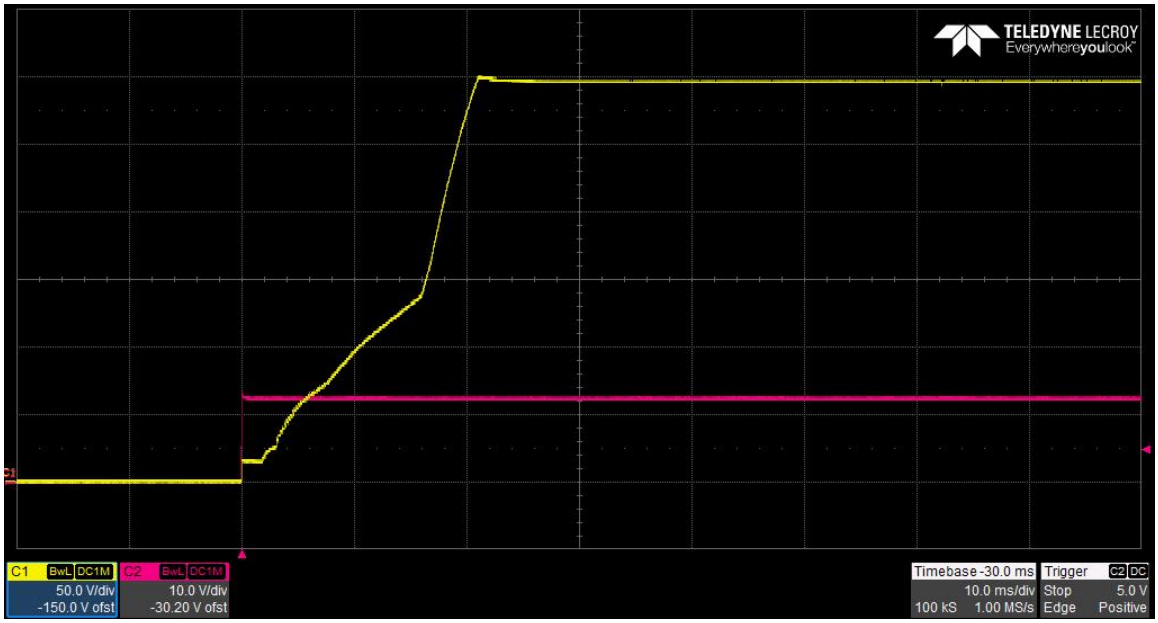
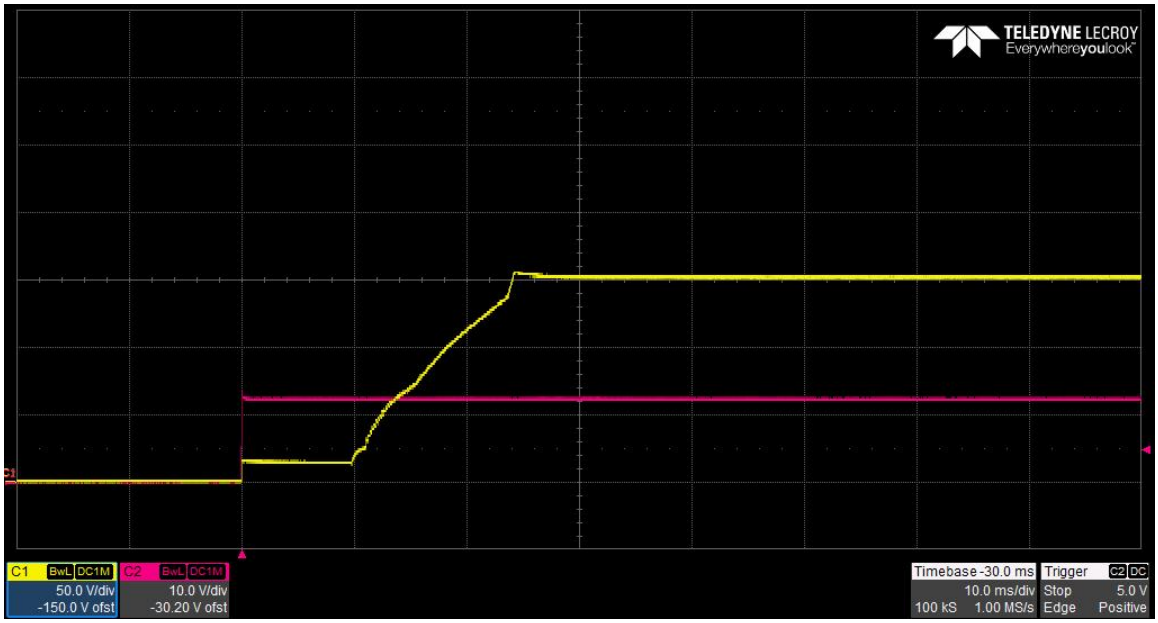
1 Startup

