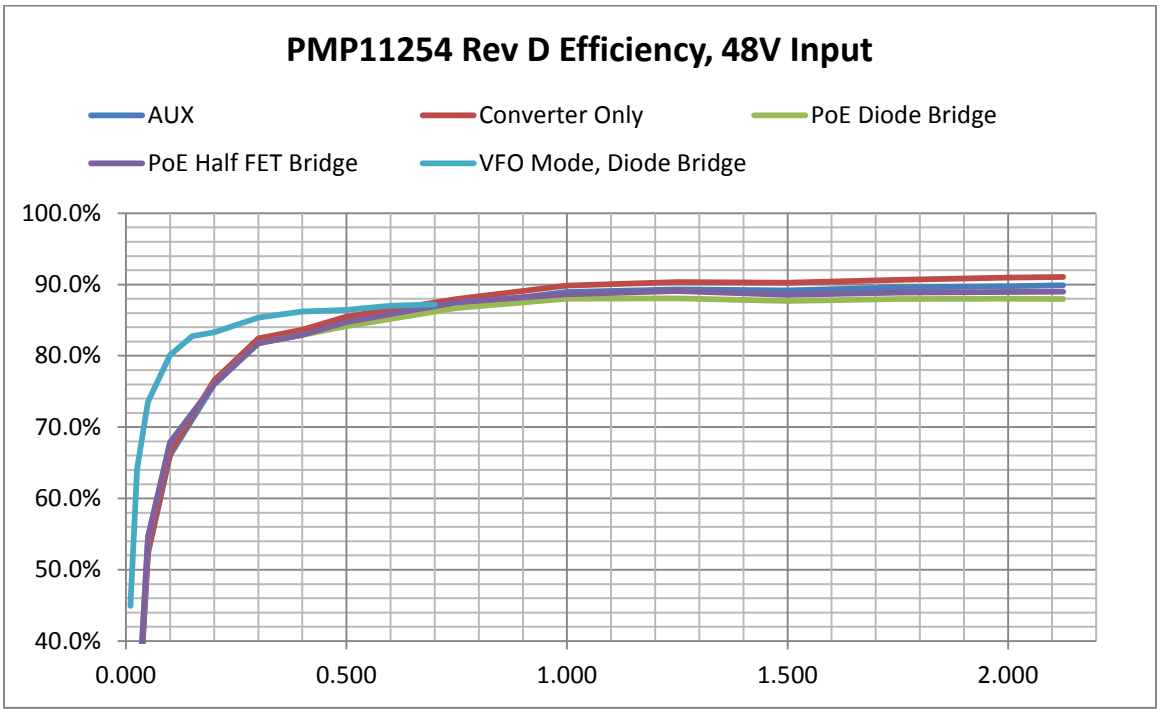
All measurements taken with a 48V input, 2.125A load and 20MHz BW, unless noted.

Efficiency



					VDD to PWRGND	
		AUX	AUX	AUX	Conv	Conv
J6	J6	J5	J5	J5	Only	Only
Iout	Vout	Iin	Vin	Eff	Vin	Eff
0.000	12.05	0.006	48.00	0.0%	47.73	0.0%
0.050	12.05	0.024	48.00	52.3%	47.68	52.7%
0.100	12.05	0.038	48.00	66.1%	47.66	66.5%
0.200	12.04	0.066	48.00	76.0%	47.64	76.6%
0.300	12.04	0.092	48.00	81.8%	47.61	82.5%
0.400	12.04	0.121	48.00	82.9%	47.58	83.7%
0.500	12.04	0.148	48.00	84.7%	47.57	85.5%
0.750	12.04	0.216	48.00	87.1%	47.52	88.0%
1.000	12.04	0.282	48.00	88.9%	47.52	89.8%
1.250	12.04	0.351	48.00	89.3%	47.46	90.3%
1.500	12.04	0.422	48.00	89.2%	47.42	90.2%
1.750	12.04	0.490	48.00	89.6%	47.44	90.6%
2.000	12.04	0.559	48.00	89.7%	47.35	91.0%
2.125	12.04	0.593	48.00	89.9%	47.39	91.0%

