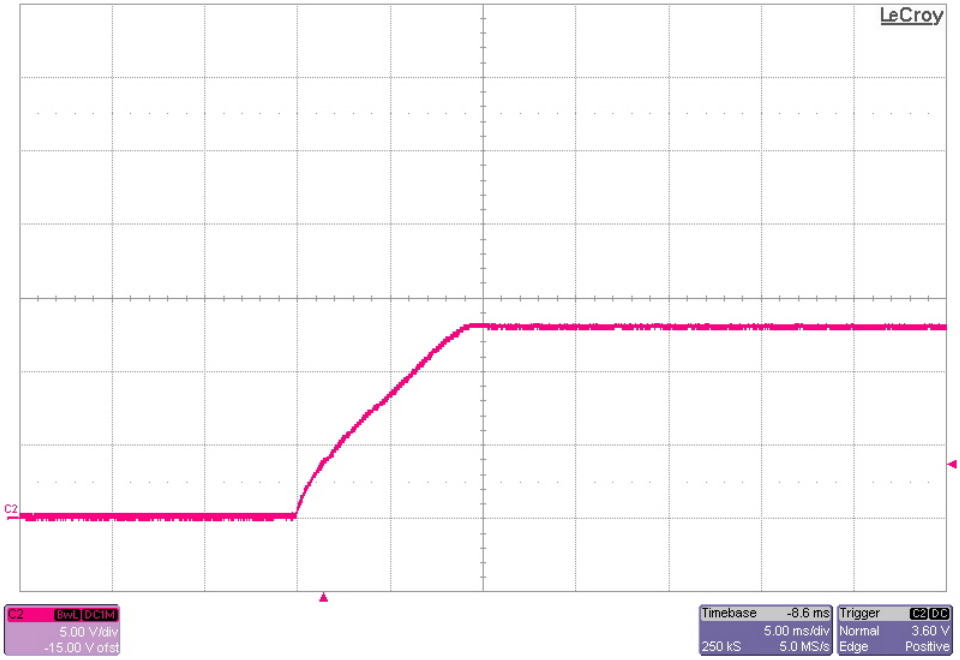
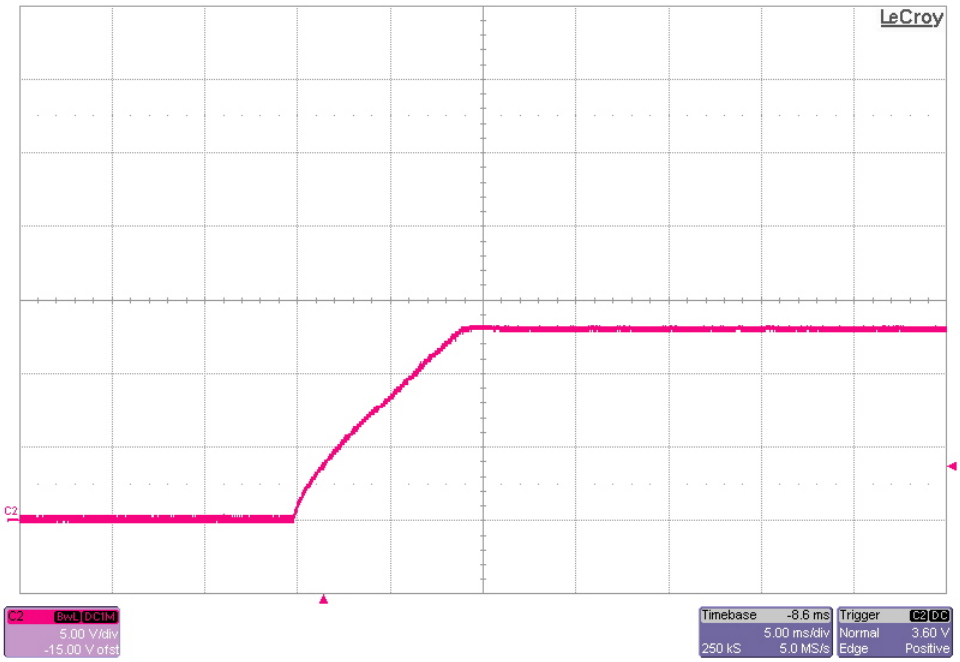
1 Startup

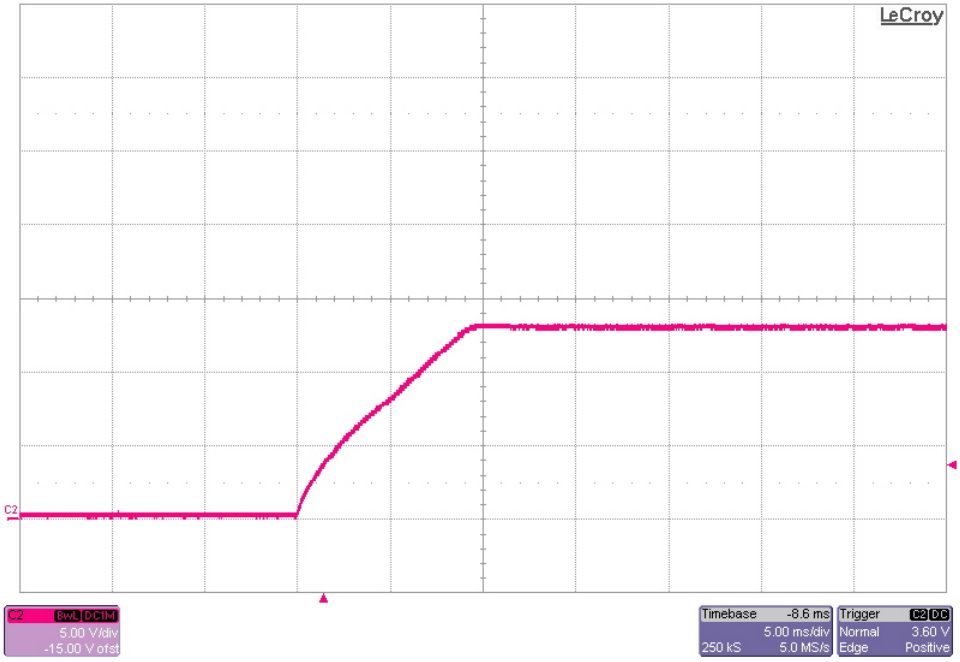
The photo below shows the output voltage startup waveform after the application of 16V in. The 13.2V output was loaded to 0A. (5V/DIV, 5mS/DIV)



