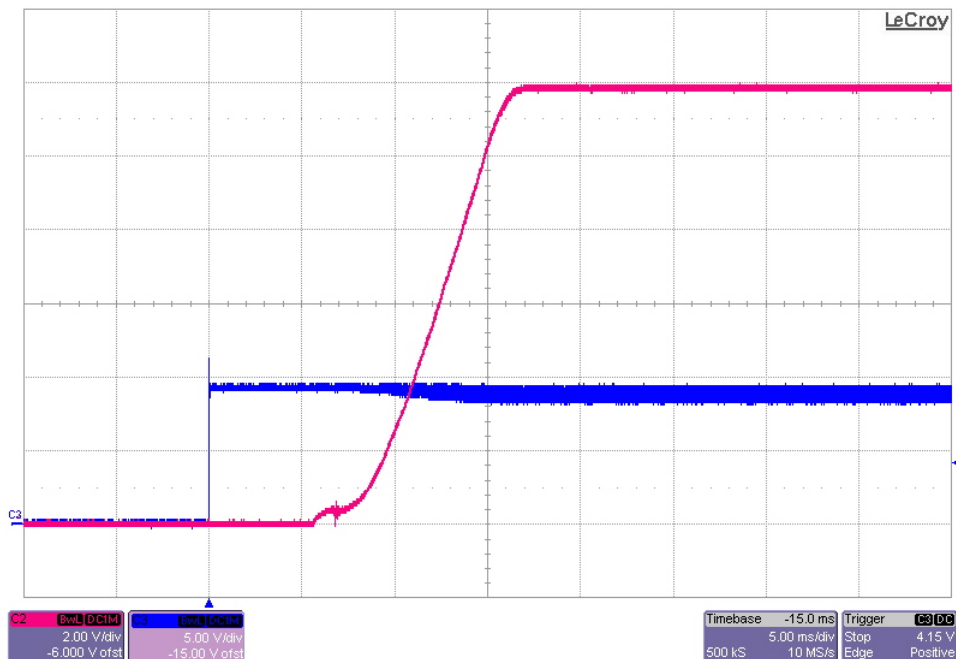
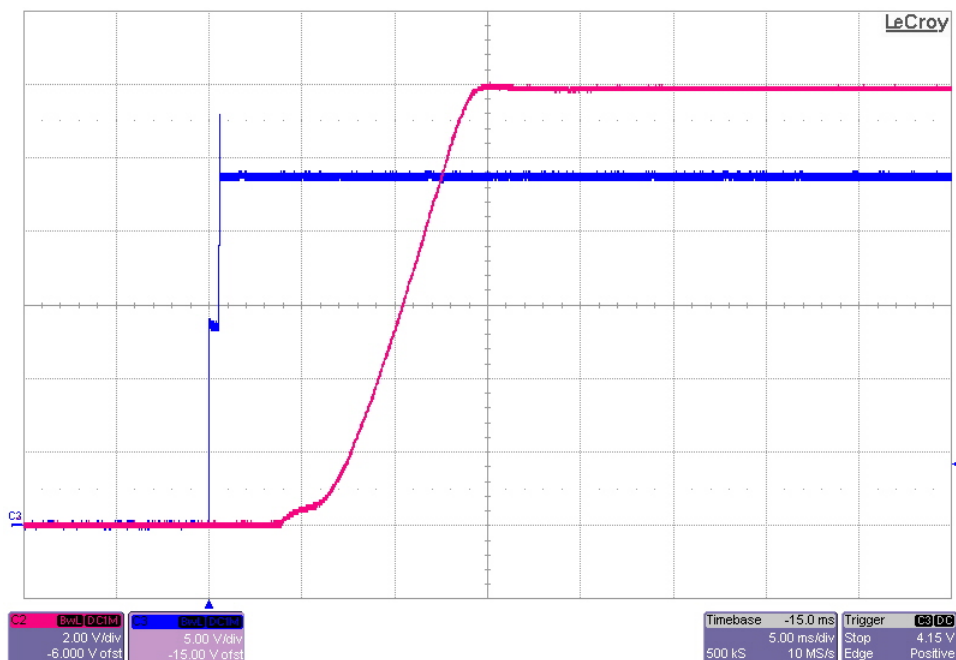


