Test Data
For PMP20497
1/10/2017

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1. Design Specifications

Vin Minimum	**12VDC**
Vin Maximum	**12VDC**
Vout	**+54VDC @ 2A**
Nominal Switching Frequency	**≈ 100KHz**

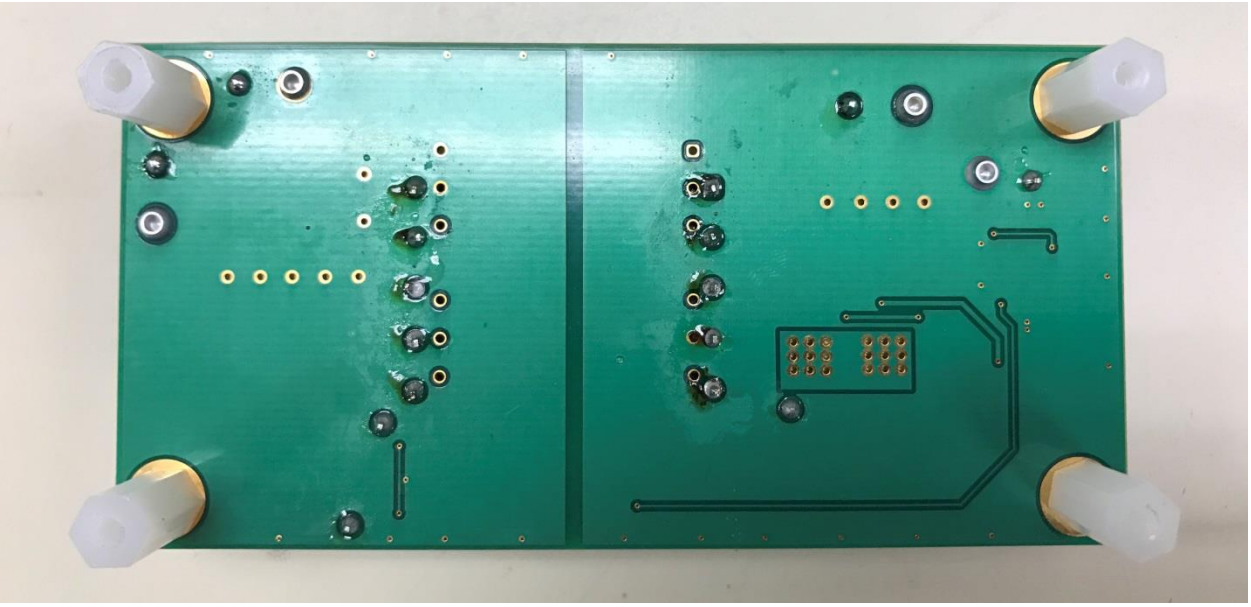
2. Circuit Description

PMP20497 is an isolated flyback converter utilizing the LM5022 for industrial applications. This design accepts input voltage of 12V. The test report here is 12Vin/~54V out @ 2A of load current. Switching frequency is set to 100kHz. A custom Pulse transformer is used in this test report for all the scope capture.

3. PMP20497 Board Photos

Board Dimensions: 4inches x 2inches

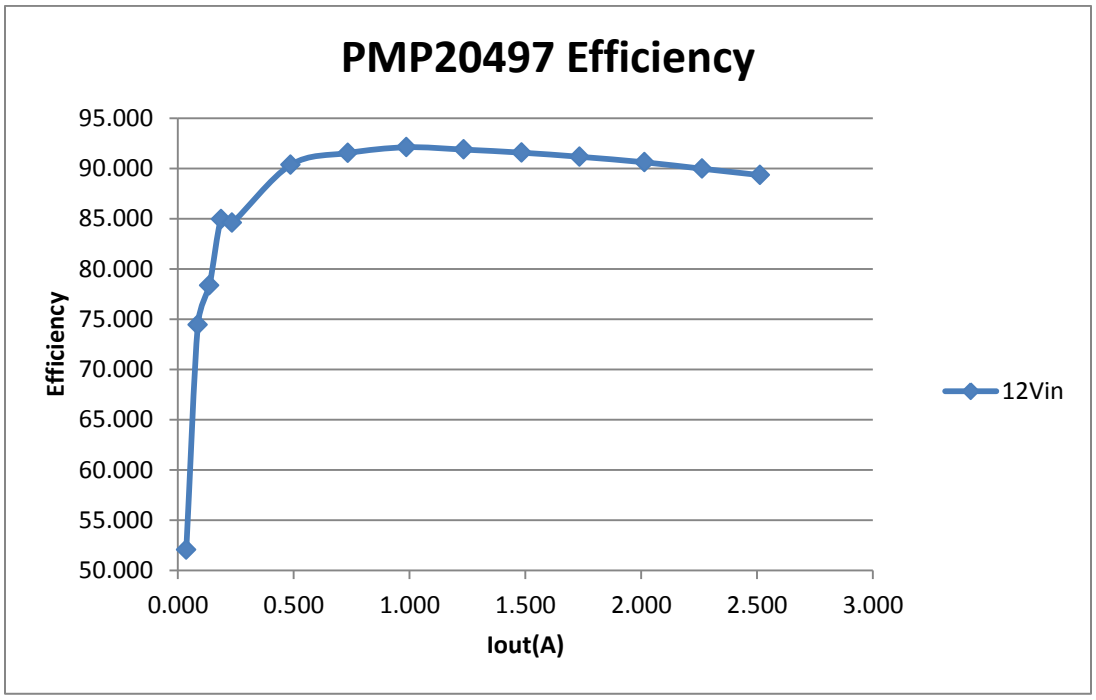
Board Photo (Top)



