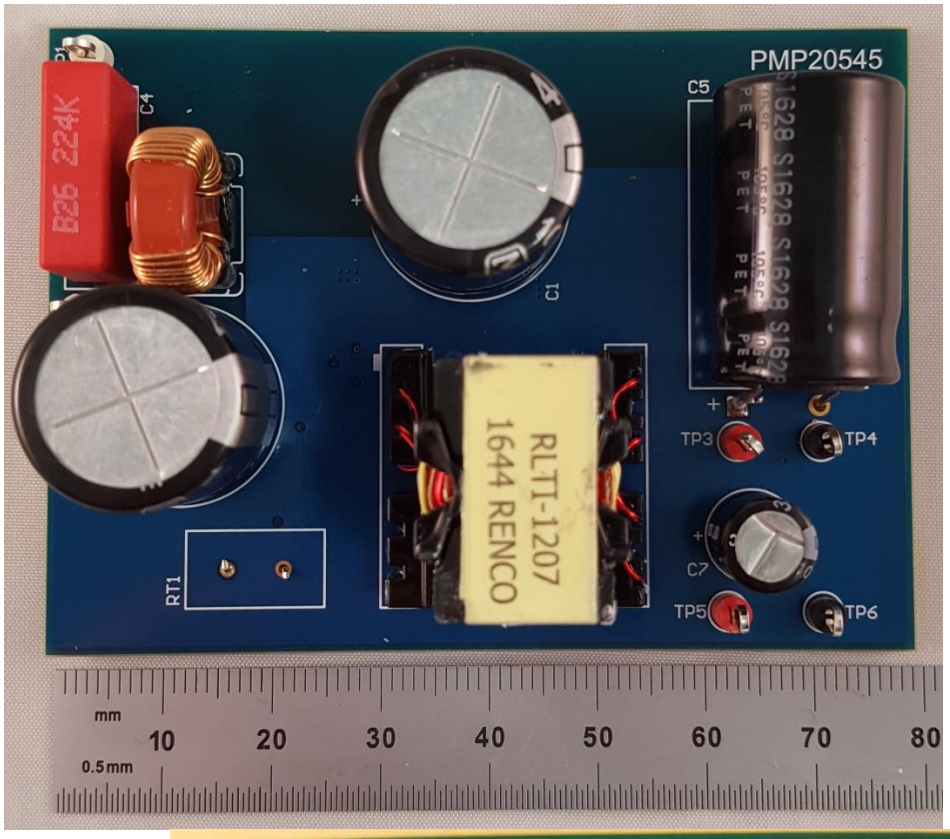
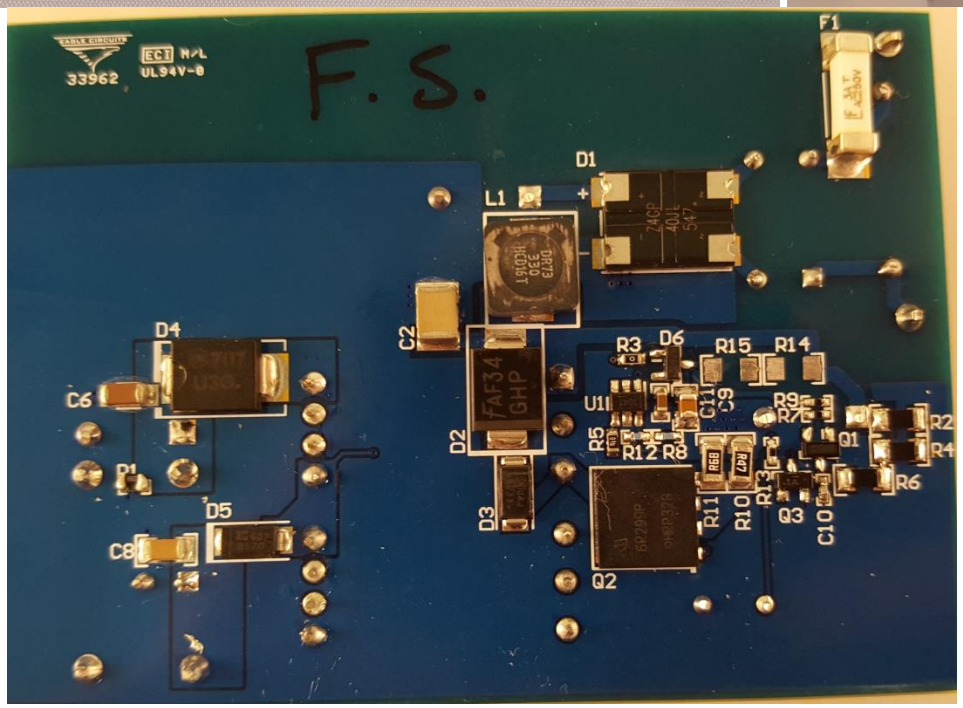
1 Photos

The photographs below show the PMP20545 Rev A prototype assembly. The FET Startup Circuit (DNP blue box in schematic) will be the test case populated for all tests unless noted otherwise.





