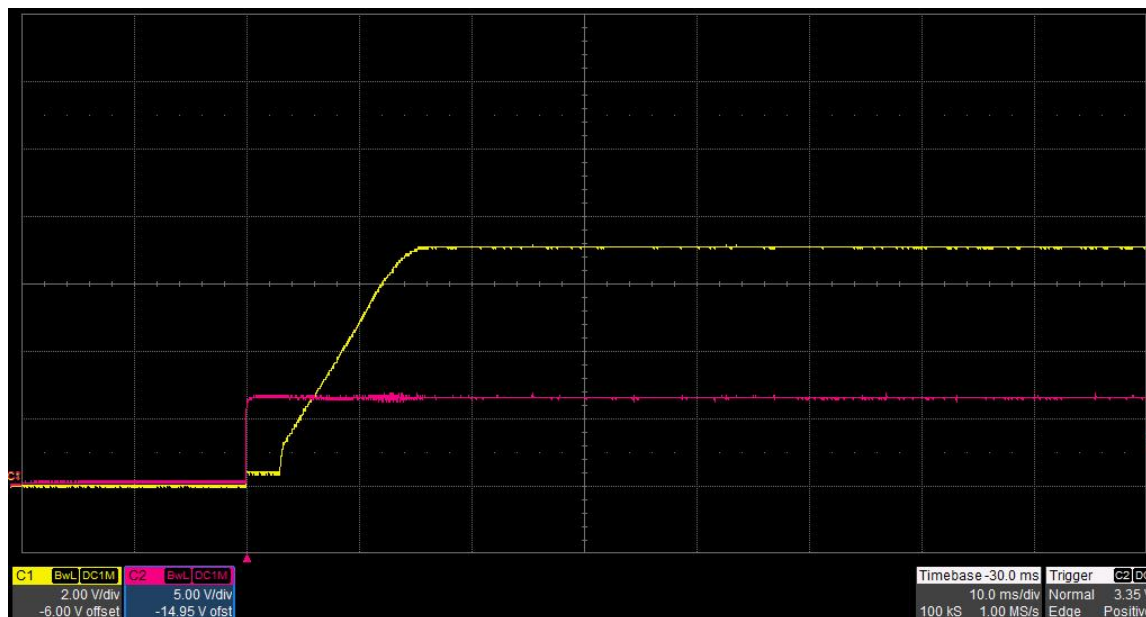
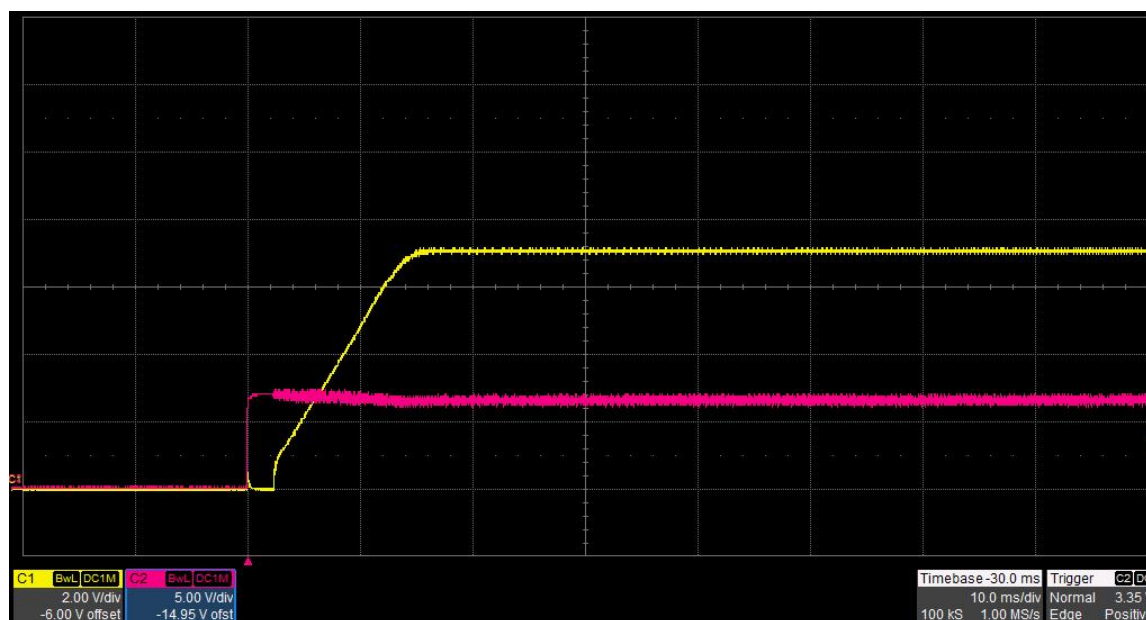


