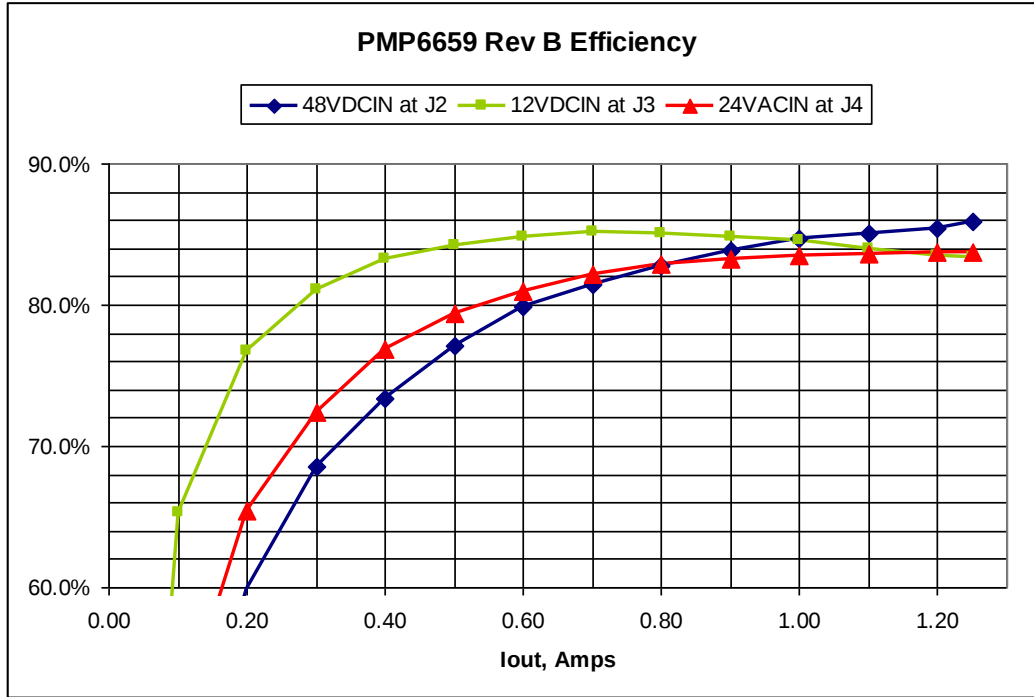


Efficiency

The efficiency of the converter with various inputs is shown below:



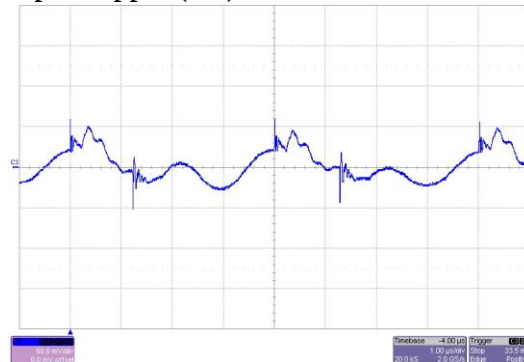
Ripple and Noise

Ripple measurements taken with a 48VIN at J2, 1.25A load, and 20MHz BWL.

12V Ripple (C38), 20mV/div, 1us/div:

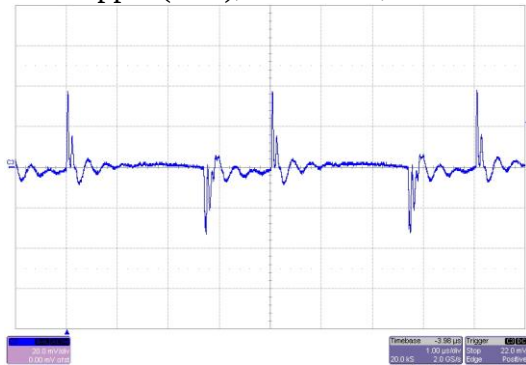


Input Ripple (D1), 10mV/div, 1us/div:

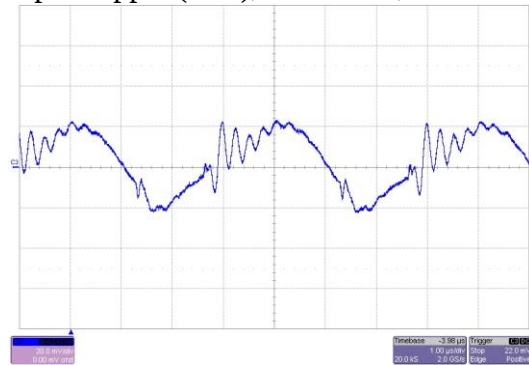


Ripple measurements taken with a 12VIN at J3, 1.25A load, and 20MHz BWL.

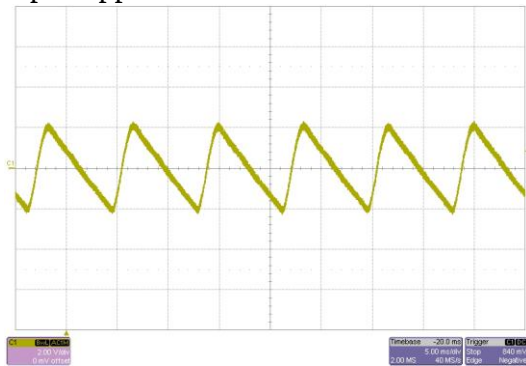
12V Ripple (C38), 20mV/div, 1us/div:



Input Ripple (C37), 20mV/div, 1us/div:

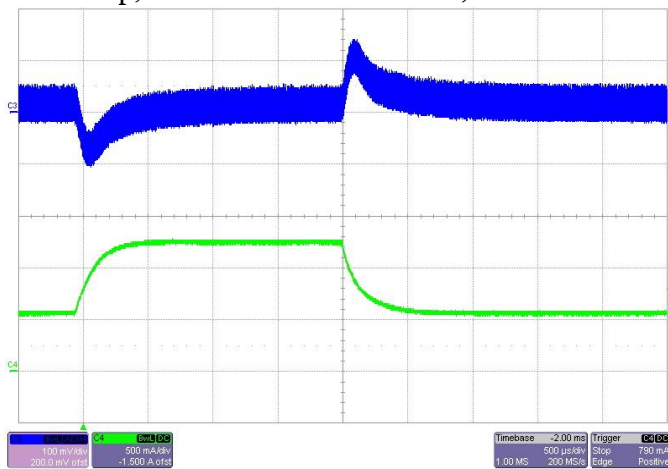


Input ripple across C27 with a 24VAC input, 2V/div, 5msec/div:

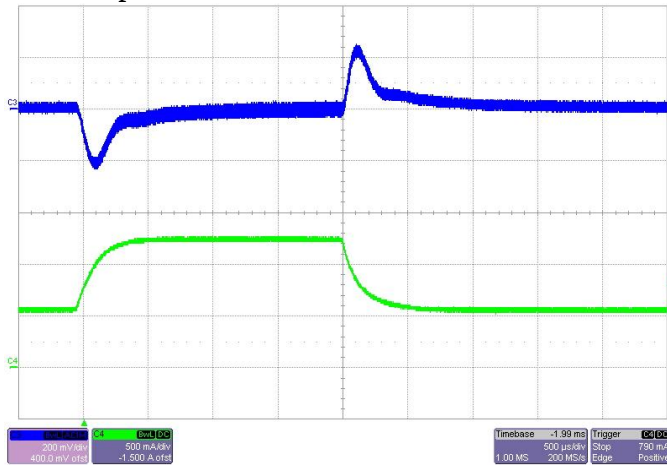


Dynamic Loading

Load Step, 48VIN at J2 100mV/div, 500usec/div:

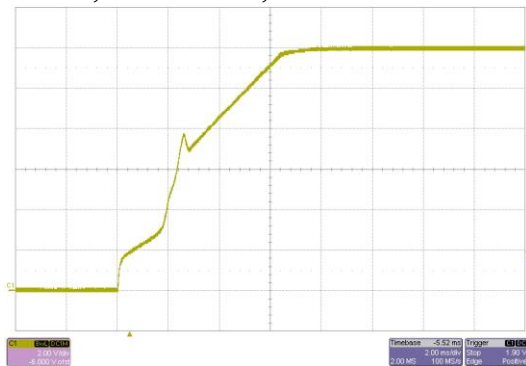


Load Step, 12VIN at J3 200mV/div, 1msec/div:

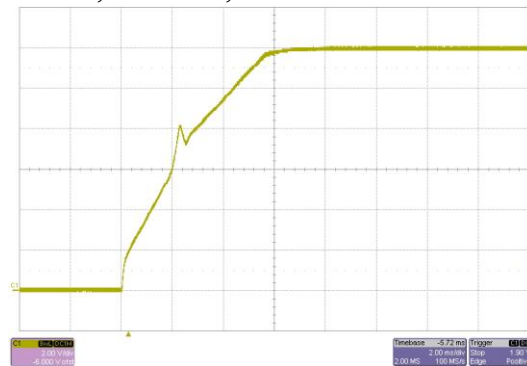


Turn On Response

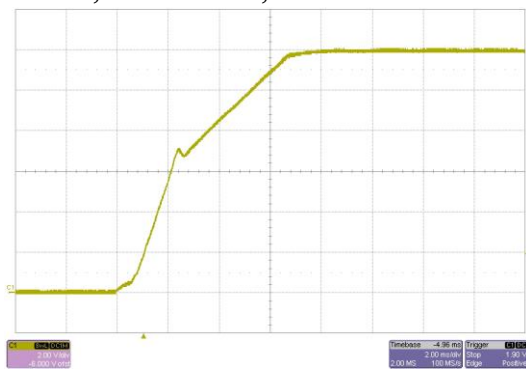
48VIN, 1.25A Load, 2msec/div:



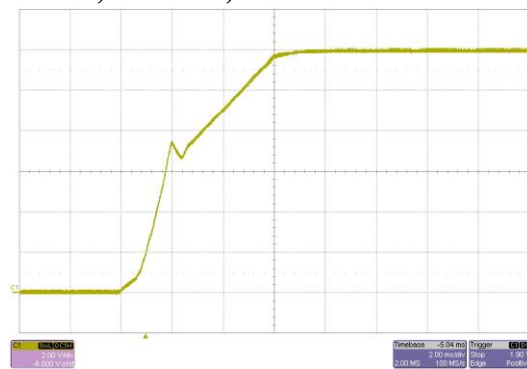
48VIN, 0A Load, 2msec/div:



12VIN, 1.25A Load, 2msec/div:

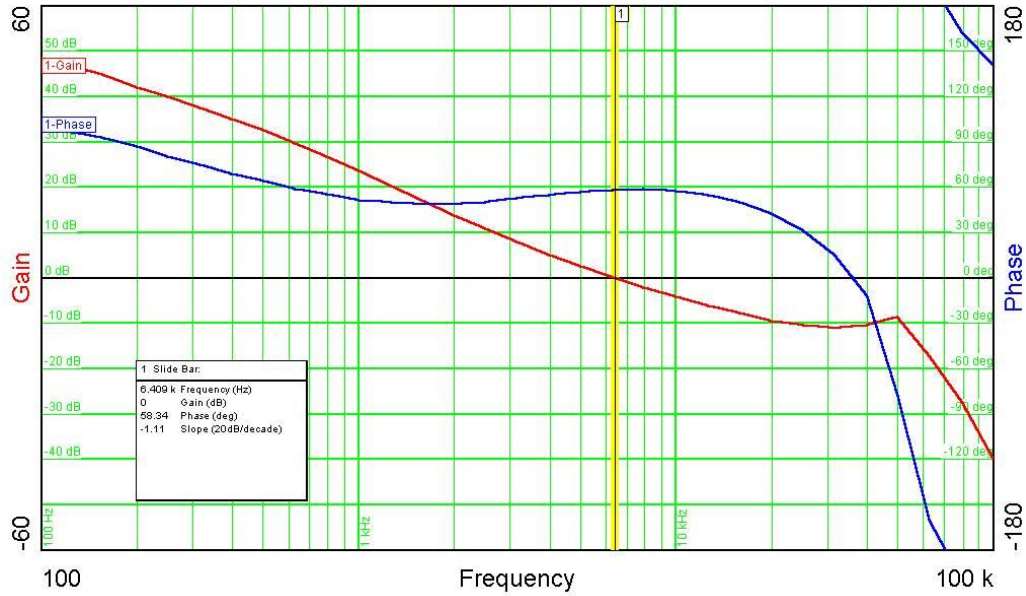


12VIN, 0A Load, 2msec/div:

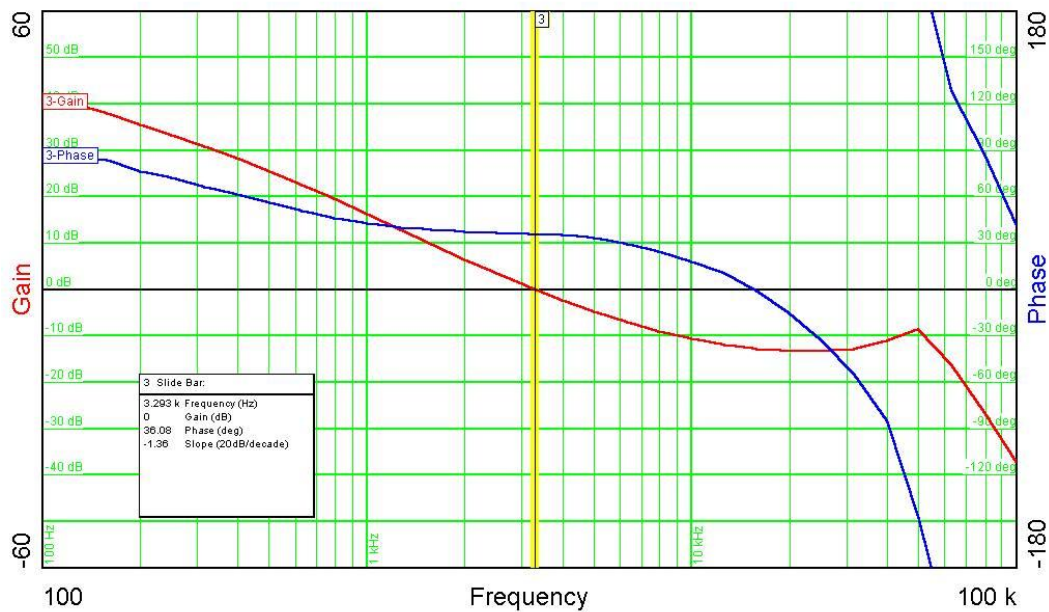


Stability (Loop Gain)

The figure below is the loop gain of the converter with a 48V input and 1.25A load. The Bandwidth is 6.4 KHz, the Phase Margin is 58 degrees, and the Gain Margin is 11 dB.

