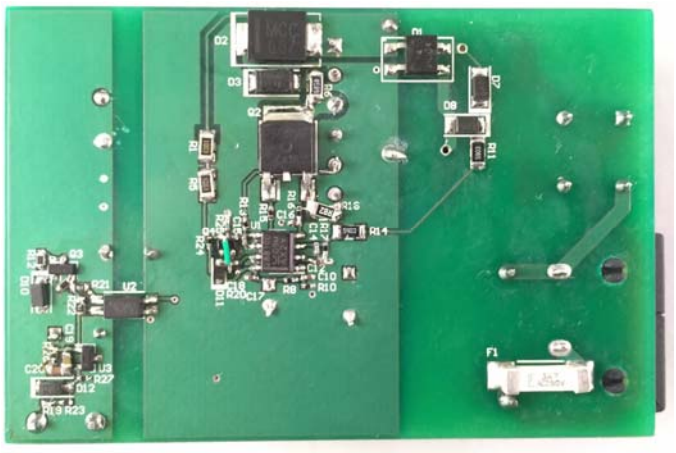
PMP11155 Rev C Test Results

1 Photos

The photograph below shows the PMP11155 Rev C prototype assembly. This circuit was built on a PMP11155 Rev B PCB.



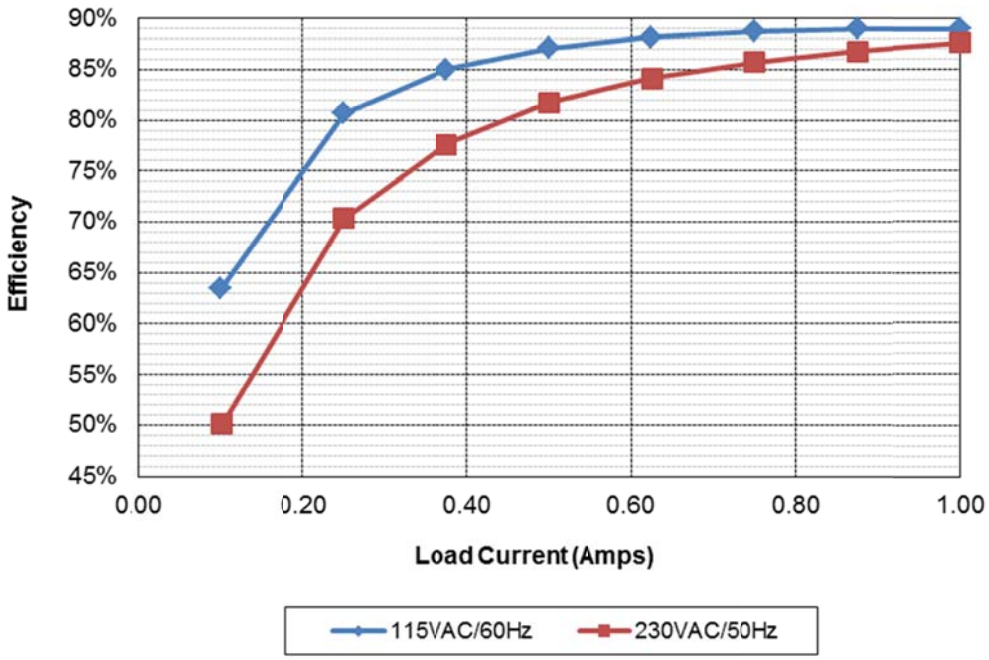


2 Standby Power

No Load	Pin AC (W)
120VAC/60Hz	1.114
230VAC/50Hz	1.370

3 Efficiency

Vin	Pin	Vout	Iout	Load	Efficiency	Avg. Eff.
115VAC/60Hz	3.79	24.24	0.099	10%	63.40%	
	7.51	24.24	0.250	25%	80.68%	**86.36%**
	13.92	24.24	0.500	50%	87.07%	
	20.49	24.24	0.750	75%	88.73%	
	27.23	24.23	1.000	100%	88.98%	
230VAC/50Hz	4.89	24.25	0.101	10%	50.05%	
	8.62	24.25	0.250	25%	70.32%	**81.34%**
	14.83	24.25	0.500	50%	81.76%	
	21.21	24.24	0.750	75%	85.71%	
	27.68	24.24	1.000	100%	87.57%	



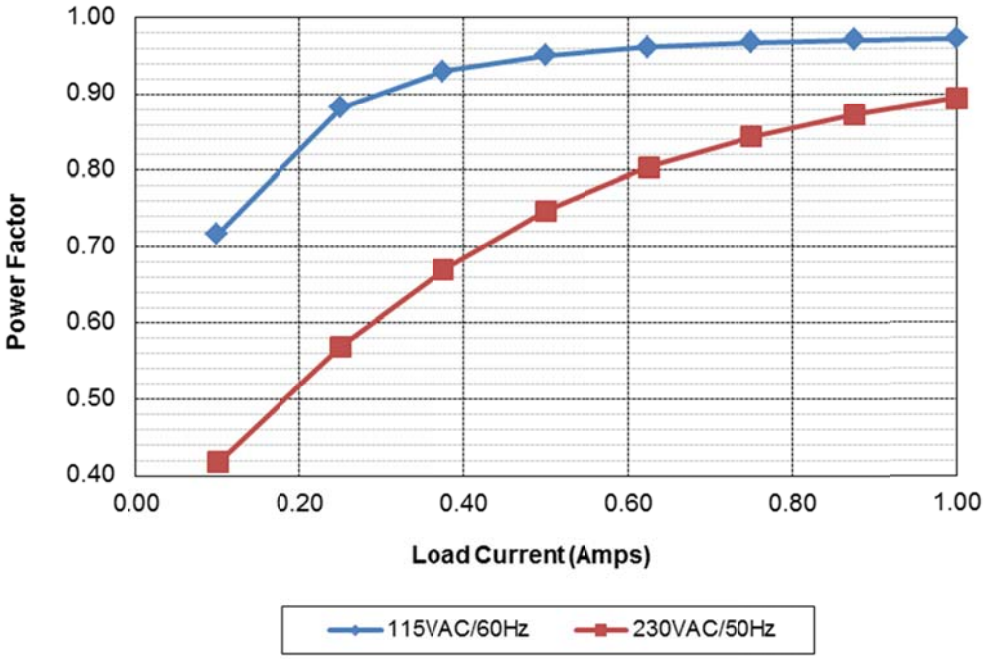
115VAC/60Hz

Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	24.25	115.1	0.02593	1.114		0.00	1.11	
0.099	24.24	115.0	0.0460	3.785	0.716	2.40	1.39	63.4%
0.250	24.24	114.9	0.0741	7.511	0.882	6.06	1.45	80.7%
0.375	24.24	114.9	0.1000	10.689	0.930	9.09	1.60	85.0%
0.500	24.24	114.9	0.1274	13.920	0.951	12.12	1.80	87.1%
0.624	24.24	114.9	0.1553	17.16	0.962	15.13	2.03	88.1%
0.750	24.24	114.9	0.1843	20.49	0.968	18.18	2.31	88.7%
0.875	24.24	114.9	0.2137	23.84	0.971	21.21	2.63	89.0%
1.000	24.23	114.9	0.2436	27.23	0.973	24.23	3.00	89.0%

230VAC/50Hz

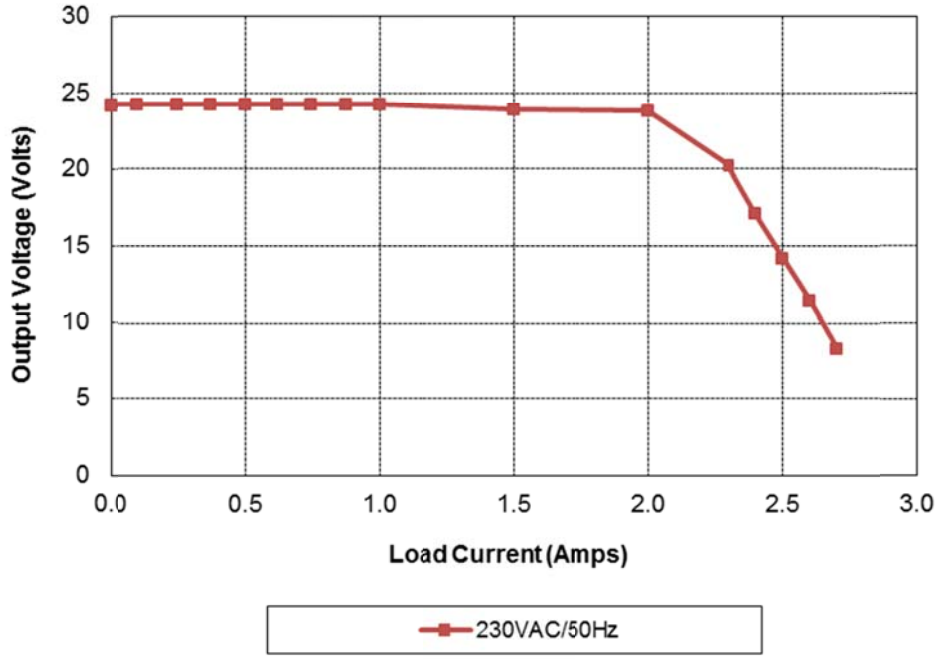
Iout	Vout	Vin	Iin	Pin	PF	Pout	Losses	Efficiency
0.000	24.24	229.9	0.03728	1.370		0.00	1.37	
0.101	24.25	229.9	0.0511	4.894	0.417	2.45	2.44	50.0%
0.250	24.25	229.9	0.0066	8.621	0.569	6.06	2.56	70.3%
0.374	24.25	229.9	0.0760	11.685	0.669	9.07	2.62	77.6%
0.500	24.25	229.9	0.0863	14.830	0.747	12.13	2.71	81.8%
0.625	24.24	229.9	0.0974	18.00	0.804	15.15	2.85	84.2%
0.750	24.24	229.9	0.1093	21.21	0.844	18.18	3.03	85.7%
0.875	24.24	229.9	0.1217	24.44	0.873	21.21	3.23	86.8%
1.000	24.24	229.9	0.1346	27.68	0.895	24.24	3.44	87.6%

