Efficiency and Regulation

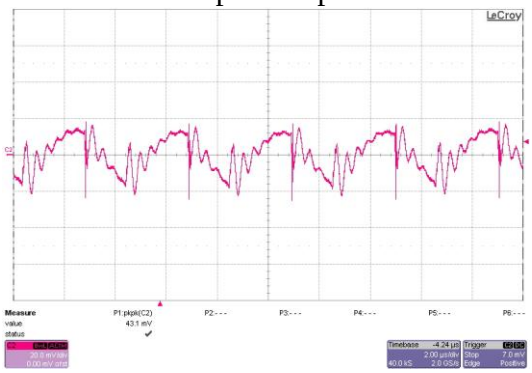
The efficiency and regulation are shown below:

				J3	J3	J3	
Iout	**Vout**	**Iout**	**Vout**	**Iin**	**Vin**	**Eff**	
0.000	3.349	0.000	5.012	0.0052	36.0	0.0%	
0.700	3.348	0.145	5.047	0.0962	36.0	**88.8%**	
0.700	3.348	0.000	5.056	0.0742	36.0	87.7%	
0.000	3.349	0.145	5.002	0.0257	36.0	78.4%	
0.350	3.348	0.015	5.032	0.0411	36.0	84.3%	
				J3	J3	J3	
Iout	**Vout**	**Iout**	**Vout**	**Iin**	**Vin**	**Eff**	
0.000	3.349	0.000	5.011	0.0045	48.0	0.0%	
0.700	3.348	0.145	5.040	0.0720	48.0	**89.0%**	
0.700	3.348	0.000	5.048	0.0557	48.0	87.7%	
0.000	3.349	0.145	5.002	0.0198	48.0	76.3%	
0.350	3.348	0.015	5.028	0.0312	48.0	83.3%	
				J3	J3	J3	
Iout	**Vout**	**Iout**	**Vout**	**Iin**	**Vin**	**Eff**	
0.000	3.349	0.000	5.011	0.0042	57.0	0.0%	
0.700	3.348	0.145	5.037	0.0608	57.0	**88.7%**	
0.700	3.348	0.000	5.045	0.0471	57.0	87.3%	
0.000	3.349	0.145	5.002	0.0170	57.0	74.8%	
0.350	3.348	0.015	5.026	0.0266	57.0	82.3%	
Max Load Efficiency without bridge							
Iout	**Vout**	**Iout**	**Vout**	**Iin**	**Vin**	**Eff**	
0.700	3.348	0.145	5.047	0.0962	35.49	90.1%	36.0V J3
0.700	3.348	0.145	5.040	0.0720	47.55	89.8%	48.0V J3
0.700	3.348	0.145	5.037	0.0608	56.55	89.4%	57.0V J3
Vin measured at FB1/FB2							

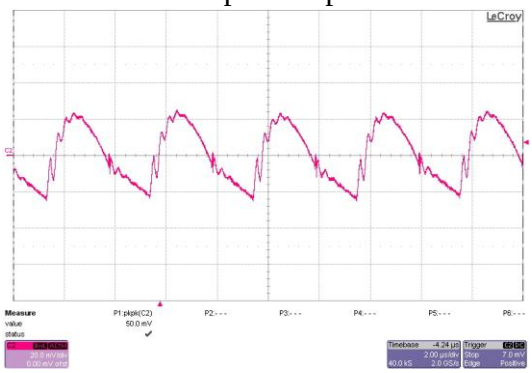
Ripple and Noise

48V input; 3.3V/700mA, 5V/145mA loads; 20MHz BWL.

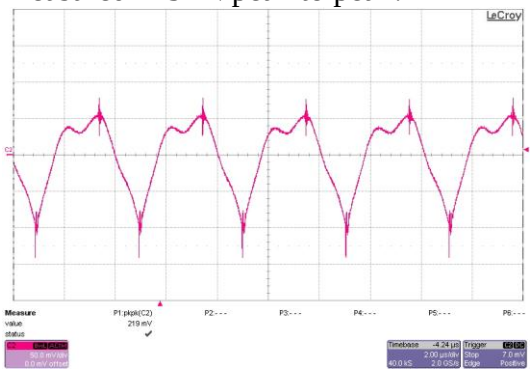
3.3V Output Ripple (C29), 20mV/div
Measured 43mVpeak to peak:



5V Output Ripple (C19), 20mV/div
Measured 50mV peak to peak:

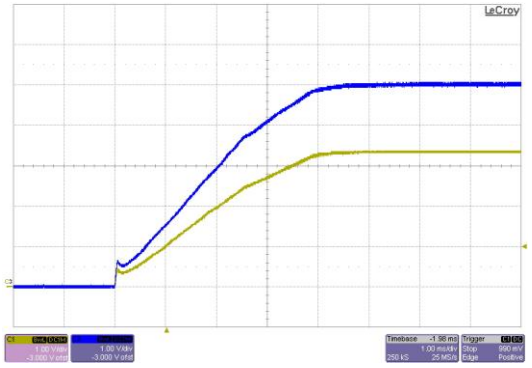


Input Ripple (C21), 50mV/div
Measured 219mVpeak to peak:

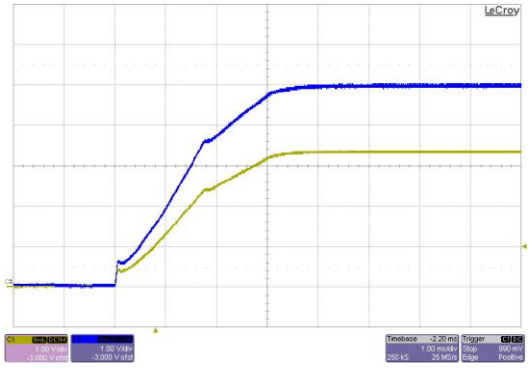


Turn On Response

48VIN, Max Loads, 1msec/div:



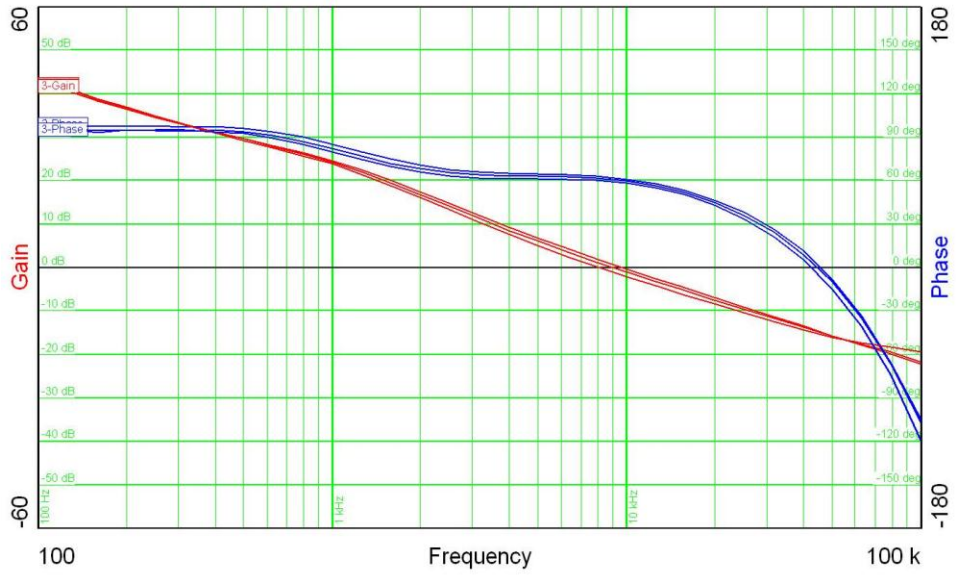
48VIN, 0A Loads, 1msec.div:



Top, 5V output, 1V/div; Bottom, 3.3V output, 1V/div

Loop Stability

The measured Bode plot of the converter is shown below.



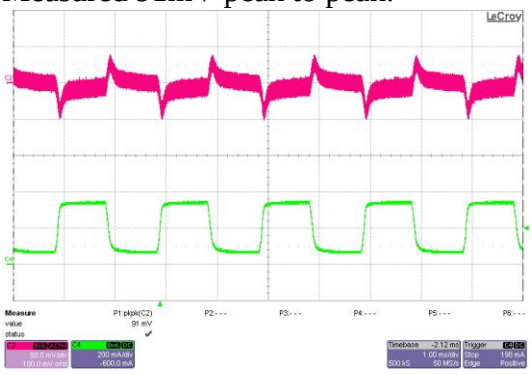
Volts	KHz	Degrees	dB
Vin	BW	PM	GM
36.0	8.0	60	14.8
48.0	8.9	60	14.7
57.0	9.6	61	14.8

Dynamic Loading

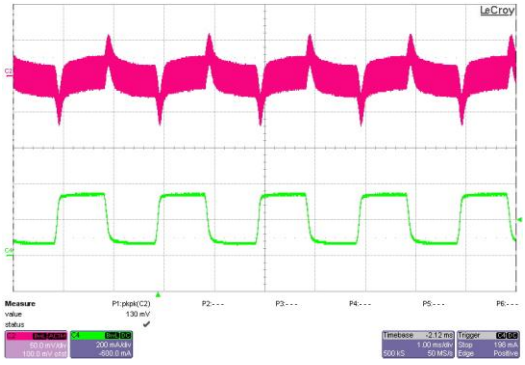
One output at a time was pulsed. The output not being pulsed was loaded to its maximum value. The input voltage is 48V at J3.

