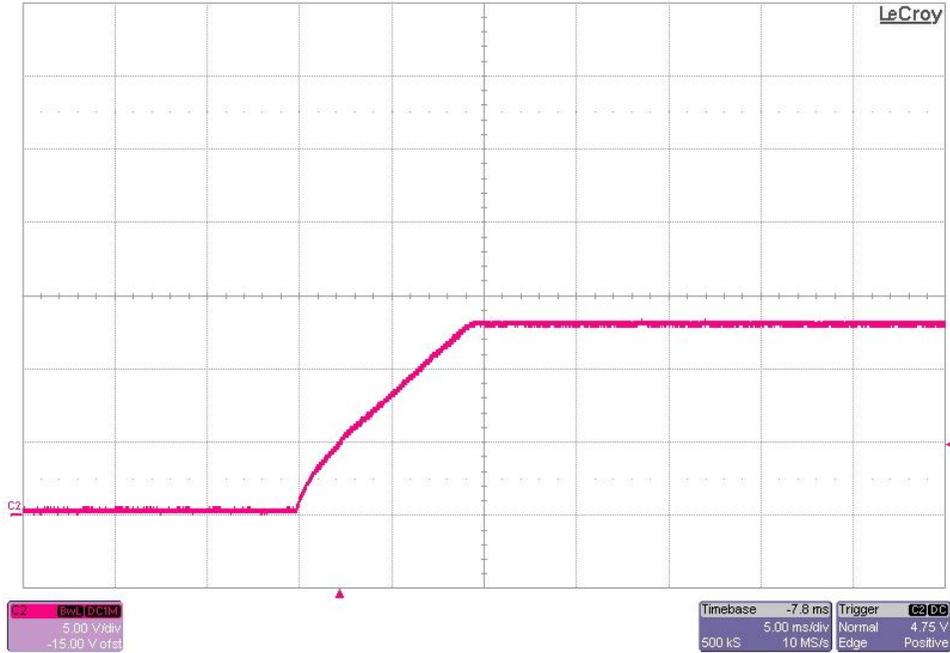
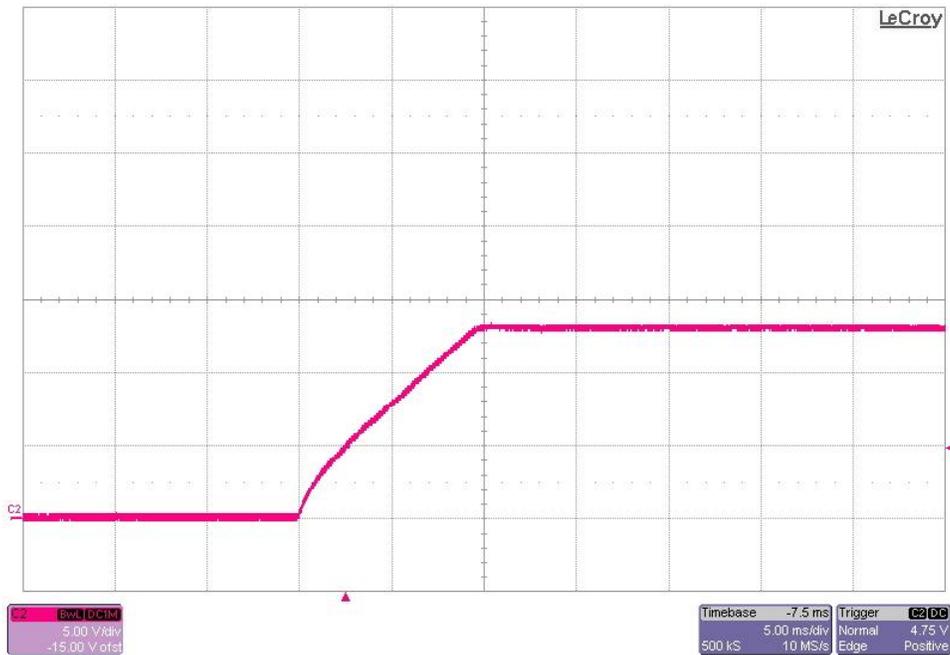


1 Startup

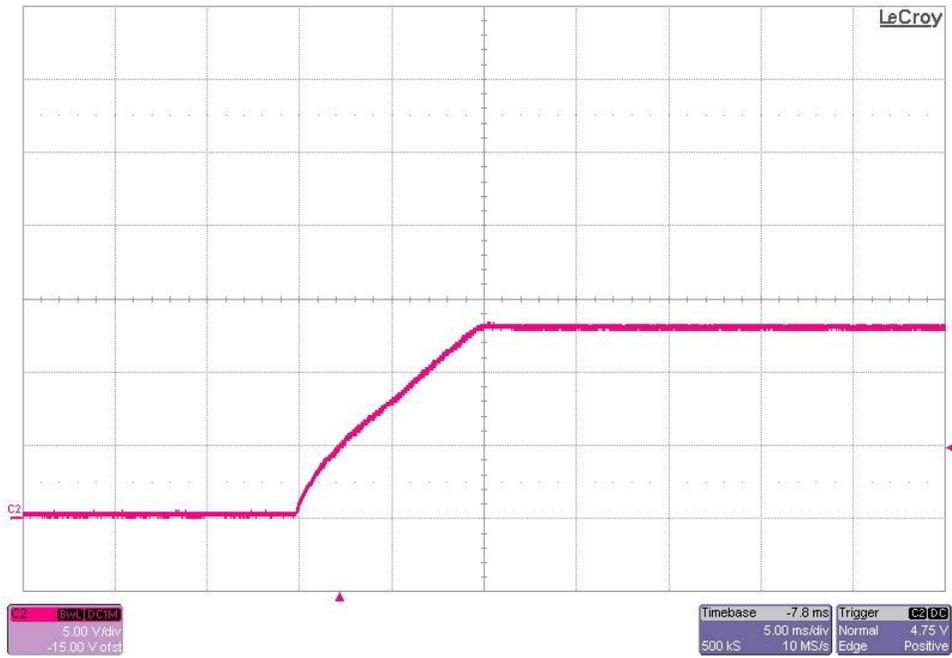
The photo below shows the output voltage startup waveform after the application of 16V in. The 13.2V output was loaded to 0A. (5V/DIV, 5mS/DIV)



