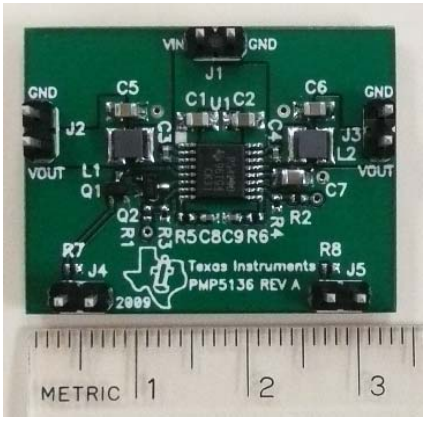
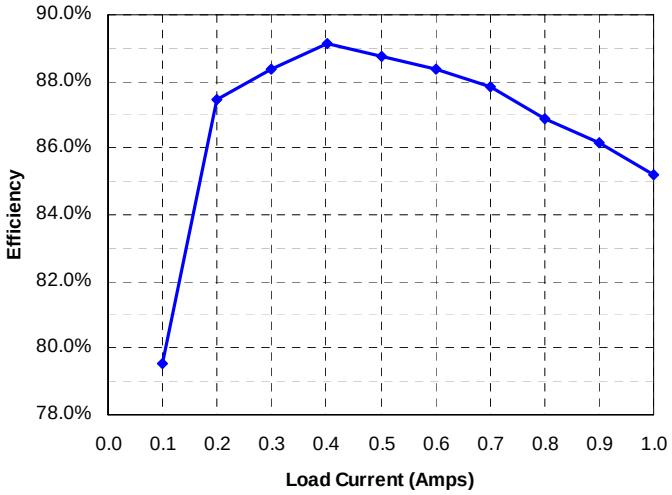
1 Photo

The photographs below show the top and bottom views of the PMP5136 Rev B demo board. The circuit is built on a PMP5136 Rev A PWB.



2 1.8V Efficiency

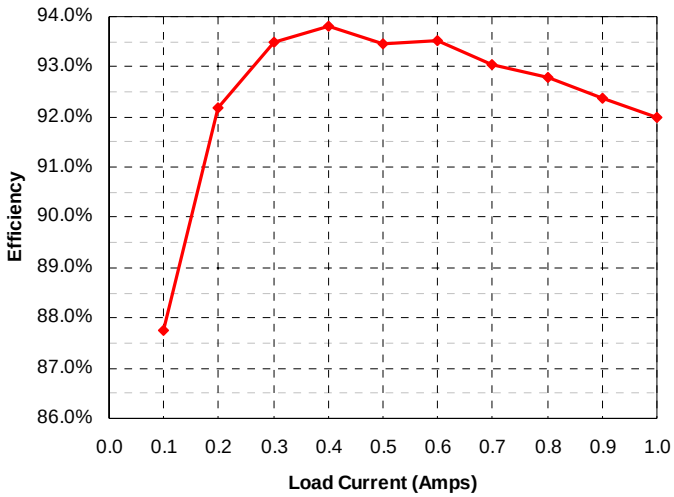
The efficiency data of the 1.8V switcher is shown in the tables and graph below. The 3.3V switcher was disabled for this test.



Iout	Vout	Vin (Vdc)	Iin (mAdc)	Pin	Pout	Losses	Efficiency
0.100	1.793	5.01	45	0.23	0.18	0.05	79.5%
0.200	1.793	5.00	82	0.41	0.36	0.05	87.5%
0.300	1.793	4.99	122	0.61	0.54	0.07	88.4%
0.401	1.793	5.01	161	0.81	0.72	0.09	89.1%
0.500	1.793	5.00	202	1.01	0.90	0.11	88.8%
0.600	1.793	4.99	244	1.22	1.08	0.14	88.4%
0.700	1.792	5.01	285	1.43	1.25	0.17	87.9%
0.800	1.792	5.00	330	1.65	1.43	0.22	86.9%
0.900	1.791	4.99	375	1.87	1.61	0.26	86.1%
1.000	1.791	4.98	422	2.10	1.79	0.31	85.2%

