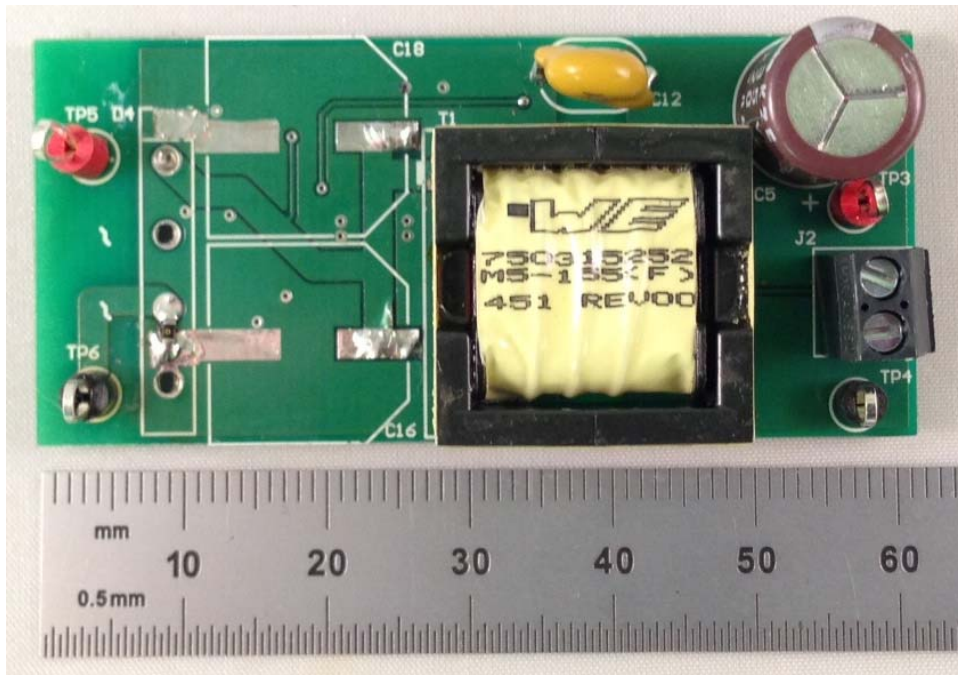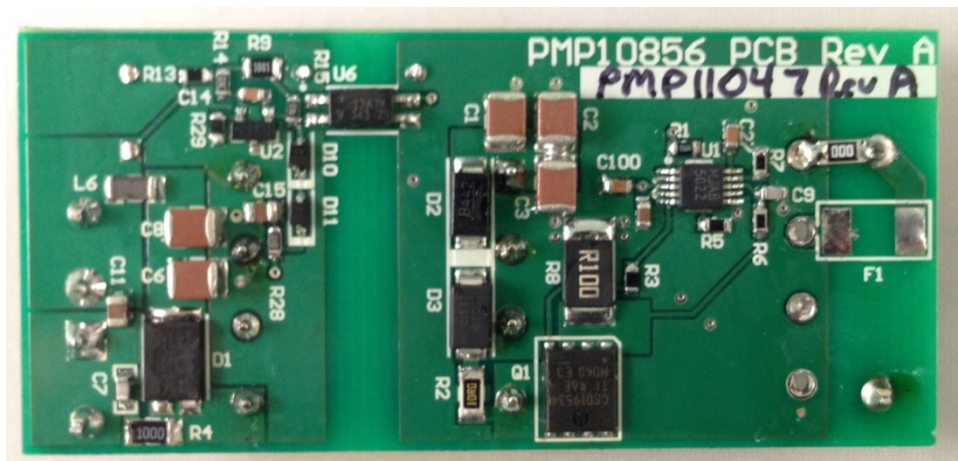# PMP11047 Rev A Test Results

