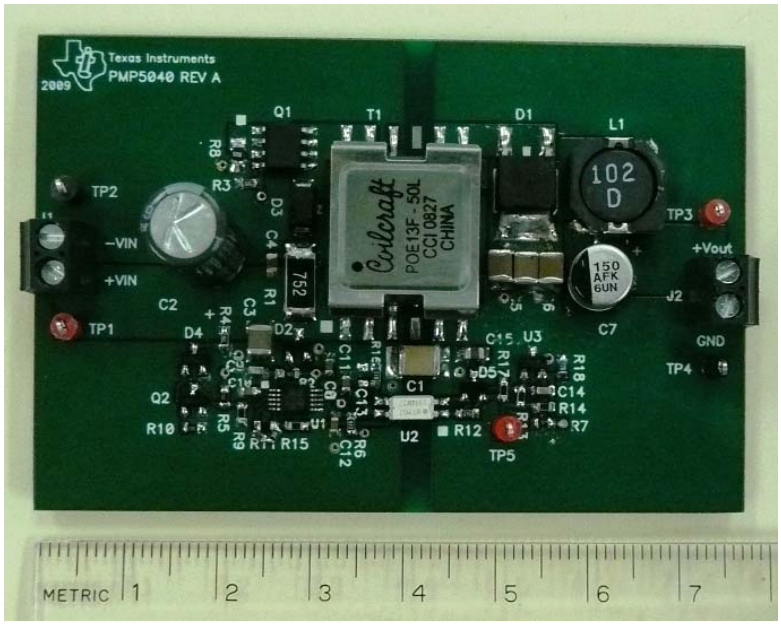
PMP5040 Rev B Test Results

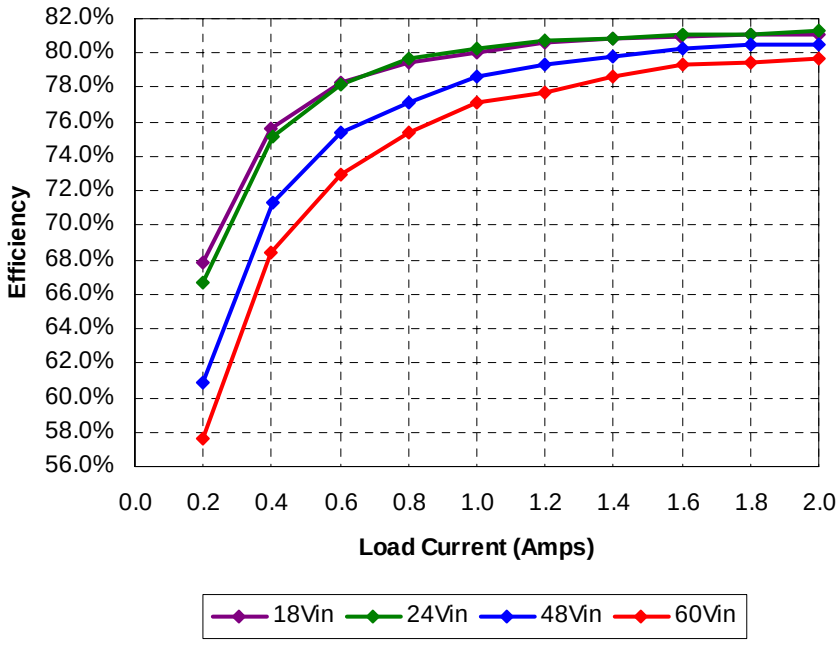
1 Photo

A photograph of the PMP5040 Rev B evaluation board is shown below. This board was built using a PMP5040 Rev A PWB.



2 Efficiency

The efficiency data is shown in the tables and graph below.



Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	6.57	17.99	0.022	0.00	0.396	0.0%
0.199	6.57	18.01	0.107	1.31	0.620	67.8%
0.400	6.57	18.00	0.193	2.63	0.846	75.6%
0.600	6.57	17.99	0.280	3.94	1.095	78.3%
0.801	6.57	18.01	0.368	5.26	1.365	79.4%
1.000	6.57	18.00	0.456	6.57	1.638	80.0%
1.200	6.57	18.02	0.543	7.88	1.901	80.6%
1.400	6.57	18.01	0.632	9.20	2.184	80.8%
1.599	6.57	18.00	0.721	10.51	2.473	80.9%
1.800	6.57	18.01	0.810	11.83	2.762	81.1%
2.000	6.57	18.00	0.900	13.14	3.060	81.1%

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	6.57	24.00	0.018	0.00	0.432	0.0%
0.200	6.57	24.02	0.082	1.31	0.656	66.7%
0.401	6.57	24.02	0.146	2.63	0.872	75.1%
0.600	6.57	24.01	0.210	3.94	1.100	78.2%
0.800	6.57	24.00	0.275	5.26	1.344	79.6%
1.000	6.57	23.99	0.341	6.57	1.611	80.3%
1.200	6.57	24.01	0.407	7.88	1.888	80.7%
1.400	6.57	24.01	0.474	9.20	2.183	80.8%
1.600	6.57	24.00	0.540	10.51	2.448	81.1%
1.801	6.57	23.99	0.608	11.83	2.753	81.1%
2.000	6.57	24.01	0.673	13.14	3.019	81.3%

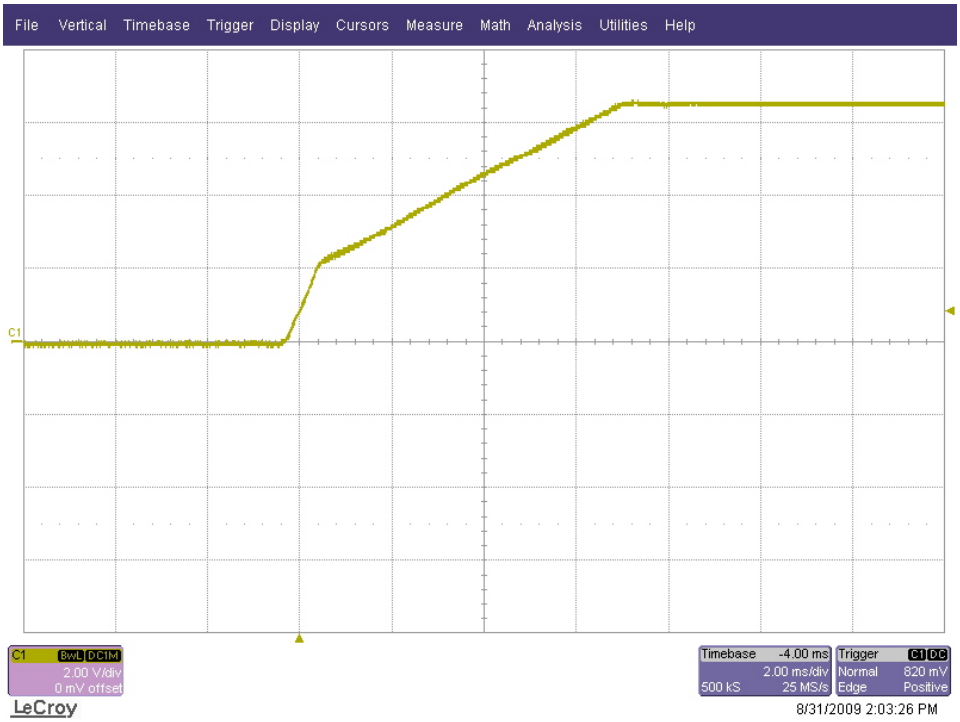
Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	6.57	48.0	0.013	0.00	0.624	0.0%
0.200	6.57	48.0	0.045	1.31	0.846	60.8%
0.401	6.57	48.0	0.077	2.63	1.061	71.3%
0.600	6.57	48.0	0.109	3.94	1.290	75.3%
0.800	6.57	48.0	0.142	5.26	1.560	77.1%
1.000	6.57	48.0	0.174	6.57	1.782	78.7%
1.200	6.57	48.0	0.207	7.88	2.052	79.3%
1.400	6.57	48.0	0.240	9.20	2.322	79.8%
1.600	6.57	48.0	0.273	10.51	2.592	80.2%
1.800	6.57	48.0	0.306	11.83	2.862	80.5%
2.000	6.57	48.0	0.340	13.14	3.180	80.5%

Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	6.57	60.0	0.013	0.00	0.780	0.0%
0.200	6.57	60.0	0.038	1.31	0.966	57.6%
0.400	6.57	60.0	0.064	2.63	1.212	68.4%
0.600	6.57	60.0	0.090	3.94	1.458	73.0%
0.799	6.57	60.0	0.116	5.25	1.711	75.4%
1.000	6.57	60.0	0.142	6.57	1.950	77.1%
1.200	6.57	60.0	0.169	7.88	2.256	77.8%
1.400	6.57	60.0	0.195	9.20	2.502	78.6%
1.600	6.57	60.0	0.221	10.51	2.748	79.3%
1.800	6.57	60.0	0.248	11.83	3.054	79.5%
2.001	6.57	60.0	0.275	13.15	3.353	79.7%

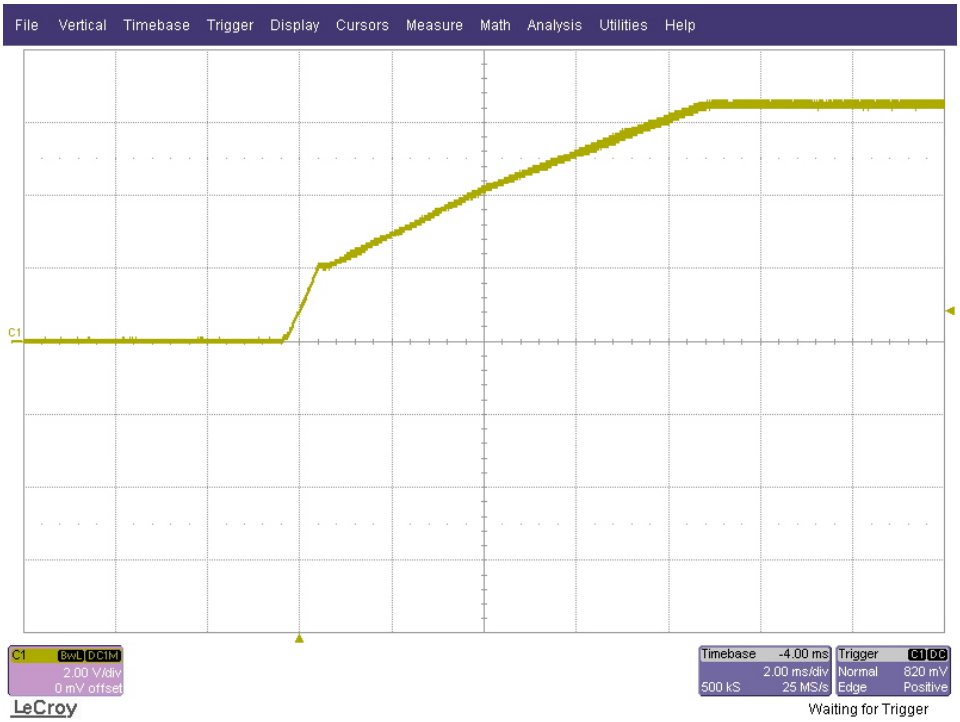
3 Startup

The output voltage at startup is shown in the images below. The input voltage was 48V.