3 3.3V Efficiency

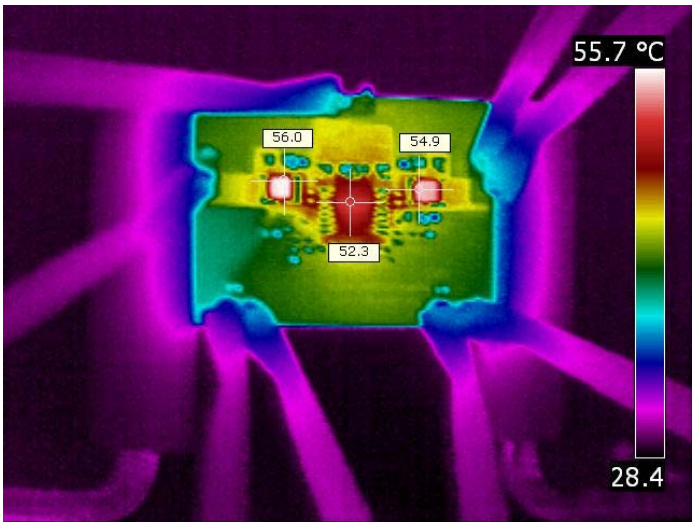
The efficiency data of the 3.3V switcher is shown in the tables and graph below. The 1.8V switcher was disabled for this test.



Iout	Vout	Vin (Vdc)	Iin (mAdc)	Pin	Pout	Losses	Efficiency
0.100	3.335	5.00	76	0.38	0.33	0.05	87.8%
0.200	3.335	4.99	145	0.72	0.67	0.06	92.2%
0.300	3.335	5.00	214	1.07	1.00	0.07	93.5%
0.400	3.335	4.99	285	1.42	1.33	0.09	93.8%
0.500	3.334	5.01	356	1.78	1.67	0.12	93.5%
0.599	3.334	4.99	428	2.14	2.00	0.14	93.5%
0.699	3.334	5.01	500	2.51	2.33	0.17	93.0%
0.800	3.334	4.99	576	2.87	2.67	0.21	92.8%
0.901	3.333	5.01	649	3.25	3.00	0.25	92.4%
1.000	3.333	4.99	726	3.62	3.33	0.29	92.0%