Pulse Board Photo (Bottom)

4. Efficiency

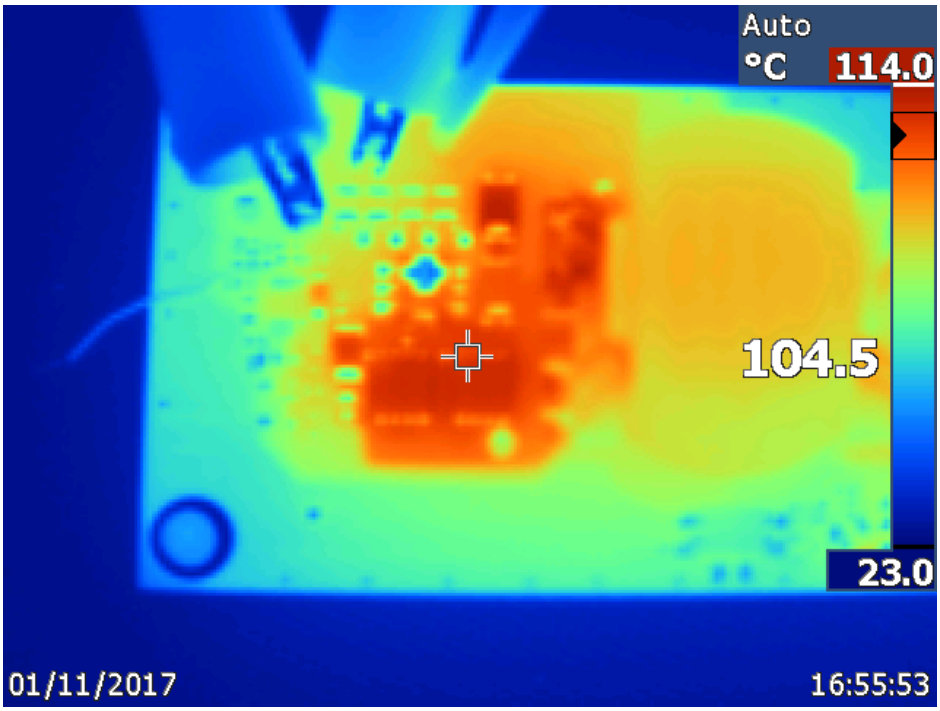
4.1 Efficiency Chart



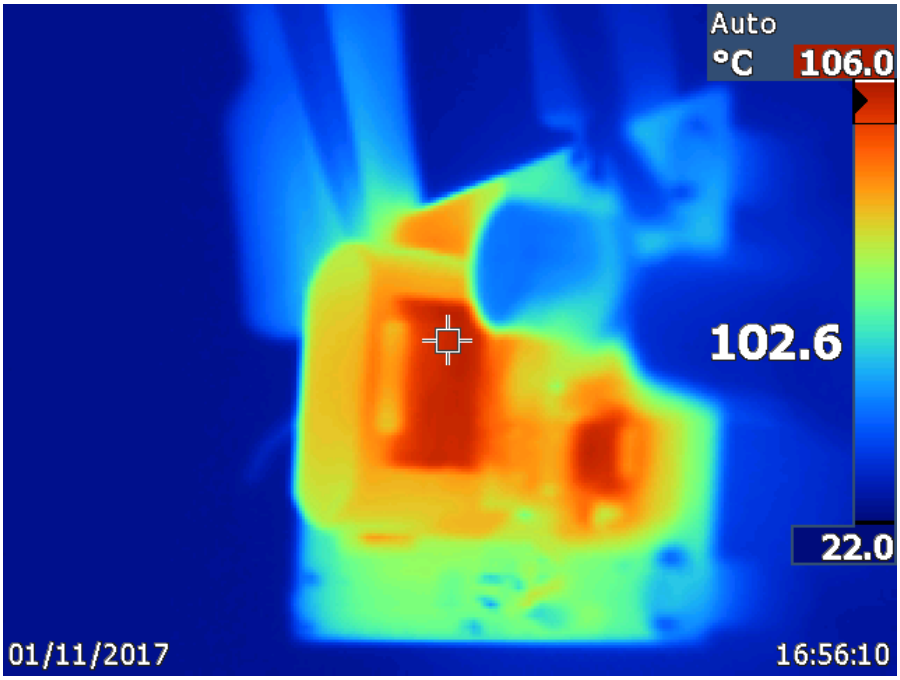
4.2 Efficiency Data

Vin(V)	Iin(A)	Vout(V)	Iout(A)	Pin(W)	Pout(W)	Ploss(W)	Efficiency
12.006	0.070	53.504	0.000	0.840	0.000	0.840	0.000
12.006	0.308	53.465	0.036	3.698	1.925	1.773	52.048
12.006	0.516	53.619	0.086	6.195	4.611	1.584	74.433
12.006	0.772	53.398	0.136	9.269	7.262	2.007	78.350
12.006	0.978	53.615	0.186	11.742	9.972	1.769	84.932
12.006	1.230	53.386	0.234	14.767	12.492	2.275	84.595
12.006	2.390	53.341	0.486	28.694	25.924	2.770	90.346