1 Startup

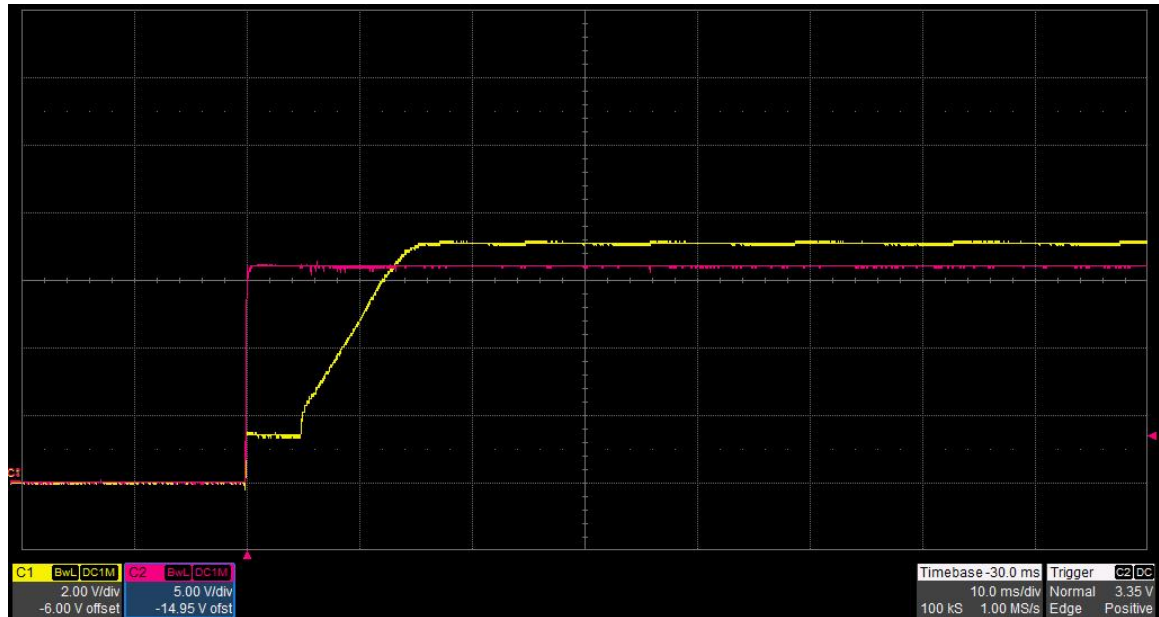
The photo below shows the output voltage startup waveform after the application of 6.5V in. The 7V output was loaded to 0A. (Vin is 5V/DIV, Vout is 2V/DIV, 10mS/DIV)



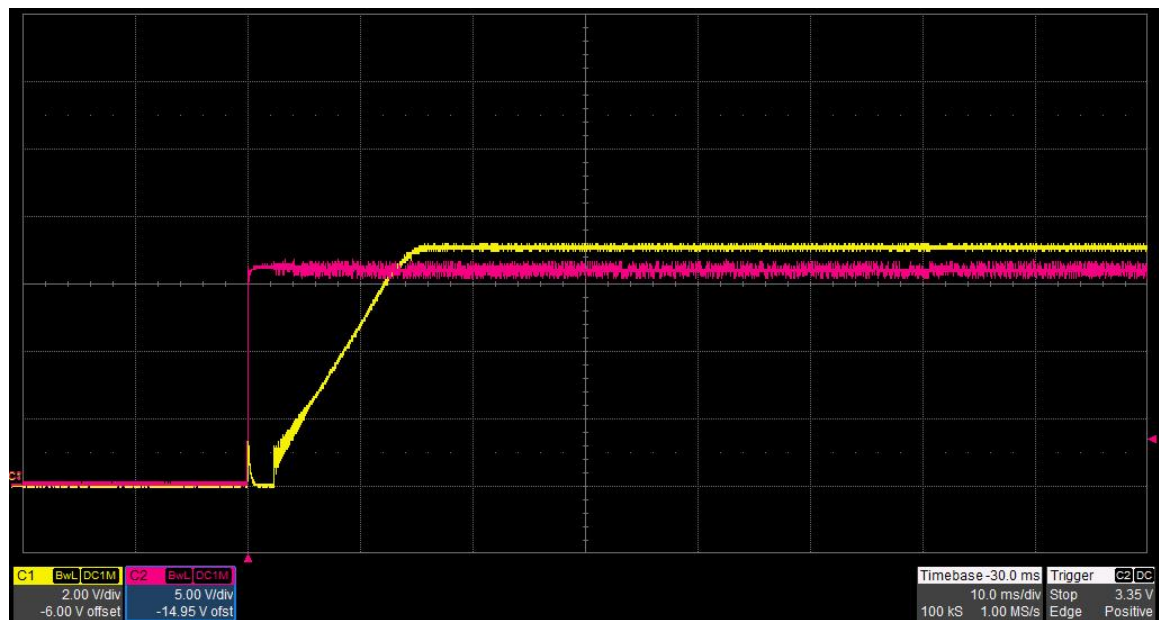
The photo below shows the output voltage startup waveform after the application of 6.5V in. The 7V output was loaded to 3A. (Vin is 5V/DIV, Vout is 2V/DIV, 10mS/DIV)



The photo below shows the output voltage startup waveform after the application of 16V in. The 7V output was loaded to 0A. (Vin is 5V/DIV, Vout is 2V/DIV, 10mS/DIV)

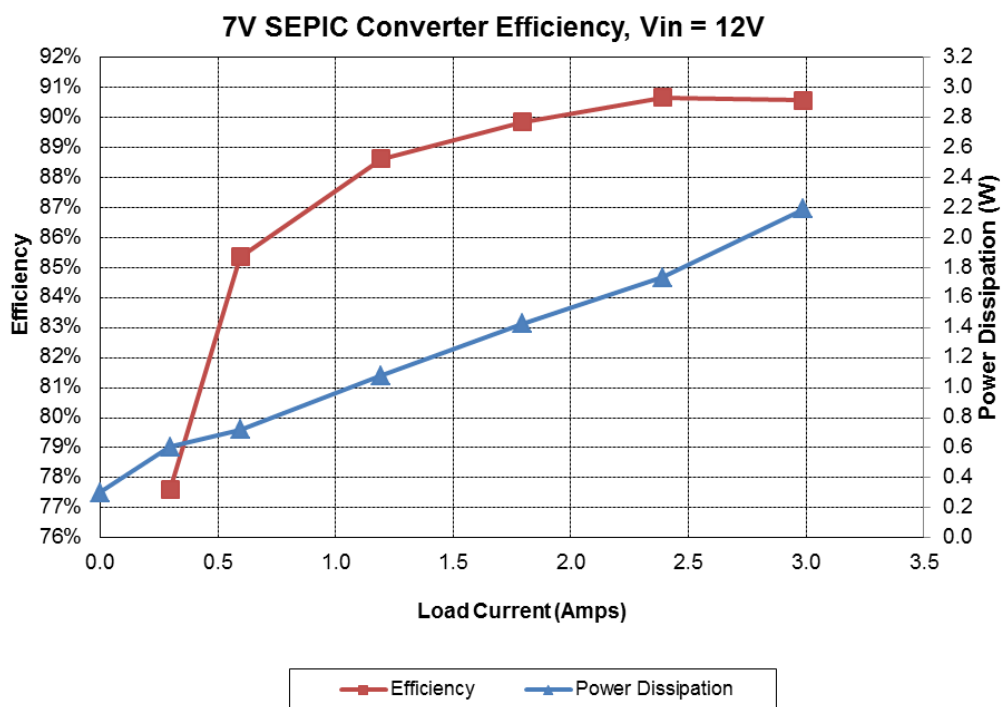


The photo below shows the output voltage startup waveform after the application of 16V in. The 7V output was loaded to 3A. (Vin is 5V/DIV, Vout is 2V/DIV, 10mS/DIV)