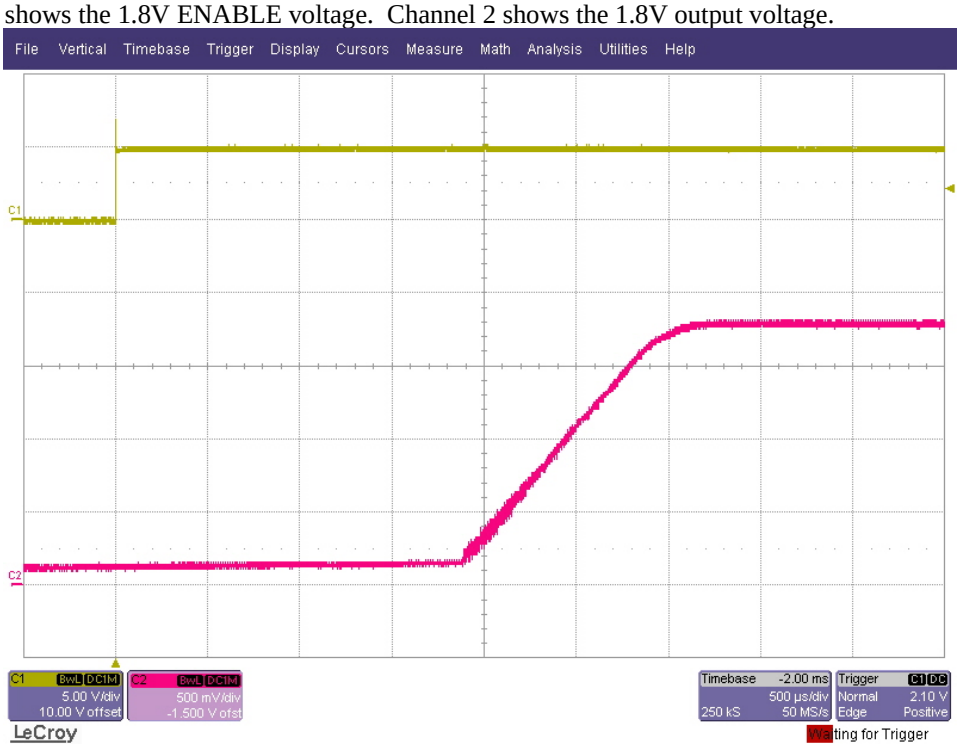
4 Thermal Image

The thermal image below shows a top view of the board. The ambient temperature was 26ºC with no forced air flow. Both outputs were loaded with 1A each, and the input was 5V.



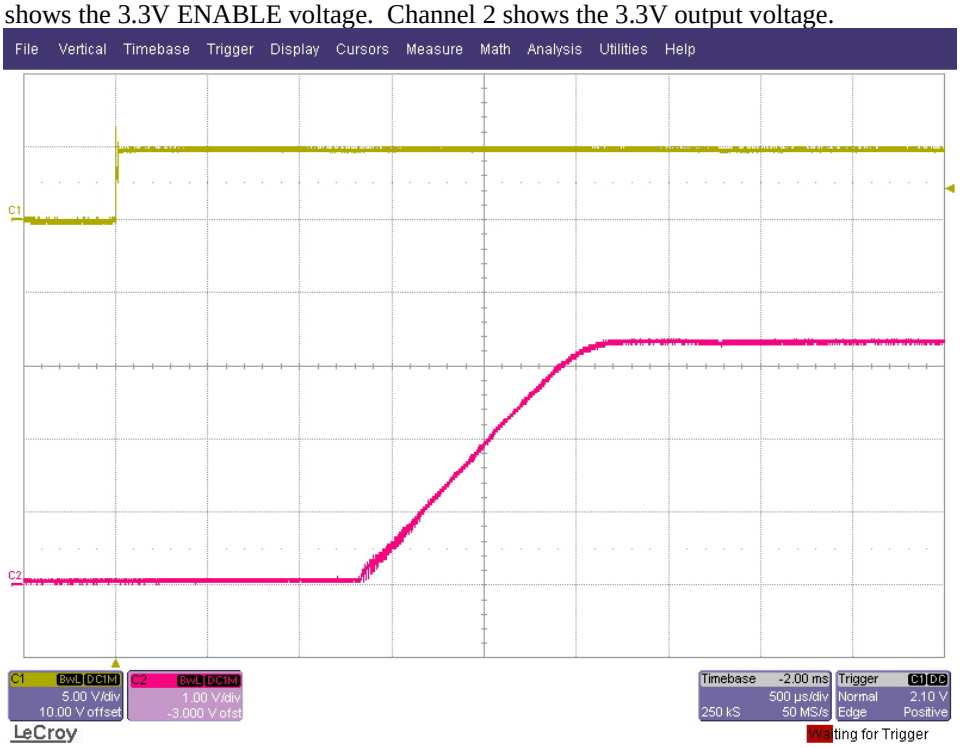
5 1.8V Startup

The 1.8V output voltage at startup is shown in the image below. The input was 5V and the 1.8V output was loaded with 1A. Channel 1 shows the 1.8V ENABLE voltage. Channel 2 shows the 1.8V output voltage.