12.006	3.562	53.331	0.734	42.765	39.145	3.620	91.535
12.005	4.754	53.314	0.986	57.074	52.567	4.507	92.104
12.005	5.962	53.289	1.234	71.576	65.759	5.818	91.872
12.005	7.190	53.259	1.484	86.315	79.036	7.279	91.567
12.004	8.434	53.224	1.734	101.244	92.291	8.953	91.157
12.004	9.848	53.184	2.014	118.215	107.113	11.102	90.608
12.004	11.132	53.149	2.262	133.626	120.223	13.402	89.970
12.003	12.442	53.114	2.512	149.347	133.421	15.926	89.336

5 Thermal Images



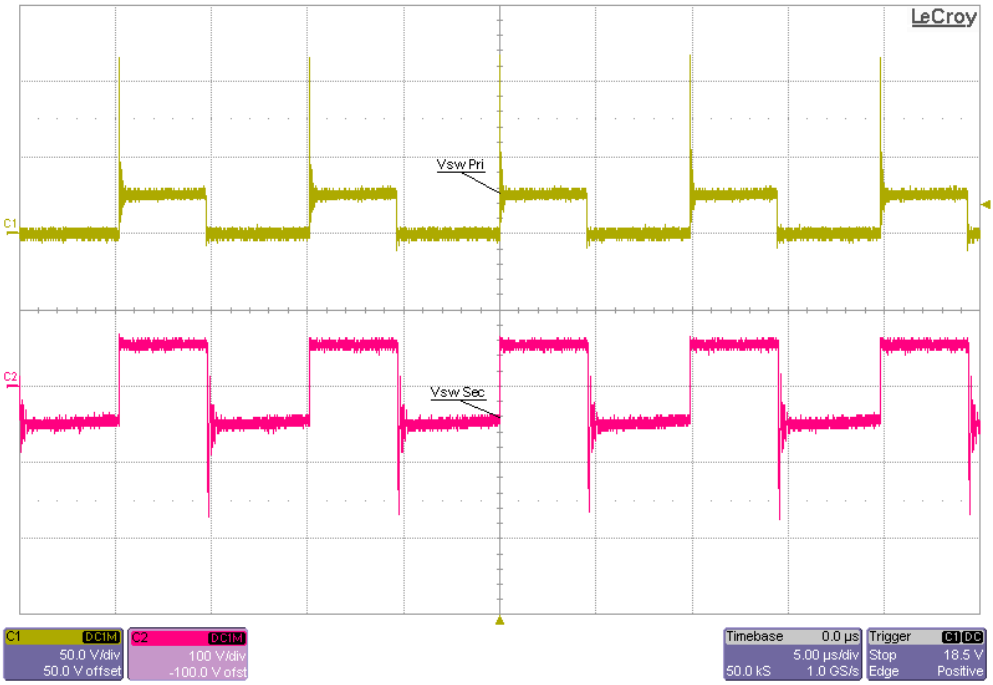
Thermal image was taken at 12Vin, 2A load for 15 minutes without airflow.