		PoE	PoE	PoE	PoE	PoE	PoE
		Diode	Diode	Diode	Half FET	Half FET	Half FET
		Bridge	Bridge	Bridge	Bridge	Bridge	Bridge
J6	J6	J1	J1	J1	J1	J1	J1
Iout	Vout	Iin	Vin	Eff	Iin	Vin	Eff
0.000	12.05	0.005	48.00	0.0%	0.005	48.00	0.0%
0.050	12.05	0.023	48.00	54.6%	0.023	48.00	54.6%
0.100	12.05	0.037	48.00	67.8%	0.037	48.00	67.8%
0.200	12.04	0.066	48.00	76.0%	0.066	48.00	76.0%
0.300	12.04	0.092	48.00	81.8%	0.092	48.00	81.8%
0.400	12.04	0.121	48.00	82.9%	0.121	48.00	82.9%
0.500	12.04	0.149	48.00	84.2%	0.148	48.00	84.7%
0.750	12.04	0.217	48.00	86.7%	0.215	48.00	87.5%
1.000	12.04	0.285	48.00	88.0%	0.283	48.00	88.6%
1.250	12.04	0.356	48.00	88.1%	0.352	48.00	89.1%
1.500	12.04	0.429	48.00	87.7%	0.425	48.00	88.5%
1.750	12.04	0.499	48.00	88.0%	0.494	48.00	88.9%
2.000	12.04	0.570	48.00	88.0%	0.564	48.00	88.9%
2.125	12.04	0.606	48.00	88.0%	0.599	48.00	89.0%

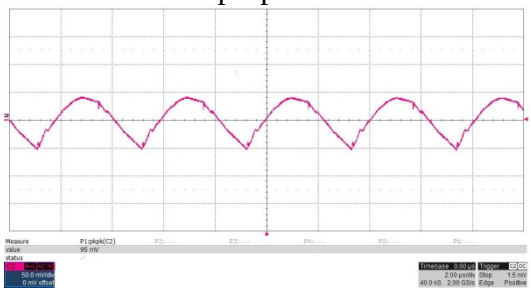
VFO Mode

1. R38=100k ohms, R39=28.7k ohms, C35=0.1uF
2. Converter loses primary bias below 10mA output load and operates in hiccup mode.
3. A 25mA output load is required to provide the 10mA input current for PoE MPS.
4. With increasing load current the converter switches from VFO mode to PWM mode at approximately 0.8A.
5. With decreasing load current the converter switches from PWM mode to VFO mode at approximately 0.7A

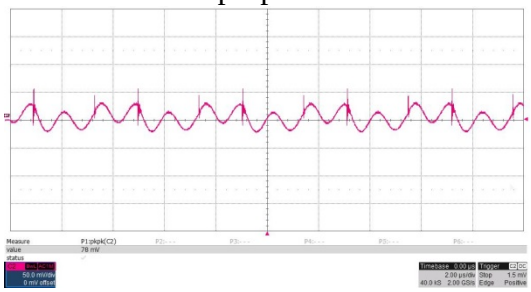
		PoE	PoE	PoE	PoE	PoE	PoE	PoE	PoE	PoE
		Diode	Diode	Diode	Diode	Diode	Diode	Diode	Diode	Diode
		Bridge	Bridge	Bridge	Bridge	Bridge	Bridge	Bridge	Bridge	Bridge
J6	J6	J1	J1	J1	J1	J1	J1	J1	J1	J1
Iout	Vout	Iin	Vin	Eff	Iin	Vin	Eff	Iin	Vin	Eff
0.010	12.075	0.0062	42.50	45.8%	0.0056	48.00	44.9%	0.0048	57.00	44.1%
0.025	12.075	0.0109	42.50	65.2%	0.0098	48.00	64.2%	0.0084	57.00	63.0%
0.050	12.075	0.0191	42.50	74.4%	0.0171	48.00	73.6%	0.0146	57.00	72.5%
0.100	12.075	0.0353	42.50	80.5%	0.0314	48.00	80.1%	0.0268	57.00	79.0%
0.150	12.075	0.0513	42.50	83.1%	0.0456	48.00	82.8%	0.0388	57.00	81.9%
0.200	12.075	0.0679	42.50	83.7%	0.0604	48.00	83.3%	0.0513	57.00	82.6%
0.300	12.075	0.0995	42.50	85.7%	0.0884	48.00	85.4%	0.0751	57.00	84.6%
0.400	12.074	0.1318	42.50	86.2%	0.1167	48.00	86.2%	0.0993	57.00	85.3%
0.500	12.074	0.1637	42.50	86.8%	0.1455	48.00	86.4%	0.1239	57.00	85.5%
0.600	12.074	0.1969	42.50	86.6%	0.1734	48.00	87.0%	0.1479	57.00	85.9%
0.700	12.073	0.2277	42.50	87.3%	0.2019	48.00	87.2%	0.1731	57.00	85.7%