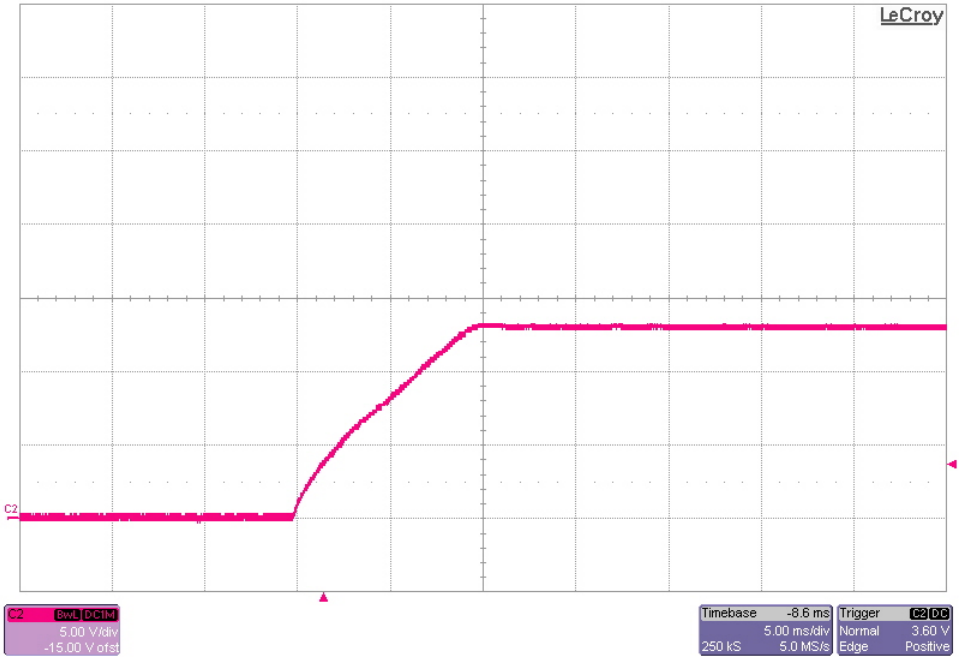
The photo below shows the output voltage startup waveform after the application of 16V in. The 13.2V output was loaded to 3A. (5V/DIV, 5mS/DIV)



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)

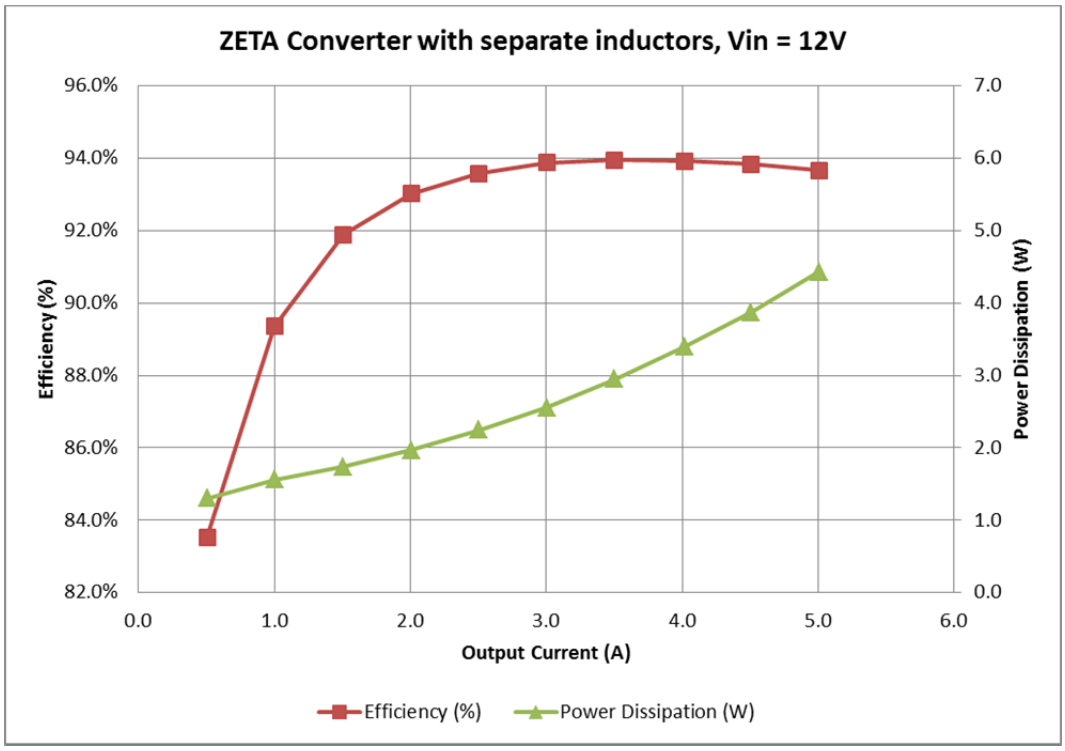


The photo below shows the output voltage startup waveform after the application of 6V in. The 13.2V output was loaded to 3A. (5V/DIV, 5mS/DIV)