Thermal image was taken at 12Vin, 2A load for 15 minutes without airflow.

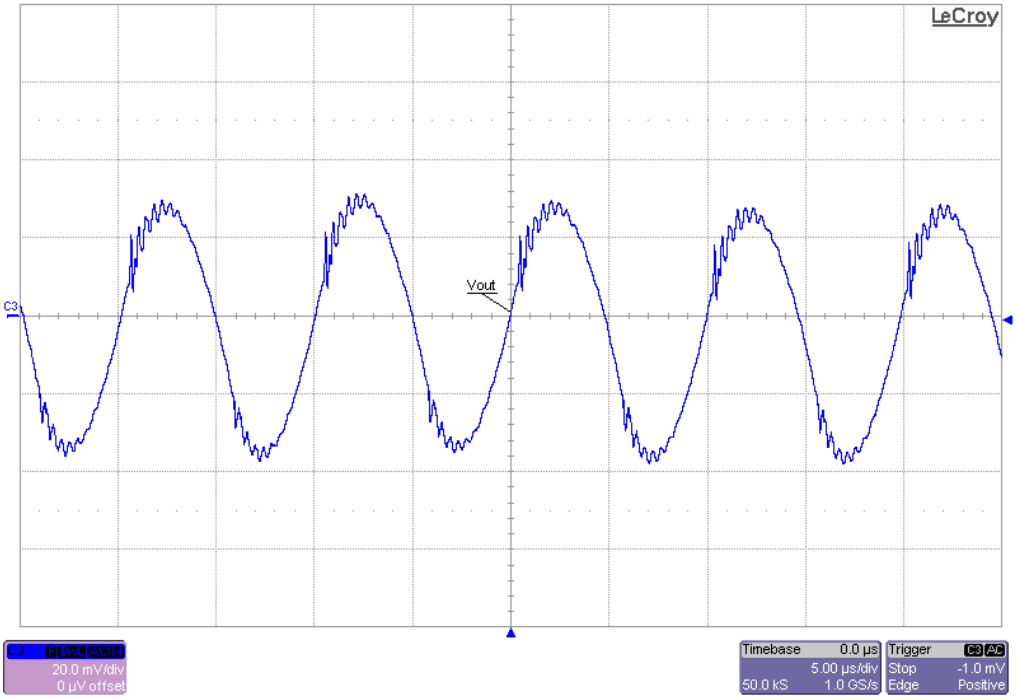
6 Waveform

6.1 Switching Waveform



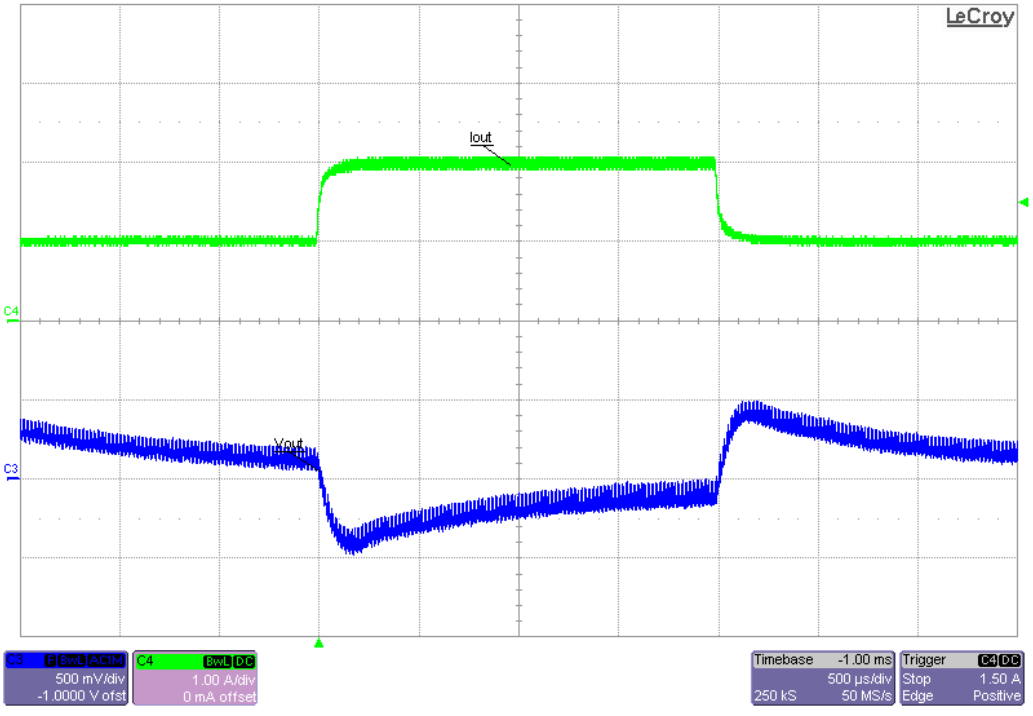
12Vin, 2A load. Ch1 measures primary switching, Ch2 measures secondary switching waveform.

