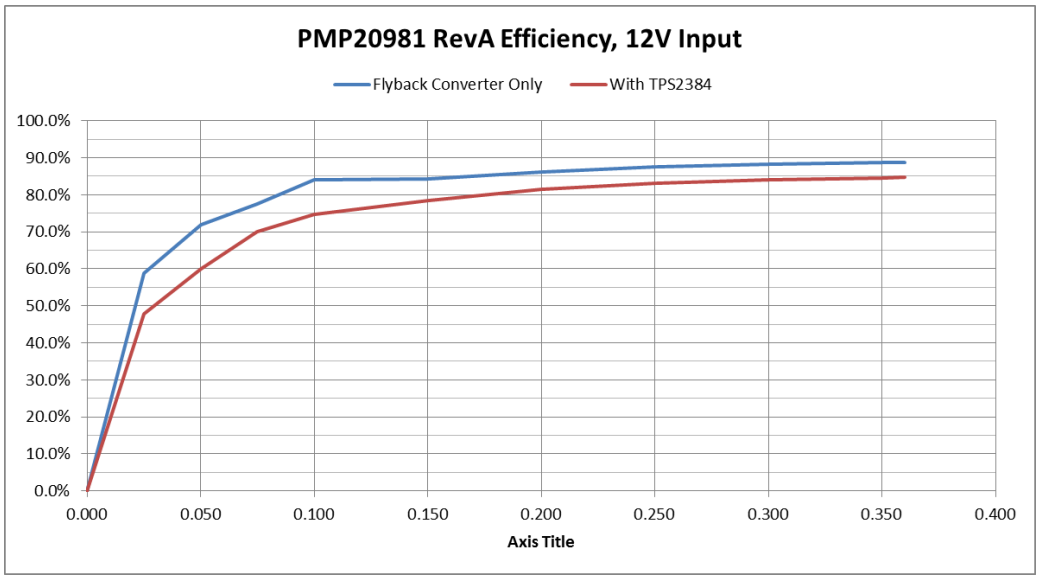
All testing performed with 12VIN, 360mA load, and 20MHz BW unless otherwise noted.

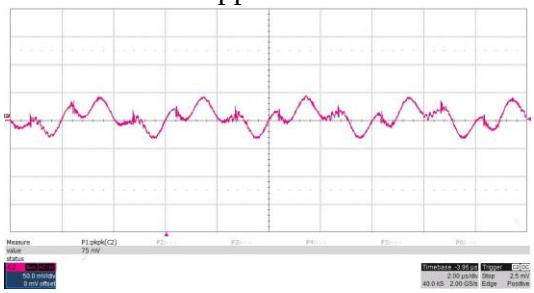
Efficiency

----------TPS2384 not connected----------					----With TPS2384 and PMP11254 Load			
J2/J3	J2	J1	J1	J2	J3	J1	J1	J3
Iout	Vout	Iin	Vin	Eff	Vout	Iin	Vin	Eff
0.000	47.91	0.059	12.00	0.0%	47.94	0.112	12.00	0.0%
0.025	47.91	0.170	12.00	58.7%	47.90	0.209	12.00	47.7%
0.050	47.91	0.278	12.00	71.8%	47.85	0.332	12.00	60.1%
0.075	47.91	0.386	12.00	77.6%	47.80	0.426	12.00	70.1%
0.100	47.92	0.475	12.00	84.1%	47.75	0.533	12.00	74.7%
0.150	47.92	0.711	12.00	84.2%	47.65	0.759	12.00	78.5%
0.200	47.92	0.928	12.00	86.1%	47.55	0.974	12.00	81.4%
0.250	47.92	1.140	12.00	87.6%	47.44	1.189	12.00	83.1%
0.300	47.92	1.358	12.00	88.2%	47.33	1.407	12.00	84.1%
0.350	47.92	1.576	12.00	88.7%	47.22	1.629	12.00	84.5%
0.360	47.92	1.620	12.00	88.7%	47.20	1.672	12.00	84.7%

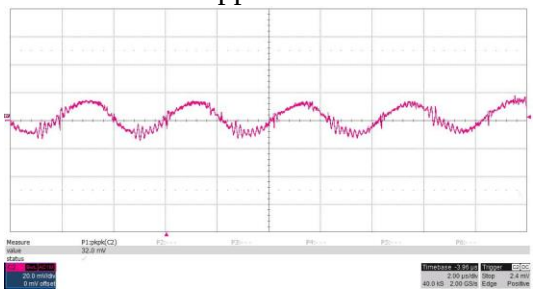


Ripple and Noise

Output Ripple (C31/C32)
50mV/div, 2usec.div
Measured 75mVpp:

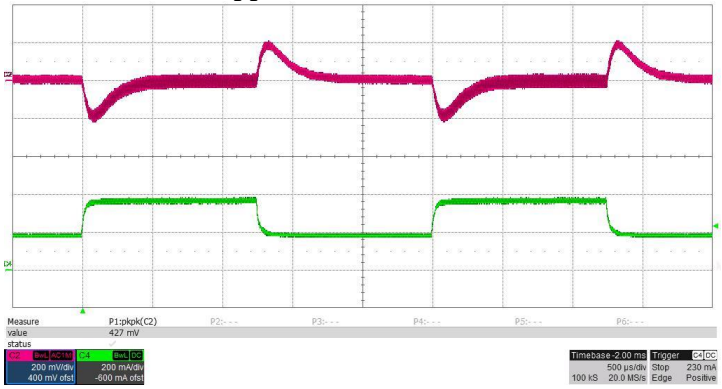


Input Ripple (J1)
20mV/div, 2usec.div
Measured 32mVpp:

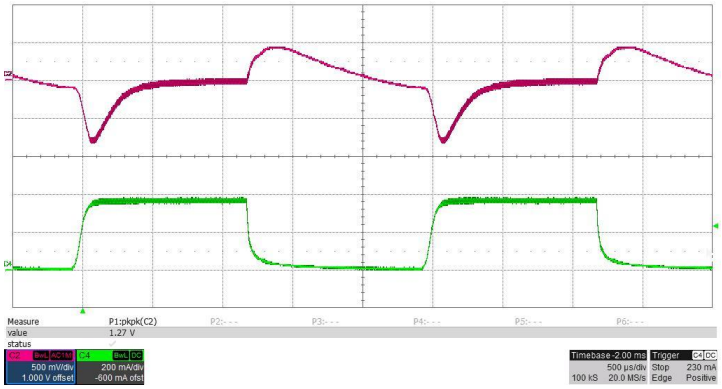


Dynamic Loading

Output Load Step; 180mA to 360mA load step; Slew Rate = 250mA/usec
200mV/div, 200mA/div, 500usec/div
Measured 427mVpp across J2:

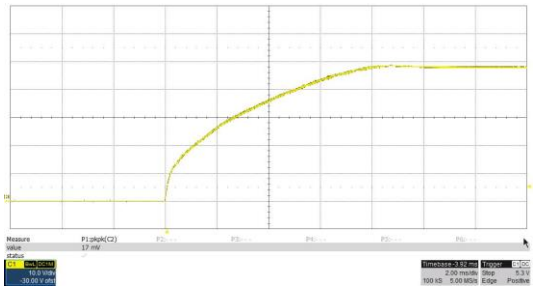


Output Load Step; 0mA to 360mA load step; Slew Rate = 250mA/usec
500mV/div, 200mA/div, 500usec/div
Measured 1.27Vpp across J2:

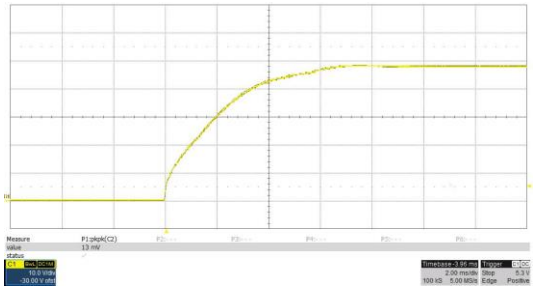


Turn On Response

360mA Load, 2msec/div, 10V/div:

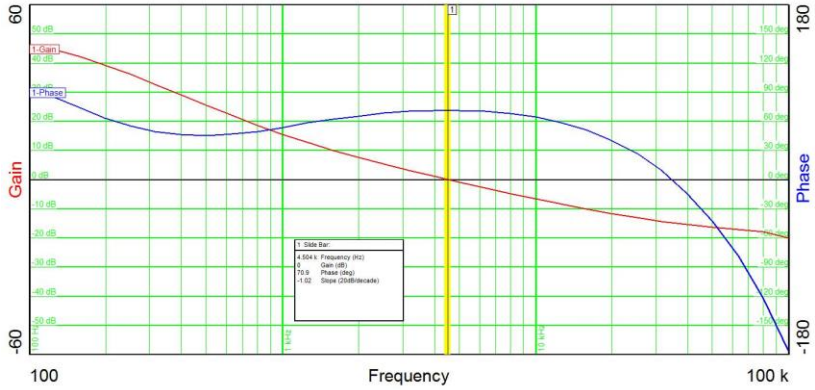


0A Load, 2msec.div, 10V/div:



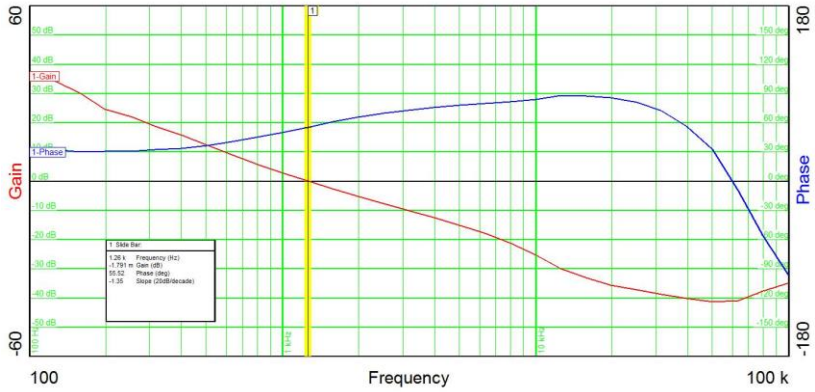
Loop Stability

The measured Bode plot of the converter with a 360mA load (at J2) is shown below (with the TPS2384 connected):



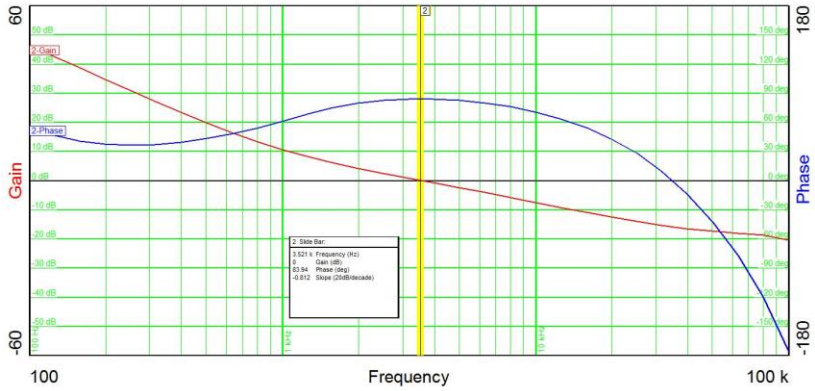
Bandwidth: 4.5 KHz Phase Margin: 70 degrees Gain Margin: 14dB

The measured Bode plot of the converter with a 0mA load is shown below (with the TPS2384 connected). The TPS2384 provides approximately 636mW load:



Bandwidth: 1.2 KHz Phase Margin: 55 degrees Gain Margin: 41dB

The measured Bode plot of the converter with a PoE load of 360mA is shown below.

