Isolated Flyback Converter

TI reference design number: PMP7816
(Formerly National Semiconductor design)

Input: 56V (nominal)
Output: 3.3V @ 1A

DC – DC Test Results

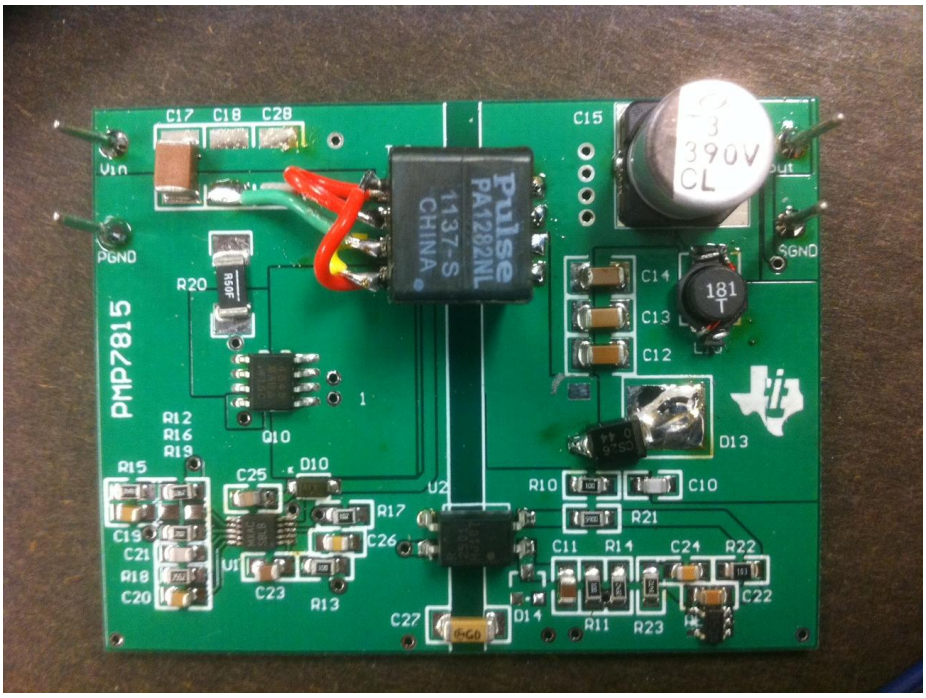
Table of Contents

1 Circuit Description

PMP7797 is a Flyback converter. This design uses the LM5020 Current mode controller as a fly-back. The input is 56V nominal. Input voltage range is 30V to 75V. The output has an additional LC filter for low ripple voltage performance.