6.2 Output Ripple



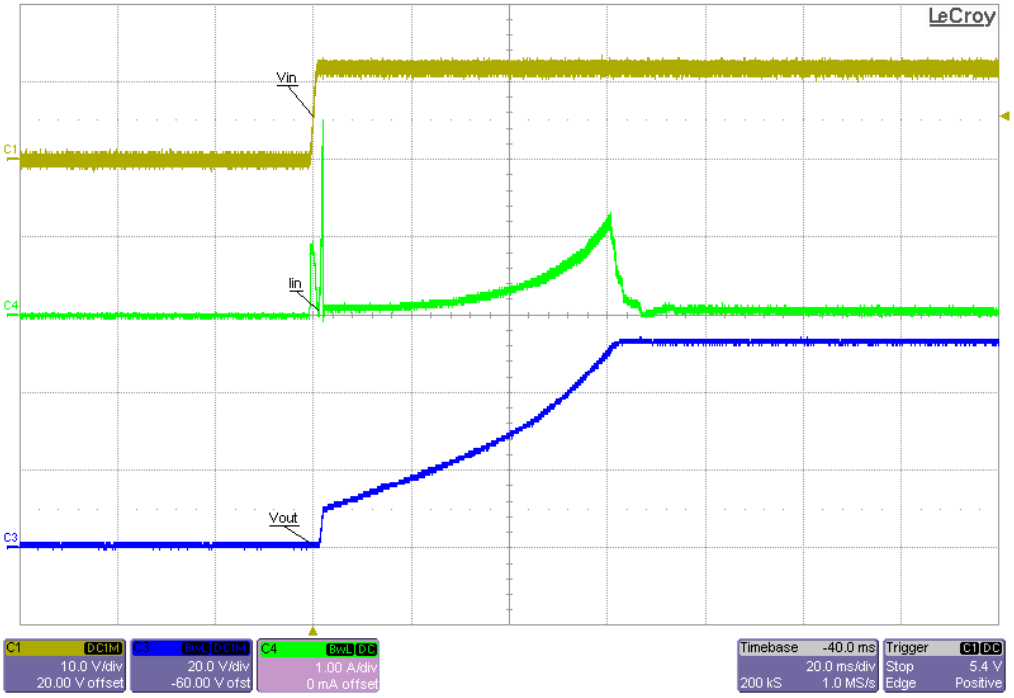
12Vin, 2A load. Ch3 measures output switching ripple.

6.3 Load Transient

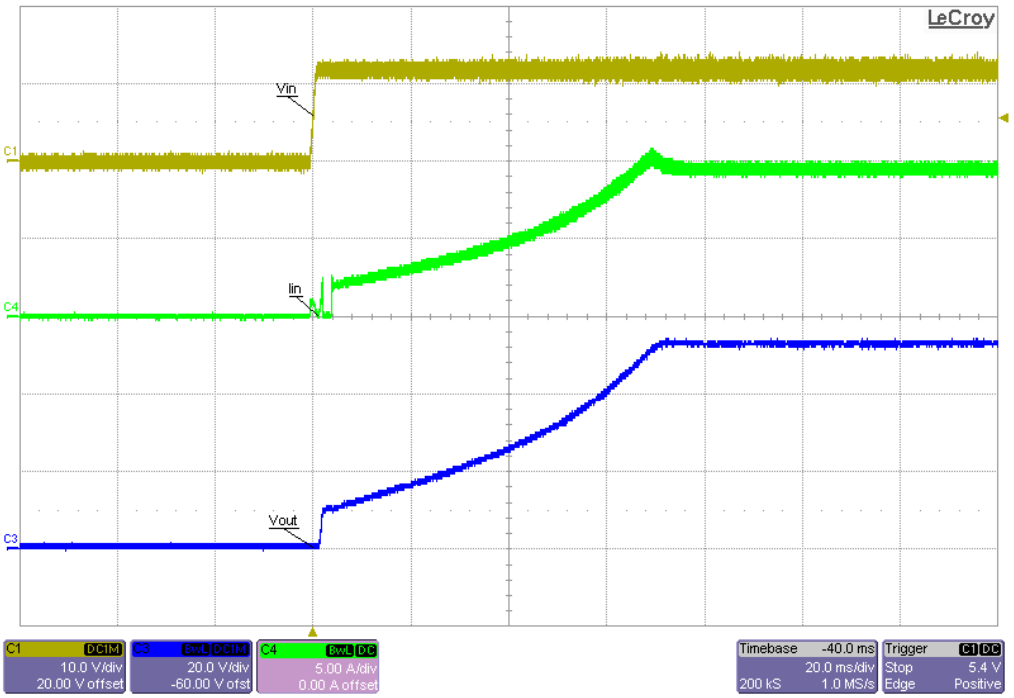


12Vin, 1A-2A load step. Ch3 measures output voltage, Ch4 measures output load current.

