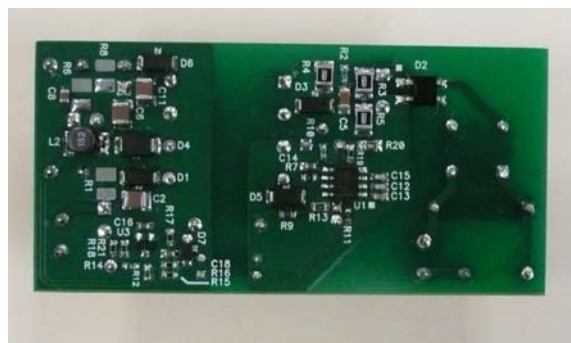


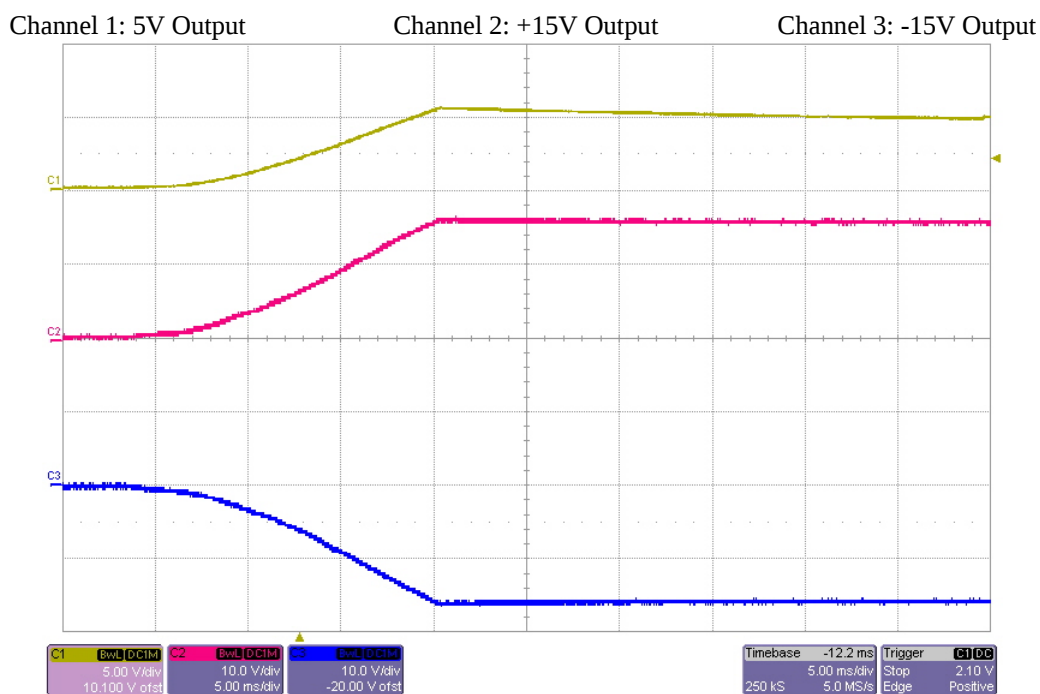
1 Photo

The photographs below show the top and bottom views of the PMP4017 Rev B demo board. The circuit is built on a PMP4017 Rev A PWB.