4 Power Factor



5 Overload

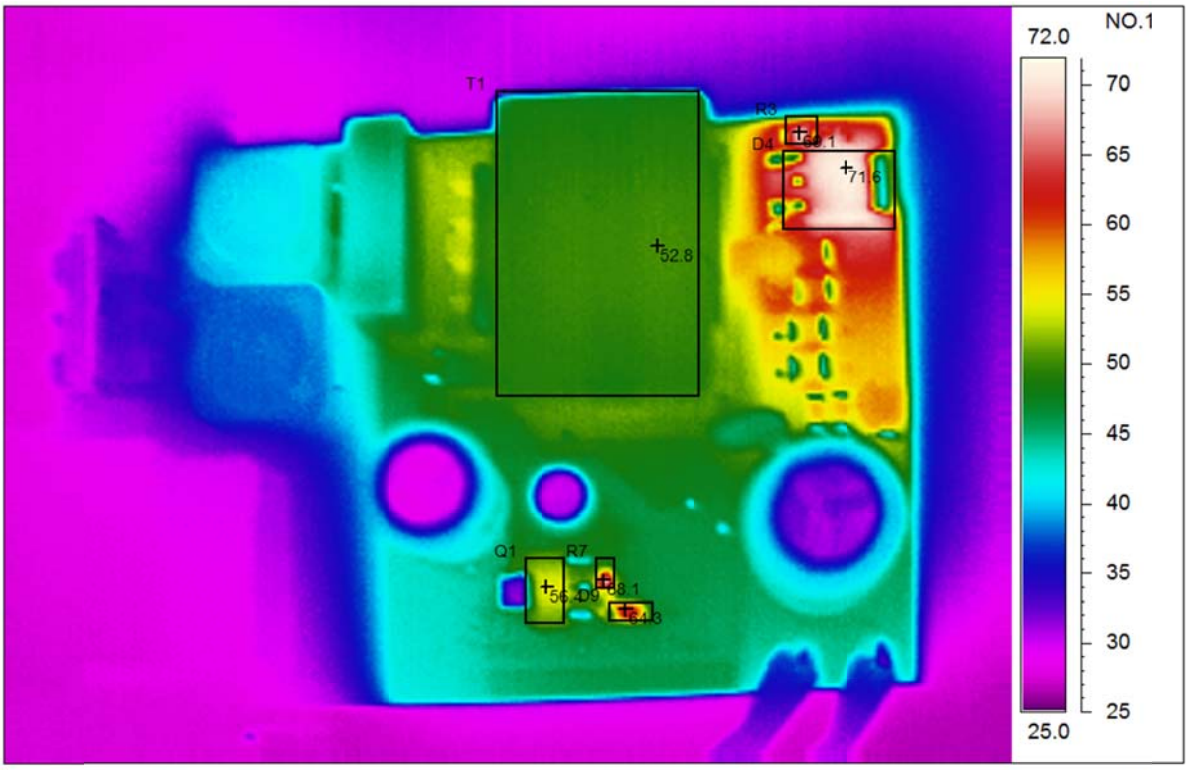
Sustained overload conditions results in damaged components (D4, Q2, R18, R6, and U1). Additional over-current protection is recommended.

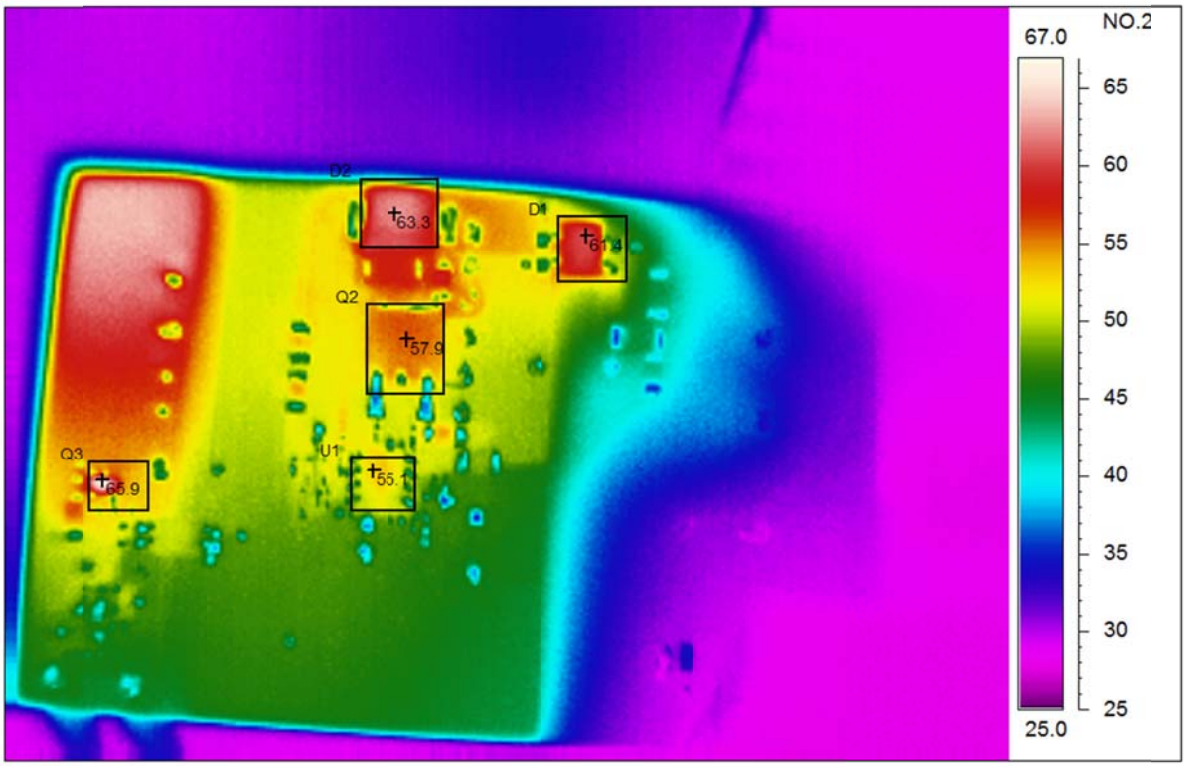


6 Thermal Images

The output was loaded with 1A. The ambient temperature was 25C with no forced air flow.

6.1 115VAC/60Hz Input





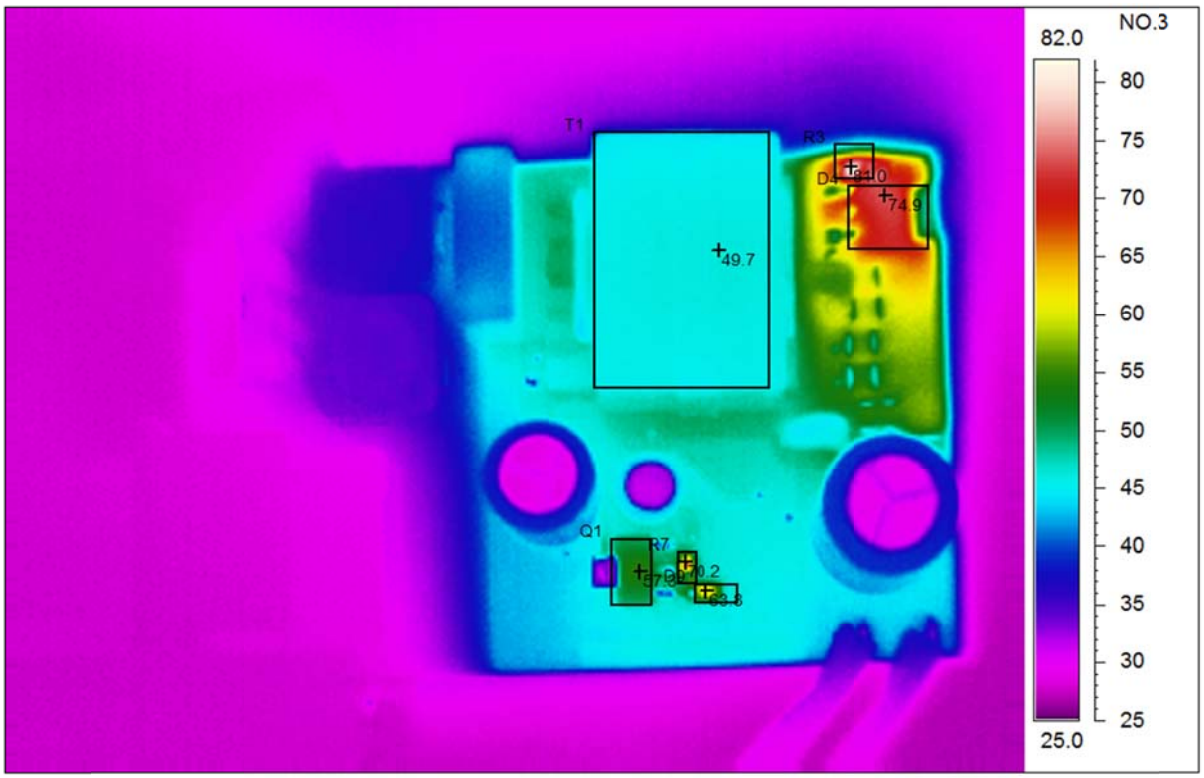
Area analysis	Value
T1 Max	52.8°C
D4Max	71.6°C
Q1Max	56.4°C
R7Max	68.1°C
D9 Max	64.3°C
R3 Max	69.1°C