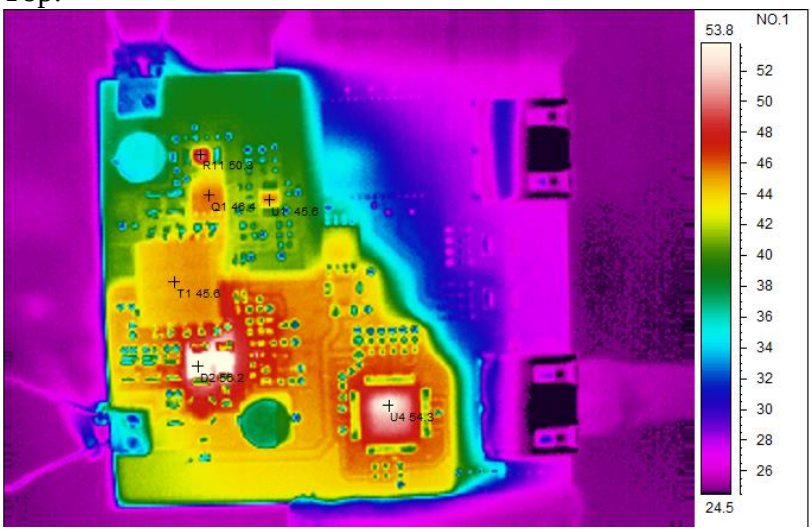


Bandwidth: 3.5 KHz Phase Margin: 83 degrees Gain Margin: 17dB

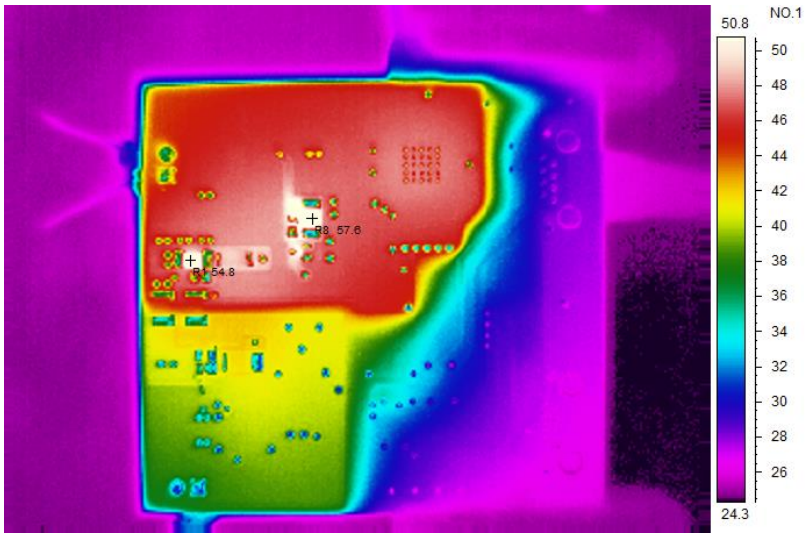
Thermal Plot

Thermal plots measured with PoE load of 360mA at J3.

Top:

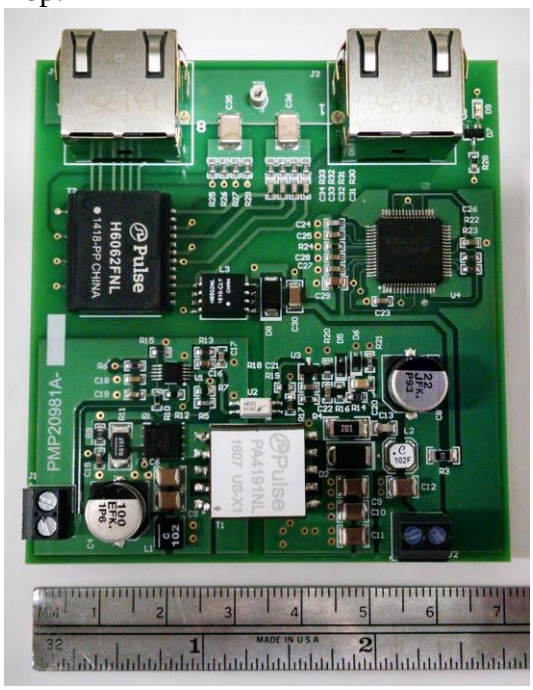


Bottom:

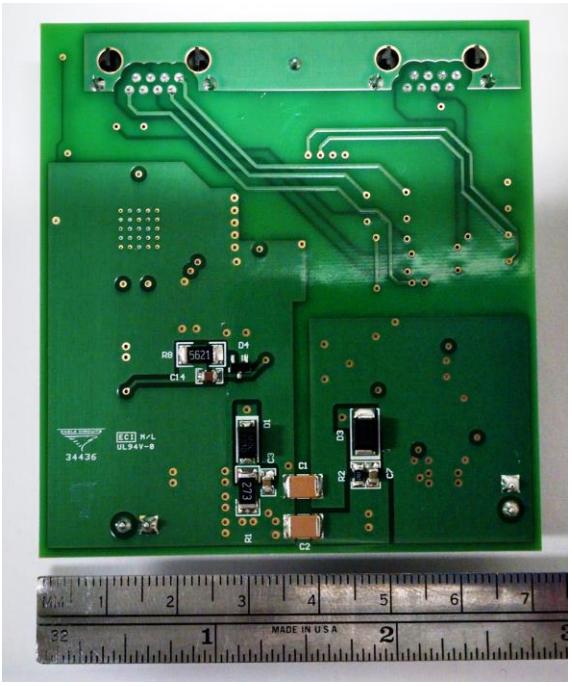


Photo

Top:



Bottom:



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