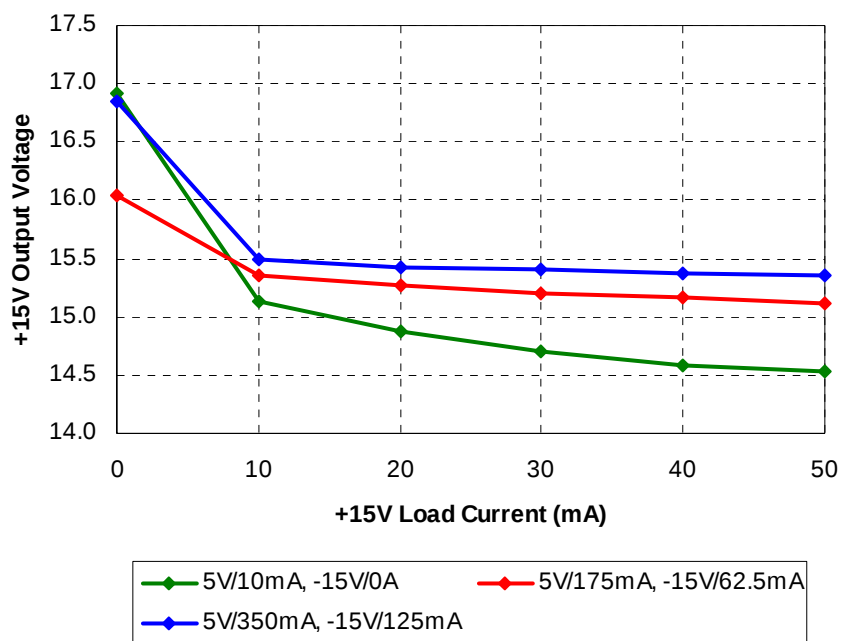
2 Startup

The output voltages at startup are shown in the image below. The input was 150VDC and all outputs were unloaded.



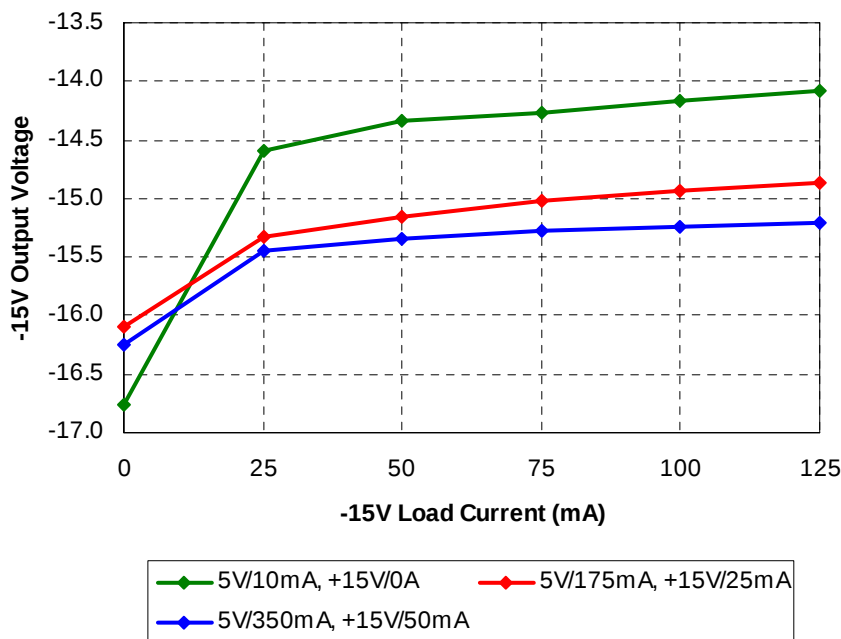
3 +15V Cross-Regulation

The chart below plots the +15V output voltage versus +15V load current for different loading conditions on the 5V and -15V outputs.



