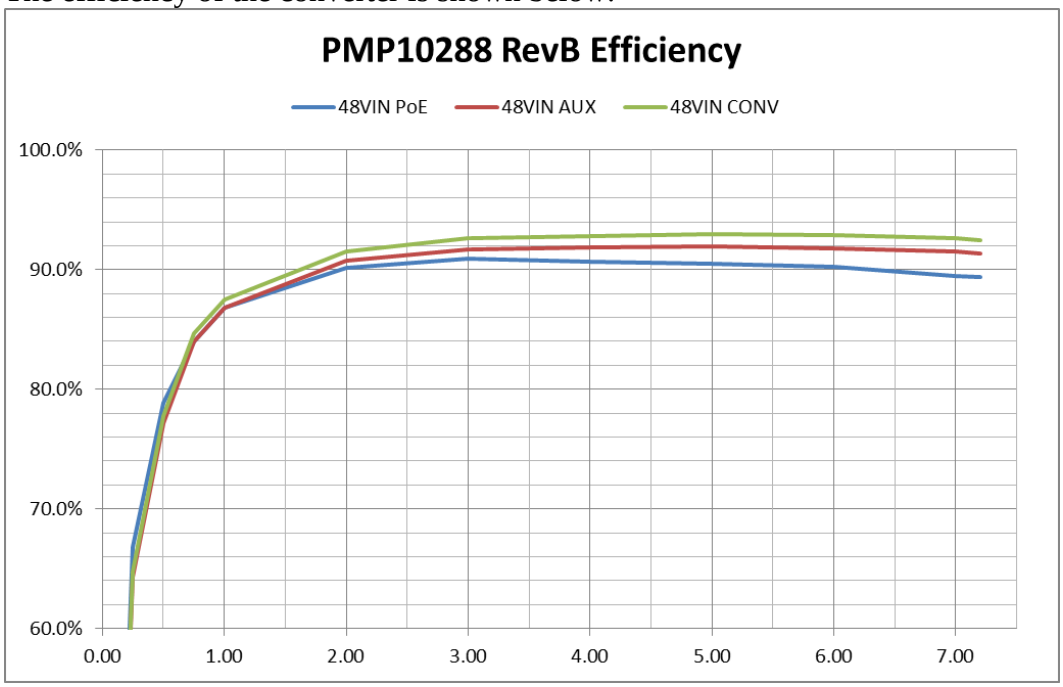
Efficiency

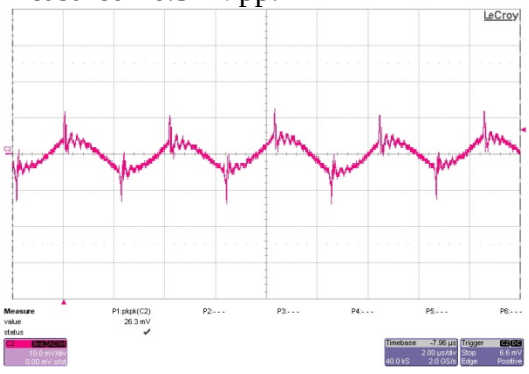
The efficiency of the converter is shown below:



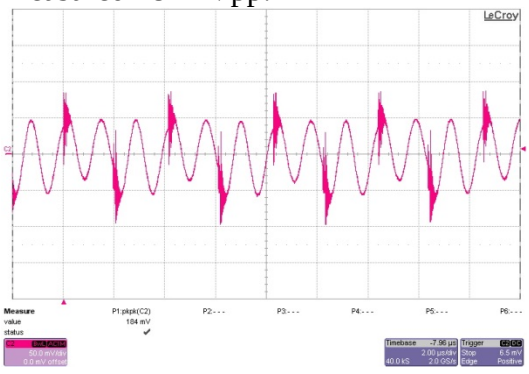
Ripple and Noise

Ripple measurements taken with a 48V input, 7.2A load, and 20MHz BWL.

Output Ripple (J4)
10mV/div, 2usec/div
Measured 26.3mVpp:



Input Ripple (C9)
50mV/div, 2usec/div
Measured 184mVpp:

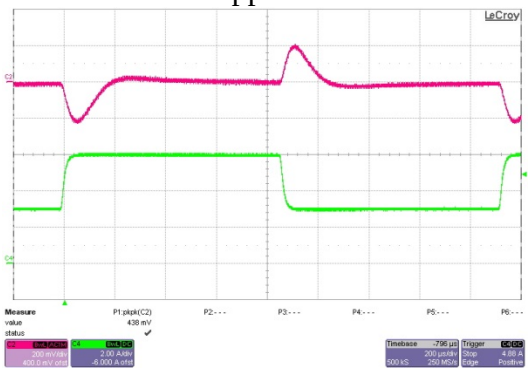


Dynamic Loading

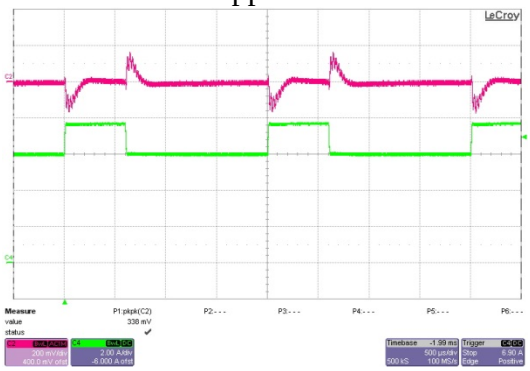
Output Load Step, 3A to 6A
Slew rate = 200mA/usec
200mV/div, 200usec/div

