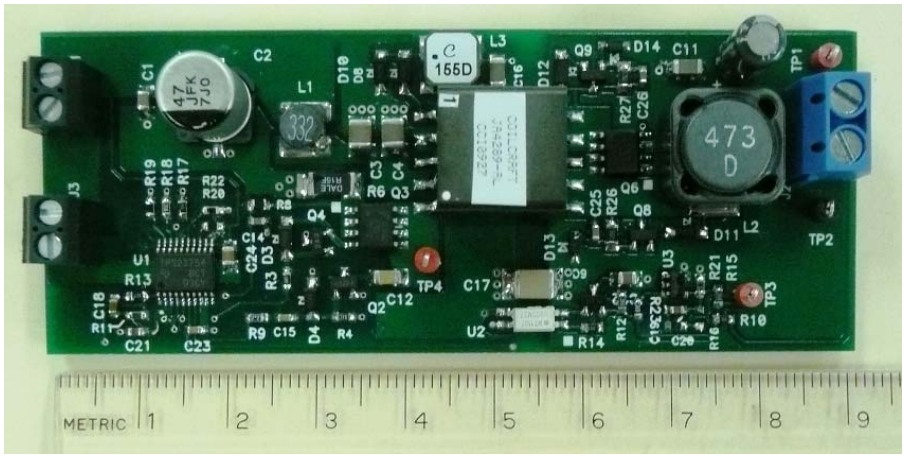
PMP4909 Rev A Test Results

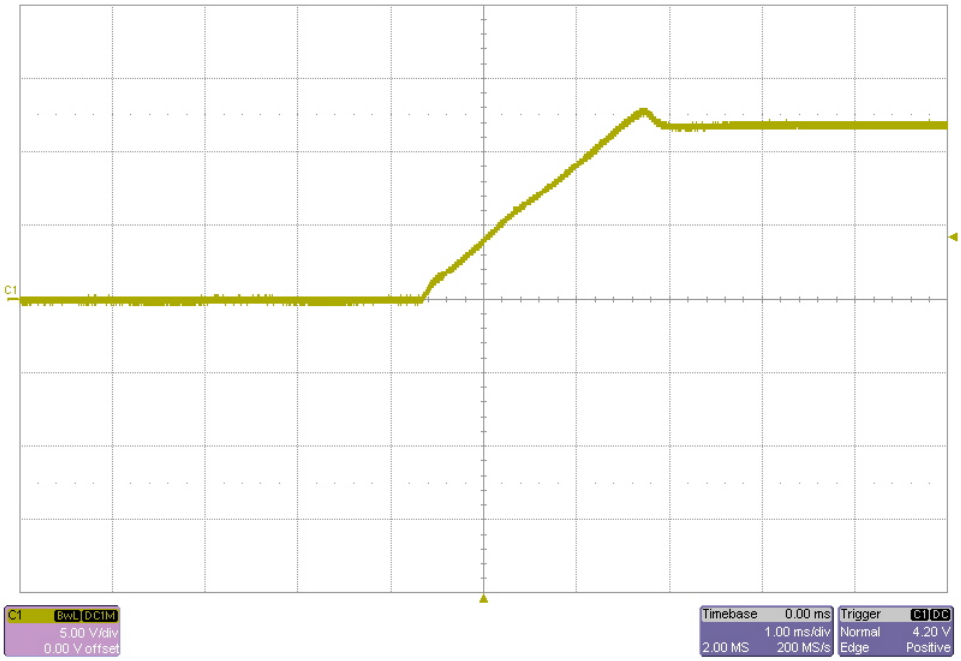
1 Photo

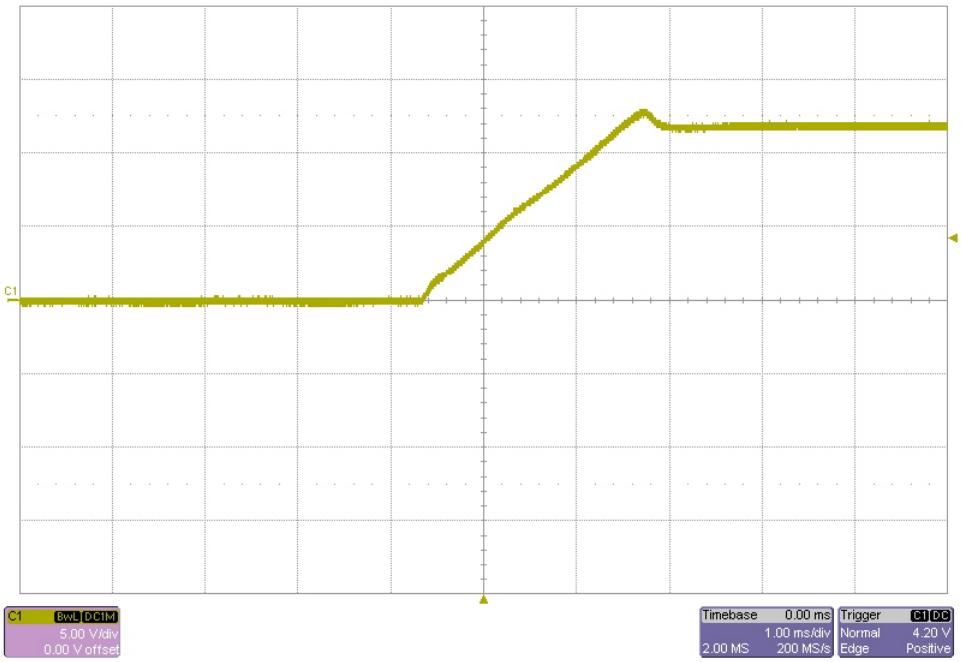
The photograph below shows a top view of the PMP4909 Rev A demo board.



