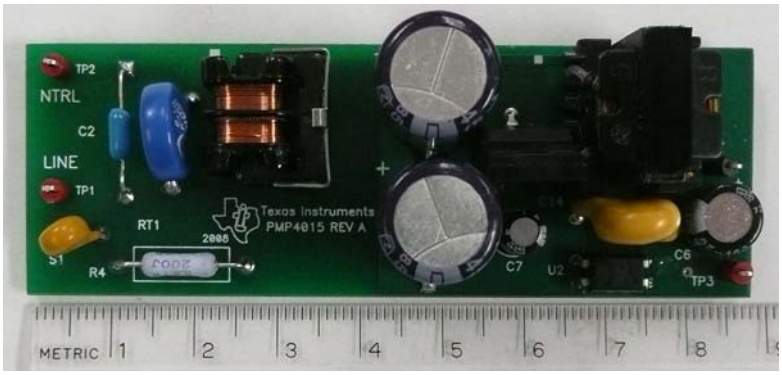
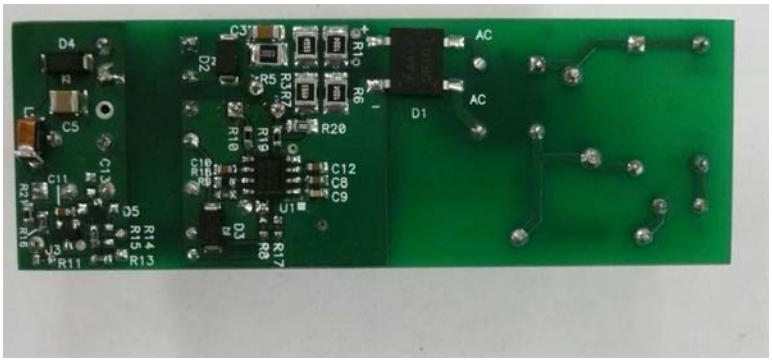
1 Photo

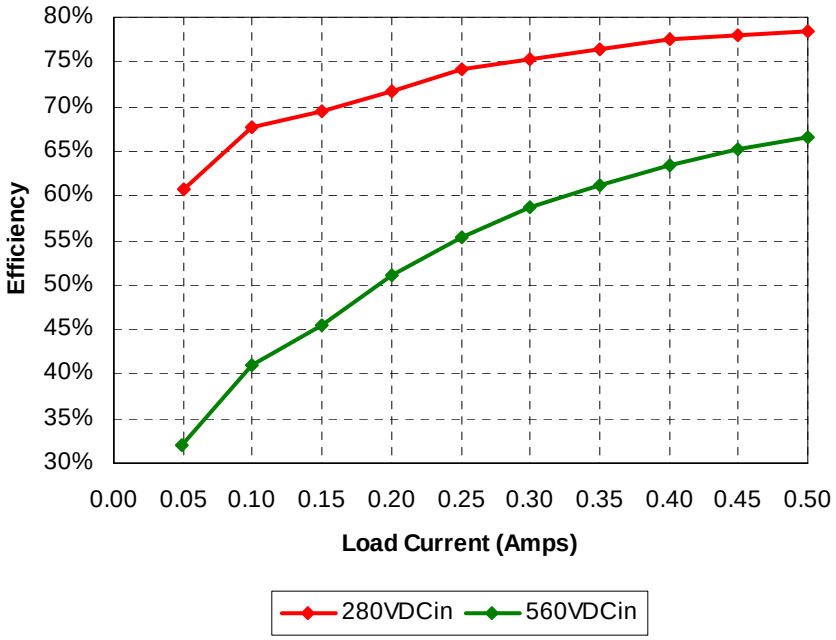
The photographs below show the top and bottom views of the PMP5801 Rev B demo board. This circuit was built on a PMP4015 Rev A PCB.