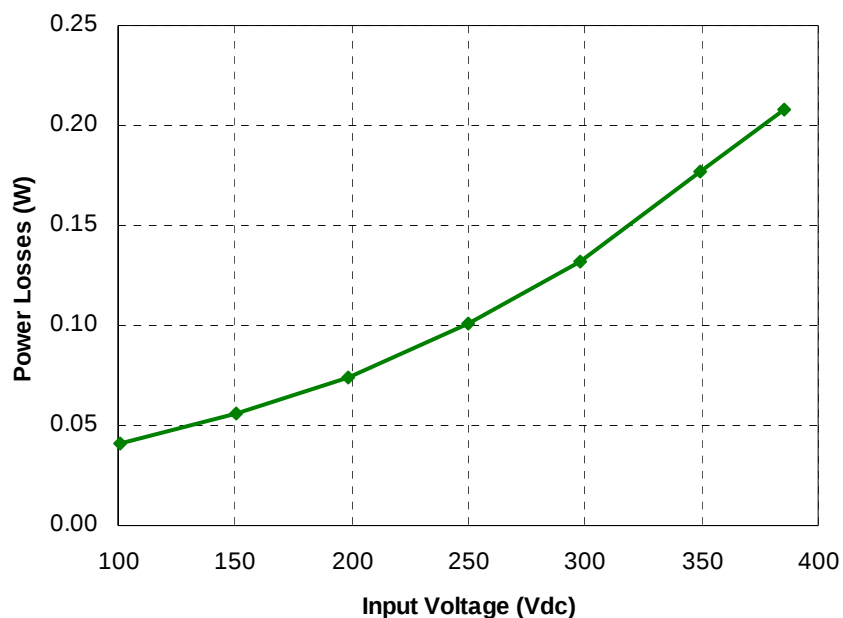
4 -15V Cross-Regulation

The chart below plots the -15V output voltage versus -15V load current for different loading conditions on the 5V and +15V outputs.



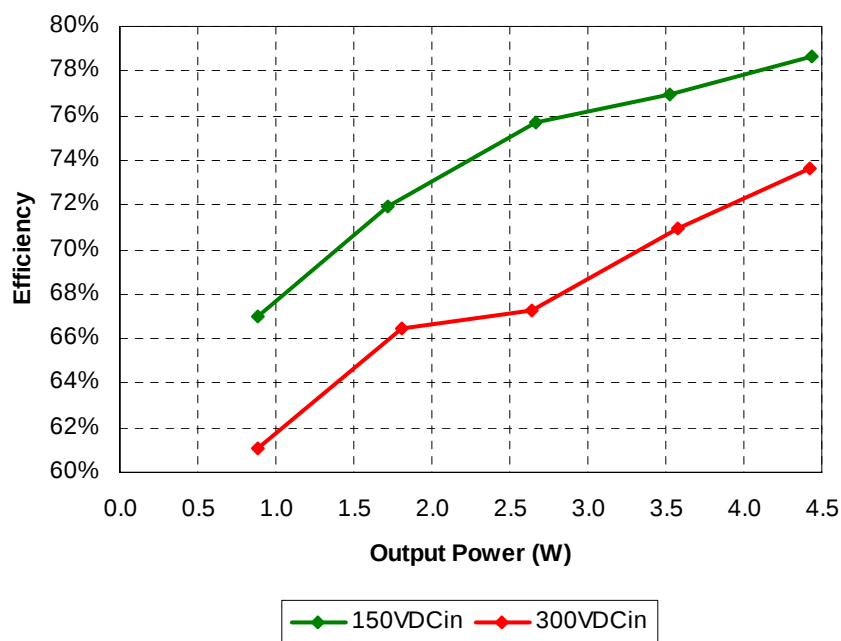
5 No-Load Power Consumption

The input power drawn by the power supply with no external loading is shown in the graph below. A DC input was used for accuracy.



6 Efficiency

The efficiency data is shown in the tables and graph below. A DC input voltage was used for the sake of accuracy and ease of measurement. The input power was measured on TP1 and TP4, and losses in the diode bridge (D1) are included in measured results.

