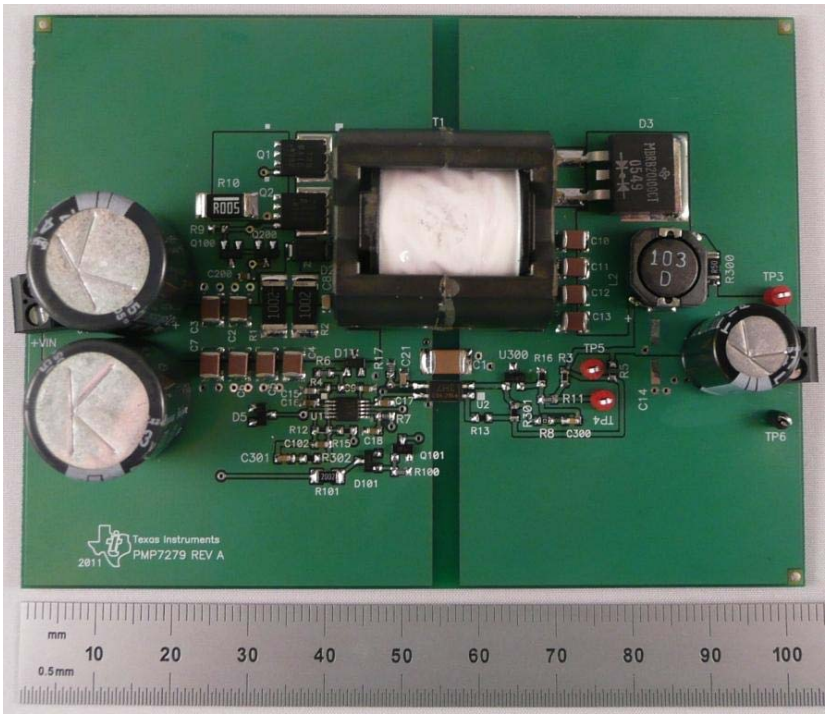
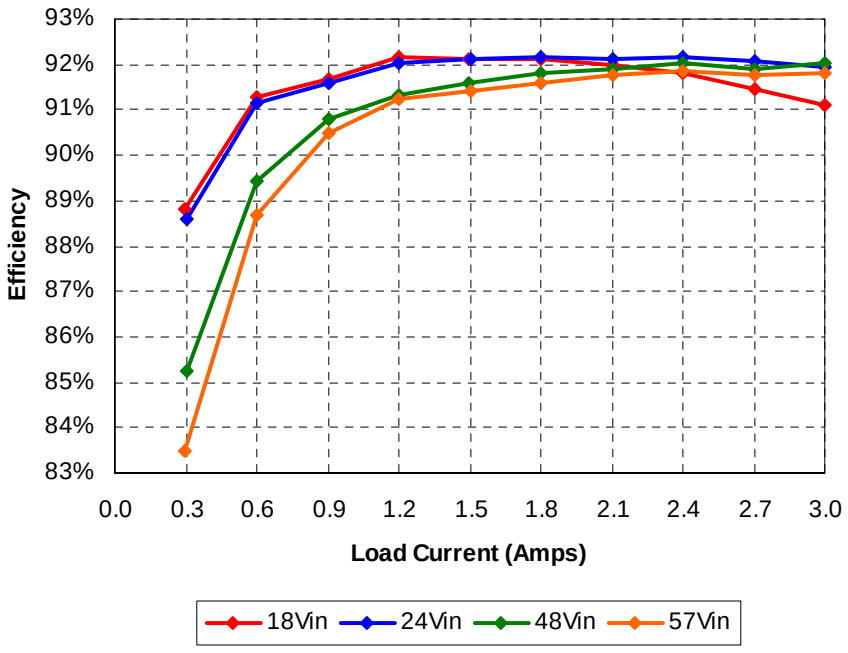
1 Photo

The photograph below shows the PMP7279 Rev A demo board.