2 Efficiency

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



280VDC

Iout	Vout	Vin	Iin (mA)	Pin	Pout	Losses	Efficiency
0.050	12.00	282.3	3.50	0.99	0.60	0.39	60.7%
0.099	12.00	282.3	6.22	1.76	1.19	0.57	67.7%
0.150	12.00	282.2	9.18	2.59	1.80	0.79	69.5%
0.200	12.00	282.2	11.86	3.35	2.40	0.95	71.7%
0.250	12.00	282.2	14.34	4.05	3.00	1.05	74.1%
0.300	12.00	282.2	16.95	4.78	3.60	1.18	75.3%
0.350	12.00	282.2	19.50	5.50	4.20	1.30	76.3%
0.400	12.00	282.2	21.96	6.20	4.80	1.40	77.5%
0.450	12.00	282.2	24.53	6.92	5.40	1.52	78.0%
0.500	12.00	282.2	27.09	7.64	6.00	1.64	78.5%

560VDC

Iout	Vout	Vin	Iin (mA)	Pin	Pout	Losses	Efficiency
0.049	12.00	562	3.27	1.84	0.59	1.25	32.0%
0.100	12.00	562	5.21	2.93	1.20	1.73	41.0%
0.150	12.00	562	7.03	3.95	1.80	2.15	45.6%
0.200	12.00	562	8.37	4.70	2.40	2.30	51.0%
0.250	12.00	562	9.64	5.42	3.00	2.42	55.4%
0.300	12.00	562	10.92	6.14	3.60	2.54	58.7%
0.350	12.00	562	12.23	6.87	4.20	2.67	61.1%
0.400	12.00	562	13.46	7.56	4.80	2.76	63.5%
0.450	12.00	562	14.75	8.29	5.40	2.89	65.1%
0.500	12.00	562	16.02	9.00	6.00	3.00	66.6%

3 Standby Mode Power Consumption

The tables below show the input power and efficiency during light load operation.

280VDC

Iout	Vout	Vin	Iin (mA)	Pin	PF	Pout	Losses
0.000	12.02	115.6	4.4	0.12	0.24	0.00	0.12
0.025	12.01	115.6	13.6	0.55	0.35	0.30	0.25
0.047	12.01	115.6	19.9	0.85	0.37	0.56	0.29

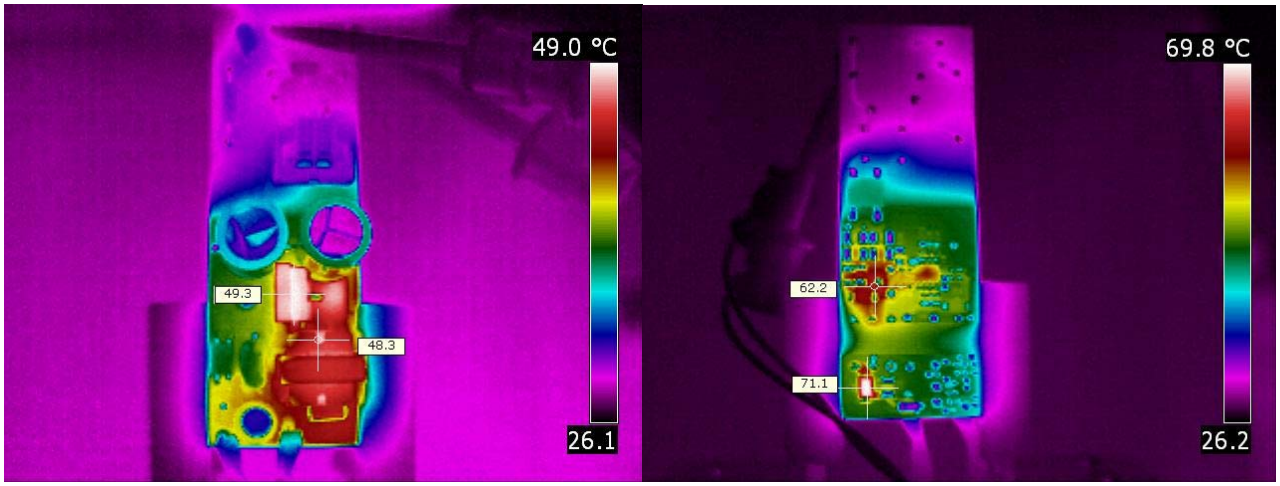
560VDC

Iout	Vout	Vin	Iin (mA)	Pin	Pout	Losses	Efficiency
0.000	12.00	562.0	1.07	0.60	0.00	0.60	0.0%
0.010	12.00	562.0	1.55	0.87	0.12	0.75	13.8%
0.025	12.00	562.0	2.20	1.24	0.30	0.94	24.3%

