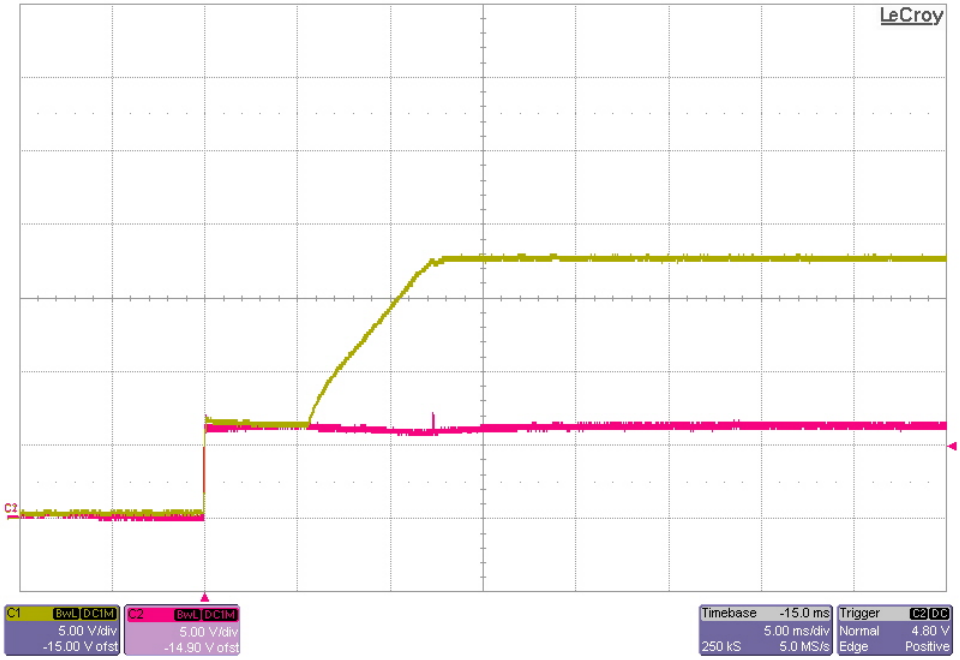
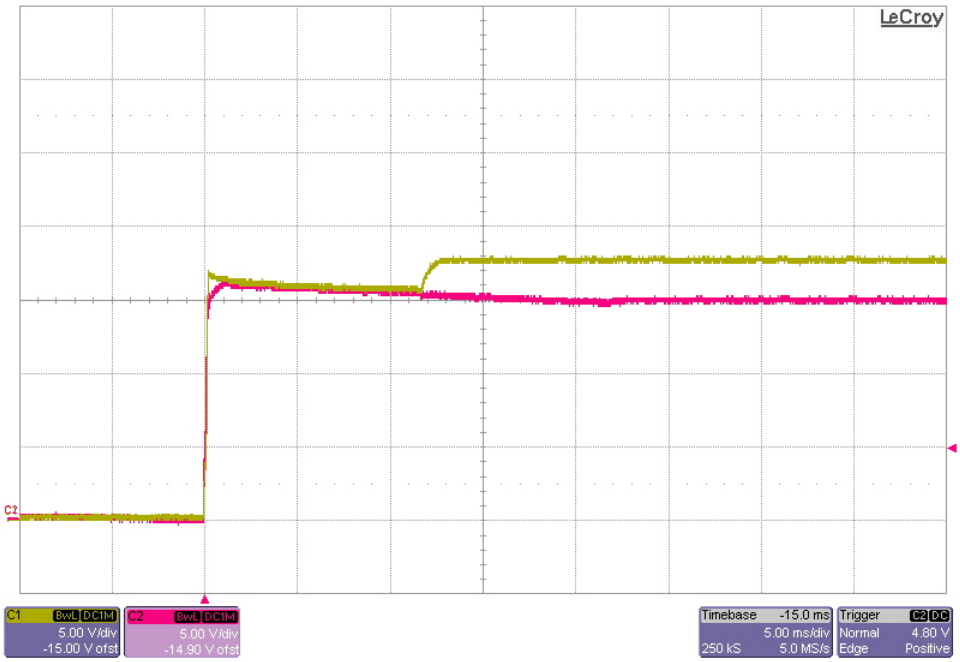
1 Startup

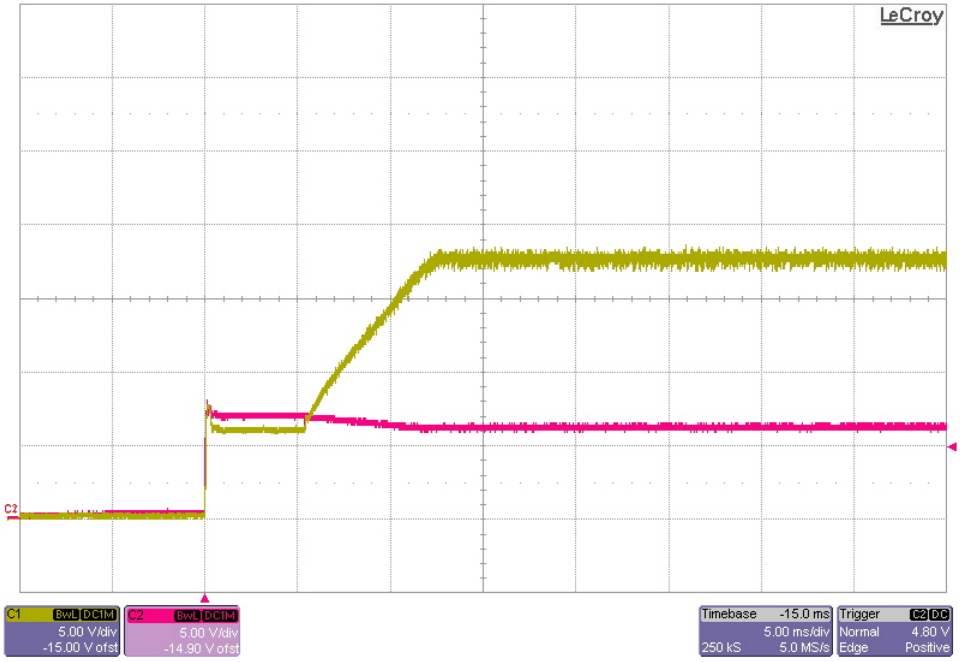
The photo below shows the output voltage startup waveform after the application of 6V in. The 18V output was loaded to 0A. (5V/DIV, 5mS/DIV)



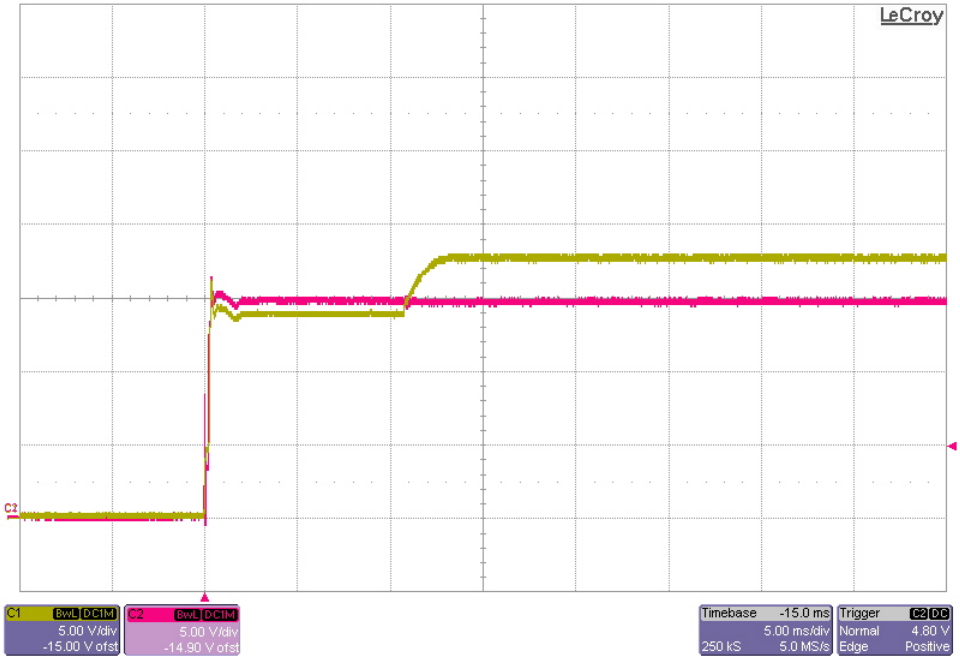
The photo below shows the output voltage startup waveform after the application of 15V in. The 18V output was loaded to 0A. (5V/DIV, 5mS/DIV)