2 Efficiency

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

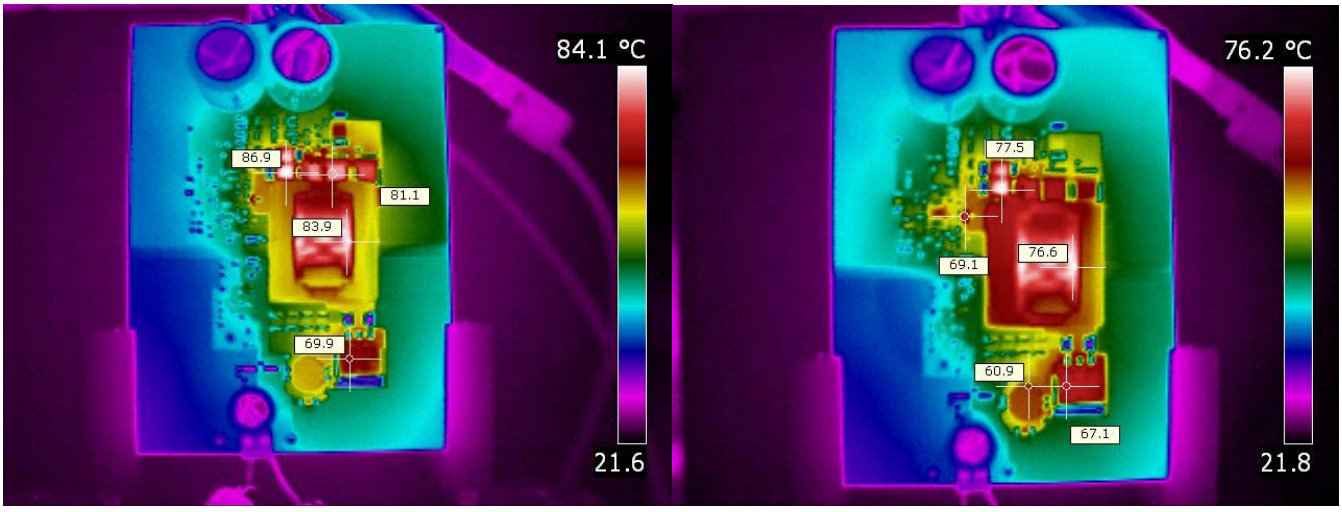


Vin	Iin	Iout	Vout	Pout	Losses	Efficiency	Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
18.06	0.026	0.000	24.17	0.00	0.470	0.0%	24.01	0.019	0.000	24.19	0.00	0.456	0.0%
18.00	0.449	0.297	24.17	7.18	0.904	88.8%	24.01	0.341	0.300	24.18	7.25	0.933	88.6%
17.97	0.884	0.600	24.17	14.50	1.383	91.3%	24.00	0.662	0.599	24.18	14.48	1.404	91.2%
18.00	1.318	0.900	24.17	21.75	1.971	91.7%	23.99	0.990	0.900	24.17	21.75	1.997	91.6%
17.94	1.753	1.199	24.17	28.98	2.469	92.1%	24.00	1.313	1.200	24.17	29.00	2.508	92.0%
17.99	2.185	1.498	24.17	36.21	3.101	92.1%	24.00	1.640	1.500	24.17	36.26	3.105	92.1%
18.00	2.622	1.799	24.17	43.48	3.714	92.1%	24.00	1.966	1.799	24.17	43.48	3.702	92.2%
18.02	3.062	2.100	24.17	50.76	4.420	92.0%	24.01	2.295	2.100	24.17	50.76	4.346	92.1%
18.01	3.511	2.401	24.18	58.06	5.177	91.8%	24.00	2.623	2.399	24.18	58.01	4.944	92.1%
18.00	3.966	2.700	24.18	65.29	6.102	91.5%	24.00	2.955	2.700	24.18	65.29	5.634	92.1%
18.00	4.424	3.001	24.18	72.56	7.068	91.1%	24.00	3.286	2.999	24.18	72.52	6.348	92.0%

Vin	Iin	Iout	Vout	Pout	Losses	Efficiency	Vin	Iin	Iout	Vout	Pout	Losses	Efficiency
47.98	0.017	0.000	24.19	0.00	0.816	0.0%	57.01	0.018	0.000	24.19	0.00	1.026	0.0%
47.96	0.178	0.301	24.18	7.28	1.259	85.3%	56.99	0.152	0.299	24.19	7.23	1.430	83.5%
47.99	0.338	0.600	24.18	14.51	1.713	89.4%	57.00	0.287	0.600	24.18	14.51	1.851	88.7%
48.00	0.500	0.901	24.18	21.79	2.214	90.8%	56.98	0.422	0.900	24.18	21.76	2.284	90.5%
48.00	0.661	1.199	24.17	28.98	2.748	91.3%	56.99	0.558	1.200	24.18	29.02	2.784	91.2%
48.01	0.824	1.499	24.17	36.23	3.329	91.6%	57.00	0.696	1.500	24.18	36.27	3.402	91.4%
48.02	0.987	1.800	24.17	43.51	3.890	91.8%	56.98	0.834	1.800	24.18	43.52	3.997	91.6%
48.02	1.150	2.100	24.17	50.76	4.466	91.9%	56.99	0.971	2.100	24.18	50.78	4.559	91.8%
47.99	1.314	2.400	24.18	58.03	5.027	92.0%	56.97	1.109	2.400	24.18	58.03	5.148	91.9%
47.97	1.481	2.700	24.18	65.29	5.758	91.9%	56.97	1.249	2.700	24.18	65.29	5.870	91.8%
48.00	1.642	3.000	24.18	72.54	6.276	92.0%	57.00	1.386	3.000	24.18	72.54	6.462	91.8%