2 Standby Power

Measured with cable unplugged

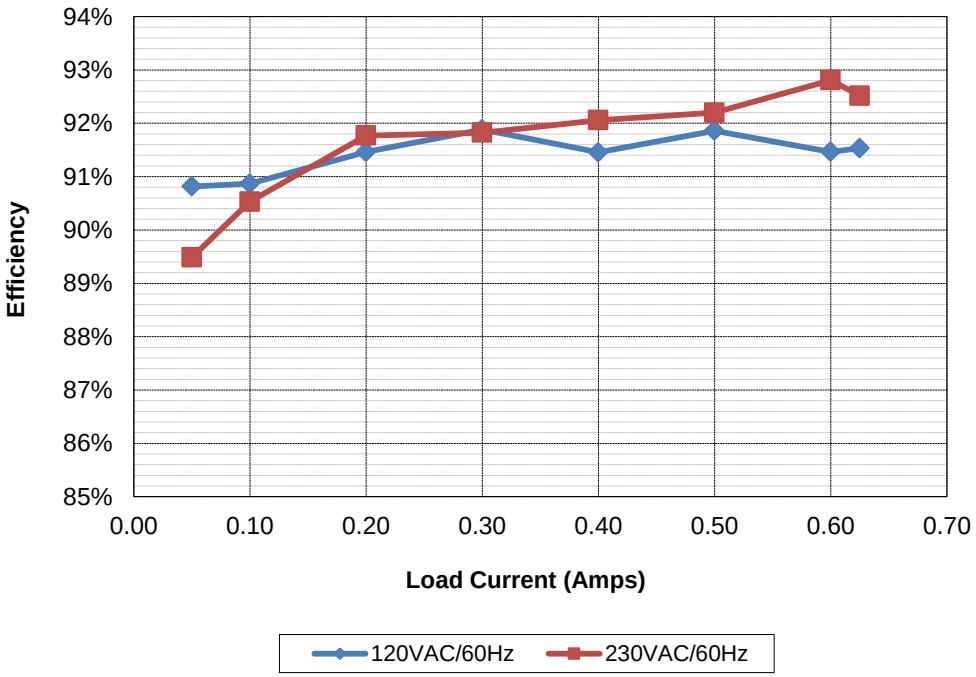
No Load, **RES Startup**	Pin AC (W)
120VAC/60Hz	0.145
230VAC/50Hz	0.221

No Load, **FET Startup**	Pin AC (W)
120VAC/60Hz	0.123
230VAC/50Hz	0.178

3 Efficiency

3.1 Total Efficiency 80Vout

The efficiency measurements below were measured from the AC input to TP3/TP4. An external 3mA constant current load was placed on the 12V rail to keep it in regulation during the 80V testing. (FET Startup populated)



Vin	Pin	Vout	Iout	Load	Efficiency	Avg. Eff.
120VAC/60Hz	4.41	80.10	0.050	10%	90.82%	
	8.83	80.20	0.100	25%	90.87%	**91.54%**
	26.61	81.50	0.300	50%	91.88%	
	44.47	81.70	0.500	75%	91.86%	
	56.40	82.60	0.625	100%	91.53%	
230VAC/50Hz	4.47	80.00	0.050	10%	89.49%	
	8.87	80.30	0.100	25%	90.53%	**91.77%**
	26.66	81.60	0.300	50%	91.82%	
	44.36	81.80	0.500	75%	92.20%	
	55.80	82.60	0.625	100%	92.52%	

PMP20545 Rev A Test Results

120VAC/60Hz

Iout	Vout 80V	Vout 12V	Vin	Iin	Pin	PF	Pout 50W	Losses	Efficiency	
0.000	79.900	12.610	120.0				0.00	0.00	0.0%	Cable Unplugged
0.050	80.100	13.640	120.0	0.1380	4.410	0.269	4.01	0.41	90.8%	3mA preload on 12V
0.100	80.200	14.500	120.0	0.219	8.826	0.333	8.02	0.81	90.9%	
0.200	81.400	15.950	120.0	0.384	17.800	0.385	16.28	1.52	91.5%	
0.300	81.500	16.600	120.0	0.501	26.610	0.446	24.45	2.16	91.9%	
0.400	81.600	17.350	120.0	0.640	35.69	0.464	32.64	3.05	91.5%	
0.500	81.700	17.600	120.0	0.760	44.47	0.487	40.85	3.62	91.9%	
0.600	82.500	18.020	120.0	0.888	54.12	0.507	49.50	4.62	91.5%	
0.625	82.600	18.100	120.0	0.914	56.40	0.511	51.63	4.78	91.5%	