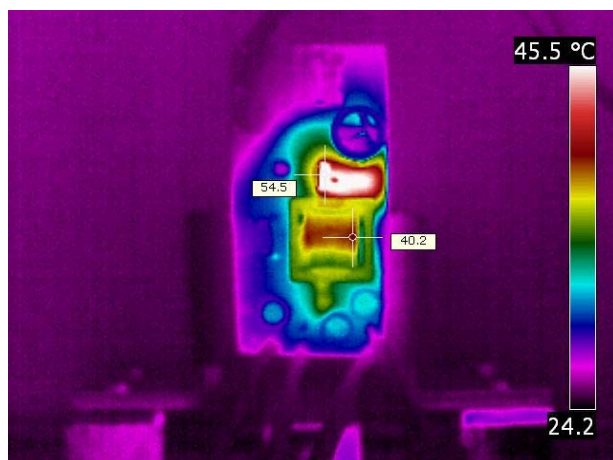


5V Output		+15V Output		-15V Output		Pout	Vin	Iin (mA)	Pin	Losses	Efficiency
Vout	Iout (A)	Vout	Iout (mA)	Vout	Iout (mA)						
4.99	0.000	16.45	0.00	-16.46	0.00	0.00	151.2	0.372	0.06	0.06	0.0%
4.99	0.070	15.55	9.60	-15.40	24.83	0.88	151.2	8.70	1.32	0.43	67.0%
4.99	0.140	15.26	17.87	-15.12	49.60	1.72	151.2	15.82	2.39	0.67	72.0%
4.99	0.210	15.23	29.86	-15.10	76.8	2.66	151.2	23.26	3.52	0.85	75.7%
4.99	0.279	15.27	40.1	-15.14	100.1	3.52	151.1	30.28	4.58	1.06	76.9%
4.99	0.350	15.35	51.2	-15.20	125.0	4.43	151.1	37.28	5.63	1.20	78.7%

5V Output		+15V Output		-15V Output		Pout	Vin	Iin (mA)	Pin	Losses	Efficiency
Vout	Iout (A)	Vout	Iout (mA)	Vout	Iout (mA)						
5.00	0.000	16.79	0.00	-16.85	0.00	0.00	299.8	0.442	0.13	0.13	0.0%
5.00	0.070	15.68	8.83	-15.51	25.15	0.88	299.8	4.80	1.44	0.56	61.0%
5.00	0.140	15.64	20.02	-15.48	51.4	1.81	299.8	9.08	2.72	0.91	66.4%
4.99	0.210	15.20	28.80	-15.06	76.6	2.64	299.8	13.09	3.92	1.29	67.3%
4.99	0.280	15.24	41.2	-15.10	102.6	3.57	299.8	16.80	5.04	1.46	71.0%
4.99	0.350	15.30	50.8	-15.16	125.6	4.43	299.8	20.05	6.01	1.58	73.7%

