Test Data
For PMP10666
08/011/2015

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1. Design Specifications

Vin Minimum	**4V- Full Load** **3.3V Start up at 50% Load**
Vin Maximum	**5.5V**
Vin Nominal	**5V**
Vout	**120V**
Iout	**100mA**
Switching Frequency(SMPS)	**130 KHz**
Isolation	**2KVAC**

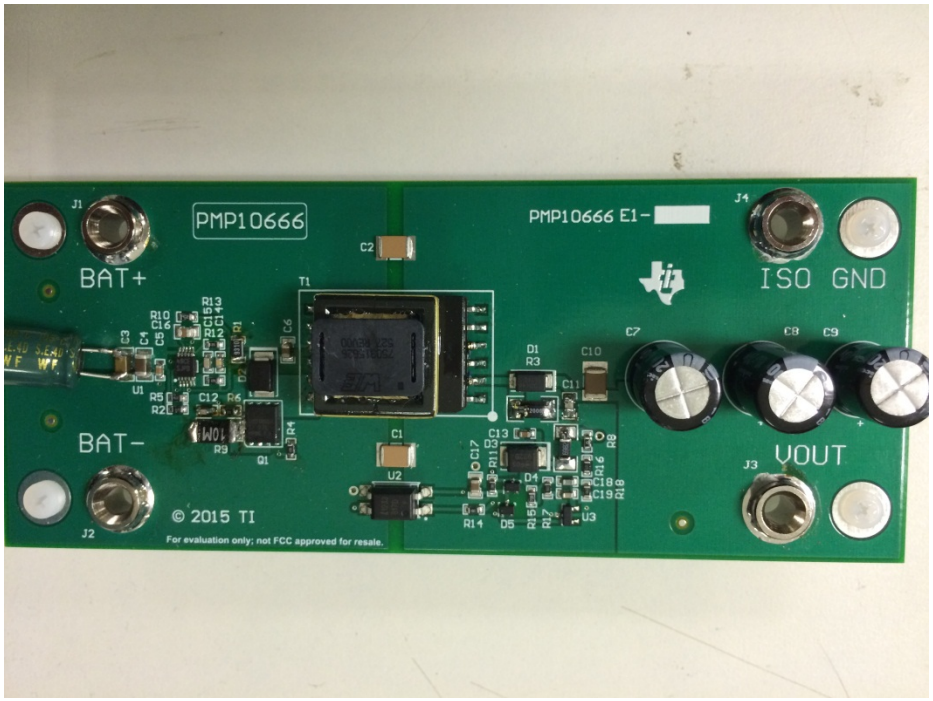
2. Circuit Description

PMP10666 is a 12W isolated flyback design that supports very low Vin of 3.3V-6V and is capable of delivering 100mA at 120V output. The design uses LM3481 Boost controller IC which works on current mode operation and can be synchronized to any frequency between 100KHz to 1 MHz.

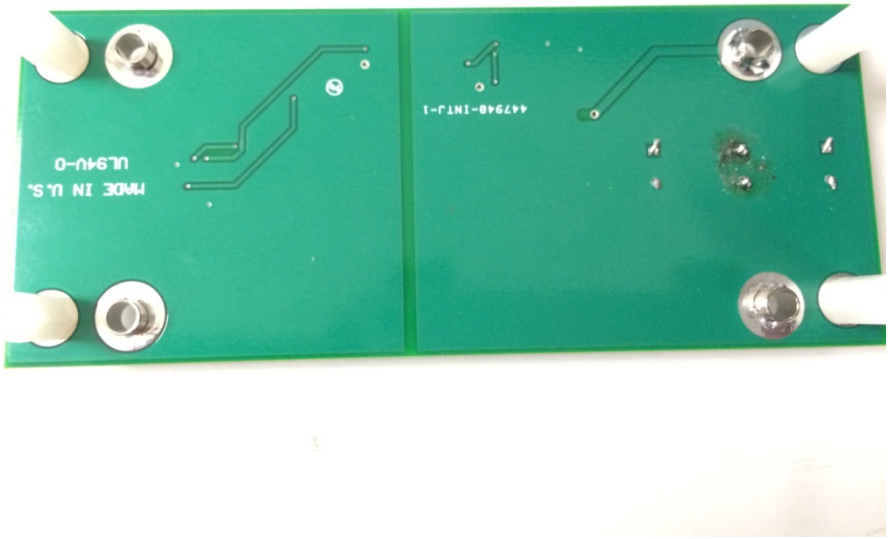
This design was built on a 2 layer board and is a simple, low-BOM-count, and low-cost design providing an isolated output.