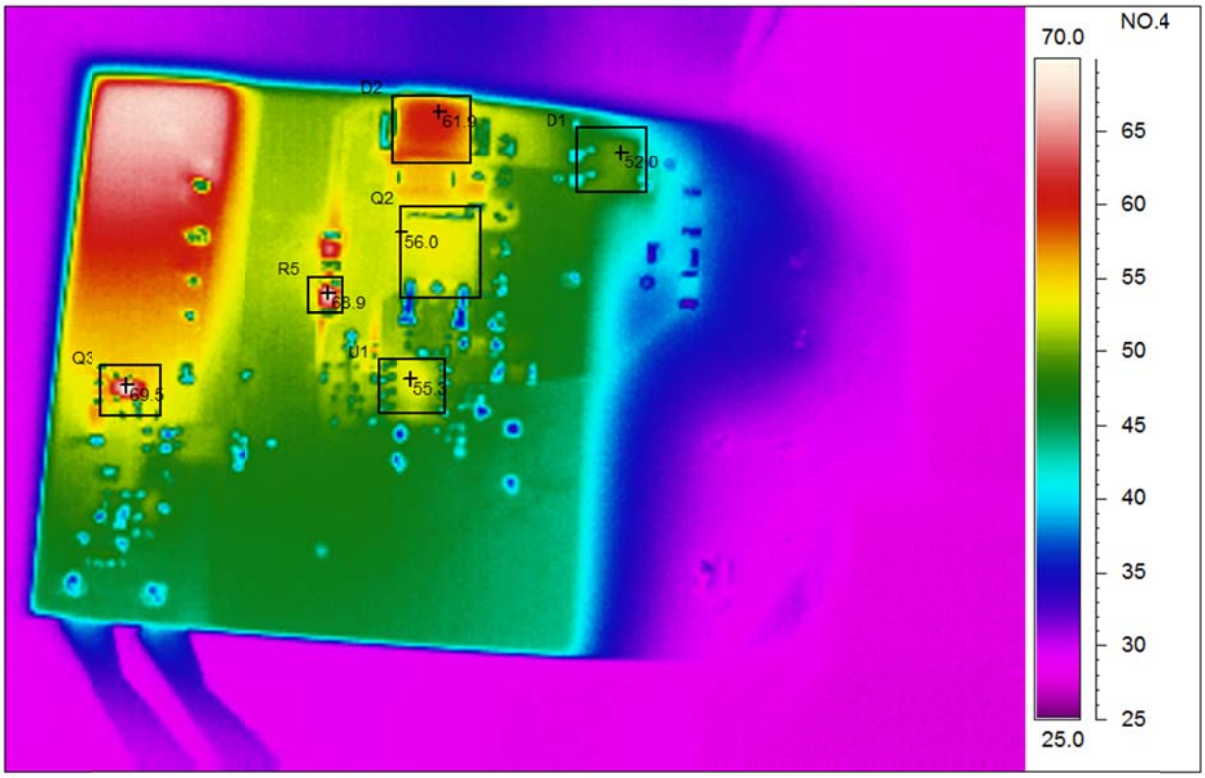
NO.1

Area analysis	Value
D1Max	61.4°C
D2Max	63.3°C
Q2Max	57.9°C
U1Max	55.1°C
Q3 Max	65.9°C

NO.2

6.2 230VAC/50Hz Input





NO.3

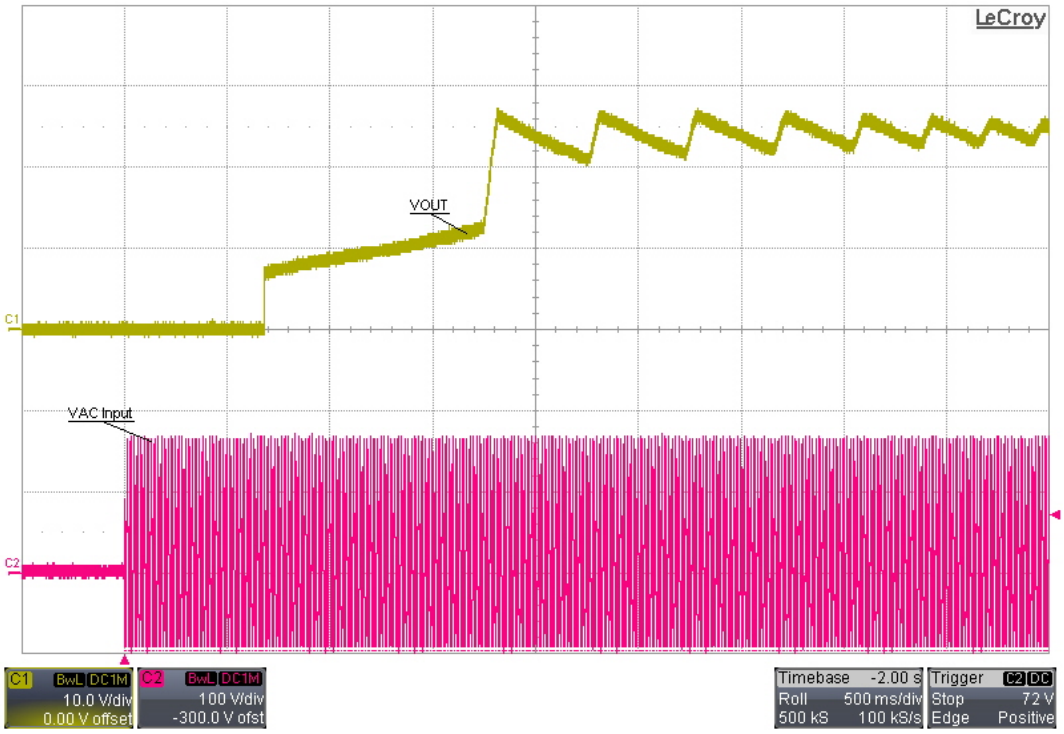
Area analysis	Value
T1 Max	49.7°C
D4Max	74.9°C
Q1Max	57.3°C
R7Max	70.2°C
D9 Max	63.8°C
R3 Max	81.0°C

NO.4

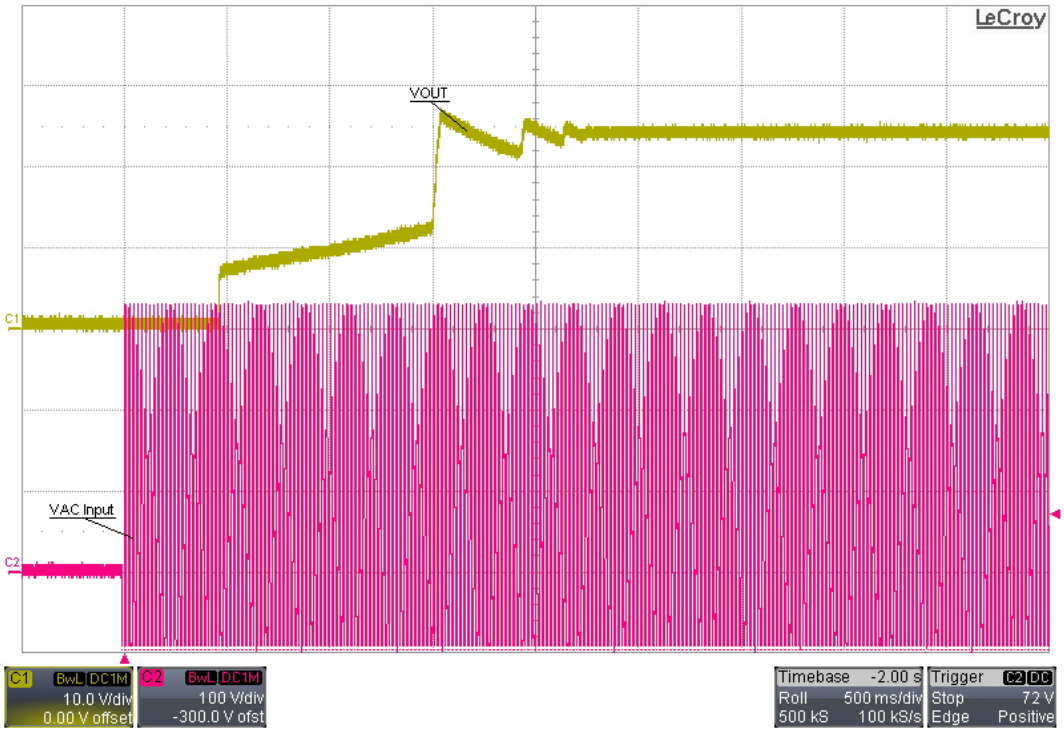
Area analysis	Value
D1Max	52.0°C
D2Max	61.9°C
Q2Max	56.0°C
U1Max	55.3°C
Q3 Max	69.5°C
R5 Max	68.9°C

