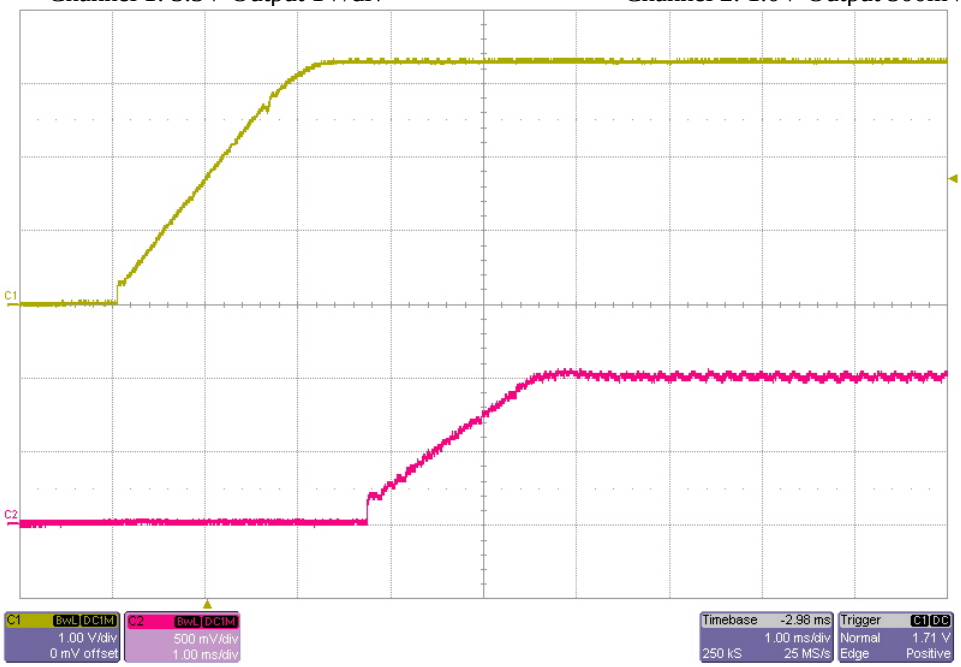
1 Photo

The photograph below shows the PMP4035 Rev B demo board. The circuit is built on a PMP3137 Rev A PWB.

2 Startup

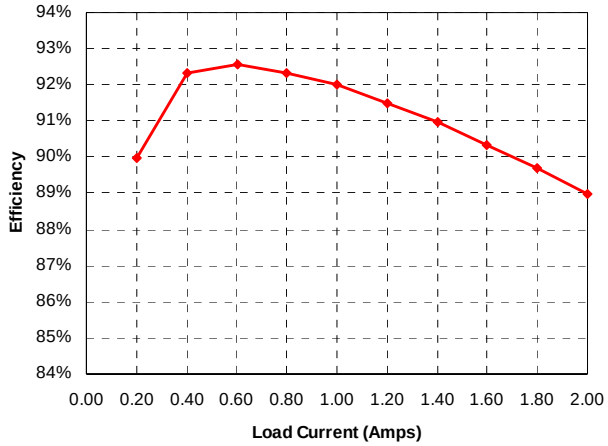
The output voltages at startup are shown in the image below. The input voltage was 5V, and both outputs were unloaded.

Channel 1: 3.3V Output 1V/div Channel 2: 1.0V Output 500mV/div



3 Efficiency: 3.3V output

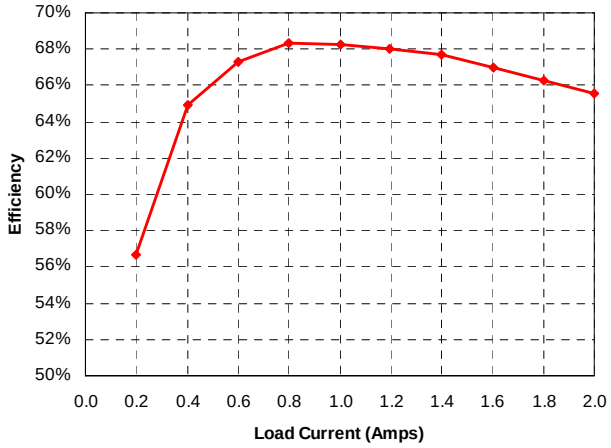
The efficiency data is shown in the table and graph below.



Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	3.357	5.00	0.016	0.00	0.080	0.0%
0.201	3.358	5.00	0.150	0.67	0.075	90.0%
0.400	3.358	5.00	0.291	1.34	0.112	92.3%
0.601	3.358	5.00	0.436	2.02	0.162	92.6%
0.800	3.359	5.00	0.582	2.69	0.223	92.3%
1.000	3.359	5.00	0.730	3.36	0.291	92.0%
1.200	3.359	5.00	0.881	4.03	0.374	91.5%
1.400	3.359	5.00	1.034	4.70	0.467	91.0%
1.600	3.359	5.00	1.190	5.37	0.576	90.3%
1.800	3.359	5.00	1.348	6.05	0.694	89.7%
2.000	3.359	5.00	1.510	6.72	0.832	89.0%

4 Efficiency: 1.0V Output

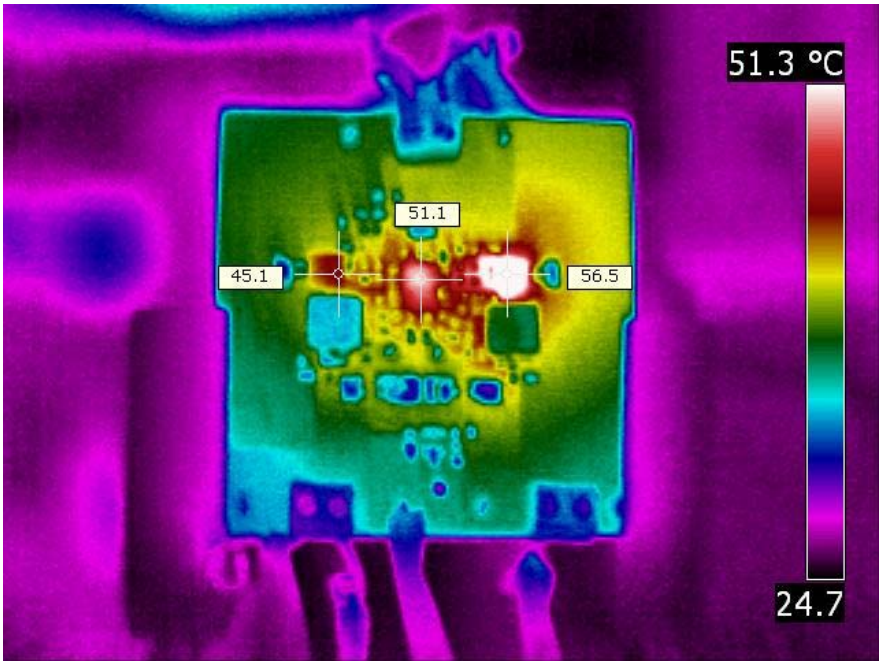
The efficiency data is shown in the table and graph below.



Iout	Vout	Vin	Iin	Pout	Losses	Efficiency
0.000	0.998	5.00	0.016	0.00	0.080	0.0%
0.199	0.996	5.00	0.070	0.20	0.152	56.6%
0.401	0.996	5.00	0.123	0.40	0.216	64.9%
0.598	0.996	5.00	0.177	0.60	0.289	67.3%
0.799	0.996	5.00	0.233	0.80	0.369	68.3%
1.000	0.996	5.00	0.292	1.00	0.464	68.2%
1.198	0.996	5.00	0.351	1.19	0.562	68.0%
1.397	0.996	5.00	0.411	1.39	0.664	67.7%
1.601	0.996	5.00	0.476	1.59	0.785	67.0%
1.799	0.996	5.00	0.541	1.79	0.913	66.2%
2.000	0.996	5.00	0.608	1.99	1.048	65.5%