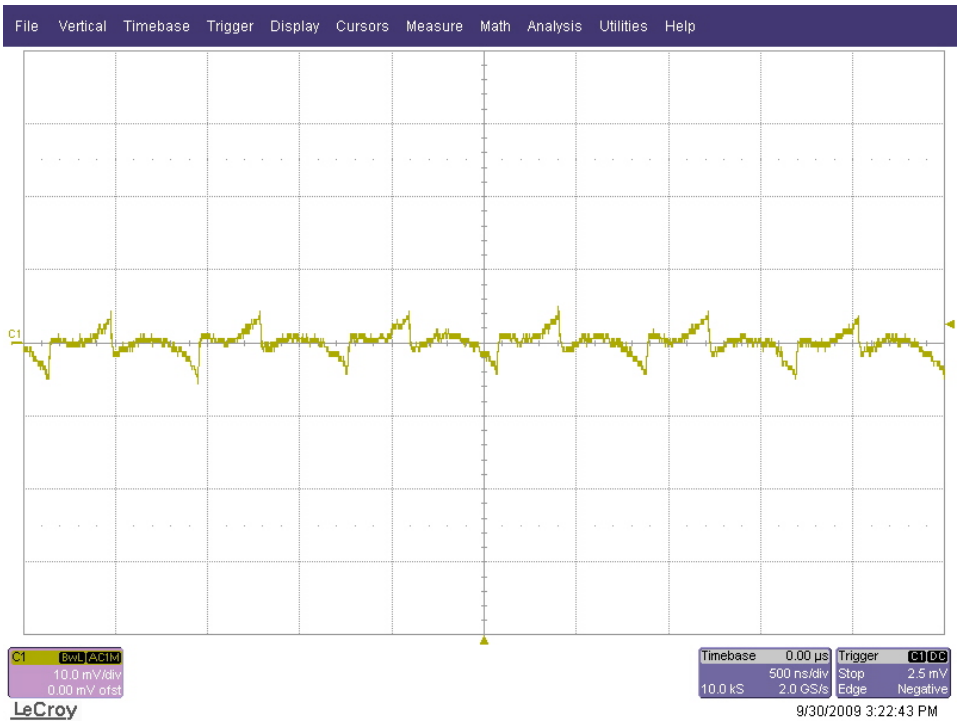
6 3.3V Startup

The 3.3V output voltage at startup is shown in the image below. The input was 5V and the 3.3V output was loaded with 1A. Channel 1 shows the 3.3V ENABLE voltage. Channel 2 shows the 3.3V output voltage.



