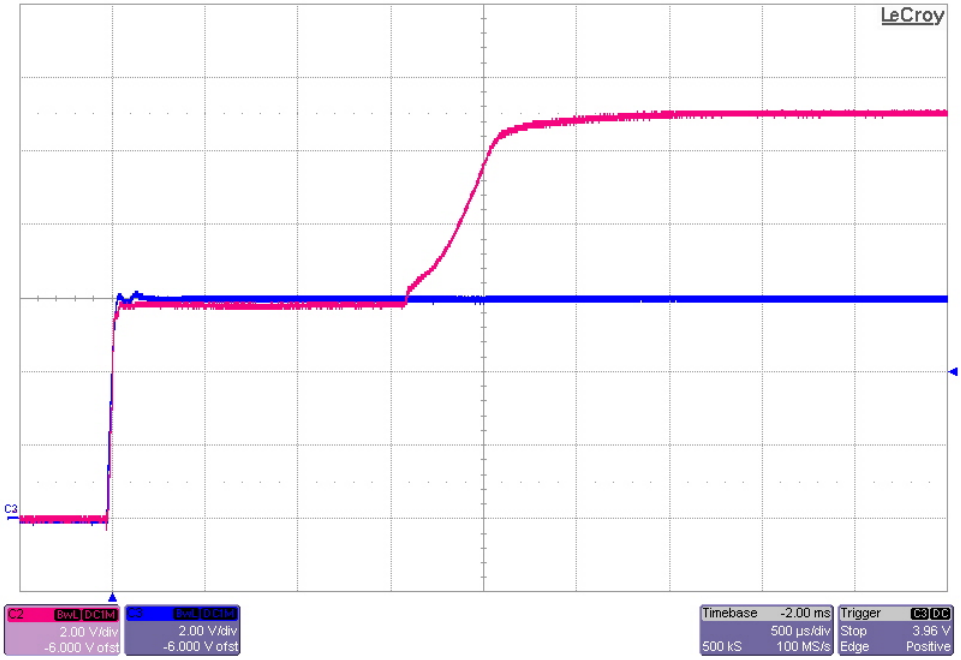
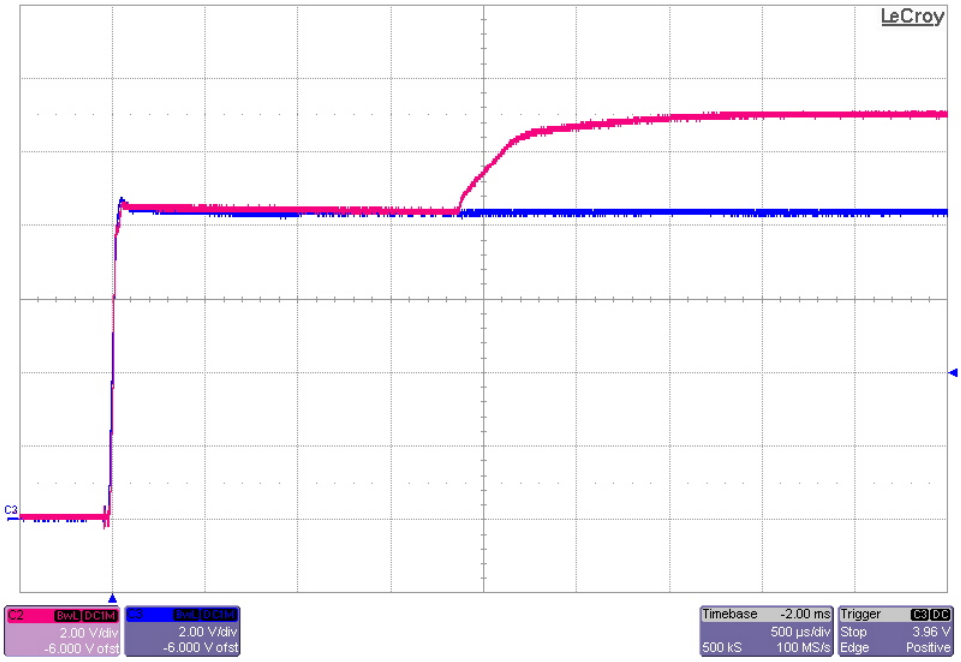
1 Startup

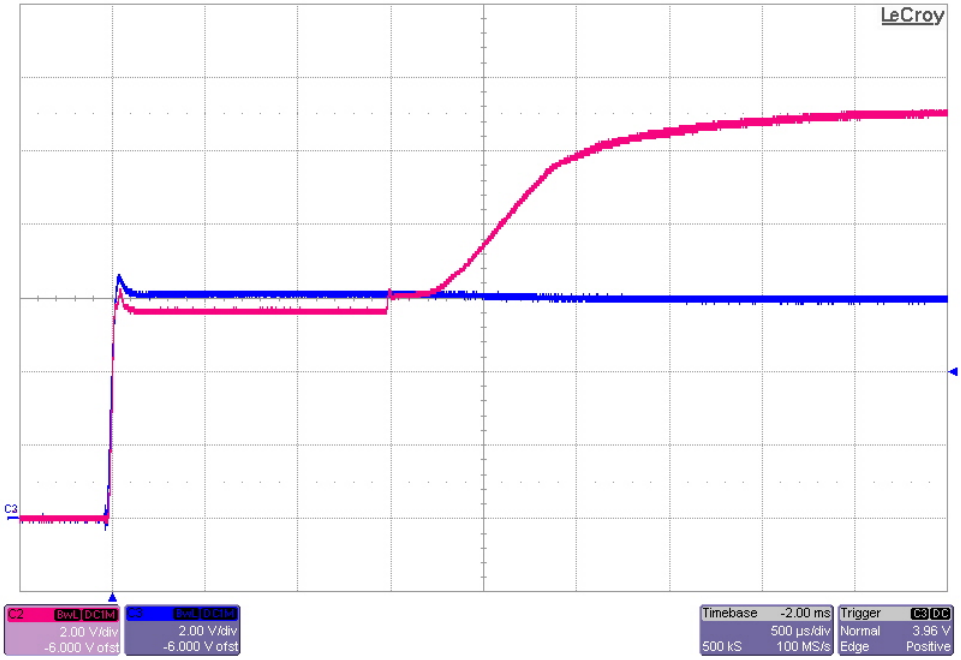
The photo below shows the output voltage startup waveform after the application of 6V in with the 11V output loaded to 0A. (2V/DIV, 500uS/DIV)