The photo below shows the output voltage startup waveform after the application of 12V in. The 300V output was loaded to 0A. Vcontrol = 0V, (Vin is 10V/DIV, Vout is 50V/DIV, 10mS/DIV)

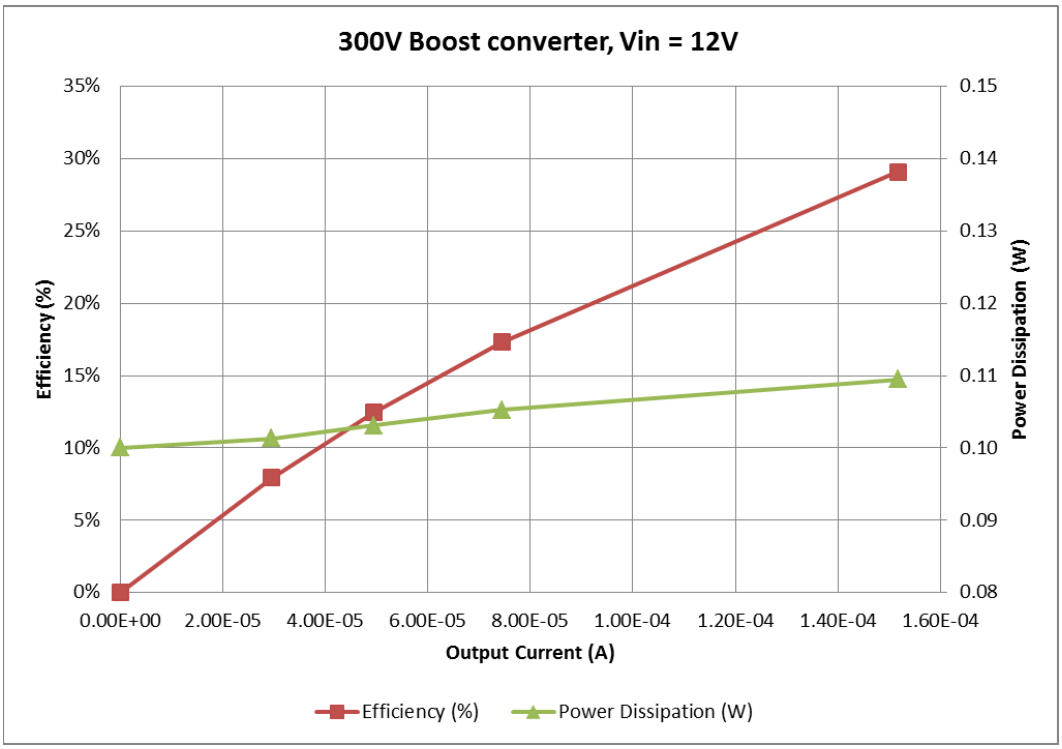


The photo below shows the output voltage startup waveform after the application of 12V in. The 150V output was loaded to 0A. Vcontrol = 3V, (Vin is 10V/DIV, Vout is 50V/DIV, 10mS/DIV)