The photo below shows the output voltage startup waveform after the application of 6V in. The 18V output was loaded to 15A. (5V/DIV, 5mS/DIV)

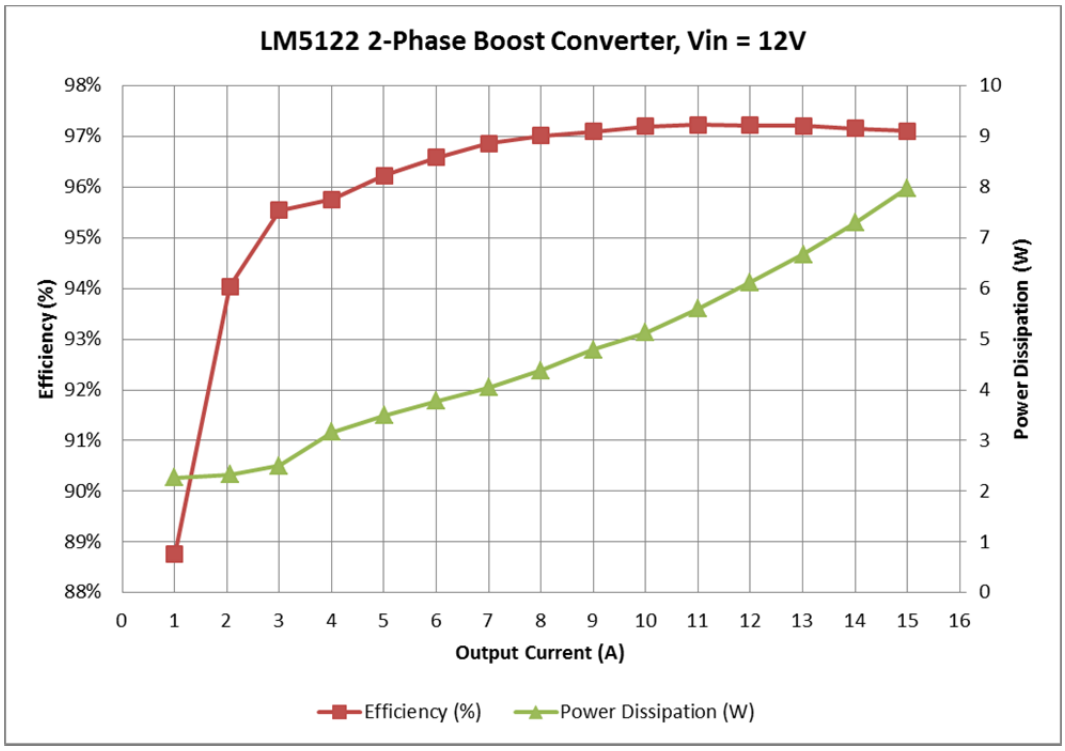


The photo below shows the output voltage startup waveform after the application of 15V in. The 18V output was loaded to 15A. (5V/DIV, 5mS/DIV)

