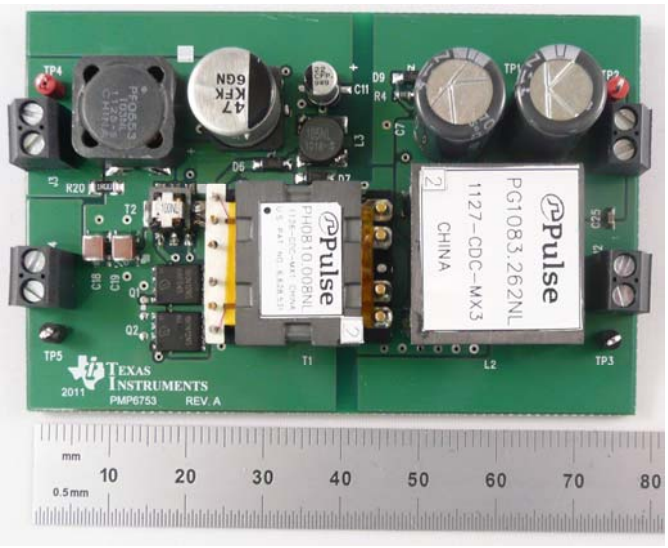
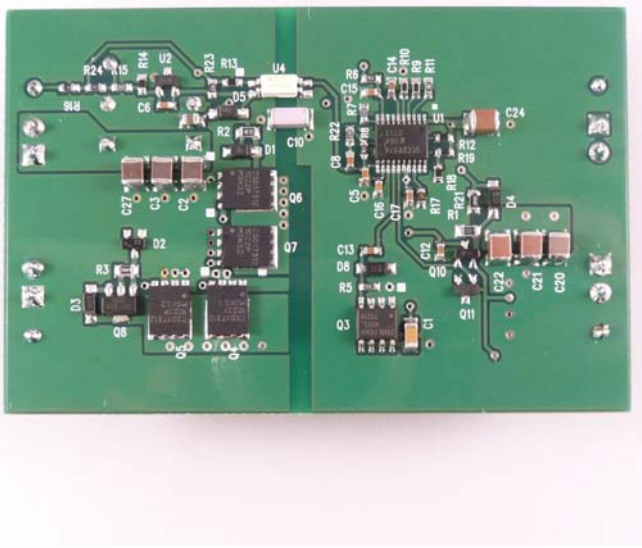
1 Photo

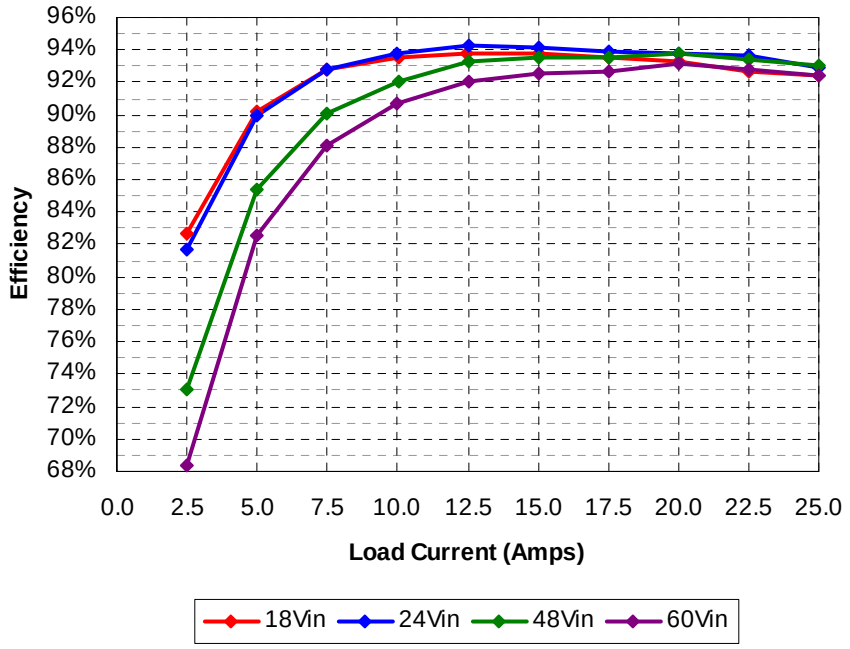
The photos below show the PMP6753 Rev A demo board.