TEXAS INSTRUMENTS

1 Photos

The photographs below show the PMP11047 Rev A assembly. This circuit was built using a PMP10856 Rev A PCB.
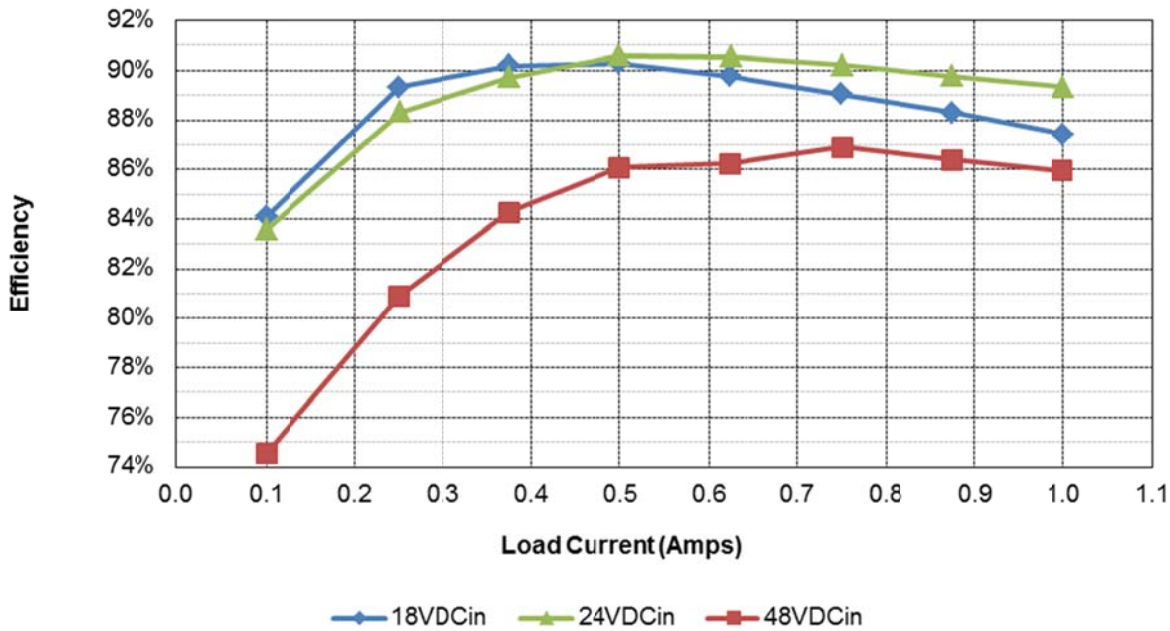
Top Side

Bottom Side

Power Management Solutions

2 Efficiency

The efficiency data is shown in the graph, and tables, below:

18VDCin							
Iout	Vout	Vin	Iin	Pin	Pout	Losses	Efficiency
0.000	24.07	17.99	0.016	0.29	0.00	0.29	0.0%
0.100	24.07	18.00	0.159	2.86	2.41	0.46	84.1%
0.250	24.07	18.01	0.374	6.74	6.02	0.72	89.3%
0.375	24.07	18.00	0.556	10.01	9.03	0.98	90.2%
0.500	24.07	17.99	0.741	13.33	12.04	1.30	90.3%
0.624	24.07	17.99	0.930	16.73	15.02	1.71	89.8%
0.749	24.07	18.01	1.124	20.24	18.03	2.21	89.1%
0.875	24.07	18.00	1.325	23.85	21.06	2.79	88.3%
1.000	24.07	17.96	1.533	27.53	24.07	3.46	87.4%
24VDCin							
Iout	Vout	Vin	Iin	Pin	Pout	Losses	Efficiency
0.000	24.07	23.99	0.014	0.34	0.00	0.34	0.0%
0.100	24.07	24.00	0.120	2.88	2.41	0.47	83.6%
0.251	24.07	24.00	0.285	6.84	6.04	0.80	88.3%
0.375	24.07	24.01	0.419	10.06	9.03	1.03	89.7%
0.500	24.07	23.98	0.554	13.28	12.04	1.25	90.6%
0.625	24.07	24.01	0.692	16.61	15.04	1.57	90.5%
0.750	24.07	24.02	0.833	20.01	18.05	1.96	90.2%
0.875	24.07	23.99	0.978	23.46	21.06	2.40	89.8%
1.000	24.07	23.99	1.123	26.94	24.07	2.87	89.3%

48VDCin

Iout	Vout	Vin	Iin	Pin	Pout	Losses	Efficiency
0.000	24.07	48.00	0.013	0.52	0.00	0.52	0.0%
0.100	24.07	47.99	0.066	3.23	2.41	0.82	74.5%
0.249	24.07	48.00	0.148	7.41	5.99	1.42	80.9%
0.375	24.07	47.99	0.213	10.71	9.03	1.68	84.3%
0.500	24.07	48.00	0.284	13.98	12.04	1.95	86.1%
0.624	24.07	48.02	0.350	17.42	15.02	2.40	86.2%
0.750	24.07	48.01	0.418	20.77	18.05	2.72	86.9%
0.875	24.07	47.99	0.486	24.38	21.06	3.32	86.4%
0.999	24.07	48.01	0.555	27.98	24.05	3.93	85.9%

3 Thermal

The thermal images below show the circuit board with a 1A load. The ambient temperature was 25C with no air flow. The input was 24VDC.