6.4 Start Up

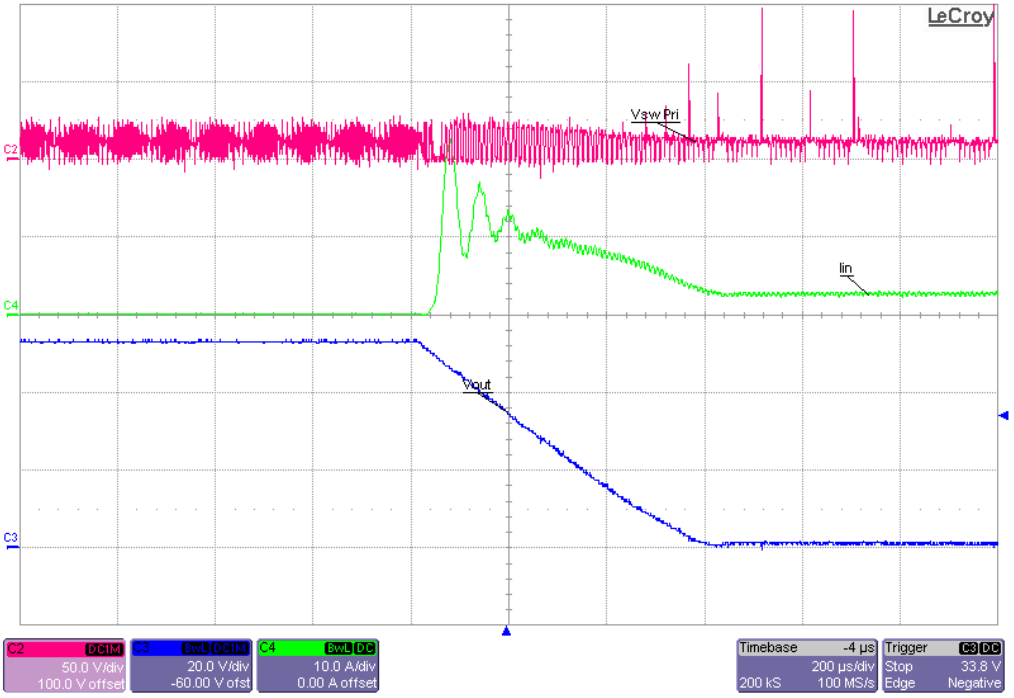


12Vin, 0A load. Ch1 measures input voltage, Ch3 measures output voltage, Ch4 measures output current.