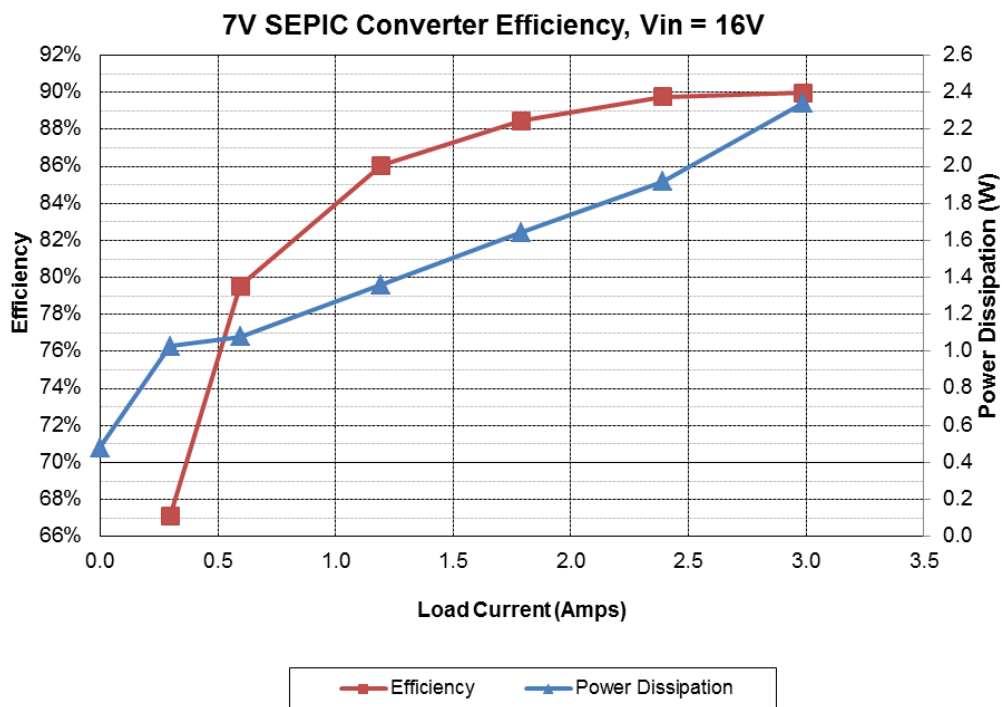


2 Efficiency

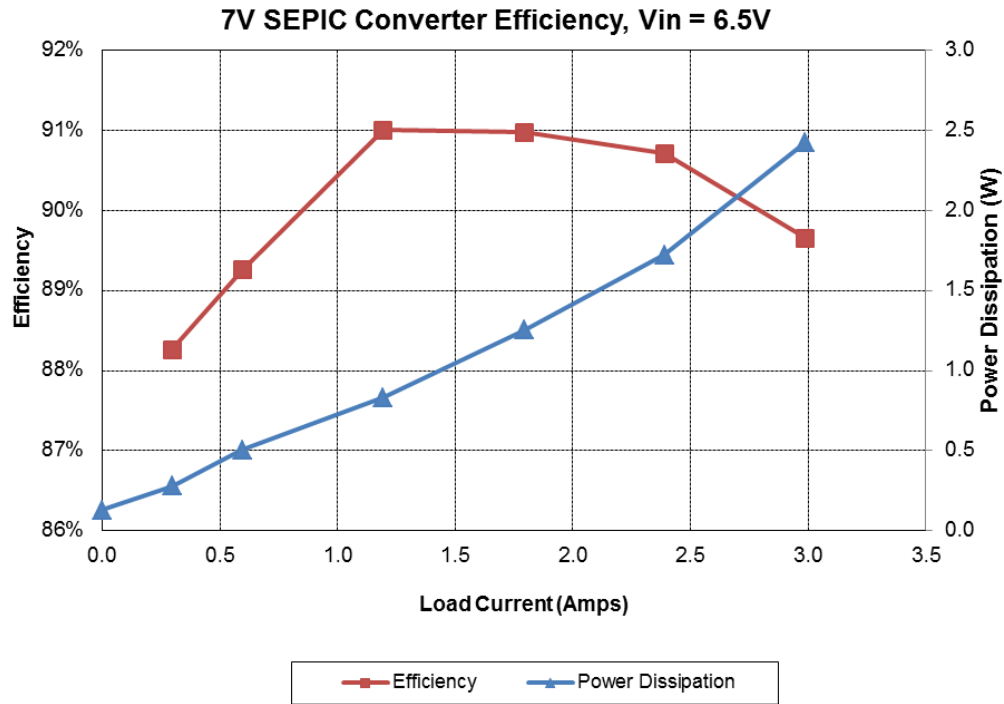
The converter efficiency is shown below for $V_{in} = 12V$ and $V_{out} = 7V$.



The converter efficiency is shown below for $V_{in} = 16V$ and $V_{out} = 7V$.

