PMP8362 Rev A Test Results

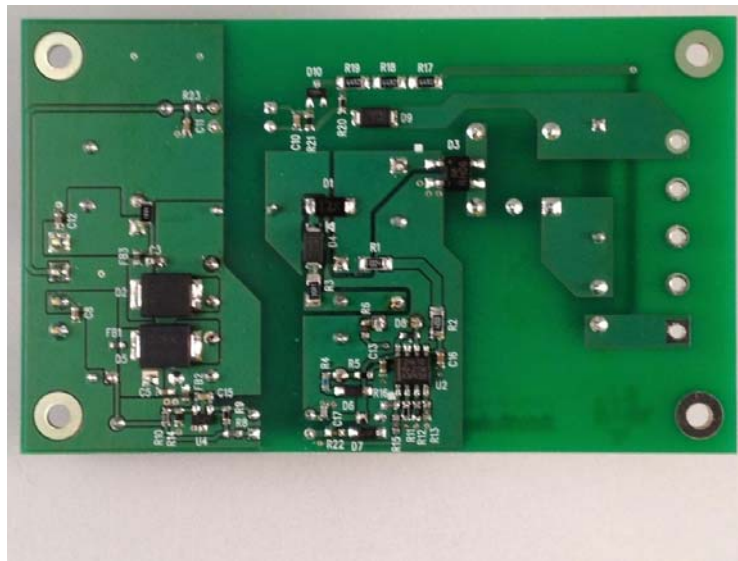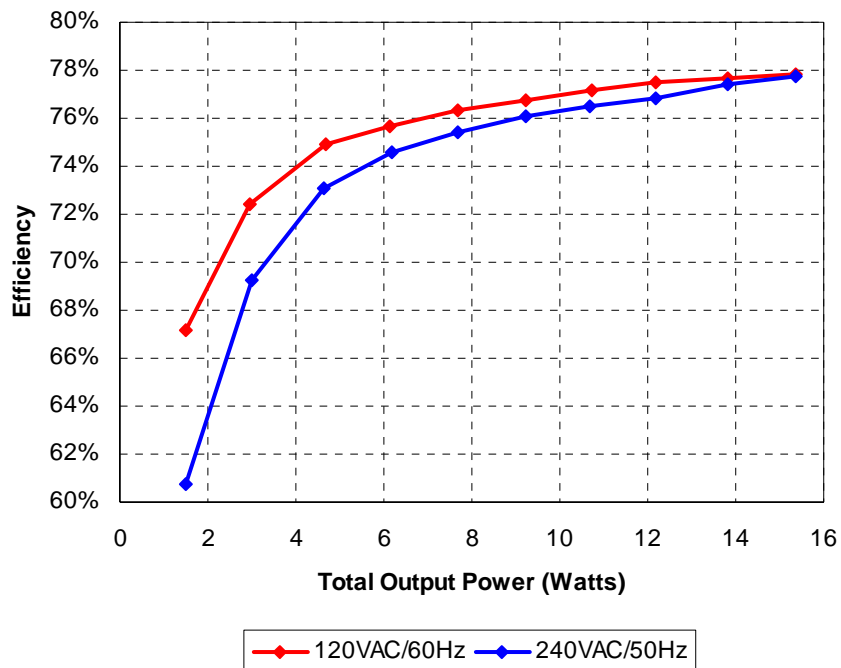## 1 Photo

The photographs below show the PMP8362 assembly. This circuit was built on a PMP8259 Rev A PCB.

2 Efficiency

120VAC/60Hz

7.5V		12V								
Iout	Vout	Iout	Vout	Vin	Iin (A)	Pin	PF	Pout	Losses	Efficiency
0.000	7.52	0.000	11.85	120.0	0.01	0.32	0.29	0.00	0.32	0.0%
0.129	7.52	0.042	13.03	120.0	0.05	2.26	0.39	1.52	0.74	67.1%
0.257	7.52	0.079	13.13	120.0	0.08	4.10	0.43	2.97	1.13	72.4%
0.392	7.53	0.130	13.15	120.0	0.11	6.22	0.46	4.66	1.56	74.9%
0.518	7.53	0.171	13.16	120.0	0.14	8.13	0.49	6.15	1.98	75.7%
0.652	7.53	0.211	13.18	120.0	0.17	10.07	0.51	7.69	2.38	76.4%
0.781	7.53	0.252	13.19	120.0	0.19	11.99	0.52	9.20	2.79	76.8%
0.913	7.53	0.291	13.20	120.0	0.22	13.89	0.54	10.72	3.17	77.1%
1.040	7.54	0.330	13.20	120.0	0.24	15.74	0.55	12.20	3.54	77.5%
1.170	7.54	0.379	13.19	120.0	0.27	17.79	0.56	13.82	3.97	77.7%
1.302	7.54	0.421	13.19	120.0	0.29	19.74	0.57	15.37	4.37	77.9%

240VAC/50Hz

7.5V		12V								
Iout	Vout	Iout	Vout	Vin	Iin (A)	Pin	PF	Pout	Losses	Efficiency
0.000	7.53	0.000	11.92	240.0	0.01	0.62	0.24	0.00	0.62	0.0%
0.129	7.53	0.042	13.04	240.0	0.03	2.50	0.31	1.52	0.98	60.8%
0.261	7.53	0.079	13.15	240.0	0.05	4.34	0.33	3.00	1.34	69.2%
0.391	7.53	0.130	13.16	240.0	0.07	6.37	0.36	4.66	1.71	73.1%
0.520	7.53	0.172	13.18	240.0	0.09	8.29	0.37	6.18	2.11	74.6%
0.652	7.53	0.211	13.19	240.0	0.11	10.20	0.39	7.69	2.51	75.4%
0.782	7.53	0.252	13.19	240.0	0.13	12.11	0.40	9.21	2.90	76.1%
0.910	7.53	0.291	13.20	240.0	0.14	13.98	0.41	10.69	3.29	76.5%
1.040	7.53	0.330	13.20	239.9	0.16	15.86	0.42	12.19	3.67	76.8%
1.171	7.54	0.379	13.20	240.0	0.17	17.87	0.44	13.83	4.04	77.4%
1.302	7.54	0.421	13.20	240.0	0.19	19.78	0.44	15.37	4.41	77.7%