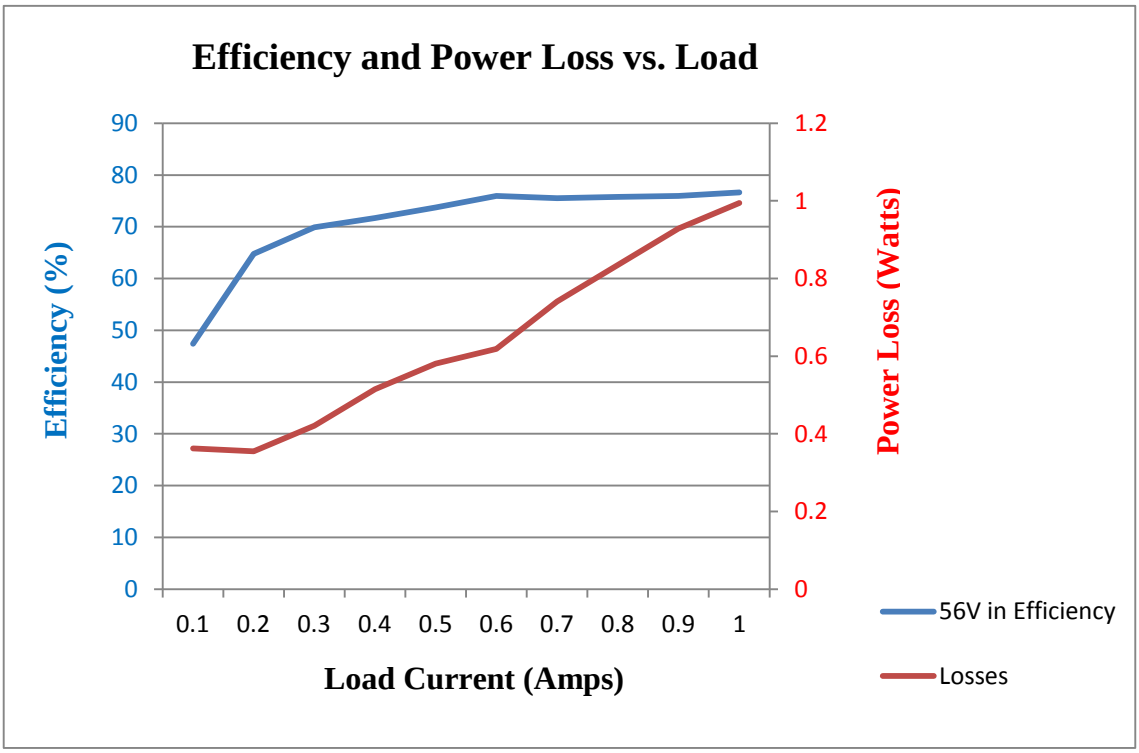
2 Photos

The photo shows top view of PMP7816 Rev A board. The board dimensions are 2.5” x 2”.



3 Efficiency

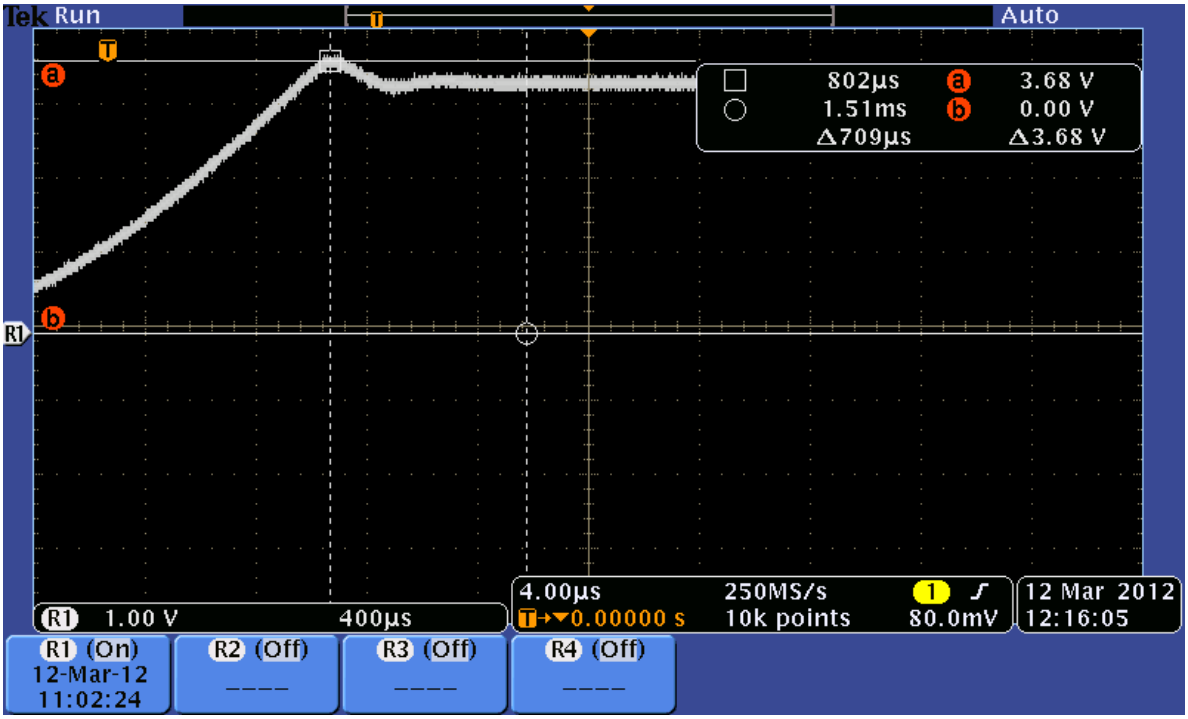
The efficiency data is shown in the graph and tables below.



