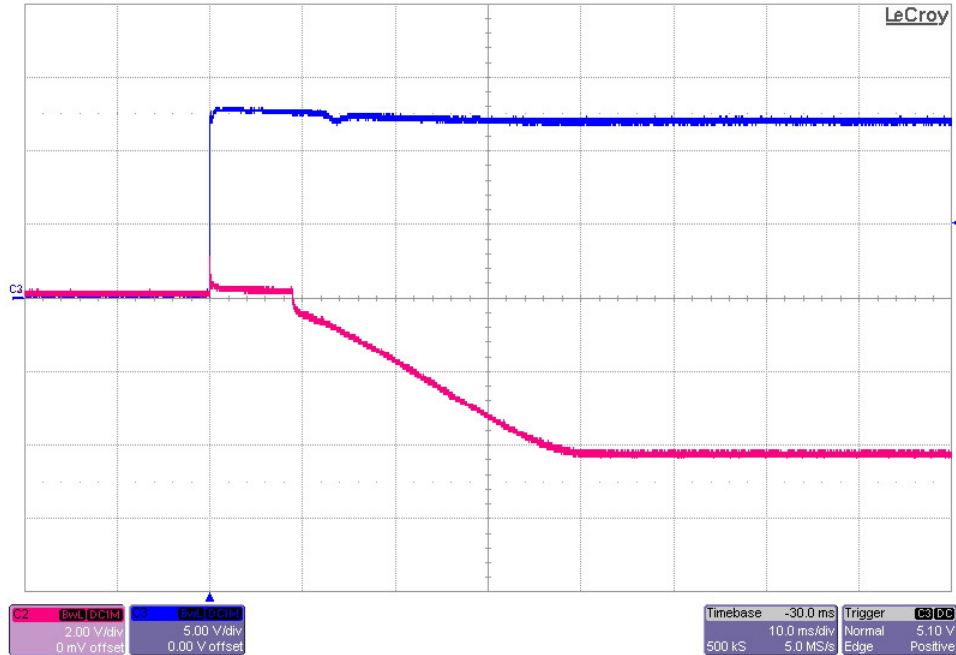
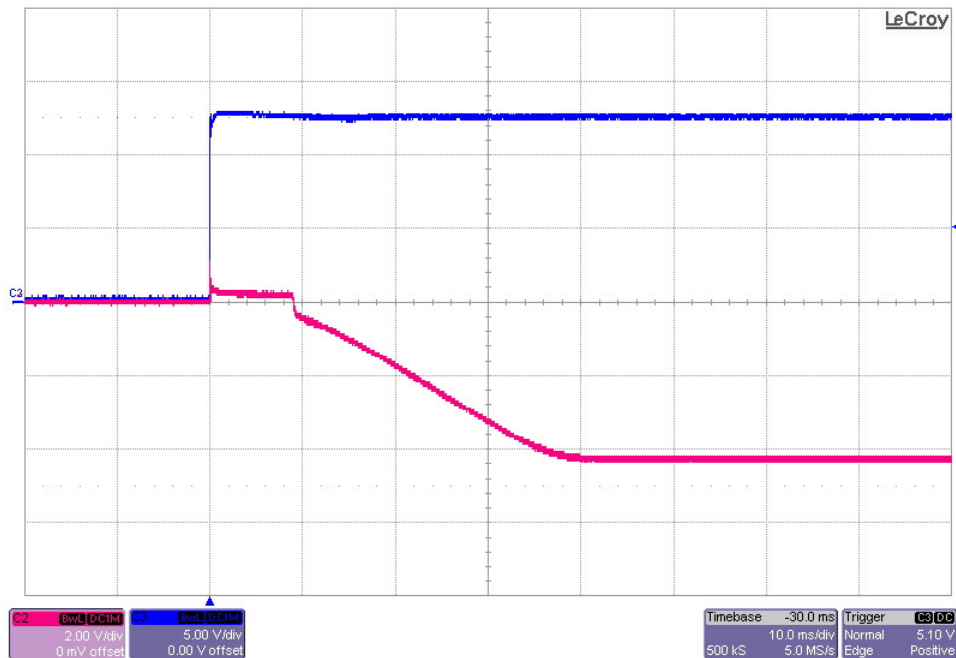