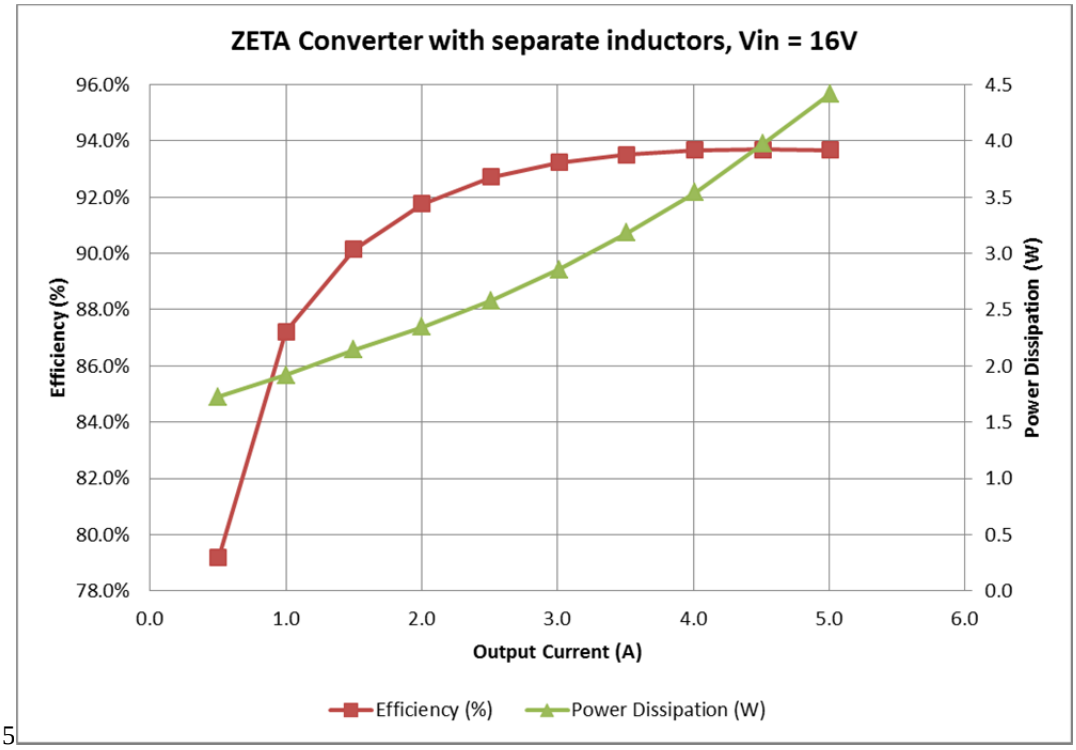


2 Efficiency

The converter efficiency is shown below for Vin = 12V and Vout = 13.2V.

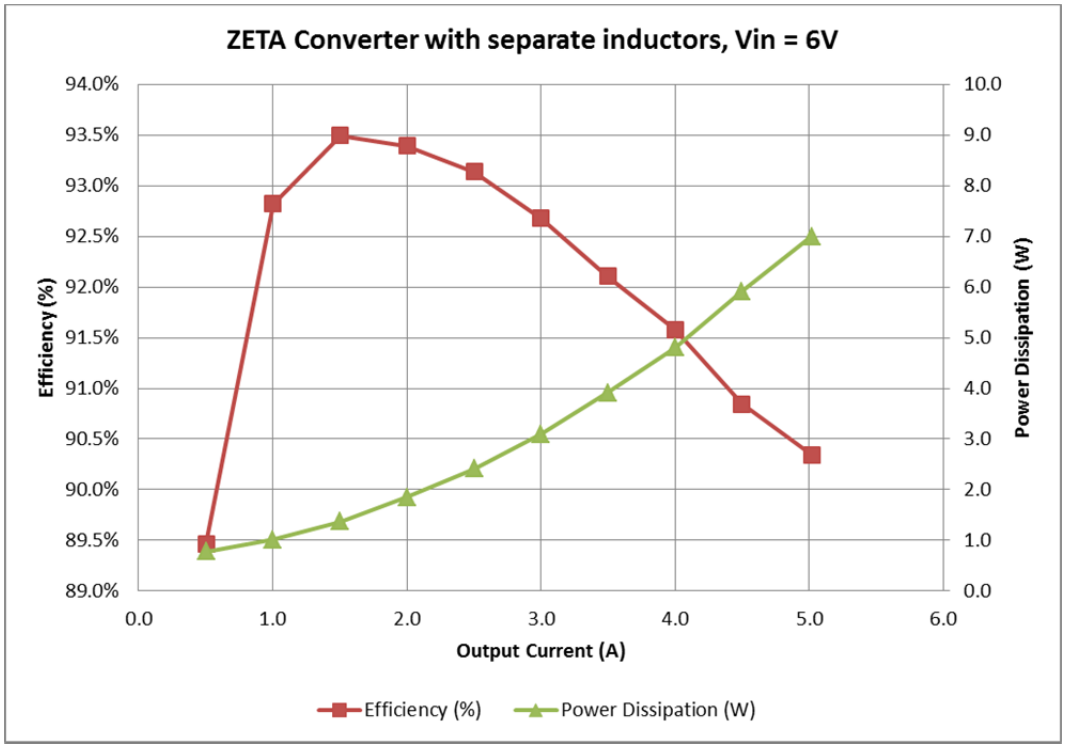


The converter efficiency is shown below for Vin = 16V and Vout = 13.2V.



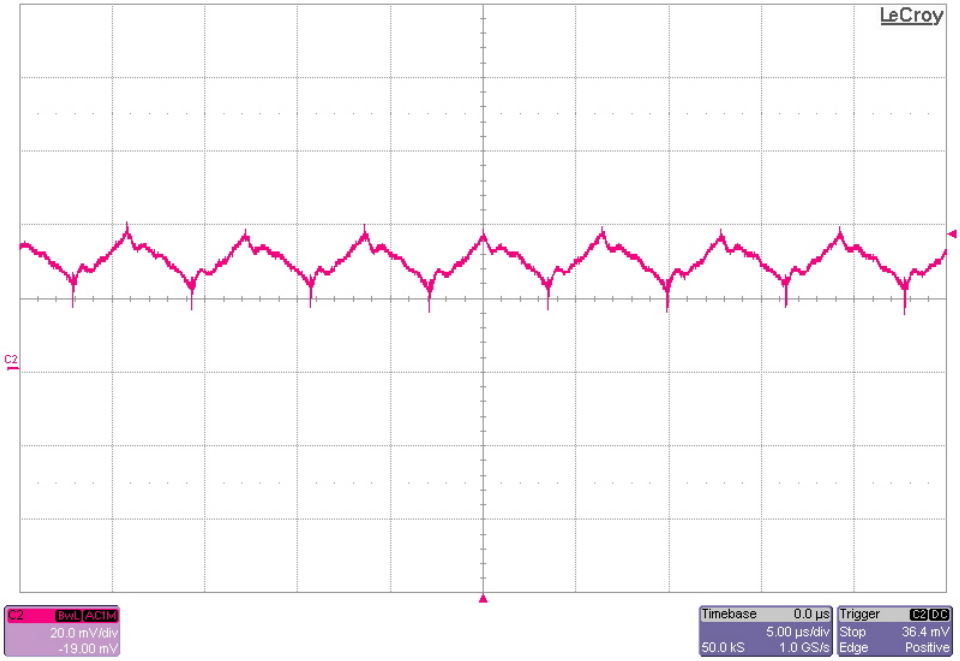
5

The converter efficiency is shown below for Vin = 6V and Vout = 13.2V.