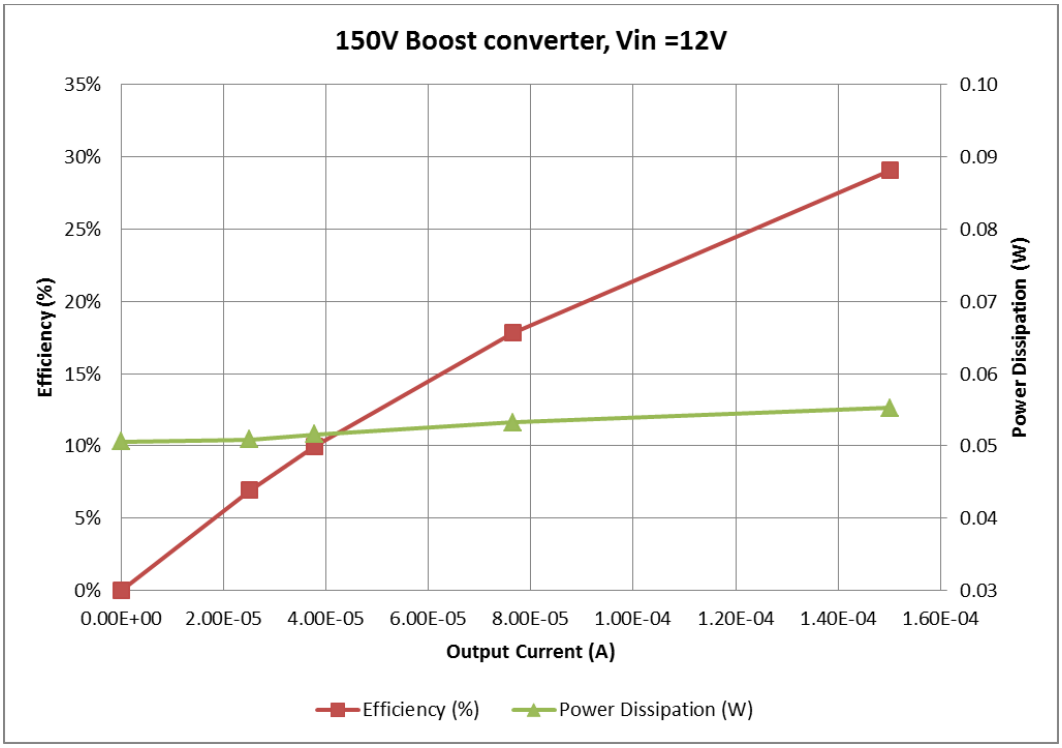


2 Efficiency

The converter efficiency is shown below for Vin = 12V and Vout = 300V.