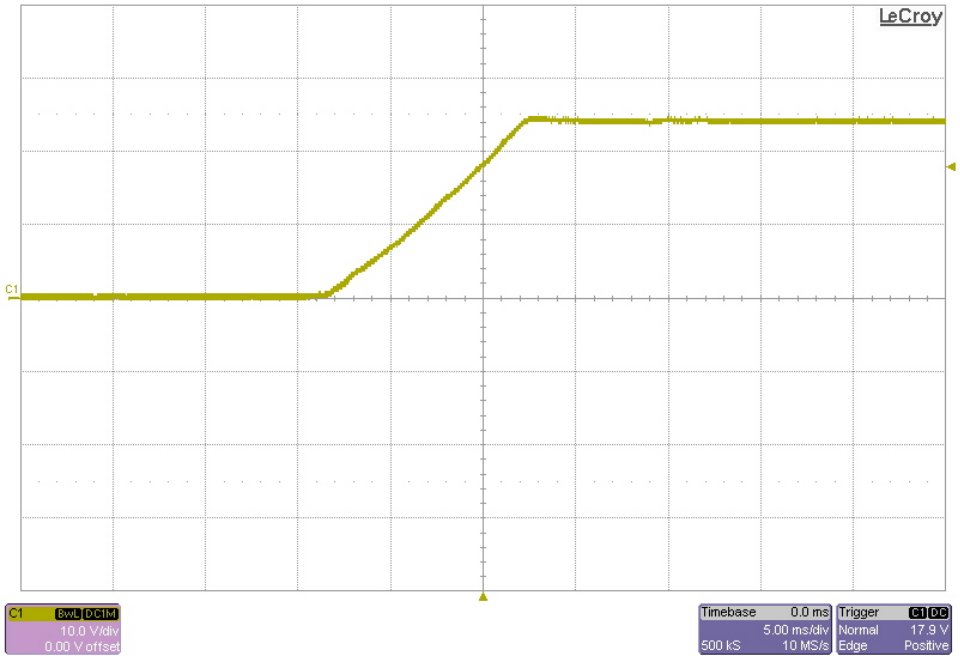
3 Thermal Images

The thermal images below show the board with an 18VDC input (left) and 57VDC input (right). The ambient temperature was 25C with no forced air flow. The output was loaded with 3A.