1 Startup

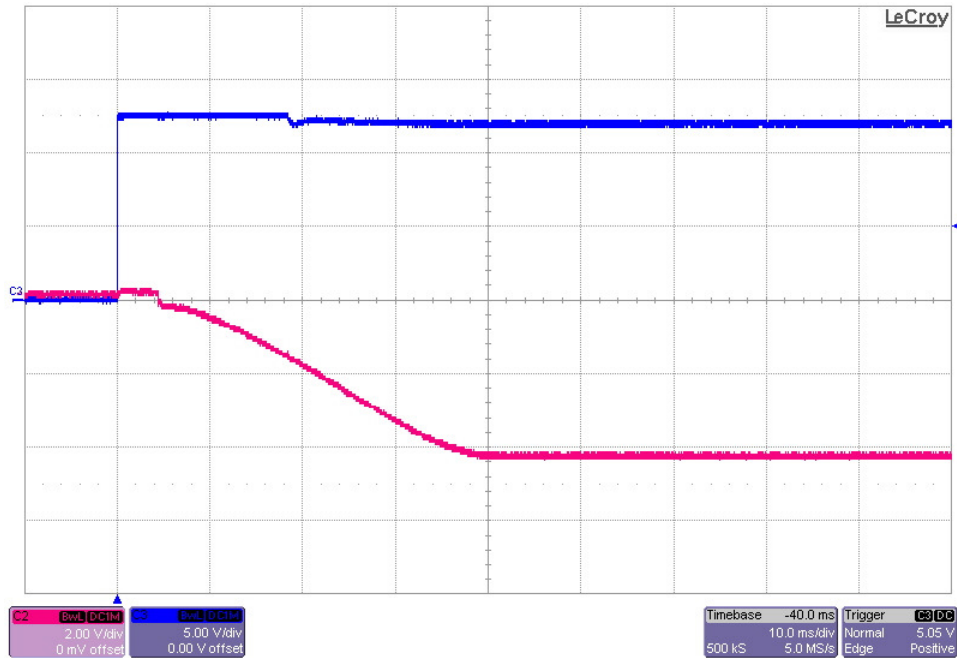
The photo below shows the output voltage startup waveform after the application of 12V in. The -4.35V output was loaded to 15A. (Vin is 5V/DIV, Vout is 2V/DIV, 10mS/DIV)



The photo below shows the output voltage startup waveform after the application of 12V in. The -4.35V output was loaded to 0A. (Vin is 5V/DIV, Vout is 2V/DIV, 10mS/DIV)