3. PMP10666 Board Photos

Board Dimensions: 2125 mil *5150 mil

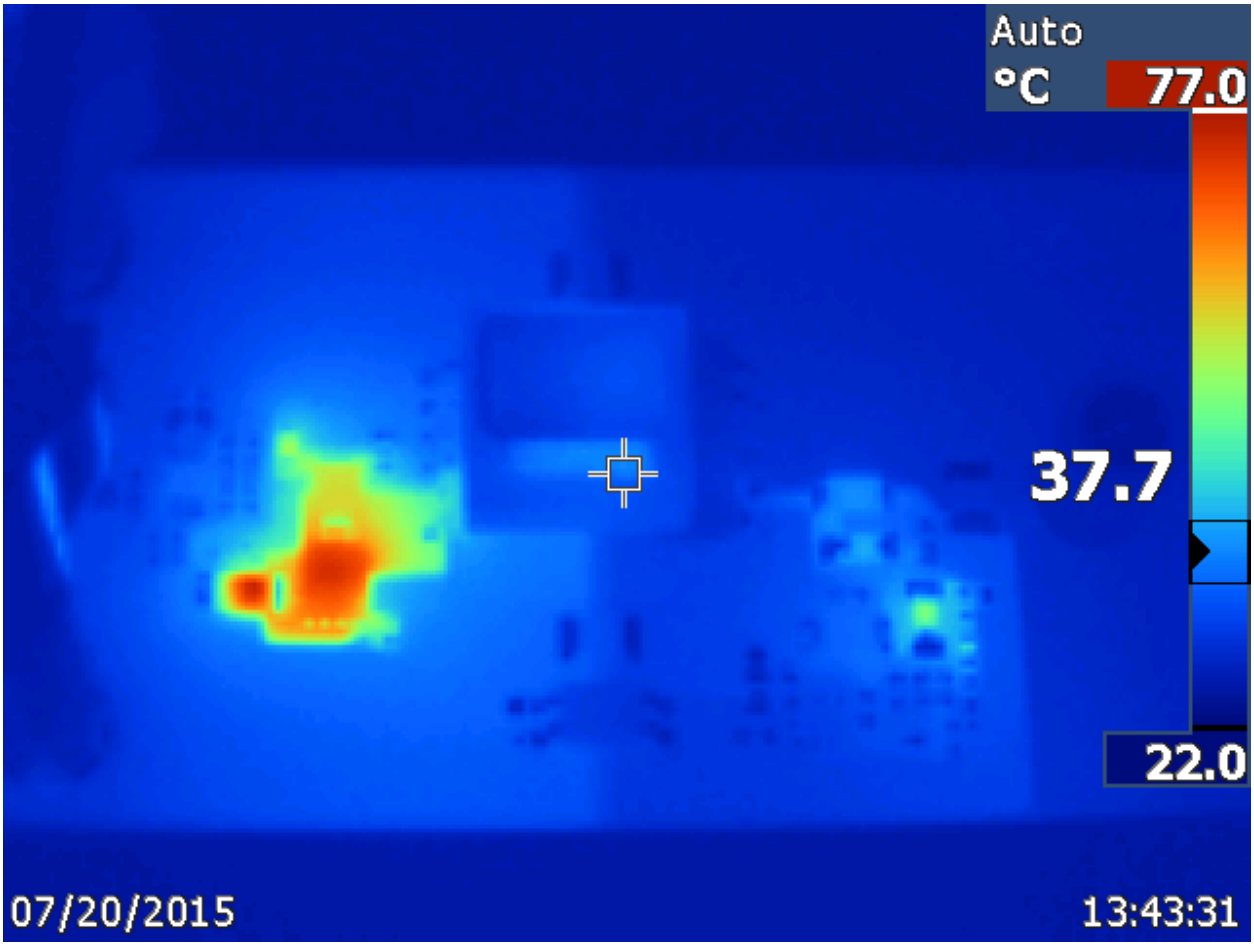


Board Photo (Top)