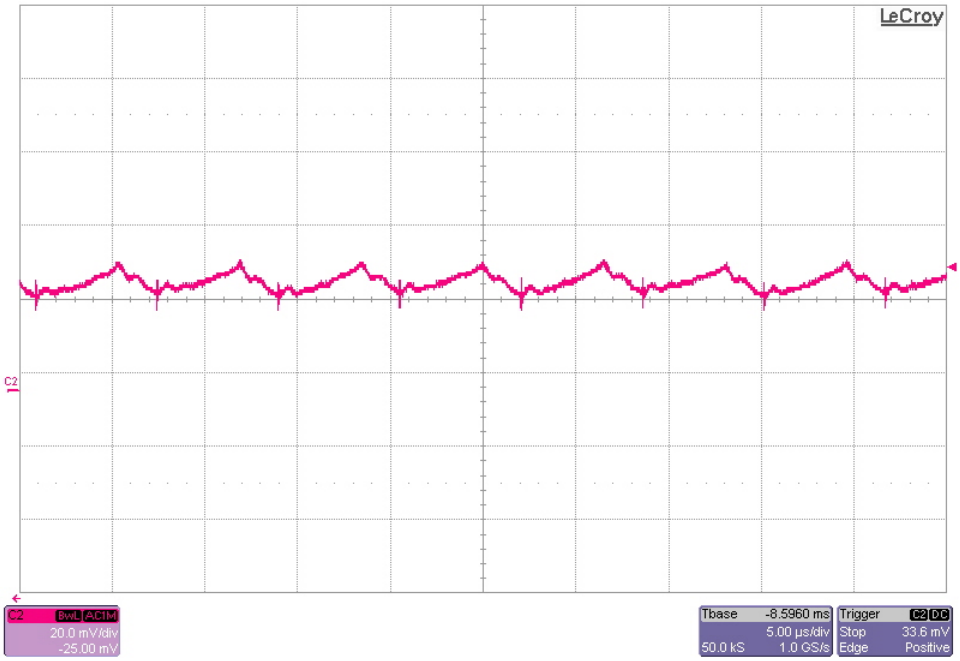


3 Output Ripple Voltage

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)

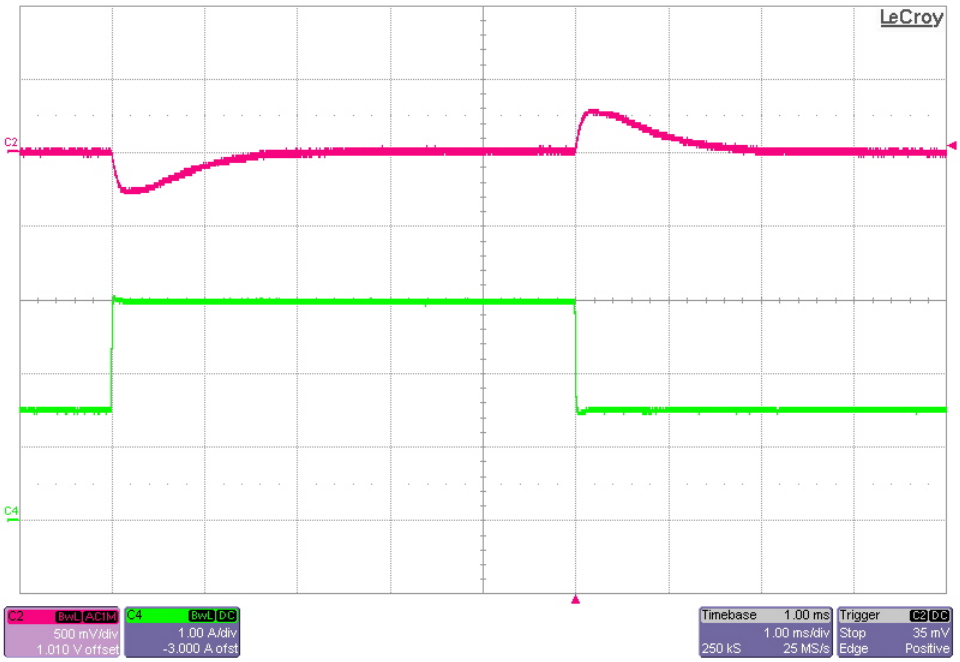


The 13.2V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 3A. The input voltage is set to 6V. (20mV/DIV, 5uS/DIV)