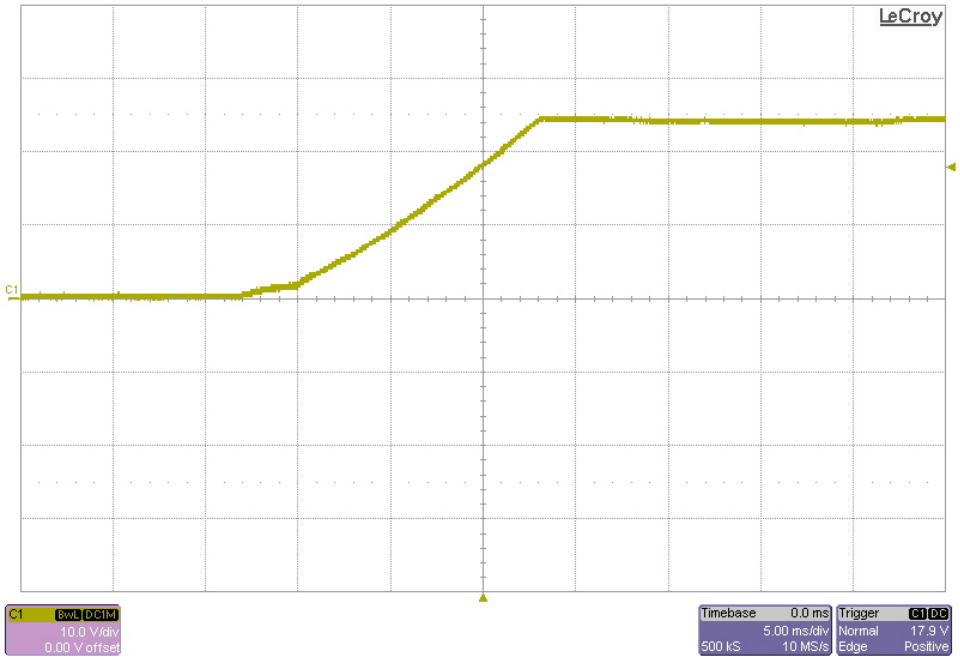


4 Startup

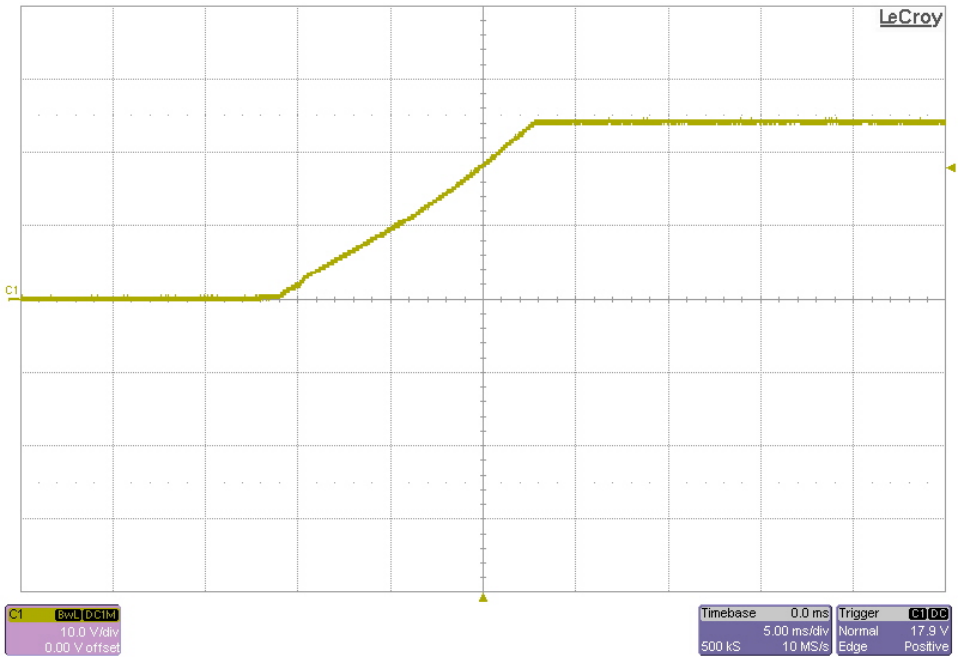
4.1 18V Input – No Load



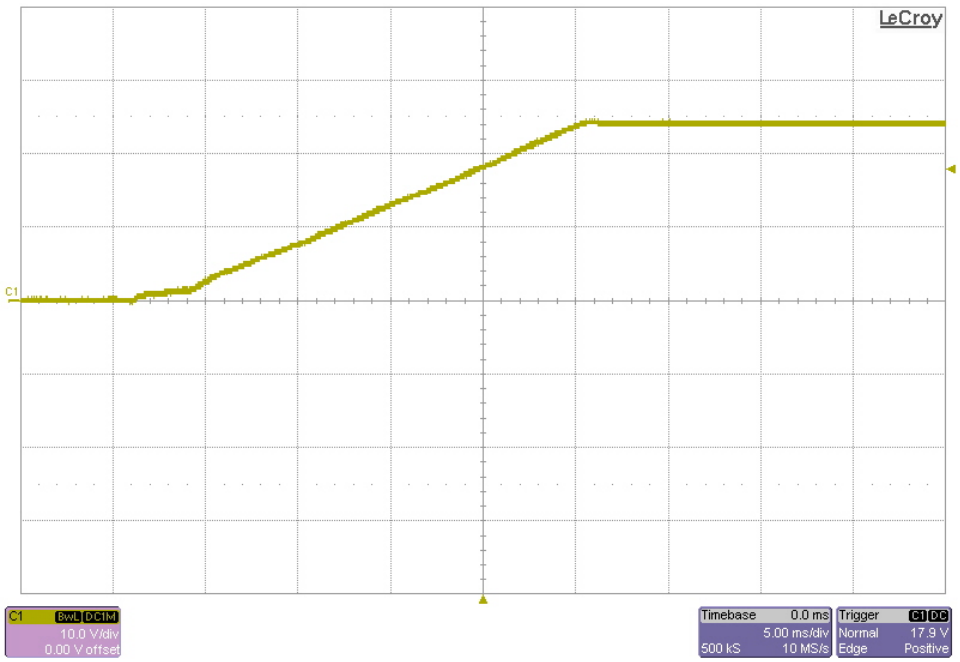
4.2 57V Input – No Load



4.3 18V Input – 12Ω Load