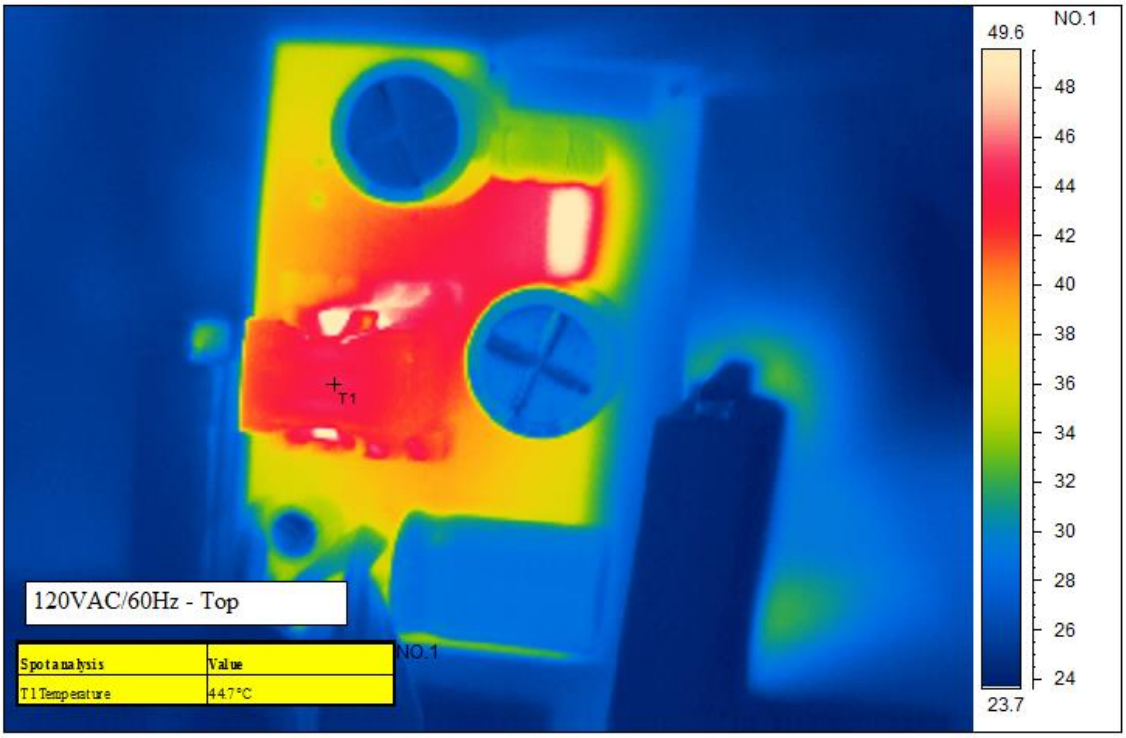
230VAC/50Hz

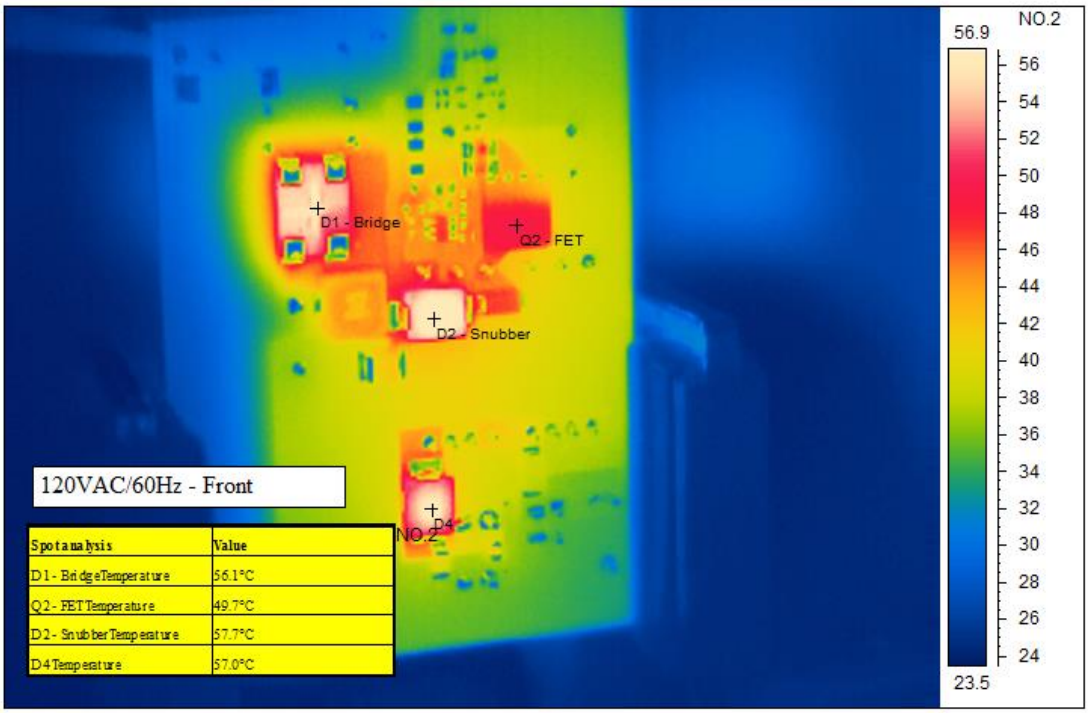
Iout	Vout 80V	Vout 12V	Vin	Iin	Pin	PF	Pout 50W	Losses	Efficiency AC/DC	
0.000	80.100	12.550	230.0				0.00	0.00	0.0%	Cable Unplugged
0.050	80.000	13.600	230.0	0.0820	4.470	0.231	4.00	0.47	89.5%	3mA preload on 12V
0.100	80.300	14.440	230.0	0.140	8.870	0.276	8.03	0.84	90.5%	
0.200	81.400	16.100	230.0	0.246	17.740	0.314	16.28	1.46	91.8%	
0.300	81.600	16.800	230.0	0.359	26.660	0.323	24.48	2.18	91.8%	
0.400	81.700	17.500	230.0	0.462	35.50	0.334	32.68	2.82	92.1%	
0.500	81.800	17.800	230.0	0.556	44.36	0.346	40.90	3.46	92.2%	
0.600	82.600	18.350	230.0	0.642	53.40	0.361	49.56	3.84	92.8%	
0.625	82.600	18.400	230.0	0.662	55.80	0.366	51.63	4.18	92.5%	