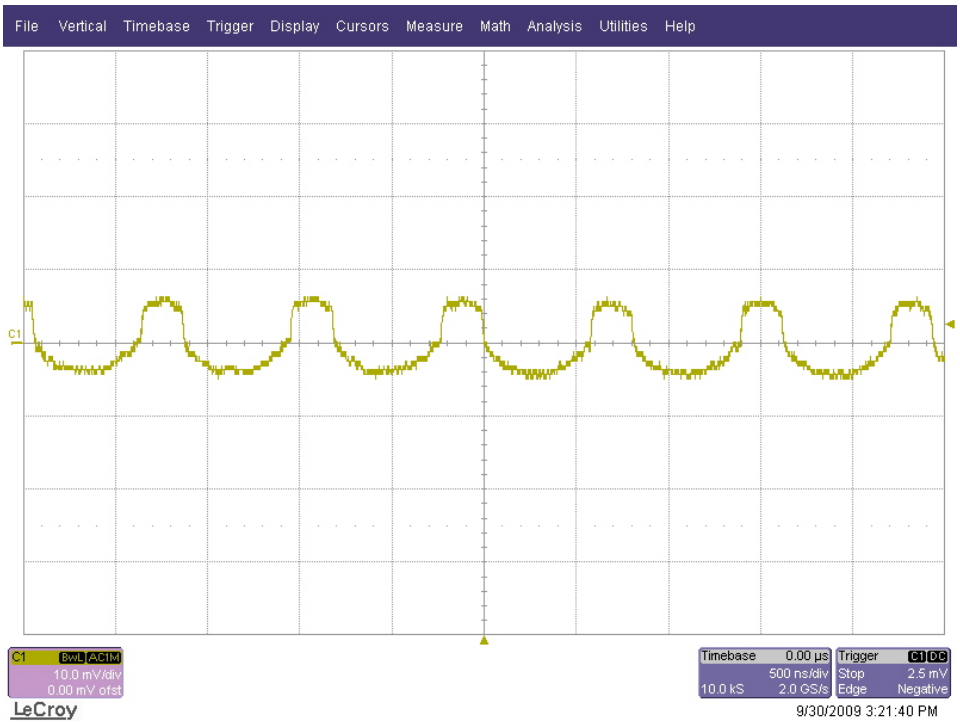
7 1.8V Output Ripple Voltage

The 1.8V output ripple voltage during full load operation (1A load) is shown in the plot below. The input voltage was 5V.



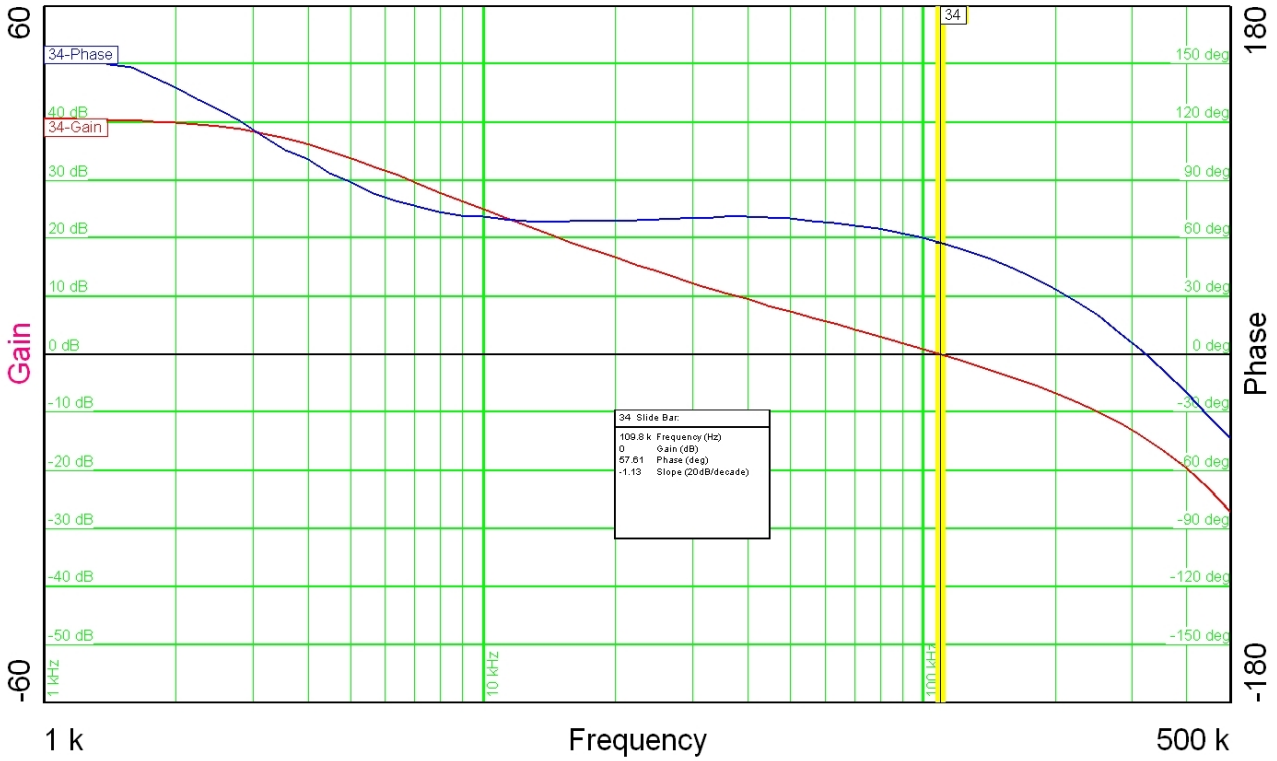
8 3.3V Output Ripple Voltage

The 3.3V output ripple voltage during full load operation (1A load) is shown in the plot below. The input voltage was 5V.