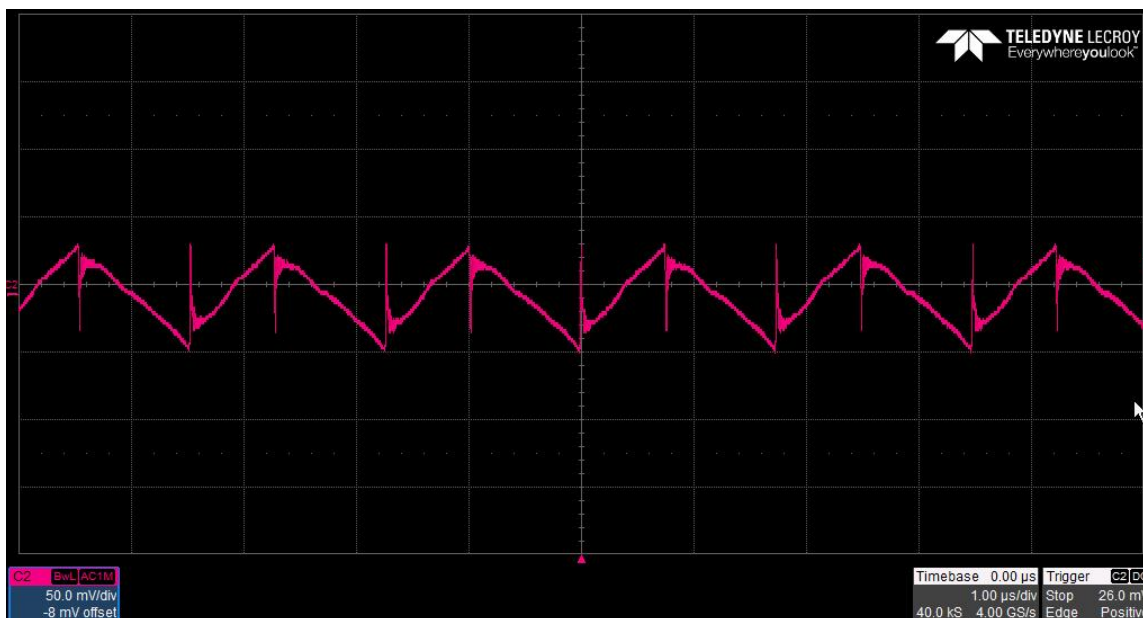


The converter efficiency is shown below for $V_{in} = 6.5V$ and $V_{out} = 7V$.

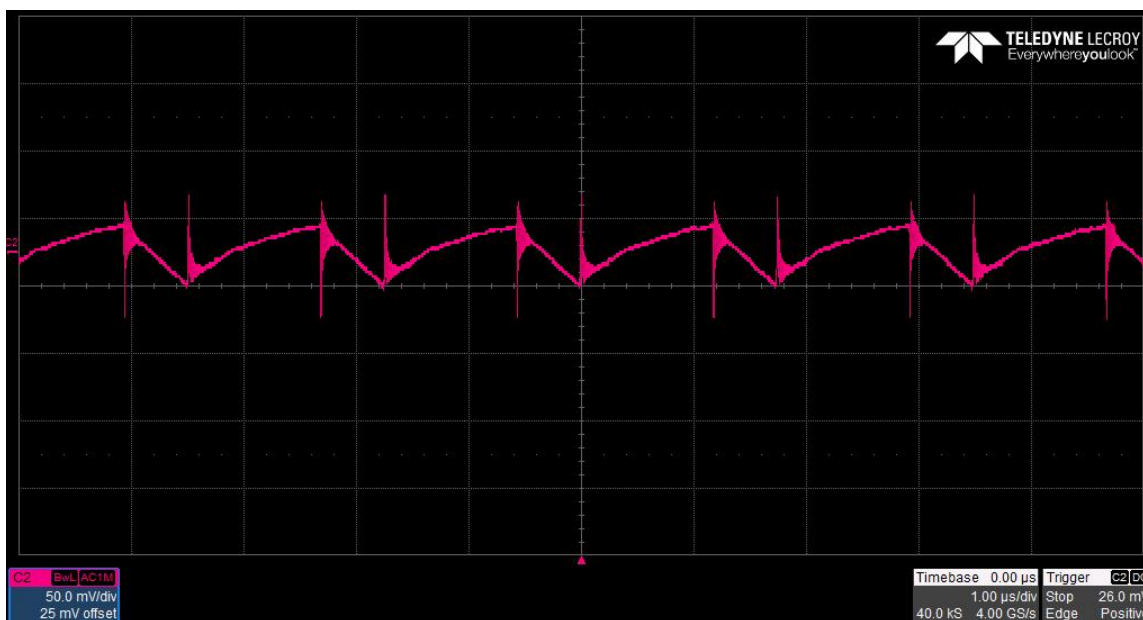


3 Output Ripple Voltage

The 7V 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 6.5V. (50mV/DIV, 1uS/DIV)