4 Thermal Images

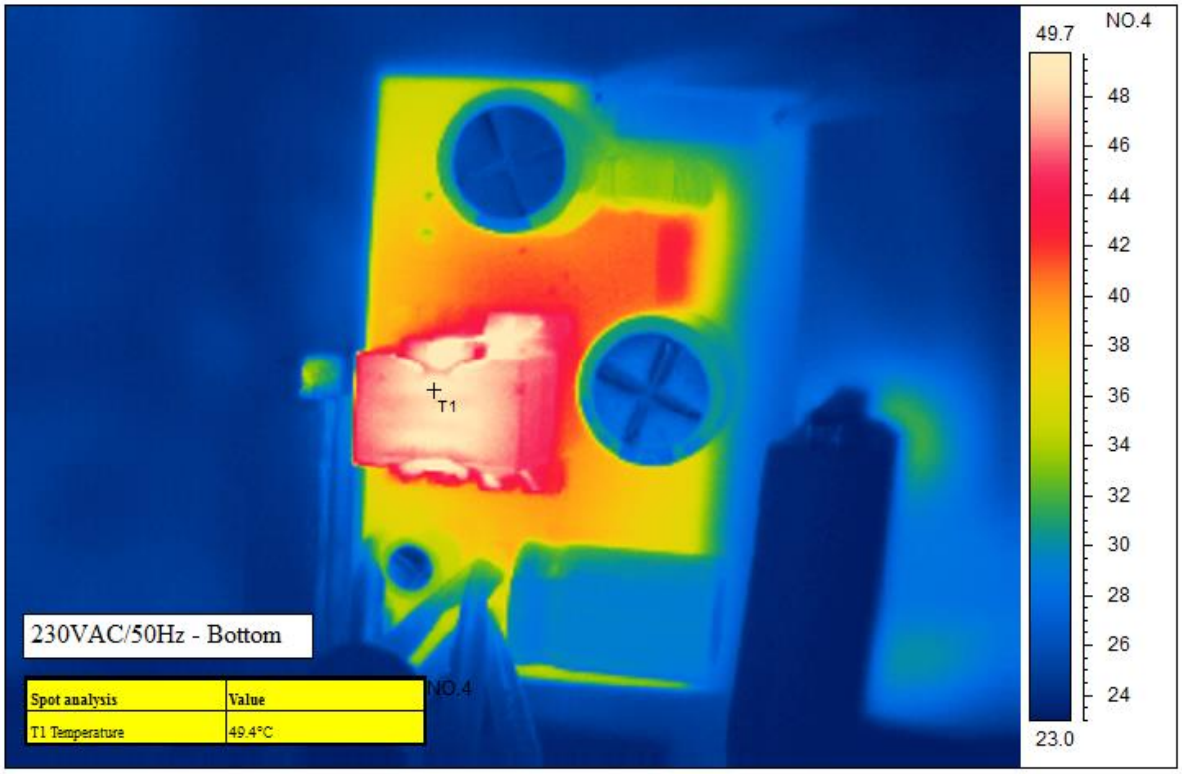
The thermal images below show the 80V output loaded with 0.625A. The ambient temperature was 25ºC, with no airflow.