Power Management Solutions
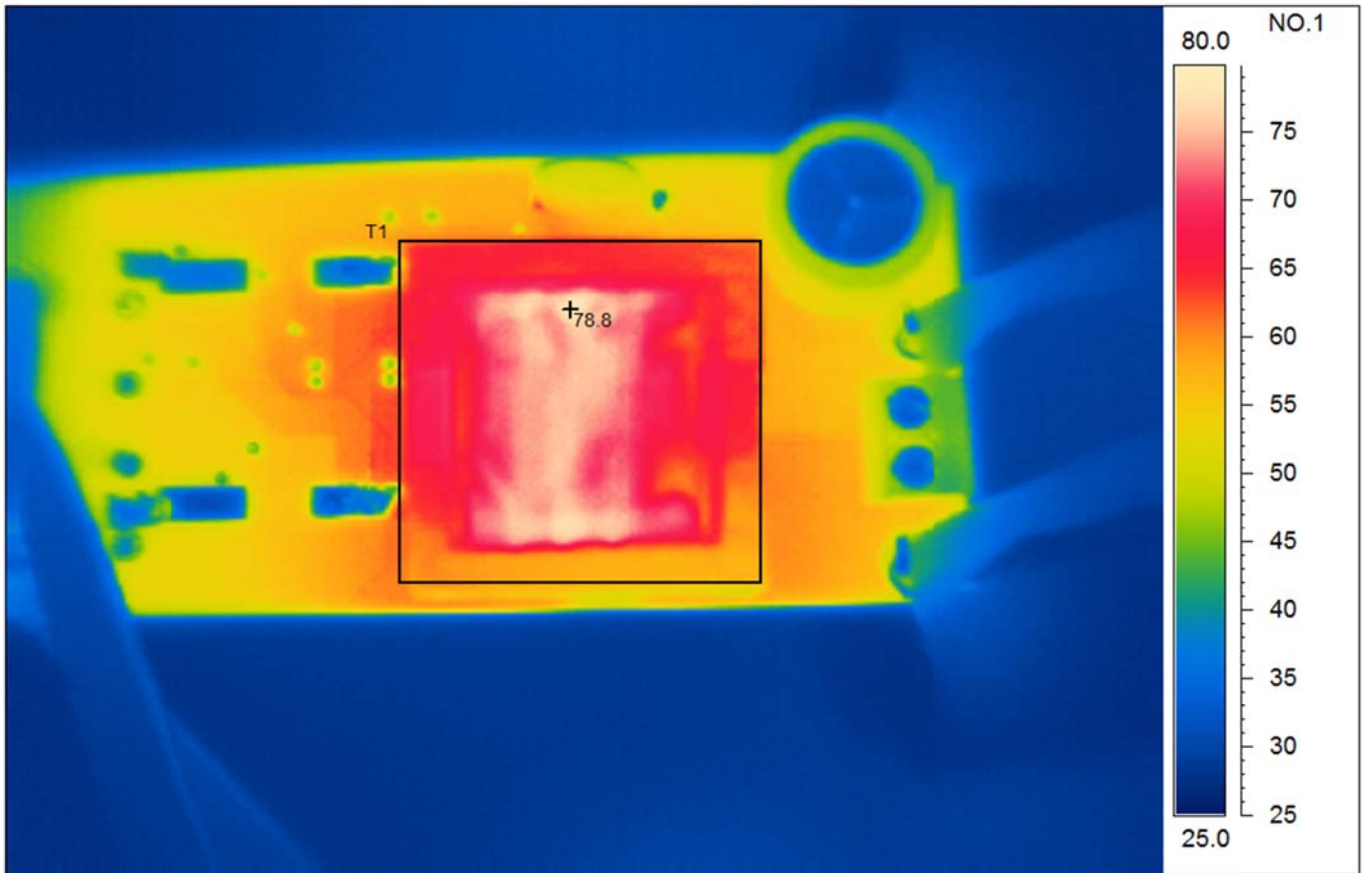