1 Output Voltage Startup

The photo below shows the 12V output voltage startup waveforms after the application of 9Vdc in. The output was loaded to 1.5A. (Vin is 5V/DIV, Vout is 2V/DIV, 5mS/DIV)

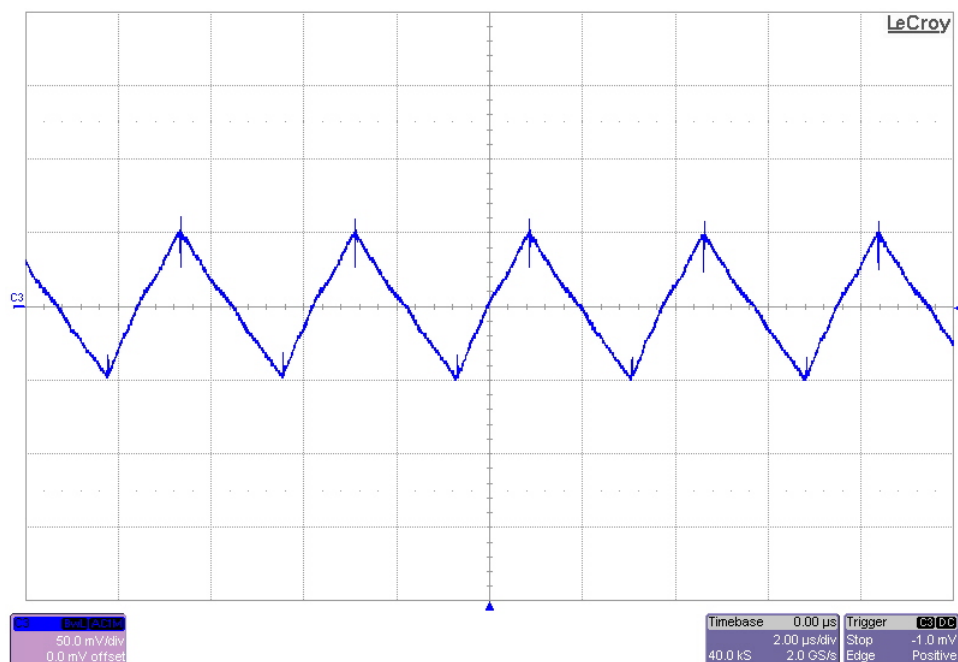


The photo below shows the 12V output voltage startup waveforms after the application of 24Vdc in. The output was loaded to 0A. (Vin is 5V/DIV, Vout is 2V/DIV, 5mS/DIV)