Board Photo (Bottom)

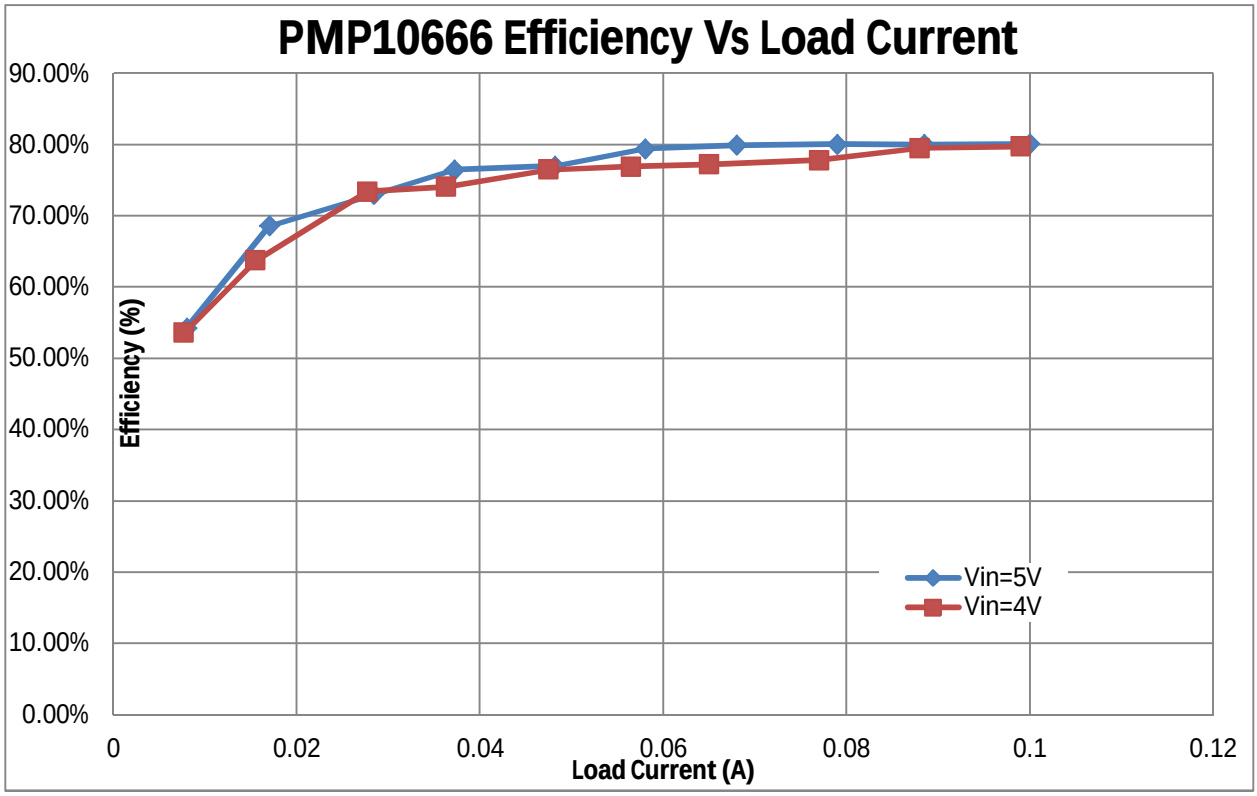
4. Thermal Data



IR thermal image taken at steady state with 4 Vin and 120V@100mA output

5. Test results

5.1 Efficiency Chart

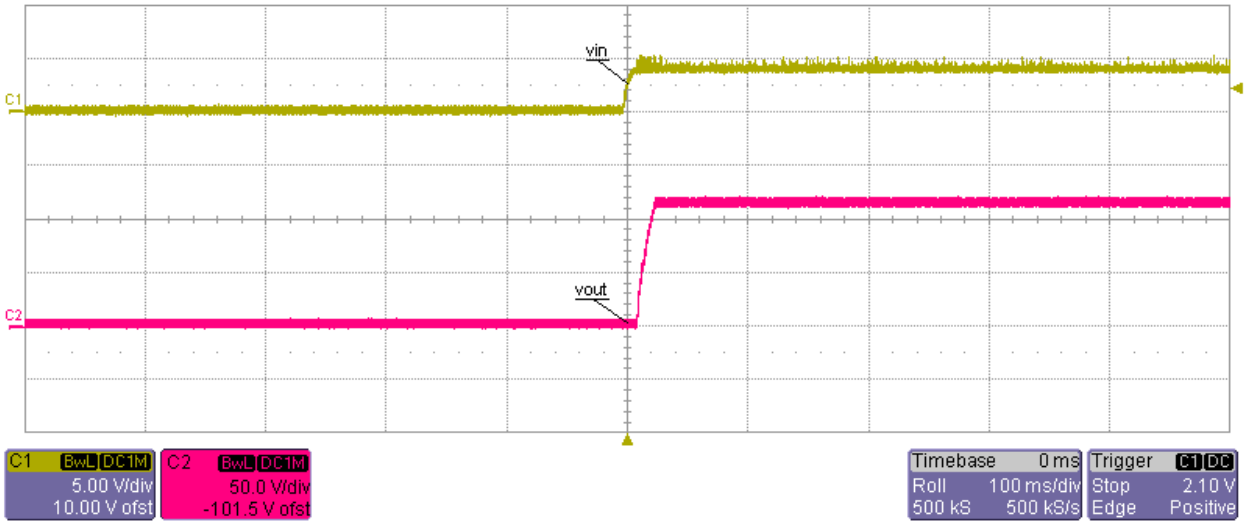


5.2 Efficiency Data

Vin (V)	Iin (A)	Vout (V)	Iout (A)	Pin (W)	Pout (W)	Efficiency (%)
5.21	0.332	117.3	0.008	1.72972	0.9384	54.25%
5.19	0.56	117.3	0.017	2.9064	1.9941	68.61%
5.17	0.883	117.3	0.0284	4.56511	3.33132	72.97%
5.15	1.108	117.3	0.0372	5.7062	4.36356	76.47%
5.12	1.434	117.3	0.0482	7.34208	5.65386	77.01%
5.1	1.68	117.3	0.058	8.568	6.8034	79.40%
5.08	1.965	117.3	0.068	9.9822	7.9764	79.91%
5.05	2.2919	117.3	0.079	11.5741	9.2667	80.06%
5.03	2.58	117.3	0.0885	12.9774	10.38105	79.99%
5	2.93	117.3	0.1	14.65	11.73	80.07%
Vin (V)	**Iin (A)**	**Vout (V)**	**Iout (A)**	**Pin (W)**	**Pout (W)**	**Efficiency (%)**
4.1	0.411	117.3	0.0077	1.6851	0.90321	53.60%
4.08	0.699	117.3	0.0155	2.85192	1.81815	63.75%
4.04	1.096	117.3	0.0277	4.42784	3.24921	73.38%
4.02	1.43	117.3	0.0363	5.7486	4.25799	74.07%
3.98	1.83	117.3	0.0475	7.2834	5.57175	76.50%
3.98	2.165	117.3	0.0565	8.6167	6.62745	76.91%
3.95	2.5	117.3	0.065	9.875	7.6245	77.21%
3.91	2.97	117.3	0.077	11.6127	9.0321	77.78%
4.02	3.23	117.3	0.088	12.9846	10.3224	79.50%
3.99	3.65	117.3	0.099	14.5635	11.6127	79.74%