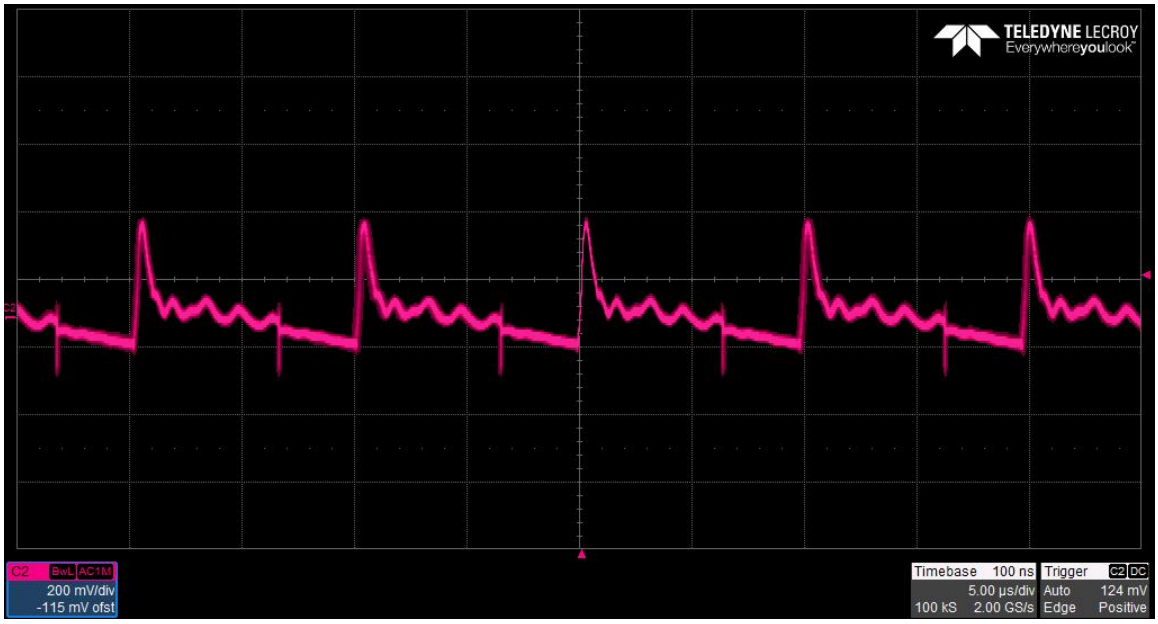


The converter efficiency is shown below for Vin = 12V and Vout = 150V.