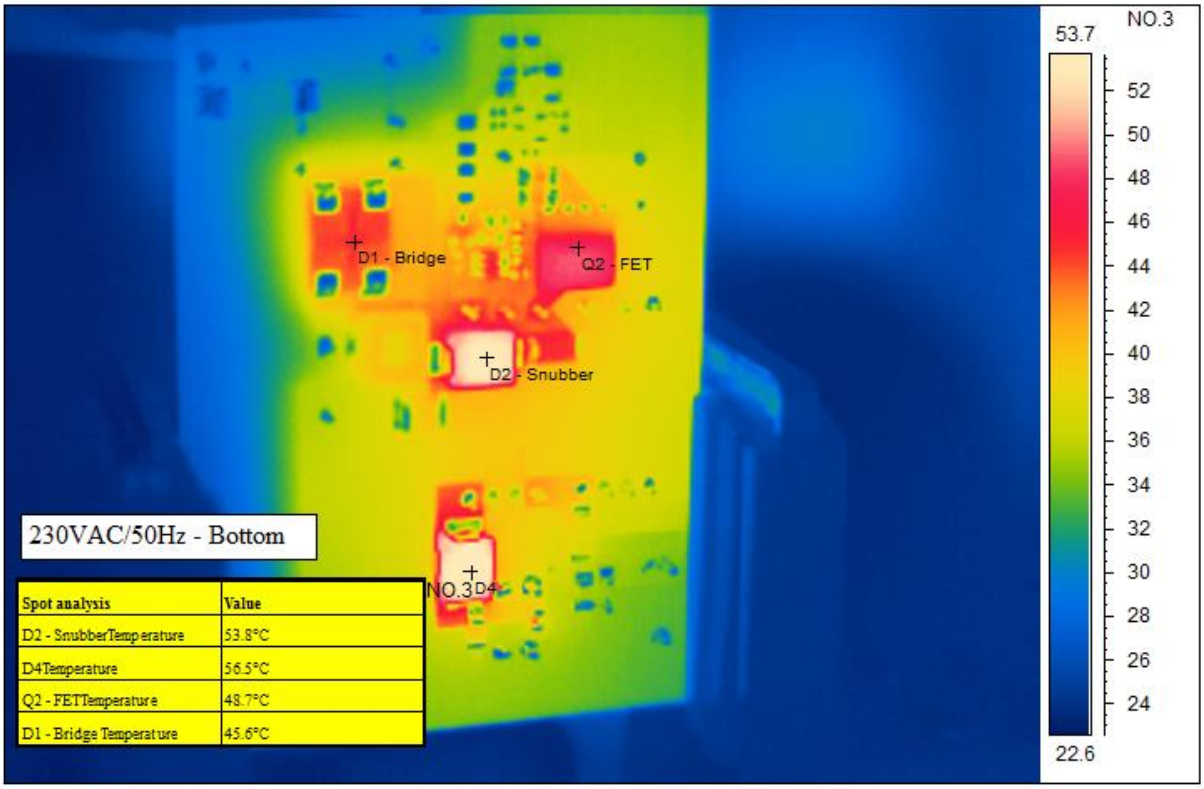
4.1 120VAC/60Hz





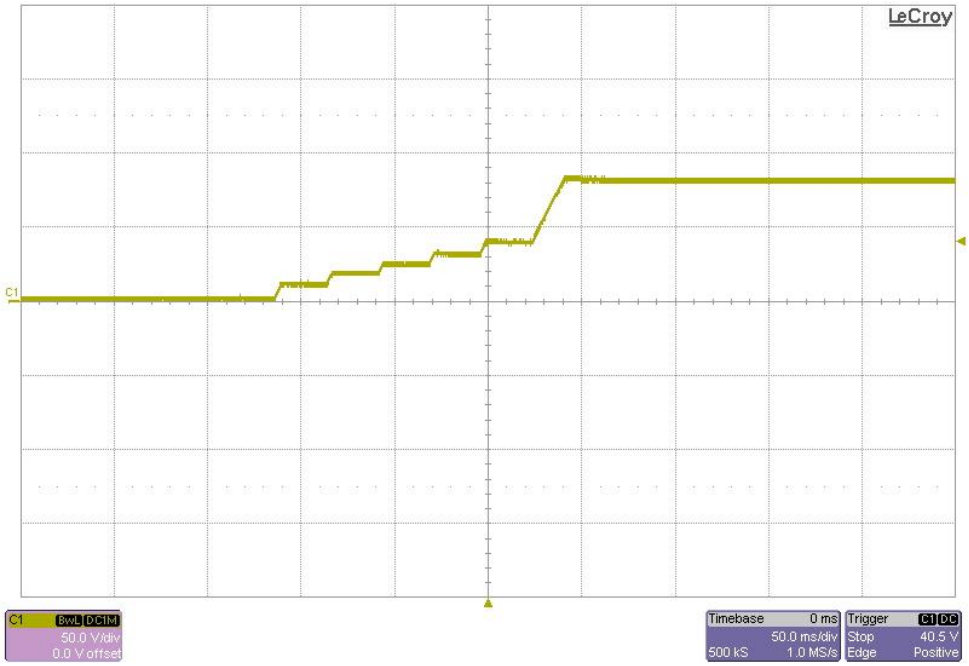
4.2 230VAC/50Hz





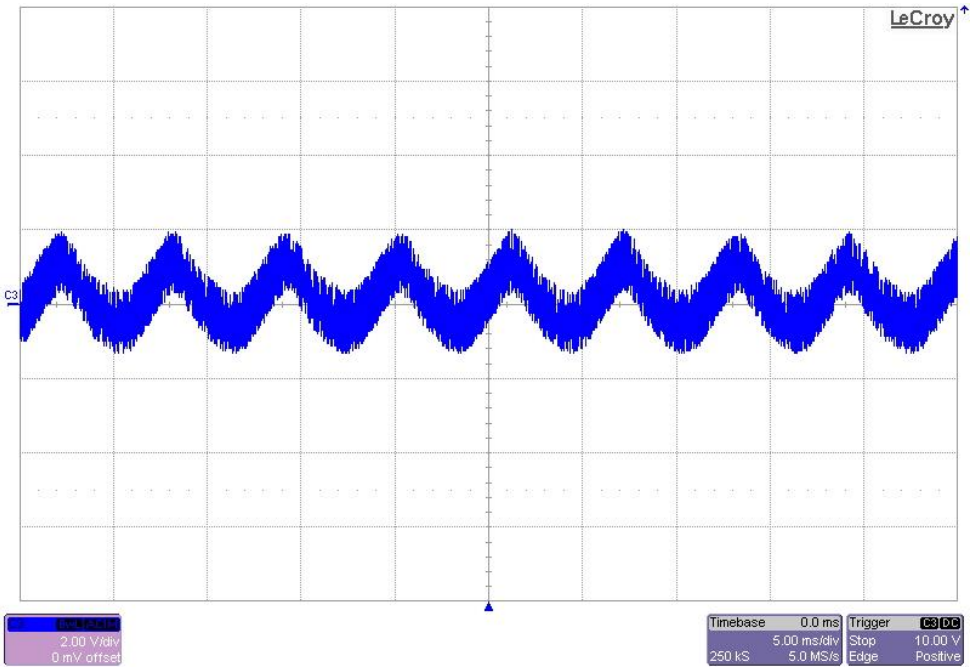
5 Startup

The image below shows the default output voltage of 80V on TP3/TP4 at startup with no external load.