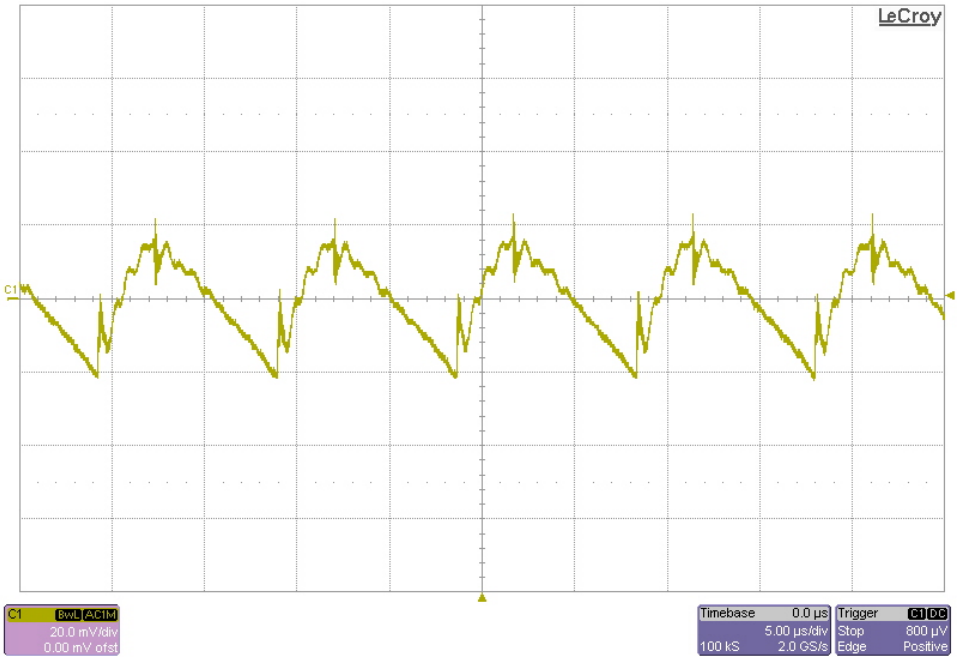
4.4 57V Input – 12Ω Load



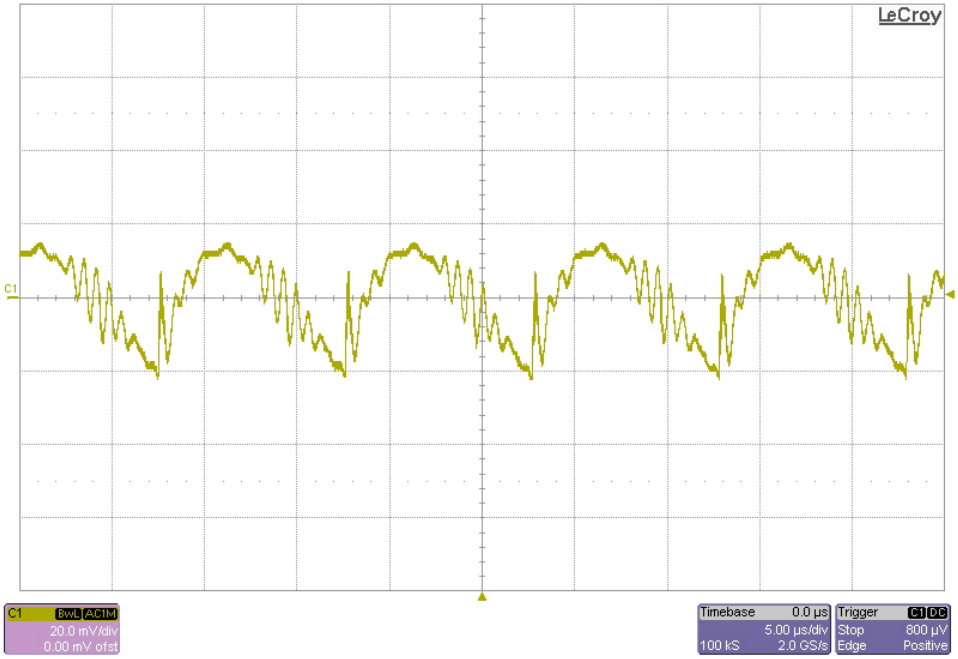
5 Output Ripple Voltage

The output ripple voltage is shown in the plots below. The output was loaded with 3A.