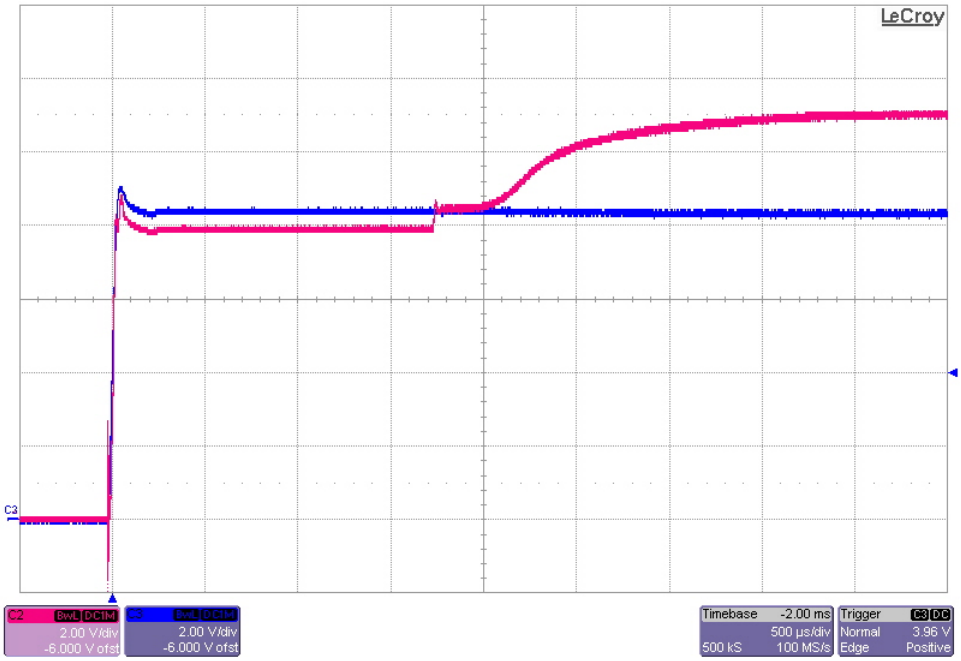
The photo below shows the output voltage startup waveform after the application of 8.4V in with the 11V output loaded to 0A. (2V/DIV, 500uS/DIV)



The photo below shows the output voltage startup waveform after the application of 6V in with the 11V output loaded to 1.2A. (2V/DIV, 500uS/DIV)