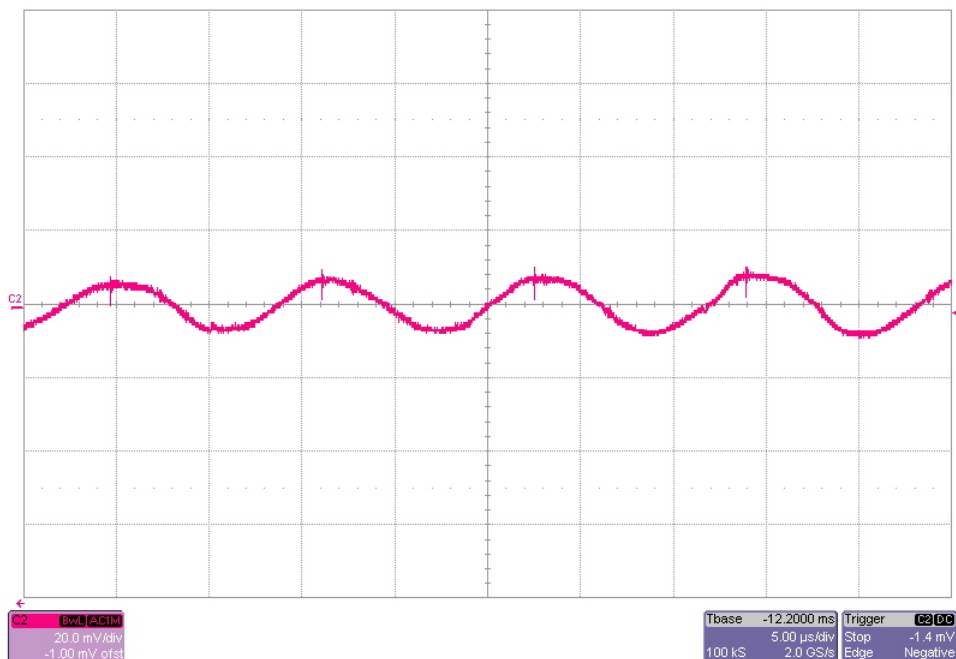
7 Thermal Image

The thermal images below show a top view (left) and bottom view (right) of the board. The ambient temperature was 26°C with no forced air flow. The input was 300VDC, and the output was