5.1 18V Input



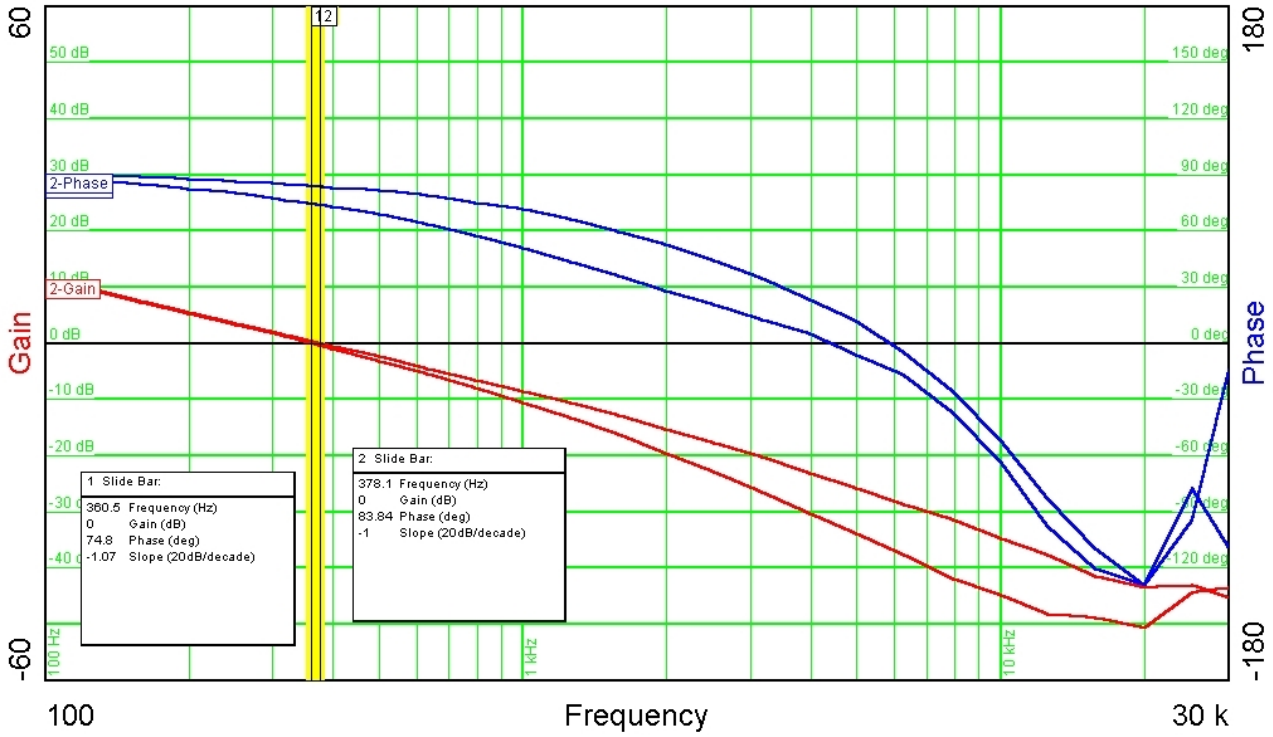
5.2 57V Input



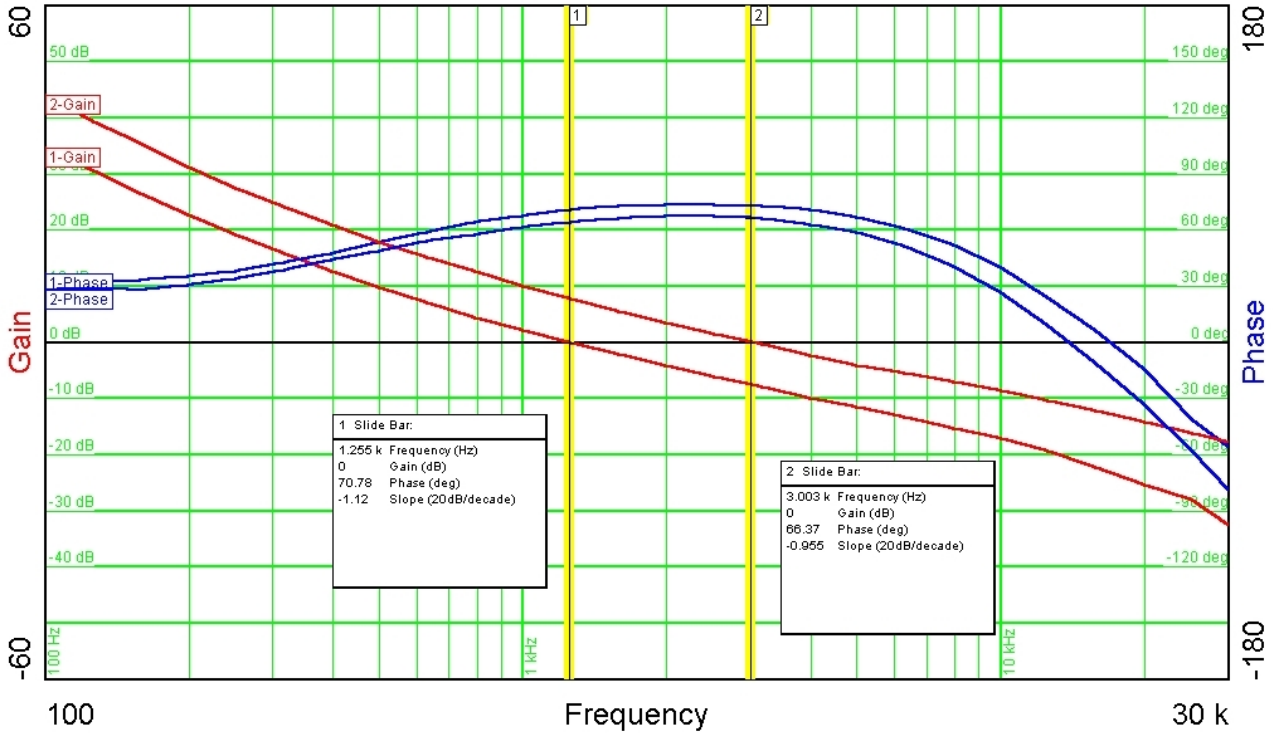
6 Frequency Response

The frequency response of the feedback loop is shown below. For the gain/phase plot #1, the input was set to 57V. For the gain/phase plot #2, the input was set to 18V. The output was loaded with 3A.