7 Startup

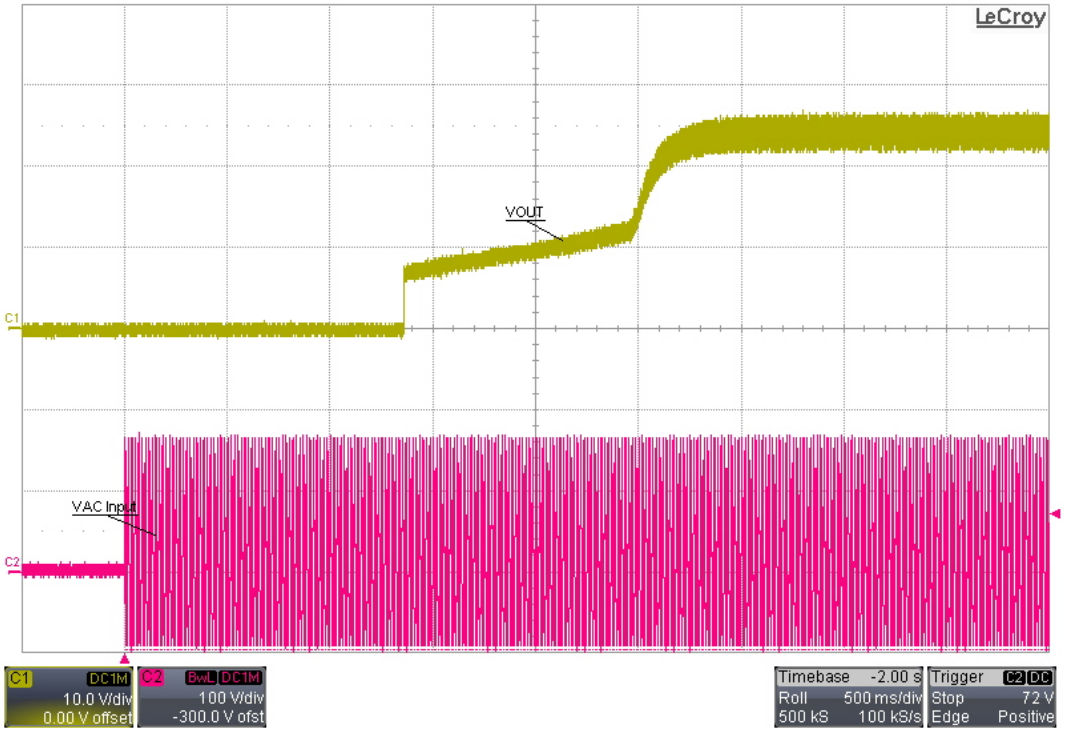
7.1 115VAC/60Hz Startup – 0A Load



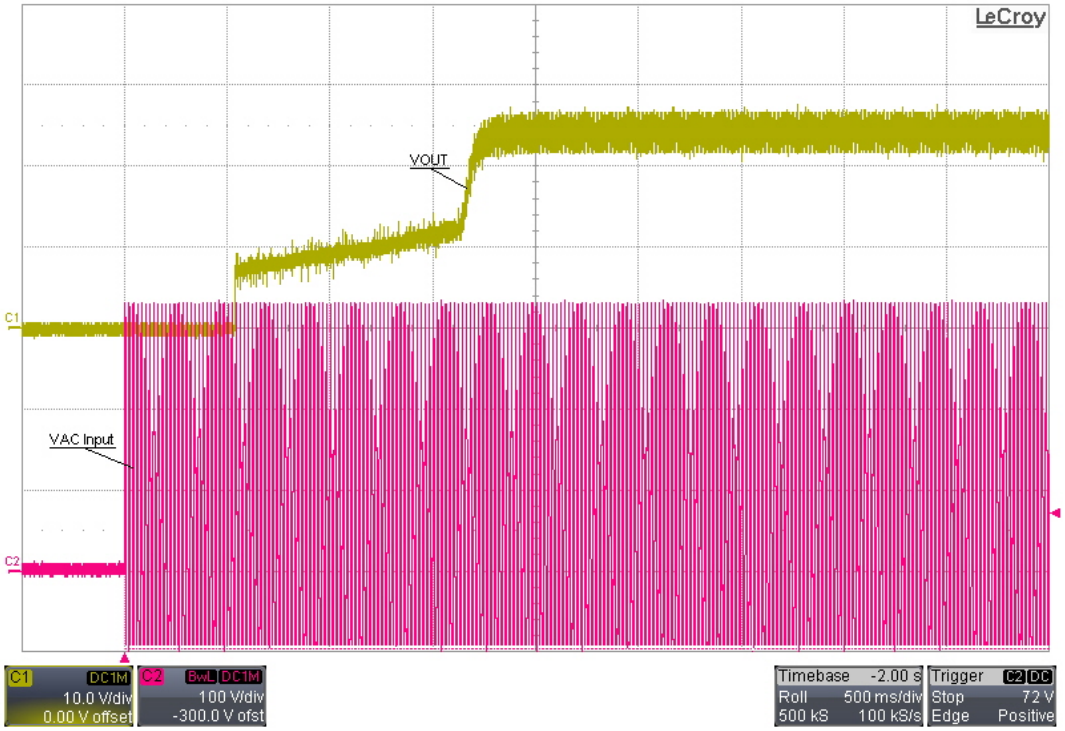
7.2 230VAC/50Hz Startup – 0A Load



7.3 115VAC/60Hz Startup – 24Ω Load

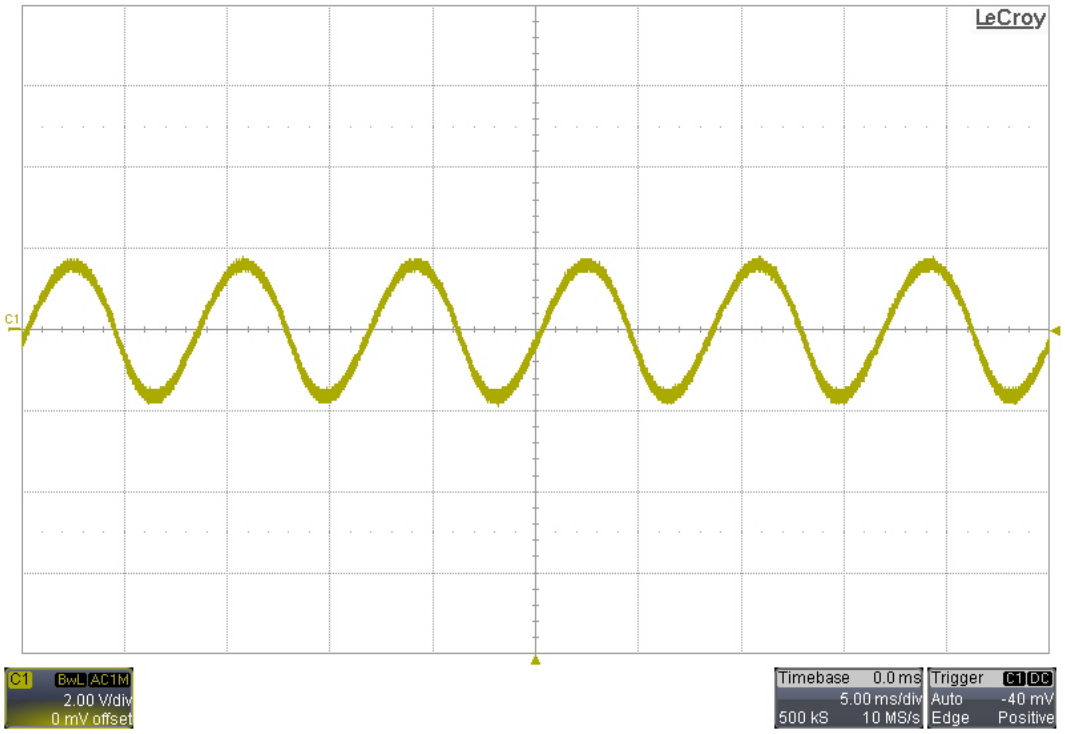