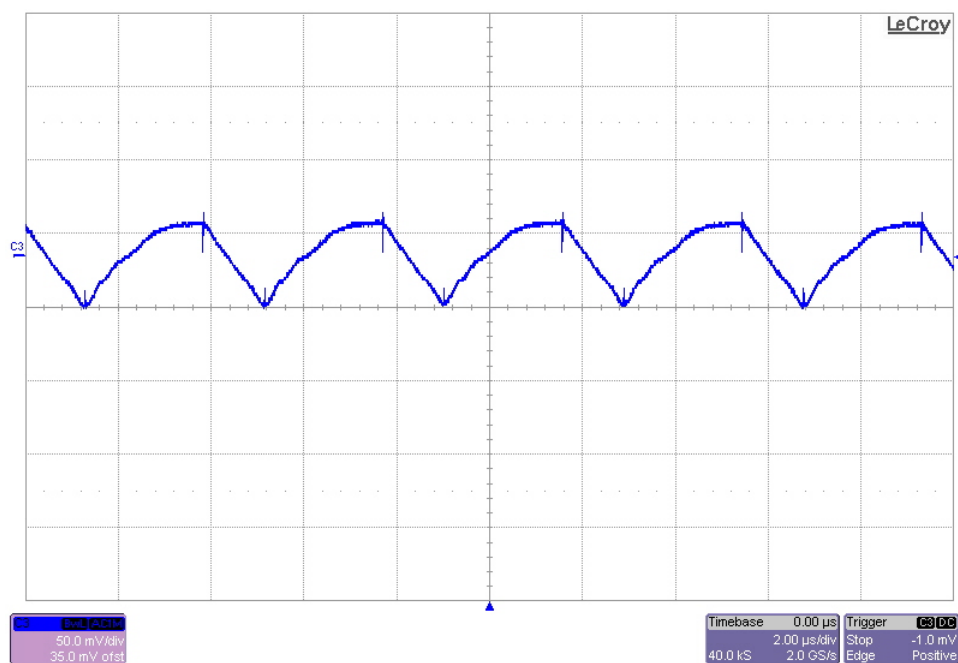


2 Output Ripple Voltage

The 12V output ripple voltage is shown in the figure below. The image was taken with the output loaded at 1.5A and the input voltage set to 9Vdc. (50mV/DIV, 2uS/DIV)

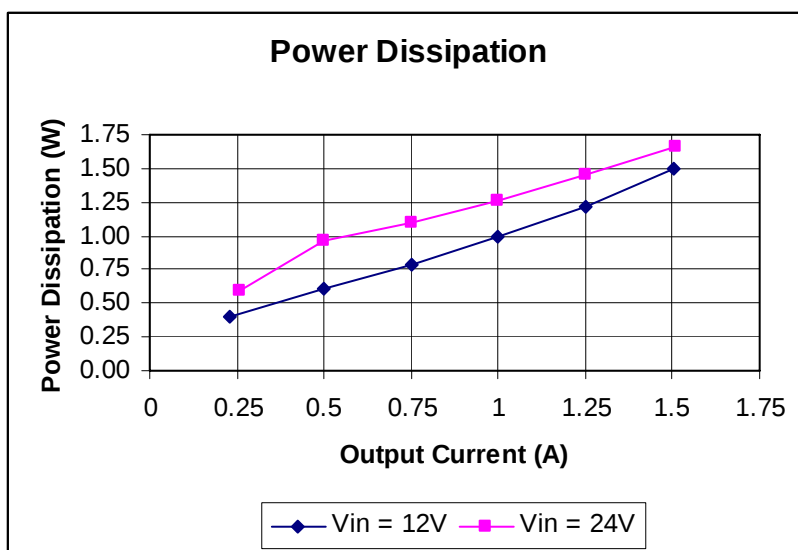
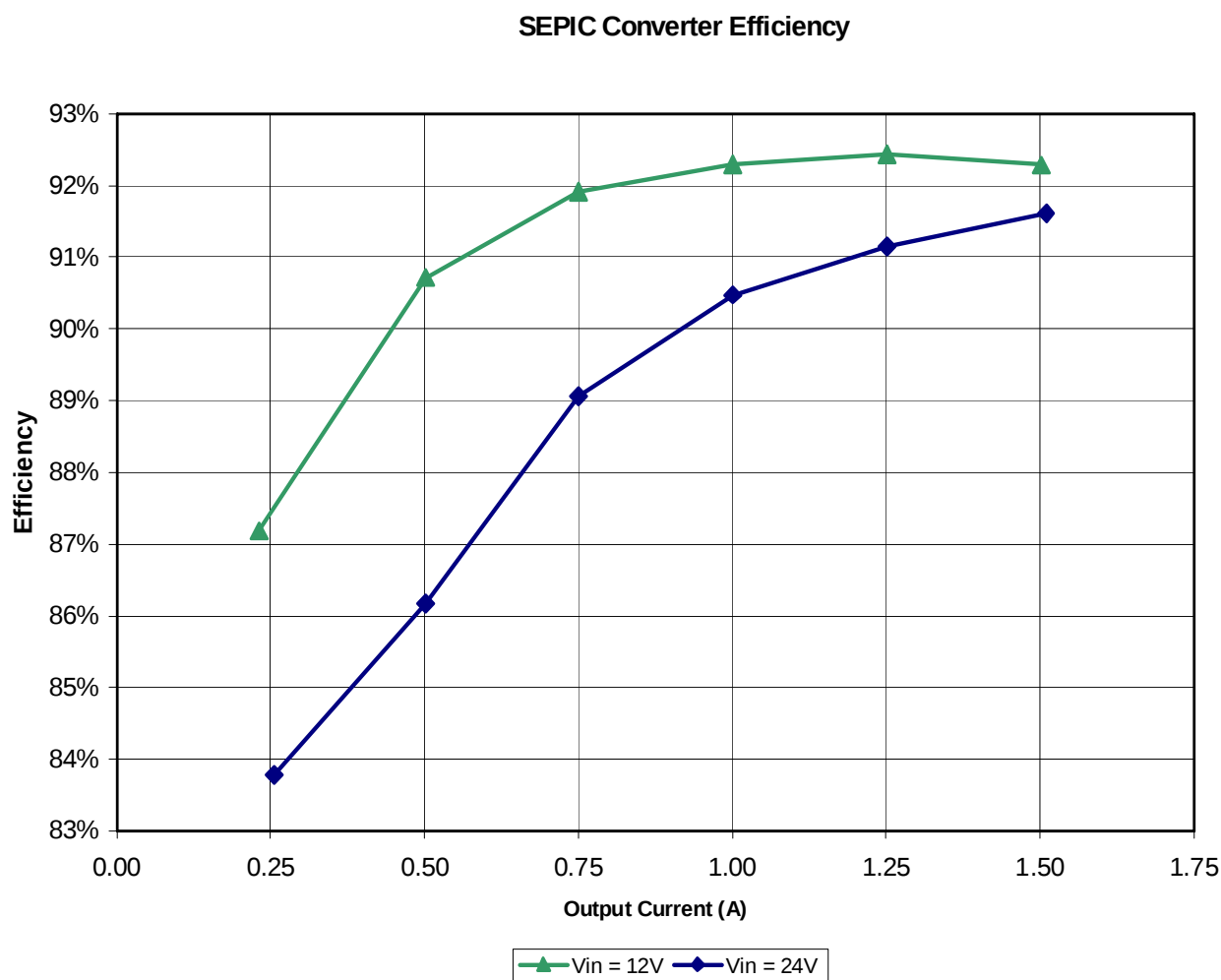