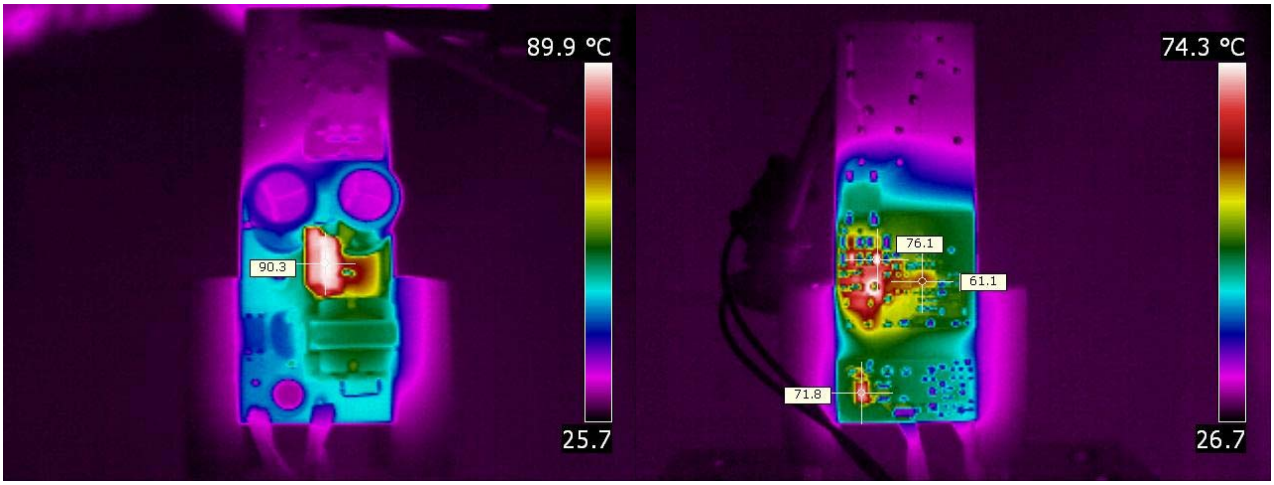
4 Thermal Images

The thermal images below show a top view (left) and bottom view (right) of the board. The ambient temperature was 26ºC with no forced air flow. The output was loaded with 0.5A.