6. Test results

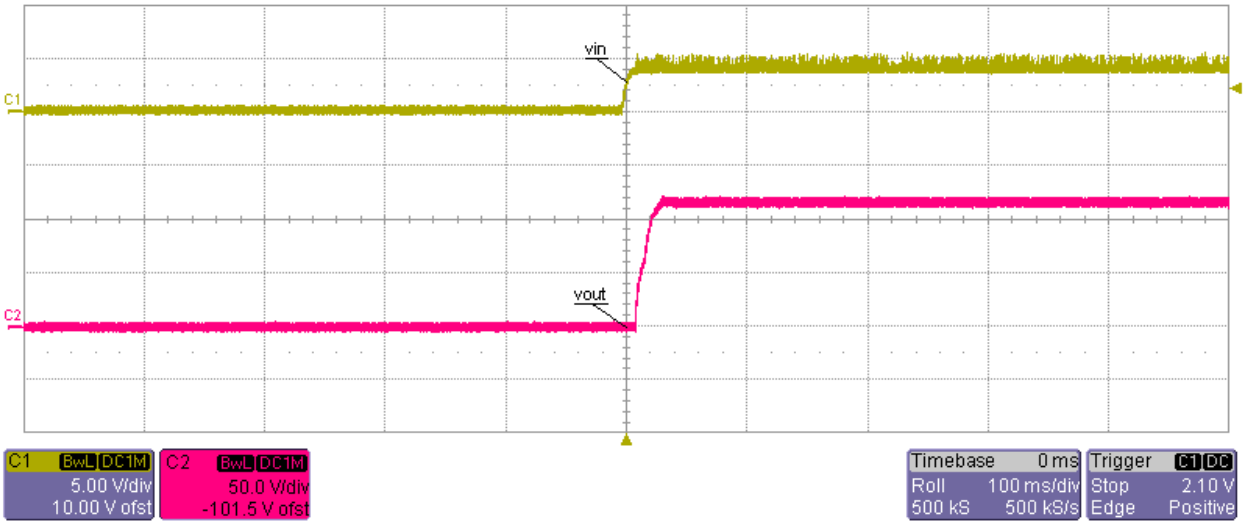
6.1 Startup



Startup into No Load at 4 Vin

C1- Vin

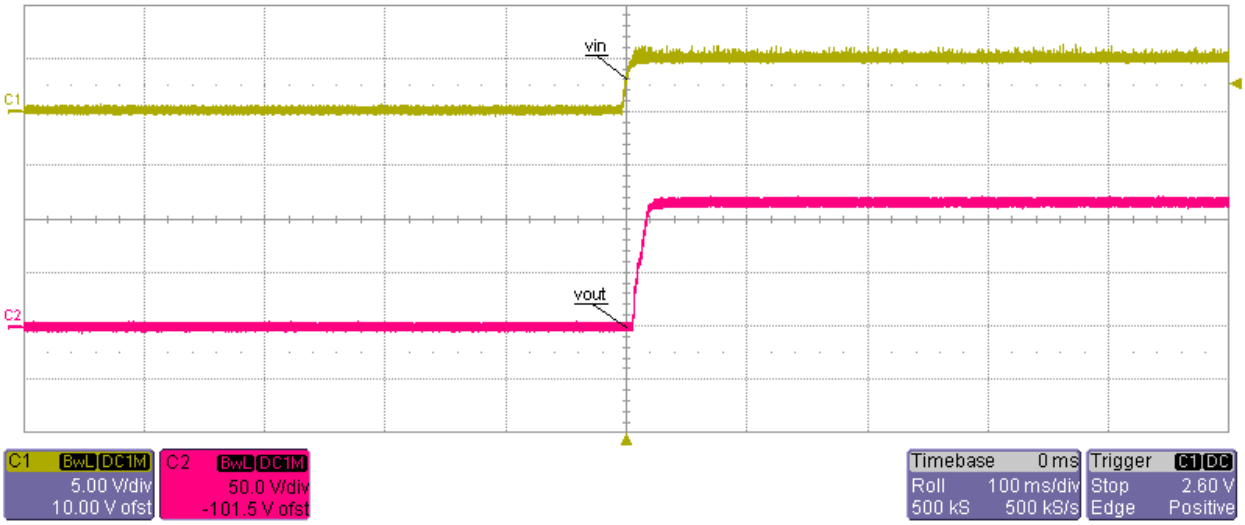
C2-Vout



Startup into Full Load(100mA) at 4 Vin

C1- Vin

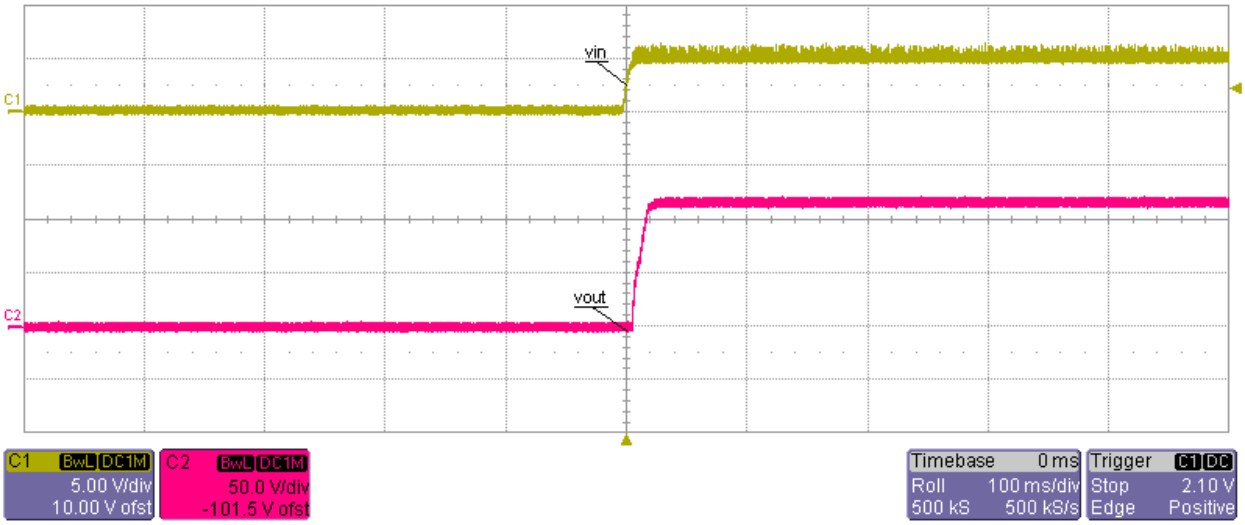
C2-Vout