2 Efficiency

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



Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
18.00	0.103	0.000	3.302	0.00	1.854	0.0%
18.02	0.555	2.505	3.302	8.27	1.730	82.7%
18.00	1.014	4.99	3.301	16.47	1.780	90.2%
18.02	1.481	7.50	3.301	24.76	1.930	92.8%
17.97	1.969	10.03	3.300	33.10	2.284	93.5%
18.01	2.439	12.49	3.300	41.22	2.709	93.8%
18.01	2.932	15.0	3.300	49.50	3.305	93.7%
18.00	3.428	17.5	3.300	57.75	3.954	93.6%
18.04	3.921	20.0	3.299	65.98	4.755	93.3%
17.99	4.452	22.5	3.299	74.23	5.864	92.7%
18.03	4.947	25.0	3.299	82.48	6.719	92.5%

Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
24.00	0.084	0.000	3.302	0.00	2.016	0.0%
23.96	0.422	2.500	3.302	8.26	1.856	81.6%
24.00	0.766	5.01	3.301	16.54	1.846	90.0%
24.09	1.108	7.50	3.301	24.76	1.934	92.8%
24.06	1.462	10.00	3.300	33.00	2.176	93.8%
24.02	1.824	12.51	3.300	41.28	2.529	94.2%
23.98	2.192	15.0	3.300	49.50	3.064	94.2%
24.01	2.560	17.5	3.300	57.75	3.716	94.0%
24.01	2.929	20.0	3.299	65.98	4.345	93.8%
23.97	3.305	22.5	3.299	74.23	4.993	93.7%
23.97	3.704	25.0	3.299	82.48	6.310	92.9%

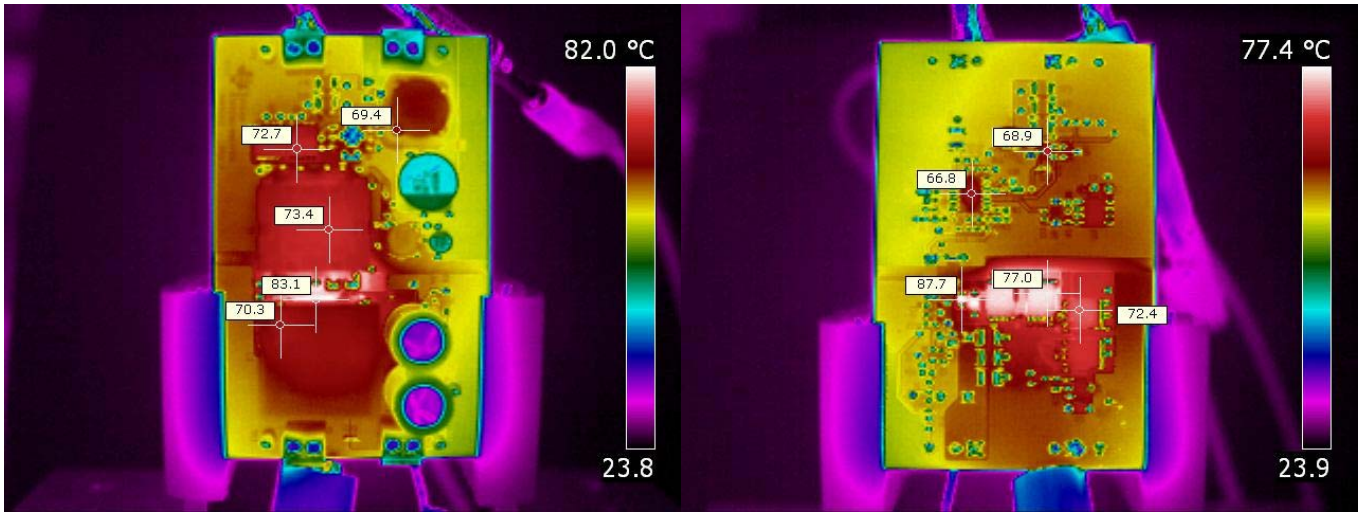
Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
48.0	0.070	0.000	3.303	0.00	3.360	0.0%
48.0	0.235	2.496	3.302	8.24	3.038	73.1%
48.0	0.403	5.00	3.302	16.51	2.834	85.3%
48.0	0.573	7.51	3.301	24.79	2.713	90.1%
48.0	0.750	10.04	3.301	33.14	2.858	92.1%
48.0	0.922	12.50	3.301	41.26	2.994	93.2%
48.0	1.103	15.0	3.300	49.50	3.444	93.5%
48.0	1.287	17.5	3.300	57.75	4.026	93.5%
48.0	1.467	20.0	3.300	66.00	4.416	93.7%
48.0	1.656	22.5	3.300	74.25	5.238	93.4%
48.0	1.847	25.0	3.299	82.48	6.181	93.0%

Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
60.0	0.070	0.000	3.302	0.00	4.200	0.0%
60.0	0.199	2.474	3.302	8.17	3.771	68.4%
60.0	0.333	5.00	3.301	16.51	3.475	82.6%
60.0	0.468	7.49	3.301	24.72	3.356	88.1%
60.0	0.607	10.00	3.301	33.01	3.410	90.6%
60.0	0.747	12.50	3.301	41.26	3.558	92.1%
60.0	0.892	15.0	3.300	49.50	4.020	92.5%
60.0	1.039	17.5	3.300	57.75	4.590	92.6%
60.0	1.180	20.0	3.300	66.00	4.800	93.2%
60.0	1.334	22.5	3.300	74.25	5.790	92.8%
60.0	1.487	25.0	3.300	82.50	6.720	92.5%

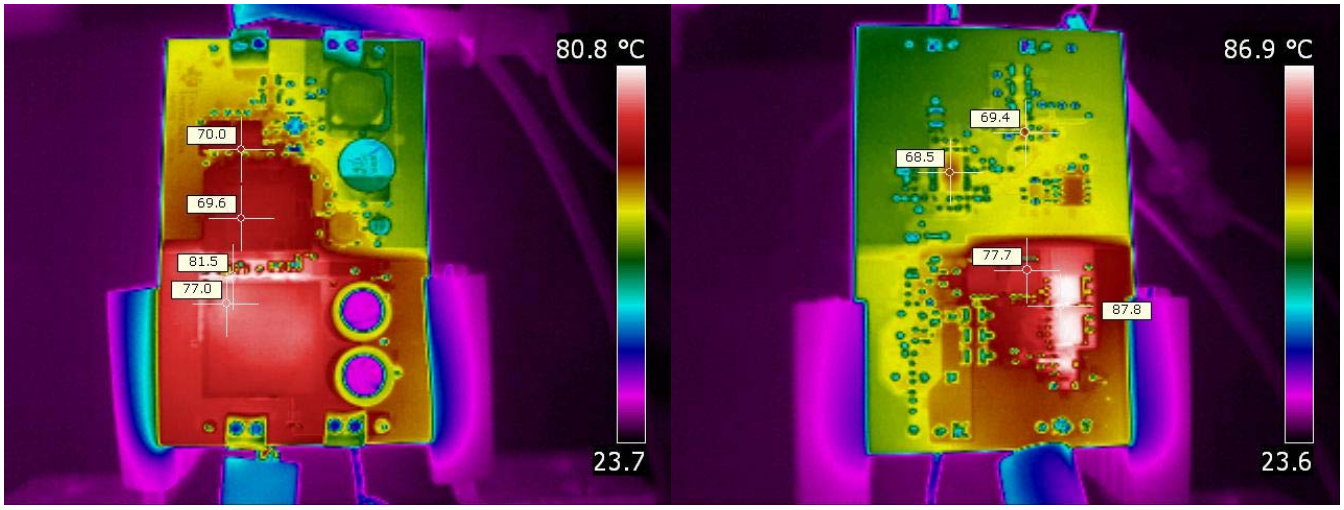
3 Thermal Images

The thermal images below show the top and bottom of the board with a 25A load and no forced air flow. The ambient temperature was 26ºC.