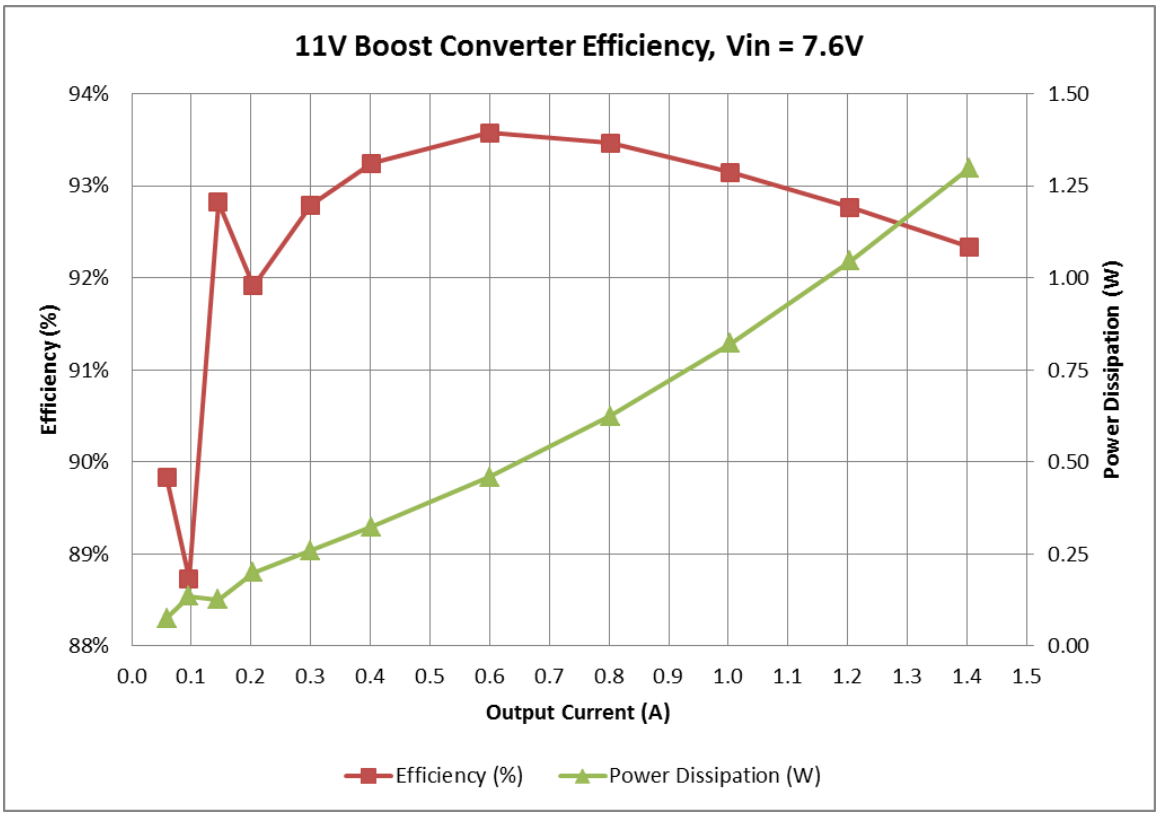


The photo below shows the output voltage startup waveform after the application of 8.4V in with the 11V output loaded to 1.2A. (2V/DIV, 500uS/DIV)



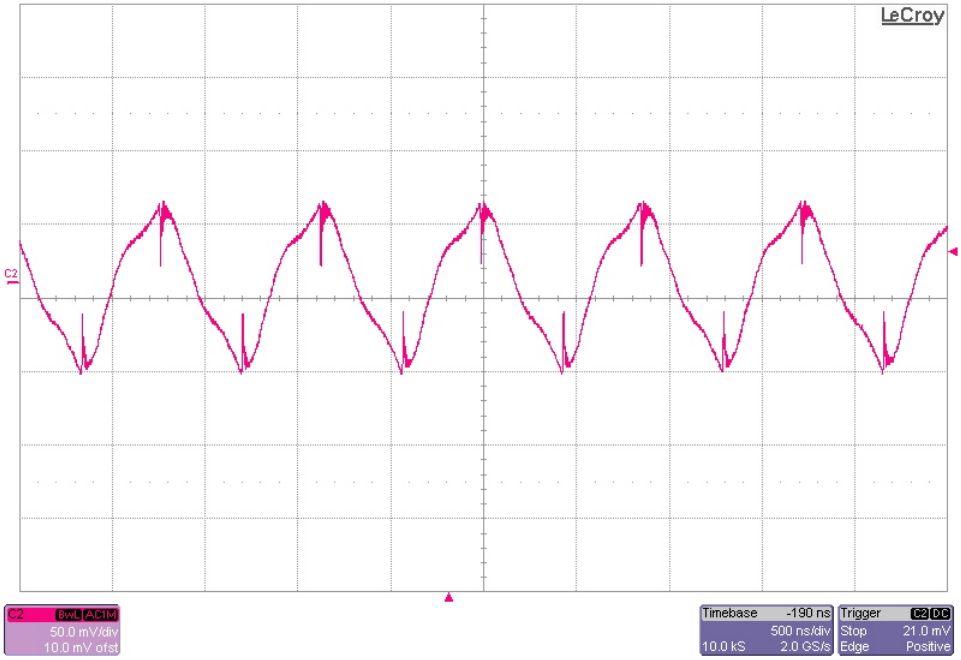
2 Efficiency

The TPS55340 11V@1.2A boost converter efficiency is shown in the figure below.

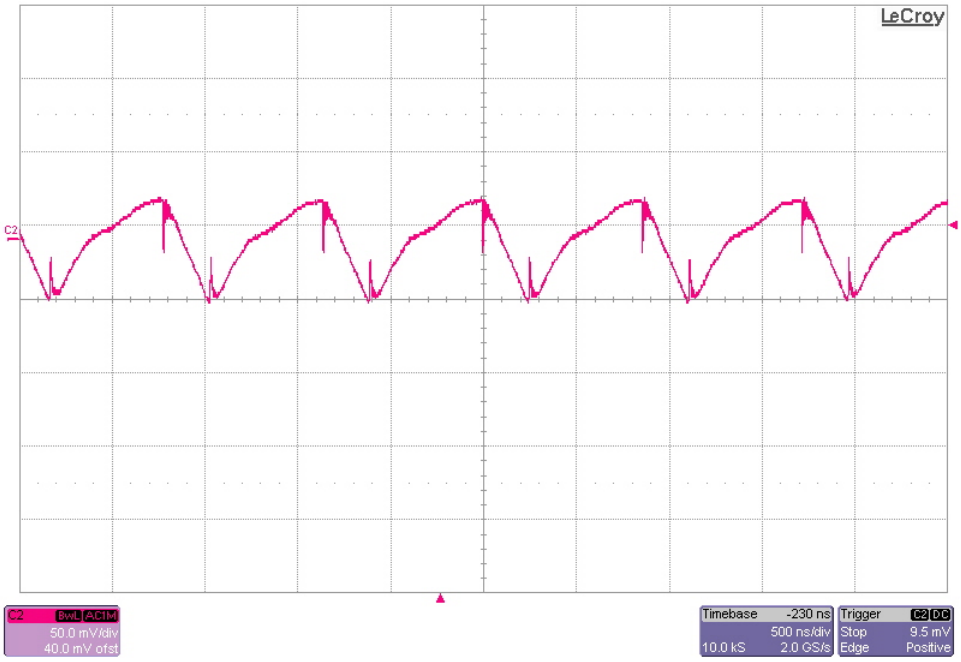


3 Output Ripple Voltage

The output ripple voltage is shown in the figure below. The image was taken with the 11V output loaded to 1.2A and the input voltage set to 6V. (50mV/DIV, 500nS/DIV)