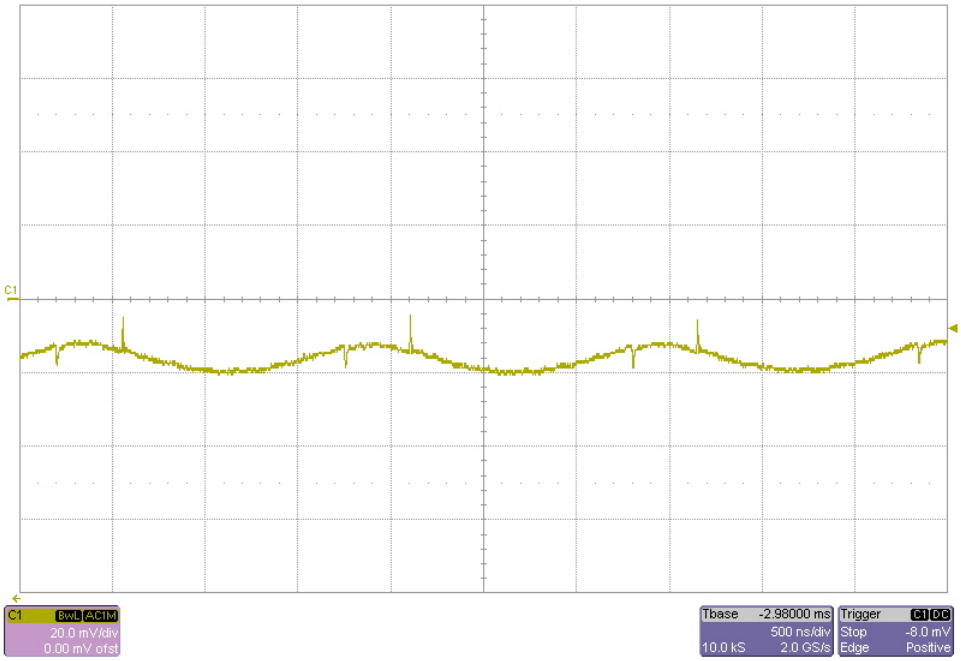
5 Thermal Image

A thermal image of the top side of the board is shown with a 2A load on both outputs. The ambient temperature was 27ºC, with no forced air flow. The 1.0V diode (D2) was the hottest component on the board and measured 56.5ºC.



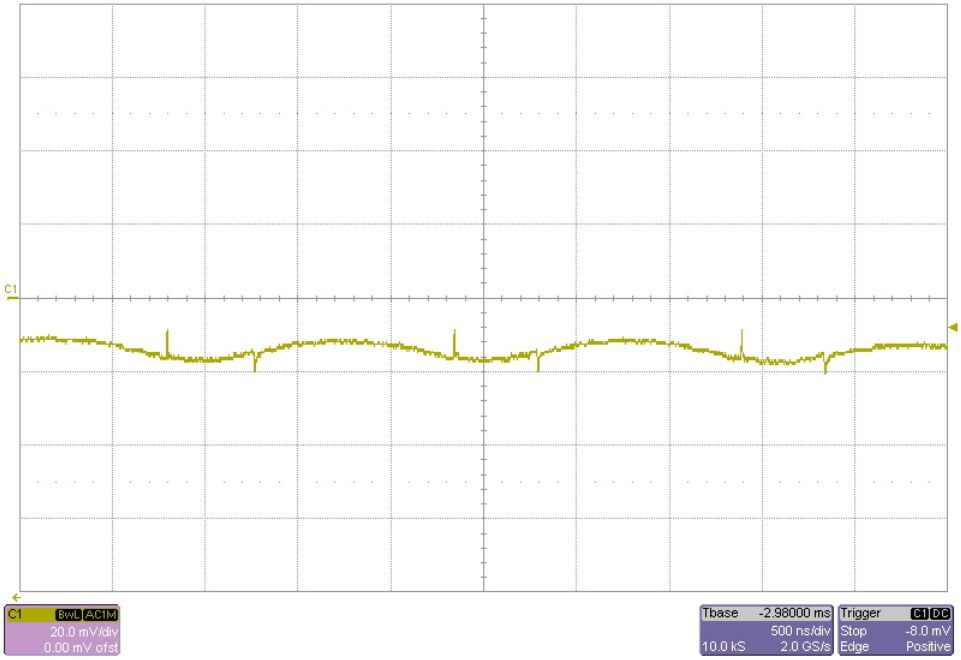
6 Output Ripple Voltage: 3.3V Output

The output ripple voltage of the 3.3V output is shown in the plot below. The input was set to 5V. The load was set to 2A.