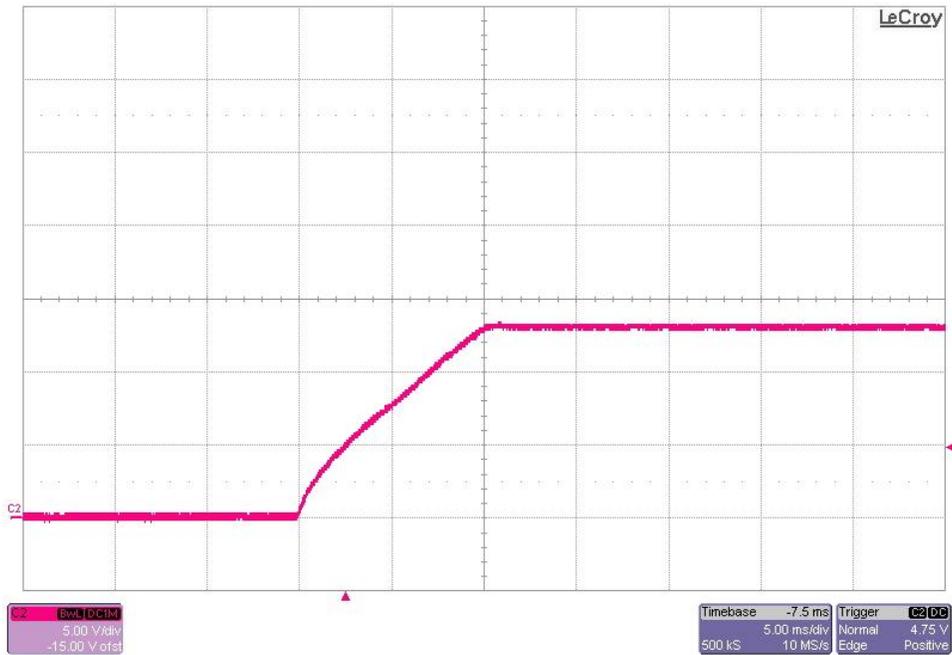
The photo below shows the output voltage startup waveform after the application of 16V in. The 13.2V output was loaded to 3A. (5V/DIV, 5mS/DIV)



The photo below shows the output voltage startup waveform after the application of 6V in. The 13.2V output was loaded to 0A. (5V/DIV, 5mS/DIV)

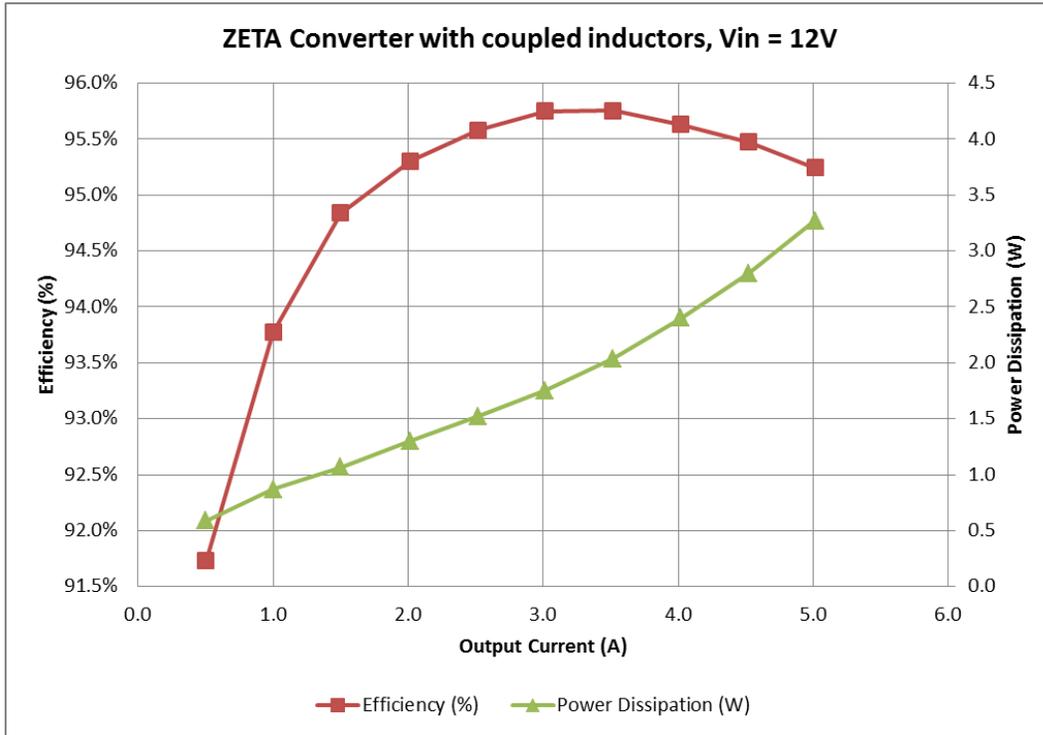


The photo below shows the output voltage startup waveform after the application of 6V in. The 13.2V output was loaded to 3A. (5V/DIV, 5mS/DIV)