4.1 280VDC Input

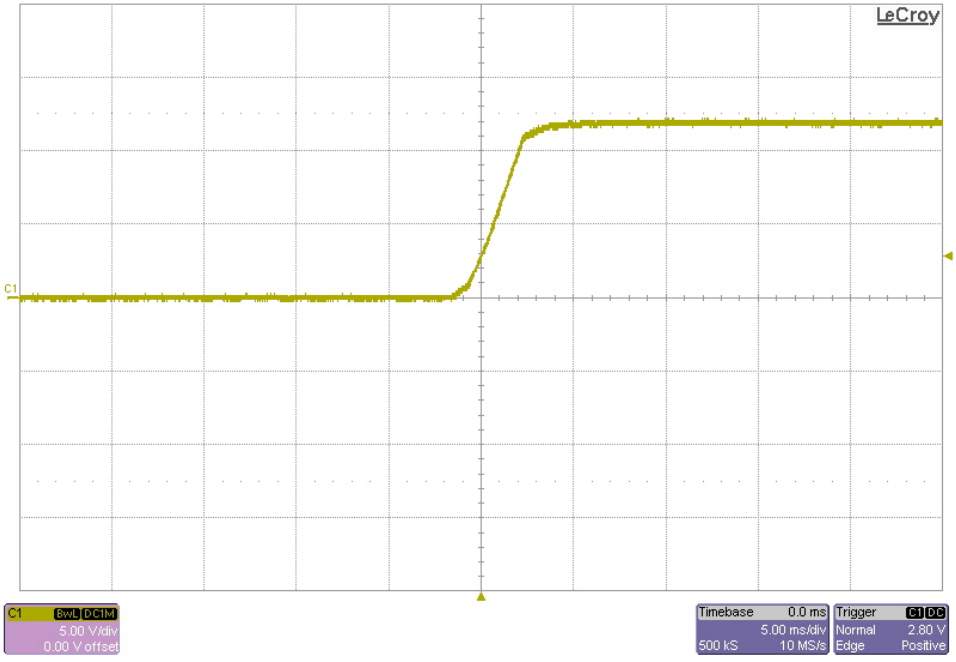


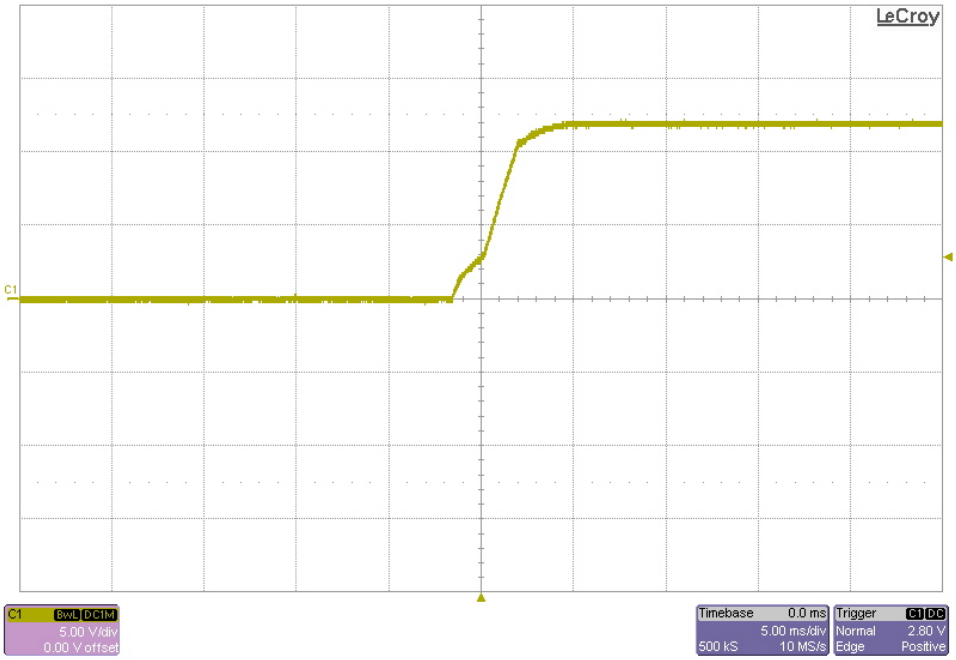
4.2 560VDC Input



5 Startup – No Load

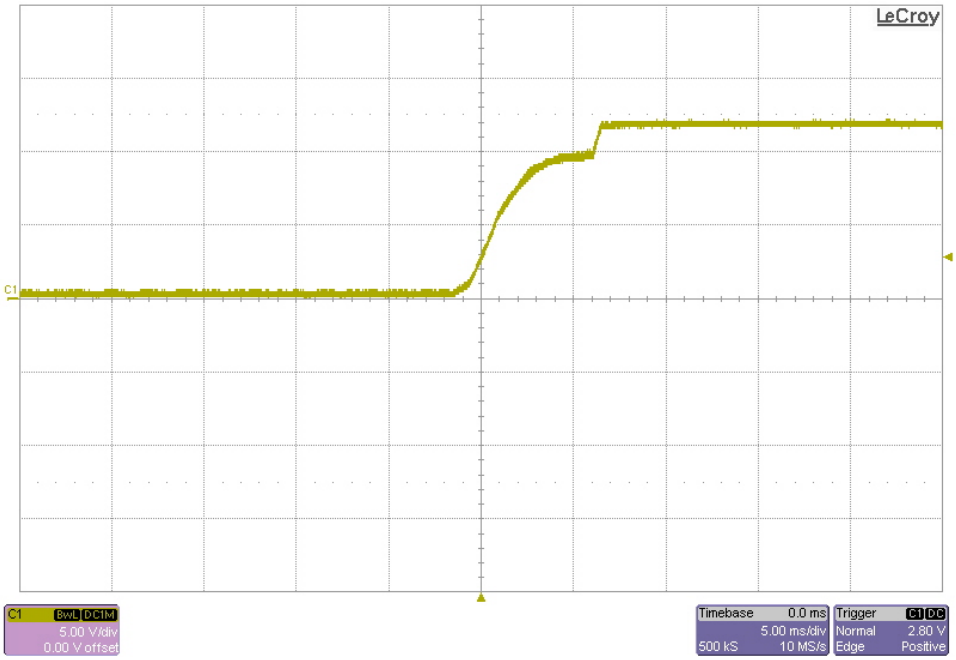
The output voltage at startup with no load on the output is shown in the images below. For the top image, the input was 280VDC. For the bottom image, the input was 560VDC.