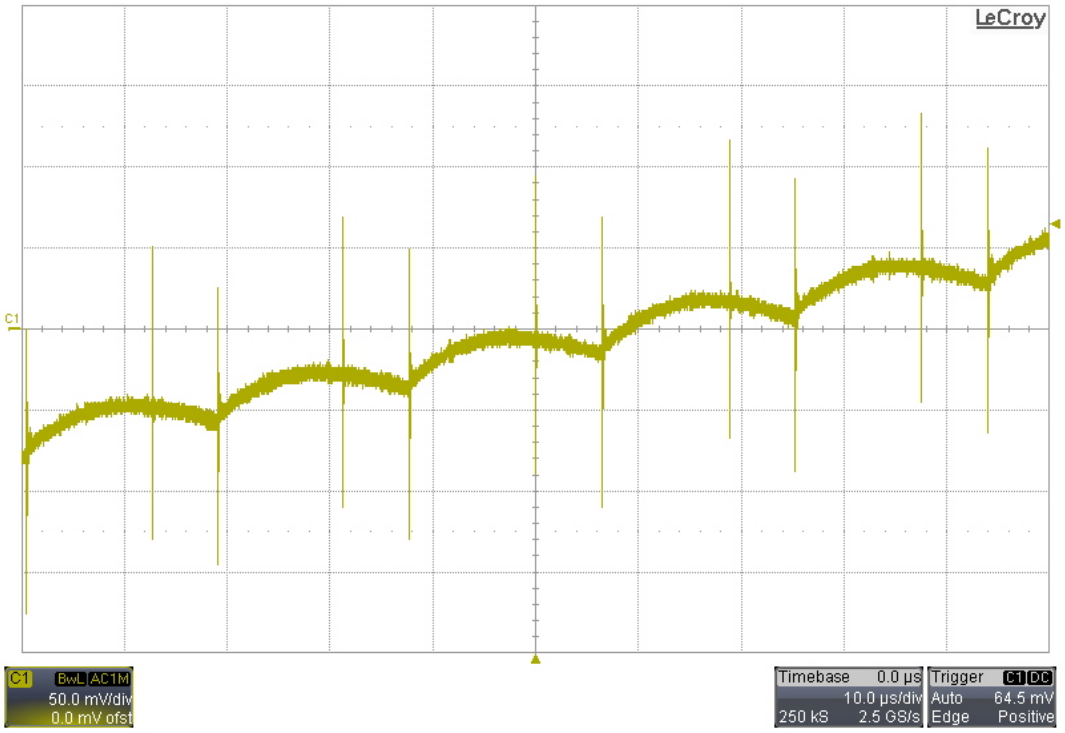
7.4 230VAC/50Hz Startup – 24Ω Load



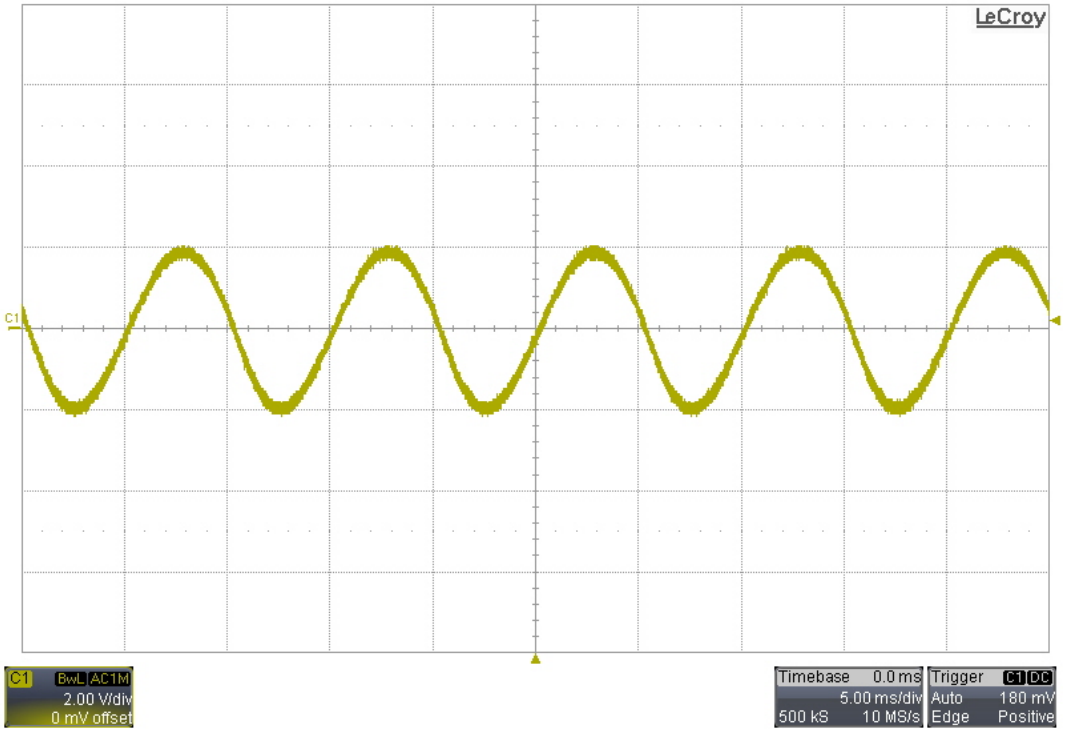
8 Output Ripple Voltage

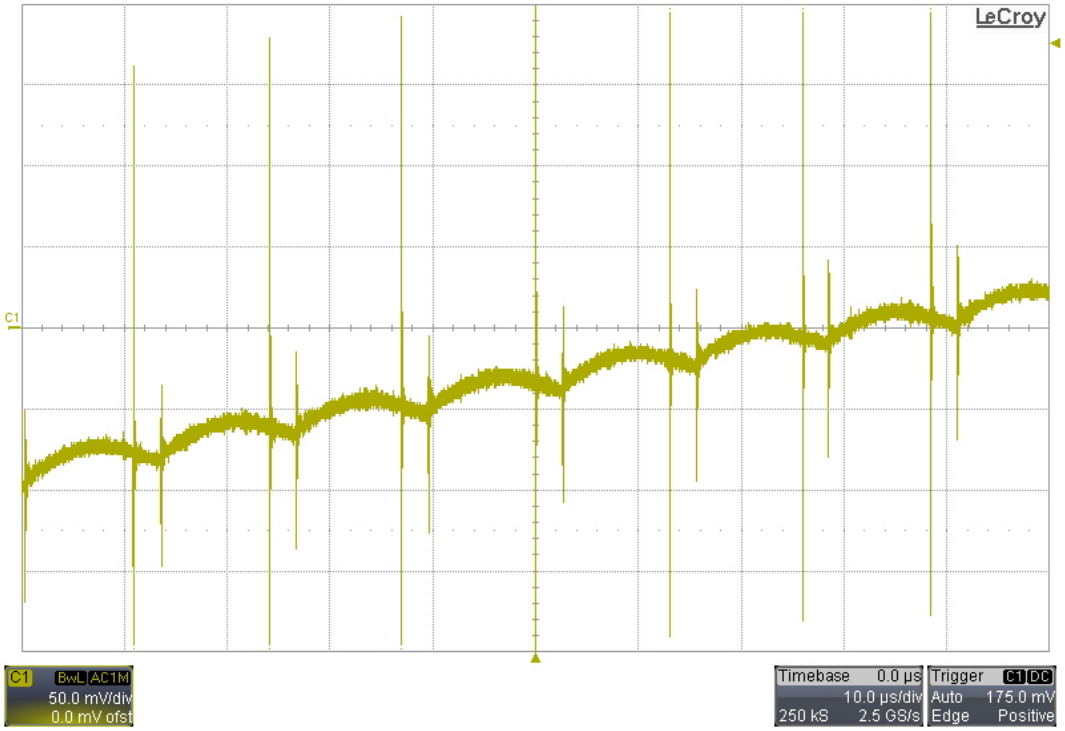
8.1 115VAC/60Hz Output Ripple Voltage – 1A Load