The 12V output ripple voltage is shown in the figure below. The image was taken with the output loaded at 1.5A and the input voltage set to 24Vdc. (50mV/DIV, 2uS/DIV)



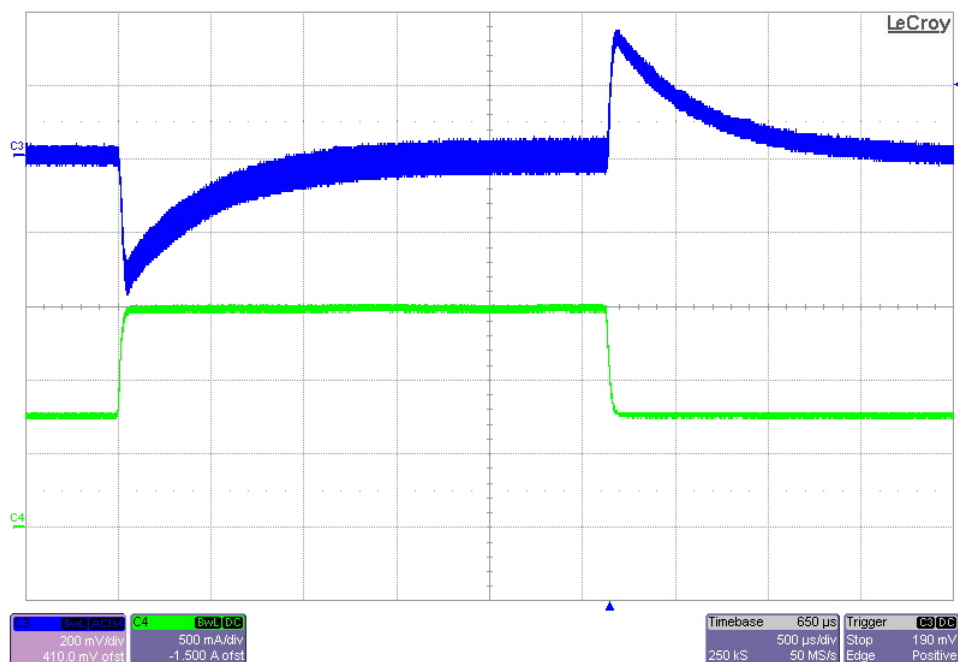
3 Efficiency

The SEPIC converter efficiency is shown in the figure below.