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TEXAS INSTRUMENTS

3 Thermal Images

The ambient temperature was 25ºC with no forced air flow. The outputs were loaded with 7.5V/1.3A and 12V/0.42A.
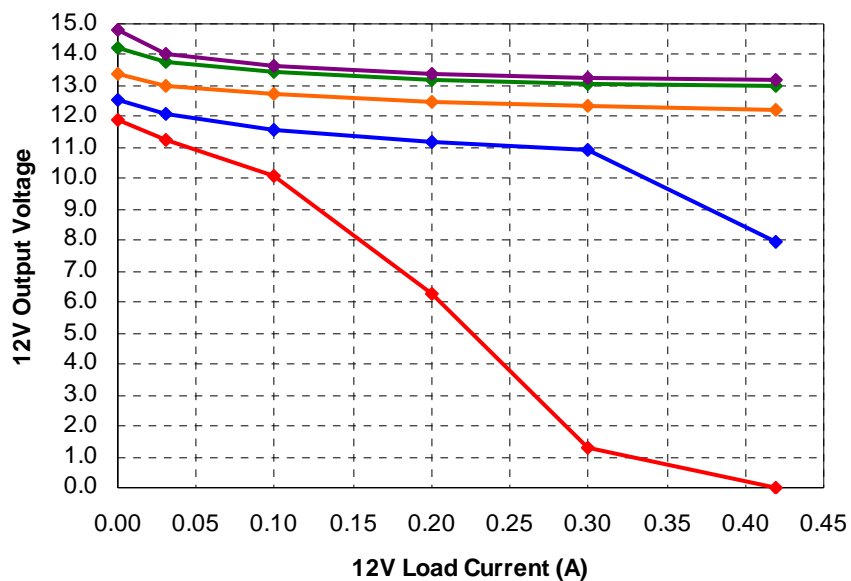
3.1 120VAC/60Hz Input

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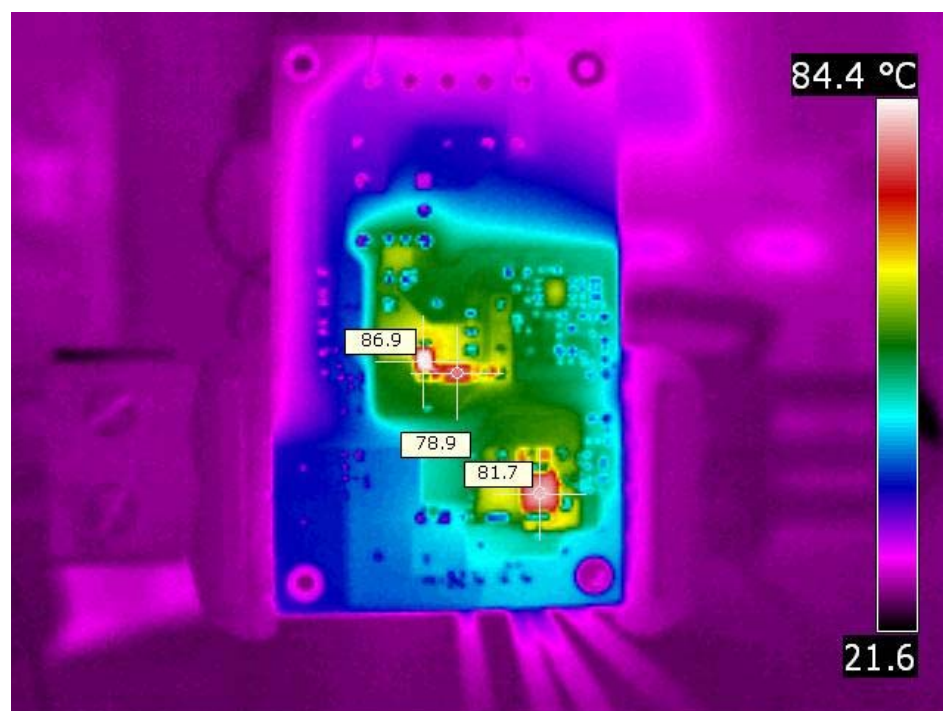
3.2 240VAC/50Hz Input
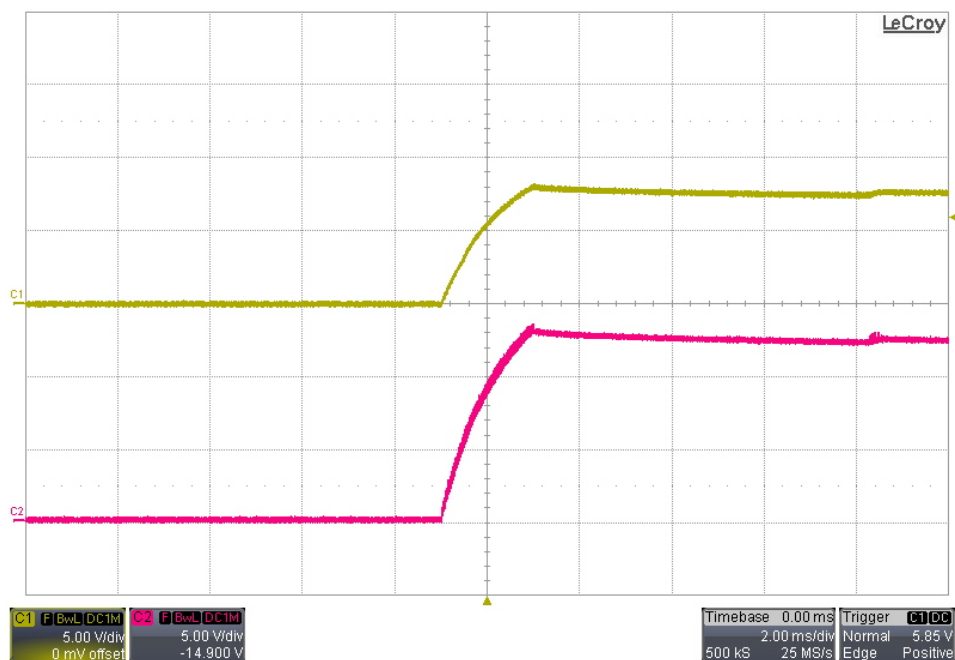
TEXAS INSTRUMENTS
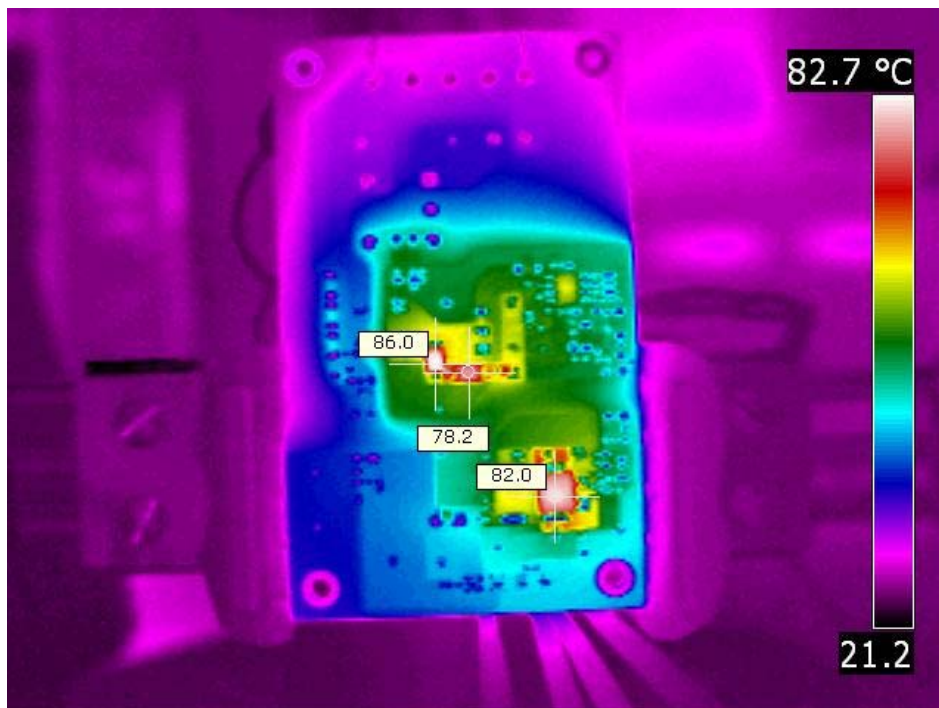
4   Cross-Regulation