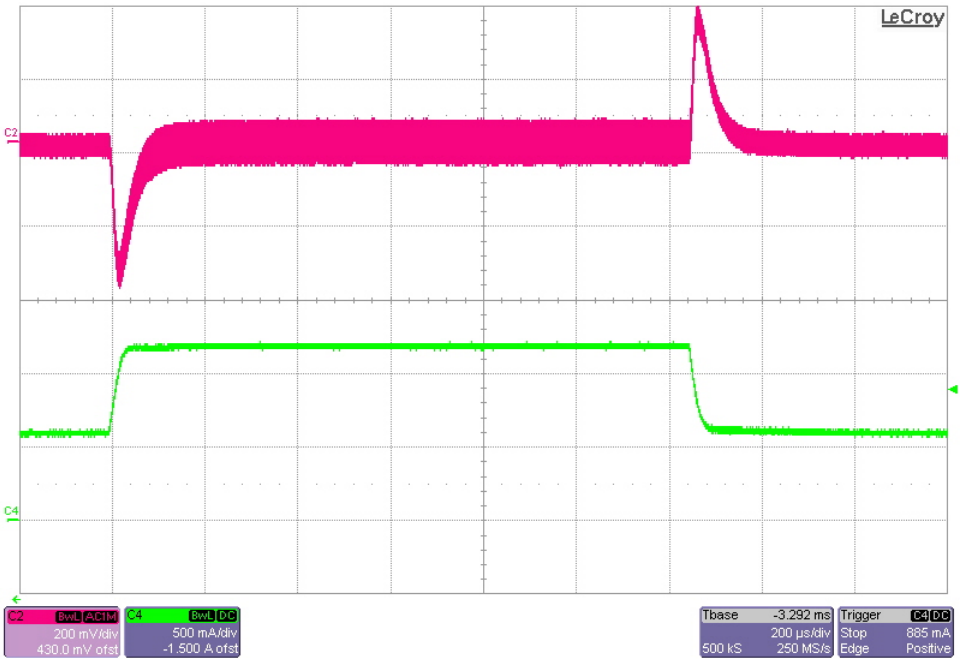


The output ripple voltage is shown in the figure below. The image was taken with the 11V output loaded to 1.2A and the input voltage set to 8.4V. (50mV/DIV, 500nS/DIV)

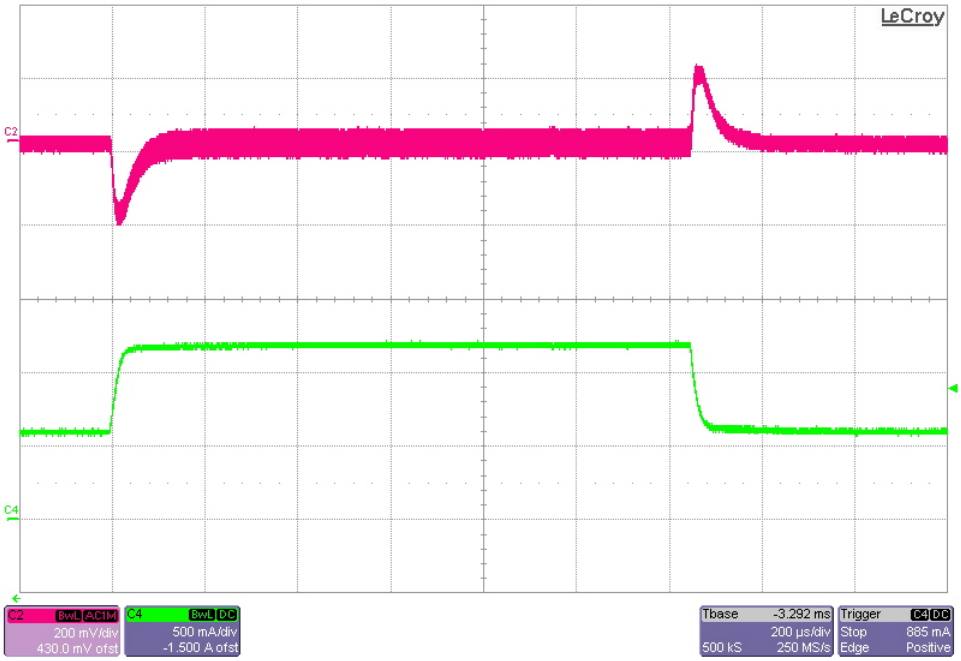


4 Load Transients

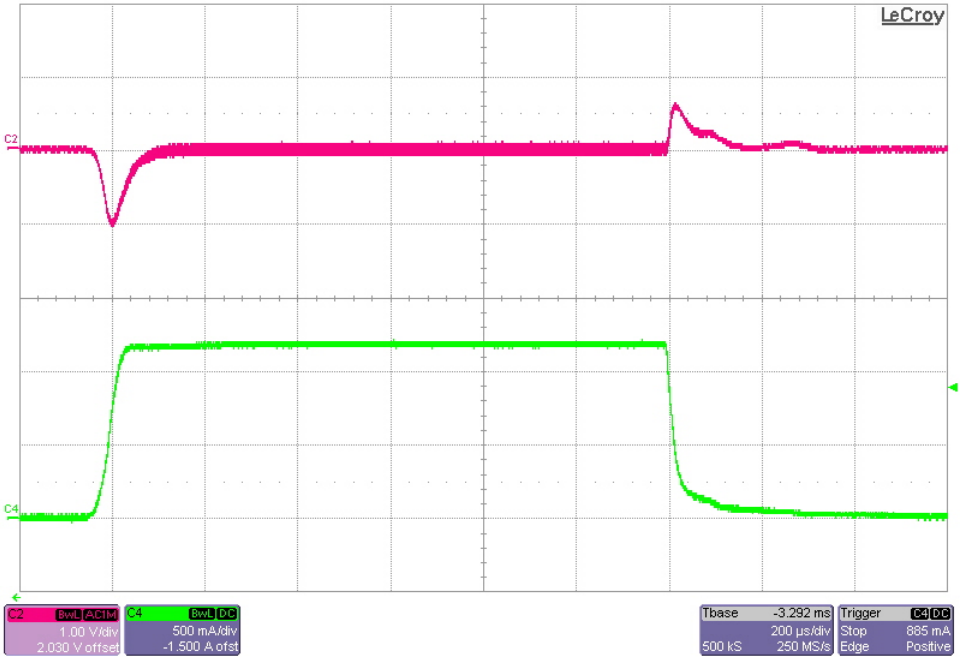
The photo below shows the output voltage (ac coupled) when the load current is stepped between 0.6A and 1.2A. Vin = 6V. (200mV/DIV, 500mA/DIV, 200uS/DIV)