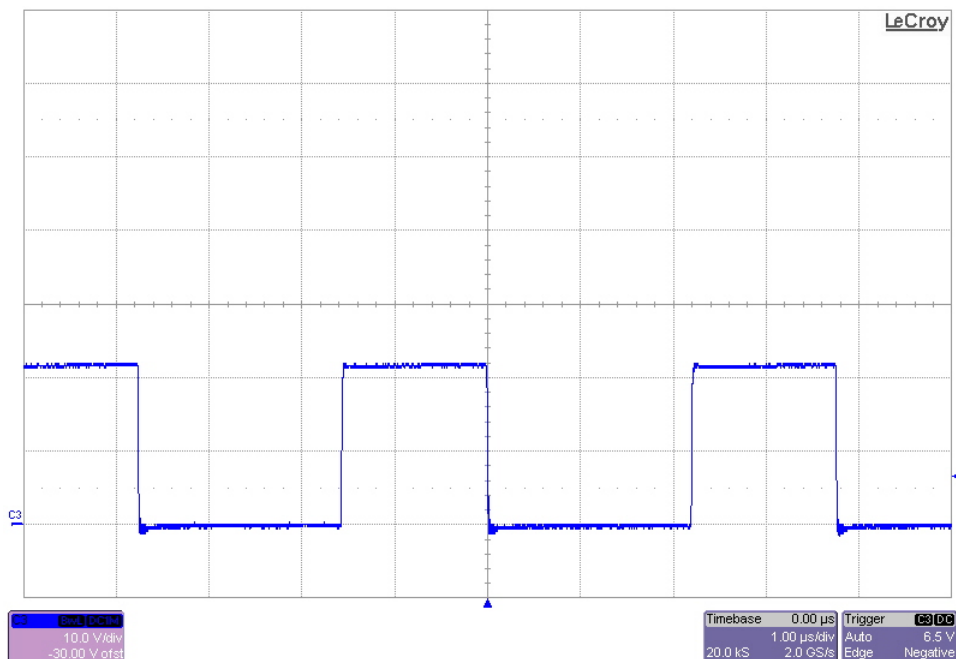
4 Load Transients

The photo below shows the response of the 12V output voltage (ac coupled) to the load current stepping between 0.75A and 1.5A. $V_{in} = 12V_{dc}$. (200mV/DIV, 500mA/DIV, 500uS/DIV)

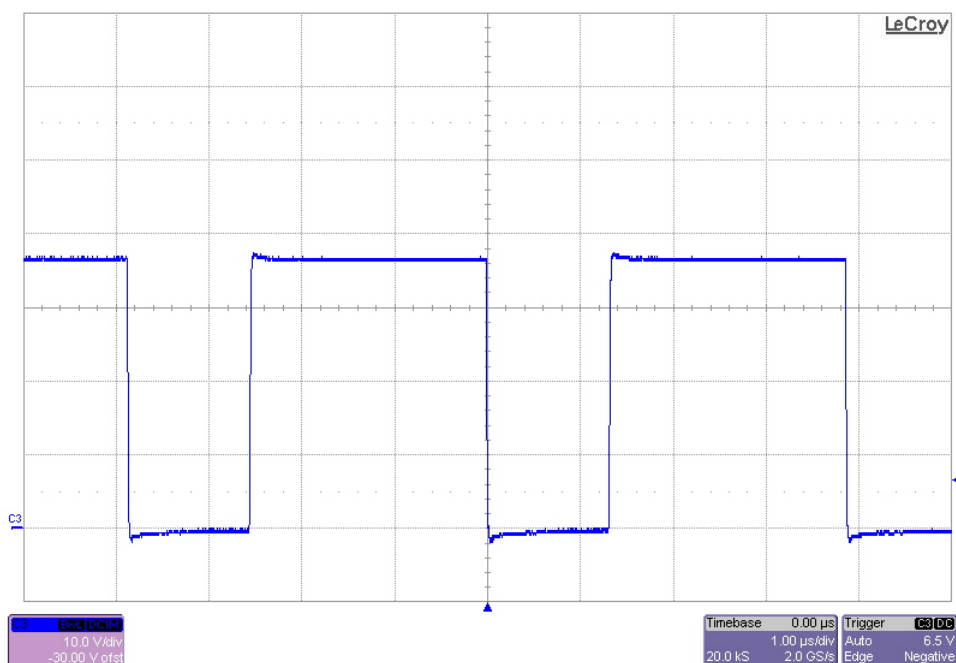


5 Switch Node Waveforms

The photos below show the FET drain voltage at TP3. The input voltage is 9V and the output is loaded to 1.5A. (10V/DIV, 1 μ S/DIV)