Ripple and Noise

Output Ripple (C24)
50mV/div, 2usec/div
Measured 95mVpk-pk:

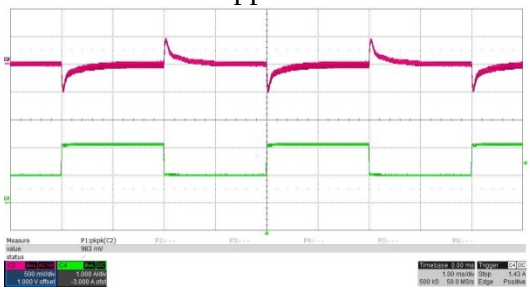


Input Ripple (C10)
50mV/div, 2usec/div
Measured 78mVpk-pk:



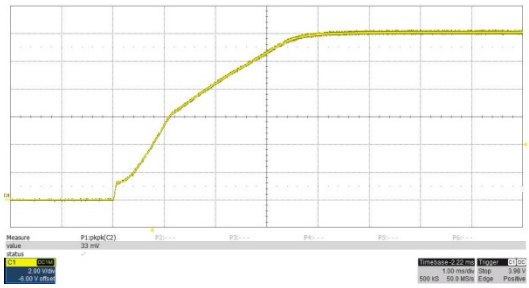
Dynamic Loading

Load Step, 1A to 2.125A, 200mA/usec slew rate, 500mV/div, 1A/div, 1msec/div
Measured 983mVpp:

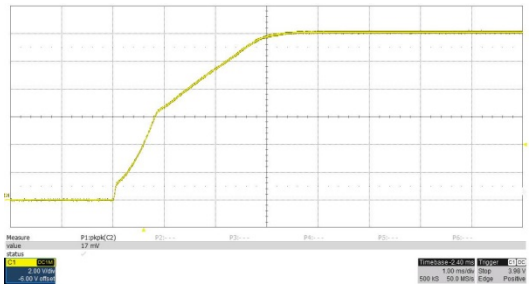


Turn On Response

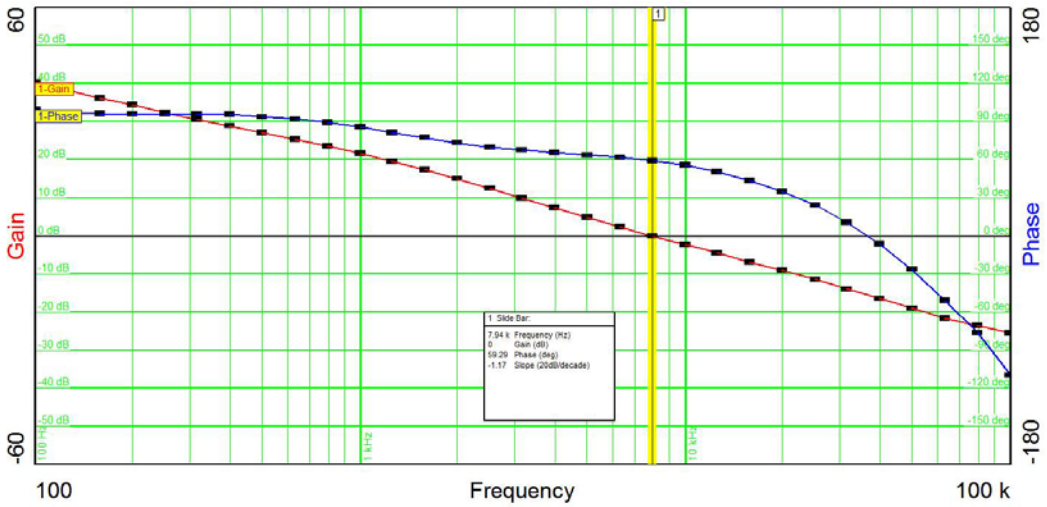
2.125A Load, 2V/div, 1msec/div:



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



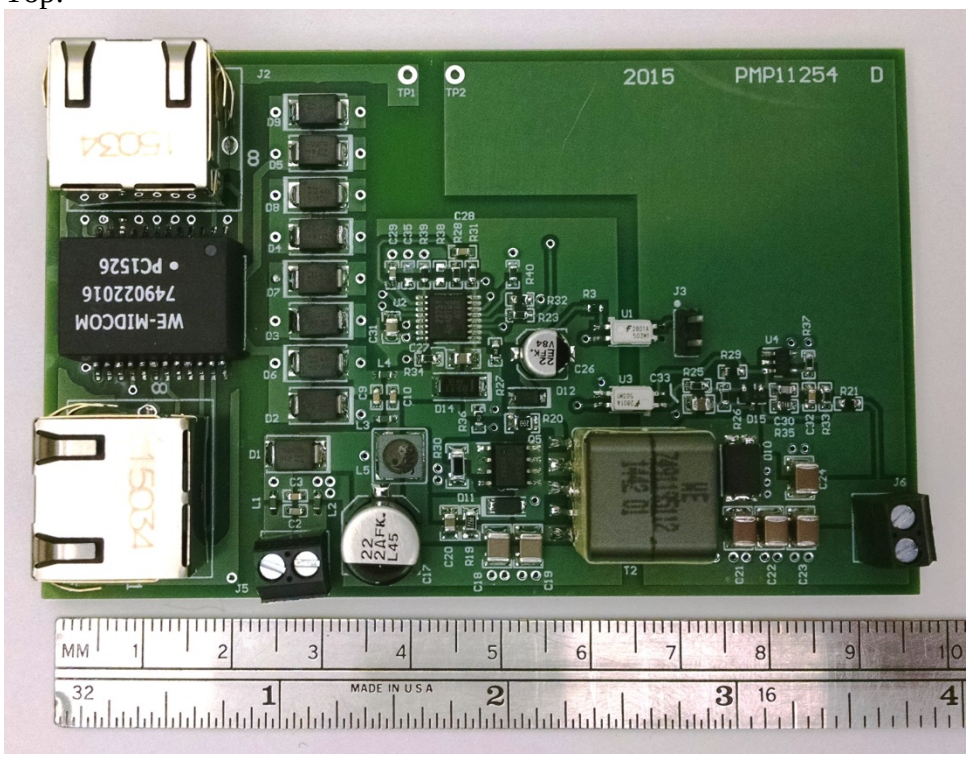
Stability



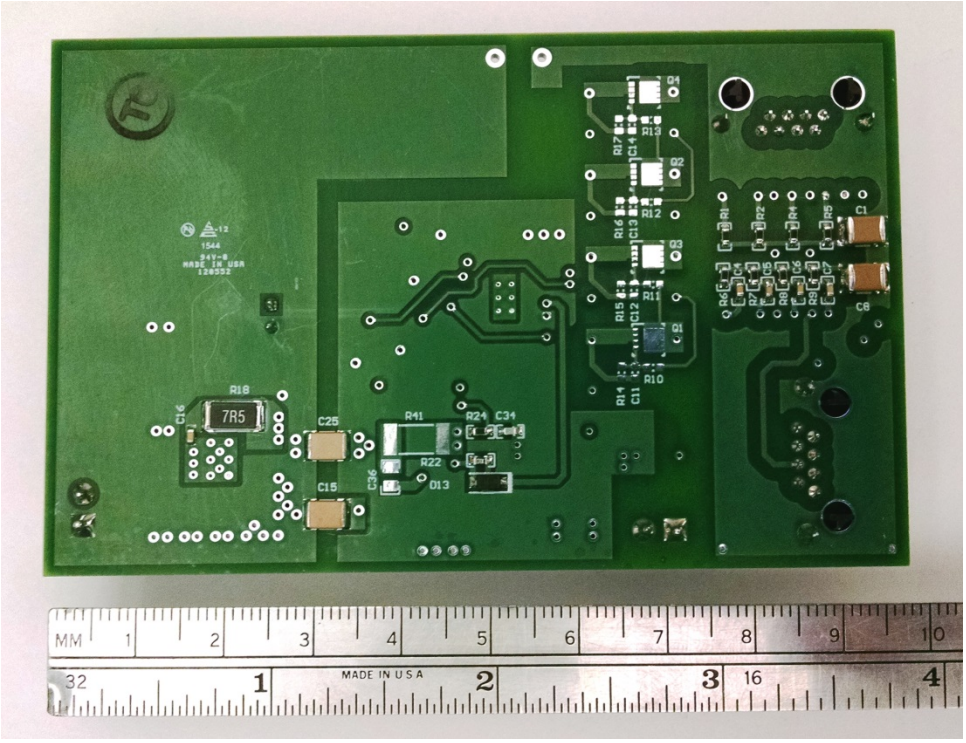
BW=7.9KHz PM=59 degrees GM=15dB.