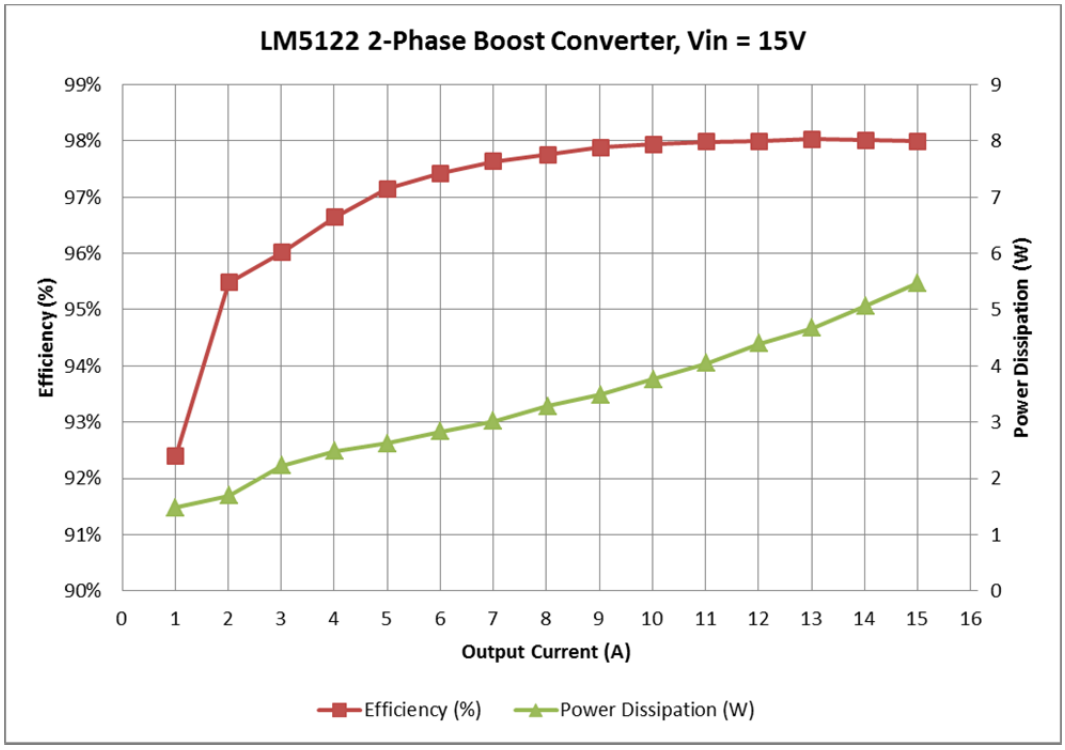


2 Efficiency

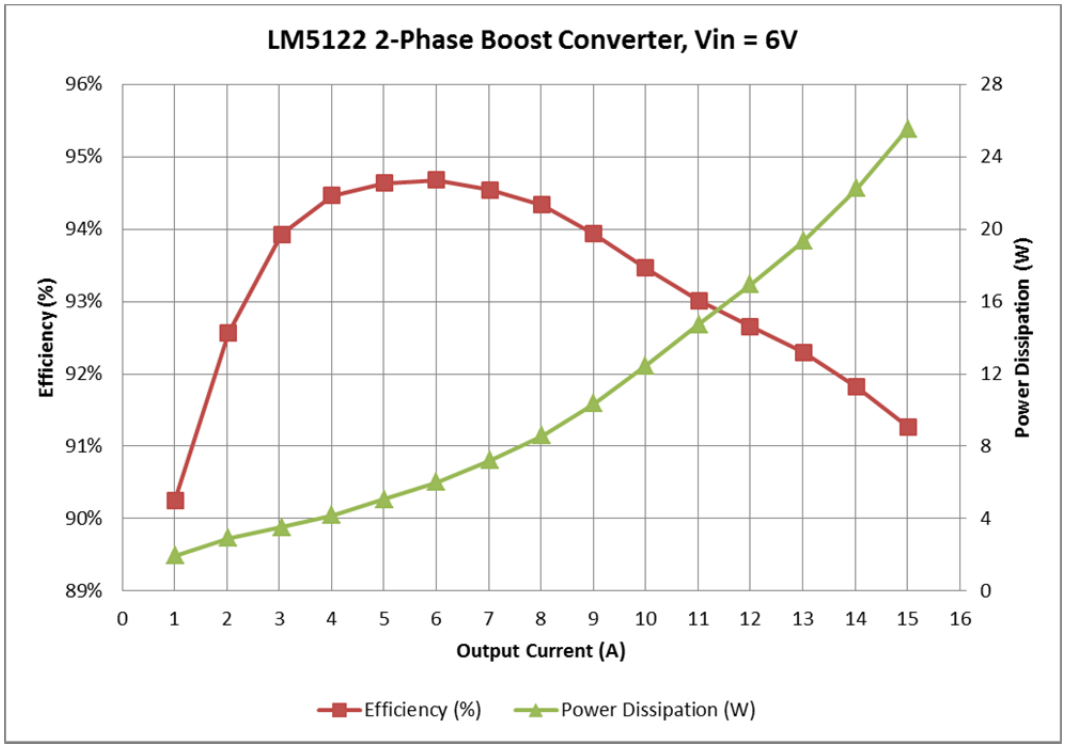
The converter efficiency is shown below for Vin = 12V and Vout = 18V.



The converter efficiency is shown below for Vin = 15V and Vout = 18V.

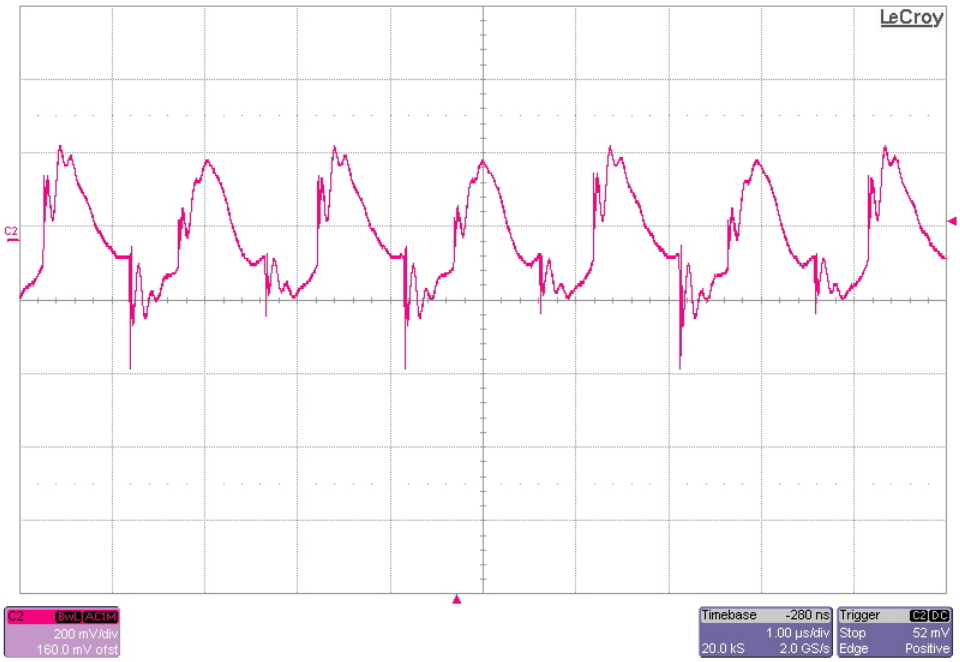


The converter efficiency is shown below for Vin = 6V and Vout = 18V.

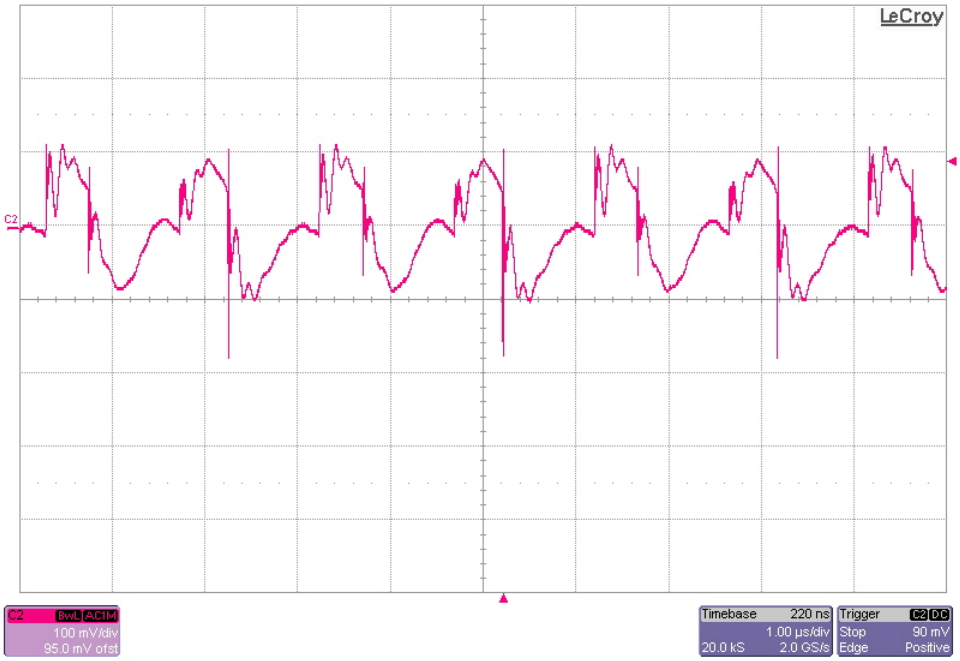


3 Output Ripple Voltage

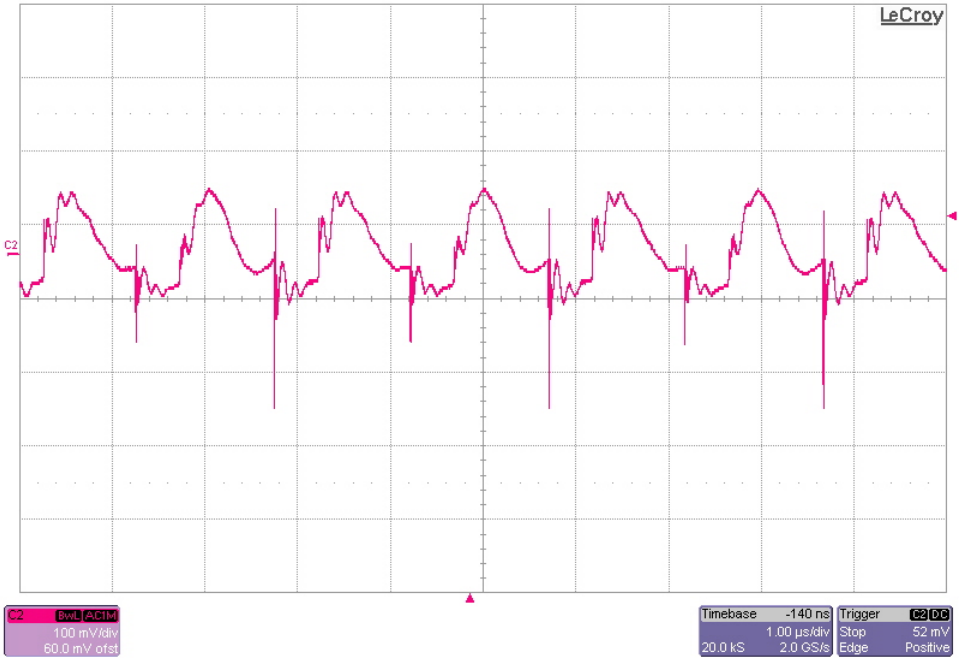
The 18V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 15A. The input voltage is set to 6V. (200mV/DIV, 1uS/DIV)