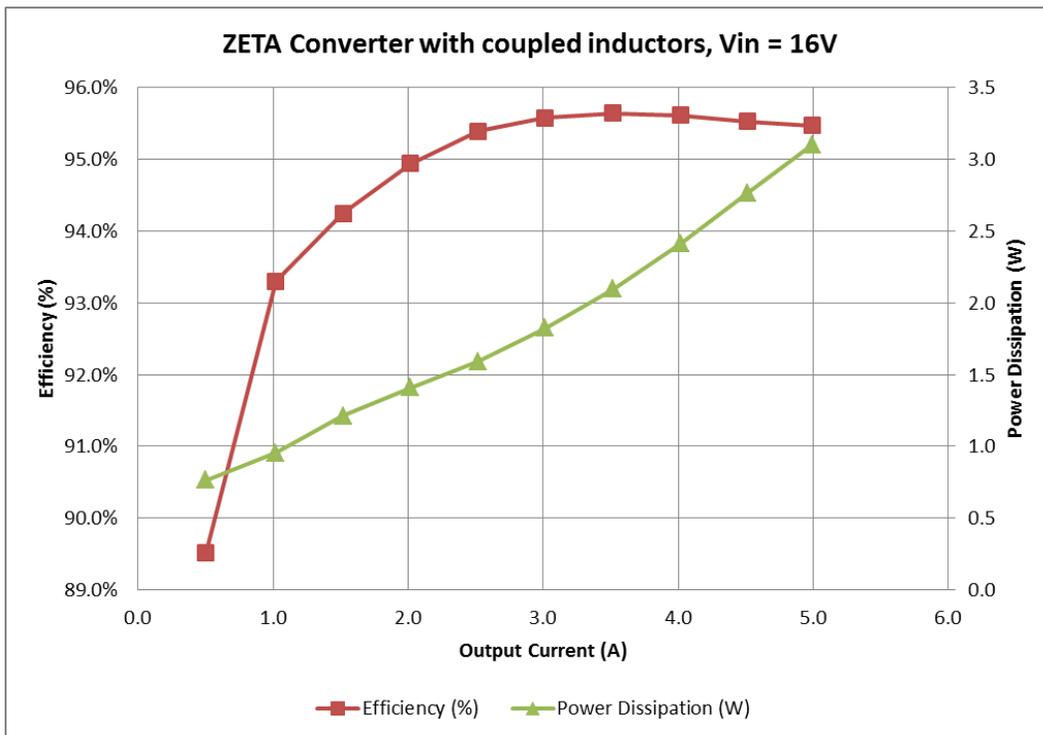


2 Efficiency

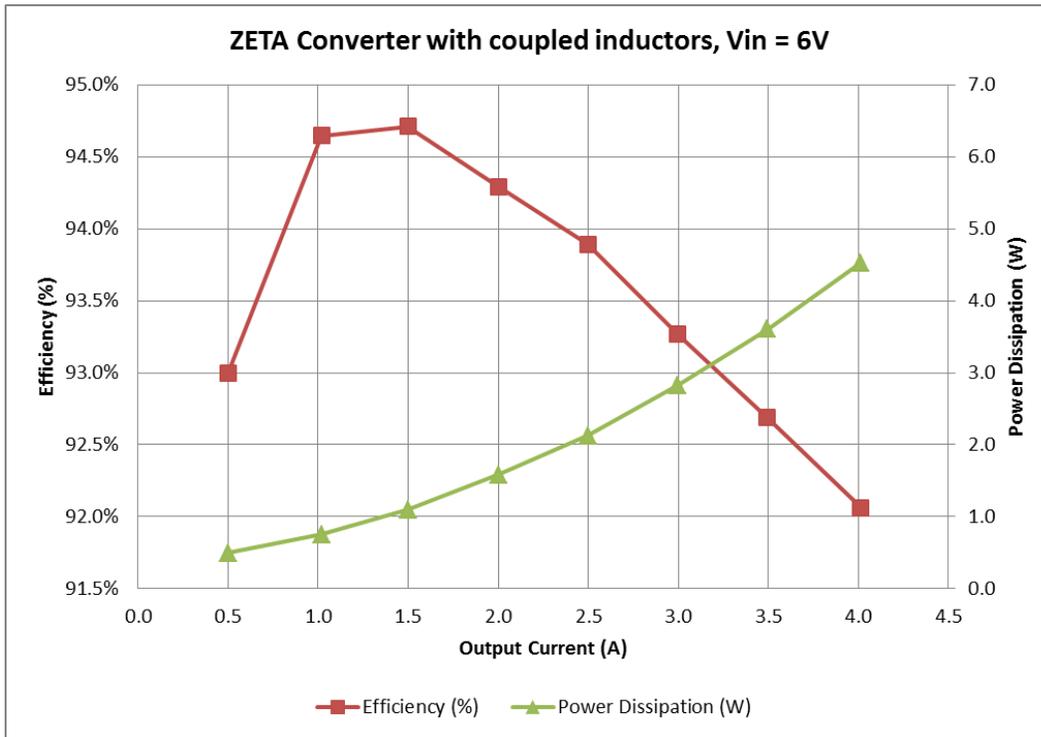
The converter efficiency is shown below for $V_{in} = 12V$ and $V_{out} = 13.2V$.



The converter efficiency is shown below for $V_{in} = 16V$ and $V_{out} = 13.2V$.



The converter efficiency is shown below for $V_{in} = 6V$ and $V_{out} = 13.2V$.
The coupled inductor cannot support an output current higher than 4A at 6Vin.