Startup into No Load at 5 Vin

C1- Vin

C2-Vout

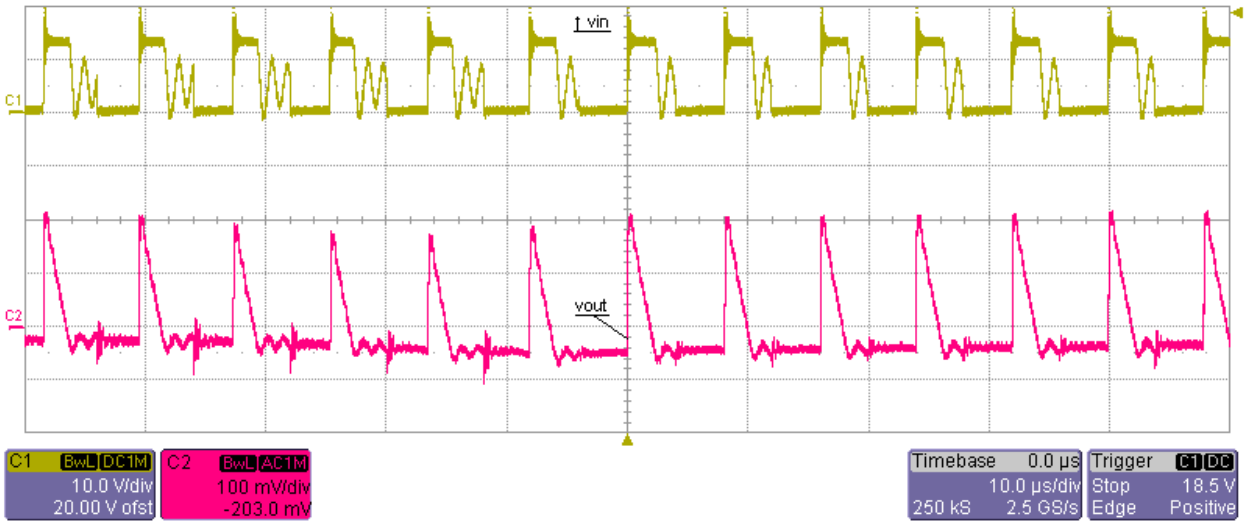


Startup into Full Load(100mA) at 5 Vin

C1- Vin

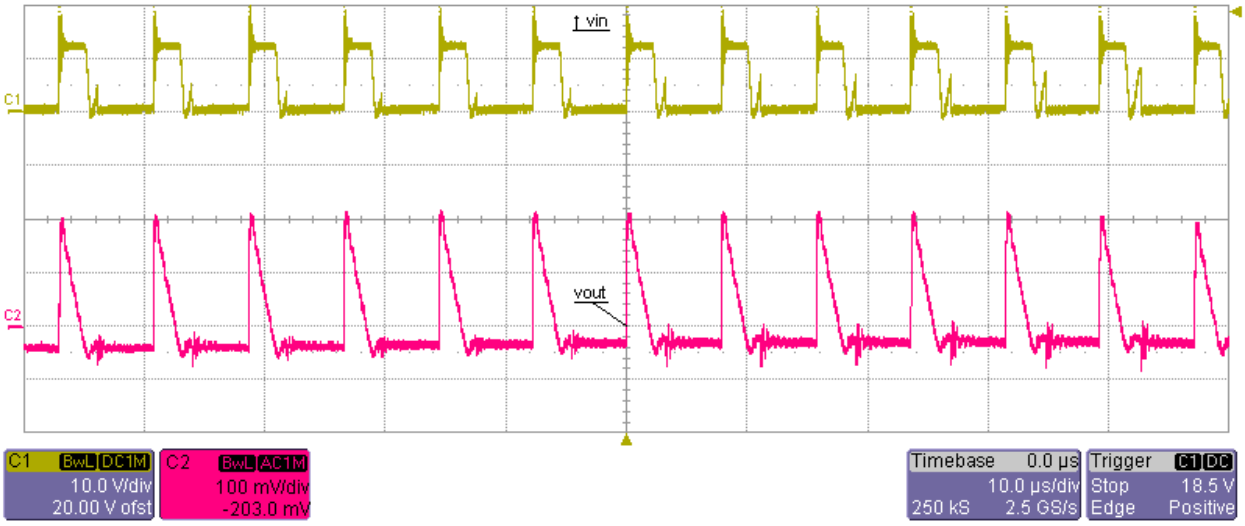
C2-Vout

6.2 Output Voltage Ripple and Switch Node Voltage



Ch1 - Switch Node Voltage