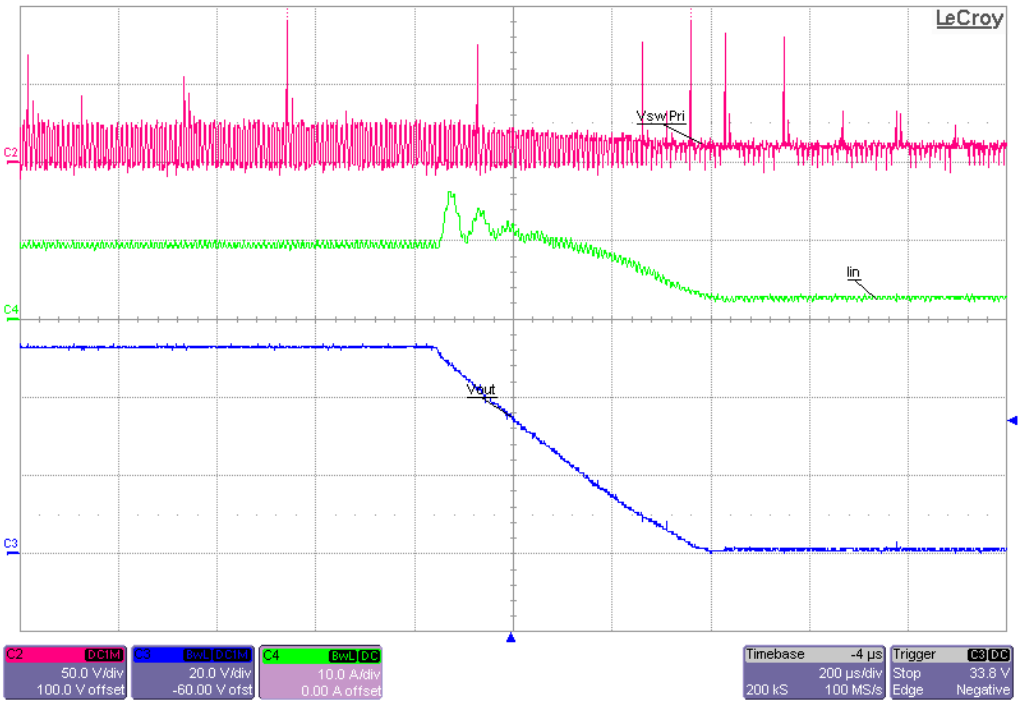


12Vin, 2A load. Ch1 measures input voltage, Ch3 measures output voltage, Ch4 measures output current.

6.5 Short Circuit

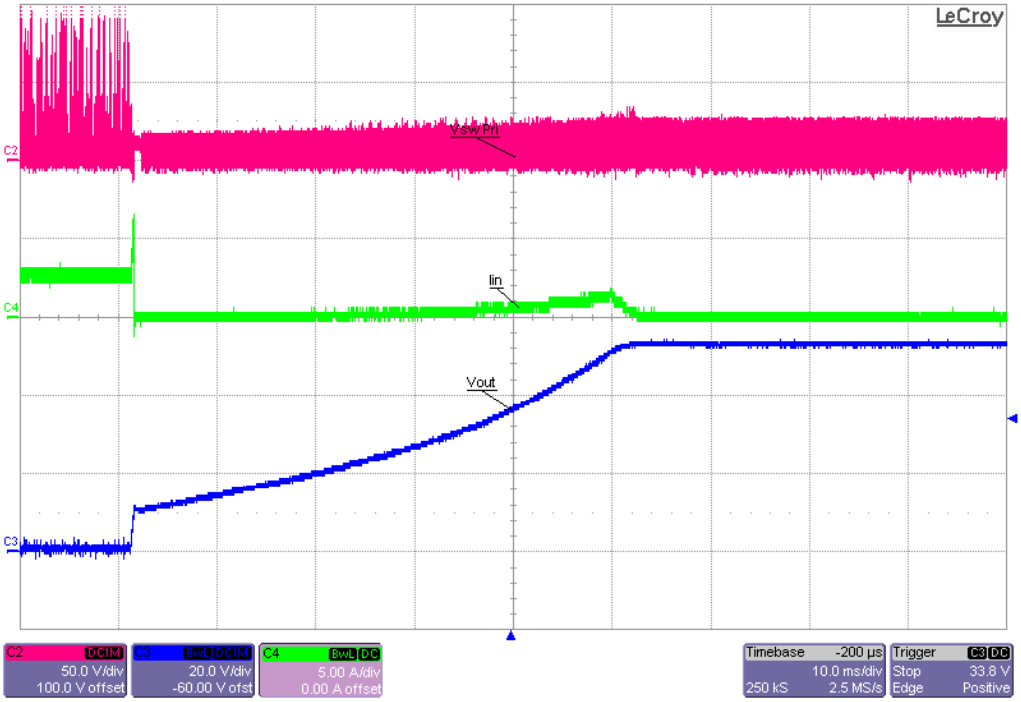


12Vin, 0A load. Ch2 measures primary switching, Ch3 measures output voltage, Ch4 measures input current.