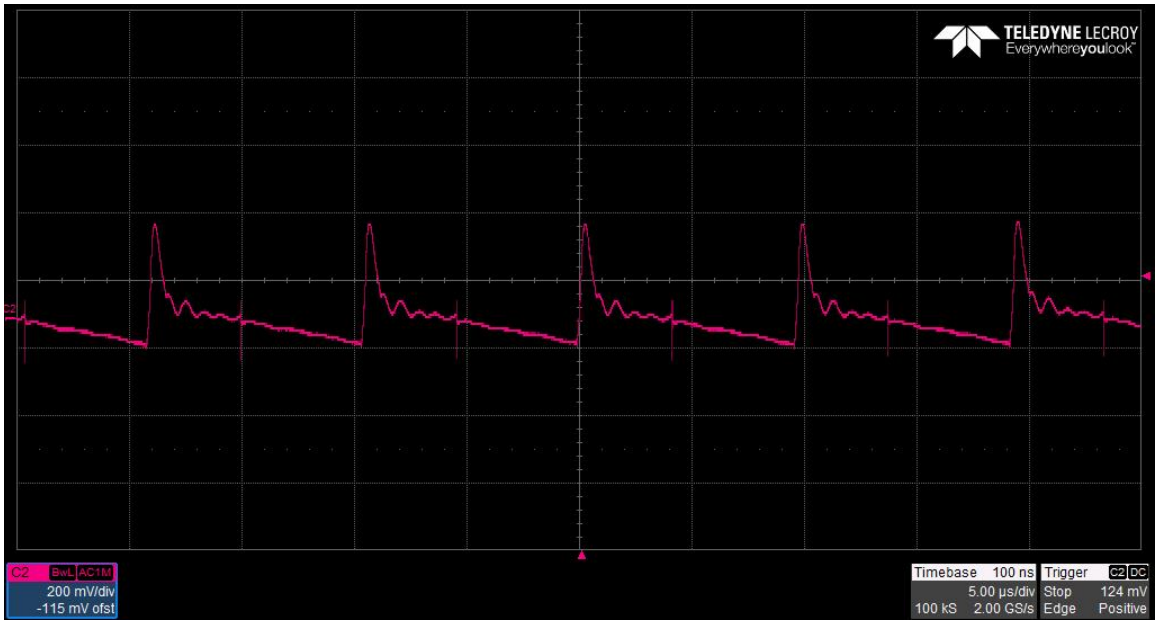


3 Output Ripple Voltage

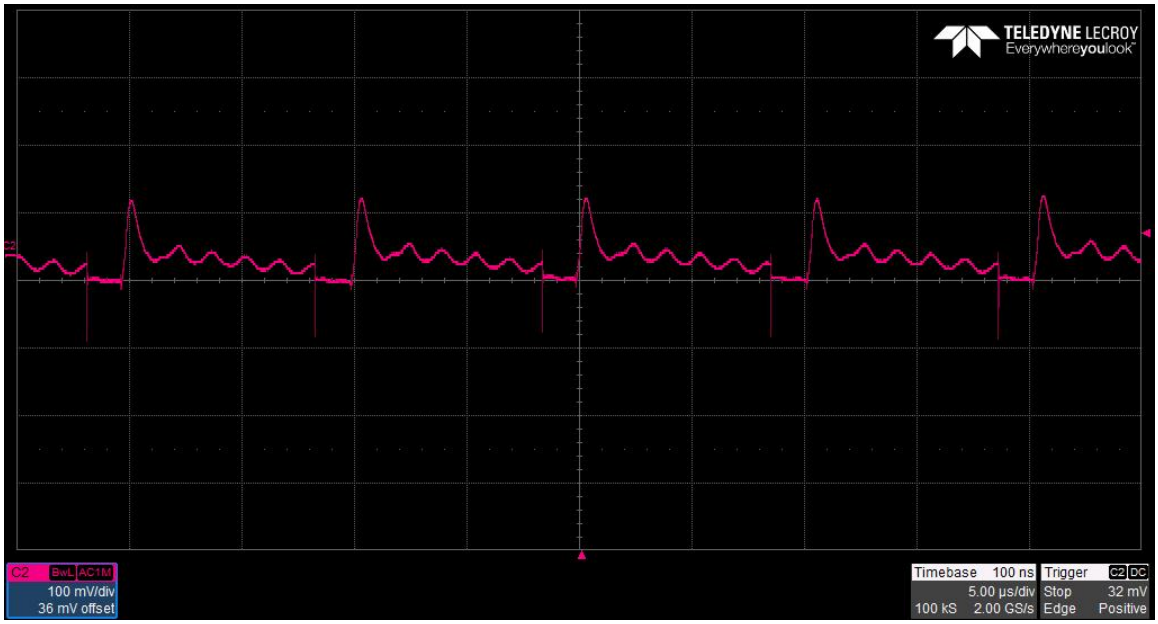
The 300V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 50uA. The input voltage is set to 15V. (200mV/DIV, 5uS/DIV)



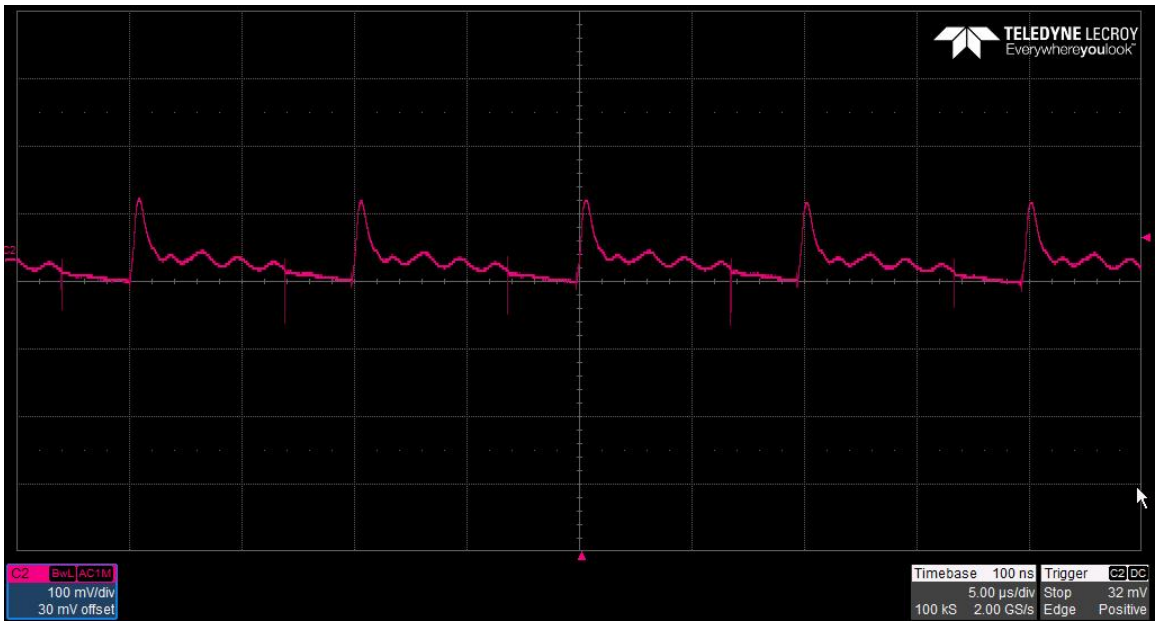
The 300V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 50uA. The input voltage is set to 9V. (200mV/DIV, 5uS/DIV)