2 Startup

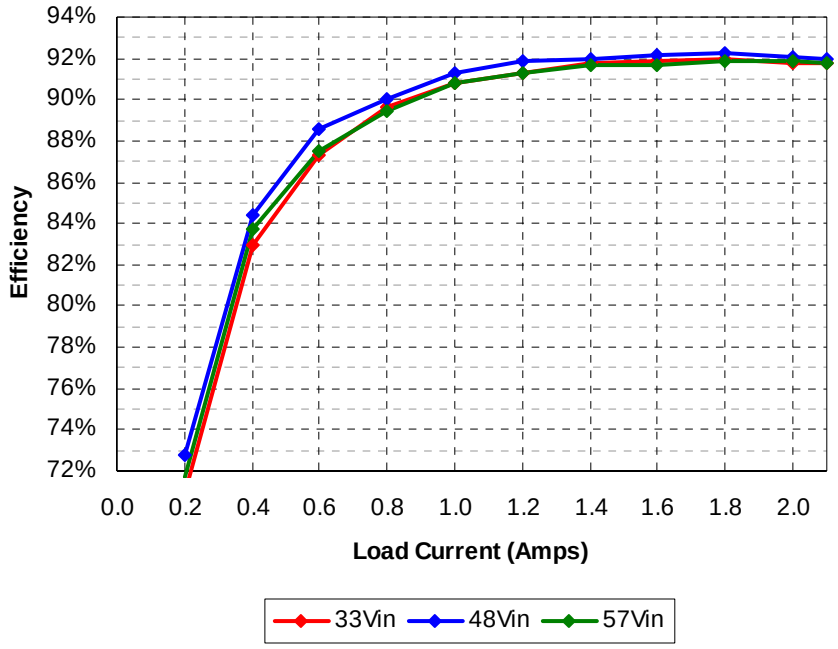
The output voltage at startup is shown in the images below. The input was 48VDC. For the top image the output was unloaded. For the bottom image, the output was loaded with 2.1A.