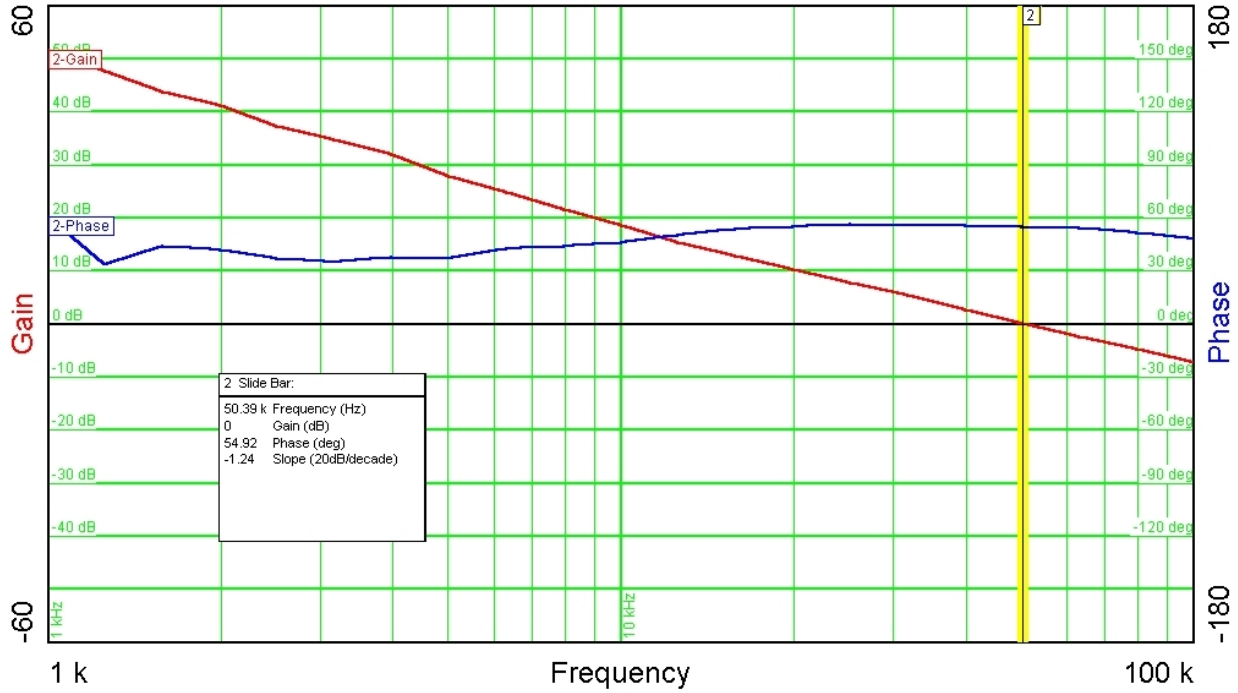
7 Output Ripple Voltage: 1.0V Output

The output ripple voltage of the 1.0V output is shown in the plot below. The input was set to 5V. The load was set to 2A.