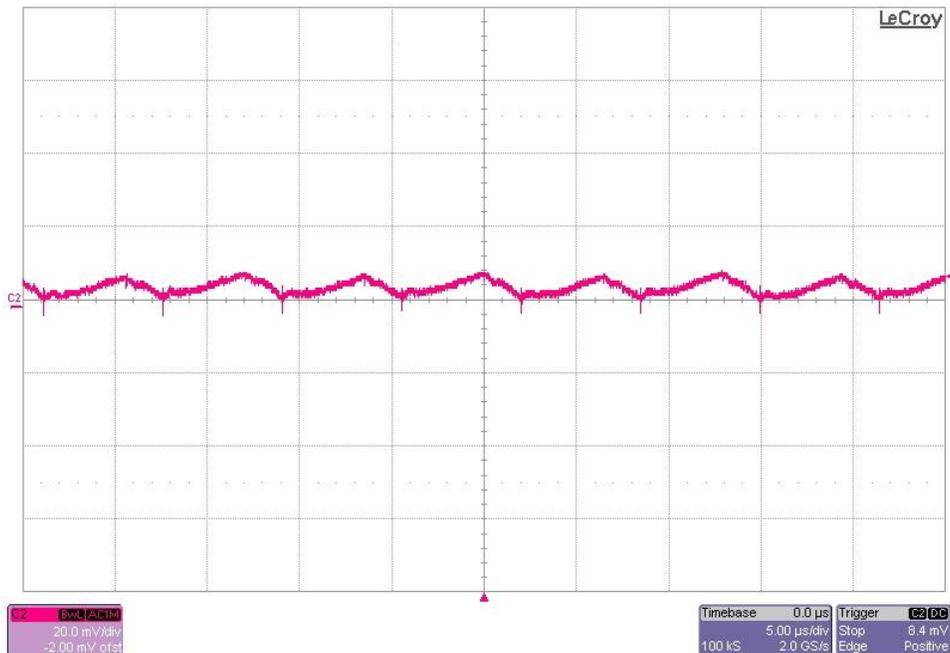


3 Output Ripple Voltage

The 13.2V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 3A. The input voltage is set to 16V. (20mV/DIV, 5uS/DIV)

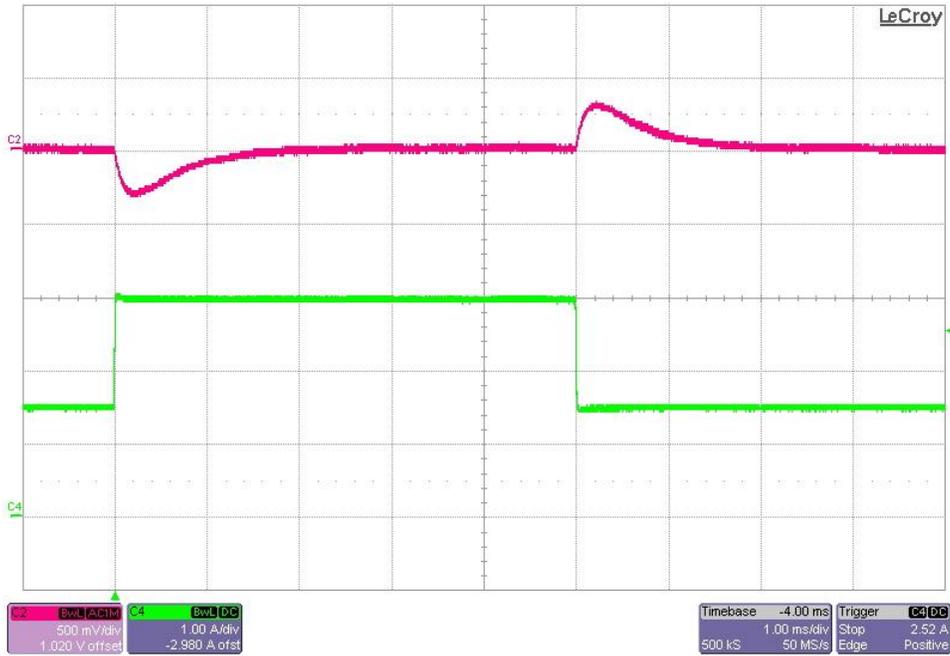


The 13.2V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 3A. The input voltage is set to 6V. (20mV/DIV, 5uS/DIV)