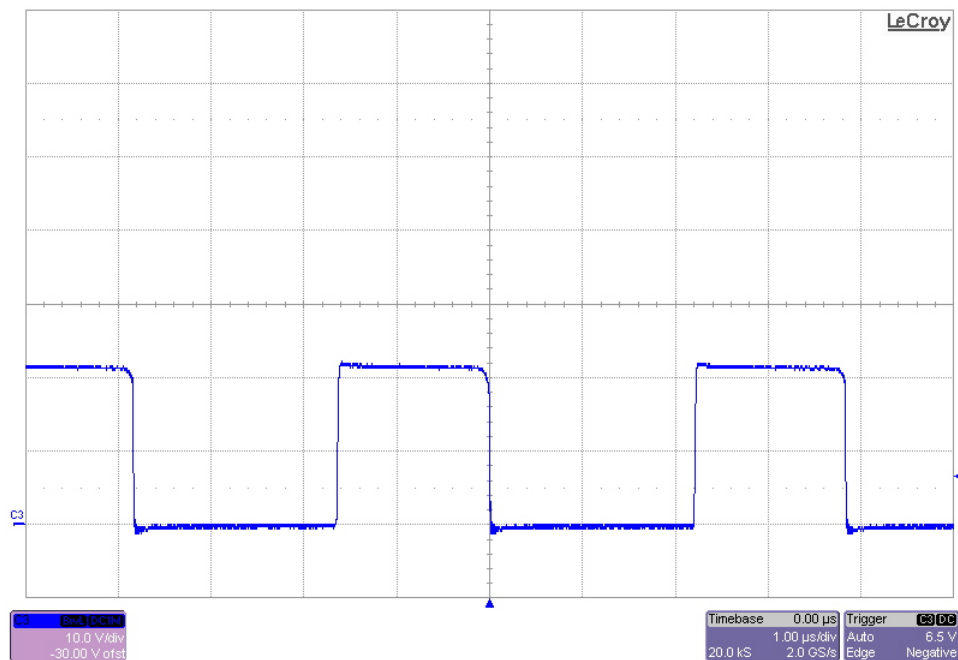


The photos below show the FET drain voltage at TP3. The input voltage is 24V and the output is loaded to 1.5A. (10V/DIV, 1 μ S/DIV)