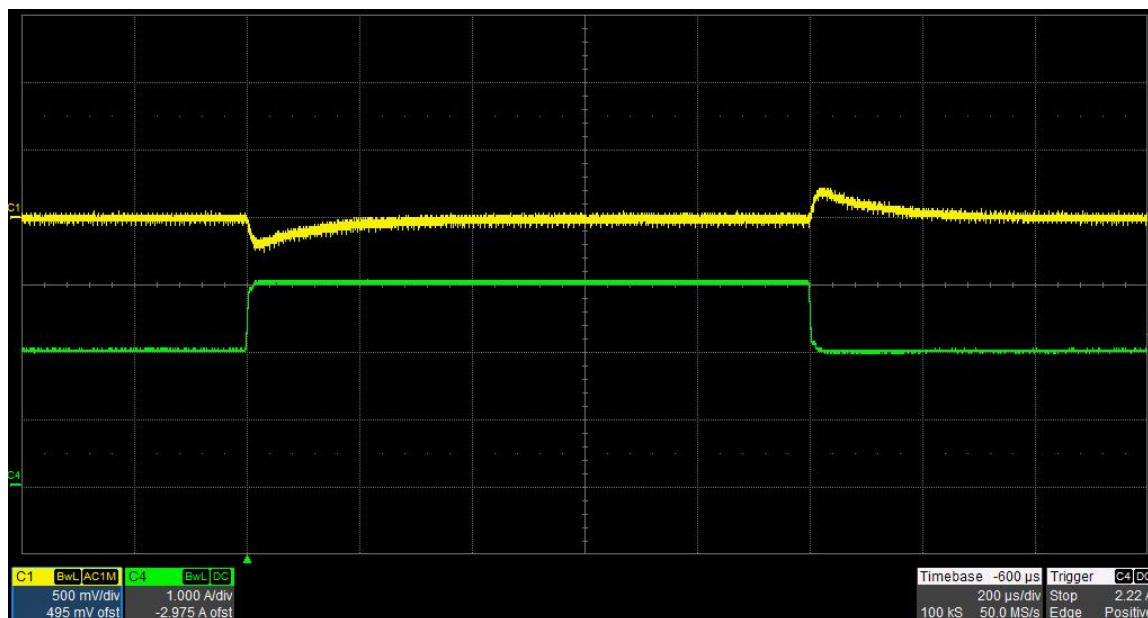


The 7V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 3A. The input voltage is set to 16V. (50mV/DIV, 1uS/DIV)

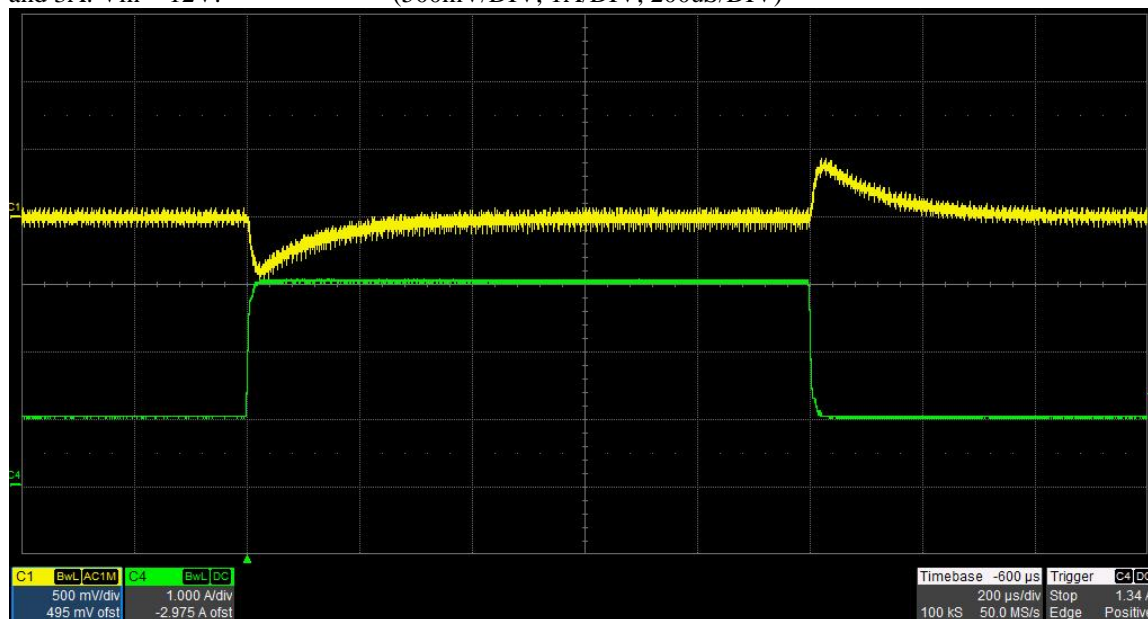


4 Load Transients

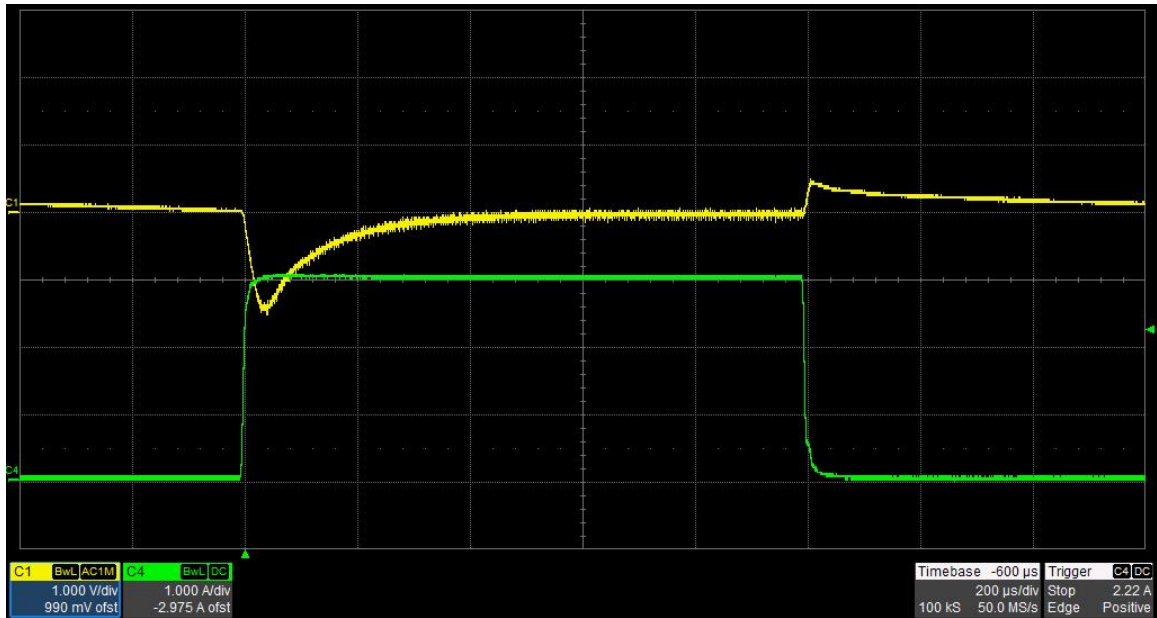
The photo below shows the 7V output voltage (ac coupled) when the load current is stepped between 2A and 3A. $V_{in} = 12V$.
(500mV/DIV, 1A/DIV, 200uS/DIV)