3 Efficiency

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



Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
33.0	0.032	0.000	12.05	0.00	1.056	0.0%
33.0	0.103	0.200	12.05	2.41	0.989	70.9%
33.0	0.176	0.400	12.05	4.82	0.988	83.0%
33.0	0.251	0.600	12.05	7.23	1.053	87.3%
33.0	0.326	0.800	12.05	9.64	1.118	89.6%
33.0	0.402	1.000	12.05	12.05	1.216	90.8%
33.0	0.480	1.200	12.05	14.46	1.380	91.3%
33.0	0.557	1.400	12.05	16.87	1.511	91.8%
33.0	0.636	1.600	12.05	19.28	1.708	91.9%
33.0	0.715	1.800	12.05	21.69	1.905	91.9%
33.0	0.795	1.999	12.05	24.09	2.147	91.8%
33.0	0.836	2.100	12.05	25.31	2.283	91.7%

Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
48.0	0.019	0.000	12.05	0.00	0.912	0.0%
48.0	0.069	0.200	12.05	2.41	0.902	72.8%
48.0	0.119	0.400	12.05	4.82	0.892	84.4%
48.0	0.170	0.600	12.05	7.23	0.930	88.6%
48.0	0.223	0.800	12.05	9.64	1.064	90.1%
48.0	0.275	1.000	12.05	12.05	1.150	91.3%
48.0	0.328	1.200	12.05	14.46	1.284	91.8%
48.0	0.382	1.400	12.05	16.87	1.466	92.0%
48.0	0.436	1.600	12.05	19.28	1.648	92.1%
48.0	0.490	1.800	12.05	21.69	1.830	92.2%
48.0	0.545	1.999	12.05	24.09	2.072	92.1%
48.0	0.573	2.099	12.05	25.29	2.211	92.0%

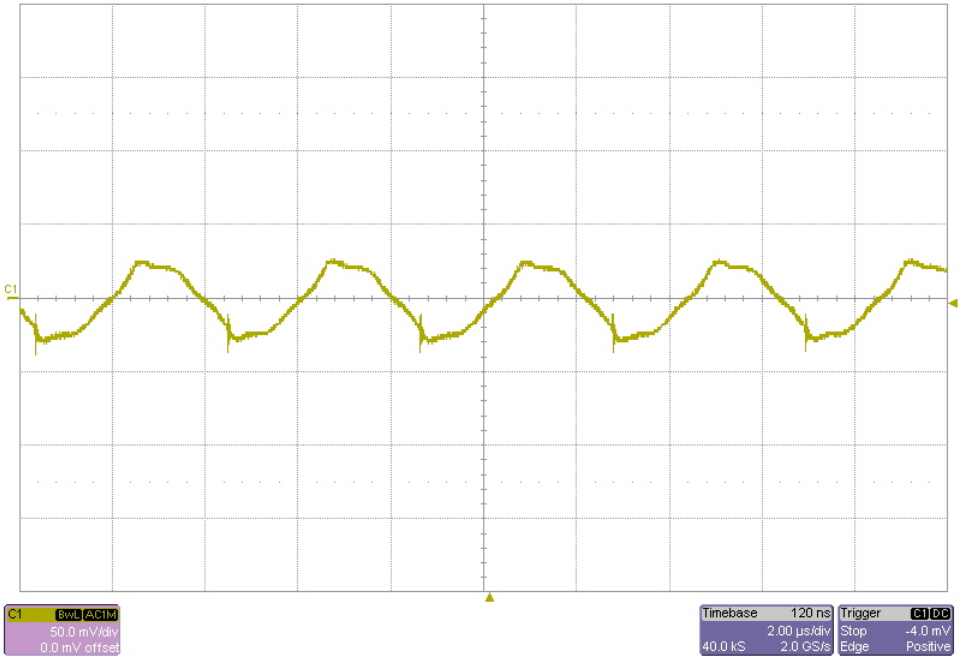
Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
57.0	0.017	0.000	12.05	0.00	0.969	0.0%
57.0	0.059	0.200	12.05	2.41	0.953	71.7%
57.0	0.101	0.400	12.05	4.82	0.937	83.7%
57.0	0.145	0.600	12.05	7.23	1.035	87.5%
57.0	0.189	0.800	12.05	9.64	1.133	89.5%
57.0	0.233	1.001	12.05	12.06	1.219	90.8%
57.0	0.278	1.200	12.05	14.46	1.386	91.3%
57.0	0.323	1.400	12.05	16.87	1.541	91.6%
57.0	0.369	1.600	12.05	19.28	1.753	91.7%
57.0	0.414	1.800	12.05	21.69	1.908	91.9%
57.0	0.460	2.000	12.05	24.10	2.120	91.9%
57.0	0.484	2.100	12.05	25.31	2.283	91.7%

4 Thermal Image

A thermal image of the top side of the board is shown with a 2.1A load. The ambient temperature was 26ºC.