Ch2-Output Voltage Ripple at 5Vin @ 100mA output

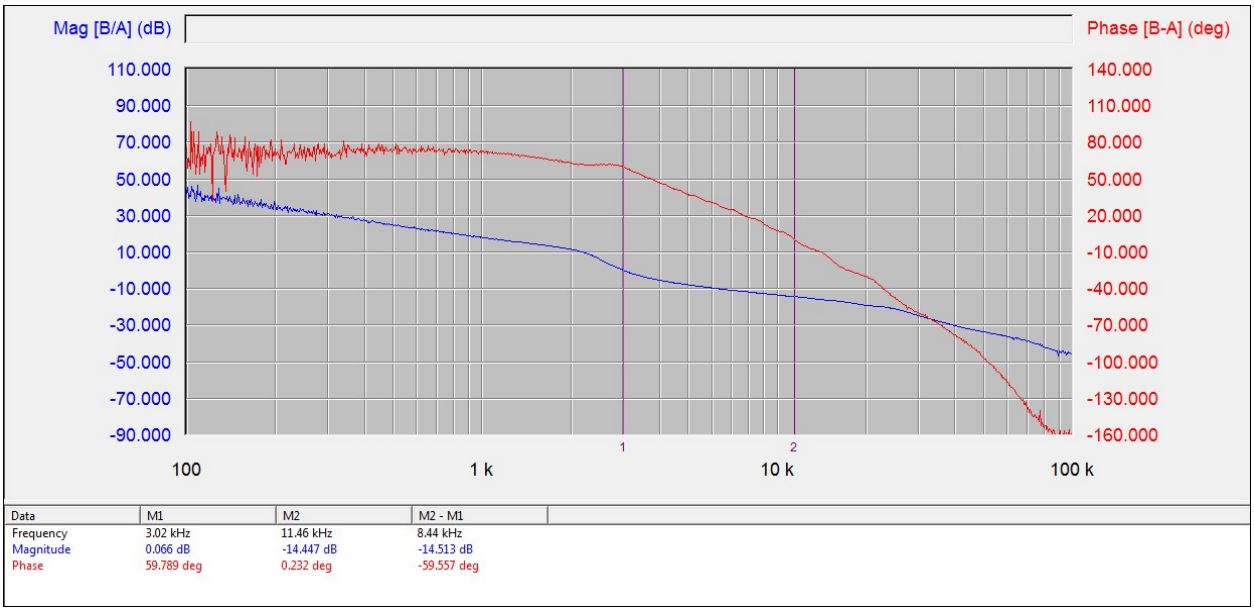


Ch1 - Switch Node Voltage

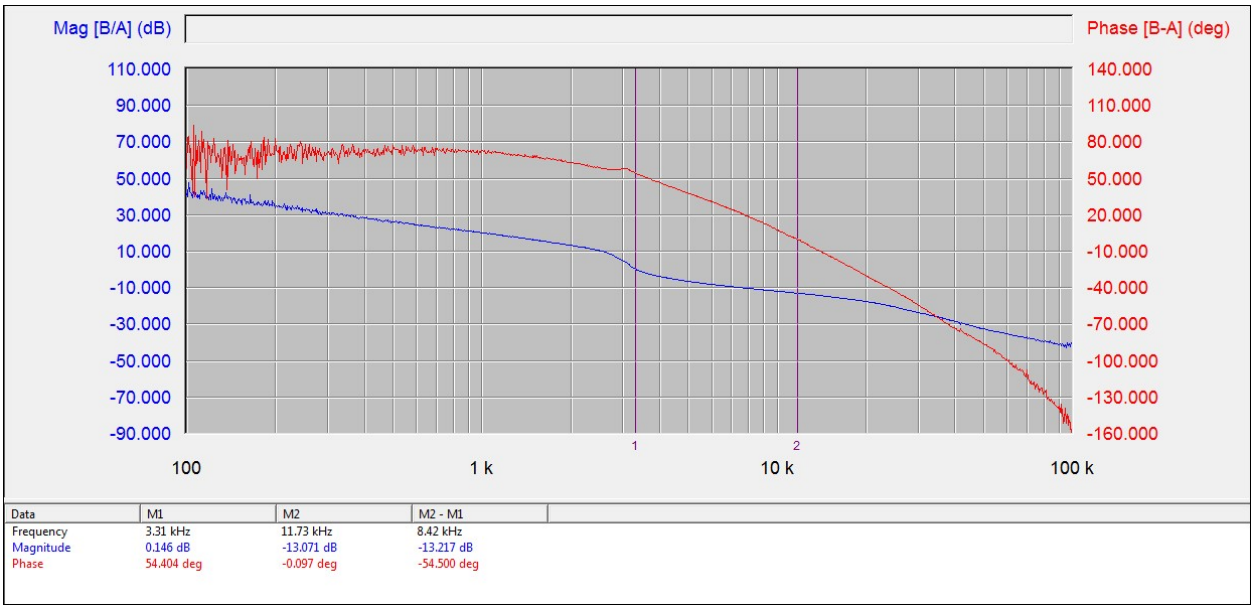
Ch2-Output Voltage Ripple at 4Vin @ 100mA output

7. Frequency Response

The output was loaded with full load 100mA .For gain/phase plot 1 , the input was 3.7V and for gain/phase plot 2 , the input was 4.7V



Gain/Phase plot 1 at Vin =3.7V ,Vout =120V@100mA



Gain/Phase plot 2 at Vin =4.7 ,Vout =120V@100mA

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