The chart below shows the 12V output voltage versus 12V load current for different loading conditions on the 7.5V output. The input was 120VAC/60Hz.
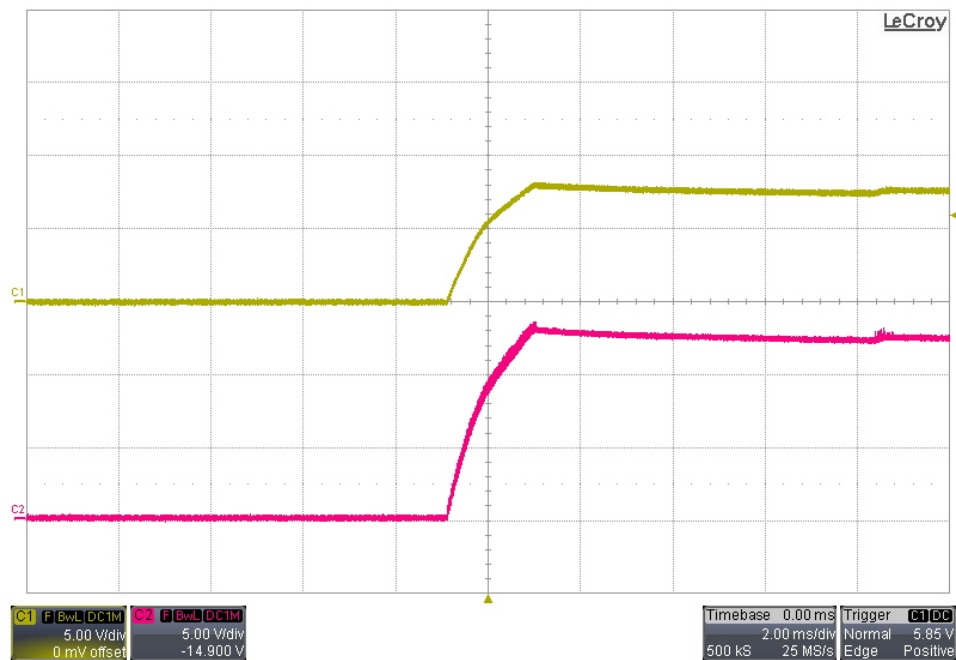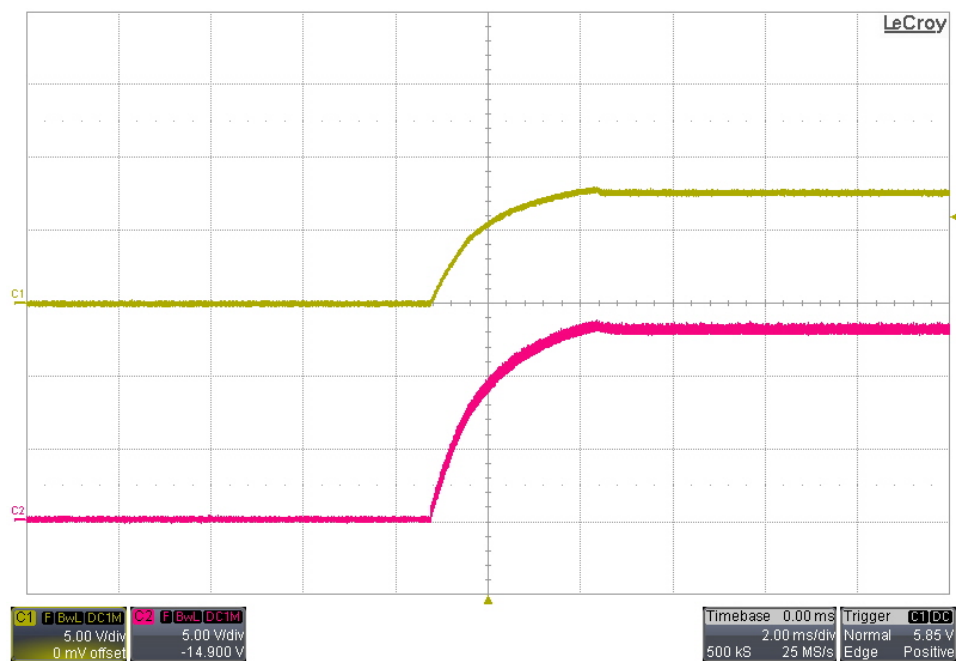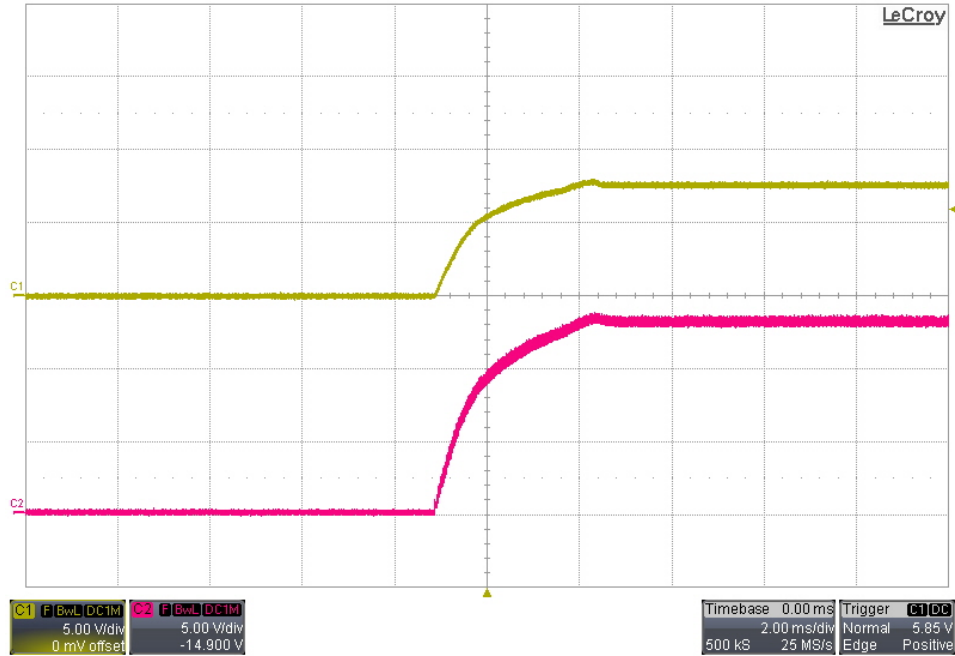