The 18V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 15A. The input voltage is set to 12V. (100mV/DIV, 1uS/DIV)

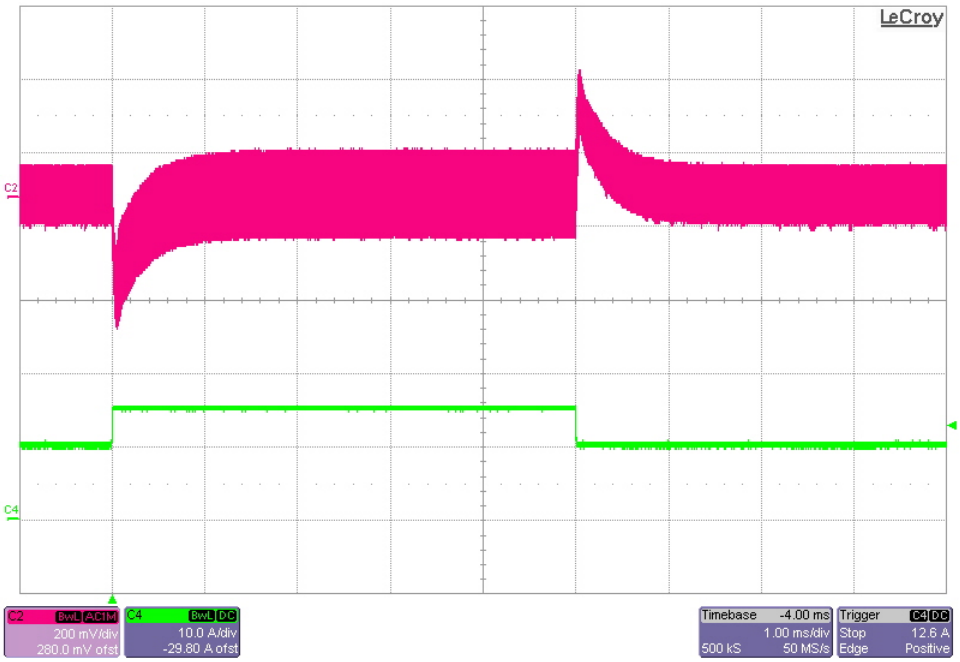


The 18V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 15A. The input voltage is set to 15V. (100mV/DIV, 1uS/DIV)

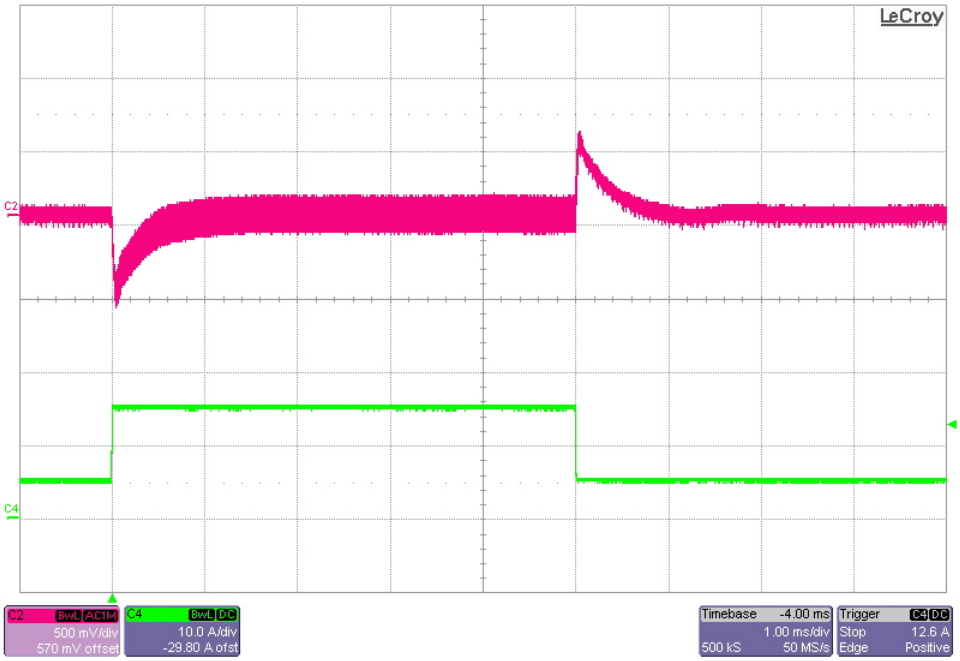


4 Load Transients

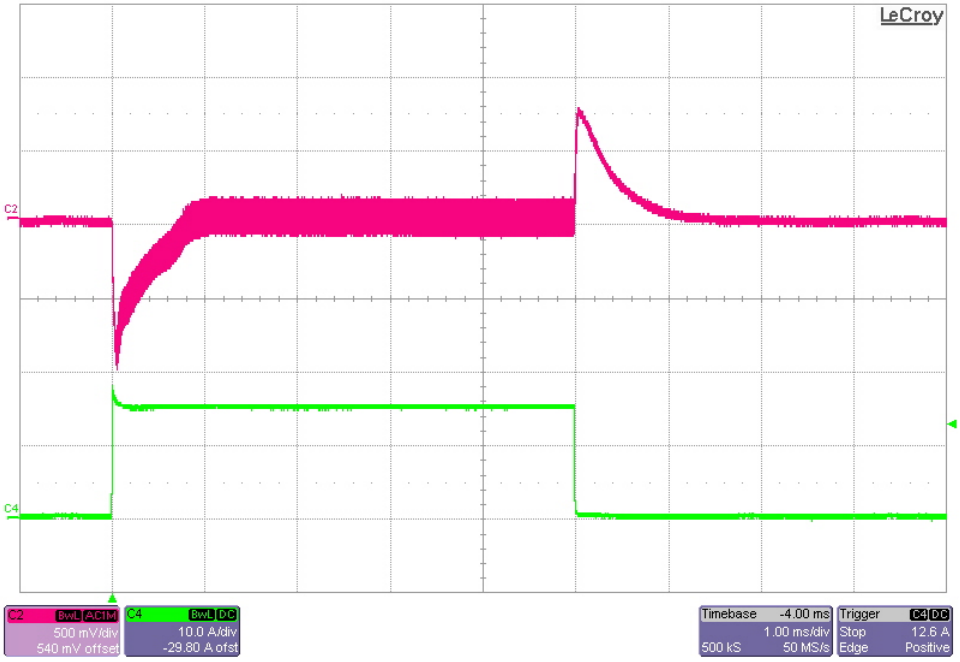
The photo below shows the 18V output voltage (ac coupled) when the load current is stepped between 10A and 15A. Vin = 12V. (200mV/DIV, 10A/DIV, 1mS/DIV)



The photo below shows the 18V output voltage (ac coupled) when the load current is stepped between 5A and 15A. Vin = 12V. (500mV/DIV, 10A/DIV, 1mS/DIV)