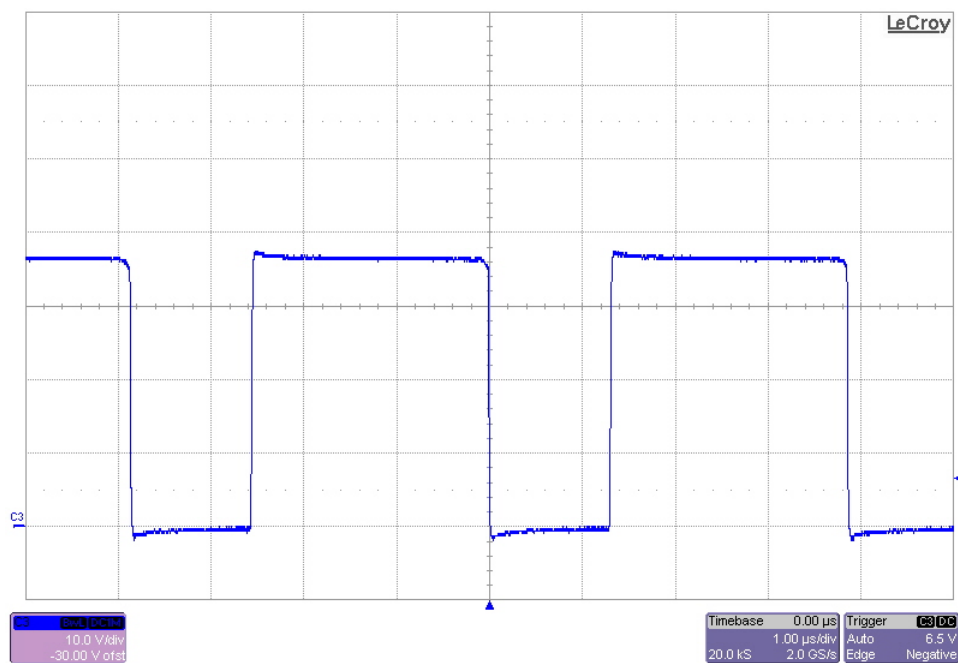


PMP5910 Rev B Test Results

The photos below show the FET drain voltage at TP3. The input voltage is 9V and the output is loaded to 0.18A and is going discontinuous. (10V/DIV, 1uS/DIV)



The photos below show the FET drain voltage at TP3. The input voltage is 24V and the output is loaded to 0.47A and is going discontinuous. (10V/DIV, 1uS/DIV)

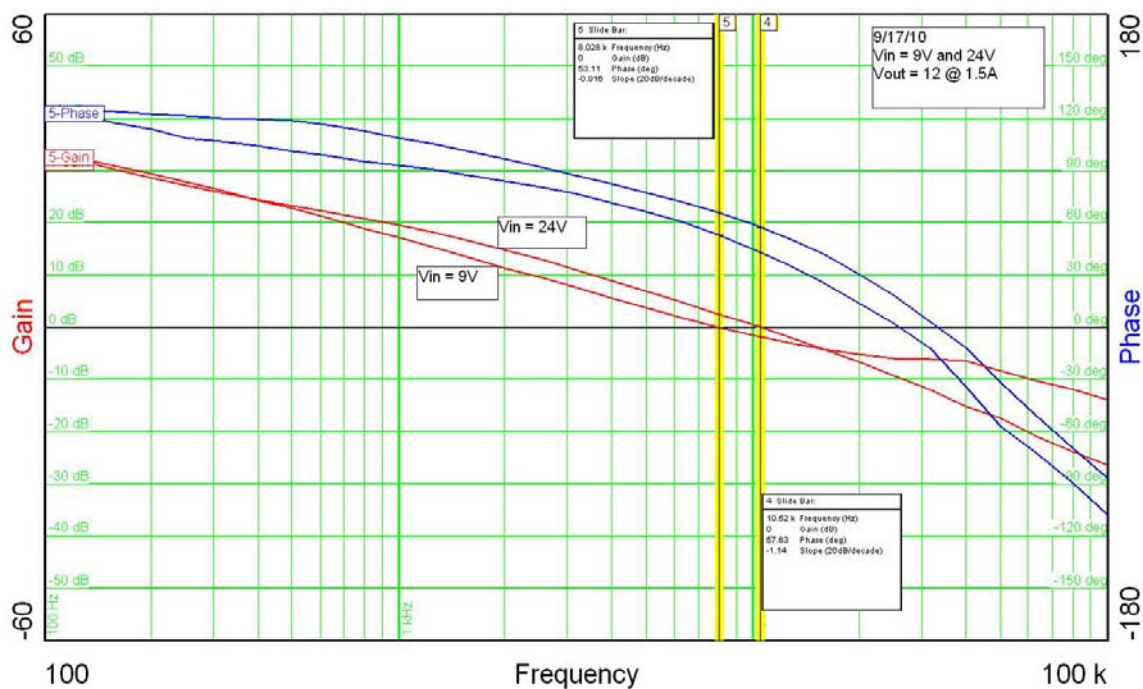


6 Loop Gain

Closed loop gain; $I_{out} = 1.5A$

Bandwidth = 10.5KHz Phase Margin = 58 degrees ($V_{in} = 24V$)

Bandwidth = 8.0KHz Phase Margin = 53 degrees ($V_{in} = 12V$)



7 Photo

The photo below shows the prototype circuit. It was built on PMP5171 REVA PWB.



8 Thermal Image

A thermal image is shown below when operating at 12V input and 1.5A output.



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