6.1 Loop Broken At R3



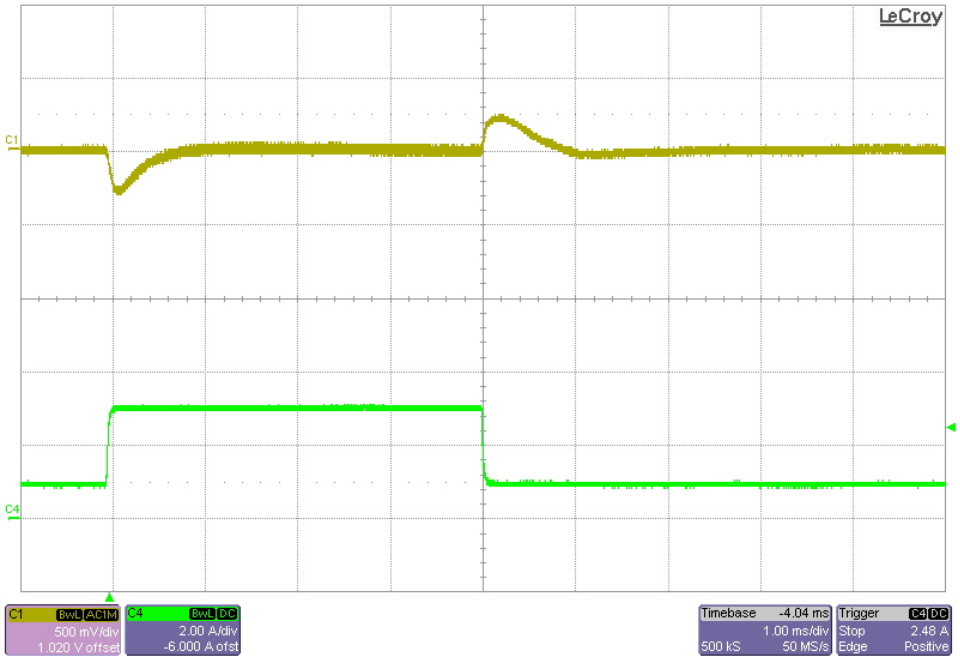
6.2 Loop Broken At R5



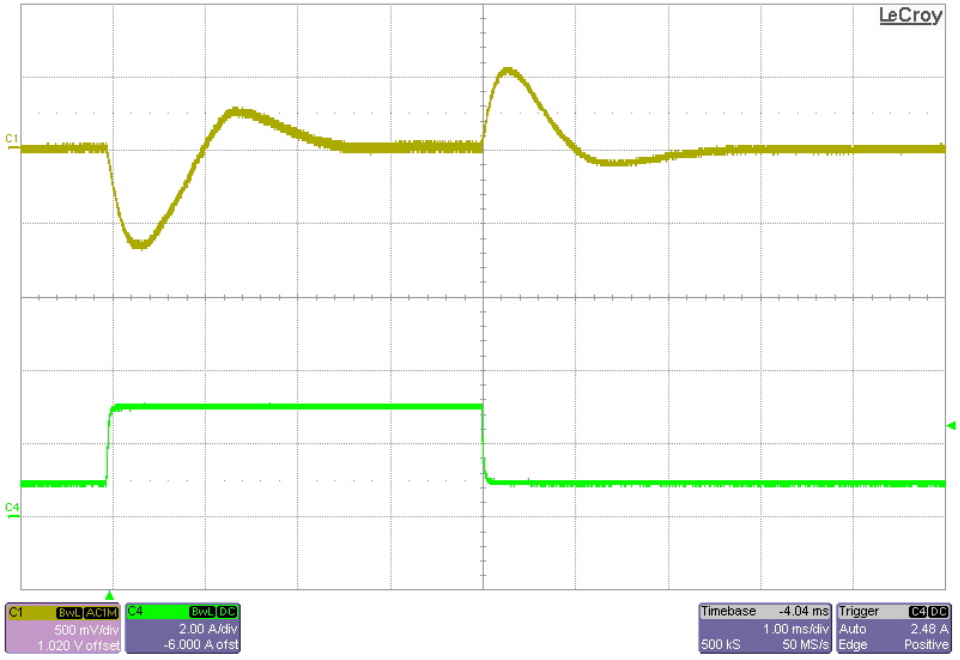
7 Load Transients

The response to a load step from 1A to 3A is shown in the images below. Channel 1: Vout 500mV/div (ac coupled); Channel 4: Iout 2A/div

7.1 18V Input