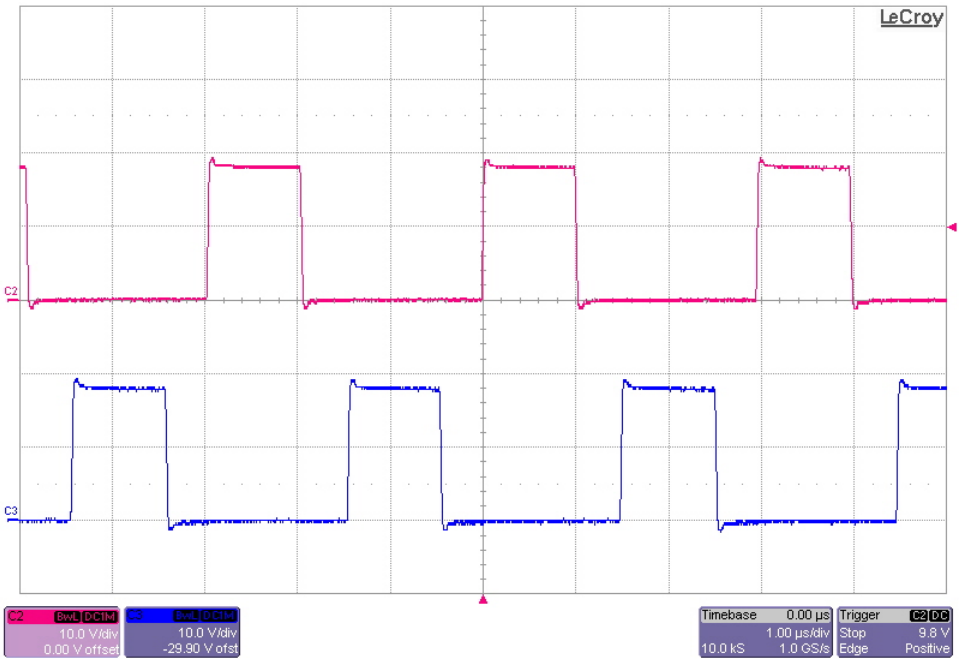


The photo below shows the 18V output voltage (ac coupled) when the load current is stepped between 0A and 15A. Vin = 12V. (500mV/DIV, 10A/DIV, 1mS/DIV)

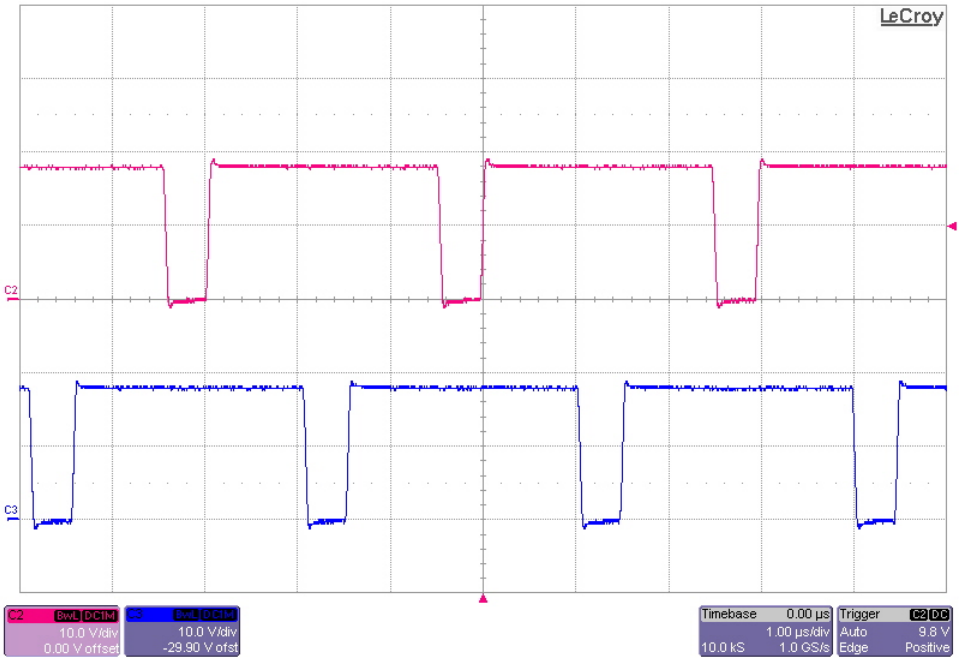


5 Switch Node Waveforms

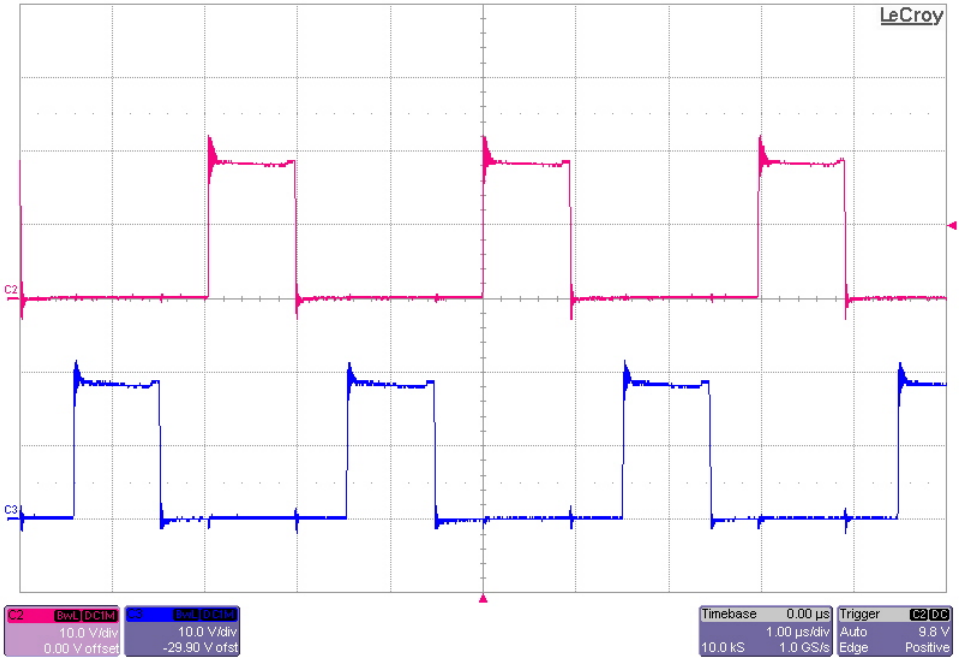
The photo below shows the FET switching voltages (TP2 top, TP9 bottom) for an input voltage of 6V and a 0A load. (10V/DIV, 1uS/DIV)