loaded with 5V/350mA, +15V/50mA and -15V/125mA. The primary MOSFET (Q1) was the hottest component on the board and measured 54.5°C.



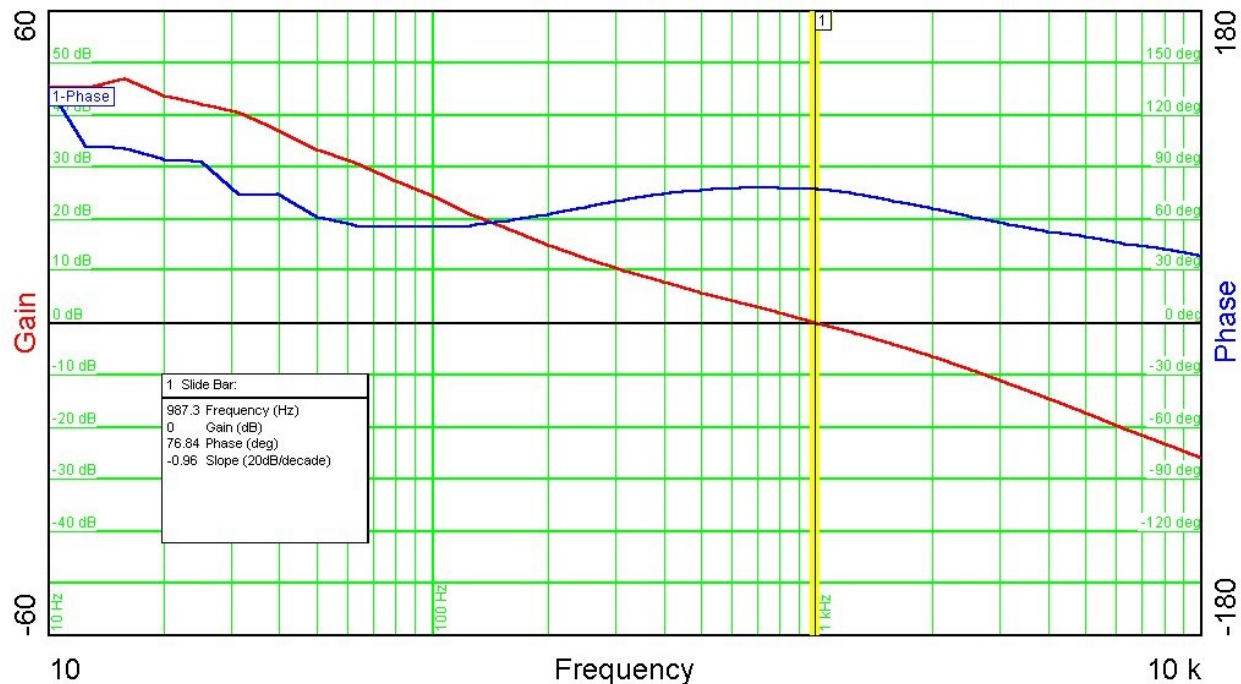
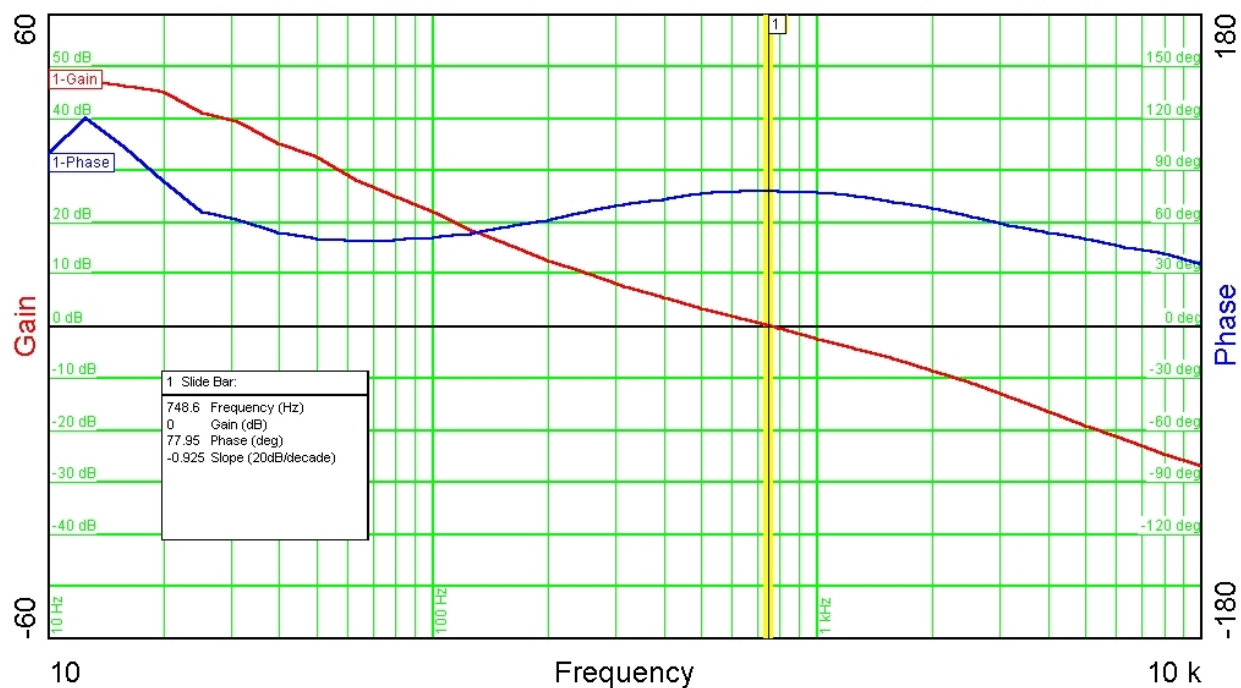
8 5V Output Ripple Voltage