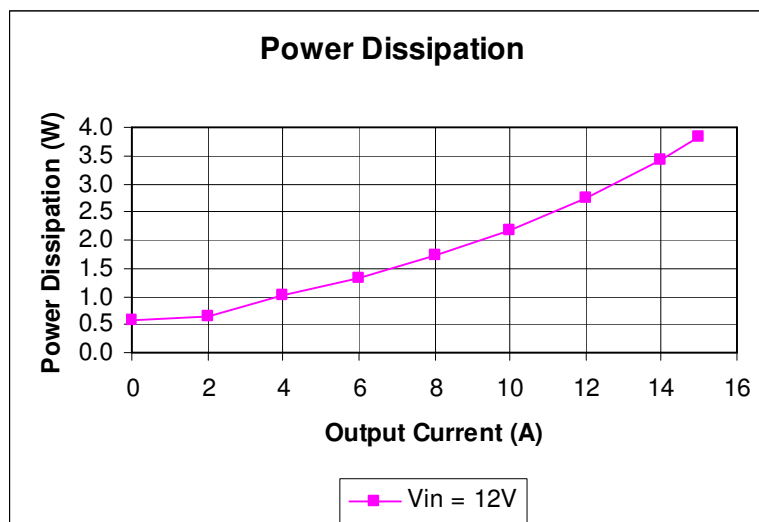
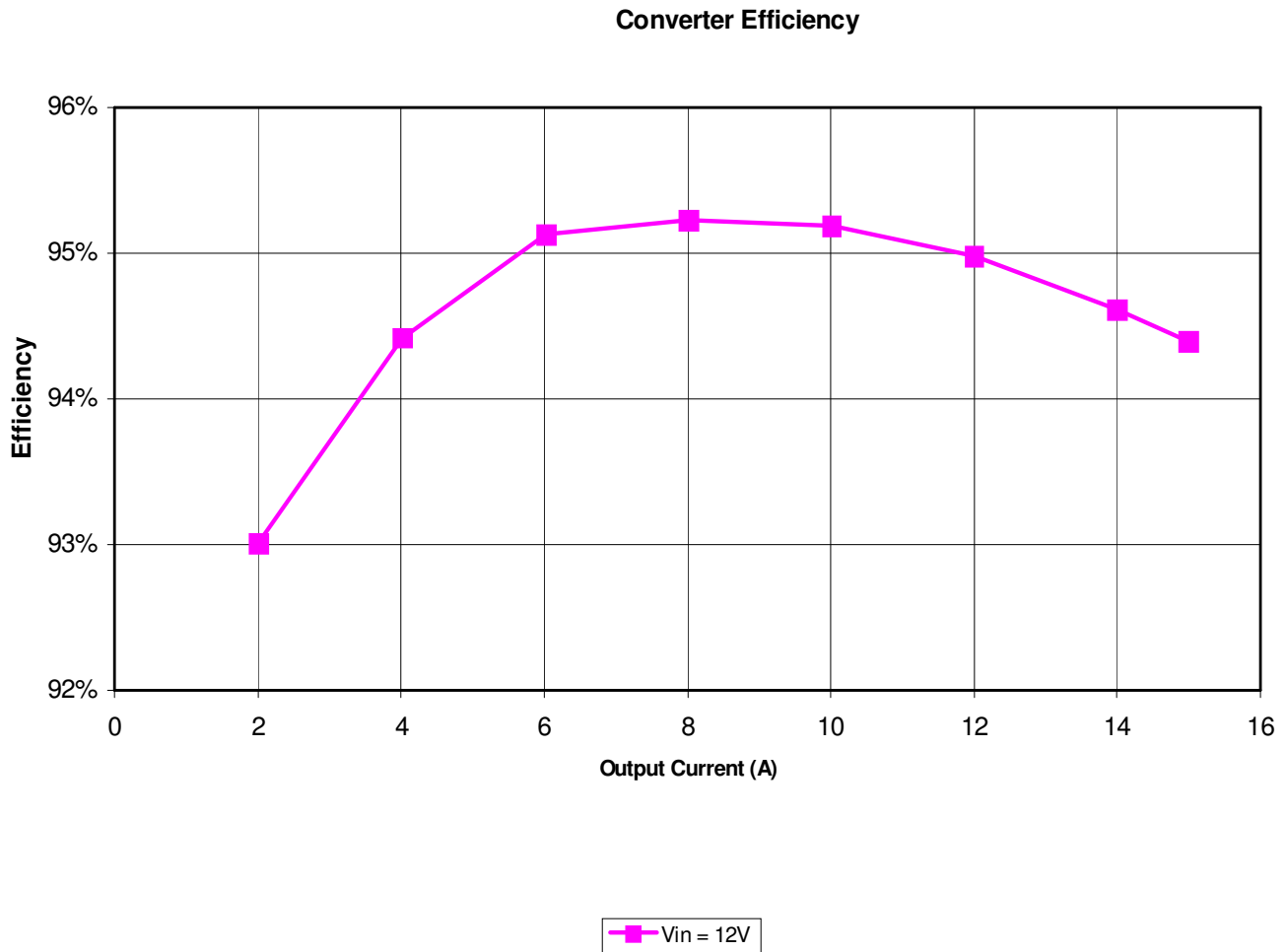


The photo below shows the output voltage startup waveform after an ENABLE high (input jumper removed) while the 12V input was present. The -4.35V output was loaded to 15A. (EN is 5V/DIV, Vout is 2V/DIV, 10mS/DIV)