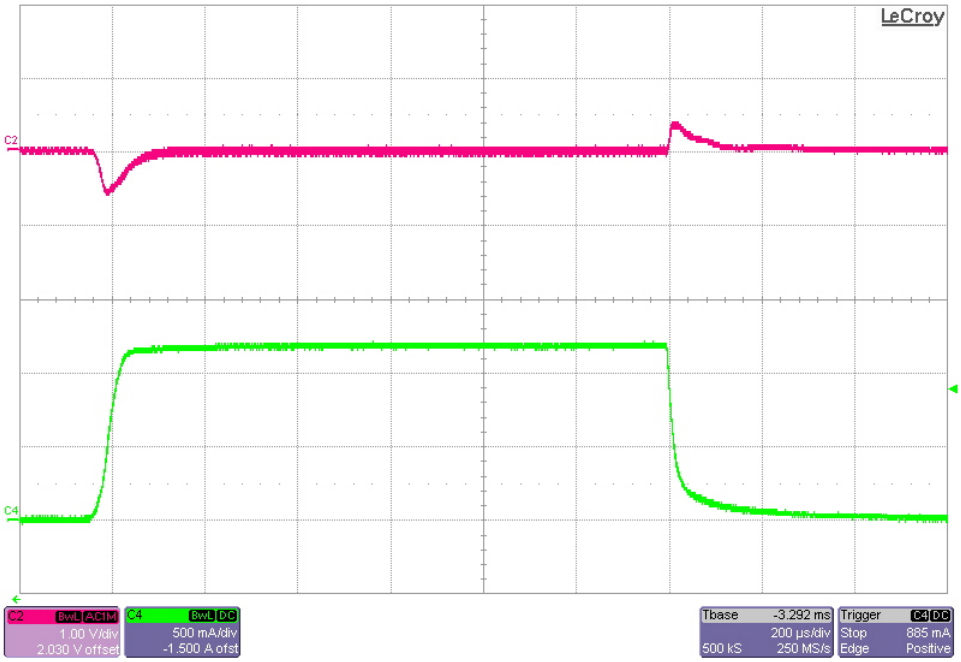
The photo below shows the output voltage (ac coupled) when the load current is stepped between 0.6A and 1.2A. Vin = 8.4V. (200mV/DIV, 500mA/DIV, 200uS/DIV)



The photo below shows the output voltage (ac coupled) when the load current is stepped between 0A and 1.2A. Vin = 6V. (1V/DIV, 500mA/DIV, 200uS/DIV)

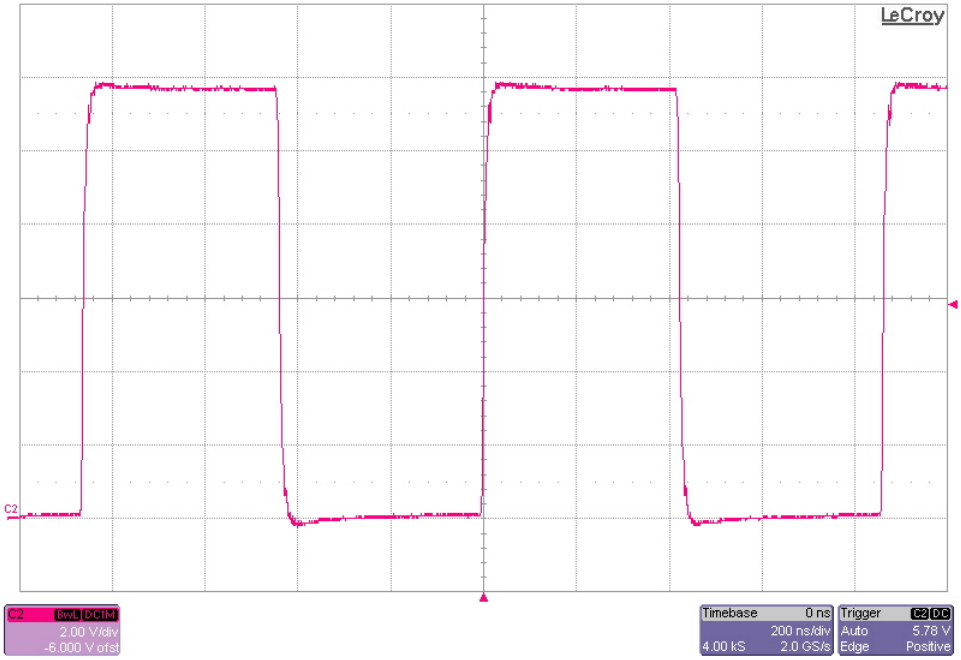


The photo below shows the output voltage (ac coupled) when the load current is stepped between 0A and 1.2A. Vin = 8.4V. (1V/DIV, 500mA/DIV, 200uS/DIV)