5   Startup

The output voltages at startup are shown in the images below. The input was 120VAC/60Hz.

5.1   120VAC/60Hz Input; No Load

5.2 240VAC/50Hz Input; No Load

5.3 120VAC/60Hz Input; 7.5V/6Ω, 12V/28Ω

5.4   240VAC/50Hz Input; 7.5V/6Ω, 12V/28Ω

6   7.5V Output Ripple Voltage

The output ripple voltage on the 7.5V output is shown in the plots below. The outputs were loaded with 7.5V/1.3A and 12V/0.42A.

6.1   120VAC/60Hz Input
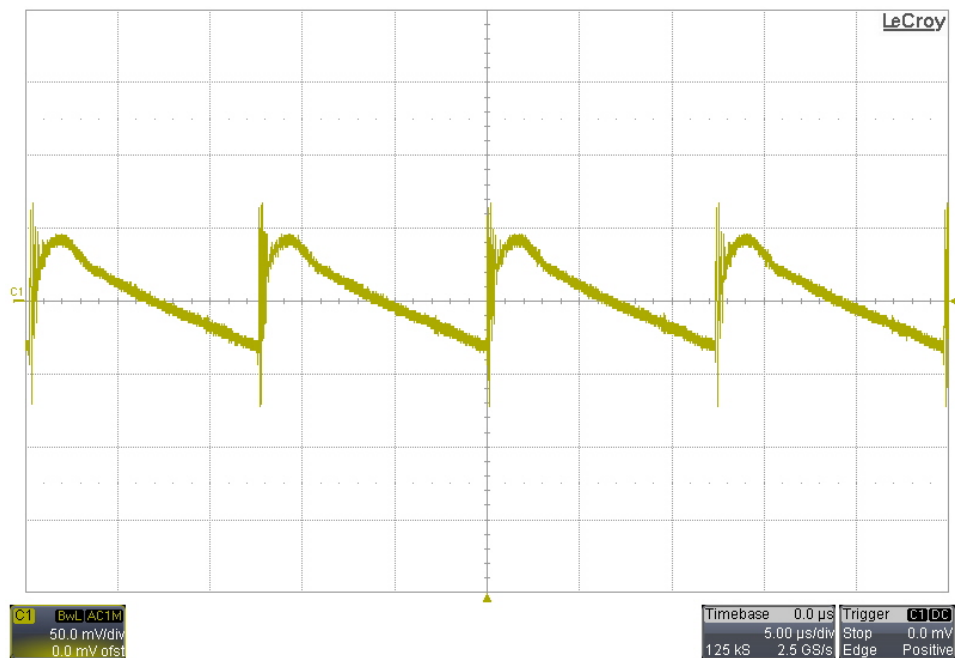
6.2   240VAC/50Hz Input
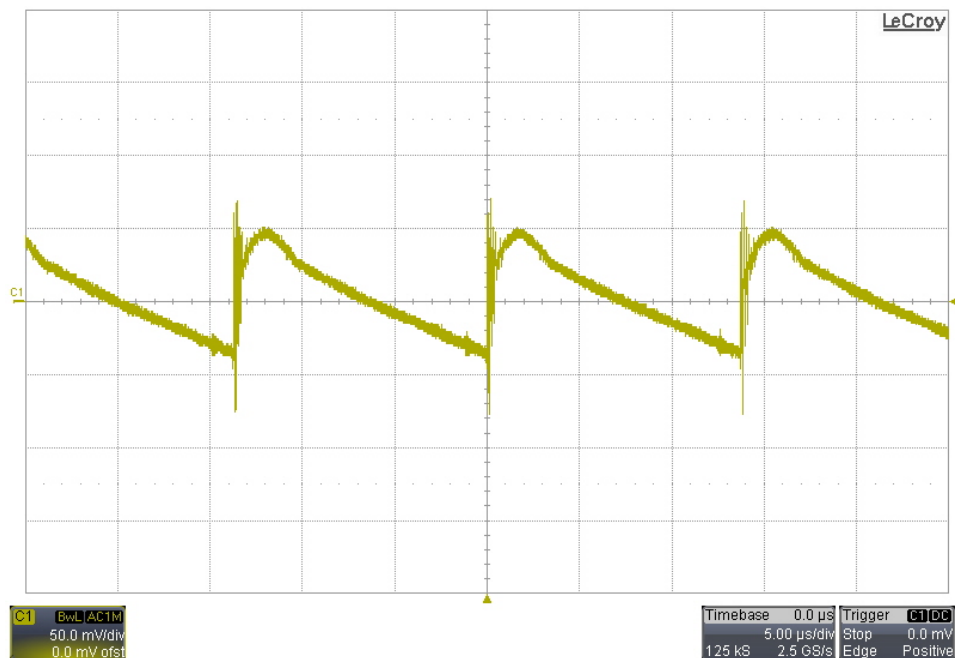
7   12V Output Ripple Voltage

