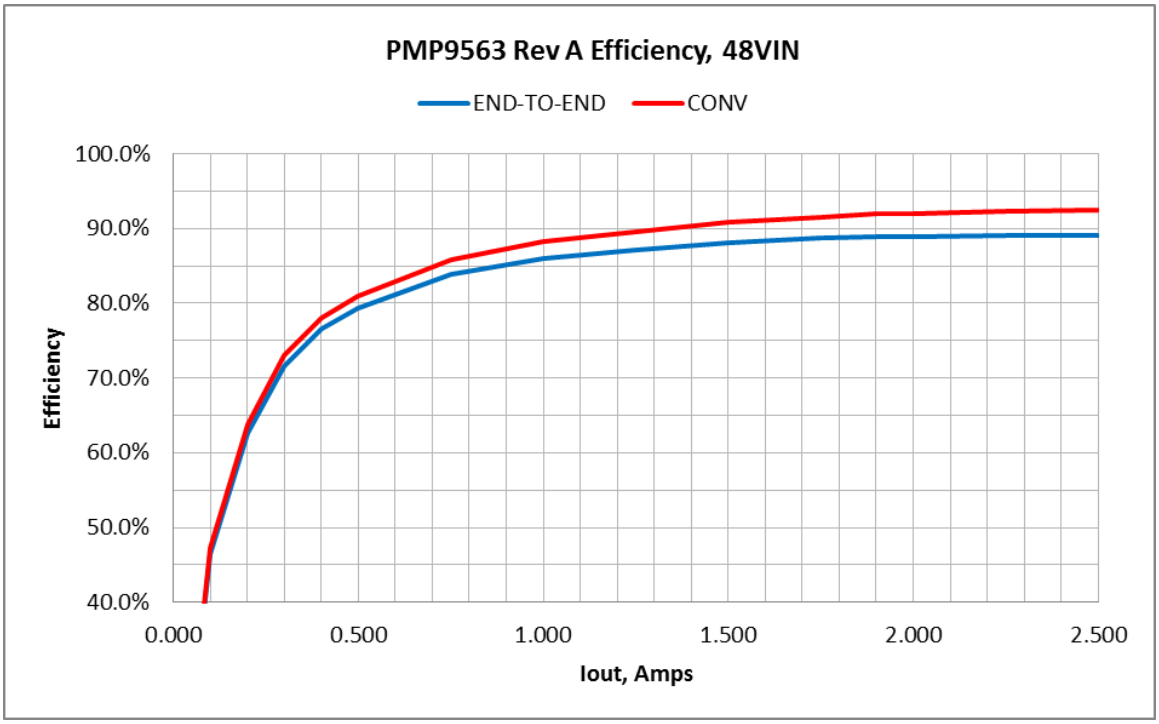
All testing performed with 48VIN, 1.9A load and 20MHz BW unless otherwise noted.

Efficiency

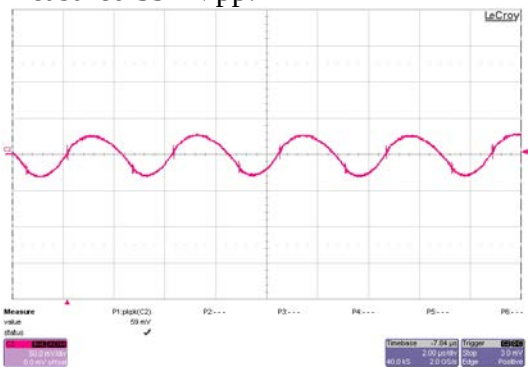
The efficiency is shown below:

J4 Iout	J4 Vout	J1 Iin	J1 Vin	J1 Eff	CONV Vin	CONV Eff
0.000	12.03	0.028	48.00	0.0%	47.29	0.0%
0.100	12.03	0.054	48.00	46.4%	47.22	47.2%
0.200	12.03	0.080	48.00	62.7%	47.16	63.8%
0.300	12.03	0.105	48.00	71.6%	47.11	73.0%
0.400	12.03	0.131	48.00	76.5%	47.07	78.0%
0.500	12.03	0.158	48.00	79.3%	47.02	81.0%
0.750	12.02	0.224	48.00	83.8%	46.91	85.8%
1.000	12.02	0.291	48.00	86.1%	46.81	88.2%
1.250	12.02	0.359	48.00	87.2%	46.70	89.6%
1.500	12.02	0.426	48.00	88.2%	46.60	90.8%
1.750	12.02	0.494	48.00	88.7%	46.50	91.6%
1.900	12.02	0.535	48.00	88.9%	46.43	91.9%
2.000	12.02	0.563	48.00	89.0%	46.38	92.1%
2.250	12.02	0.633	48.00	89.0%	46.30	92.3%
2.500	12.02	0.703	48.00	89.1%	46.22	92.5%