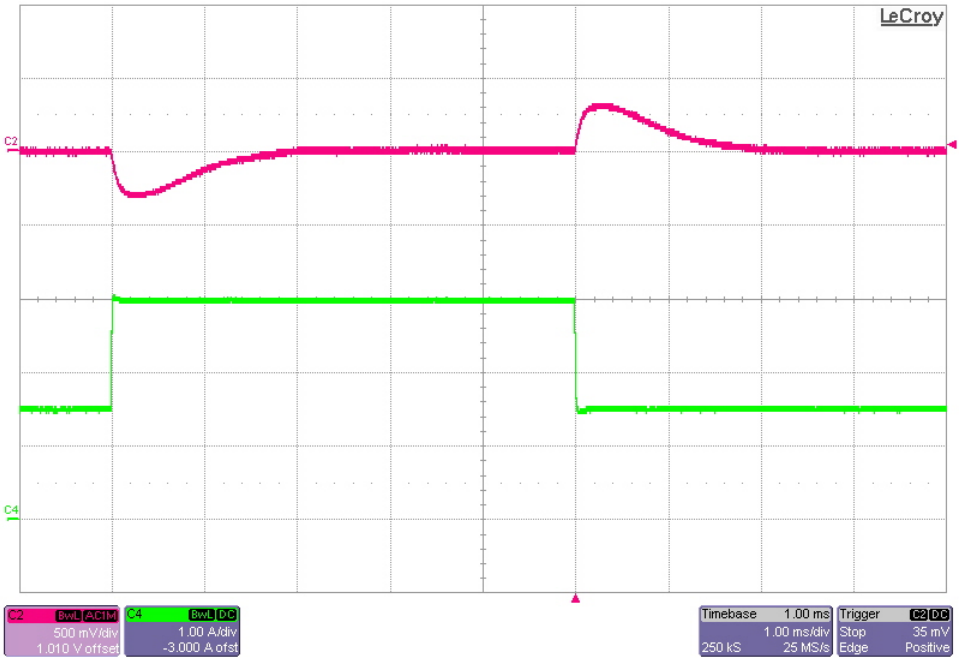


4 Load Transients

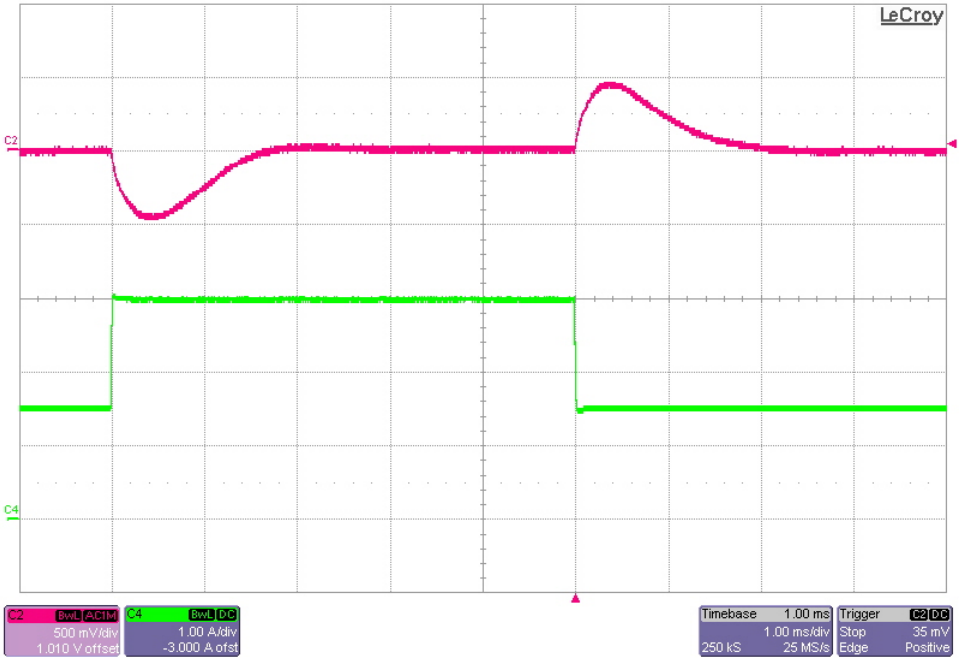
The photo below shows the 13.2V output voltage (ac coupled) when the load current is stepped between 1.5A and 3A. Vin = 16V. (500mV/DIV, 1A/DIV, 1mS/DIV)



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

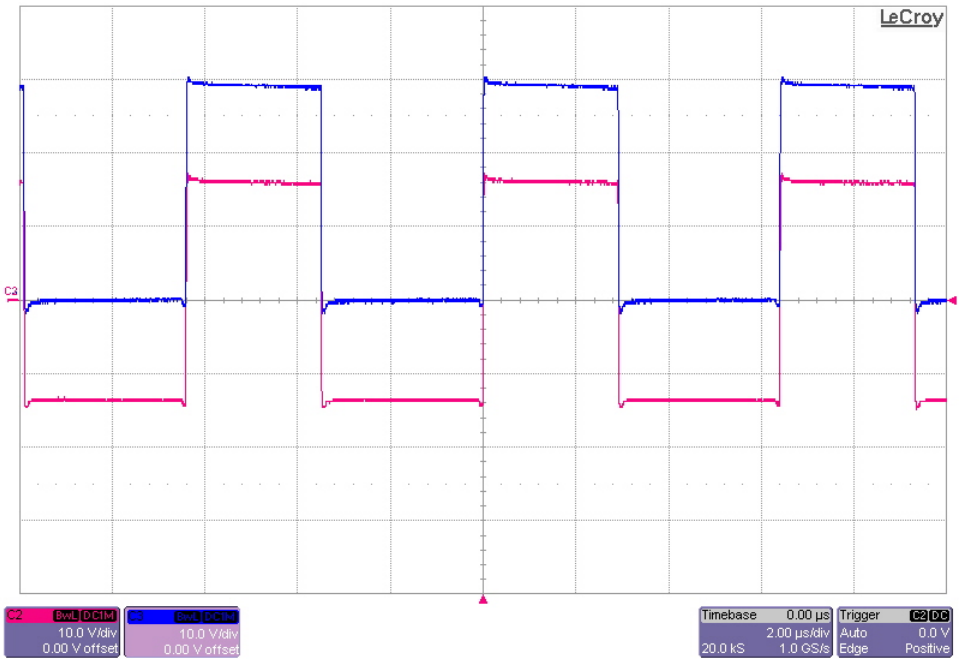


The photo below shows the 13.2V output voltage (ac coupled) when the load current is stepped between 1.5A and 3A. Vin = 6V. (500mV/DIV, 1A/DIV, 1mS/DIV)

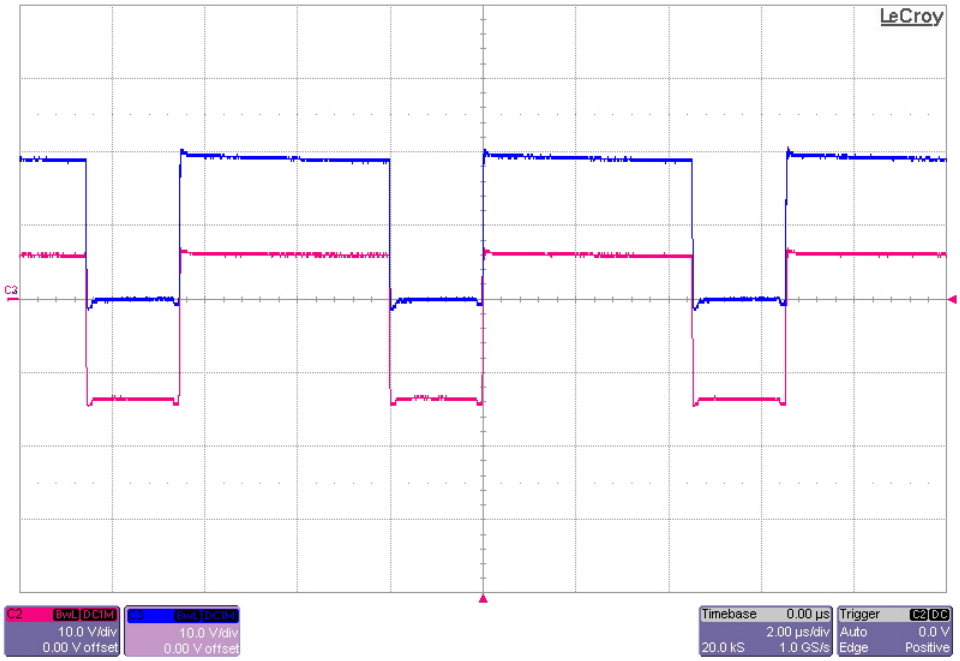


5 Switch Node Waveforms

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)