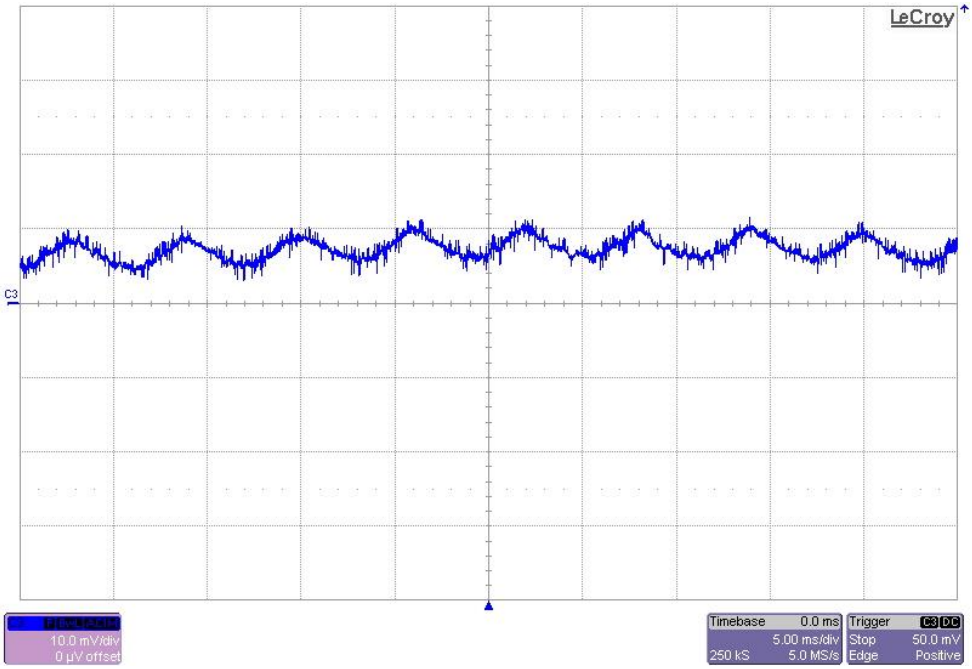


6 Output Ripple Voltage

6.1 230VAC/50Hz – Measured at TP3/TP4 – 80V@0.625A Load



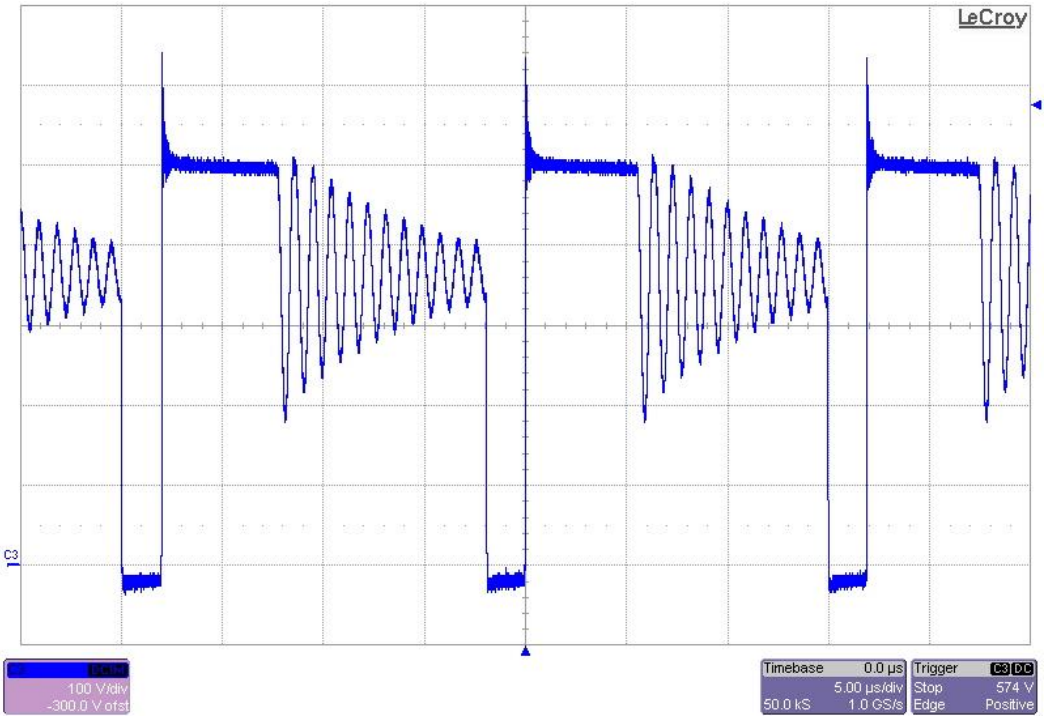
6.2 230VAC/50Hz – Measured at TP5/TP6 – 12V@0.04A Load