3.1 18V Input

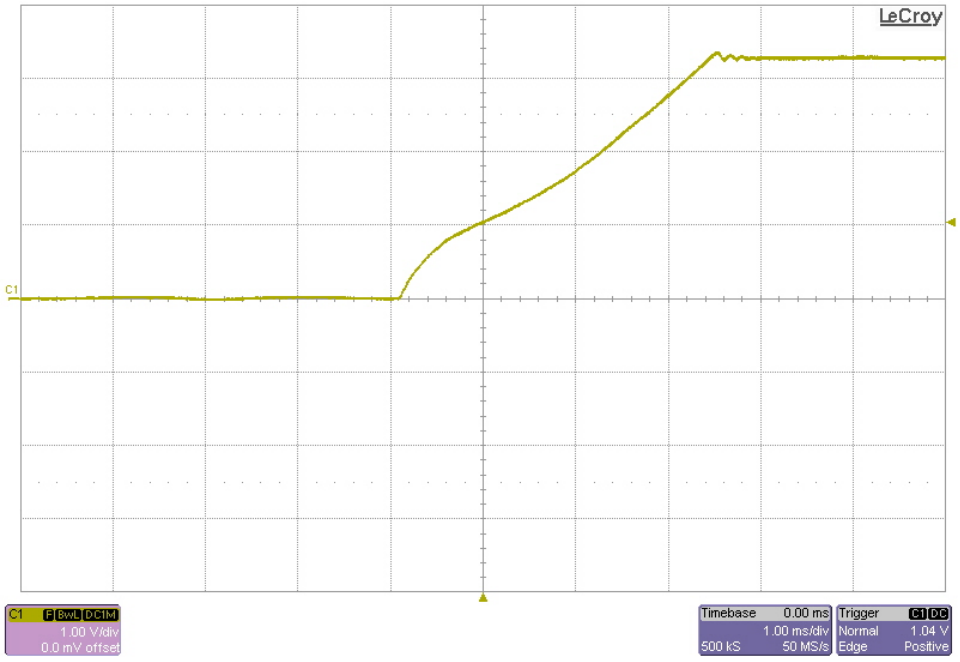


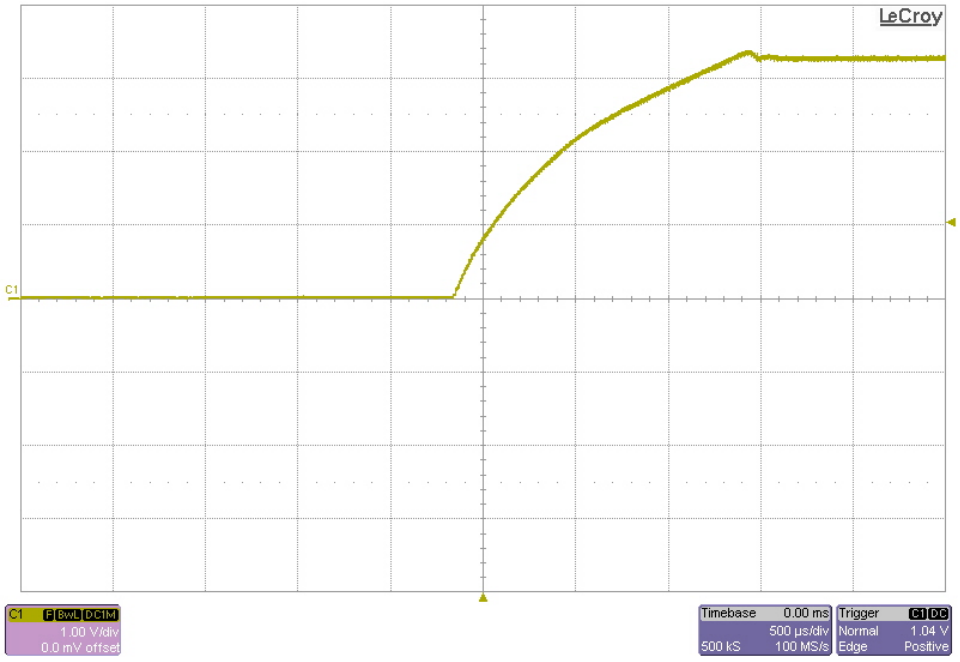
3.2 60Vin



4 Startup

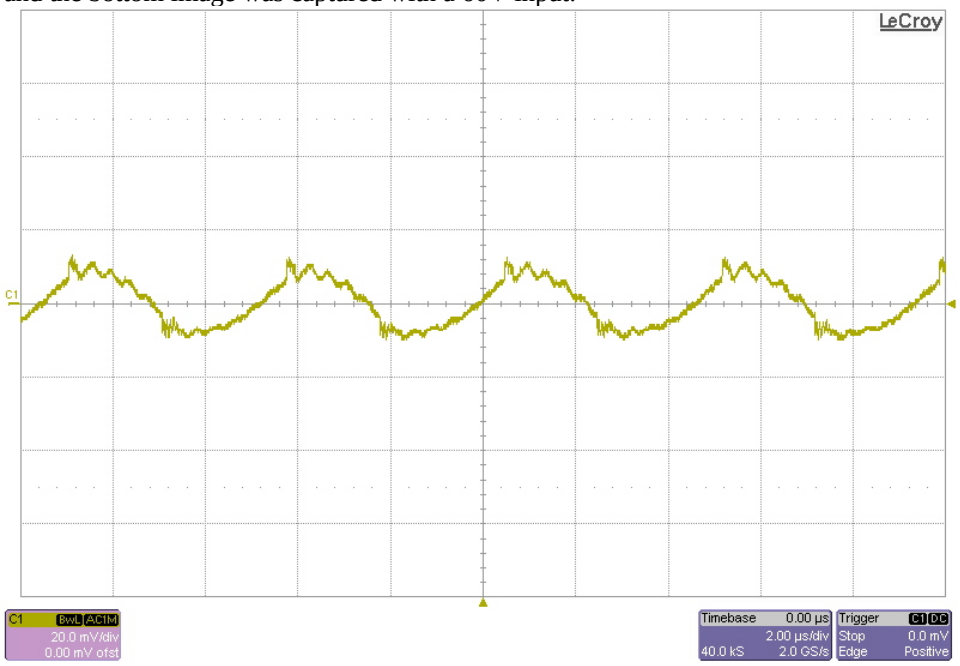
The output voltage at startup is shown in the images below. The top image was captured with an 18V input, and the bottom image was captured with a 60V input. The output was unloaded for both images.