The 150V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 25uA. The input voltage is set to 15V. (100mV/DIV, 5uS/DIV)



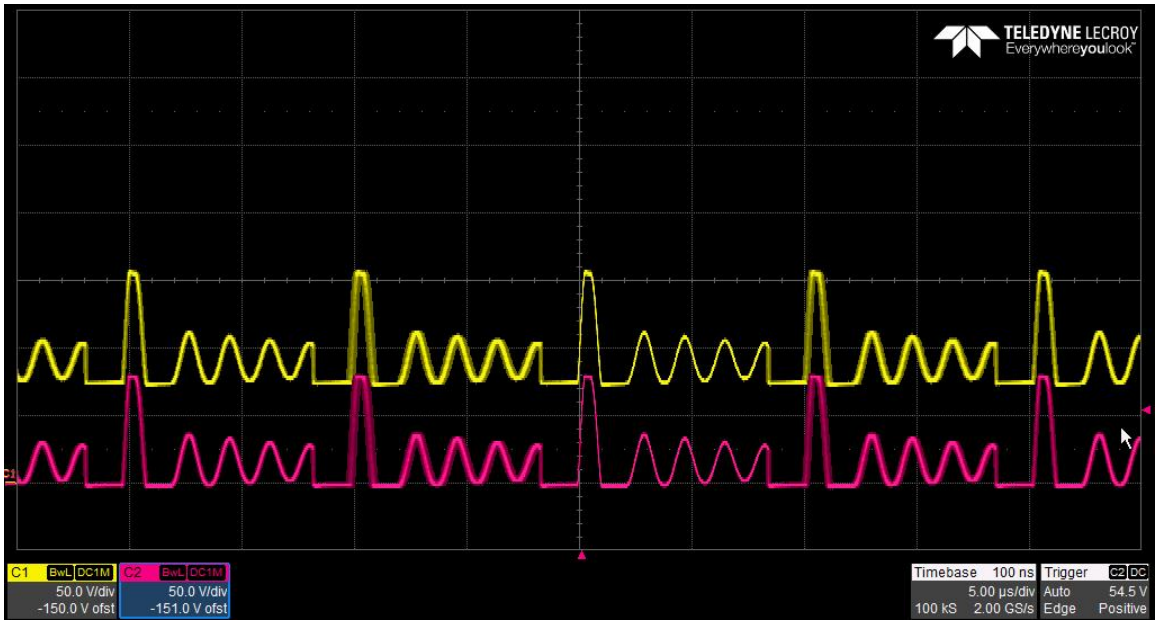
The 150V output ripple voltage (AC coupled) is shown in the figure below. The image was taken with the output loaded to 25uA. The input voltage is set to 9V. (100mV/DIV, 5uS/DIV)



4 Switch Node Waveforms

The photo below shows the FET switching voltage at TP4 (Red) and the voltage at D2-cathode (Yellow) for an output voltage of 300V, an input voltage of 15V and 0A load. (50V/DIV, 5uS/DIV)