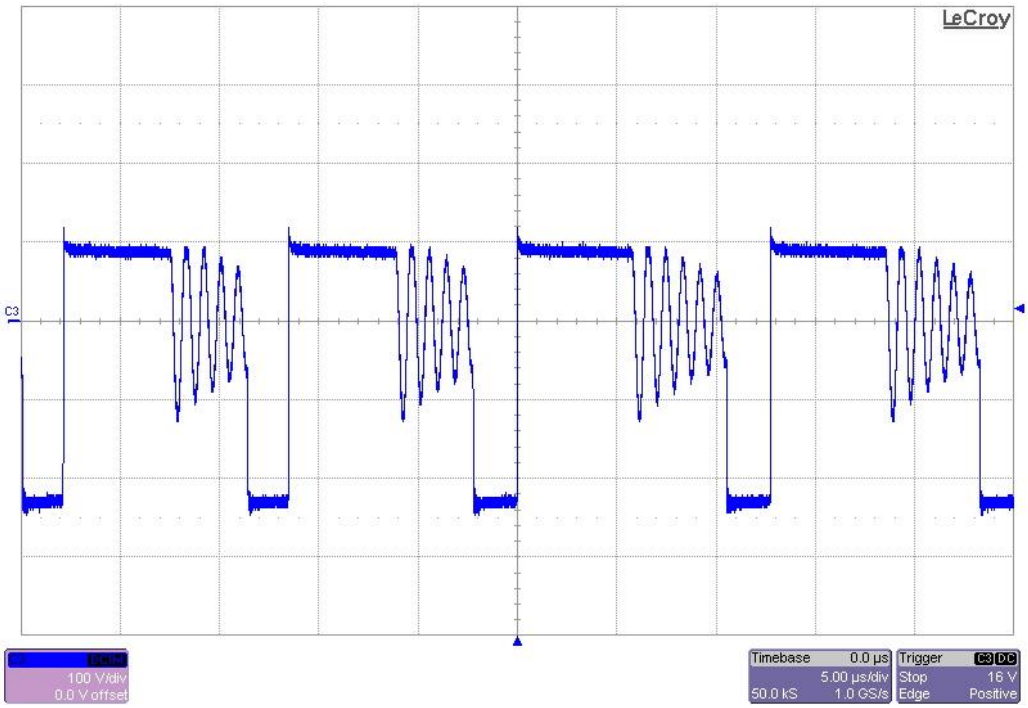
7 Switching Waveforms

The input was 265VAC/50Hz, and the output was loaded with 0.625A.