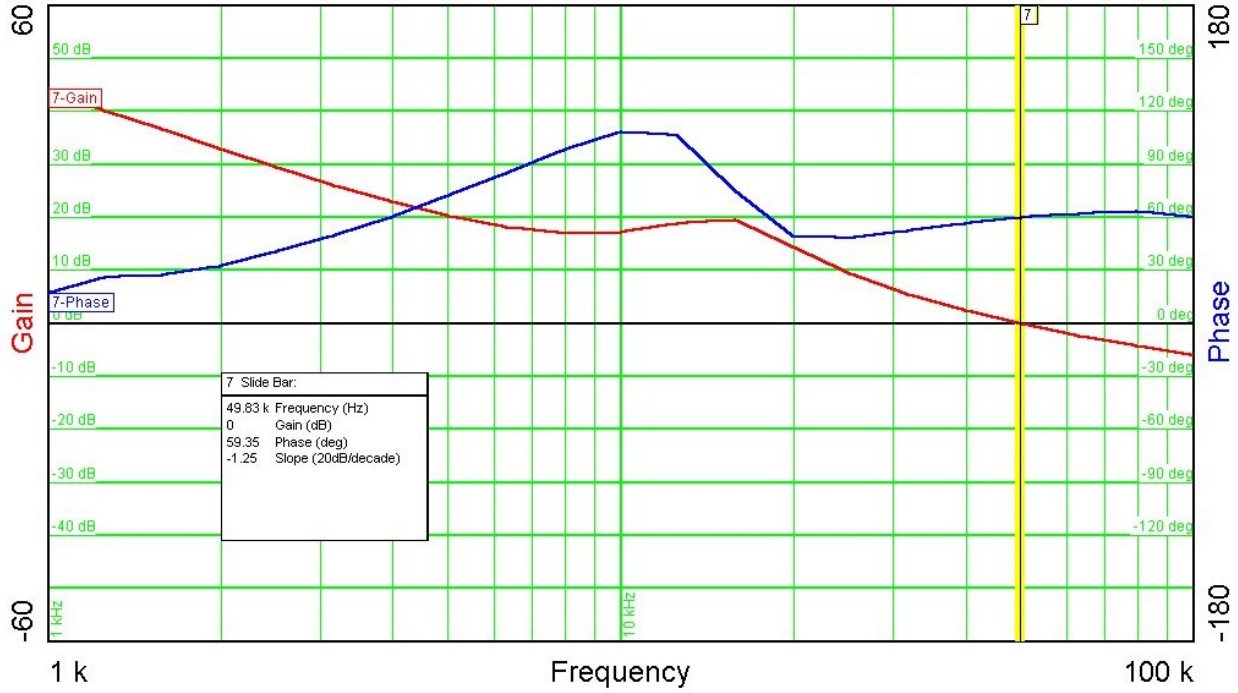
8 Frequency Response: 3.3V Output

The frequency response of the 3.3V converter feedback loop is shown in the image below. The input was set to 5V, and the output was loaded with 2A.



9 Frequency Response: 1.0V Output

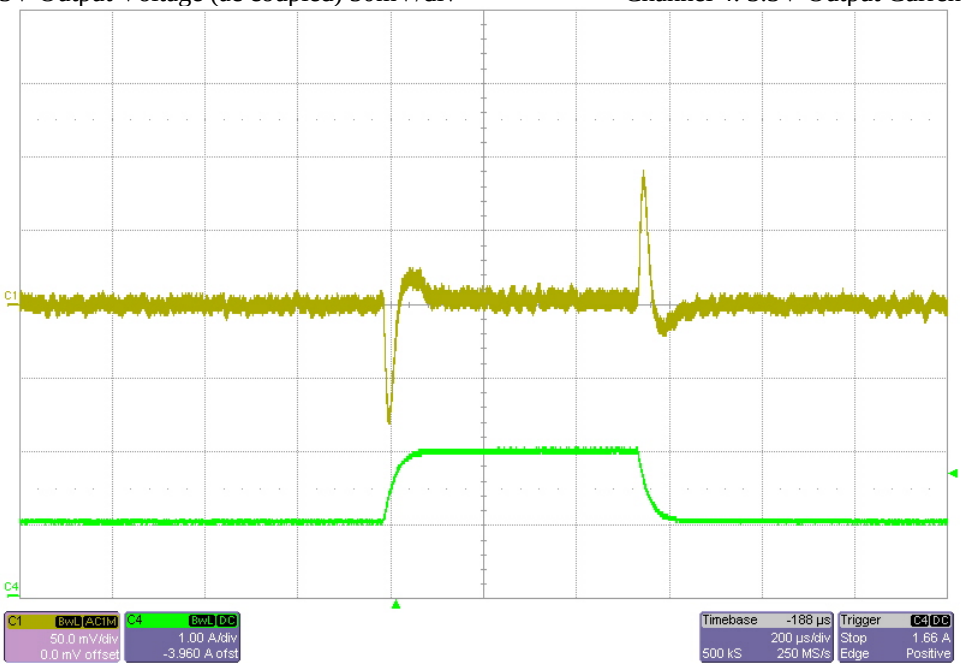
The frequency response of the 1.0V converter feedback loop is shown in the image below. The input was set to 5V, and the output was loaded with 2A.



10 Load Transients: 3.3V Output

The image below shows the response of the 3.3V converter to a 1A to 2A load transient. The input voltage was set to 5V.