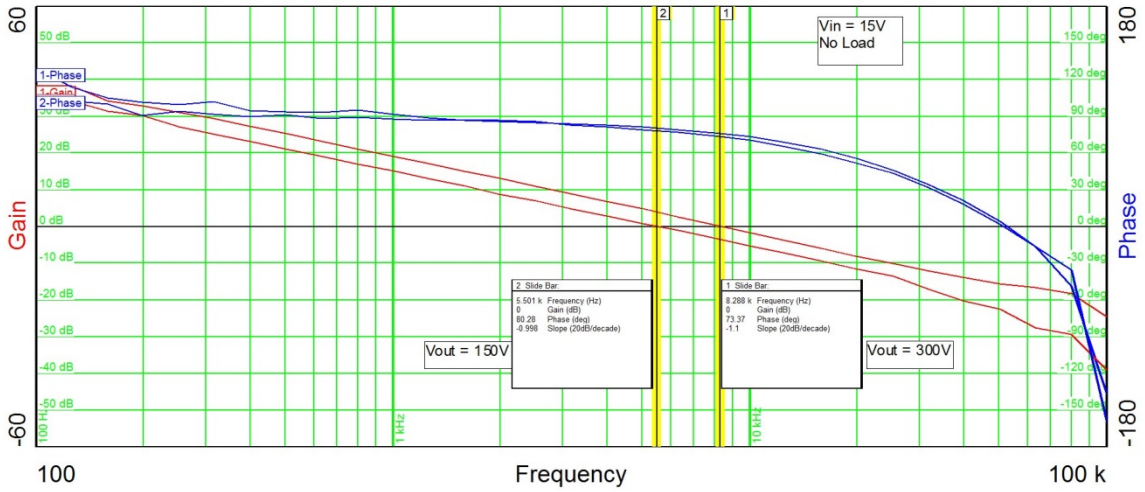
The photo below shows the FET switching voltage at TP4 (Red) and the voltage at D2-cathode (Yellow) for an output voltage of 150V, an input voltage of 15V and 0A load. (50V/DIV, 5uS/DIV)



5 Loop Gain

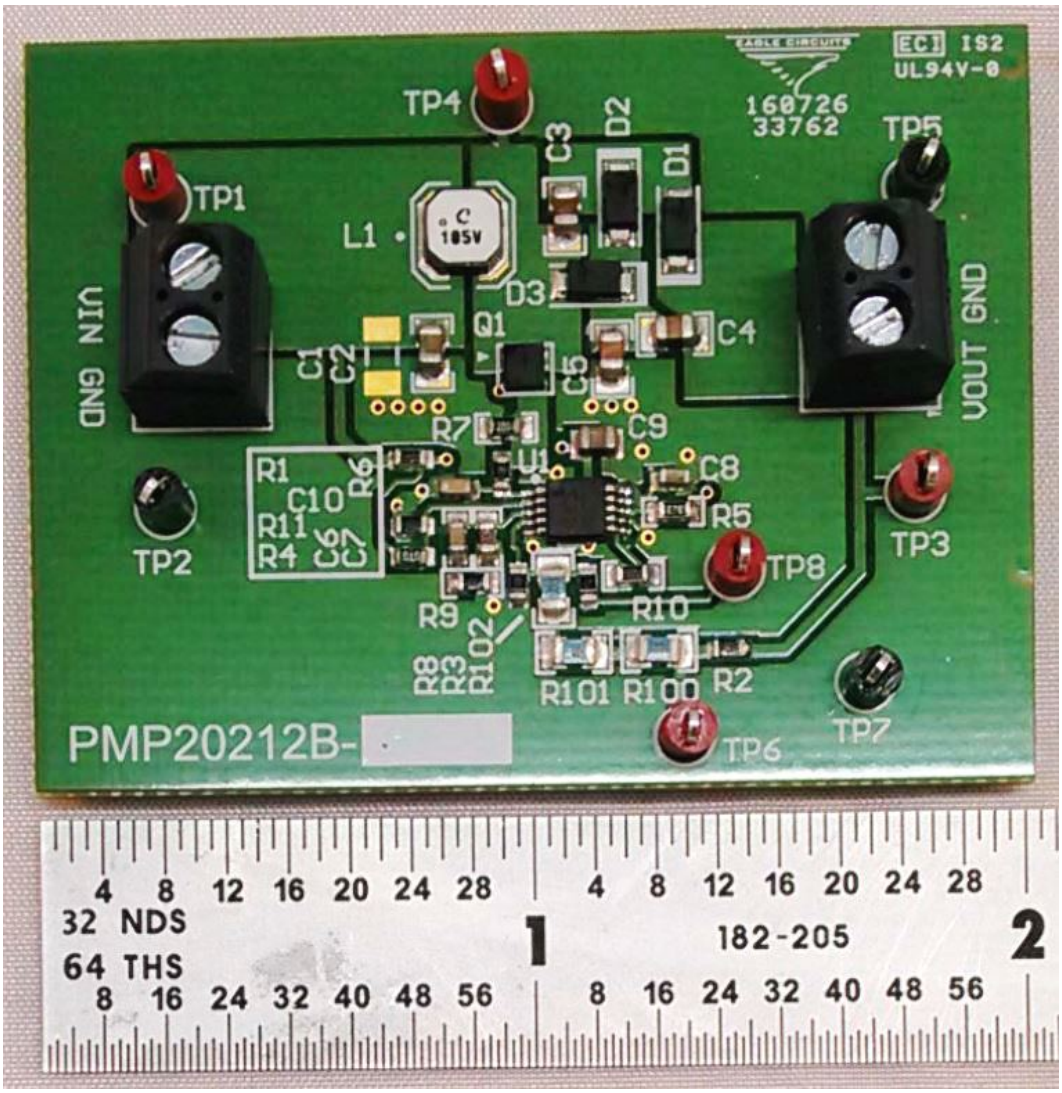
The plot below shows the loop gain with the input voltage set to 15V with the output set to 0A.