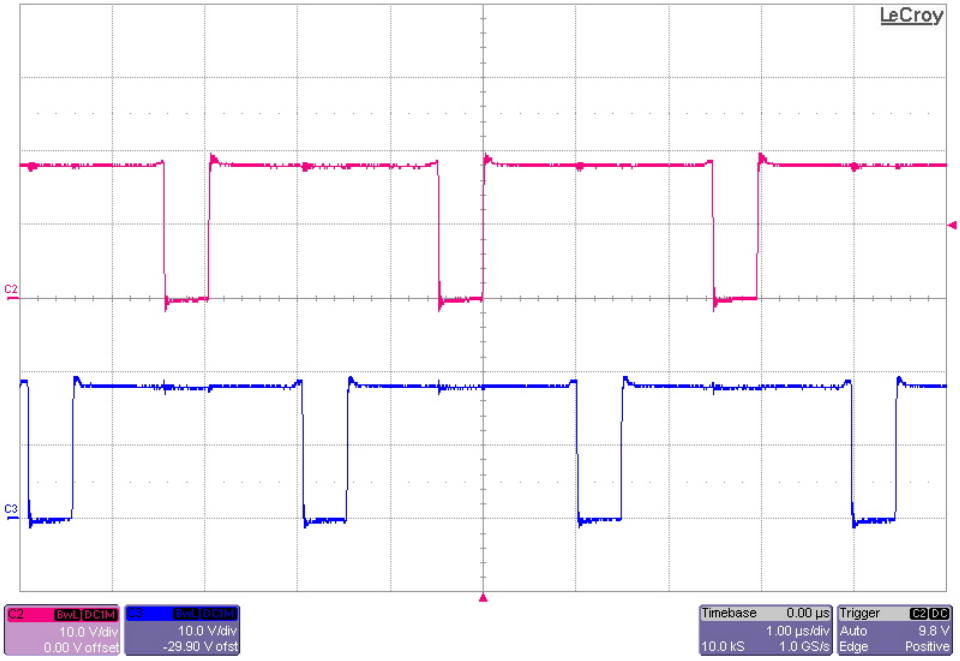
The photo below shows the FET switching voltages (TP2 top, TP9 bottom) for an input voltage of 15V and a 0A load. (10V/DIV, 1uS/DIV)



The photo below shows the FET switching voltages (TP2 top, TP9 bottom) for an input voltage of 6V and a 15A load. (10V/DIV, 1uS/DIV)

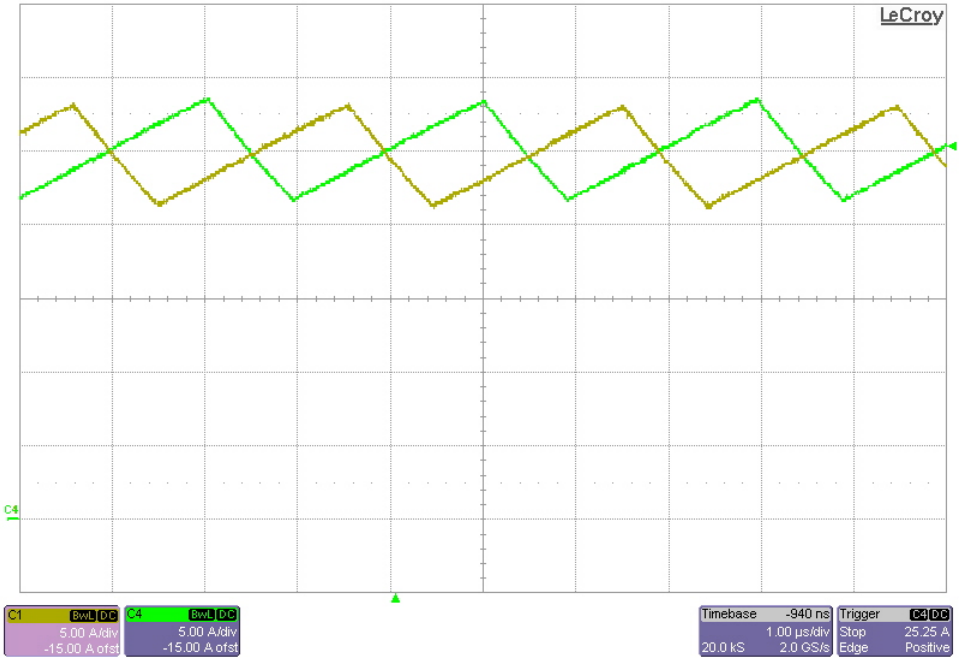


The photo below shows the FET switching voltages (TP2 top, TP9 bottom) for an input voltage of 15V and a 15A load. (10V/DIV, 1uS/DIV)

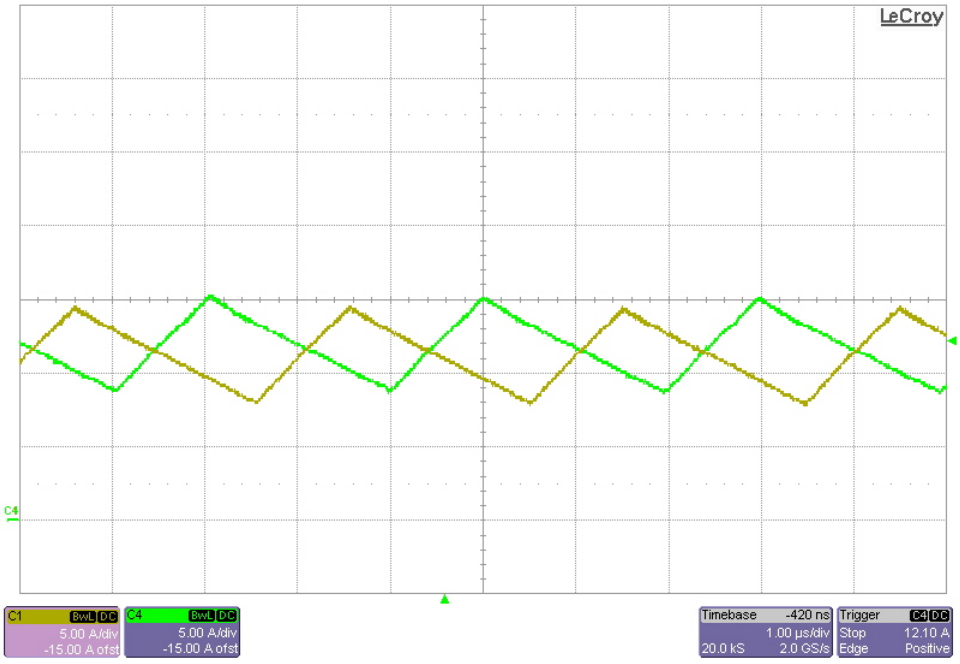


6 Current Balance Waveforms

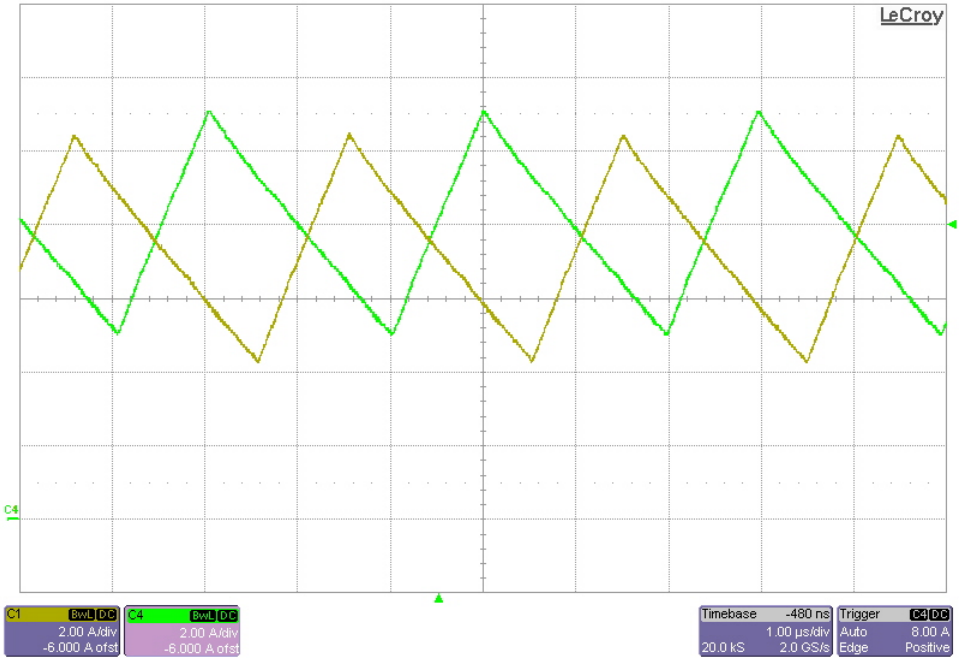
The photo below shows the measured inductor current in each phase. The input voltage was set to 6V with a 15A load. (5A/DIV, 1uS/DIV)