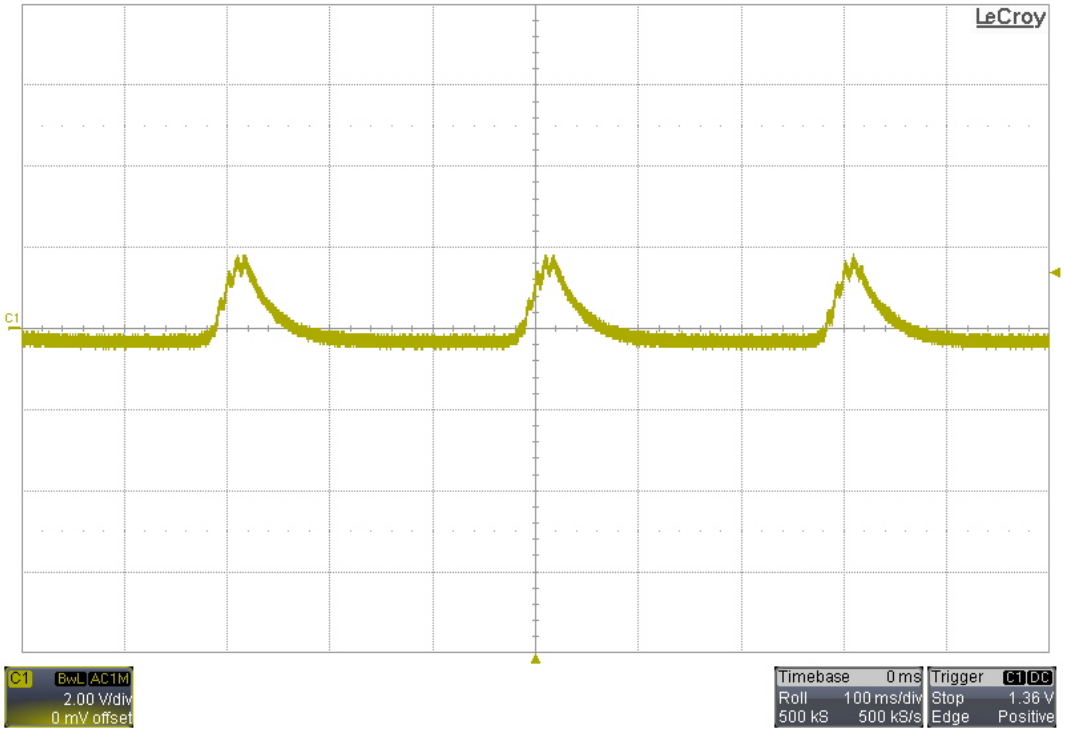


8.2 230VAC/50Hz Output Ripple Voltage – 1A Load

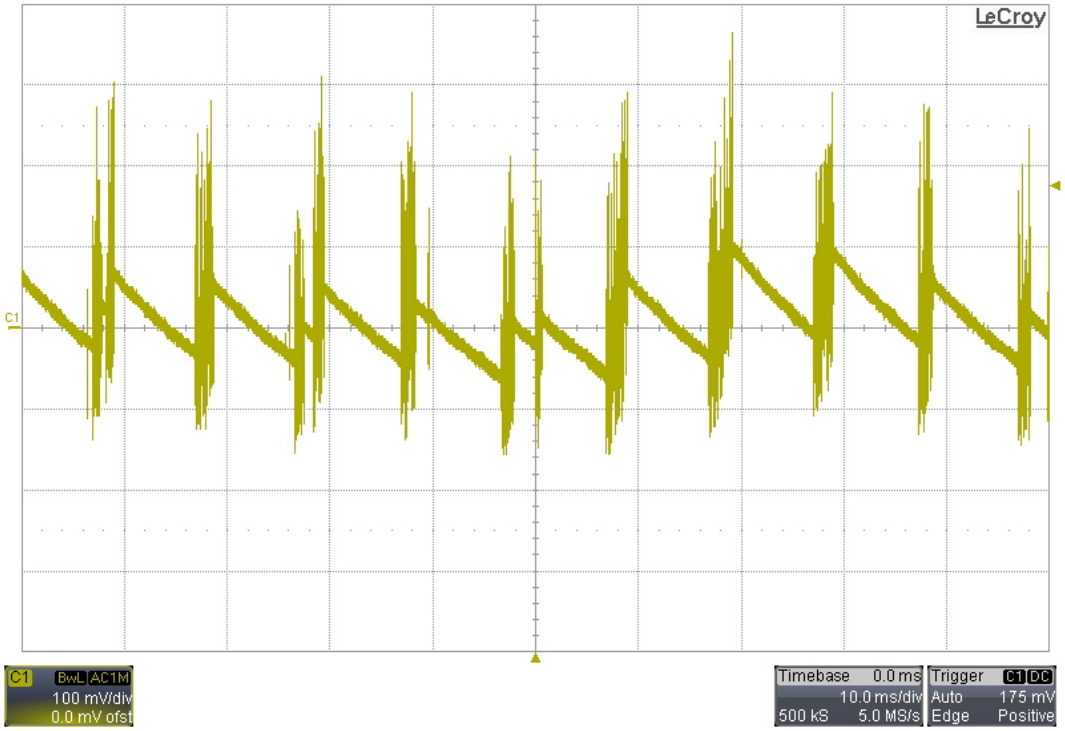




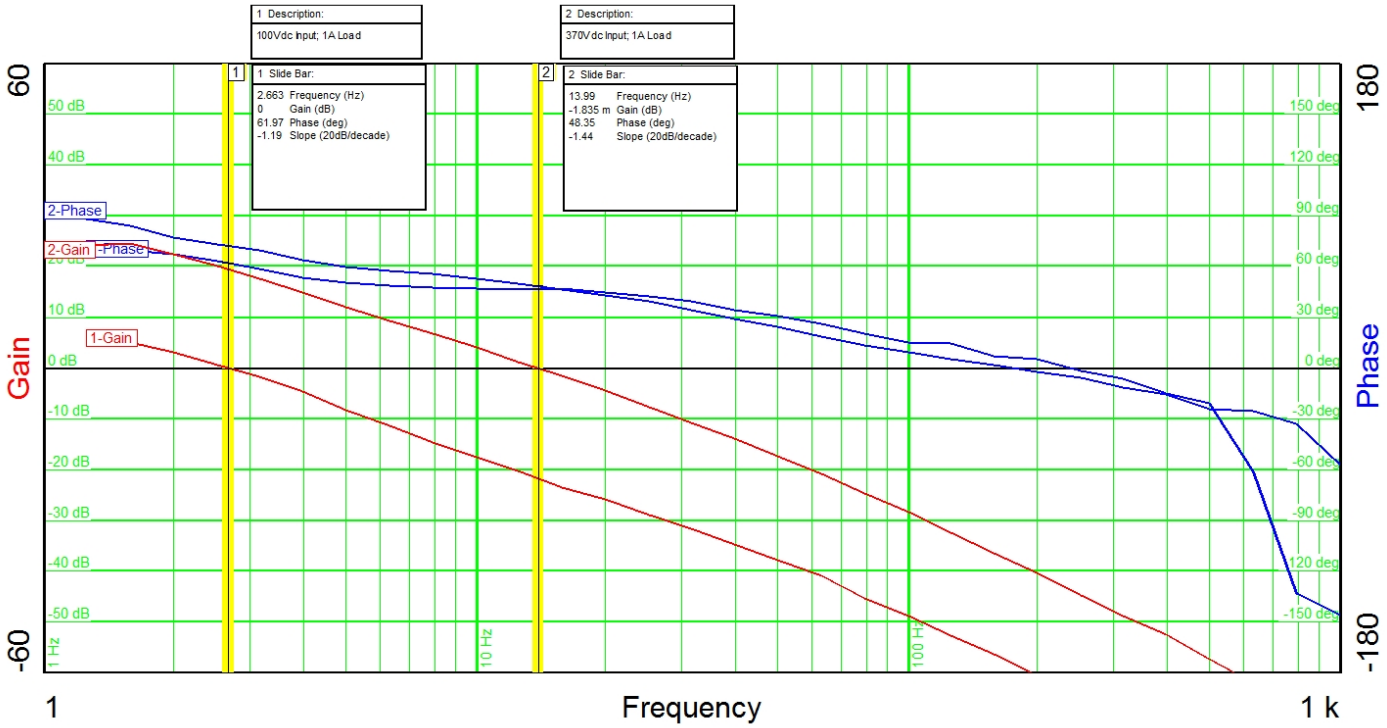
8.3 115VAC/60Hz Output Ripple Voltage – 0A Load