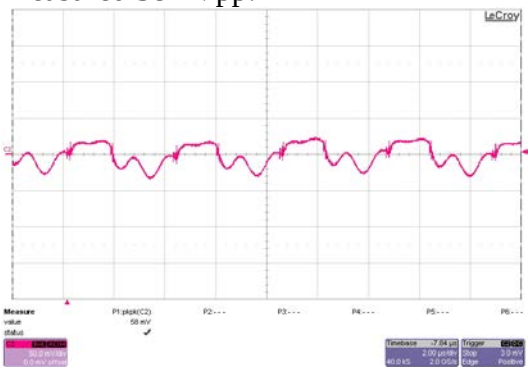


Ripple and Noise

Output Ripple (C20), 50mV/div
Measured 59mVpp:

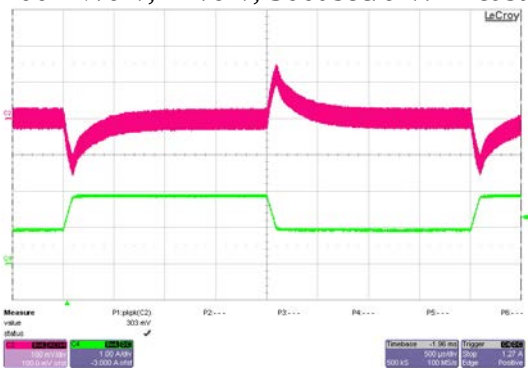


Input Ripple (C7), 50mV/div
Measured 58mVpp:



Dynamic Loading

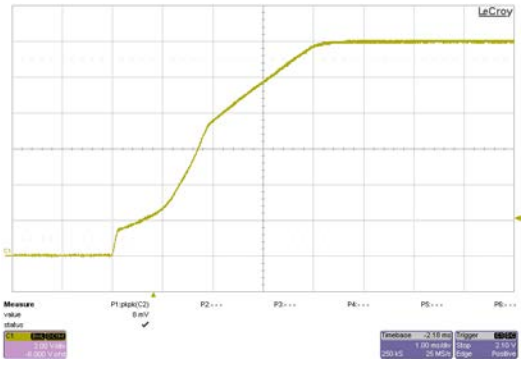
Output Load Step; 0.95A to 1.9A load step; Slew Rate = 10mA/usec
100mV/div, 1A/div, 500usec/div: Measured 303mVpp across C20:



Turn On Response

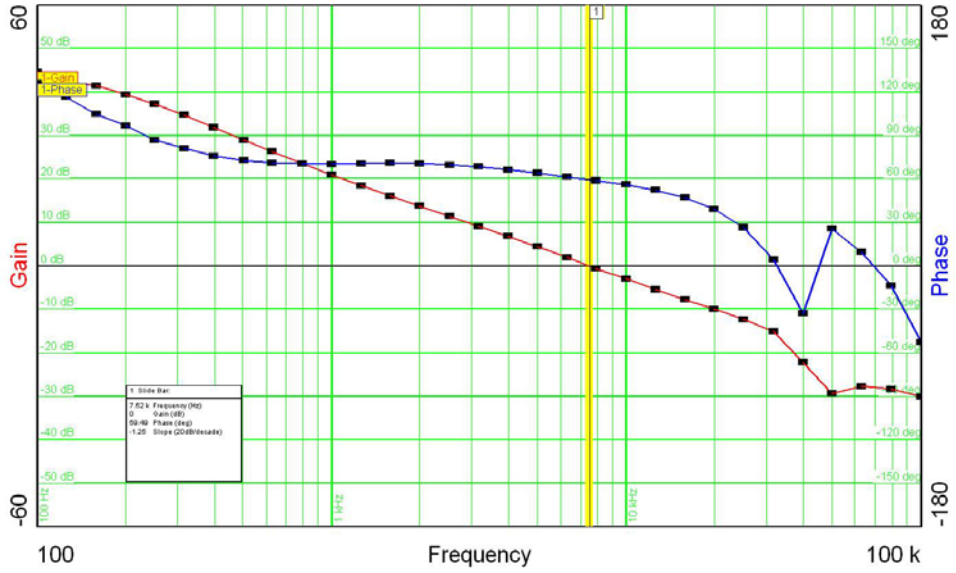
1.9A Load, 1msec/div, 2V/div:

0A Load, 1msec.div, 2V/div:



Loop Stability

The measured Bode plot of the converter is shown below:

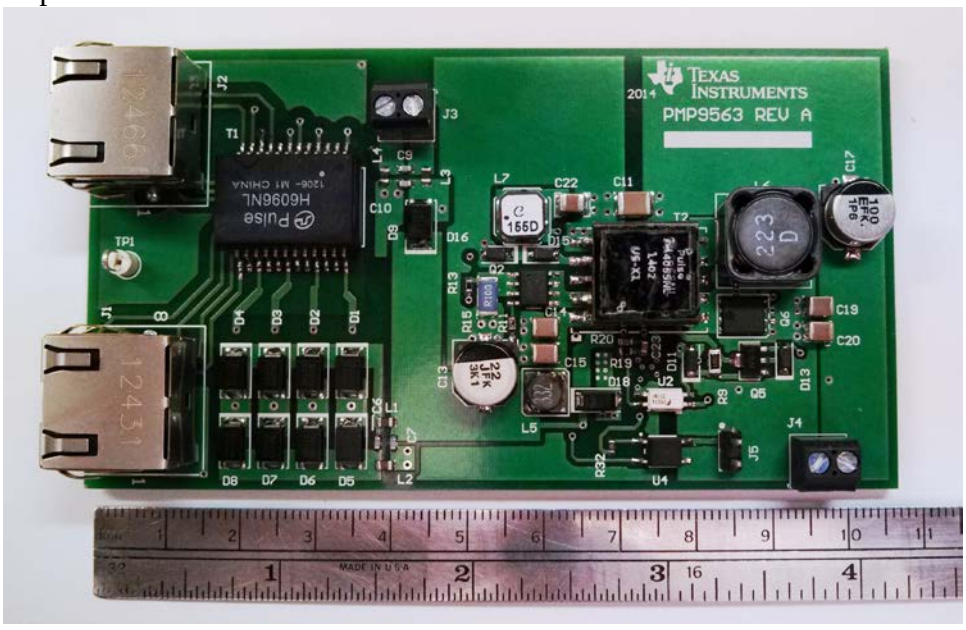


BW: 7.5KHz PM: 59 deg GM: 15dB

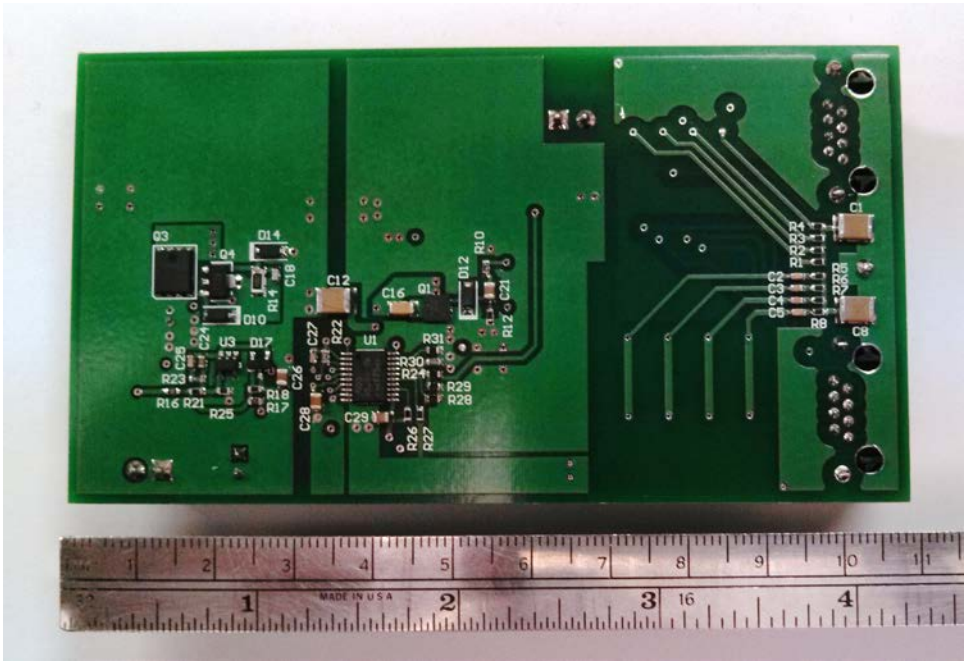
Photo

(Converter fits in 60x30mm area)

Top:



Bottom:


Q3
D14
Q4
C18
R14
D10
C24
C25
U3
D17
R23
R16
R21
R25
R18
R17
C26
C28
C12
C16
Q1
C27
R22
U1
D12
R10
R12
C21
R31
R30
R24
R29
R28
C29
R26
R27
C1
R4
R3
R2
R1
C2
C3
C4
C5
R9
C8
MADE IN U.S.A.

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