Photo:

Top:

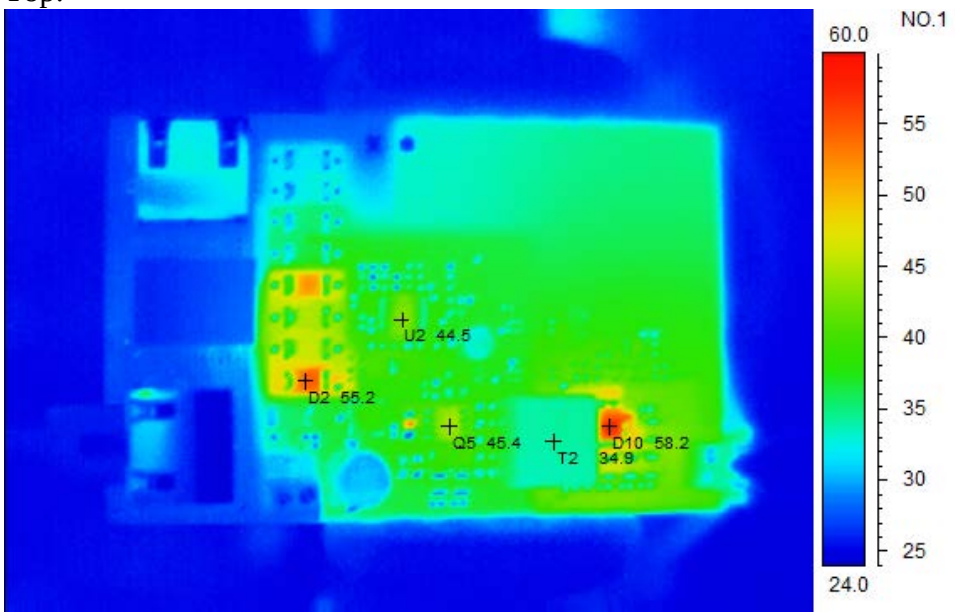


Bottom:



Thermal Plots:

Top:



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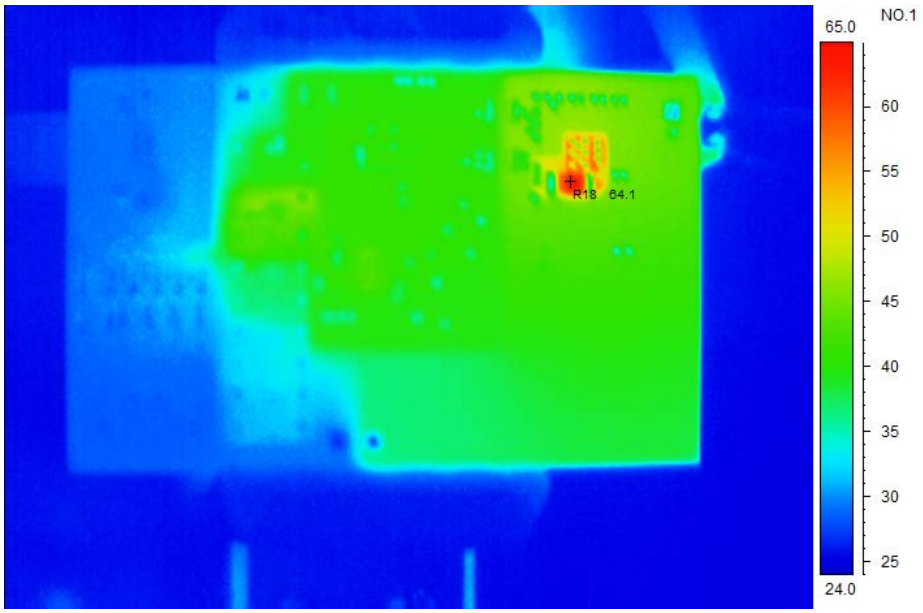

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