The output ripple voltage is shown in the plots below. The top image shows the ripple during burst mode operation where the input was set to 150VDC, the 5V output was loaded with 10mA, and the +/-15V outputs were unloaded. The bottom image shows the ripple during quasi-resonance mode operation where the input was 150VDC and the outputs were loaded with 5V/350mA, +15V/50mA and -15V/125mA.



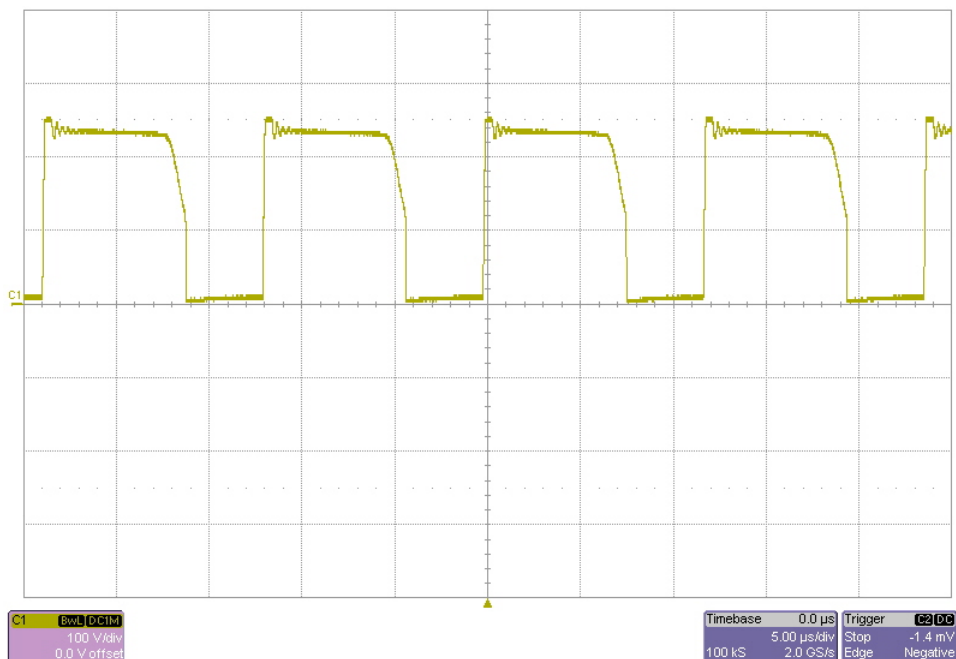
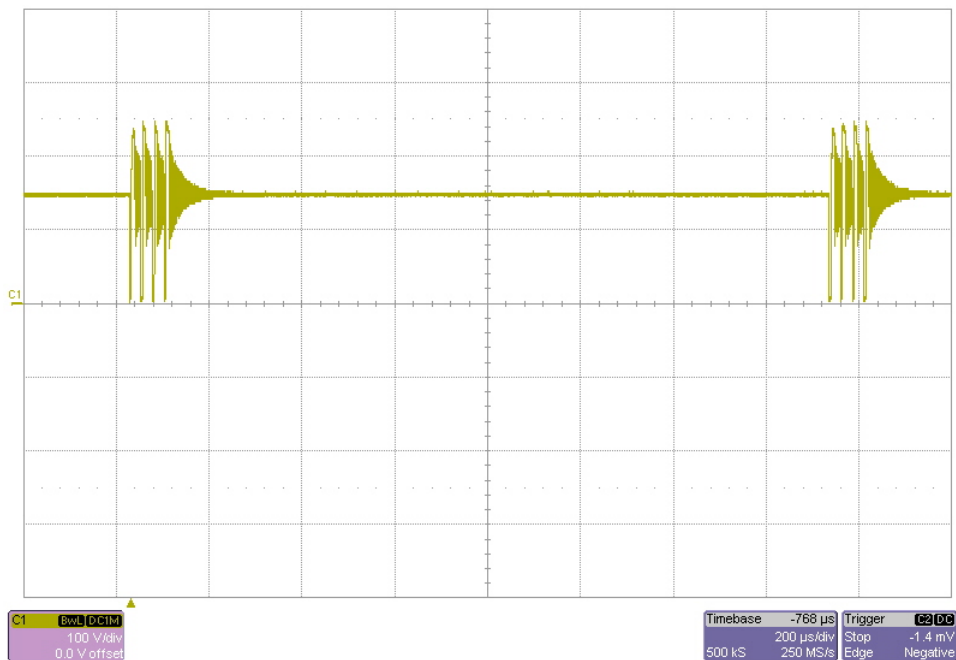
9 Frequency Response

The frequency response of the feedback loop is shown below. For the top image, the input was set to 150VDC and the outputs were loaded at maximum power. For the bottom image, the input was set to 300VDC and the outputs were loaded at maximum power.



10 Switching Waveforms

The images below show the drain-to-source voltage waveform on the primary MOSFET (Q1). The top image demonstrates burst-mode operation, where the input was set to 150VDC, the 5V output was loaded with 10mA, and the +/-15V outputs were unloaded. The bottom image demonstrates quasi-resonant operation, where the input was 150VDC and the outputs were loaded with 5V/350mA, +15V/50mA and -15V/125mA.



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