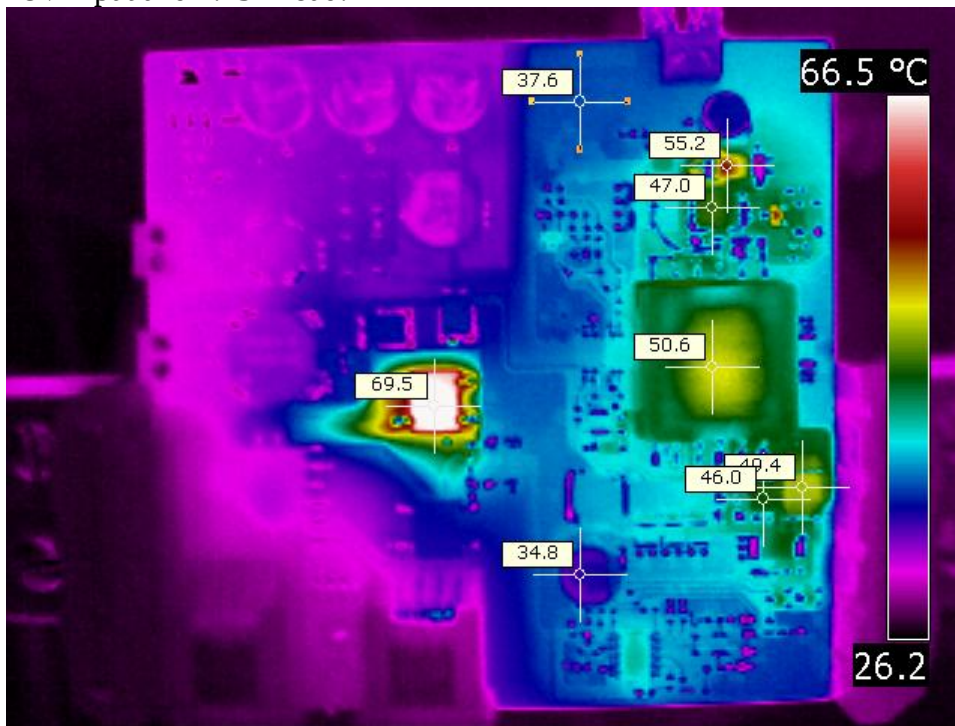


The figure below is the loop gain of the converter with a 12V input and 1.25A load. The Bandwidth is 3.3 KHz, the Phase Margin is 36 degrees, and the Gain Margin is 13 dB.

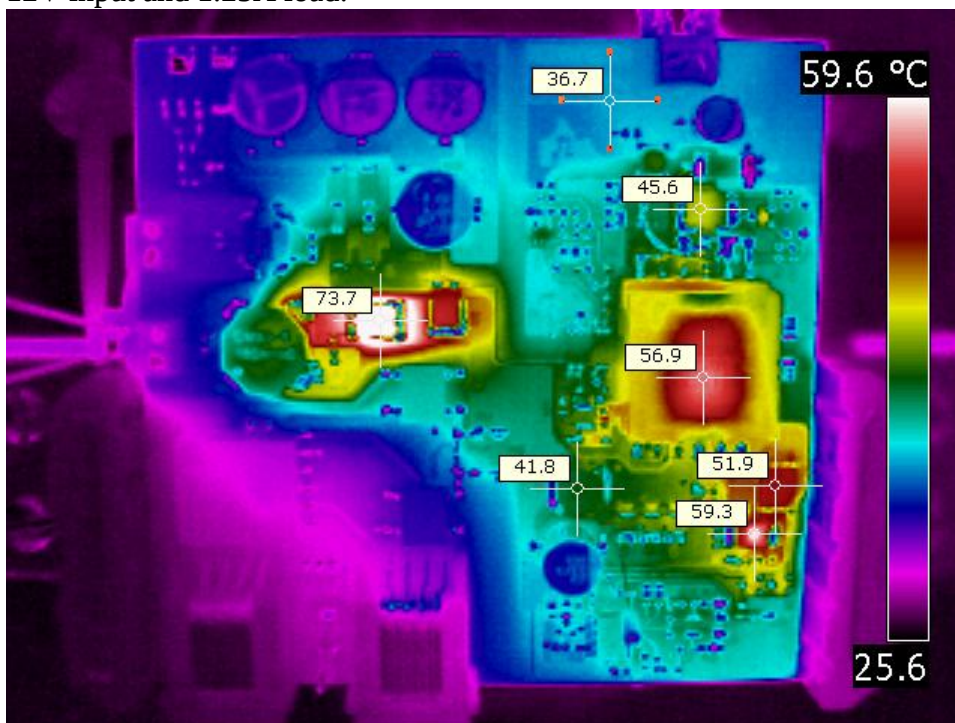


Thermal Analysis:

48V input and 1.25A load:



12V input and 1.25A load:



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