The output ripple voltage on the 12V output is shown in the plots below. The outputs were loaded with 7.5V/1.3A and 12V/0.42A.

7.1   120VAC/60Hz Input
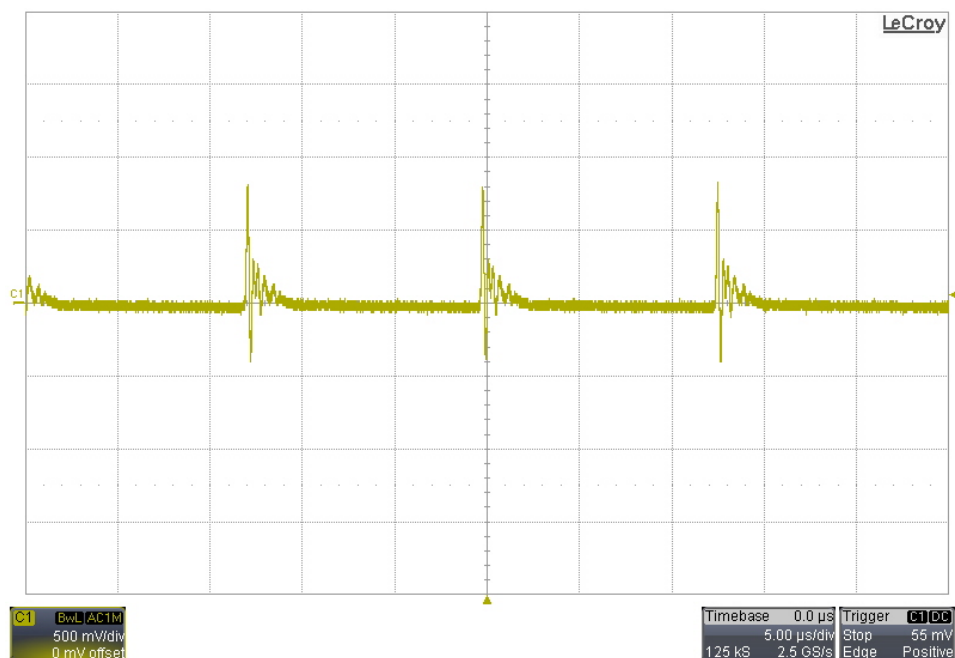
7.2 240VAC/50Hz Input
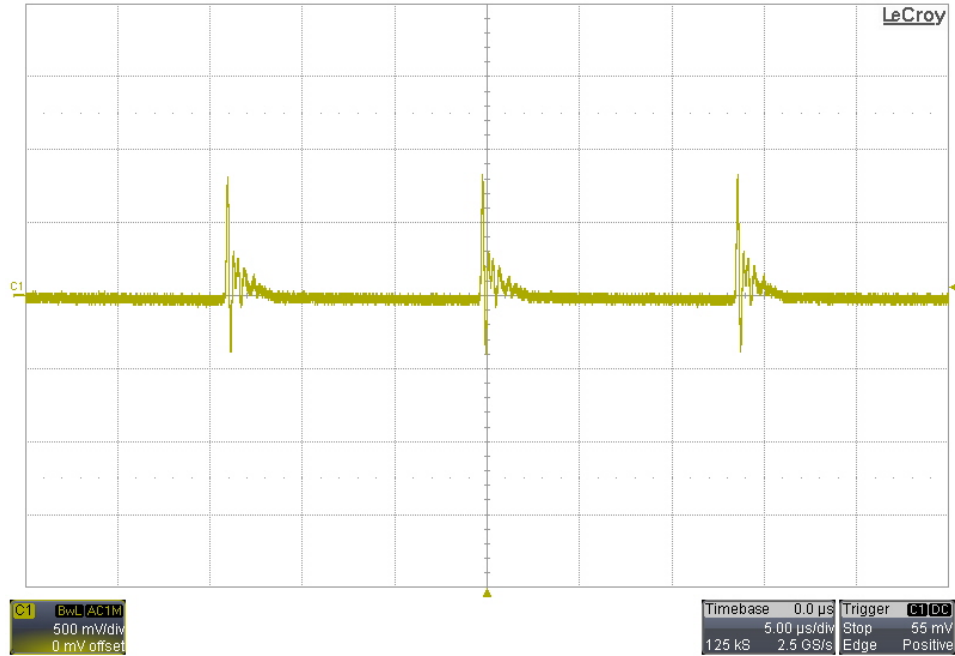
8 Loop Response

The frequency response of the feedback loop is shown in the image below. The outputs were loaded with 7.5V/1.3A and 12V/0.42A. For gain/phase plot #1, the input was 120VAC/60Hz. For gain/phase plot #2, the input was 240VAC/50Hz.