The photo below shows the 7V output voltage (ac coupled) when the load current is stepped between 1A and 3A. $V_{in} = 12V$.
(500mV/DIV, 1A/DIV, 200uS/DIV)

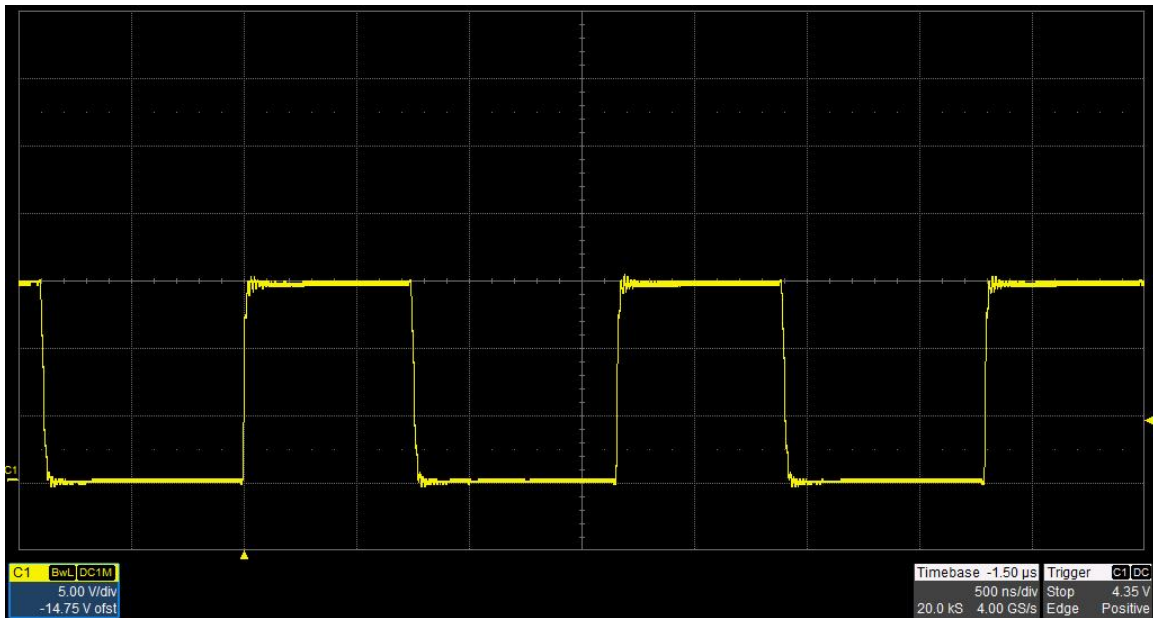


The photo below shows the 7V output voltage (ac coupled) when the load current is stepped between 0A and 3A. $V_{in} = 12V$.
(1V/DIV, 1A/DIV, 200uS/DIV)

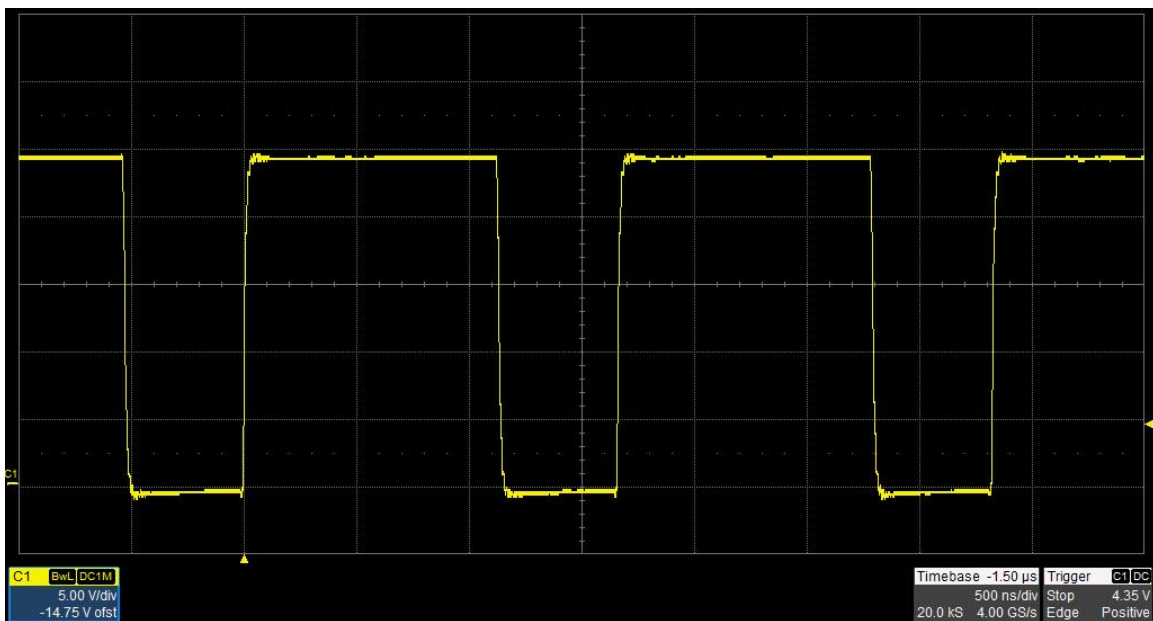


5 Switch Node Waveforms

The photo below shows the FET switching voltage for an input voltage of 6.5V and a 3A load.
(5V/DIV, 500nS/DIV)



The photo below shows the FET switching voltage for an input voltage of 16V and a 3A load.
(5V/DIV, 500nS/DIV)



6 Loop Gain

The plot below shows the loop gain with the input voltage set to 6.5V and 16V with the output set to 3A.