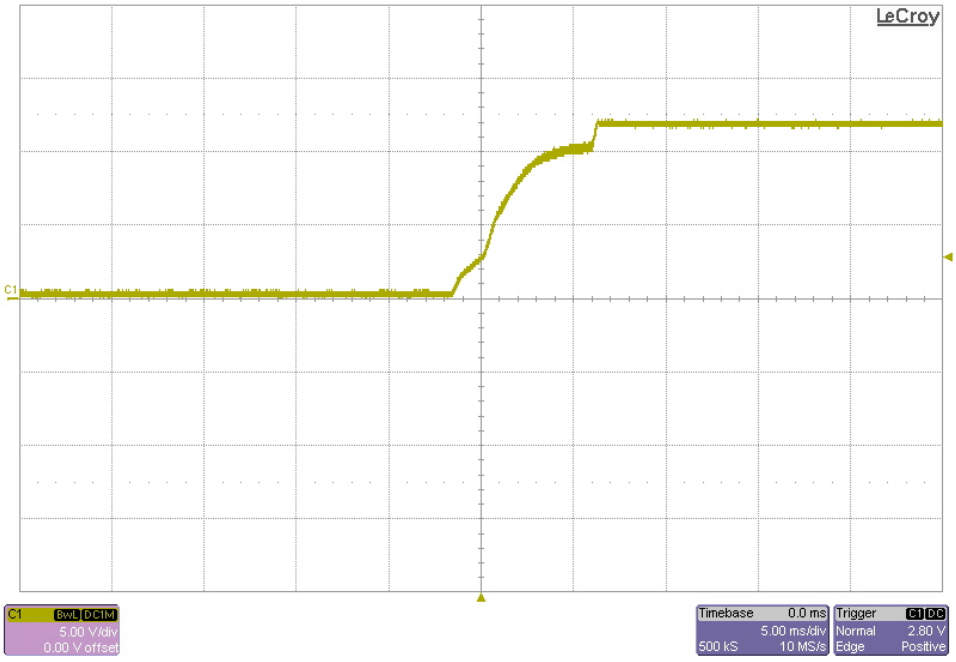




6 Startup – Full Load

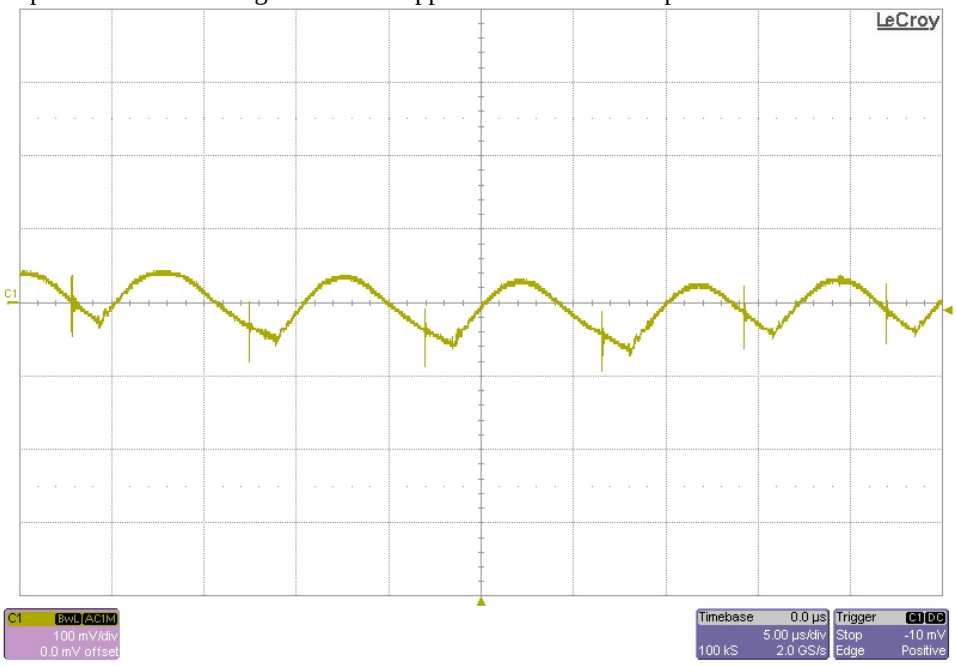
The output voltage at startup with 0.5A on the output is shown in the images below. For the top image, the input was 280VDC. For the bottom image, the input was 560VDC.