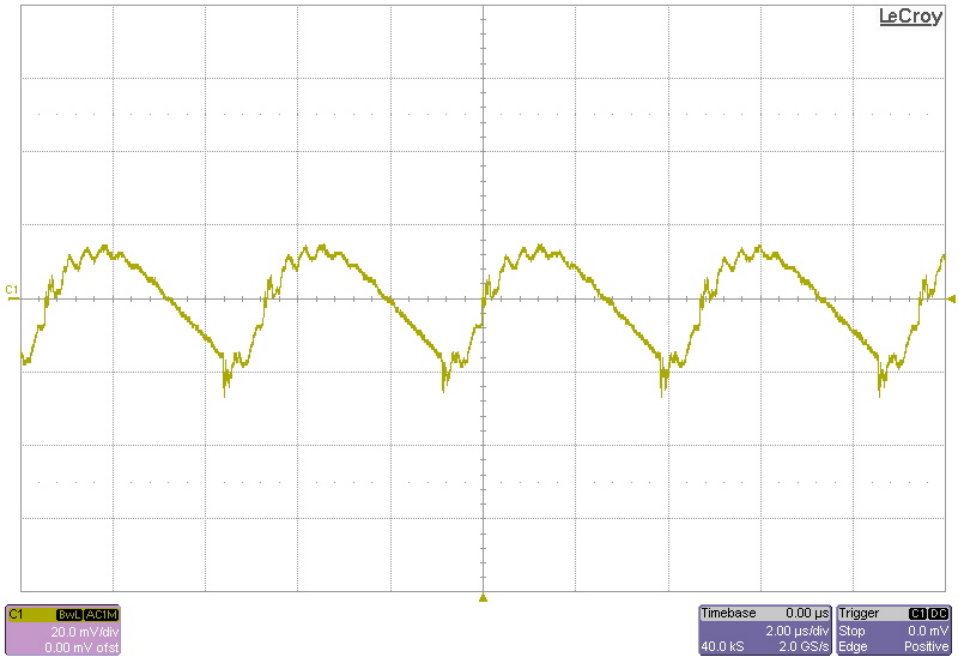




5 Output Ripple Voltage

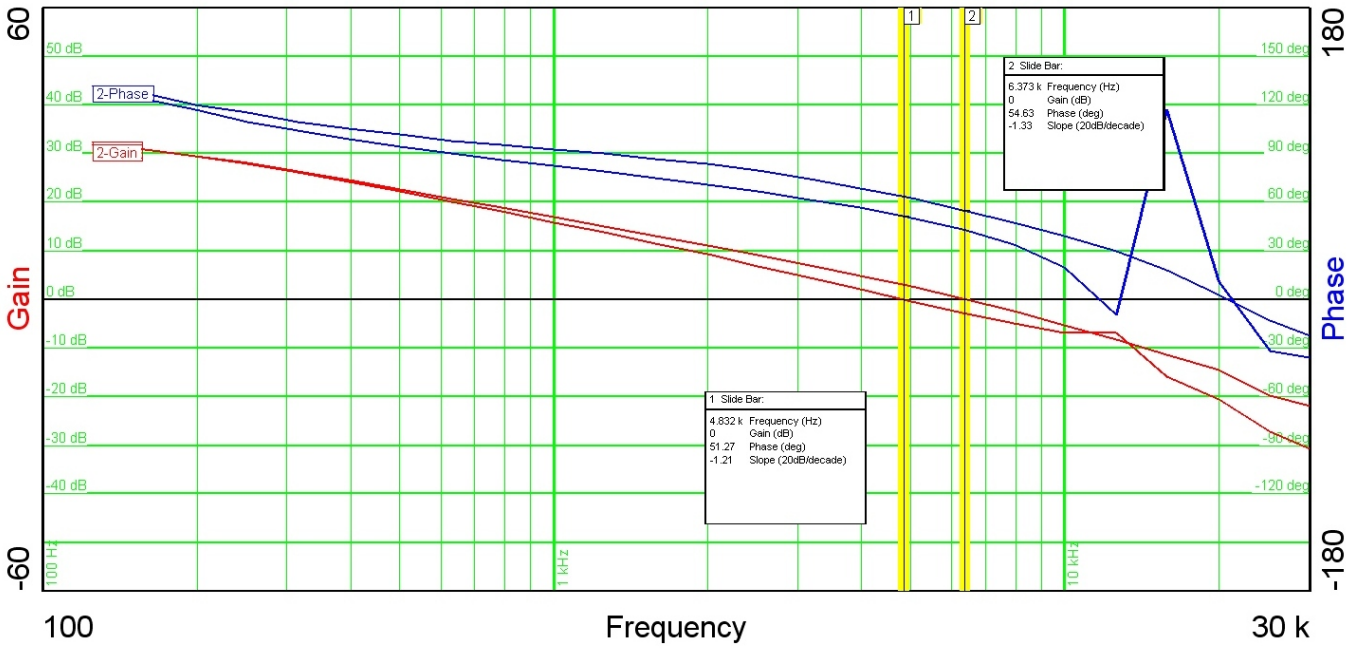
The output ripple voltage during full load operation (25A load) is shown in the images below. The top image was captured with an 18V input, and the bottom image was captured with a 60V input.