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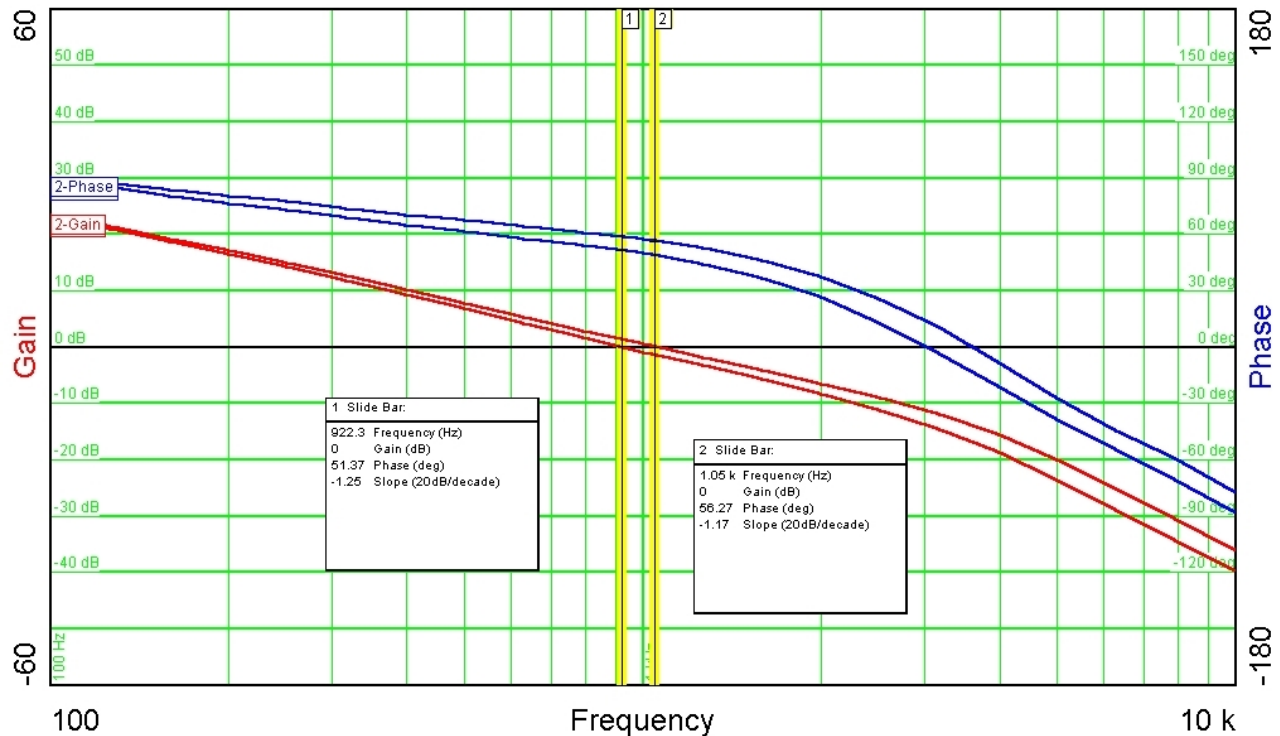
9 7.5V Load Transients

The images below show the response to a 0.5A to 1A load transient on the 7.5V output. The 12V output was loaded with 50Ω. Channel 1 shows the 7.5V output voltage (ac coupled). Channel 2 shows the 12V output voltage (ac coupled). Channel 4 shows the 7.5V load current.