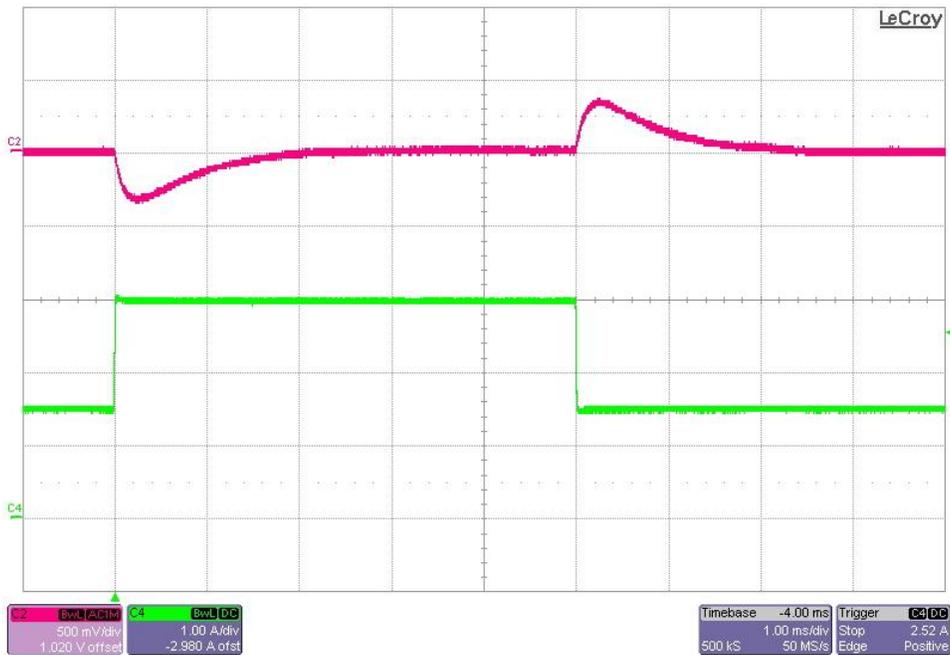


4 Load Transients

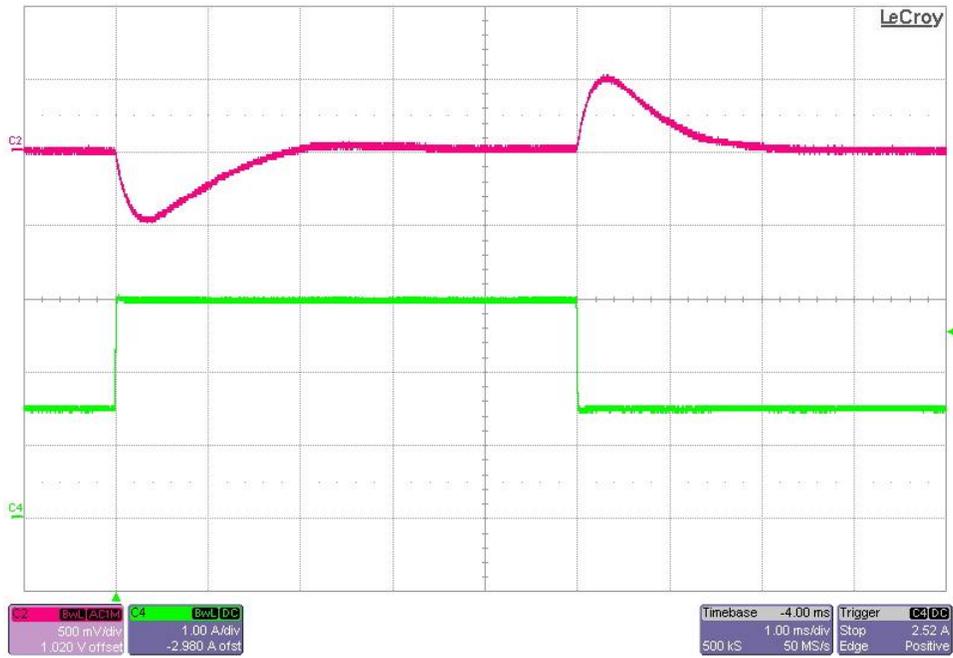
The photo below shows the 13.2V output voltage (ac coupled) when the load current is stepped between 1.5A and 3A. $V_{in} = 16V$. (500mV/DIV, 1A/DIV, 1mS/DIV)



The photo below shows the 13.2V output voltage (ac coupled) when the load current is stepped between 1.5A and 3A. $V_{in} = 12V$. (500mV/DIV, 1A/DIV, 1mS/DIV)

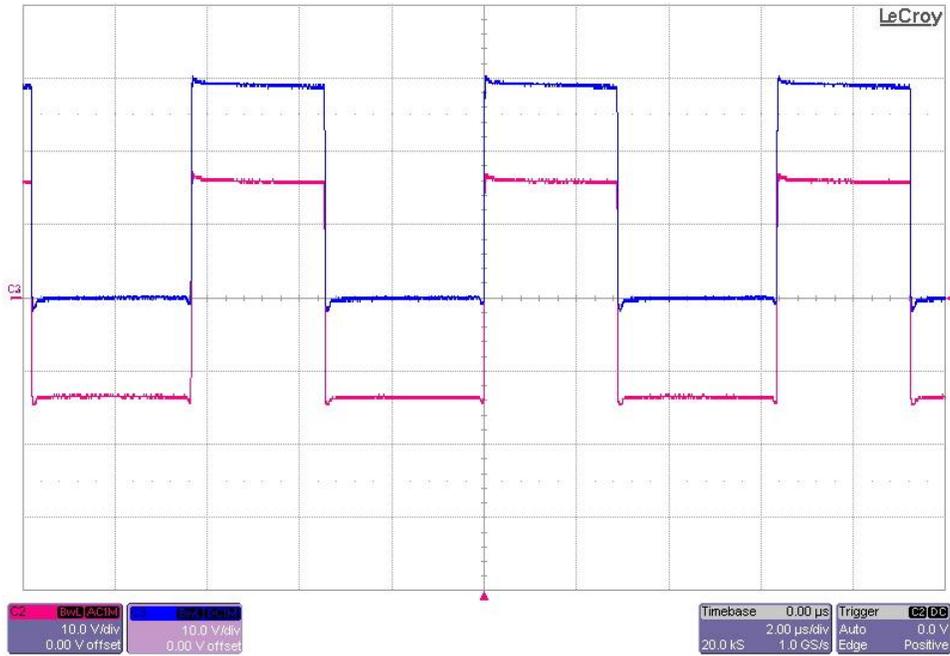


The photo below shows the 13.2V output voltage (ac coupled) when the load current is stepped between 1.5A and 3A. $V_{in} = 6V$. (500mV/DIV, 1A/DIV, 1mS/DIV)