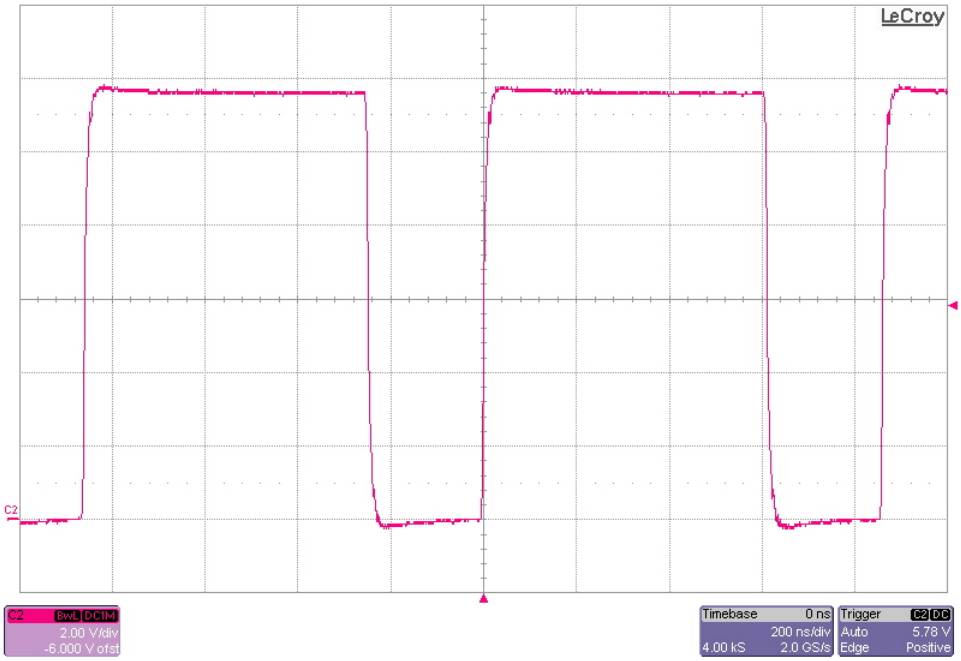


5 Switch Node Waveforms

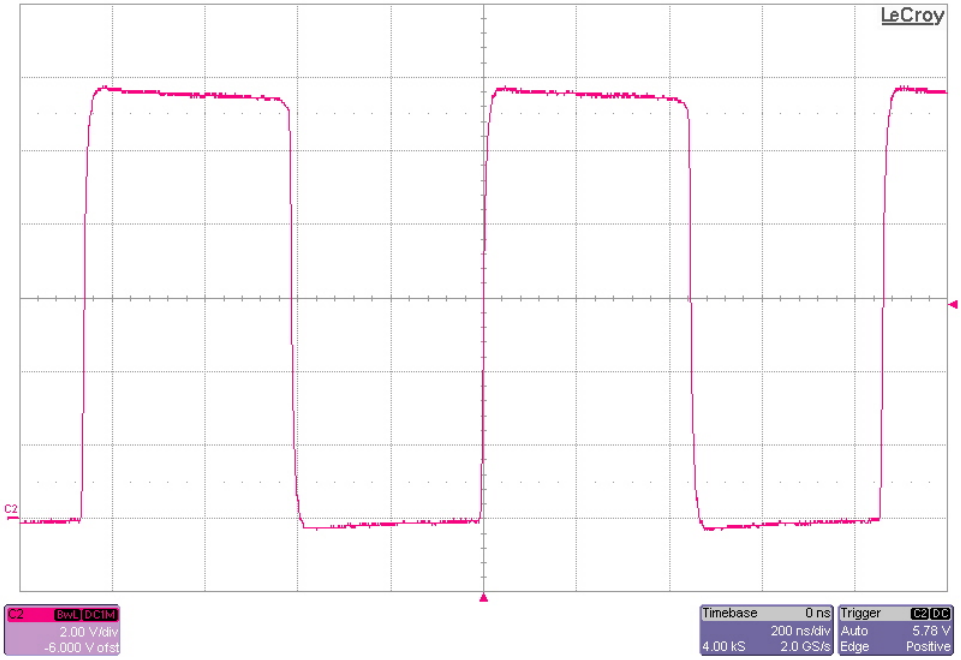
The photo below shows the switch node voltage (TP1). The input voltage is 6V and the 11V output is loaded to 1.2A. (2V/DIV, 200nS/DIV)