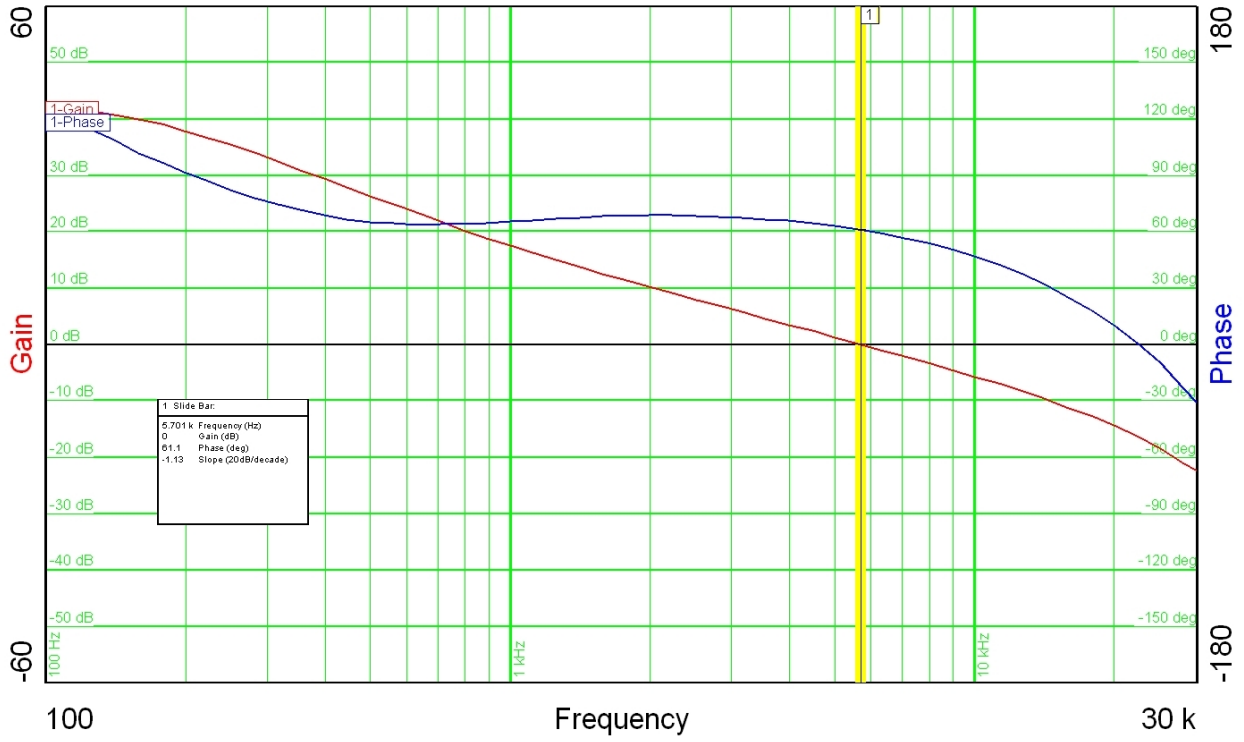
5 Output Ripple Voltage

The output ripple voltage is shown in the plot below. The input was set to 48VDC and the output was loaded with 2.1A.