6 Loop Response

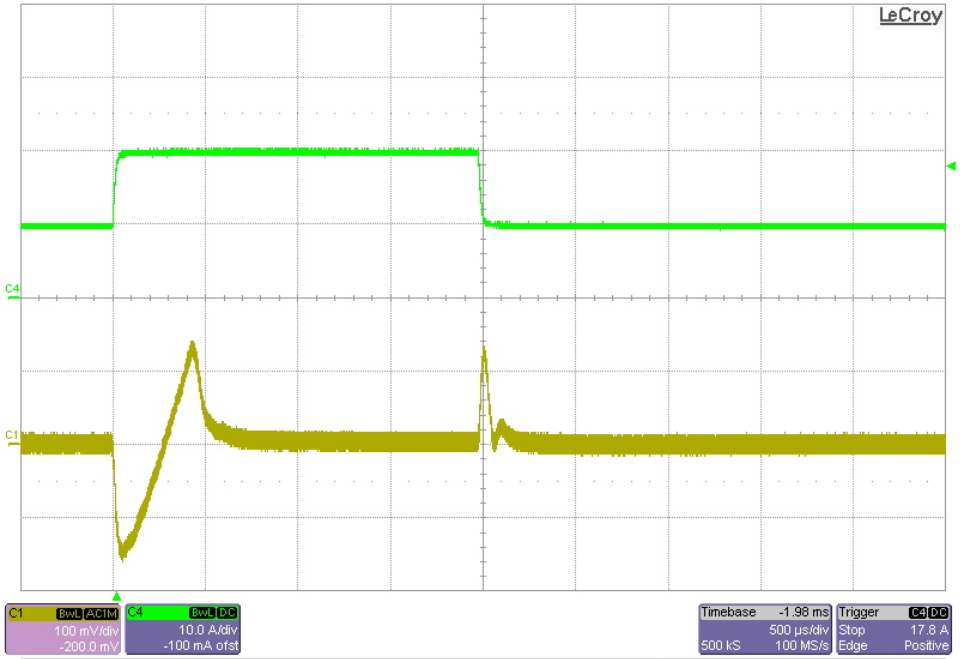
The image below shows the loop response of the converter. For plot #1, the input was 18Vdc. For plot #2, the input was 60Vdc. The output was loaded with 25A. The measurement was made by injecting across R24 (50 ohms).

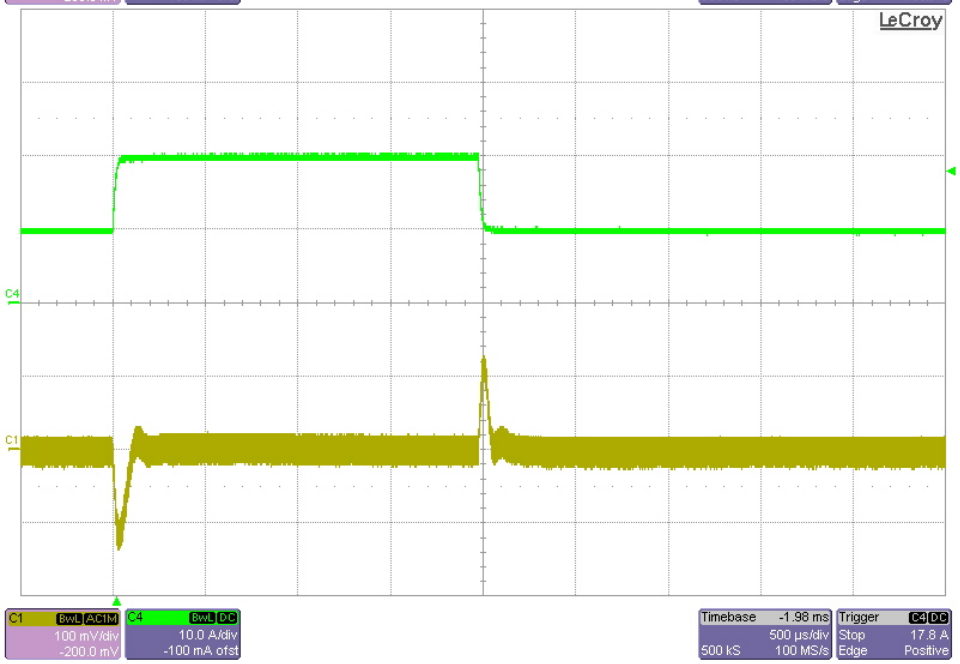


7 Load Transients

The images below show the response to a 10A to 20A load transient. For the top image, the input voltage was set to 18VDC. For the bottom image, the input voltage was set to 60VDC.