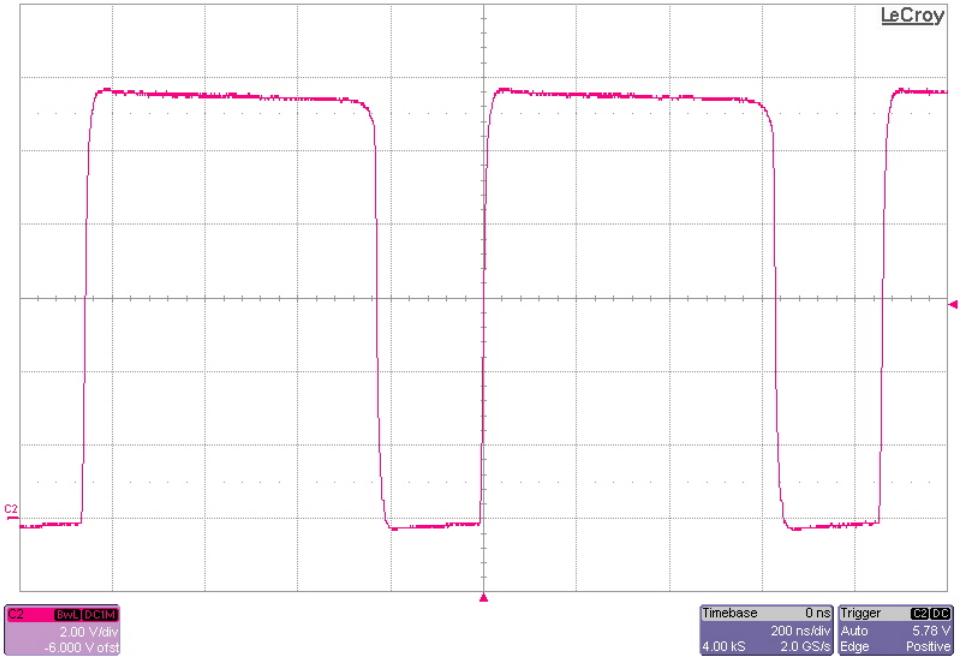
The photo below shows the switch node voltage (TP1). The input voltage is 8.4V and the 11V output is loaded to 1.2A. (2V/DIV, 200nS/DIV)



The photo below shows the switch node voltage (TP1). The input voltage is 6V and the 11V output is loaded to 0.165A (beginning operation in DCM). (2V/DIV, 200nS/DIV)



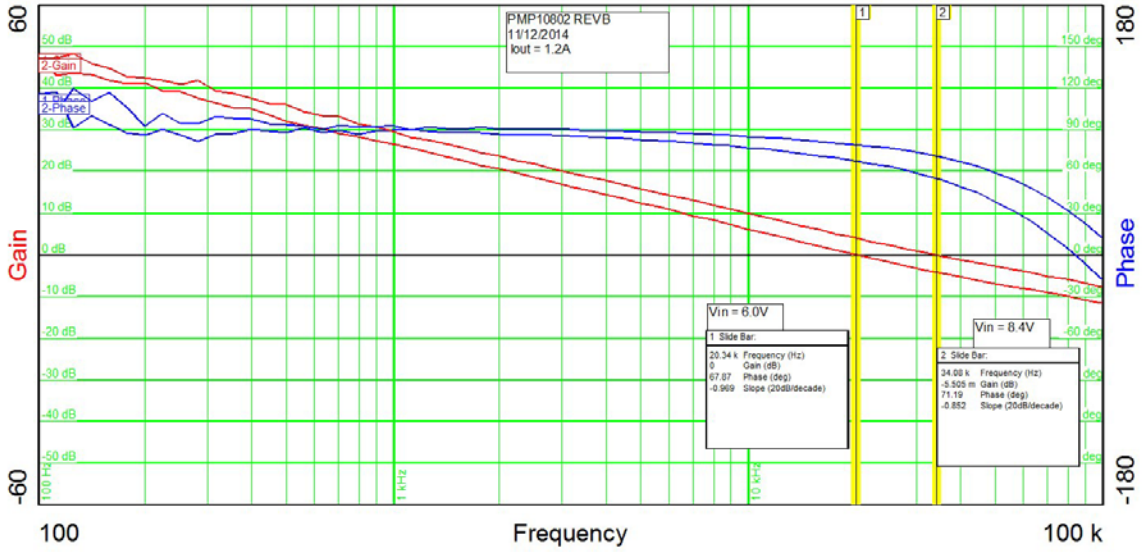
The photo below shows the switch node voltage (TP1). The input voltage is 8.4V and the 11V output is loaded to 0.180A (beginning operation in DCM). (2V/DIV, 200nS/DIV)



6 Control Loop Gain / Stability

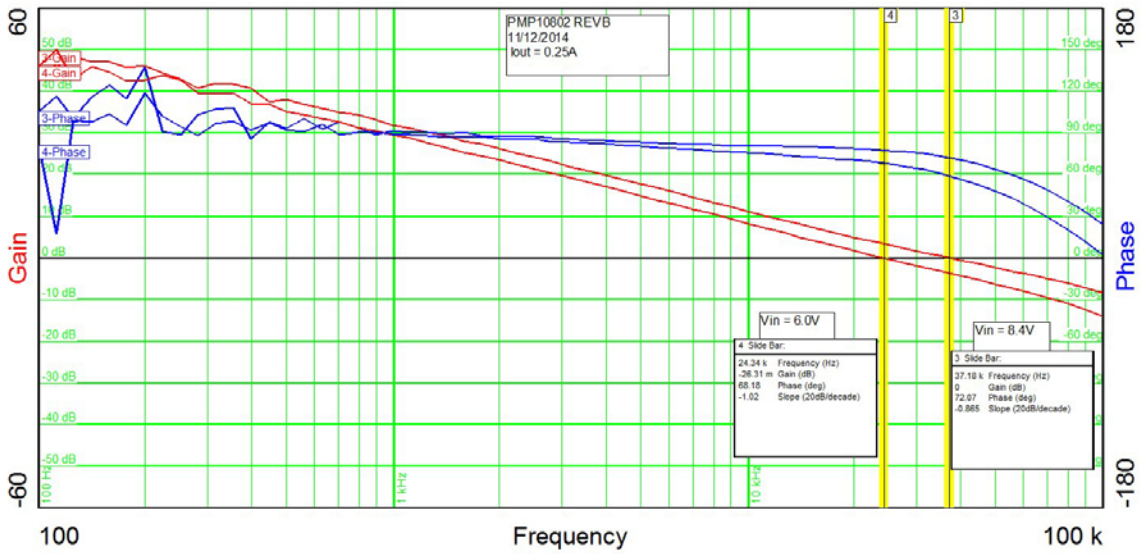
The plot below shows the boost converter's loop gain and phase margin when the 11V output is loaded to 1.2A.