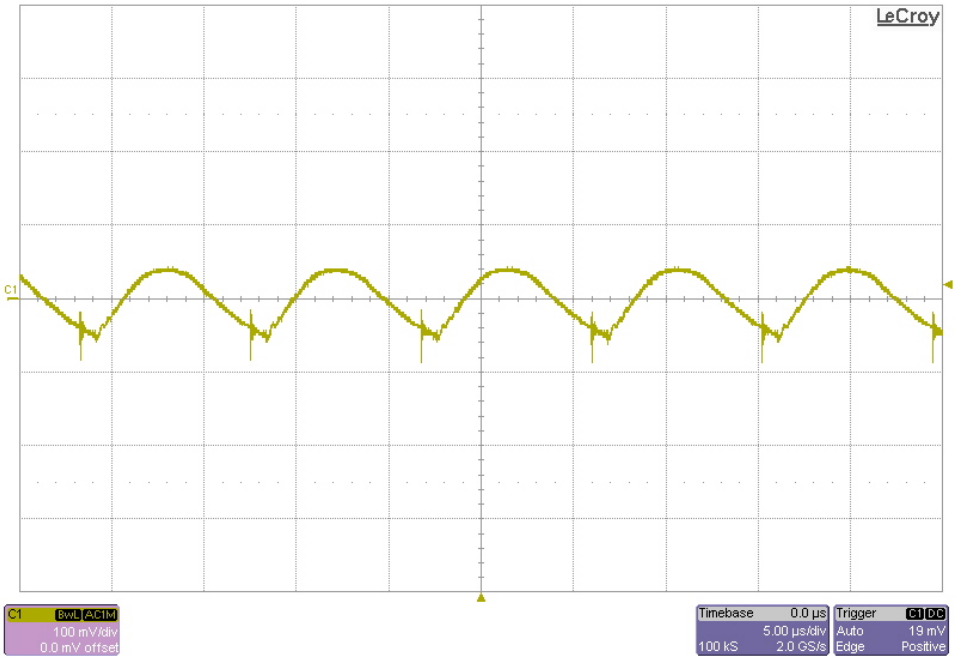




7 Output Ripple Voltage – Full Load

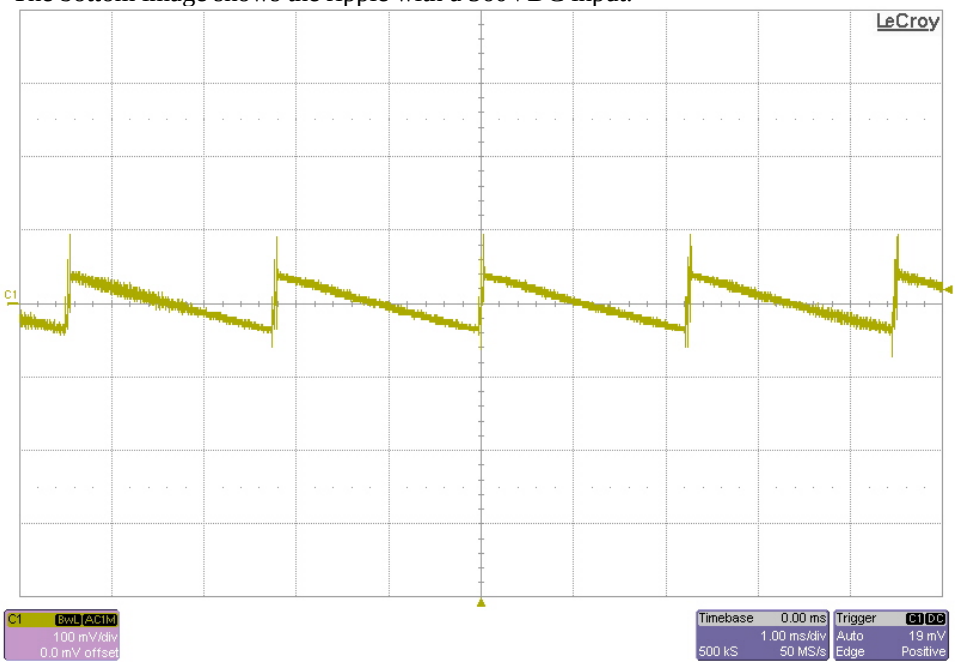
The output ripple voltage during full load (0.5A) operation is shown in the plots below. The top image shows the ripple with a 280VDC input. The bottom image shows the ripple with a 560VDC input.