Channel 1: Vout (ac coupled) 100mV/div Channel 4: Iout 10A/div

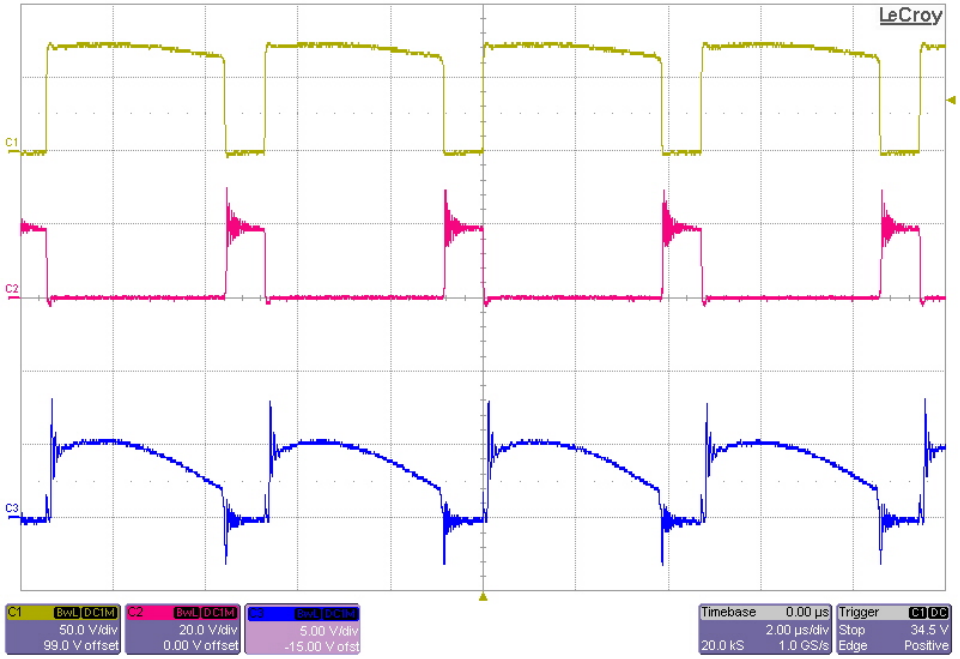


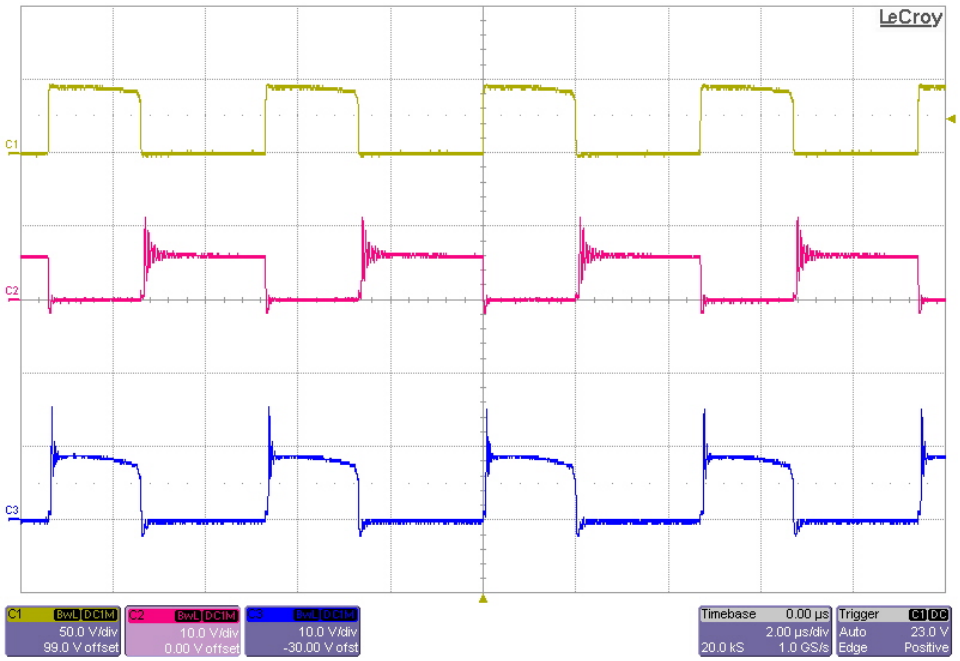


8 Switching Waveforms

The images below show the drain-to-source voltage waveforms on the switching MOSFETs. The output was loaded with 25A. For the top image, the input was set to 18V. For the bottom image, the input was set to 60V.

Channel 1: Q1 & Q2 Vds Channel 2: Q4 & Q5 Vds
Channel 3: Q6 & Q7 Vds





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