Vin (V)	Iin (A)	Vout (V)	Iout (A)	Pin (Watts)	Pout (Watts)	Ploss (Watts)	Efficiency (%)
56	0.0123	3.264	0.1	0.6888	0.3264	0.3624	47.3868
56	0.018	3.264	0.2	1.008	0.6528	0.3552	64.7619
56	0.025	3.263	0.3	1.4	0.9789	0.4211	69.9214
56	0.0325	3.263	0.4	1.82	1.3052	0.5148	71.7143
56	0.0395	3.263	0.5	2.212	1.6315	0.5805	73.7568
56	0.046	3.262	0.6	2.576	1.9572	0.6188	75.9783
56	0.054	3.262	0.7	3.024	2.2834	0.7406	75.5093
56	0.0615	3.262	0.8	3.444	2.6096	0.8344	75.7724
56	0.069	3.261	0.9	3.864	2.9349	0.9291	75.955
56	0.076	3.261	1	4.256	3.261	0.995	76.6212

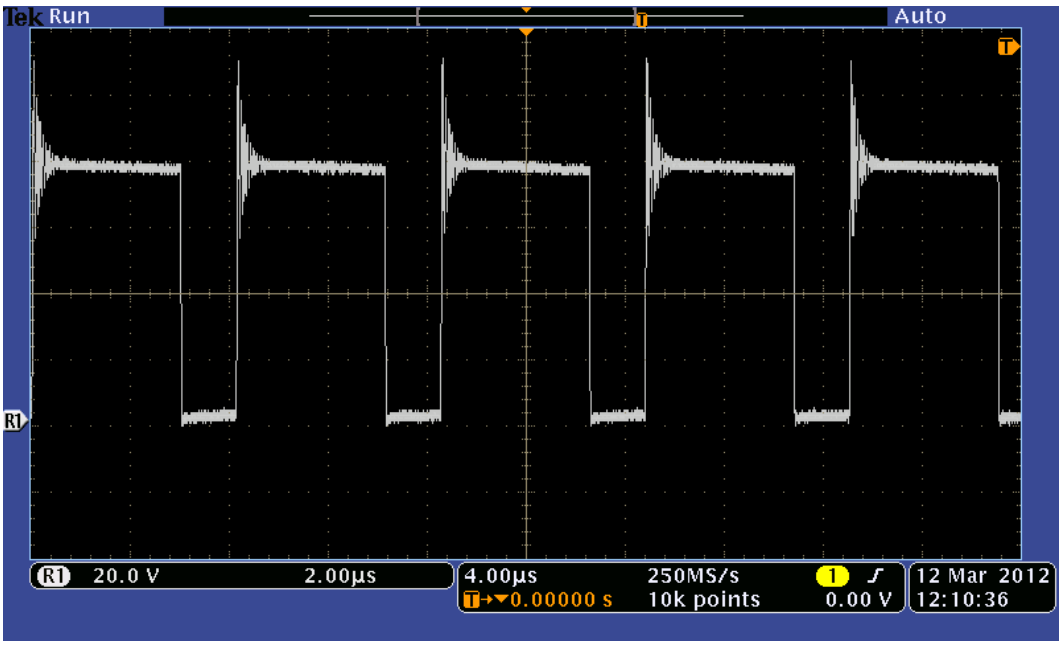
5 Startup

56V in 3.3V out @ 1A

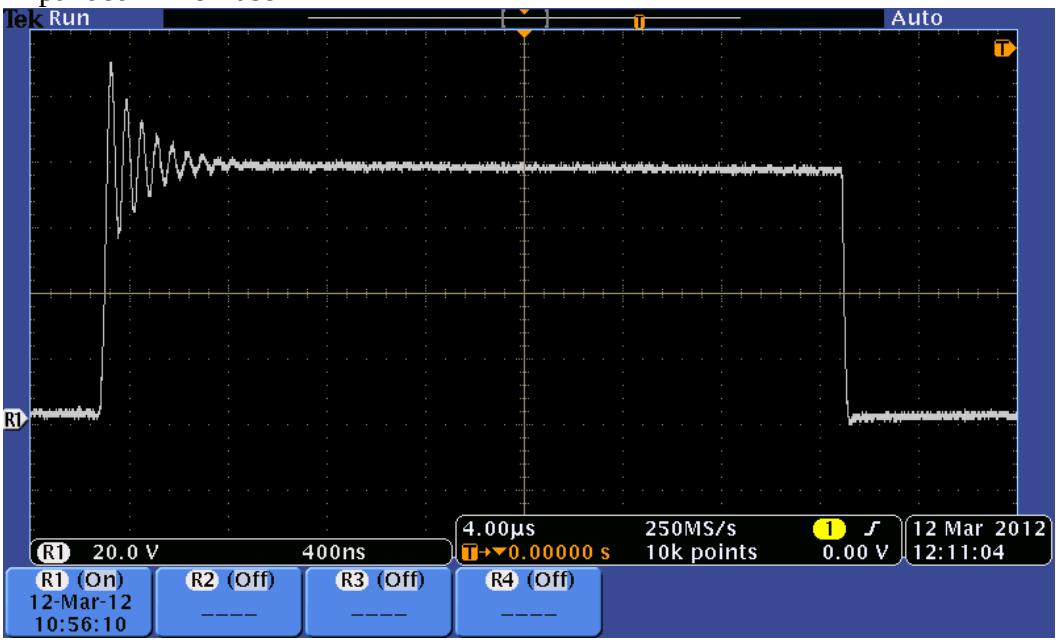


6 Switching

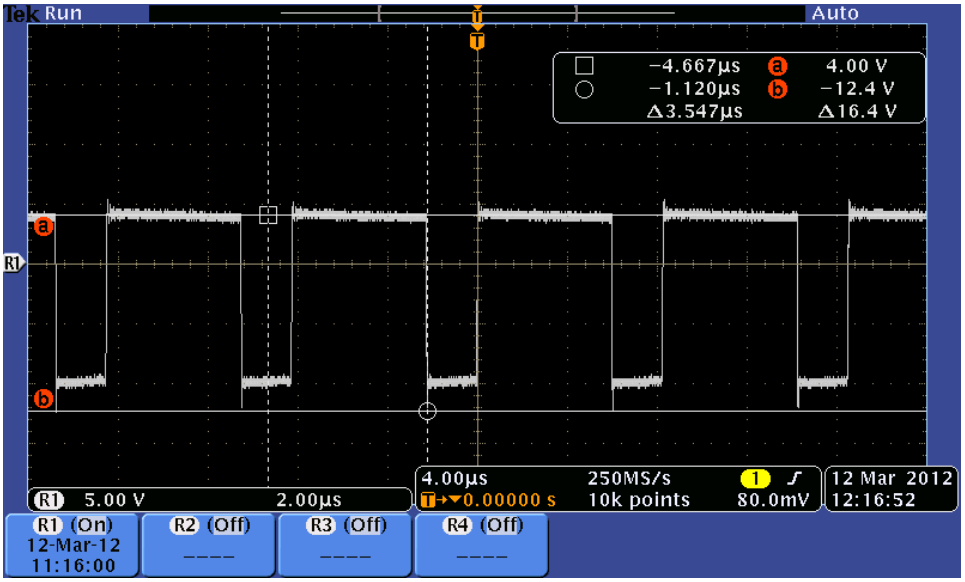
6 56V in 3.3V out @ 1A



Expanded Time Base

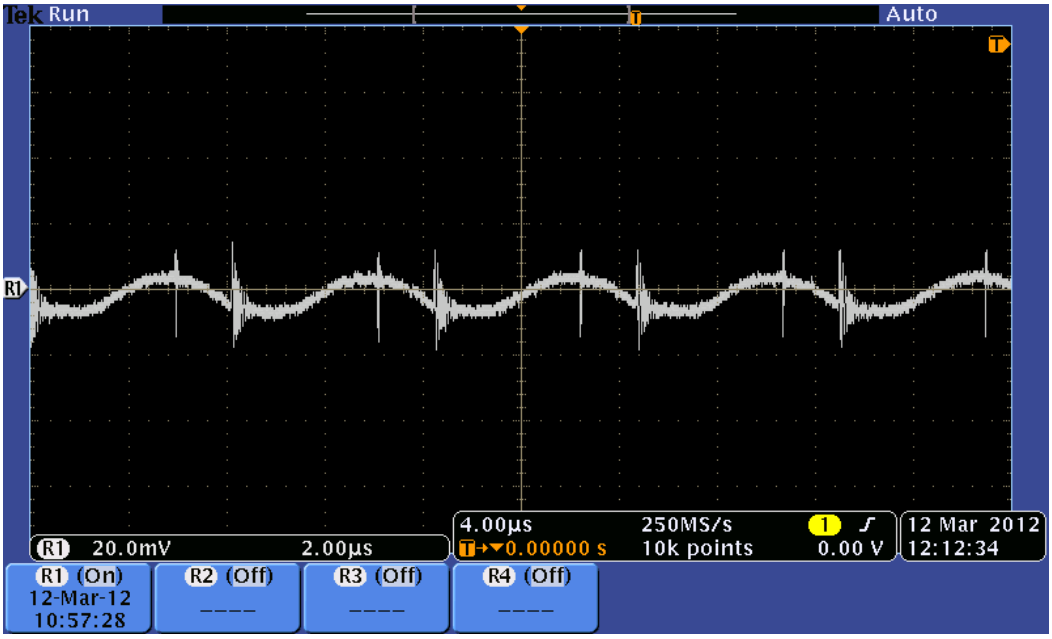