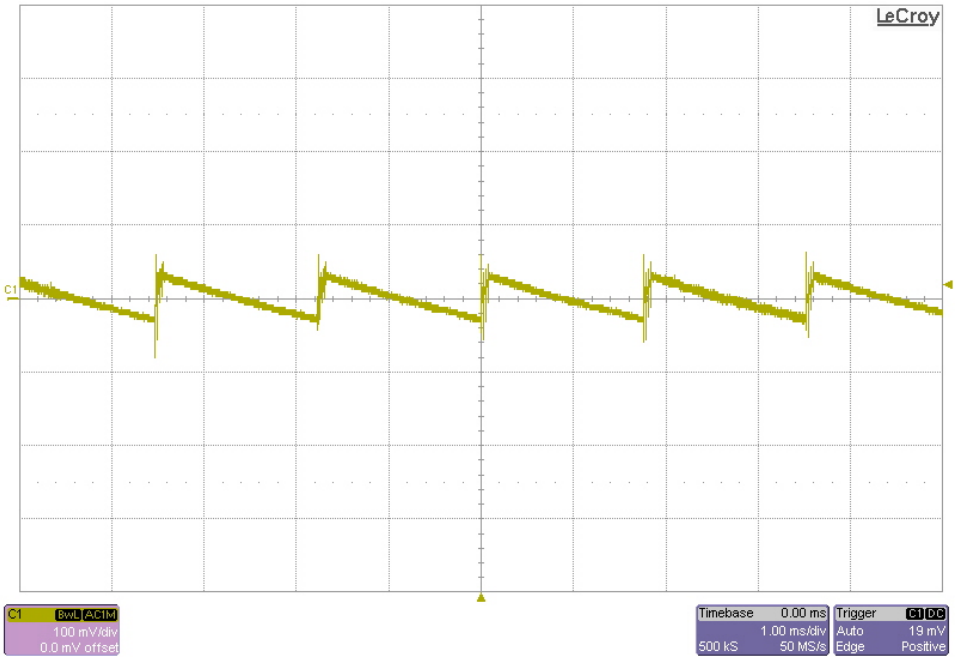




8 Output Ripple Voltage – No Load

The output ripple voltage during no load operation is shown in the plots below. The top image shows the ripple with a 280VDC input. The bottom image shows the ripple with a 560VDC input.