9.1 120VAC/60Hz Input
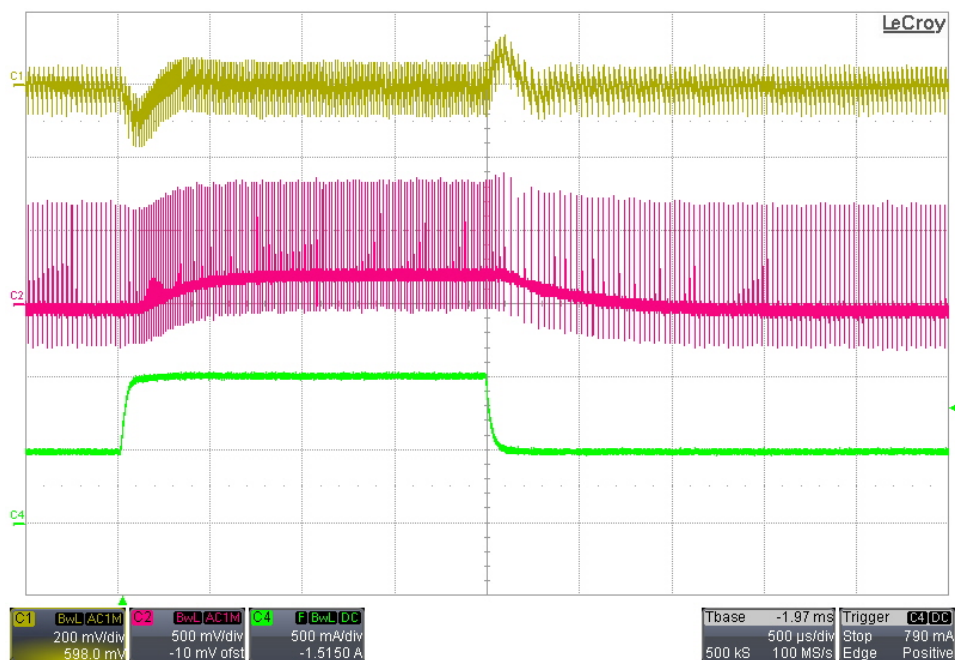
9.2 240VAC/50Hz Input
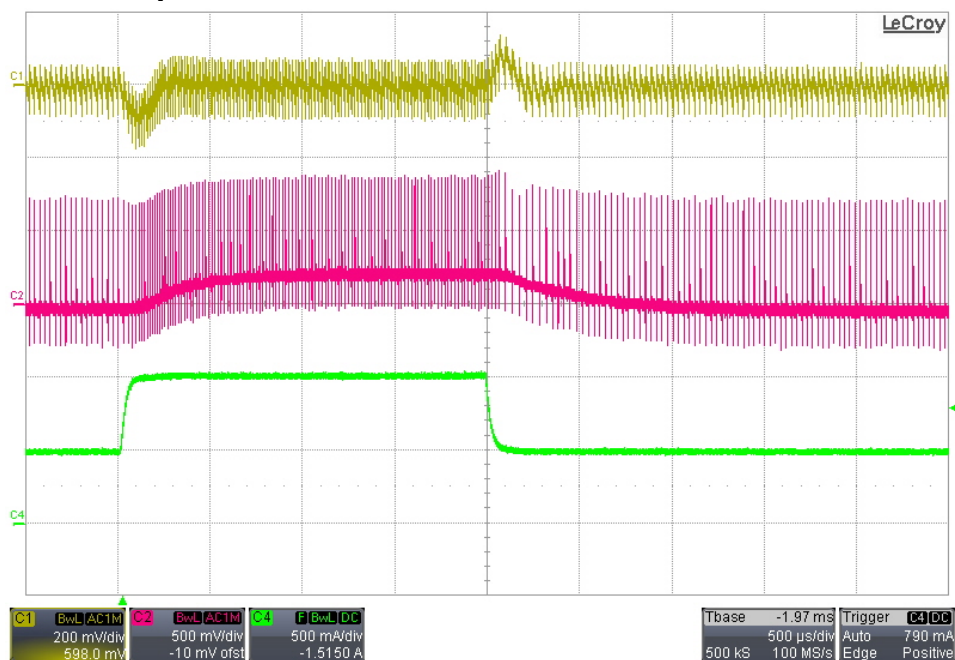
10 12V Load Transients

The images below show the response to a 0A to 0.42A load transient on the 12V output. The 7.5V output was loaded with 10Ω. Channel 1 shows the 7.5V output voltage (ac coupled). Channel 2 shows the 12V output voltage (ac coupled). Channel 4 shows the 12V load current.

10.1 120VAC/60Hz Input

10.2 240VAC/50Hz Input

PMP8362 Rev A Test Results
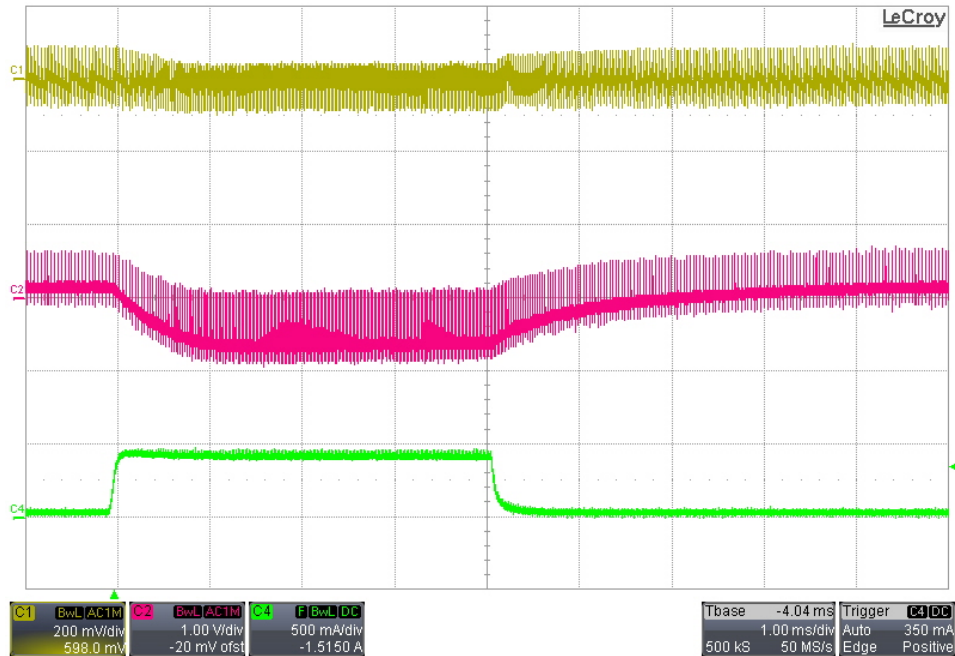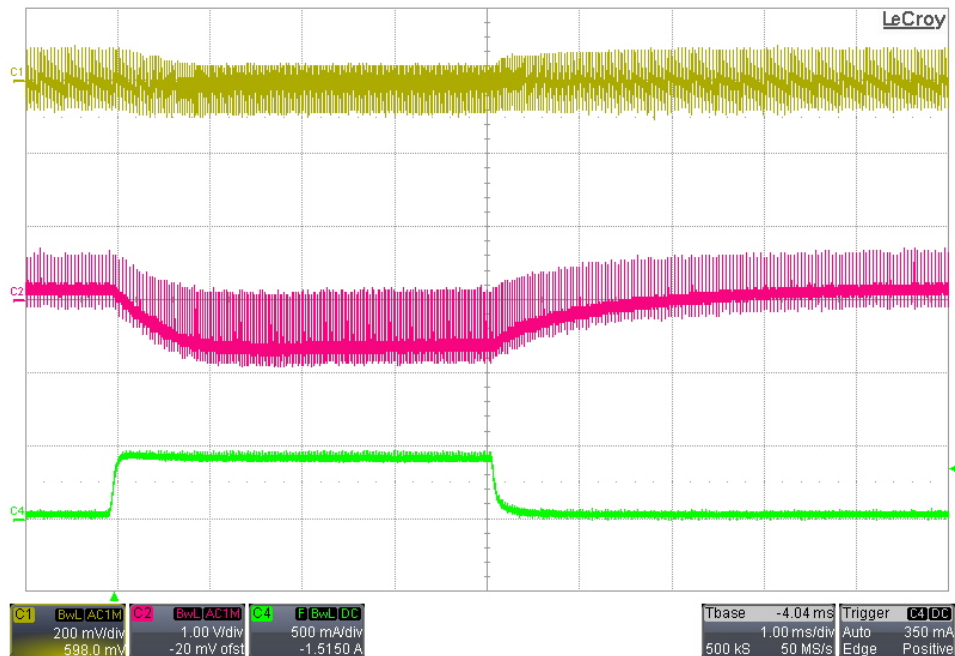
11 Switching Waveforms