7.1 80Vout, Drain of Primary FET – Q2

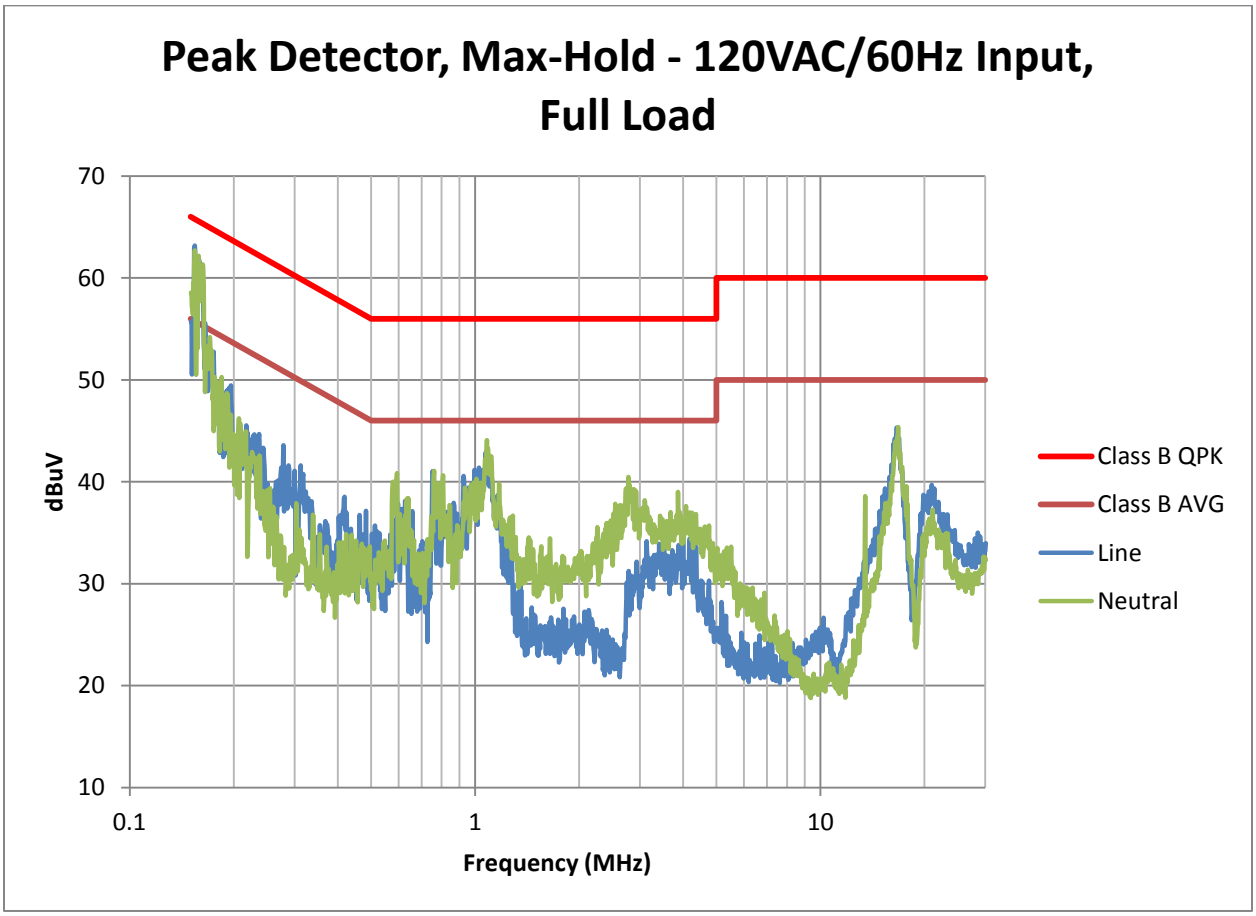


7.2 80Vout, Anode of rectifier

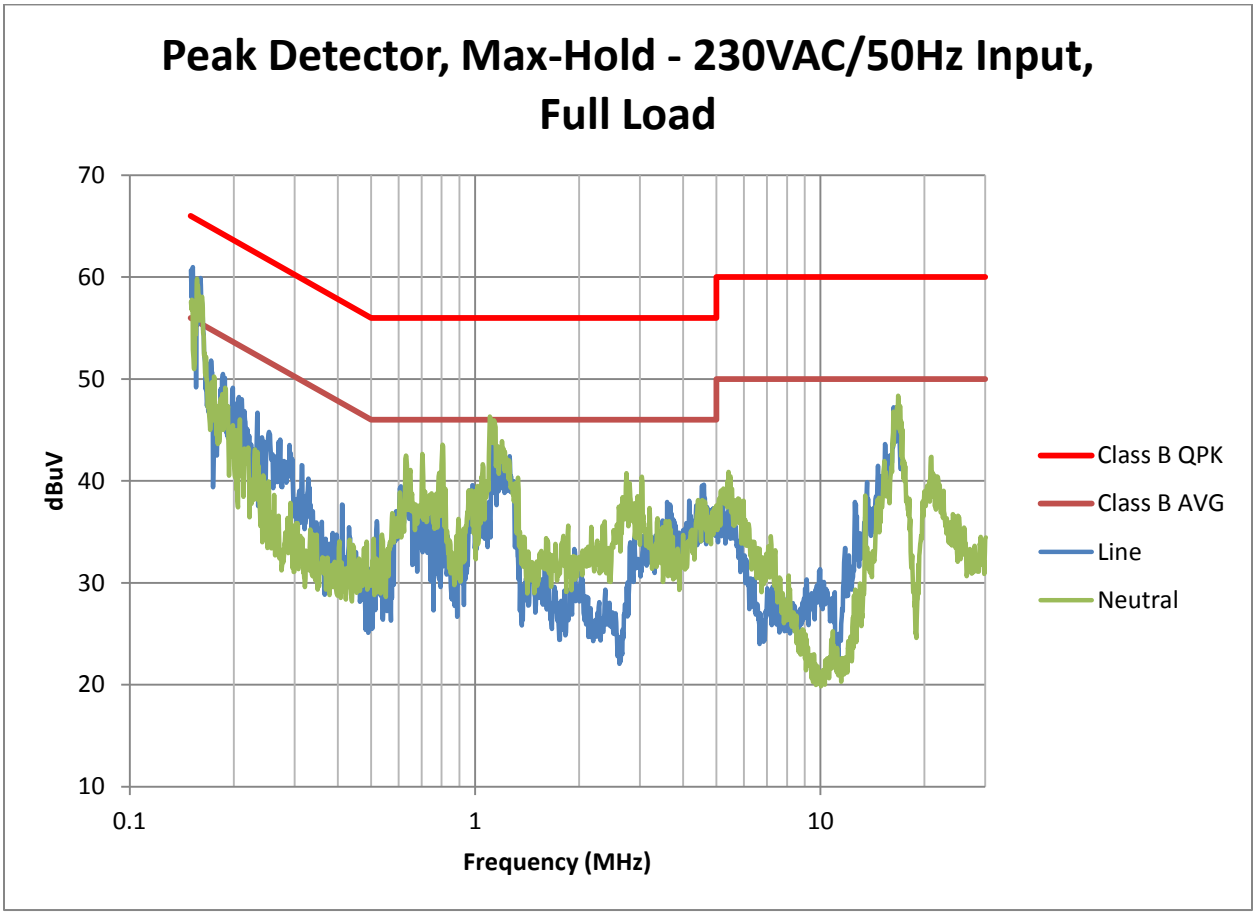


8 Conducted Emissions

8.1 80Vout, 120VAC/60Hz input



8.2 80Vout, 230VAC/50Hz input



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