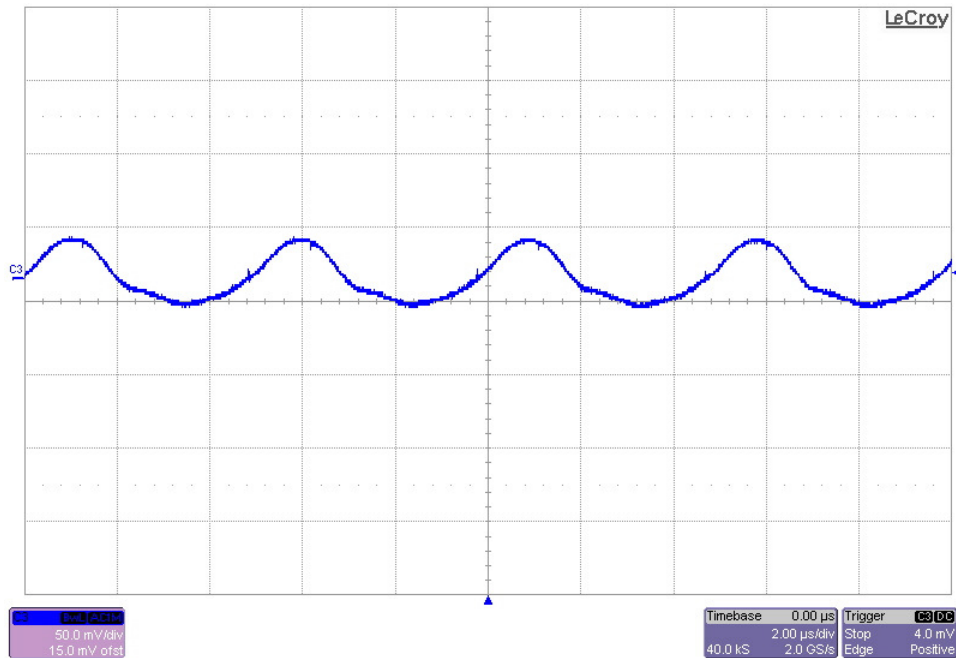
2 Efficiency

The converter efficiency is shown in the figure below. $V_{out} = -4.35V$, $V_{in} = 12V$

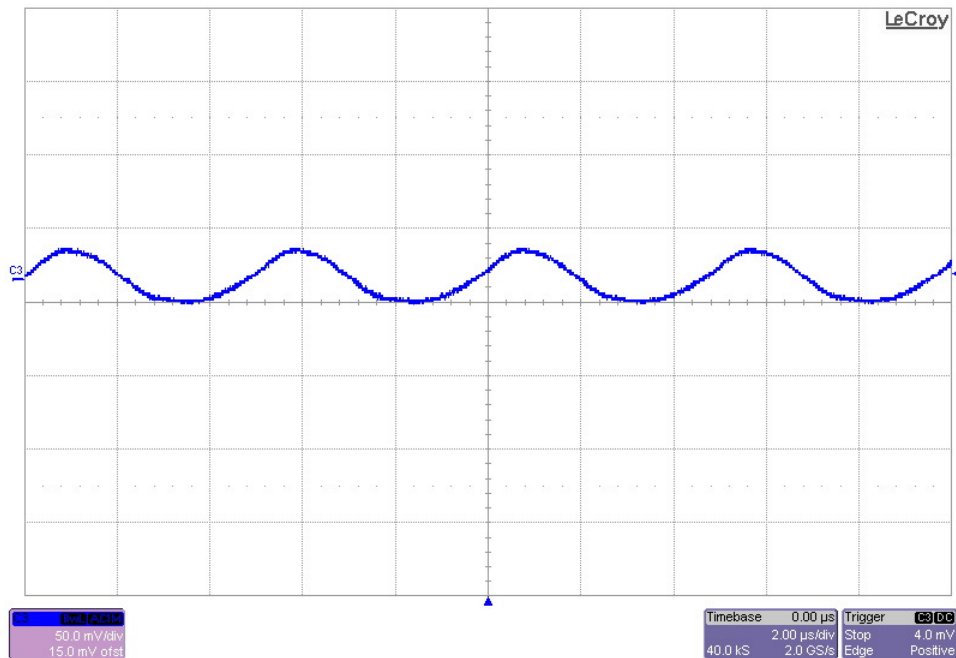


3 Output Ripple Voltage

The output ripple voltage is shown in the figure below. The image was taken with the output loaded to 15A. The input voltage set to 12V. (50mV/DIV, 2uS/DIV)