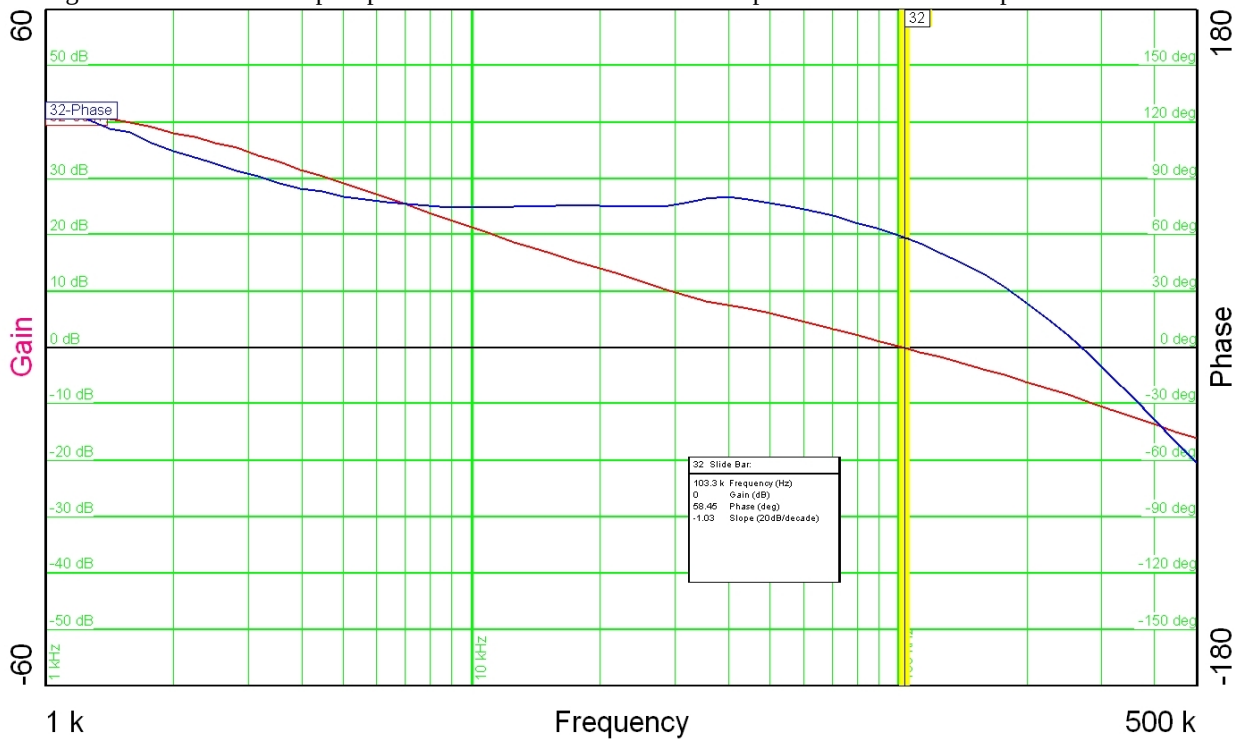
9 1.8V Loop Response

The image below shows the loop response of the 1.8V converter. The input was 5V and the output was loaded with 1A.