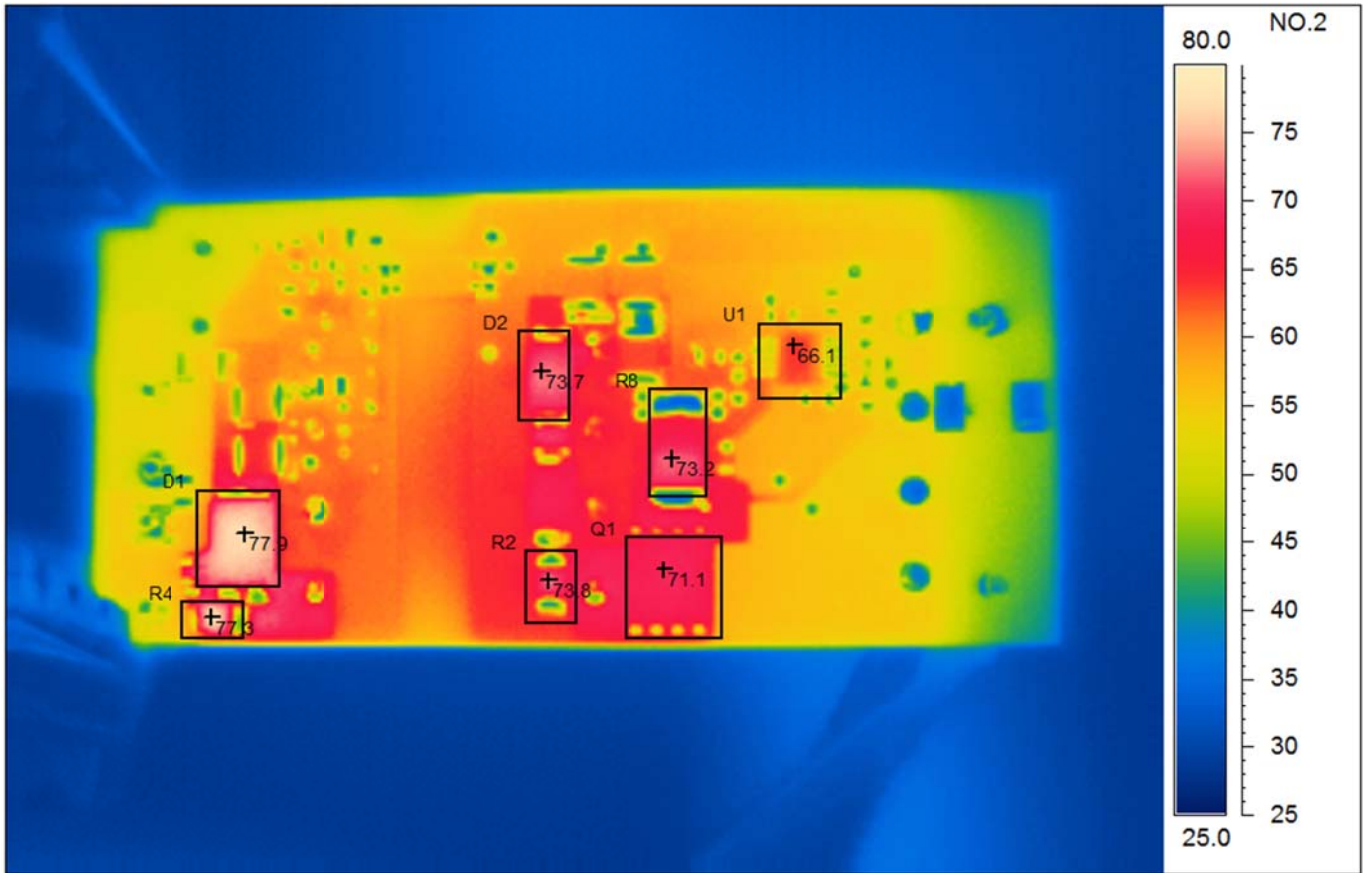
Area analysis	Value	NO.1
T1 Max	78.8°C	