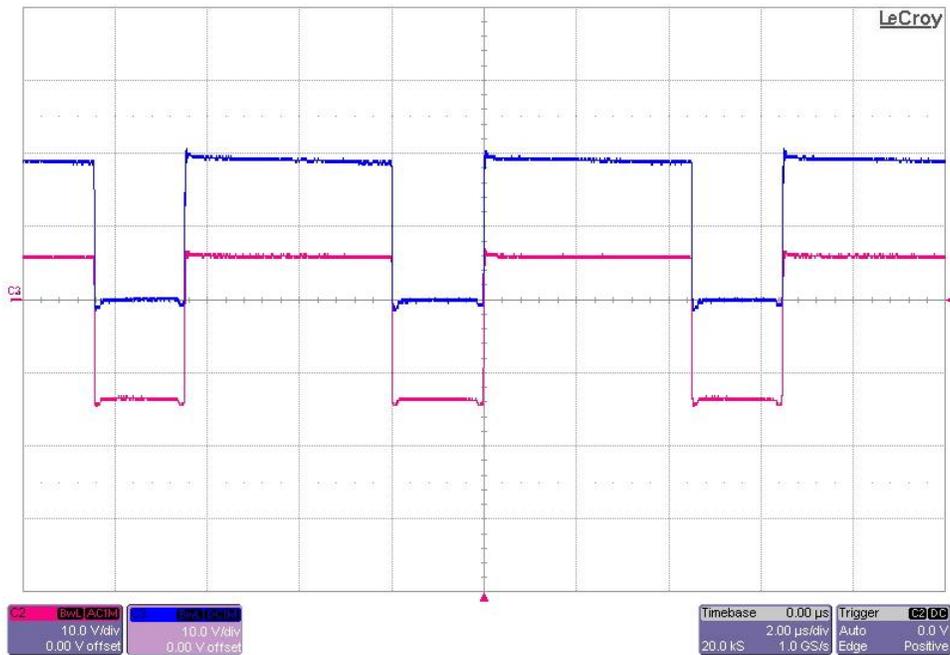


5 Switch Node Waveforms

The photo below shows the two switching node voltages for an input voltage of 16V and a 3A load. Blue is the bottom FET (TP7) and Red is the top FET (TP3). (10V/DIV, 2uS/DIV)



The photo below shows the two switching node voltages for an input voltage of 6V and a 3A load. Blue is the bottom FET (TP7) and Red is the top FET (TP3). (10V/DIV, 2uS/DIV)



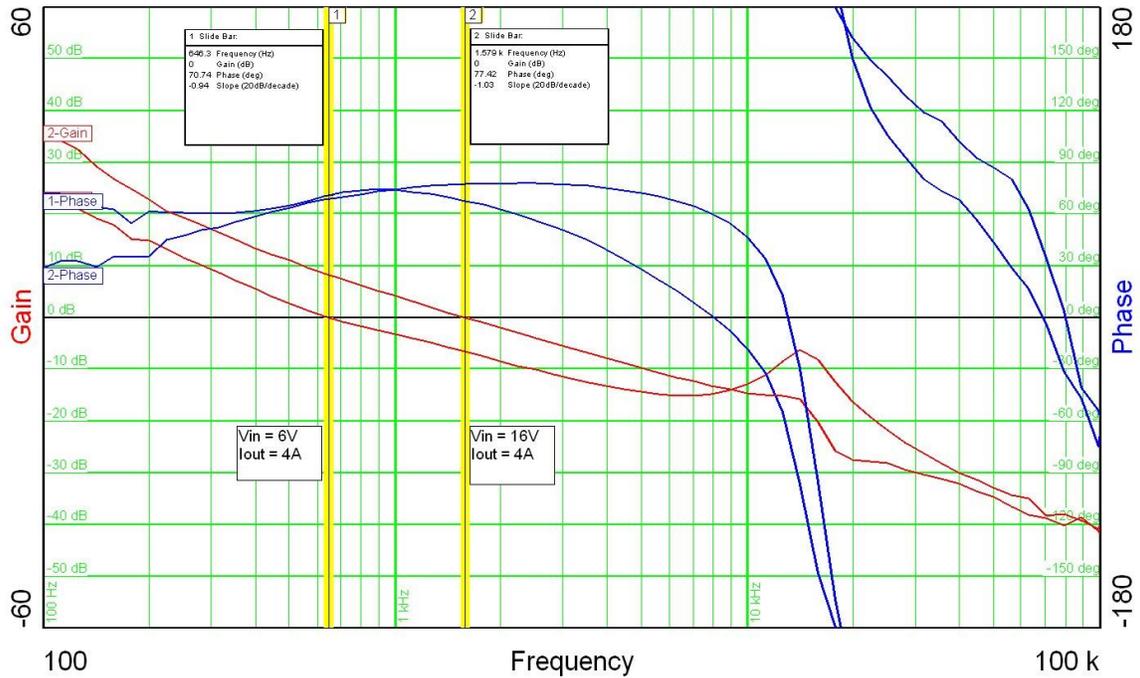
6 Loop Gain

The plot below shows the loop gain with the input voltage set to 16V and 6V and the output set to 4A.