Vin = 6V	Band Width = 20.3KHz	Phase Margin = 68 degrees
Vin = 8.4V	Band Width = 34.1KHz	Phase Margin = 71 degrees



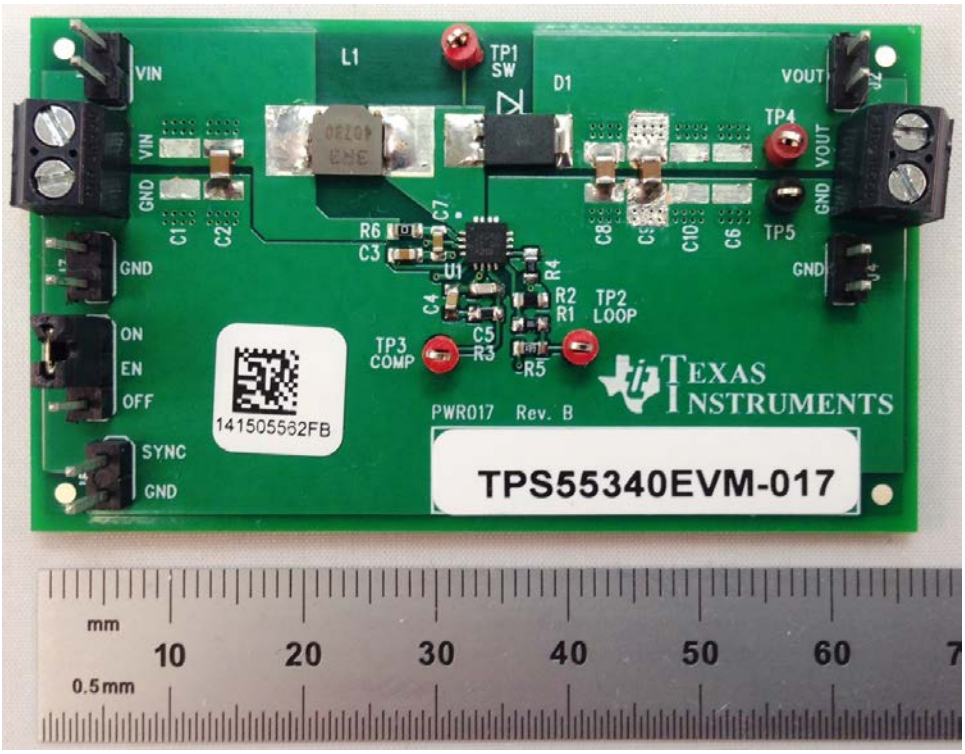
The plot below shows the boost converter's loop gain and phase margin when the 11V output is loaded to 0.25A.

Vin = 6V	Band Width = 24.3KHz	Phase Margin = 68 degrees
Vin = 8.4V	Band Width = 37.2KHz	Phase Margin = 72 degrees



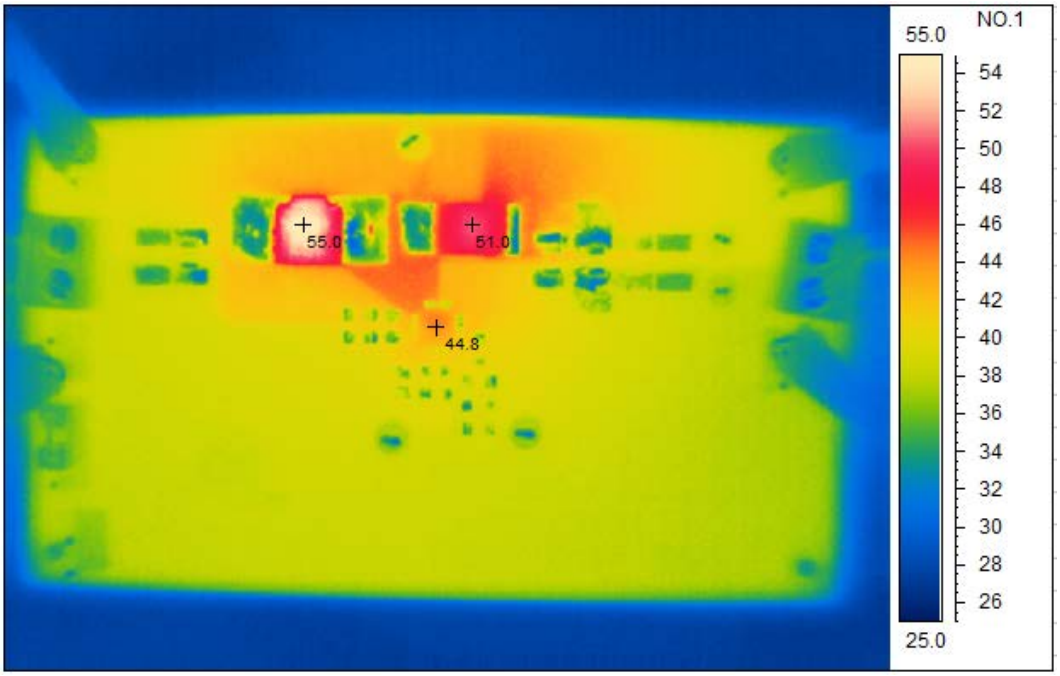
7 Photo

The photo below shows the PMP10802 REVB assy built on the TPS55340-017 EVM.



8 Thermal Image

The thermal image below shows sustained operation while at a 6V input / 1.2A output, with no airflow.



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