Loop Gain (Vin = 6.5V)

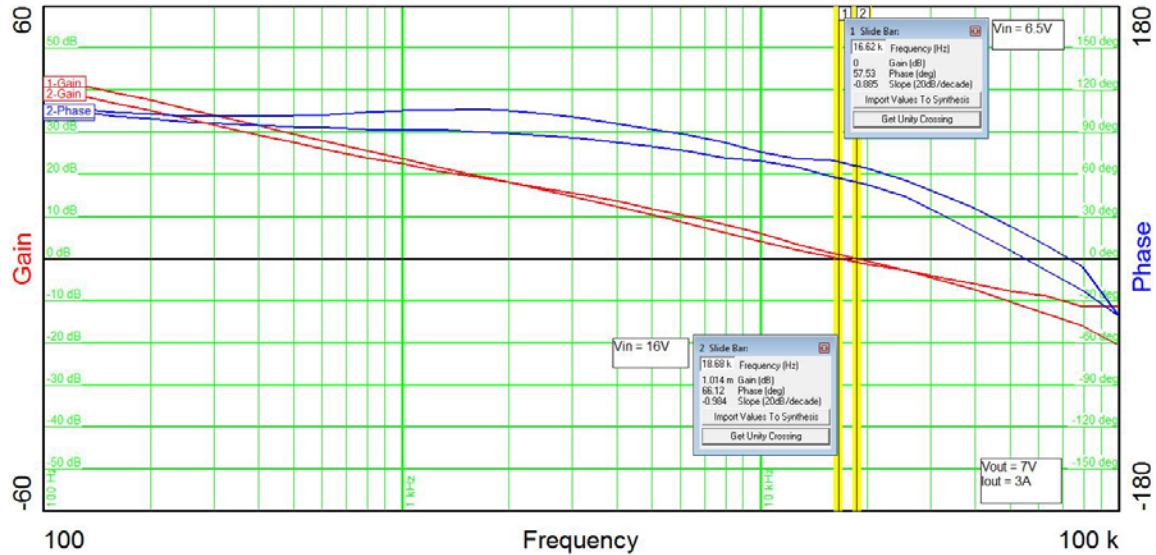
BW: 16.3KHz

PM: 58 degrees

Loop Gain (Vin = 16V)

BW: 18.7KHz

PM: 66 degrees



The plot below shows the loop gain with the input voltage set to 6.5V and 16V with the output set to 0.75A.

Loop Gain (Vin = 6.5V)

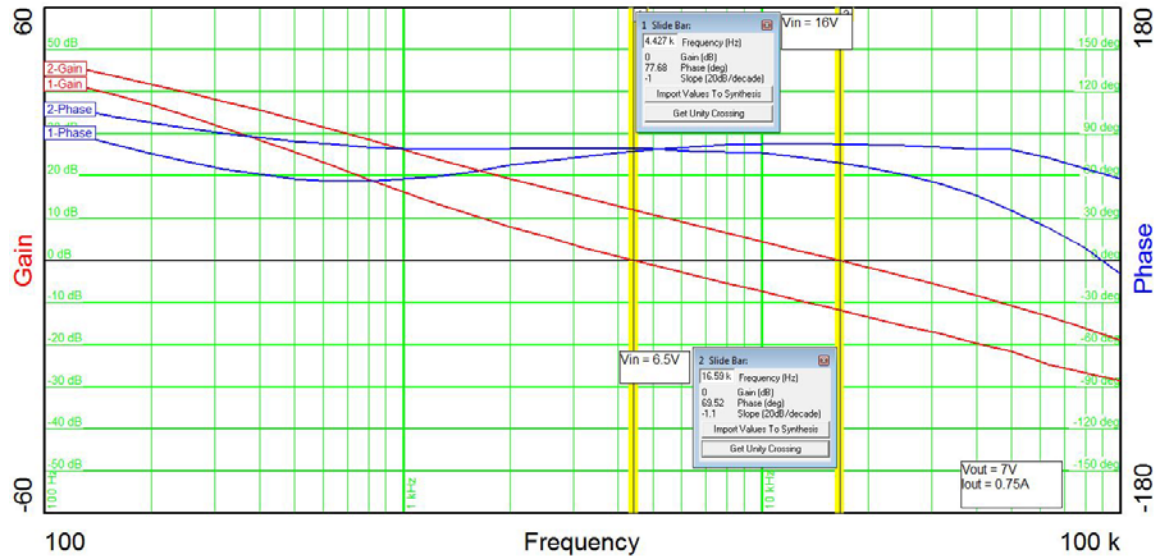
BW: 16.6KHz

PM: 70 degrees

Loop Gain (Vin = 16V)