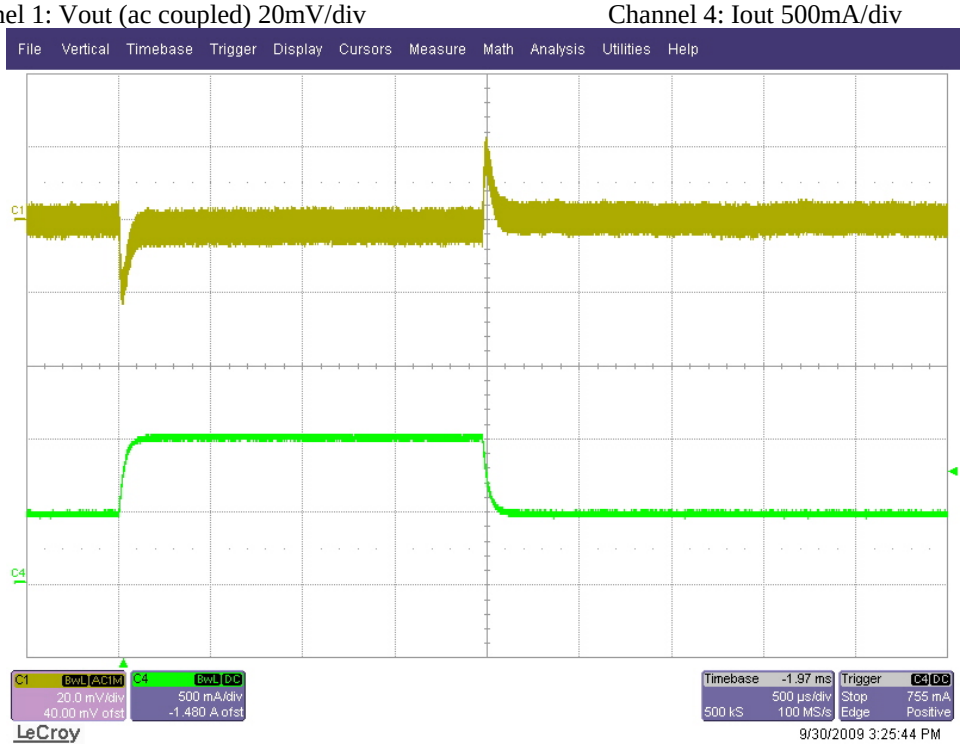
10 3.3V Loop Response

The image below shows the loop response of the 3.3V converter. The input was 5V and the output was loaded with 1A.