Loop Gain (Vin = 16V)
 Loop Gain (Vin = 6V)

BW: 1.58KHz
 BW: 646Hz

PM: 77 degrees
 PM: 71 degrees

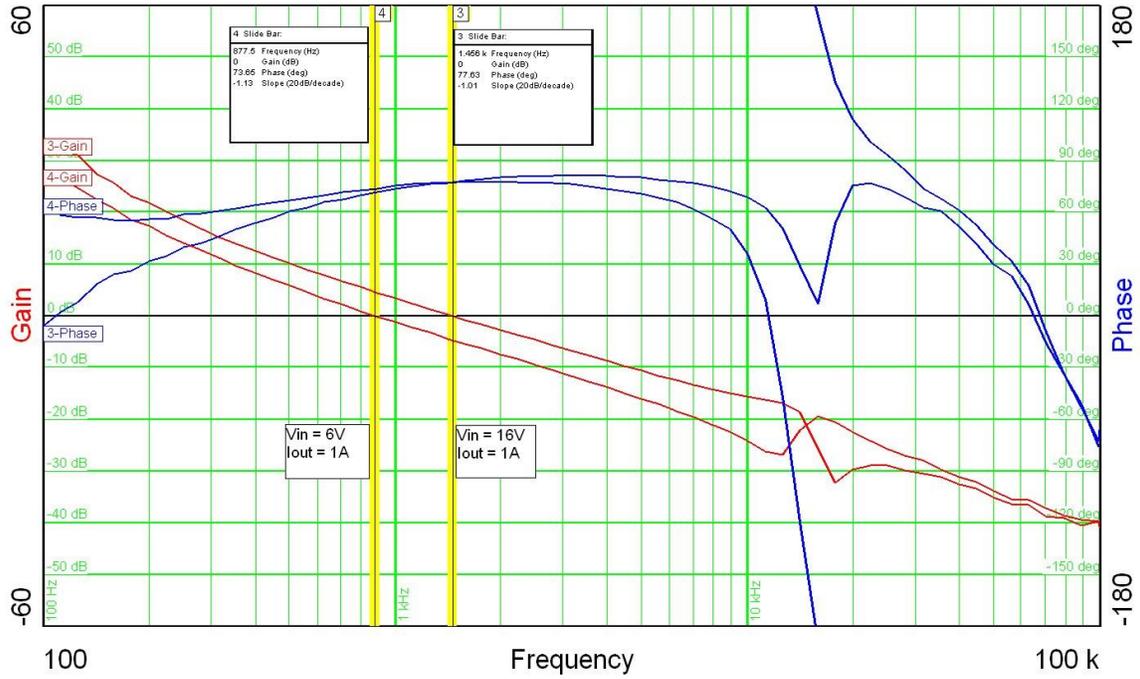


The plot below shows the loop gain with the input voltage set to 16V and 6V and the output set to 1A.

Loop Gain (Vin = 16V)
 Loop Gain (Vin = 6V)