8.4 230VAC/50Hz Output Ripple Voltage – 0A Load

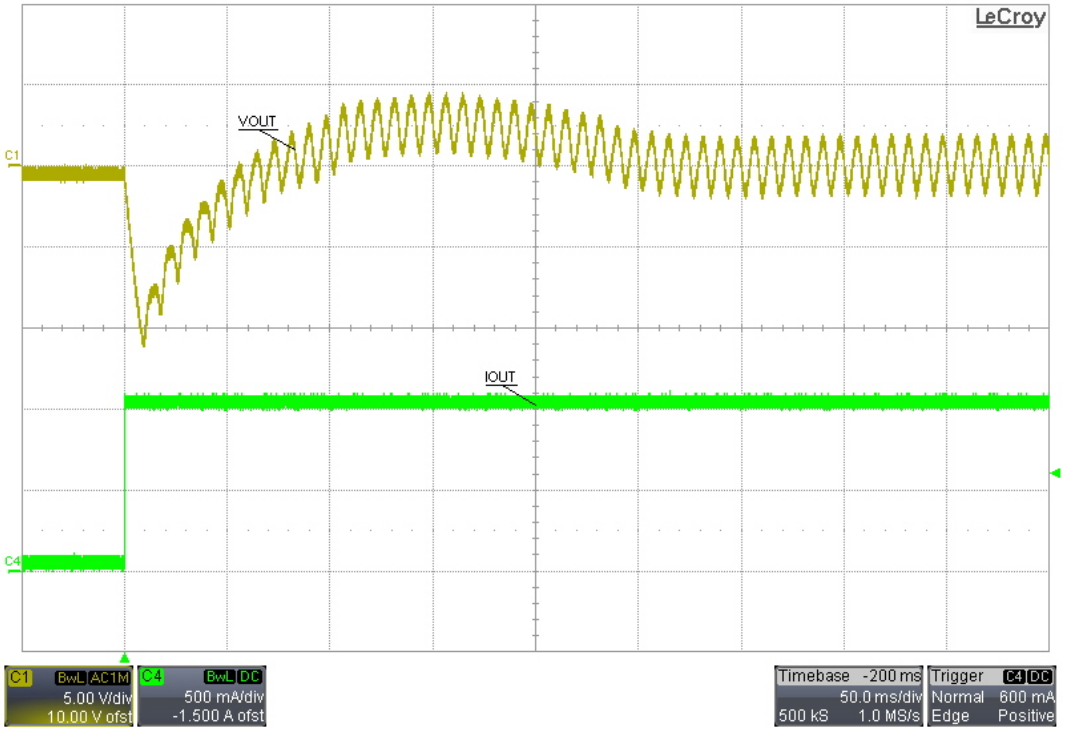


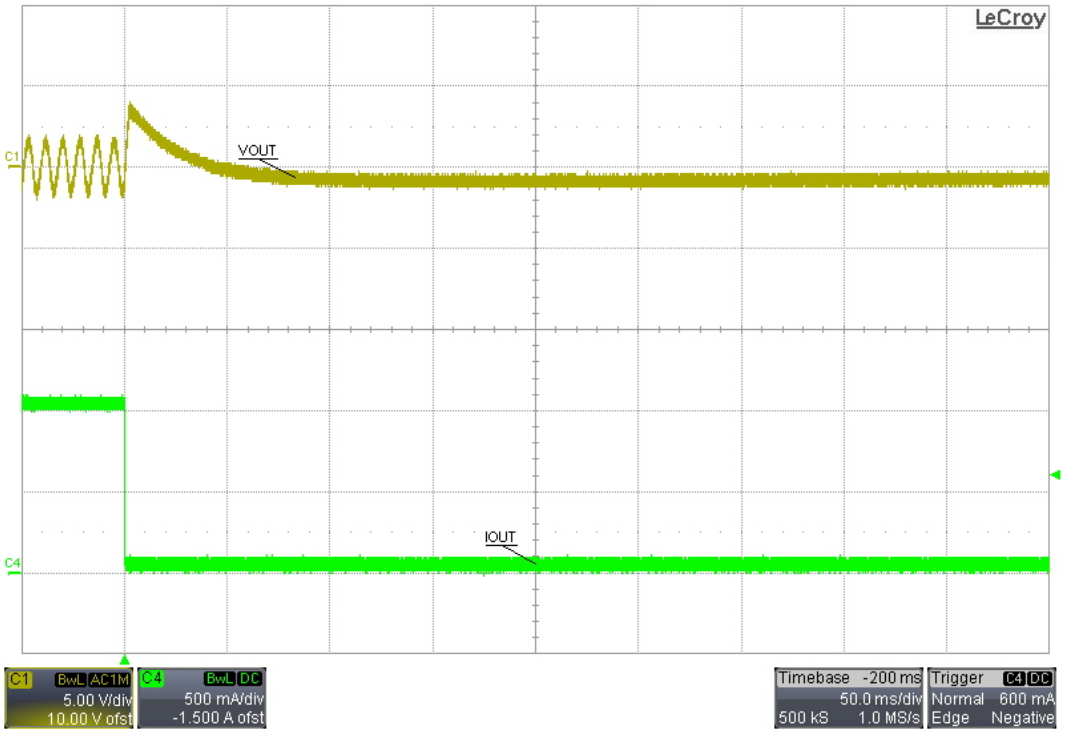
9 Frequency Response



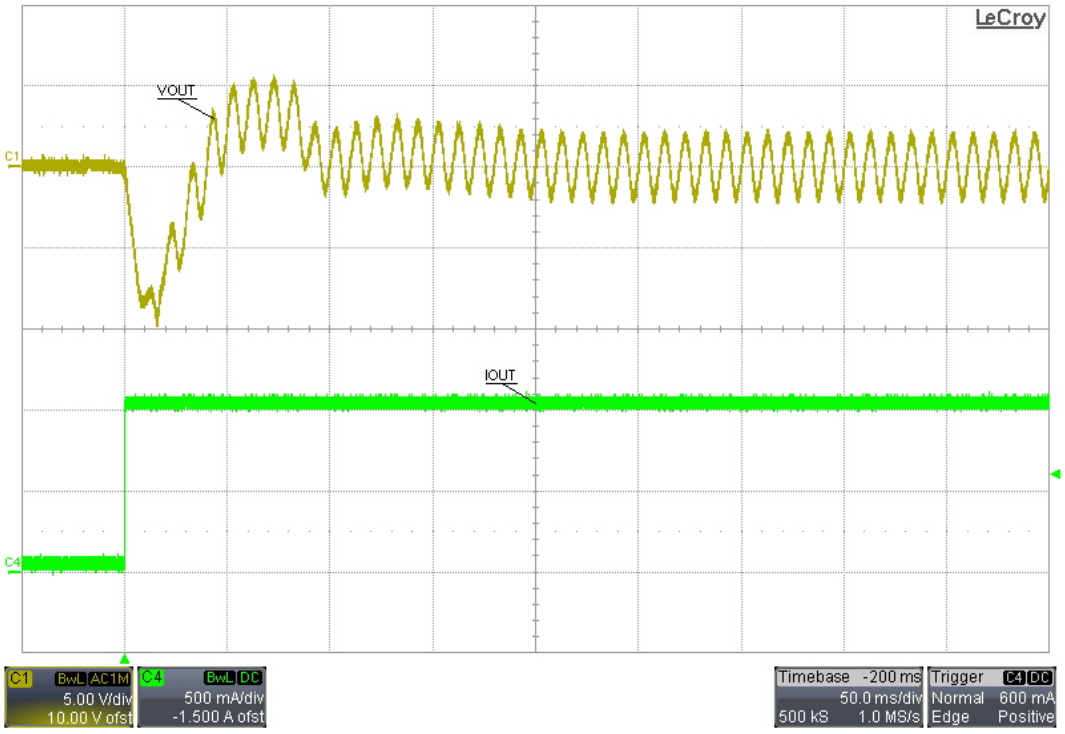
10 Load Transients

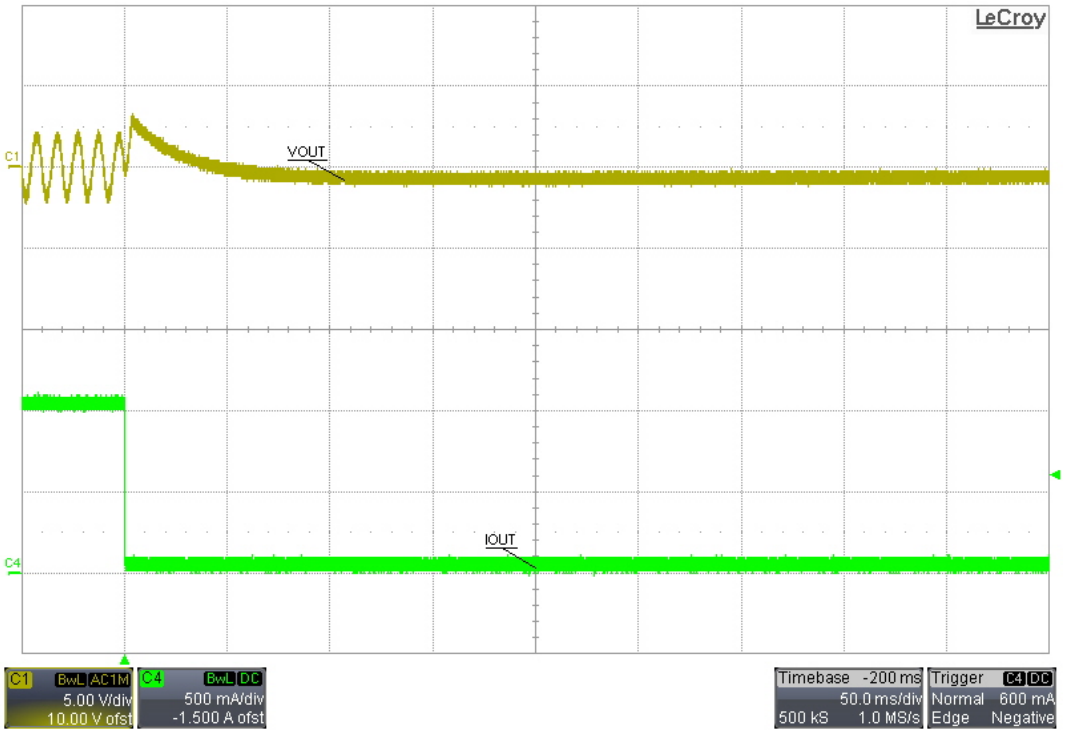
10.1 10mA to 1A Transient – 115VAC/60Hz Input





10.2 10mA to 1A Transient – 230VAC/50Hz Input



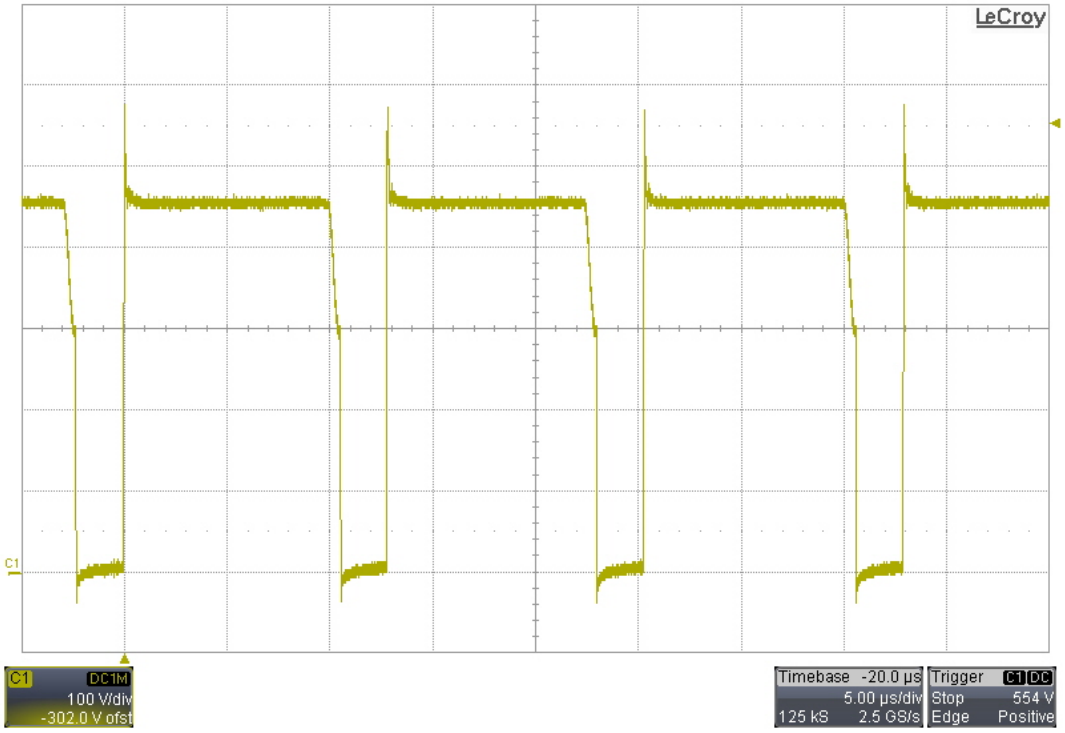


11 Switching Waveforms

The input was 265VAC/50Hz. The output was loaded 1A.