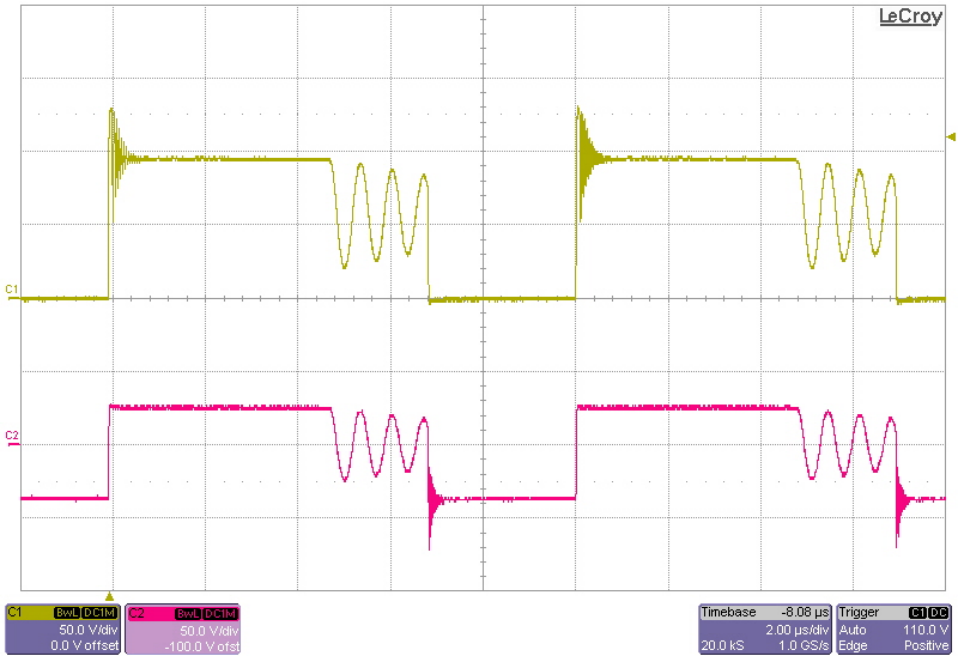


7.2 57V Input



8 Switching Waveforms

The image below shows voltage waveforms on the power devices in the supply. The output was loaded with 3A and the input voltage was 57V. Channel 1: Q2 & Q200 Vds; Channel 2: anode of D3.



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