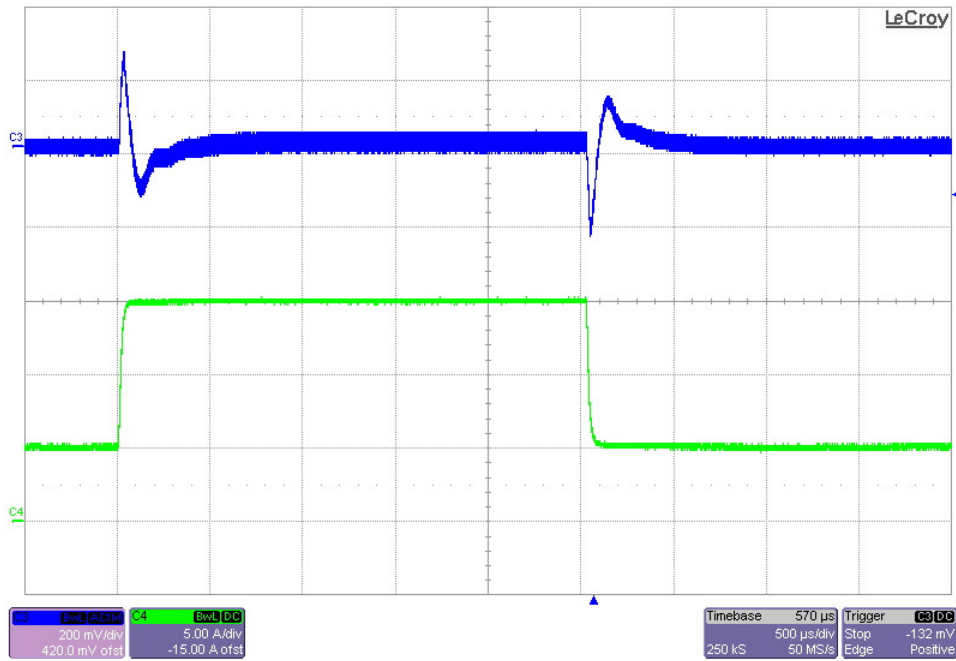


The output ripple voltage is shown in the figure below. The image was taken with the output loaded to 0A. The input voltage set to 12V. (50mV/DIV, 2uS/DIV)