Area analysis	Value	NO.2
D1Max	77.9°C	
R4Max	77.3°C	
D2Max	73.7°C	
Q1Max	71.1°C	
R8Max	73.2°C	
U1Max	66.1°C	
R2 Max	73.8°C	

4 Startup

4.1 24VDC Input, No Load

4.2 24VDC Input, 24Ω Load

Power Management Solutions
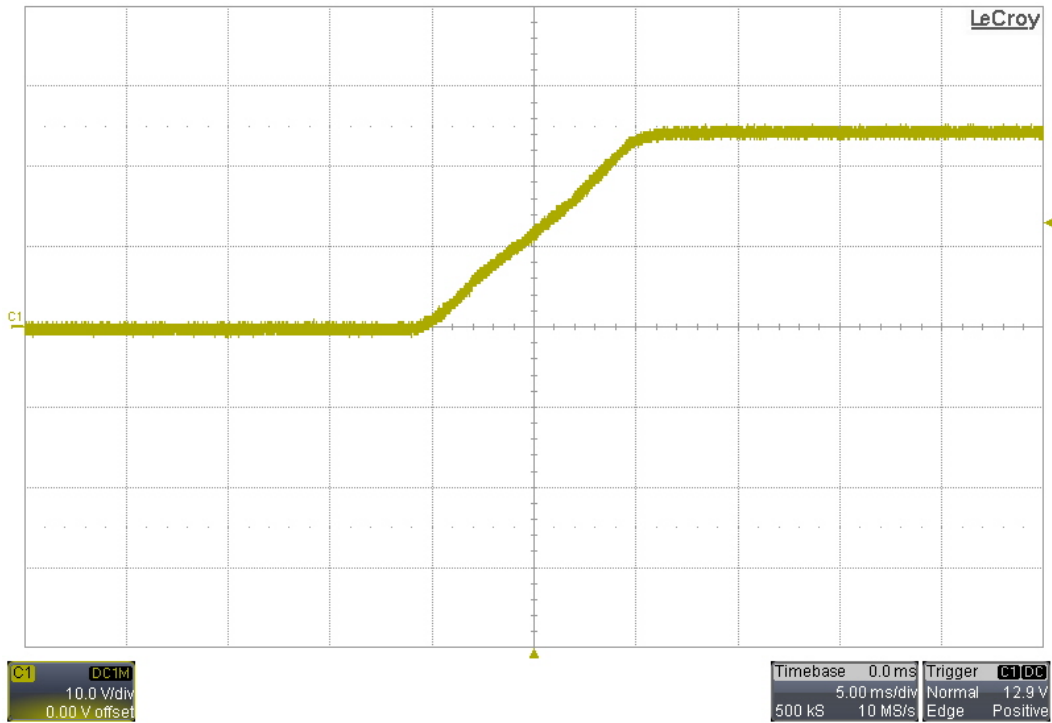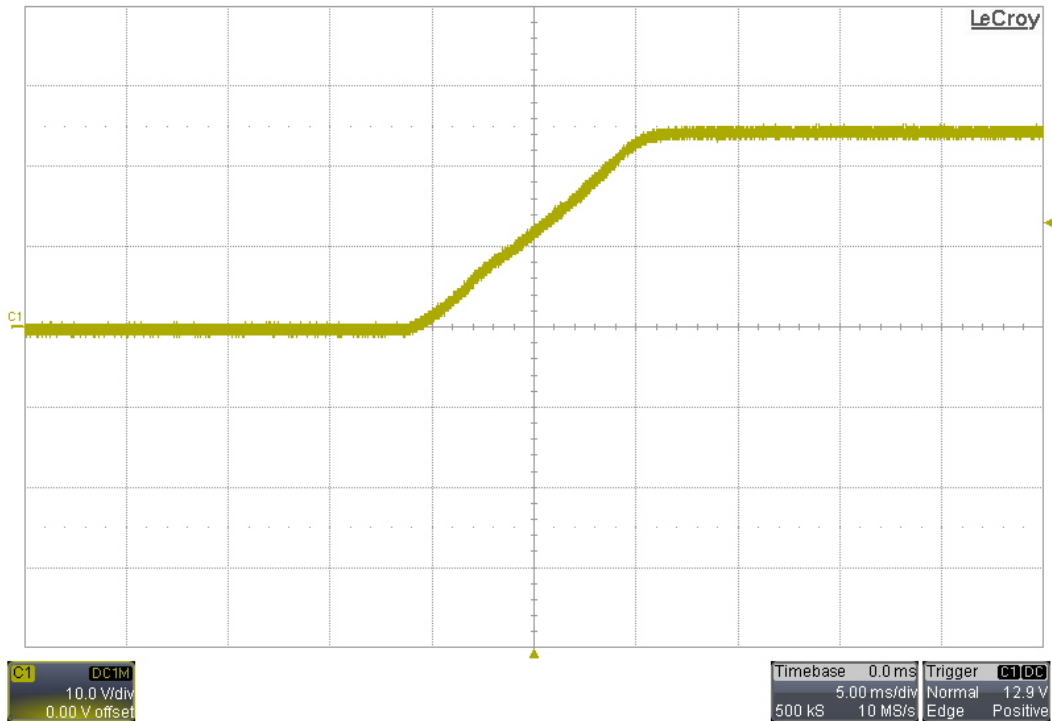
5 Output Ripple Voltage