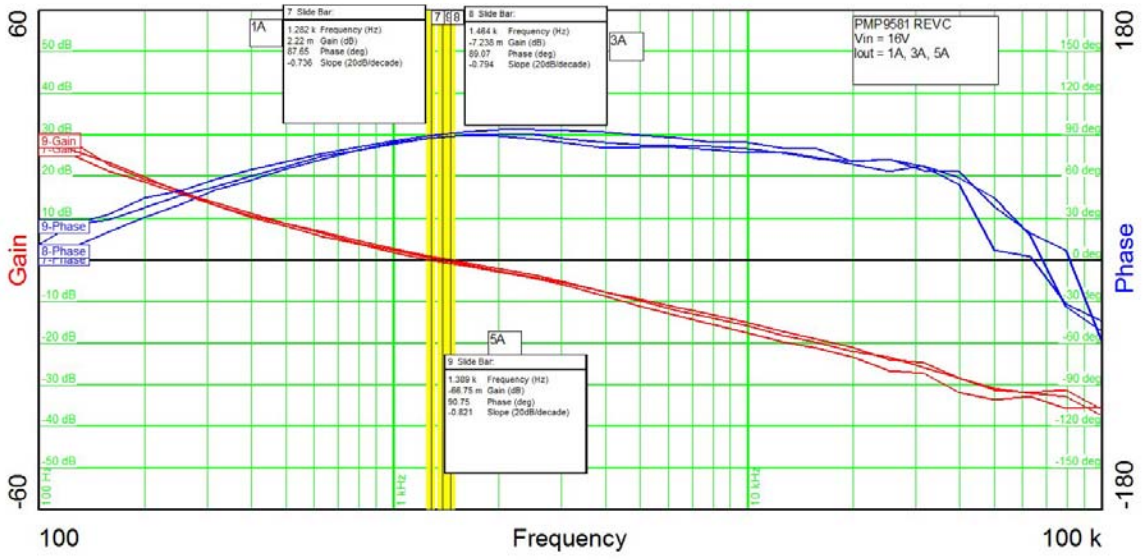
The photo below shows the two switching node voltages for an input voltage of 6V and a 3A load. Blue is the bottom FET (TP7) and Red is the top FET (TP3). (10V/DIV, 2uS/DIV)



6 Loop Gain

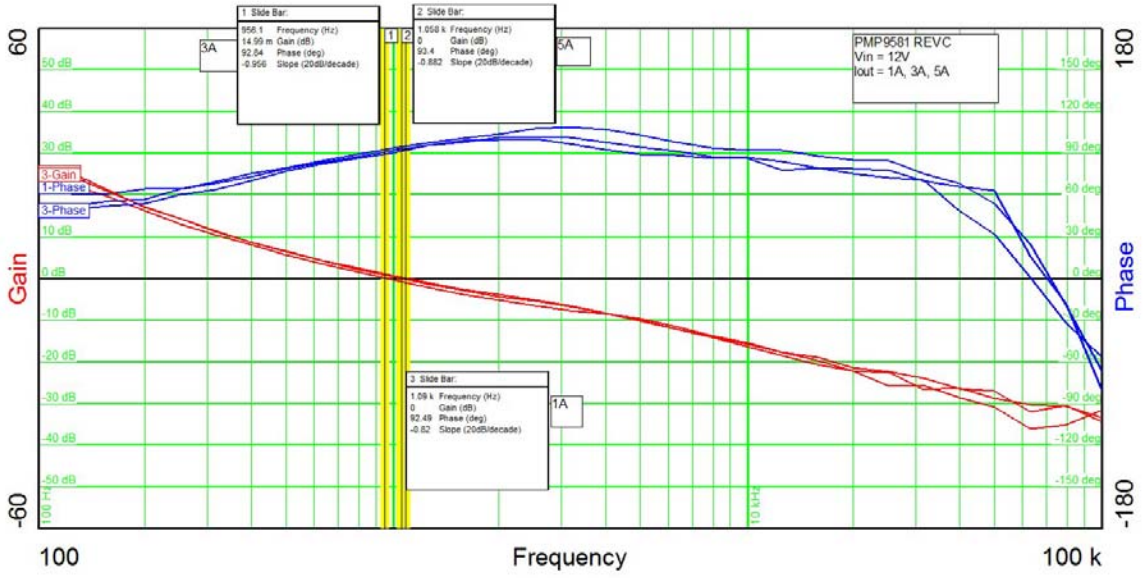
The plot below shows the loop gain with the input voltage set to 16V and the output set to 1A, 3A, and 5A.

Loop Gain (Iout = 5A)	BW: 1.39KHz	PM: 91 degrees
Loop Gain (Iout = 3A)	BW: 1.46KHz	PM: 89 degrees
Loop Gain (Iout = 1A)	BW: 1.28KHz	PM: 88 degrees



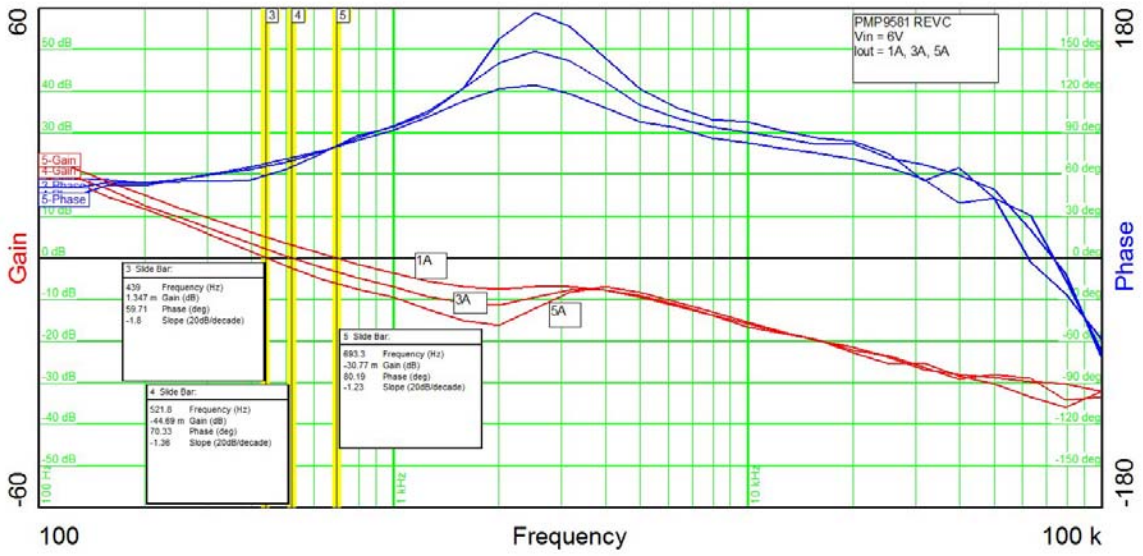
The plot below shows the loop gain with the input voltage set to 12V and the output set to 1A, 3A, and 5A.