6 Frequency Response

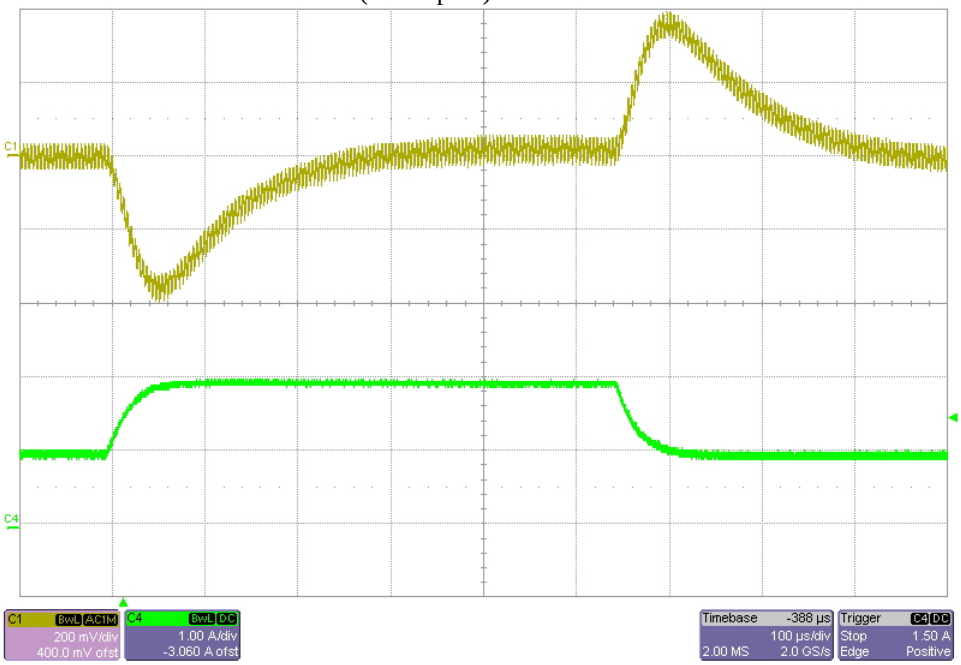
The frequency response of the feedback loop is shown below. The input was set to 48V and the output was loaded with 2.1A.



7 Load Transients

The response to a load step from 1A to 2A is shown in the image below. The input was set to 48V.

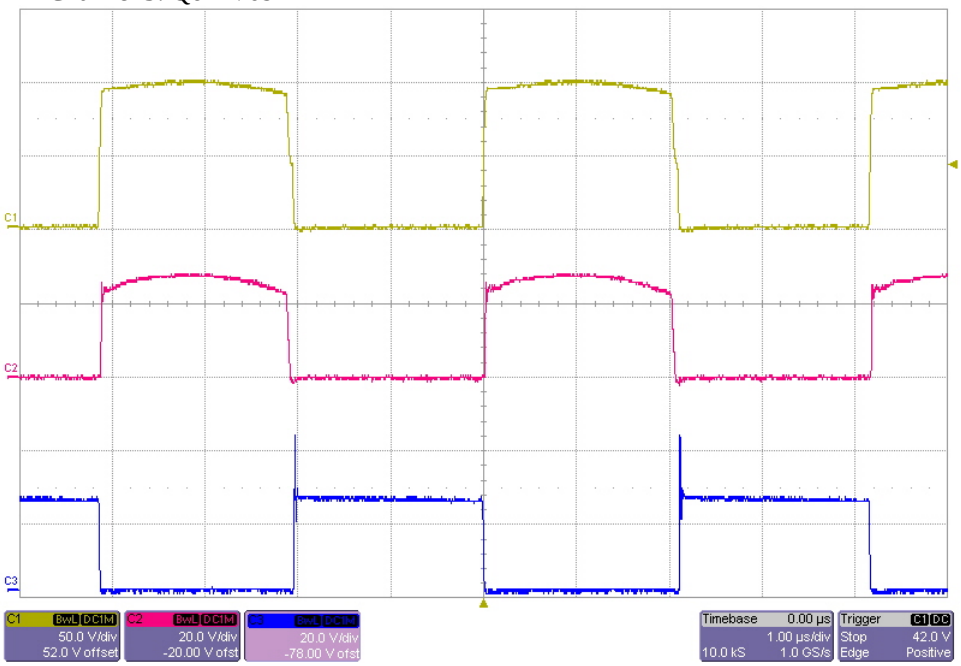
Channel 1: Vout 200mV/div (ac coupled) Channel 4: Iout 1A/div



8 Switching Waveforms

The image below shows the drain-to-source voltage waveforms on the switching MOSFETs. The input was set to 48VDC, and the output was loaded with 2.1A.

Channel 1: Q3 Vds Channel 2: Q6B Vds
Channel 3: Q6A Vds



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