5.1 18VDC Input, 1A Load
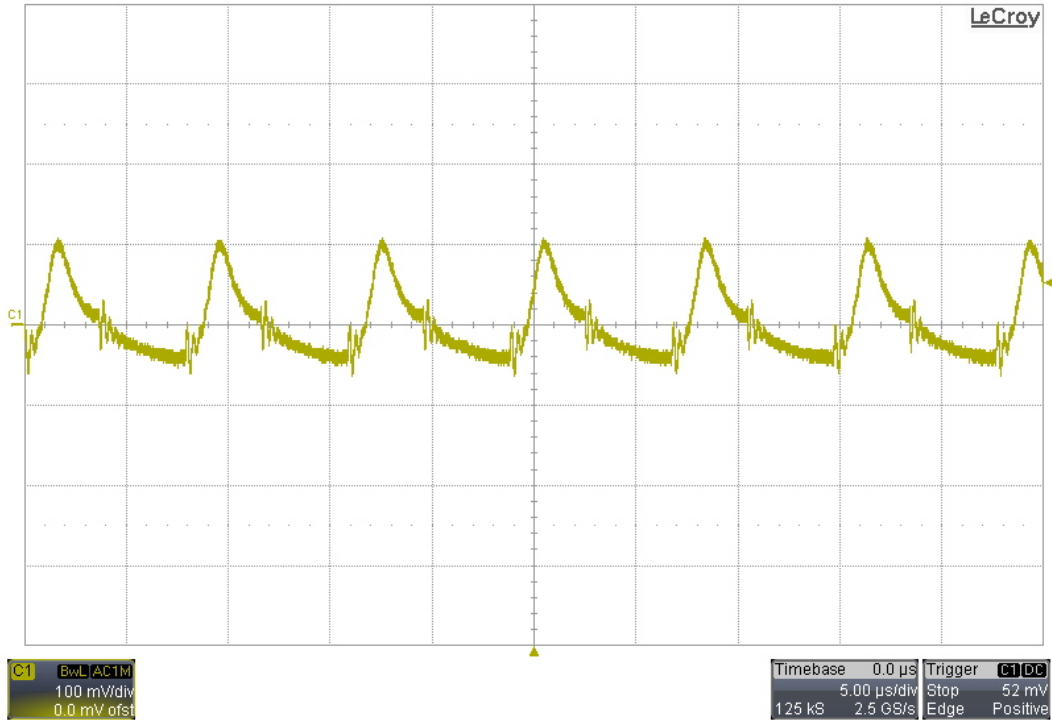
5.2 48VDC Input, 1A Load