Output Load Step, 6A to 7.2A
Slew rate = 200mA/usec
200mV/div, 500usec/div

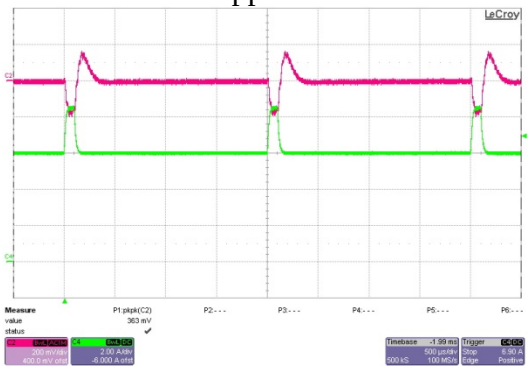
Measured 438mVpp:



Measured 338mVpp:

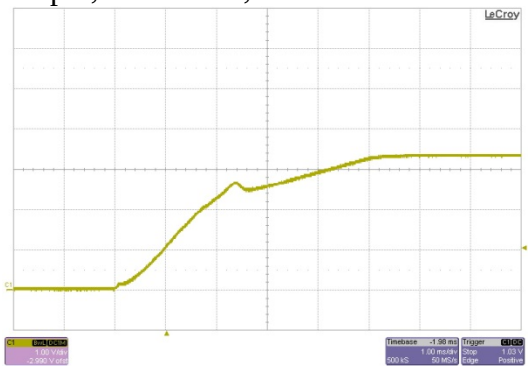


Output Load Step, 6A to 8.5A
Slew rate = 200mA/usec
200mV/div, 200usec/div
Measured 363mVpp:

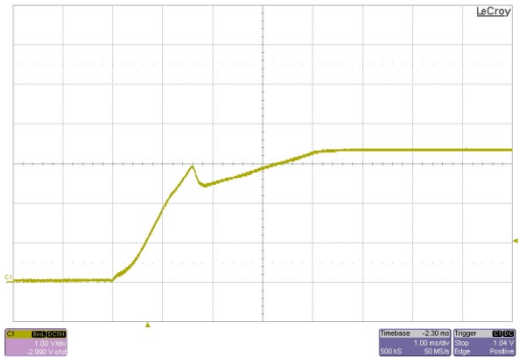


Turn On Response

Output, 7.2A Load, 1msec/div:

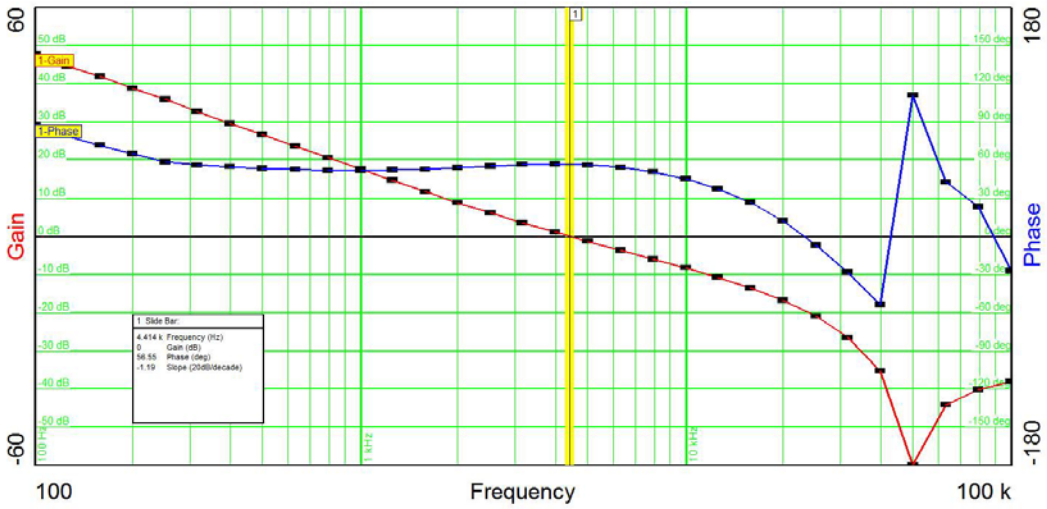


Output, 0A Load, 1msec.div:

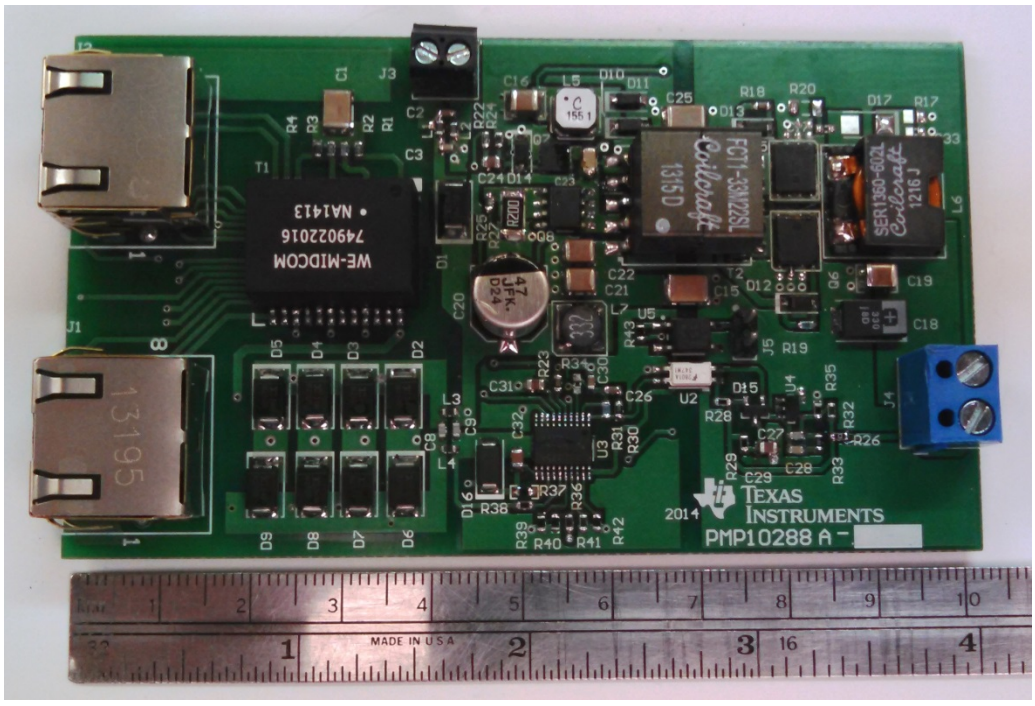


Stability (Loop Gain)

The figure below is the loop gain of the converter with a 48V input and 6A load. The Bandwidth is 4.4 KHz, the Phase Margin is 56 degrees, and the Gain Margin is 18 dB.

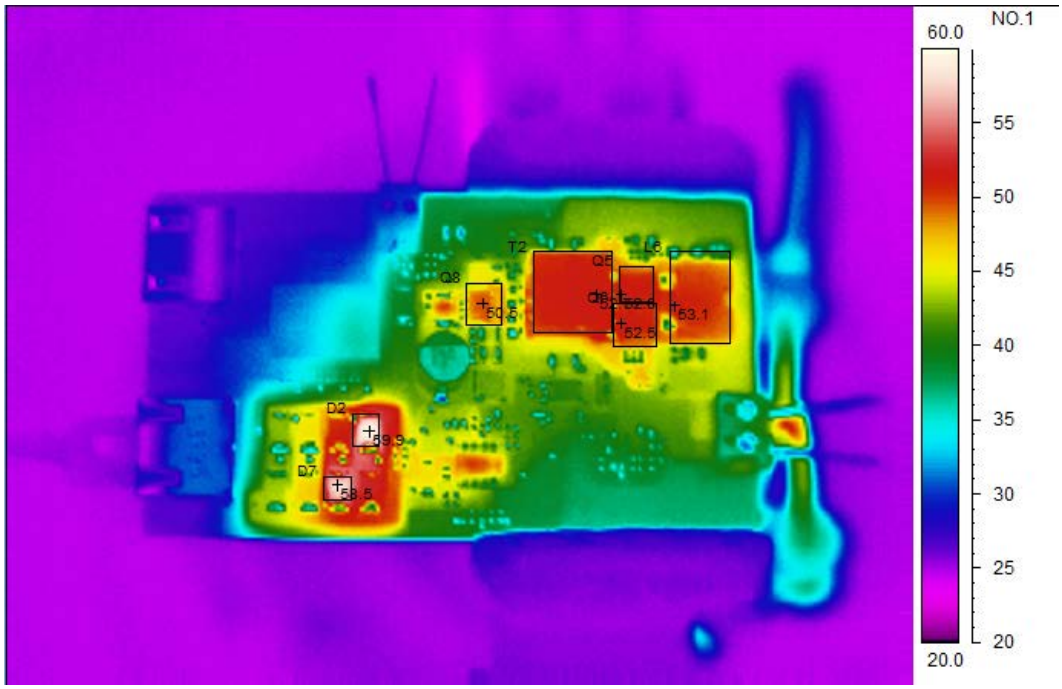


Photo



Thermal Plot

Thermal profile of the board with a 48V input and 7.2A load:



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