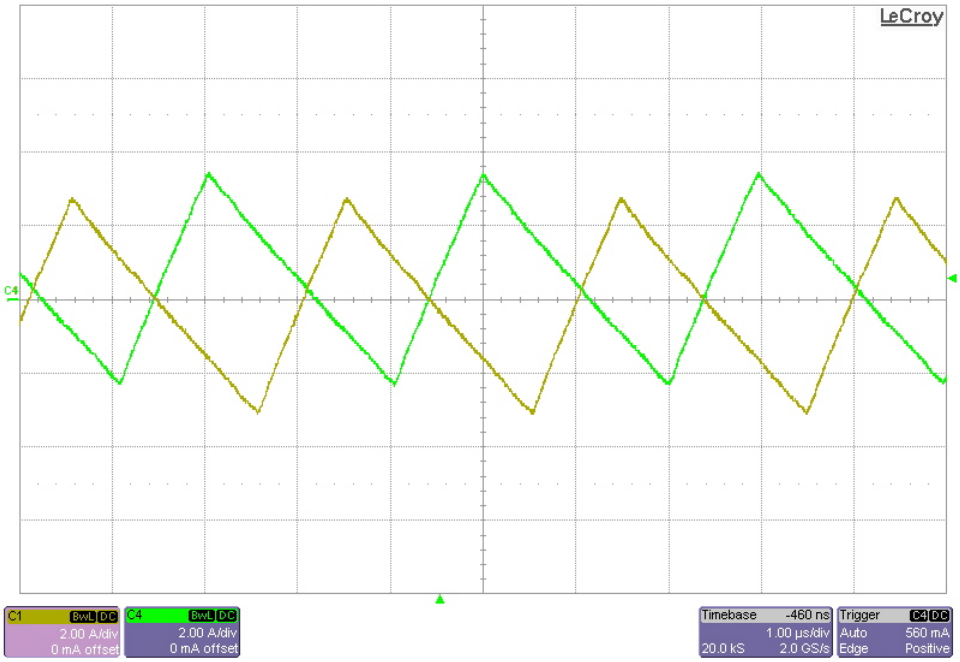
The photo below shows the measured inductor current in each phase. The input voltage was set to 12V with a 15A load. (5A/DIV, 1uS/DIV)



The photo below shows the measured inductor current in each phase. The input voltage was set to 12V with a 10A load. (2A/DIV, 1uS/DIV)



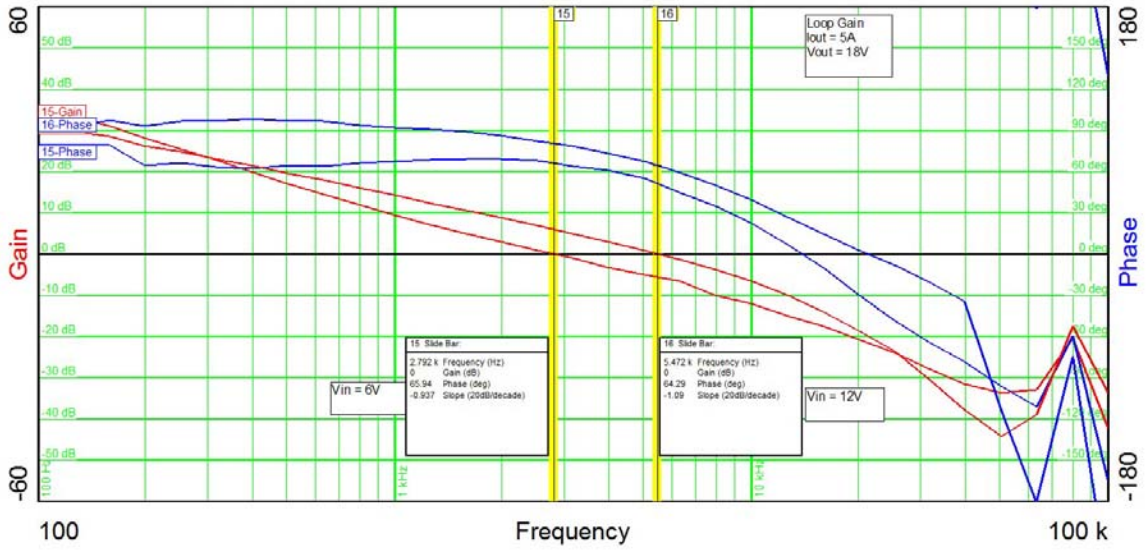
The photo below shows the measured inductor current in each phase. The input voltage was set to 12V with a 0A load. (2A/DIV, 1uS/DIV)



7 Loop Gain

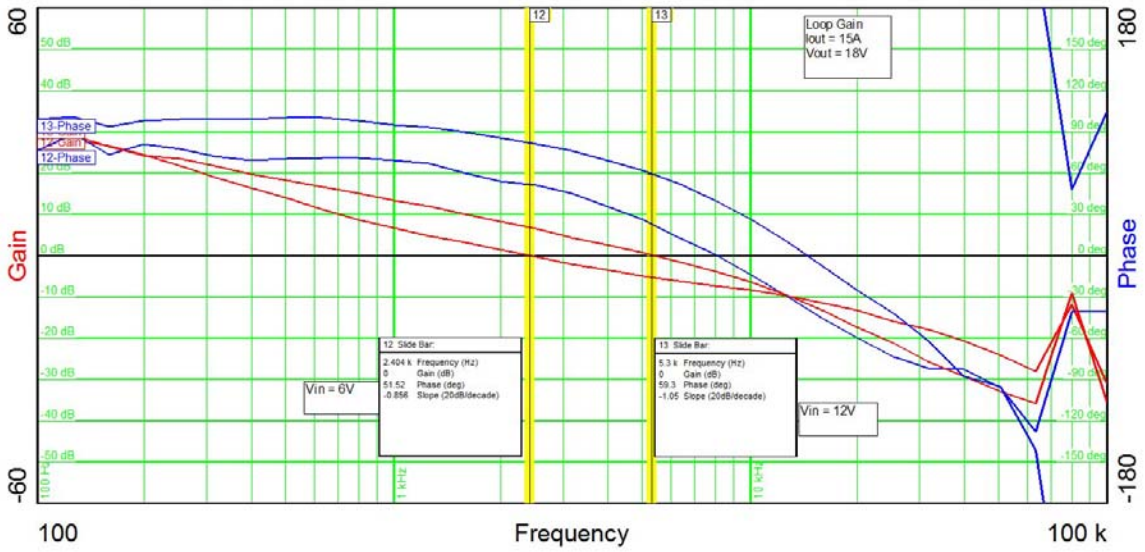
The plot below shows the loop gain with the input voltage set to 6V and 12V for an output load of 5A.