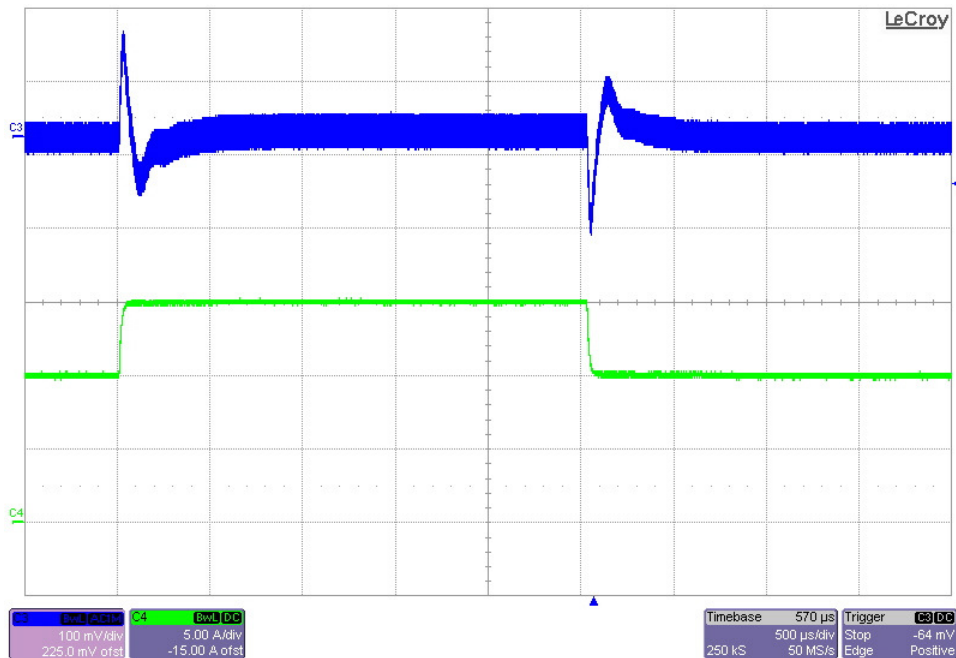


4 Load Transients

The photo below shows the output voltage (ac coupled) when the load current is stepped between 5A and 15A. $V_{in} = 12V$. (200mV/DIV, 5A/DIV, 500uS/DIV)

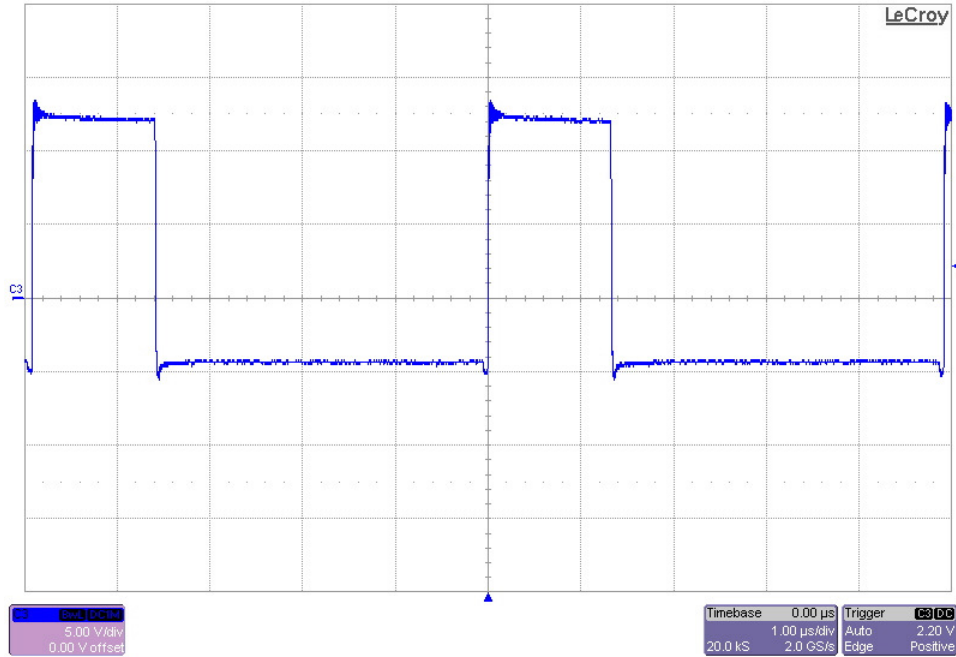


The photo below shows the output voltage (ac coupled) when the load current is stepped between 10A and 15A. $V_{in} = 12V$. (100mV/DIV, 5A/DIV, 500uS/DIV)