11.1 Primary FET

The image below shows the drain-to-source voltage on the primary MOSFET (Q1). The outputs were loaded with 7.5V/1.3A and 12V/0.42A. The input was set to 264VAC/50Hz.
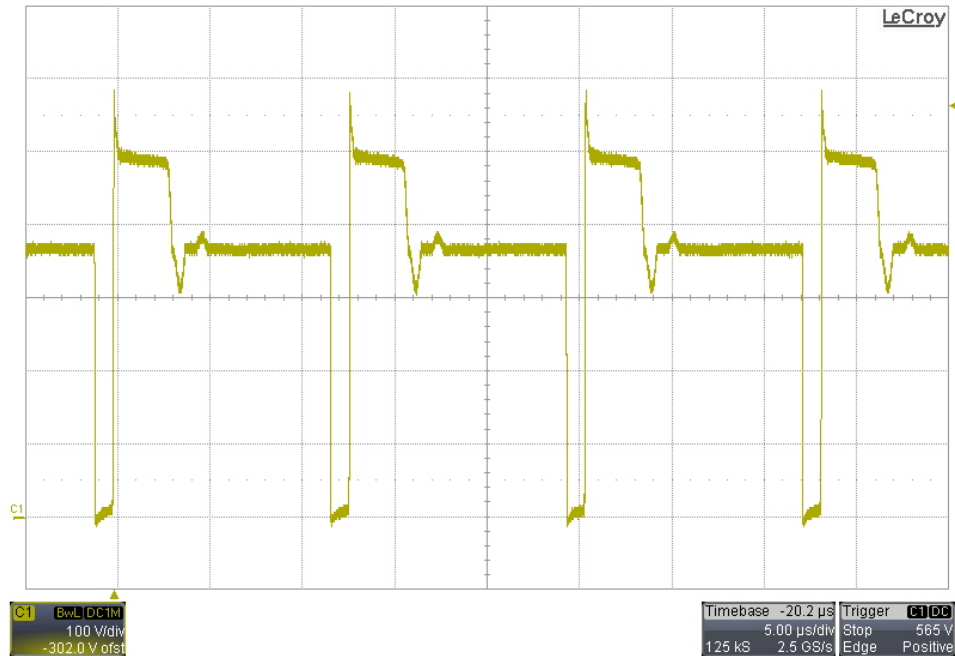
11.2 7.5V Diode

The image below shows the voltage on the anode of the 7.5V output diode (D5). The outputs were loaded with 7.5V/1.3A and 12V/0.42A. The input was set to 264VAC/50Hz.

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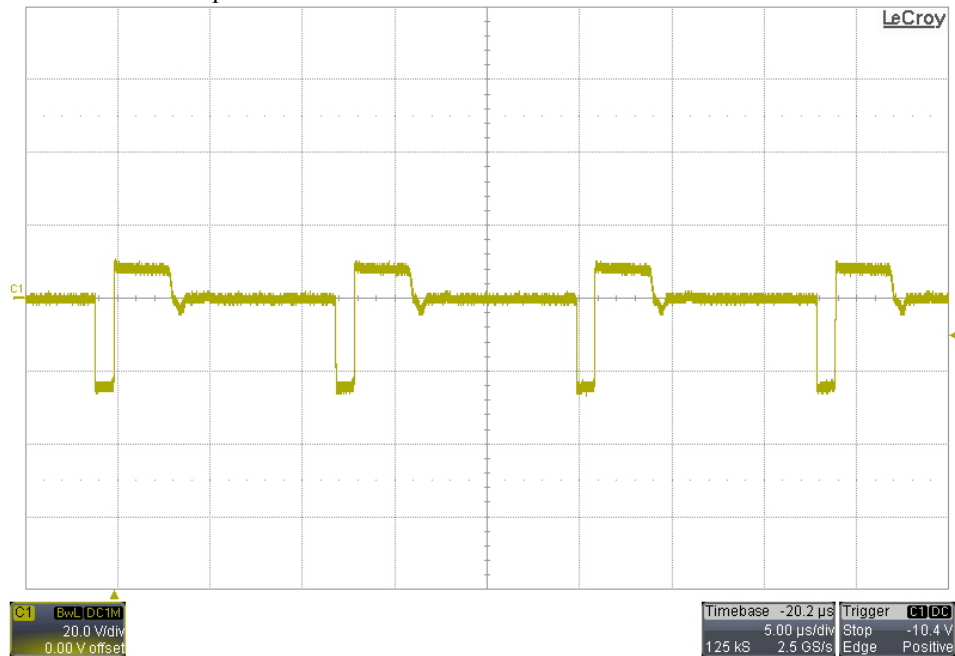
11.3 12V Diode

The image below shows the voltage on the anode of the 12V output diode (D2). The outputs were loaded with 7.5V/1.3A and 12V/0.42A. The input was set to 264VAC/50Hz.

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