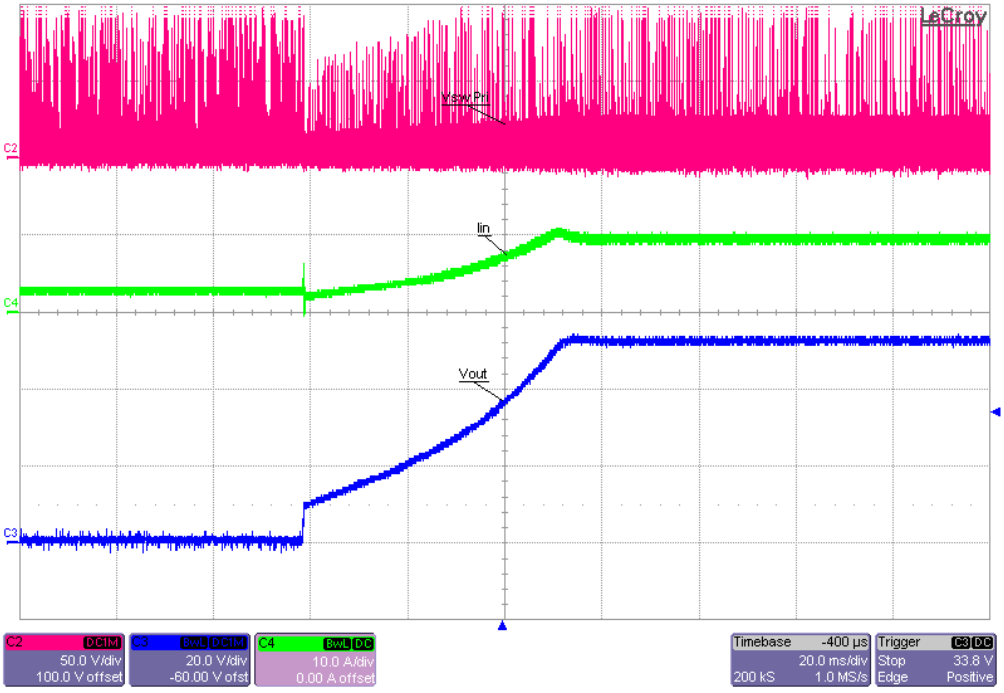


12Vin, 2A load. Ch2 measures primary switching, Ch3 measures output voltage, Ch4 measures input current.

6.6 Short Circuit Recovery

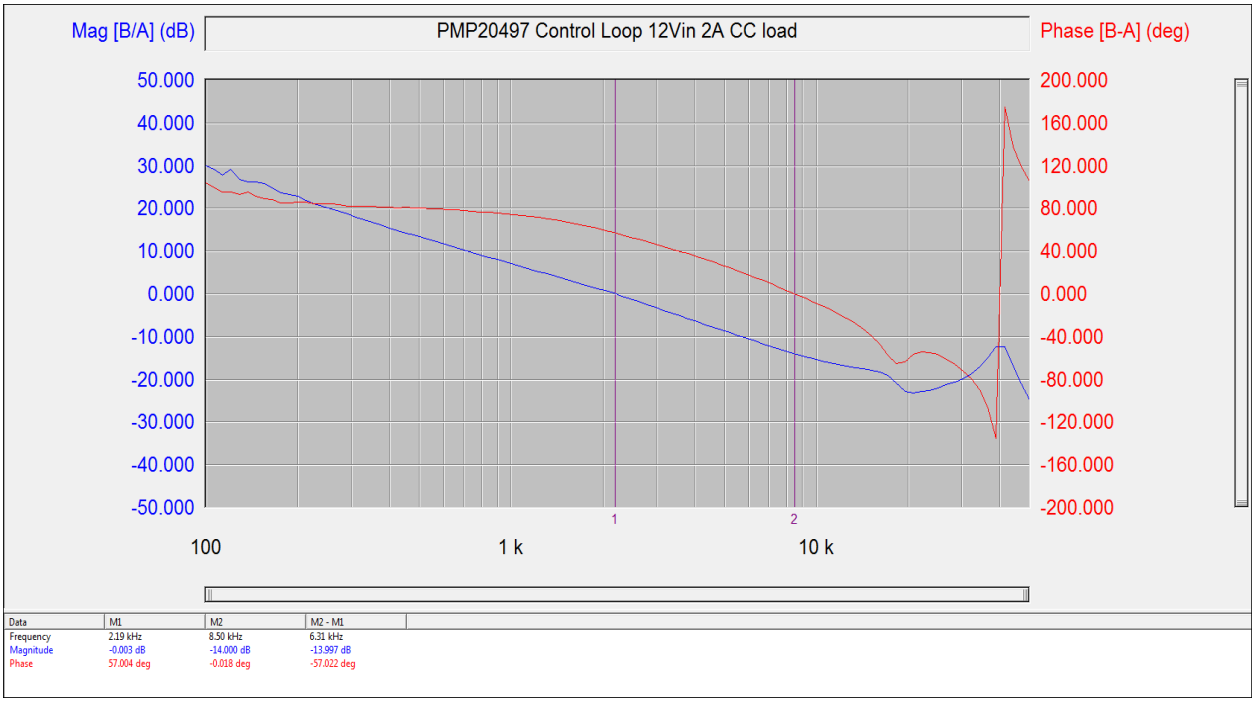


12Vin, 0A load. Ch2 measures primary switching, Ch3 measures output voltage, Ch4 measures input current.



12Vin, 2A load. Ch2 measures primary switching, Ch3 measures output voltage, Ch4 measures input current.

6.7 Bode Plot



12Vin, 2A load bode plot, 57 degrees phase margin, and 14dB gain margin.

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