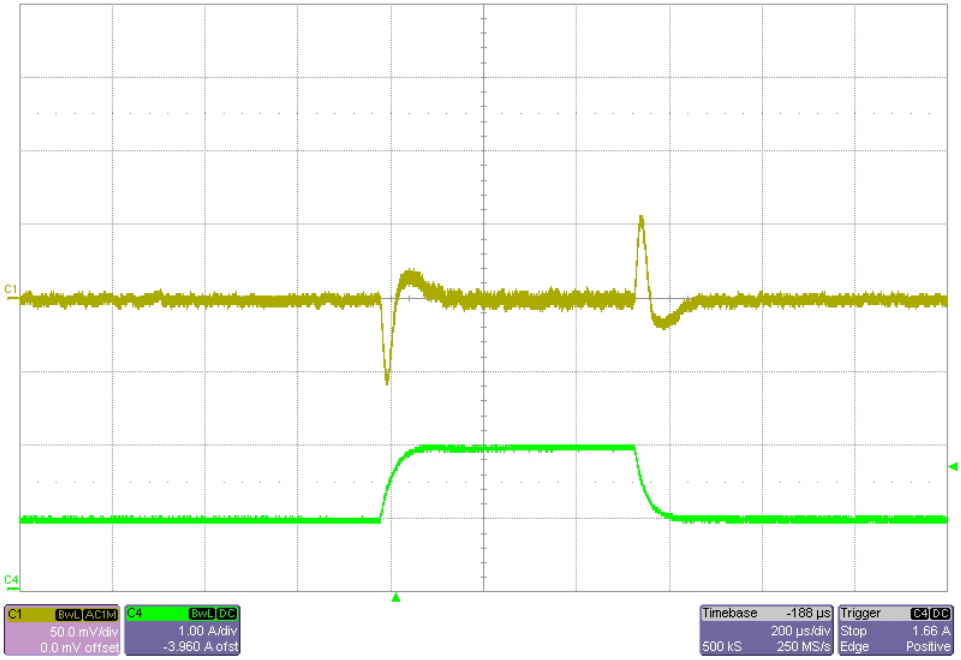
Channel 2: 3.3V Output Voltage (ac coupled) 50mV/div Channel 4: 3.3V Output Current 1A/div



11 Load Transients: 1.0V Output

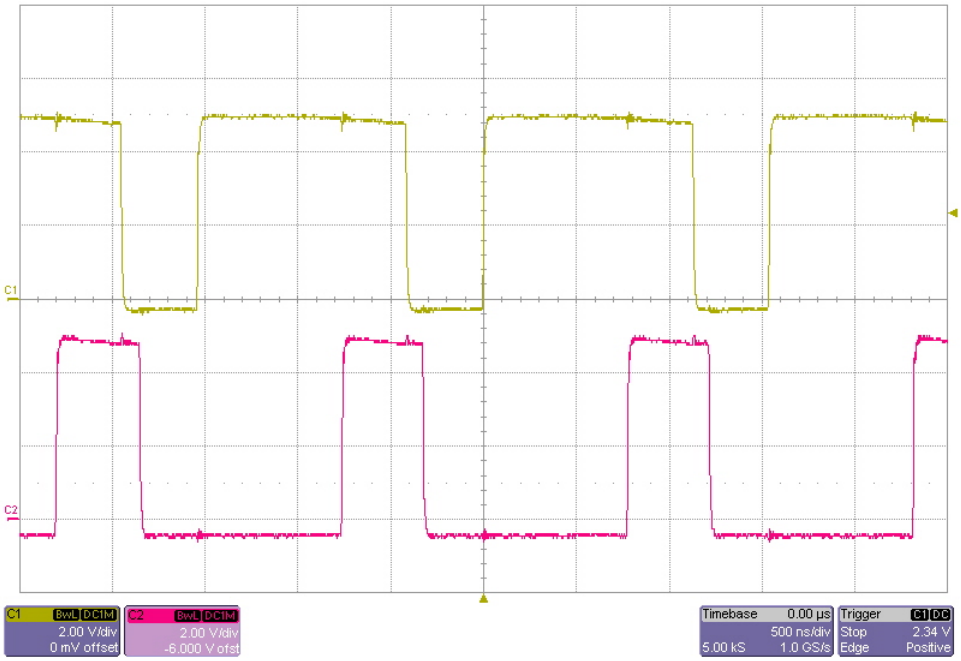
The image below shows the response of the 1.0V converter to a 1A to 2A load transient. The input voltage was set to 5V.

Channel 2: 1.0V Output Voltage (ac coupled) 50mV/div Channel 4: 1.0V Output Current 1A/div



12 Switching Waveforms

The image below shows the voltage on the SW pins of the two converters. The 3.3V switching waveform is shown on Channel 1, and the 1.0V waveform is on Channel 2.



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