3.1 No Load

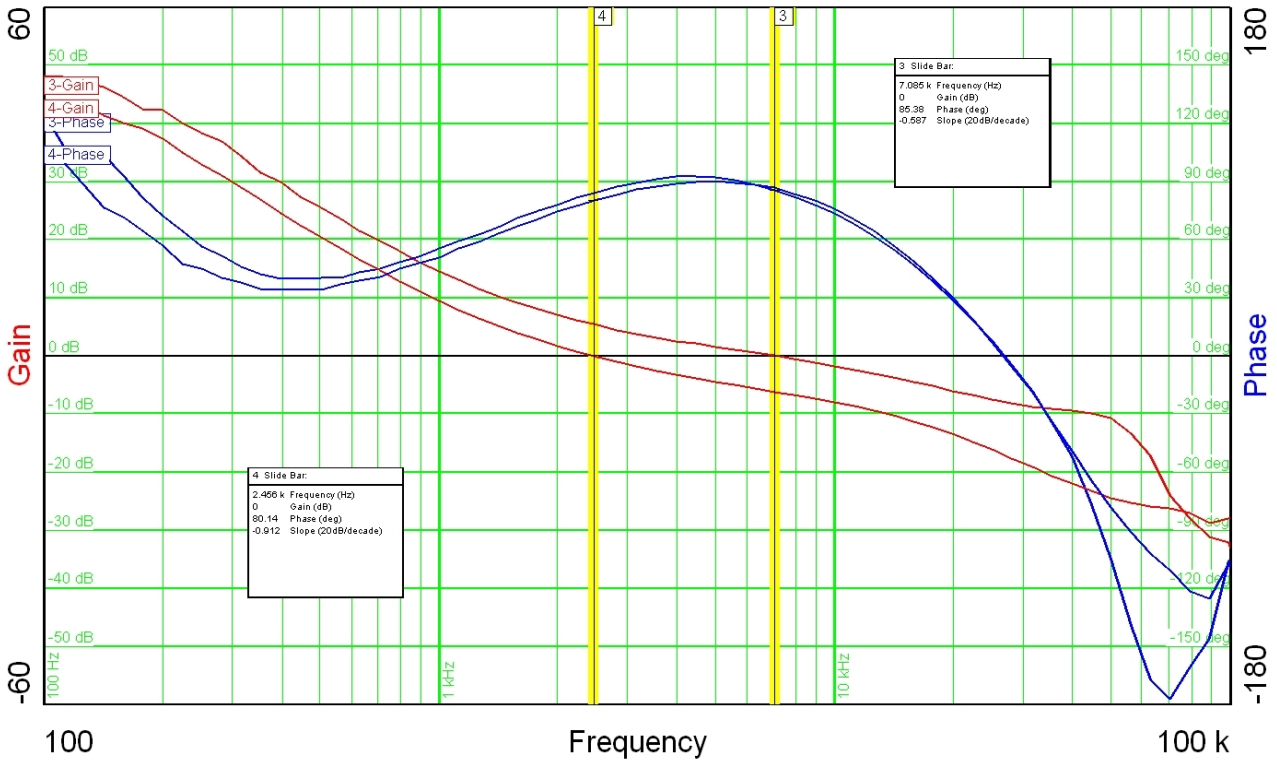


3.2 2A Load



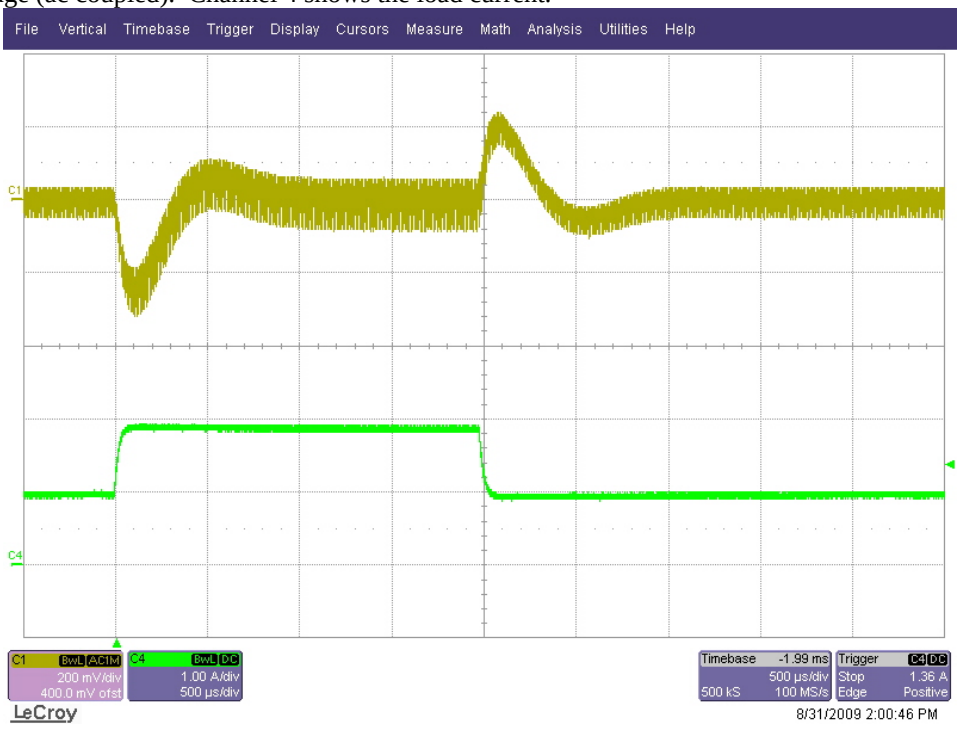
4 Frequency Response

The frequency response of the feedback loop is shown below. For Plot 4, the input was set to 60VDC and the load was set to 2A. For Plot 3, the input was 18V and the load was 2A.



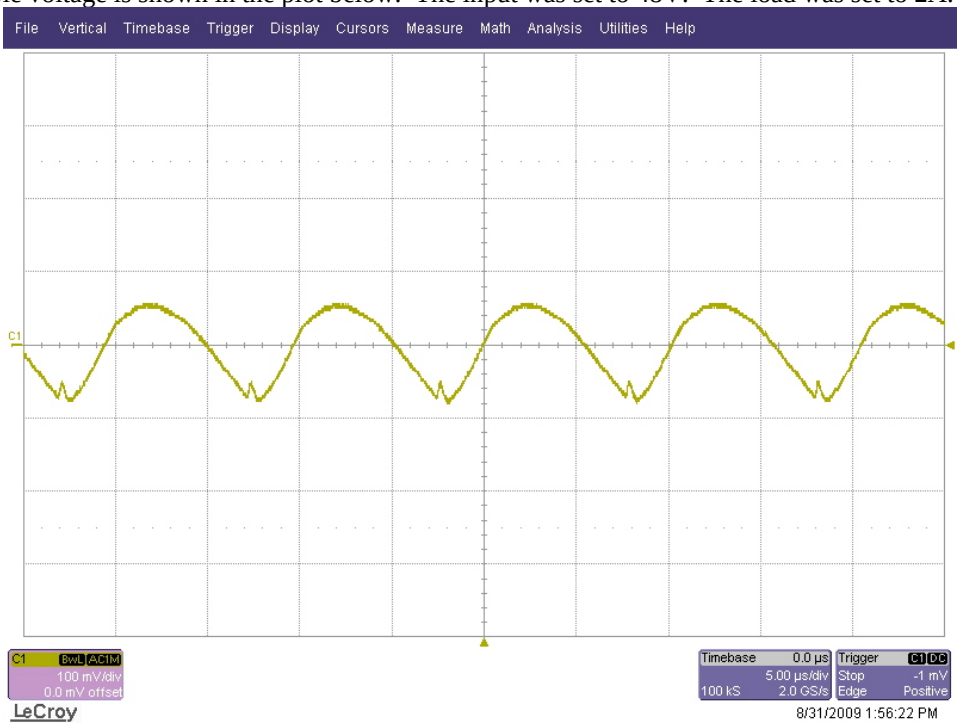
5 Load Transients

The image below shows the response to a 1A to 2A load transient. The input voltage was set to 48V. Channel 1 shows the output voltage (ac coupled). Channel 4 shows the load current.



6 Output Ripple Voltage

The output ripple voltage is shown in the plot below. The input was set to 48V. The load was set to 2A.



7 Switching Waveforms

The image below shows the drain-to-source voltage waveform on the primary MOSFETs (channel 1) and the voltage on the anode of the output diode (channel 2). The output was 2A, and the input was 48V.

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