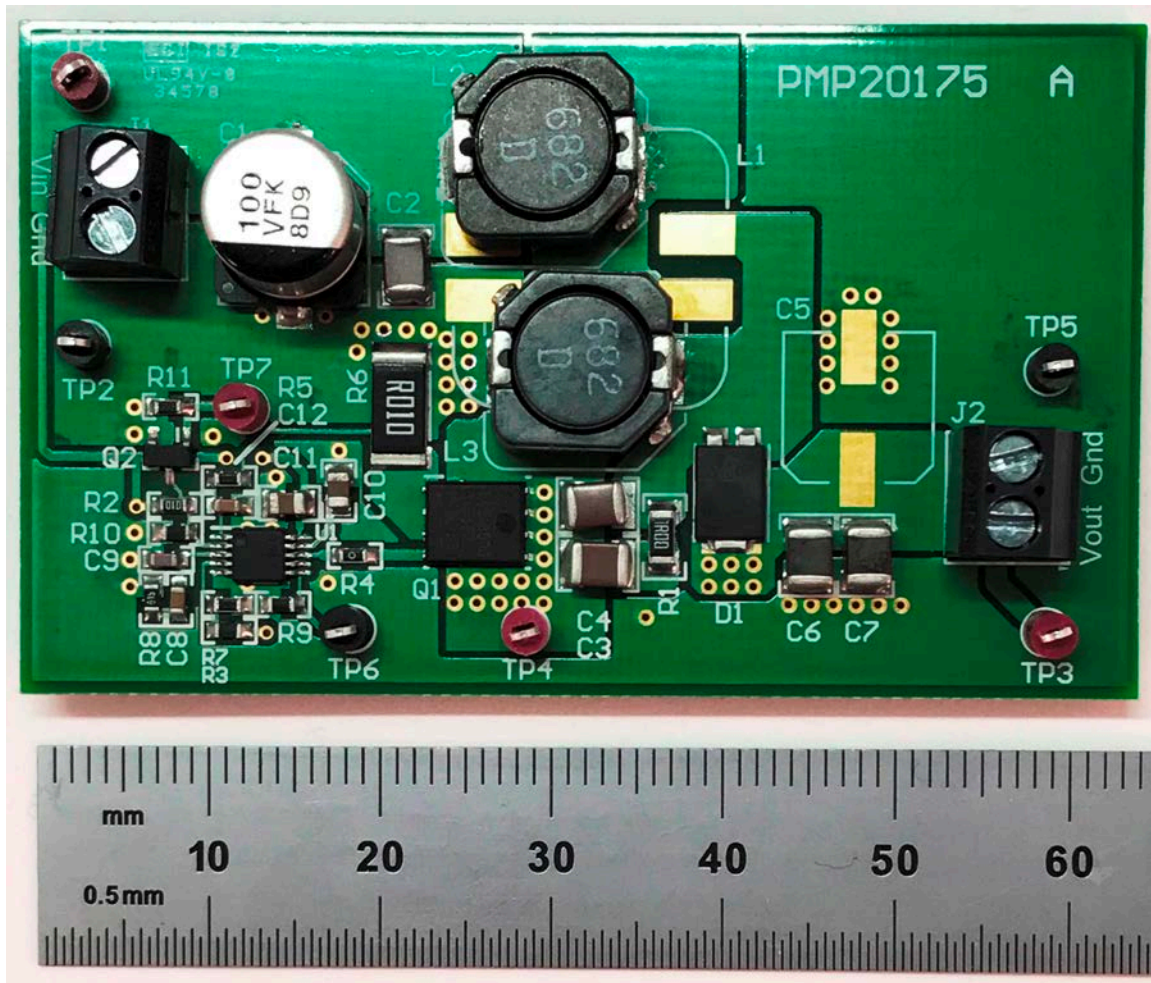
BW: 4.43KHz

PM: 78 degrees



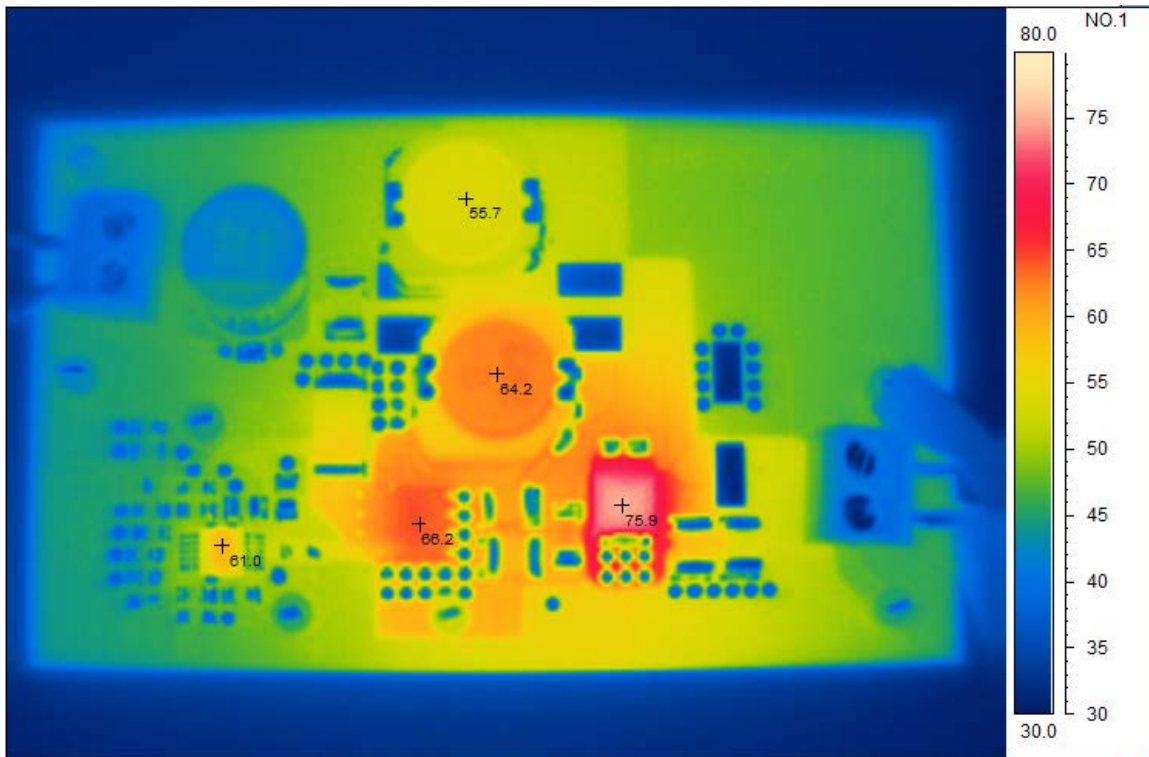
7 Photo

The photo below shows the PMP20175 REVC assy.



8 Thermal Image

A thermal image is shown below operating at 12V input and 7V@3A output (room temp, no airflow).



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