3.3V load step, 70mA to 350mA:

3.3V Response
50mV/div, 1msec/div
Measured 91mV peak to peak:

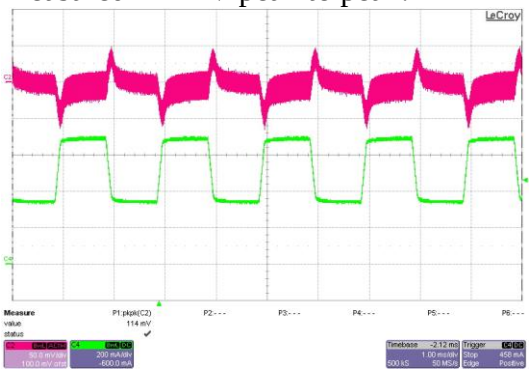


5V Response
50mV/div
Measured 130mV peak to peak:

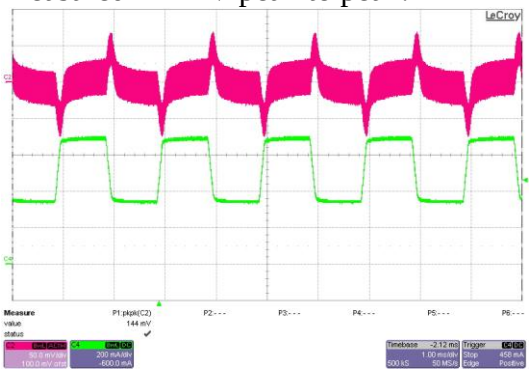


3.3V load step, 350mA to 700mA:

3.3V Response; 50mV/div, 1msec/div
Measured 114mV peak to peak:

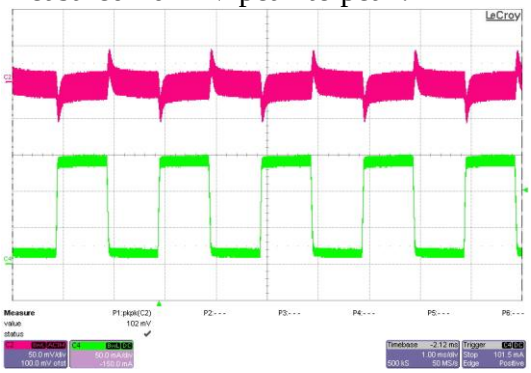


5V Response; 50mV/div
Measured 144mV peak to peak:

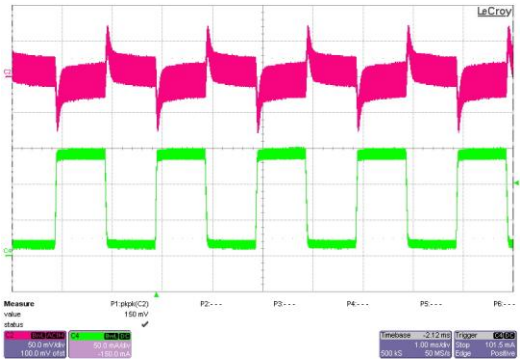


5V load step, 15mA to 145mA:

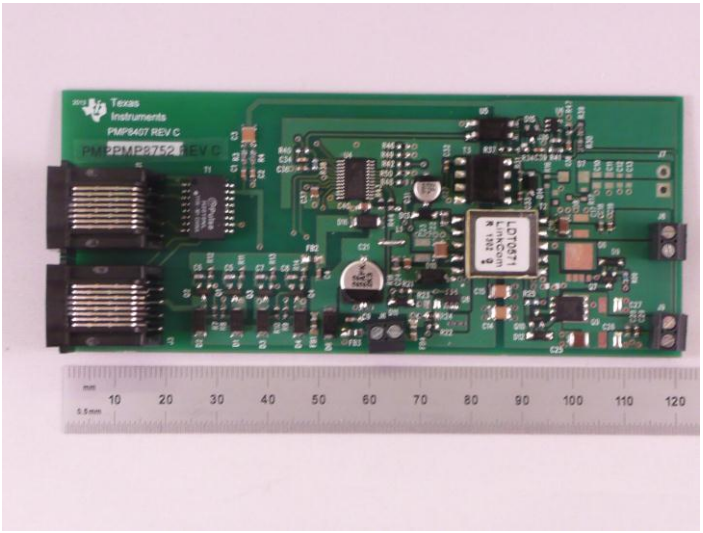
3.3V Response; 50mV/div, 1msec/div
Measured 102mV peak to peak:



5V Response; 50mV/div
Measured 150mV peak to peak:



Photo



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