Loop Gain (Iout = 5A)	BW: 1.06KHz	PM: 93 degrees
Loop Gain (Iout = 3A)	BW: 956Hz	PM: 93 degrees
Loop Gain (Iout = 1A)	BW: 1.09KHz	PM: 92 degrees



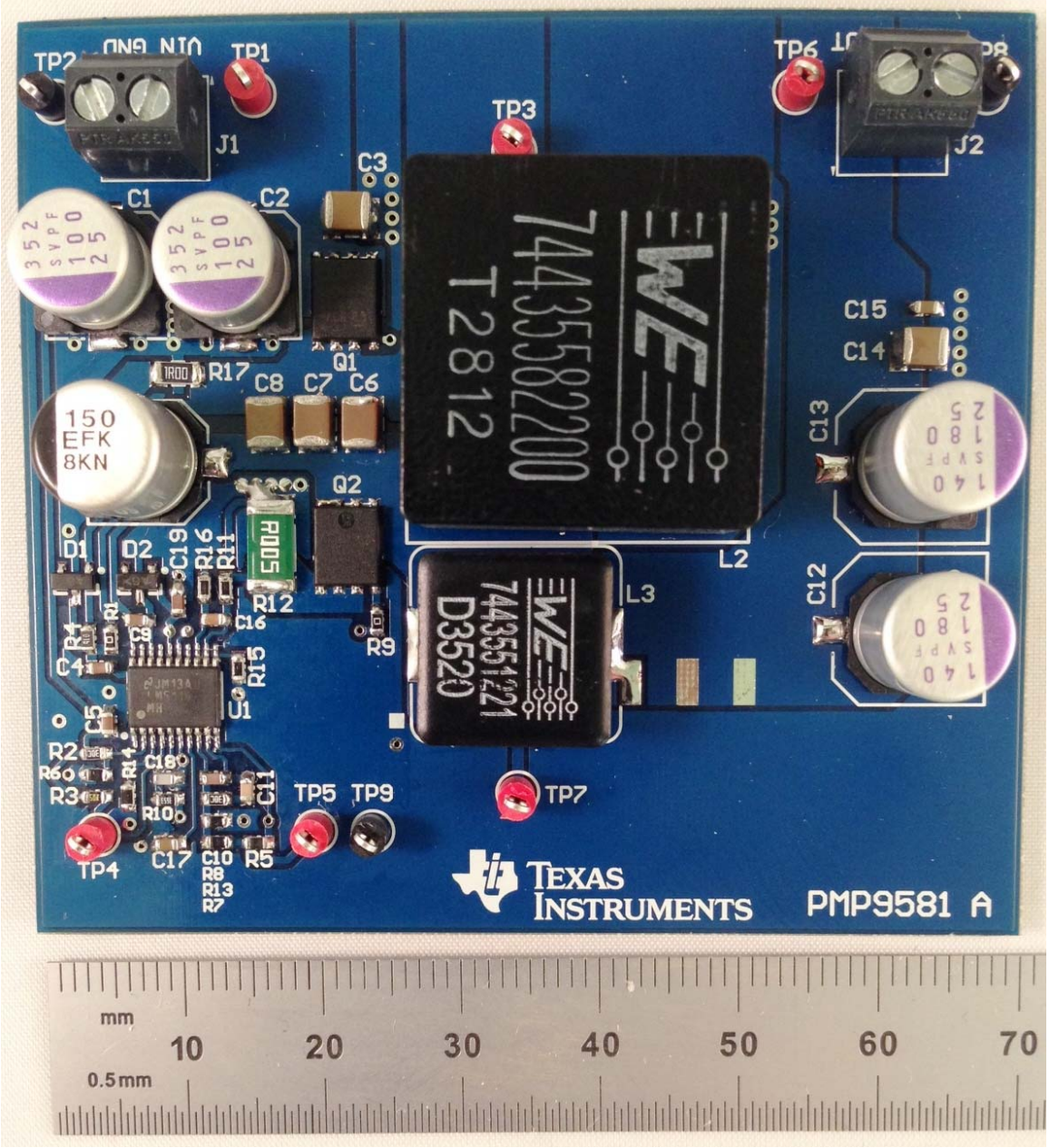
The plot below shows the loop gain with the input voltage set to 6V and the output set to 1A, 3A, and 5A.

Loop Gain (Iout = 5A)	BW: 439Hz	PM: 60 degrees
Loop Gain (Iout = 3A)	BW: 522Hz	PM: 70 degrees
Loop Gain (Iout = 1A)	BW: 693Hz	PM: 80 degrees