Loop Gain (Vin = 12V)	BW: 5.47KHz	PM: 64 degrees
Loop Gain (Vin = 6V)	BW: 2.79KHz	PM: 66 degrees



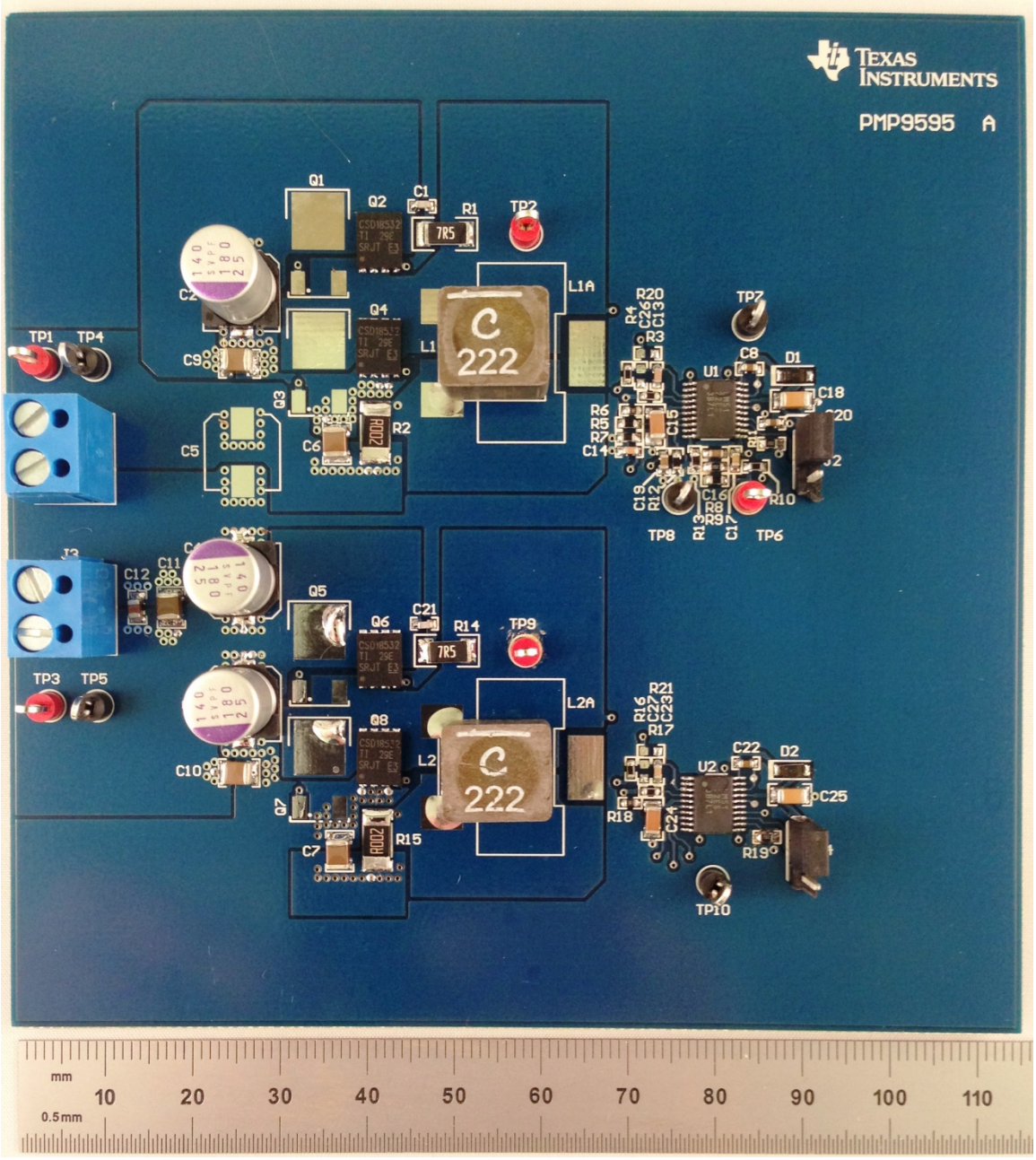
The plot below shows the loop gain with the input voltage set to 6V and 12V for an output load of 15A.

Loop Gain (Vin = 12V)	BW: 5.30KHz	PM: 59 degrees
Loop Gain (Vin = 6V)	BW: 2.40KHz	PM: 52 degrees



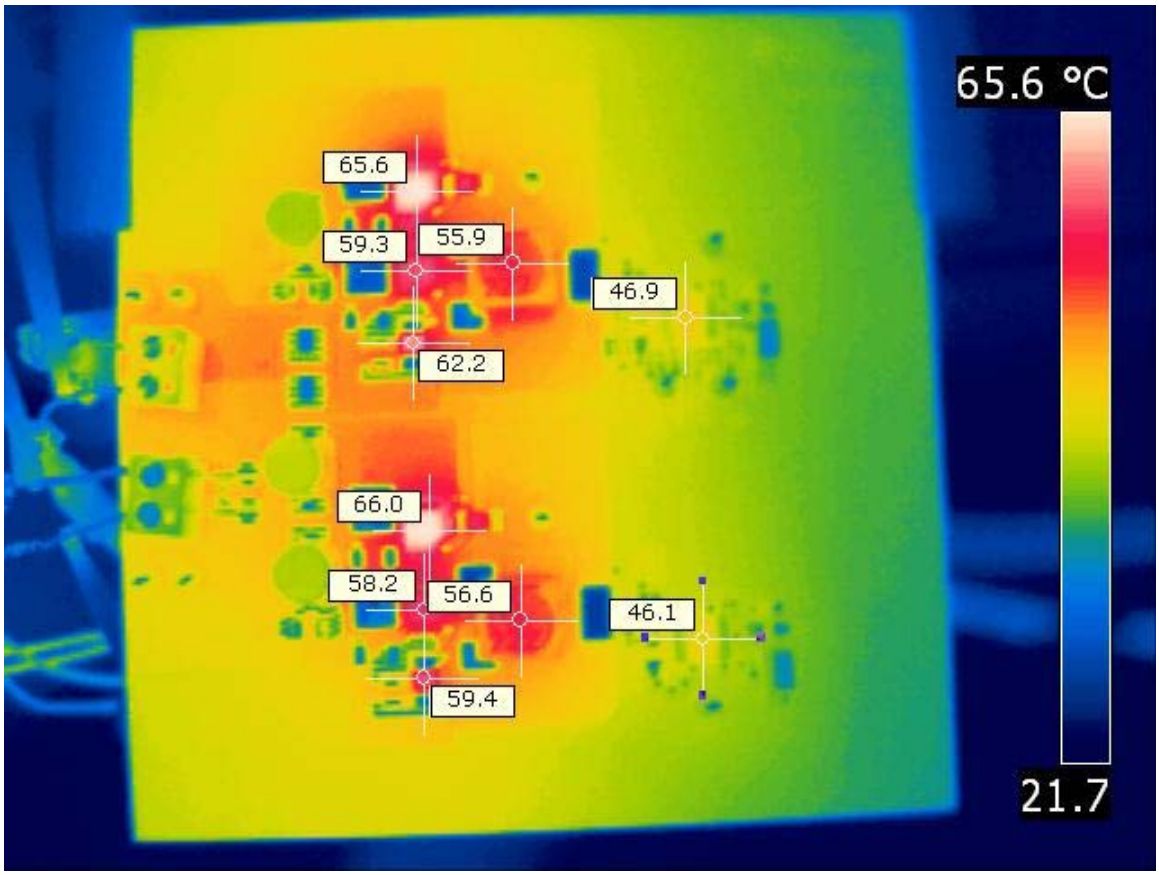
8 Photo

The photo below shows the PMP9595 REVB assy.



9 Thermal Image

A thermal image is shown below operating at 12V input and 18V@15A output (room temp, no airflow).



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