Loop Gain (Vout = 300V)	BW: 8.29KHz	PM: 73 degrees
Loop Gain (Vout = 150V)	BW: 5.50KHz	PM: 80 degrees



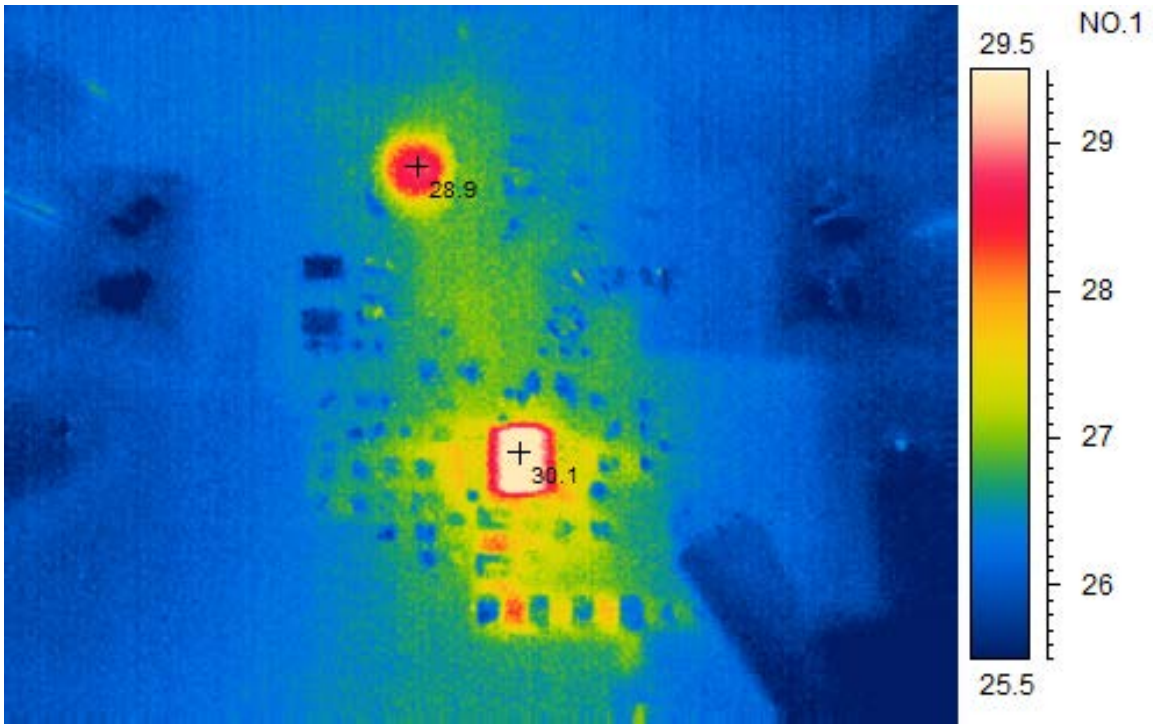
6 Photo

The photo below shows the PMP20212 REVB assy.



7 Thermal Image

A thermal image is shown below operating at 12V input and 300V@30uA output (room temp, no airflow).



IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), 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, 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 (https:www.ti.com/legal/termsofsale.html) 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.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265