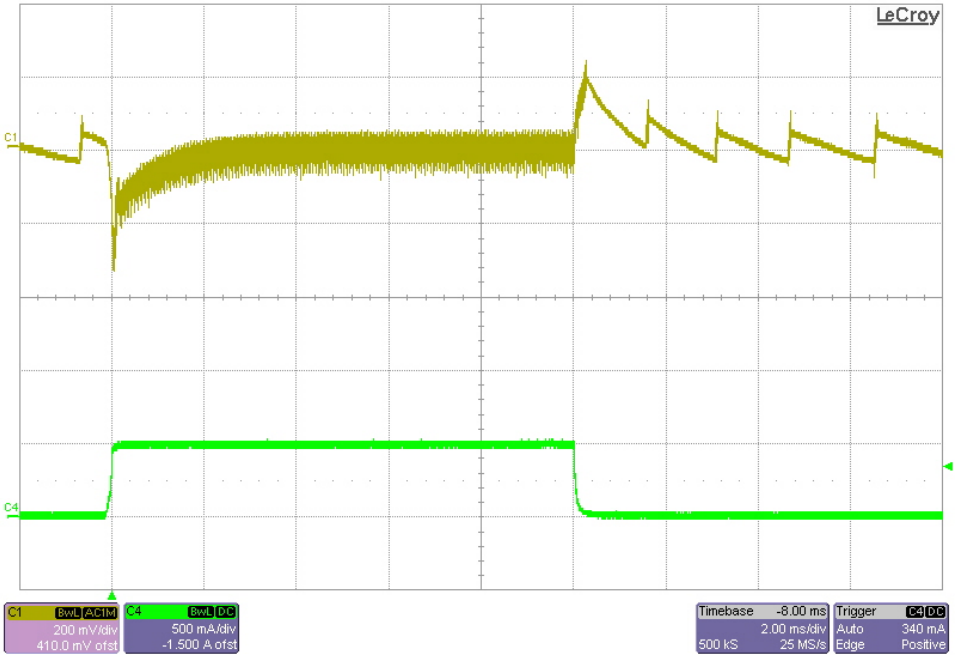


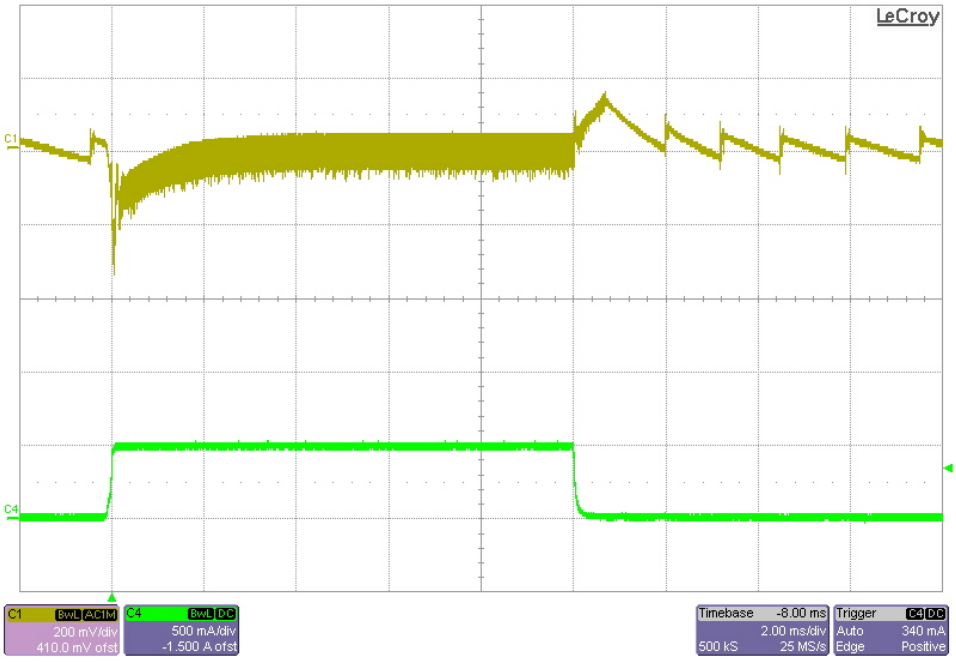


9 Load Transients

The images below show the response to a 0A to 0.5A load transient. For the top image, the input voltage was set to 280VDC. For the bottom image, the input was set to 560VDC.

Channel 1: Vout (ac coupled) 200mV/div Channel 4: Iout 500mA/div




LeCroy
C1
C4
C1 BwL ACTM
200 mV/div
410.0 mV ofst
C4 BwL DC
500 mA/div
-1.500 A ofst
Timebase -8.00 ms
2.00 ms/div
500 kS 25 MS/s
Trigger C4 DC
Auto 340 mA
Edge Positive

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