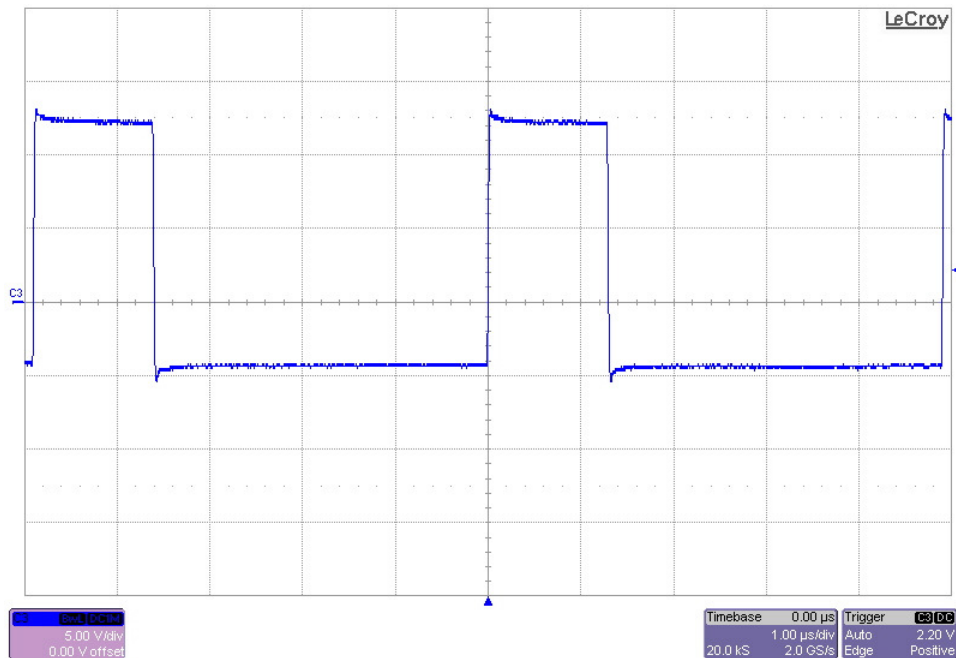


5 Switch Node Waveforms

The photo below shows the FET switch node (TP6). The input voltage is 12V and the output is loaded to 15A. (5V/DIV, 1uS/DIV)



The photo below shows the FET switch node (TP6). The input voltage is 12V and the output is loaded to 0A. (5V/DIV, 1uS/DIV)

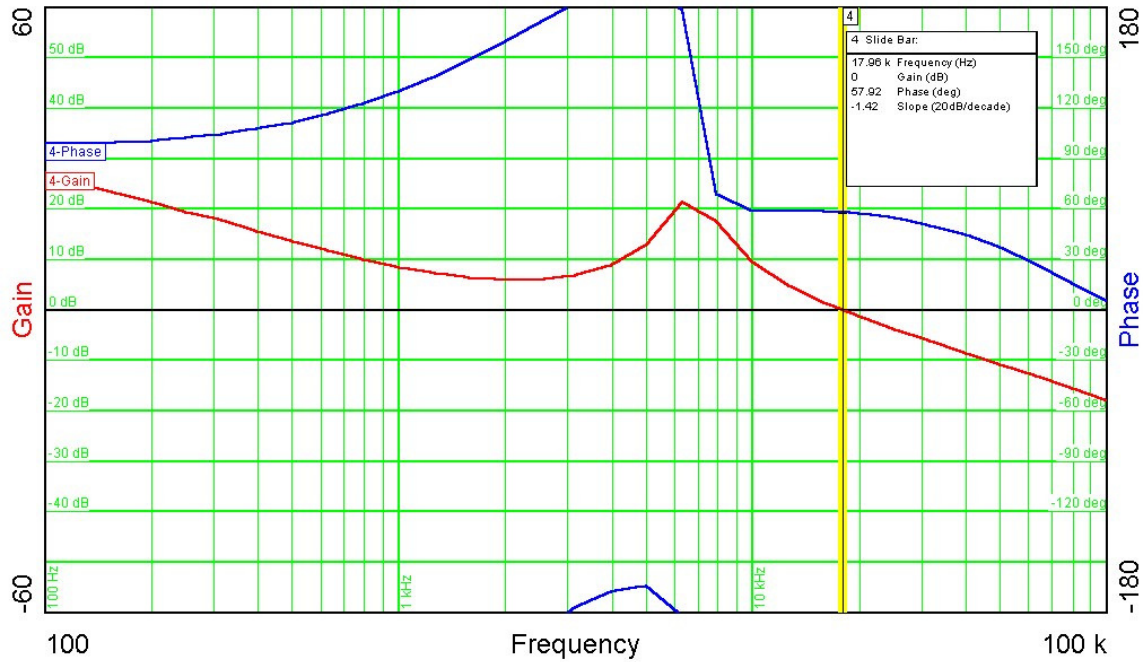


6 Control Loop Gain / Stability

The plot below shows the loop gain and phase margin with the output loaded to 15A. The input voltage was set to 12V.