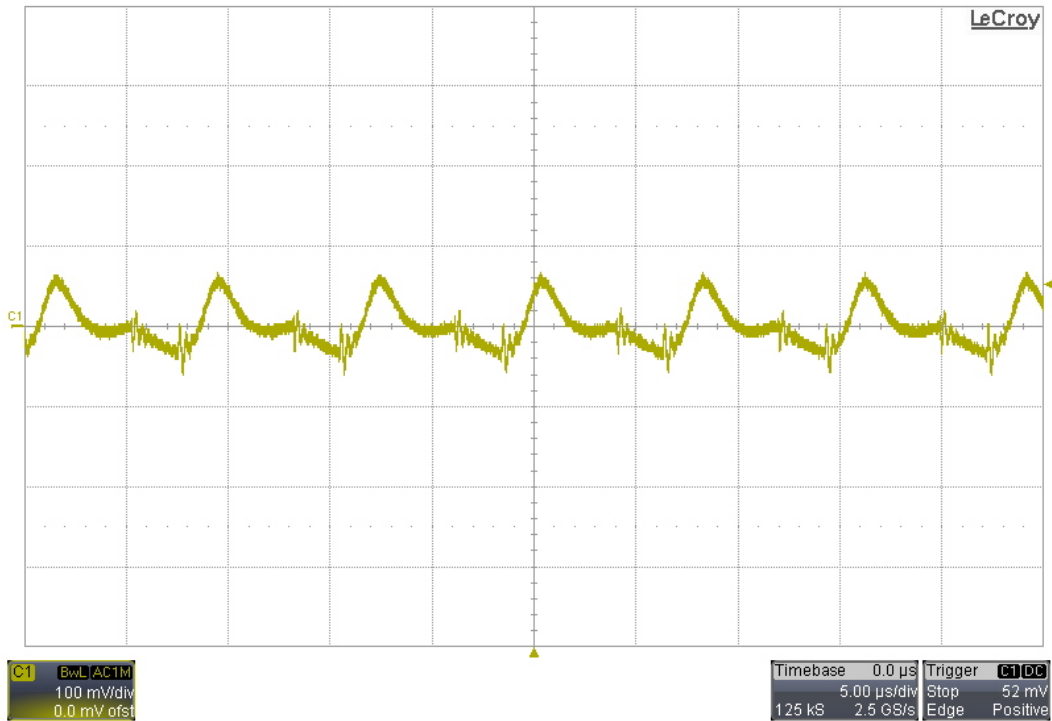
6 Frequency Response
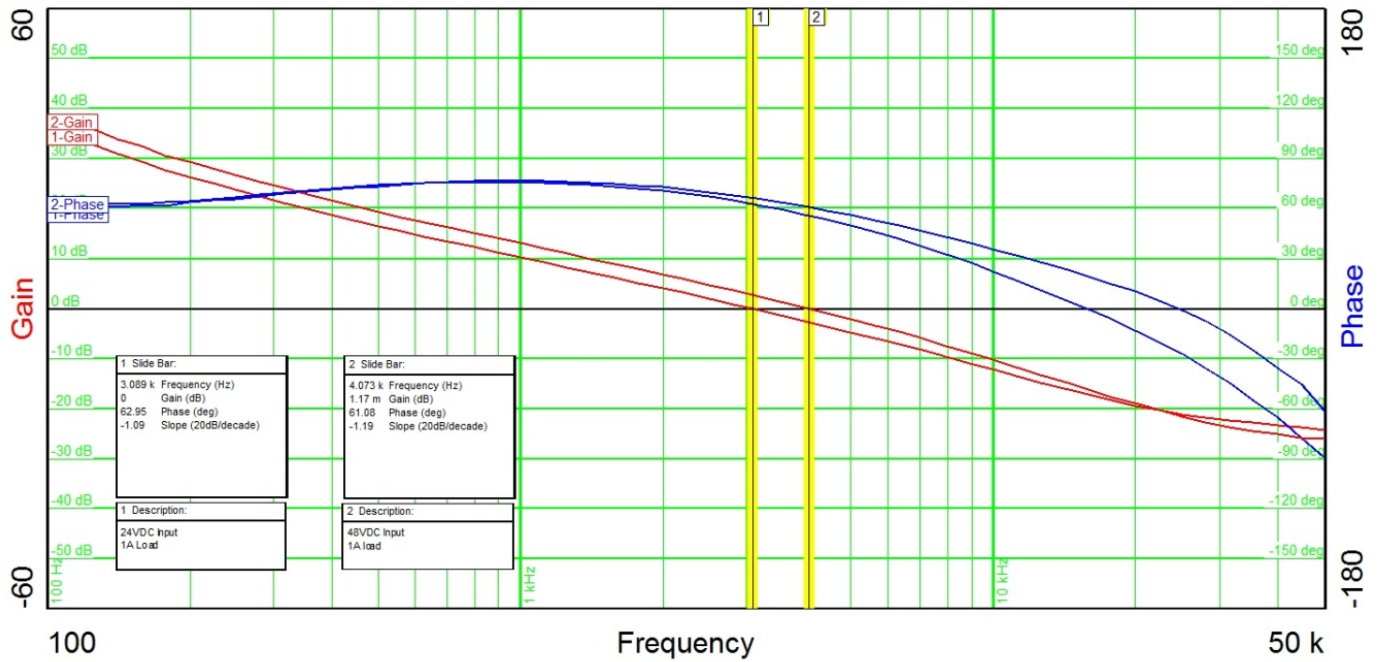
7 Load Transients