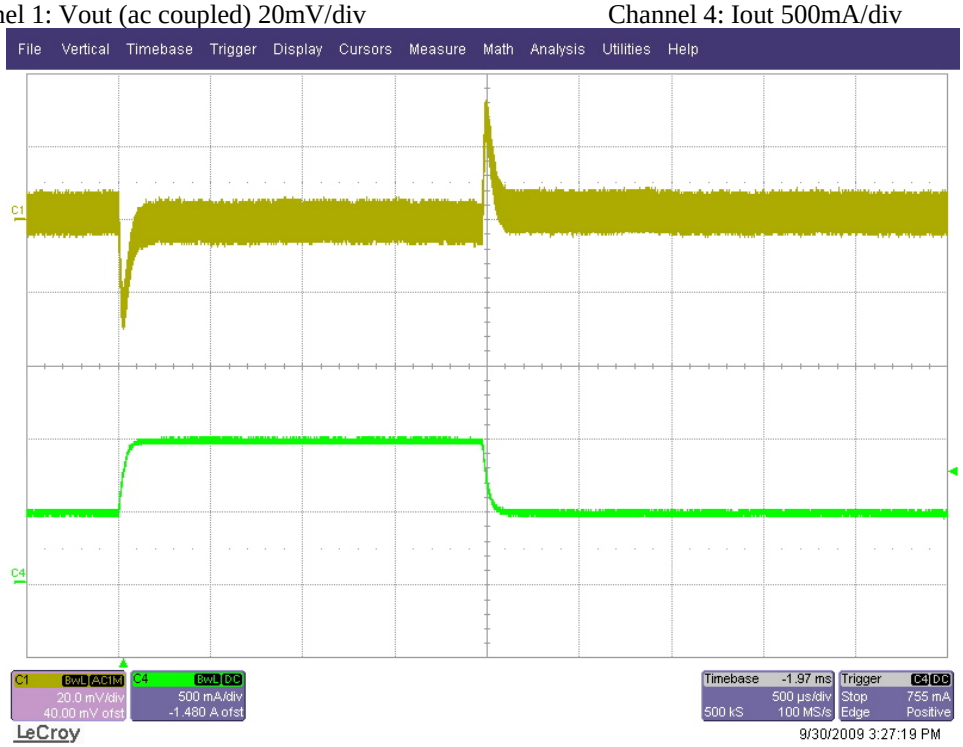
11 1.8V Load Transients

The image below shows the response to a 0.5A to 1A load transient. The input voltage was set to 5V.
Channel 1: Vout (ac coupled) 20mV/div Channel 4: Iout 500mA/div



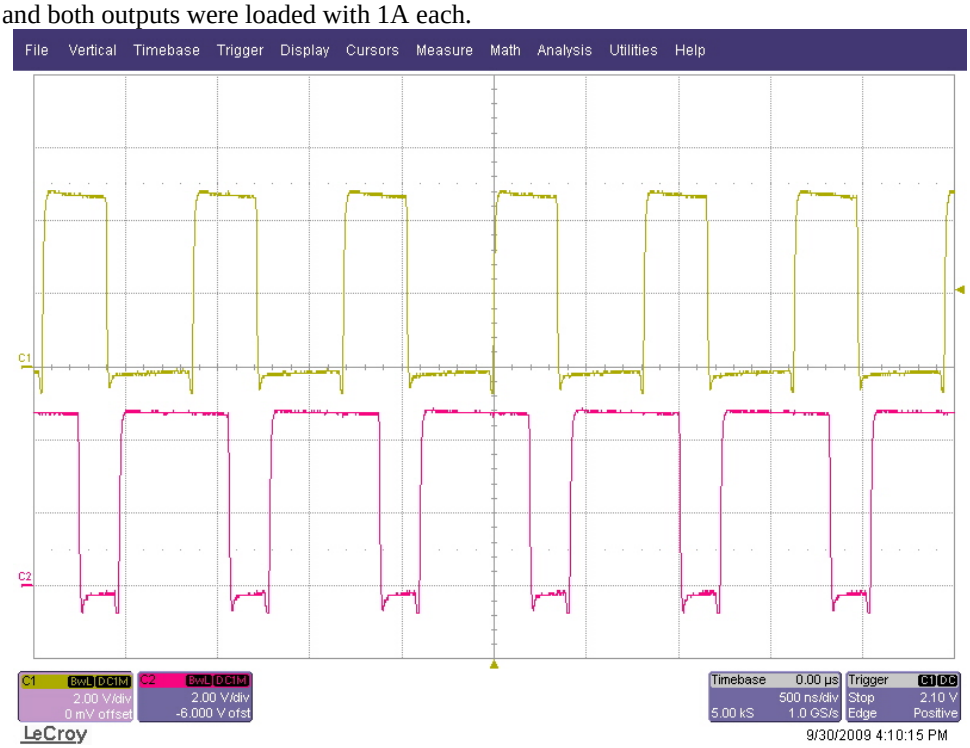
12 3.3V Load Transients

The image below shows the response to a 0.5A to 1A load transient. The input voltage was set to 5V.
Channel 1: Vout (ac coupled) 20mV/div Channel 4: Iout 500mA/div



13 Switching Waveforms

The image below show the switching voltage waveforms on the two converters. Channel 1 shows the 1.8V switch node voltage (SW1 pin of the TPS54292). Channel 2 shows the 3.3V switch node voltage (SW2 pin of the TPS54292). The input was 5V, and both outputs were loaded with 1A each.



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