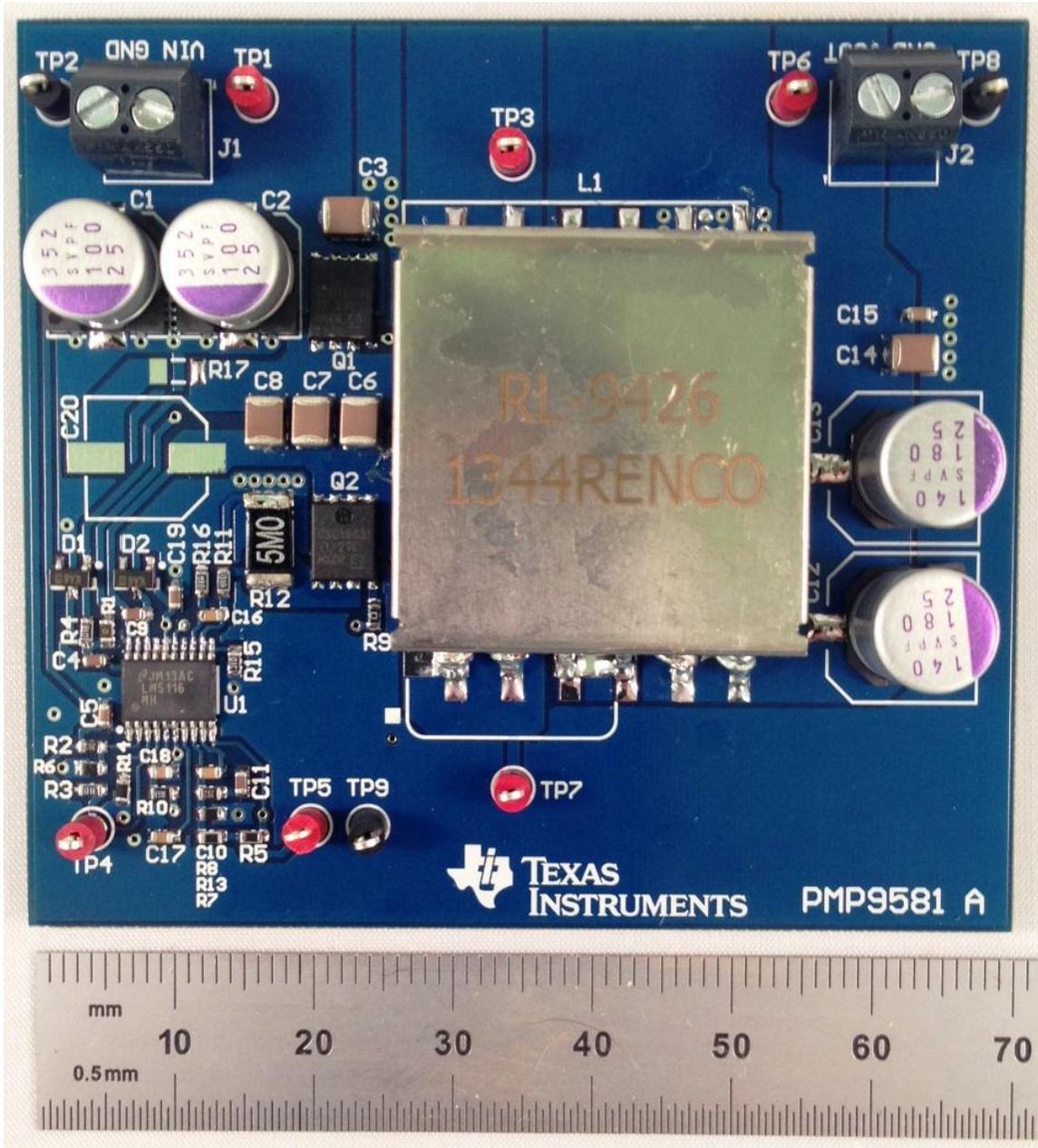
BW: 1.46KHz
 BW: 878Hz

PM: 78 degrees
 PM: 74 degrees



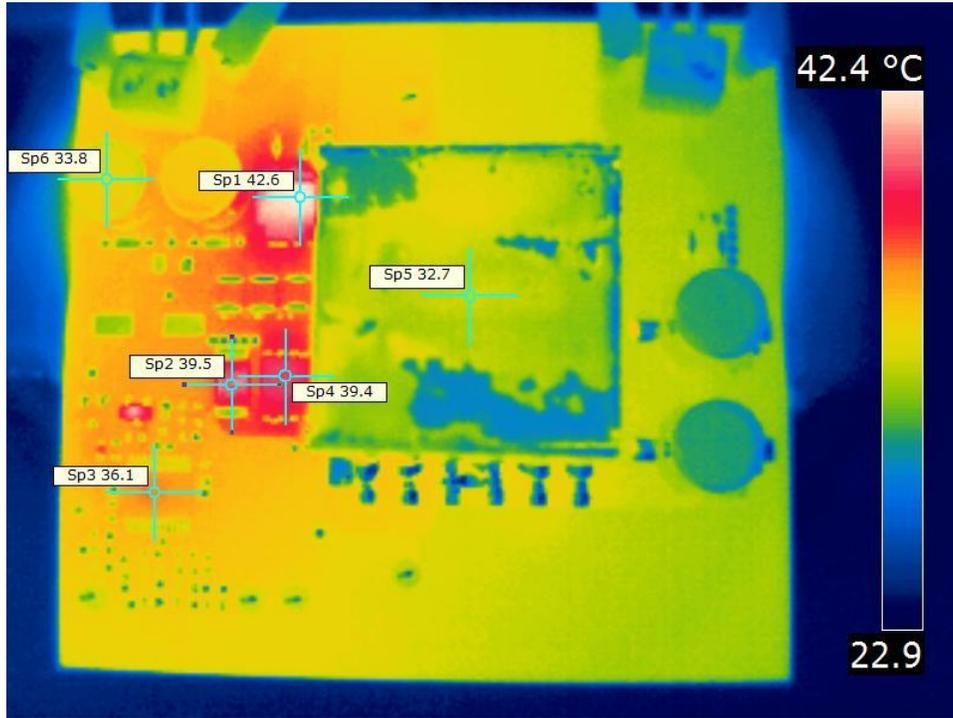
7 Photo

The photo below shows the PMP9581 REVB assy.

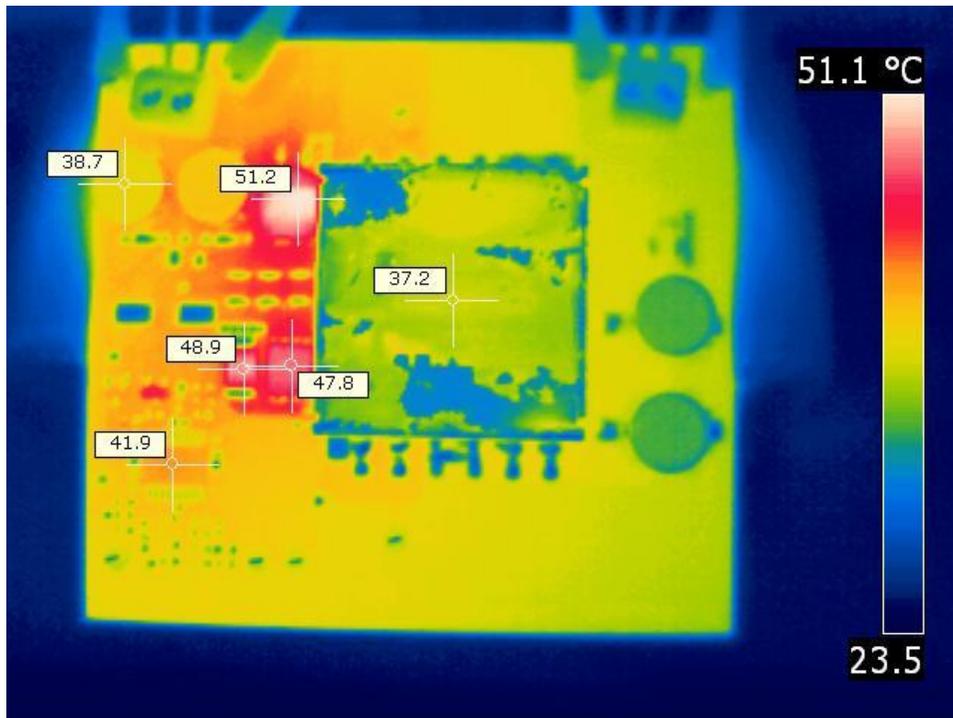


8 Thermal Image

A thermal image is shown below operating at 12V input and 13.2V@3A output (room temp, no airflow).



A thermal image is shown below operating at 12V input and 13.2V@4A output (room temp, no airflow).



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