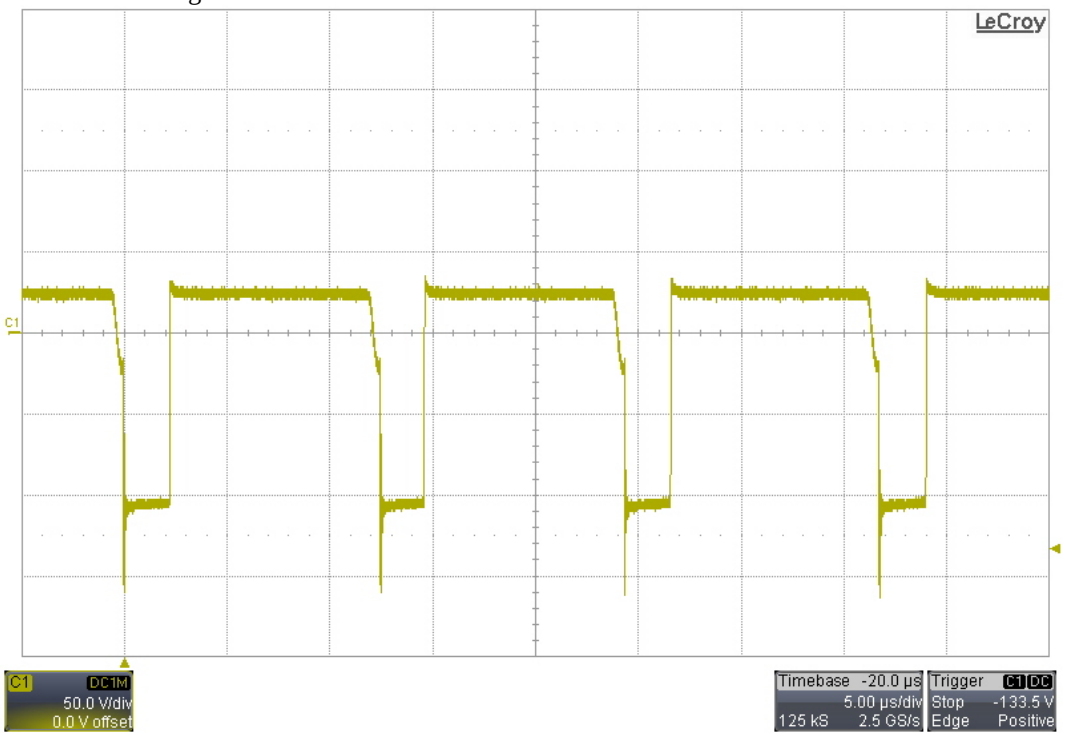
11.1 Primary Waveforms

The image below shows the drain voltage on Q2.

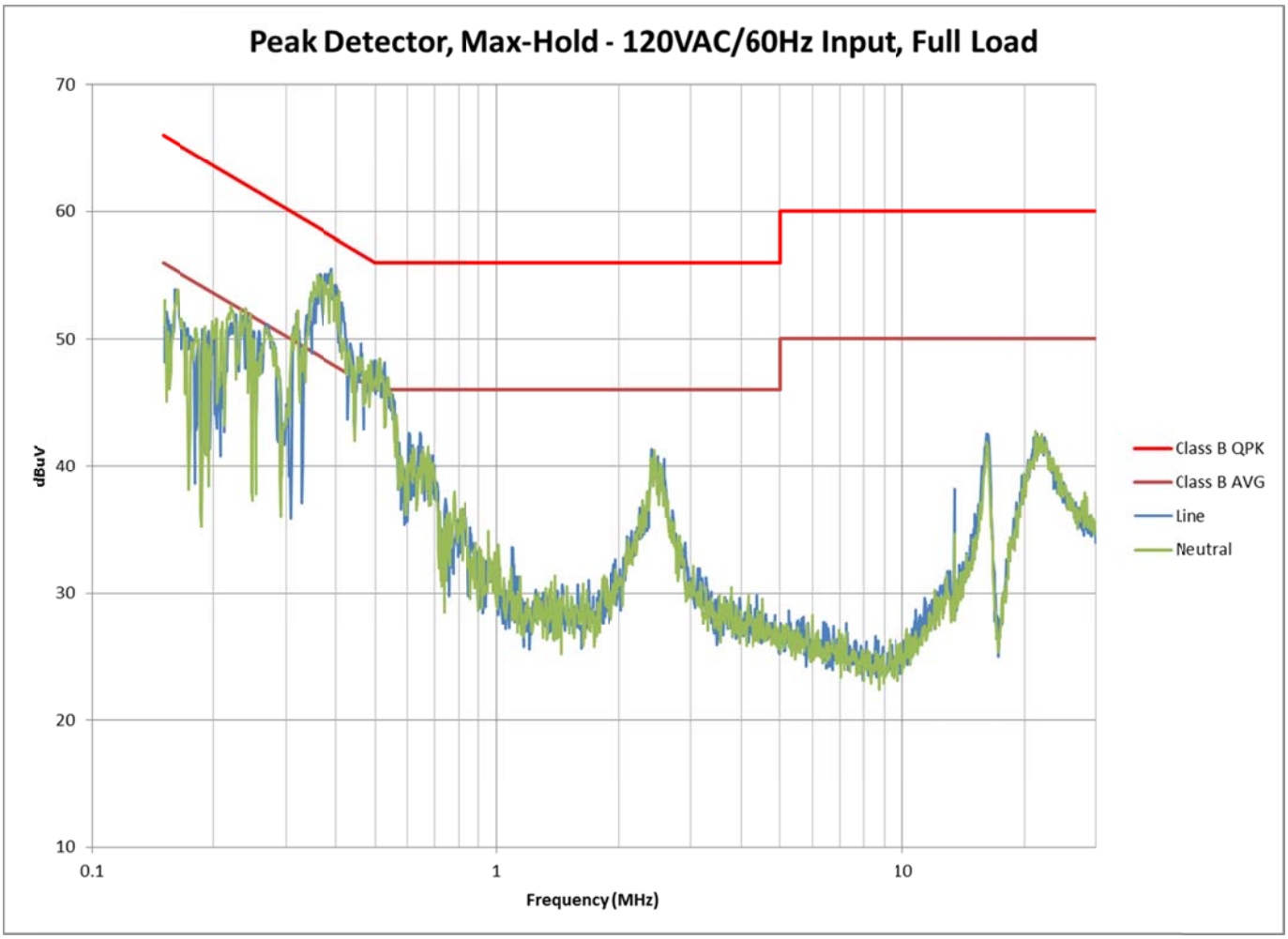


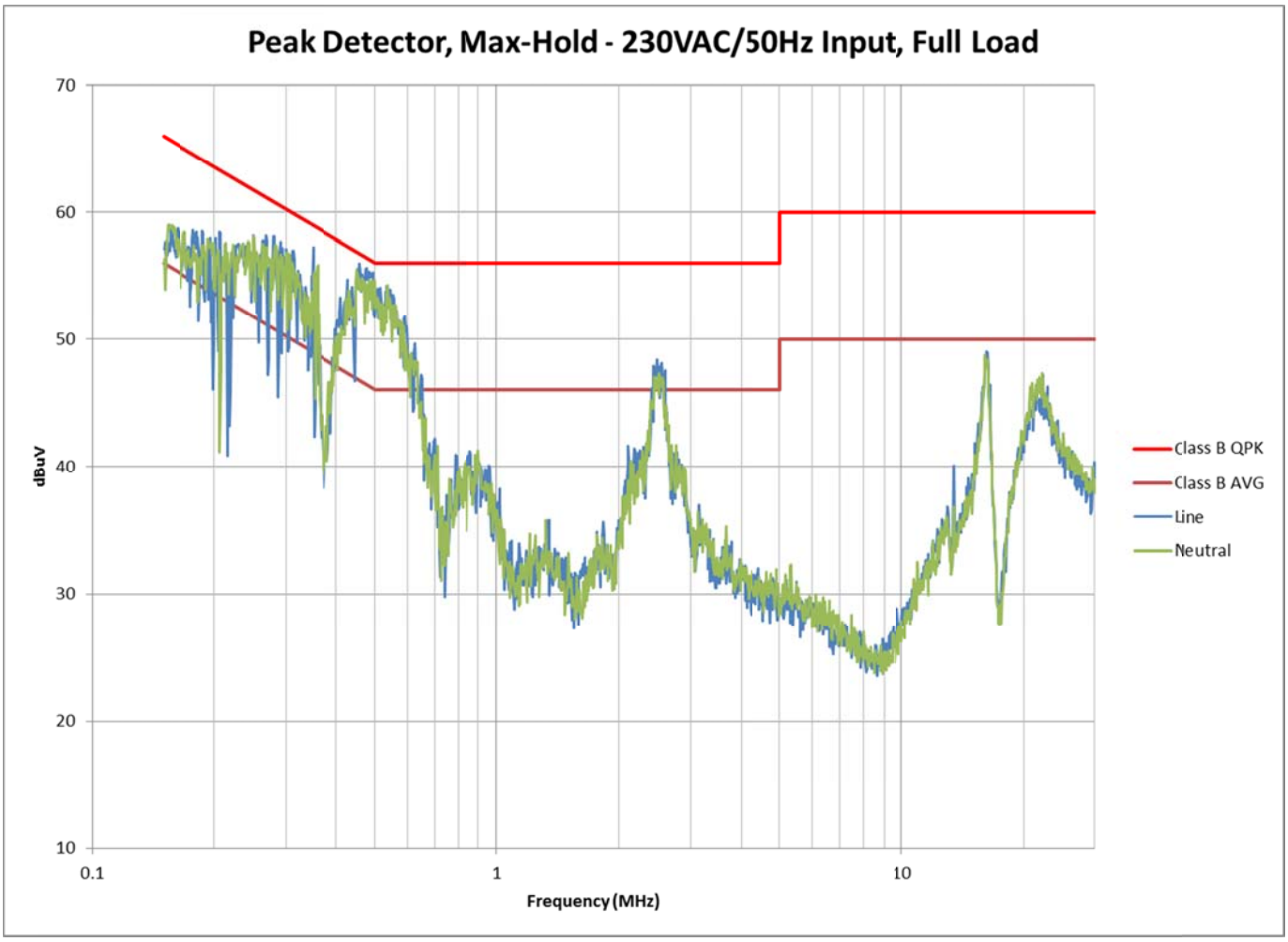
11.2 Secondary Waveforms

The image below shows the voltage on the anode of D4.



12 Conducted Emissions




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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