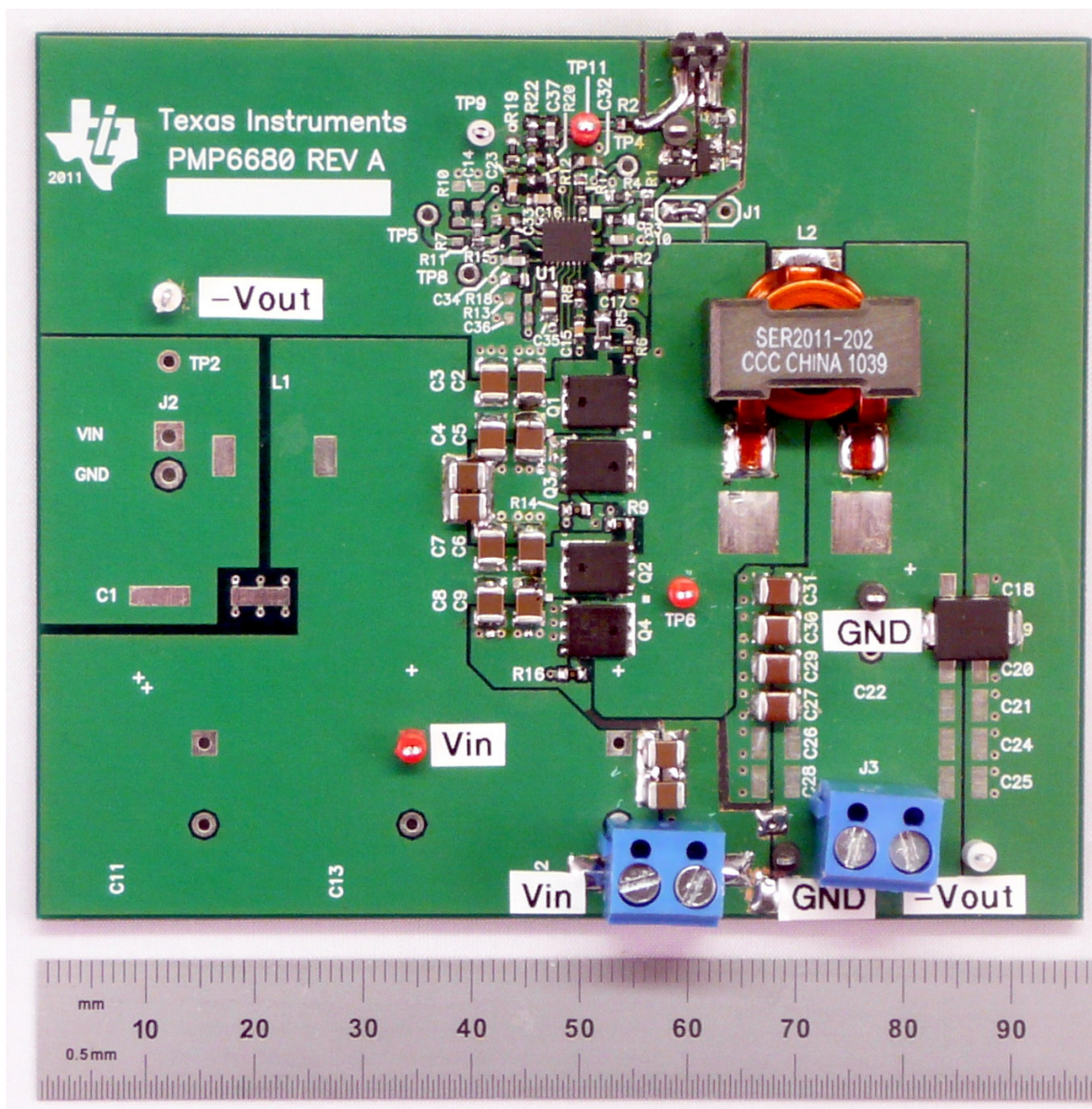
Band Width = 18KHz,

Phase Margin = 58 degrees



7 Photo

The photo below shows the PMP6795 REVB assy, built on the PMP6680 REVA PWB. Mods were required.



8 Thermal Image

A thermal image is shown below when operating at 12V input and 15A output, with no airflow.



IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](#) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2021, Texas Instruments Incorporated