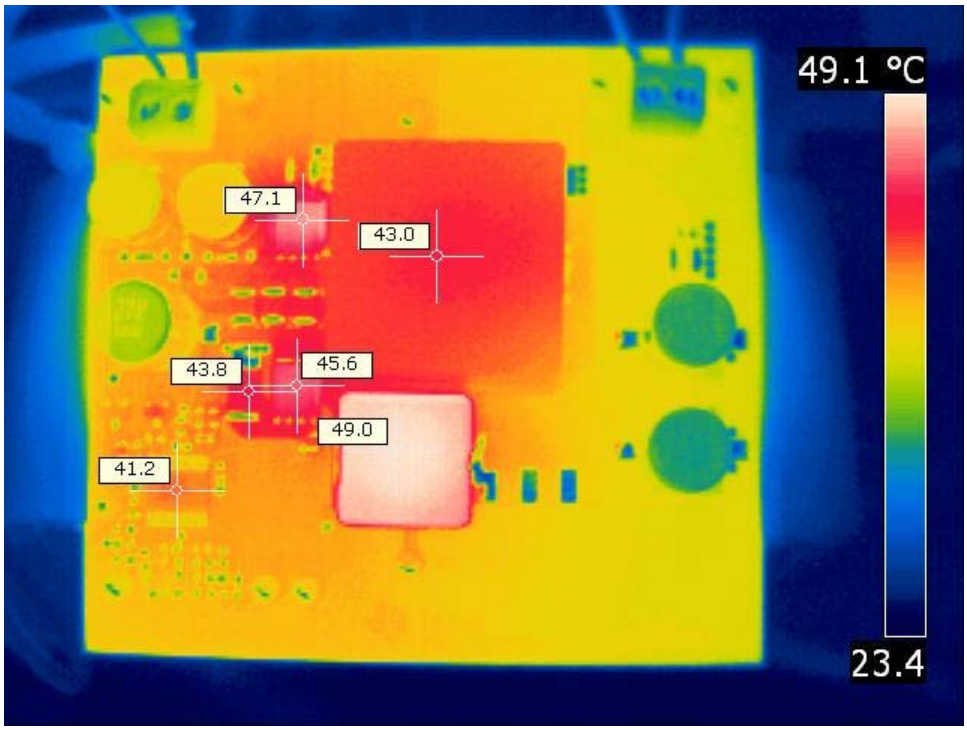
7 Photo

The photo below shows the PMP9581 REVC assy.

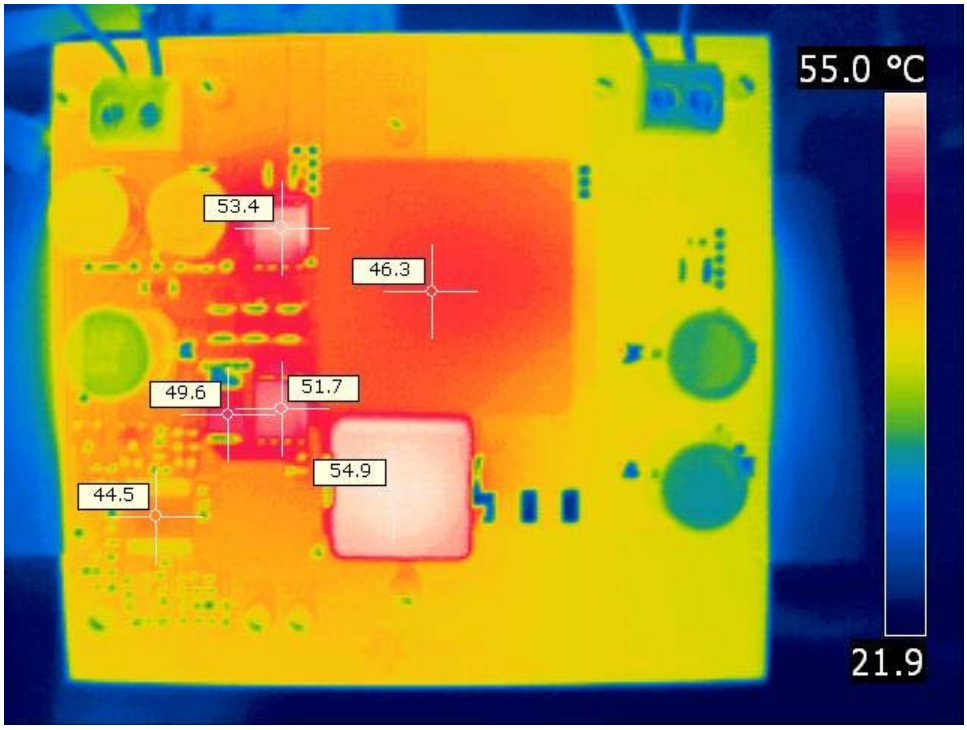


8 Thermal Image

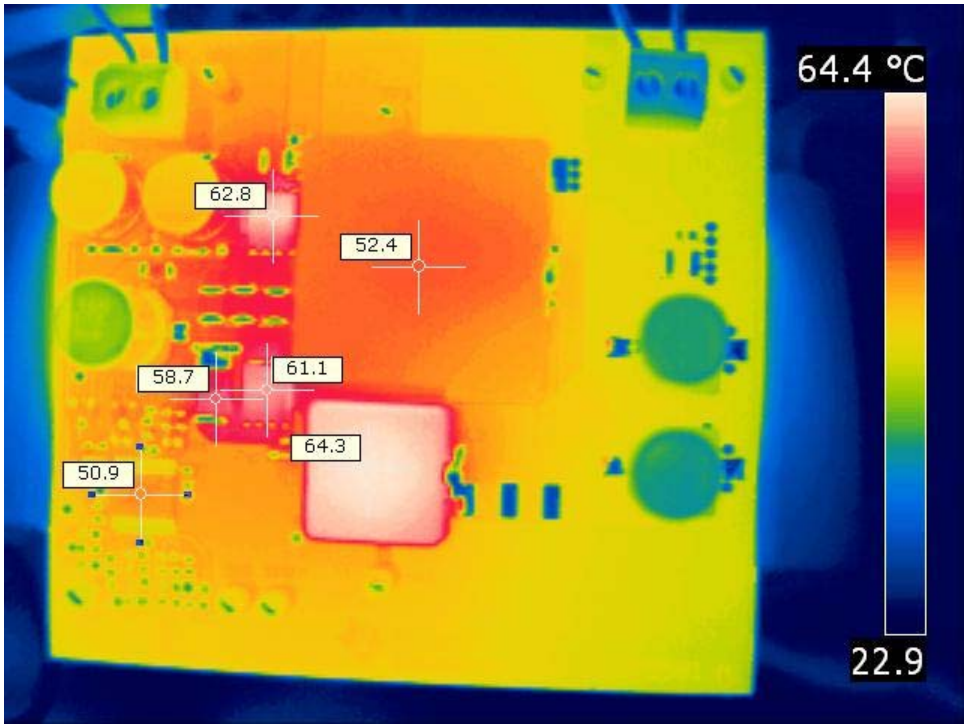
A thermal image is shown below operating at 12V input and 13.2V@3A output (room temp, no airflow).



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



A thermal image is shown below operating at 12V input and 13.2V@5A output (room temp, no airflow).



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