Secondary Switching 56V in 3.3V out @ 1A



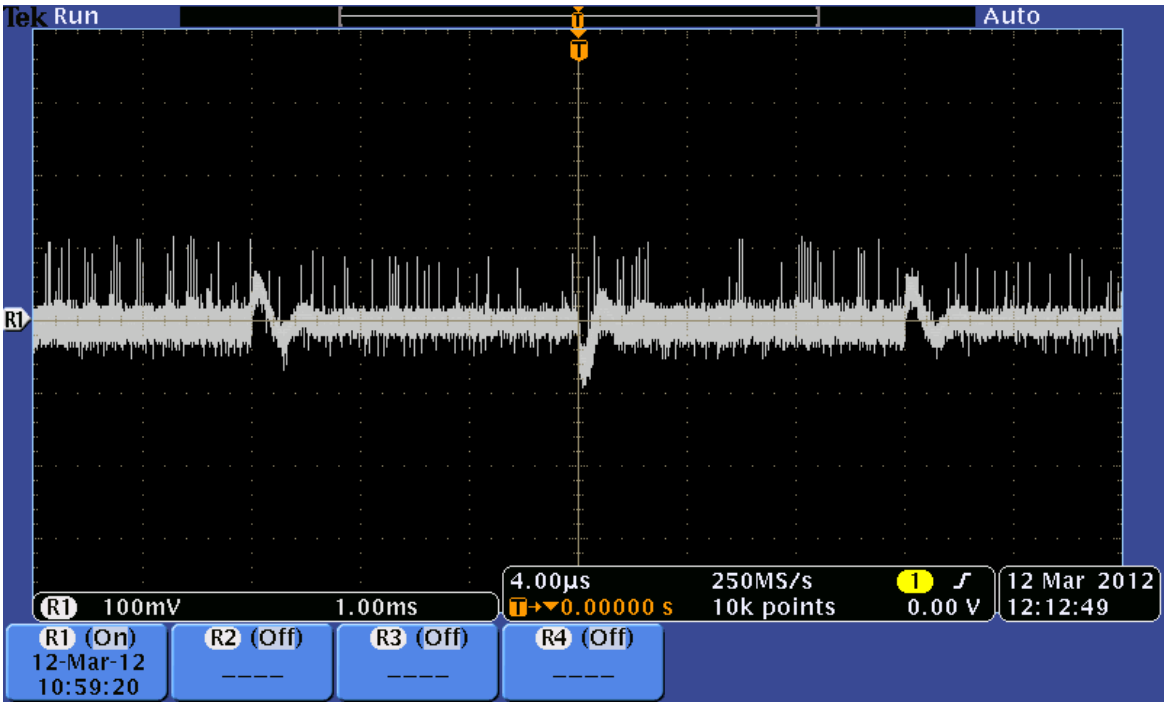
7 Output Ripple Voltage

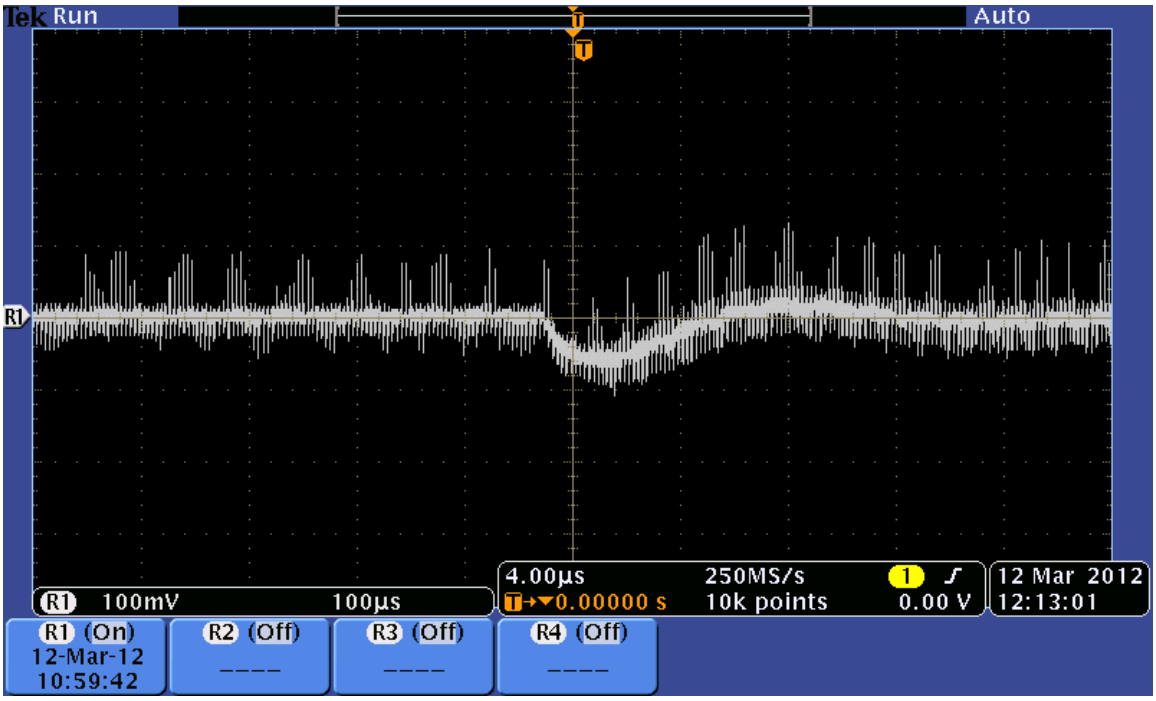
7.1 56V Input – 3.3V out @ 1A



8 Transient Response

8.1 56V Input – 0.5A Load Step





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