7.1 24VDC Input

The below load transient current and output voltage is pulsed from 0A – 1A.
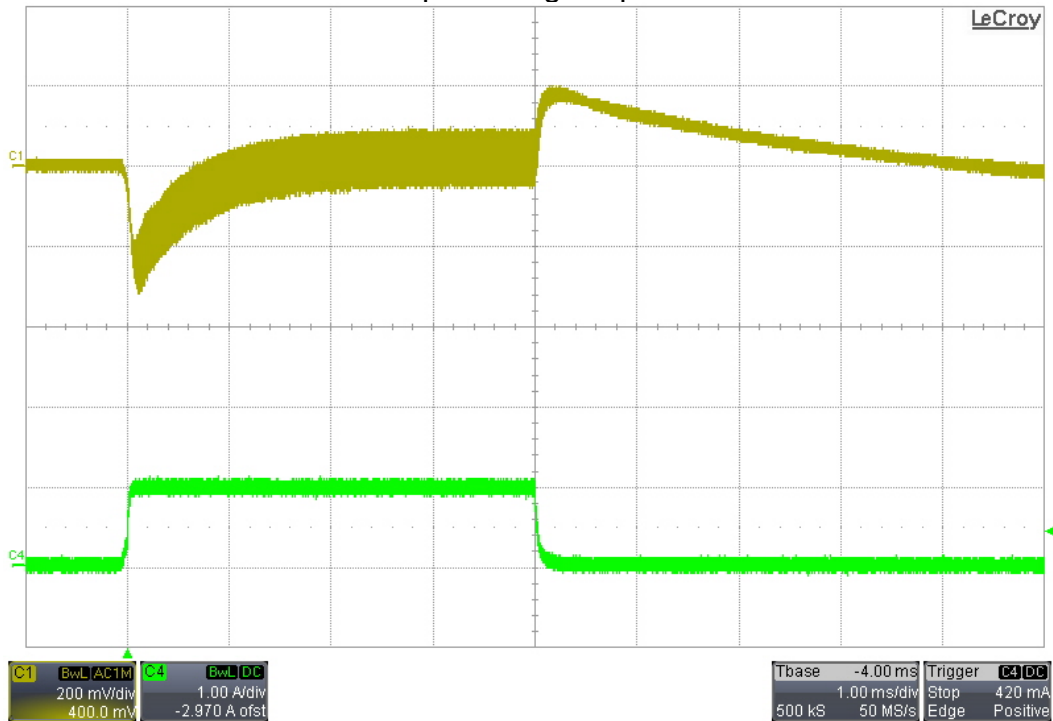
8   Switching Waveforms

8.1   *Primary FET Vds (Q1) – 48VDC Input, 1A Load*
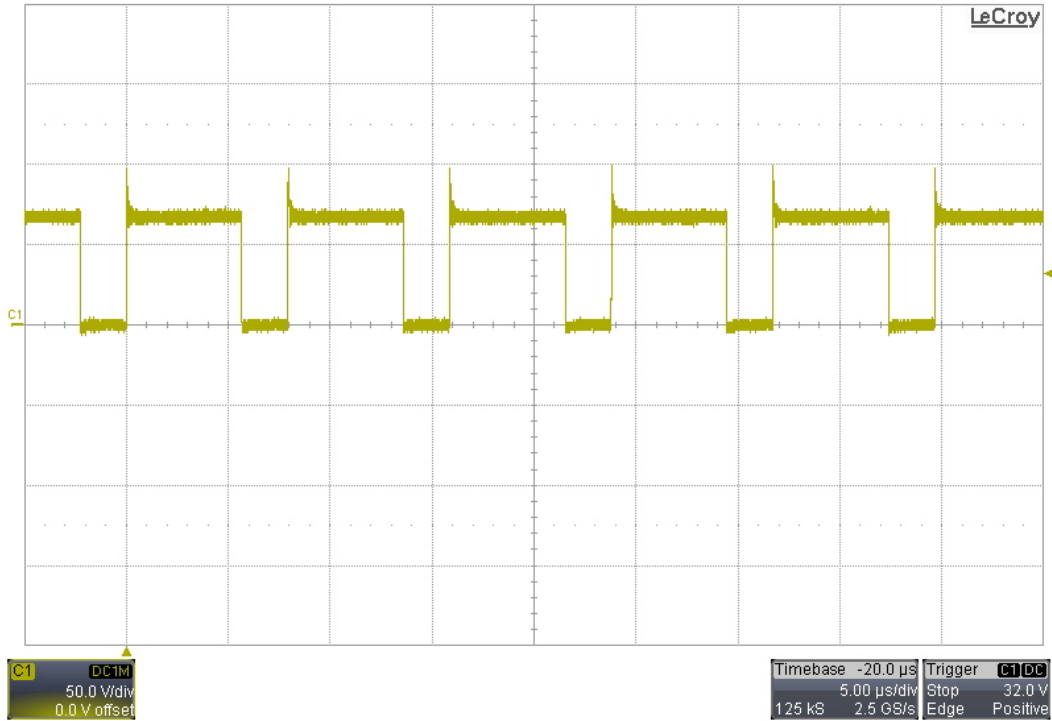
8.2   *Output Diode Anode Voltage (D1) – 48VDC Input, 1A Load*
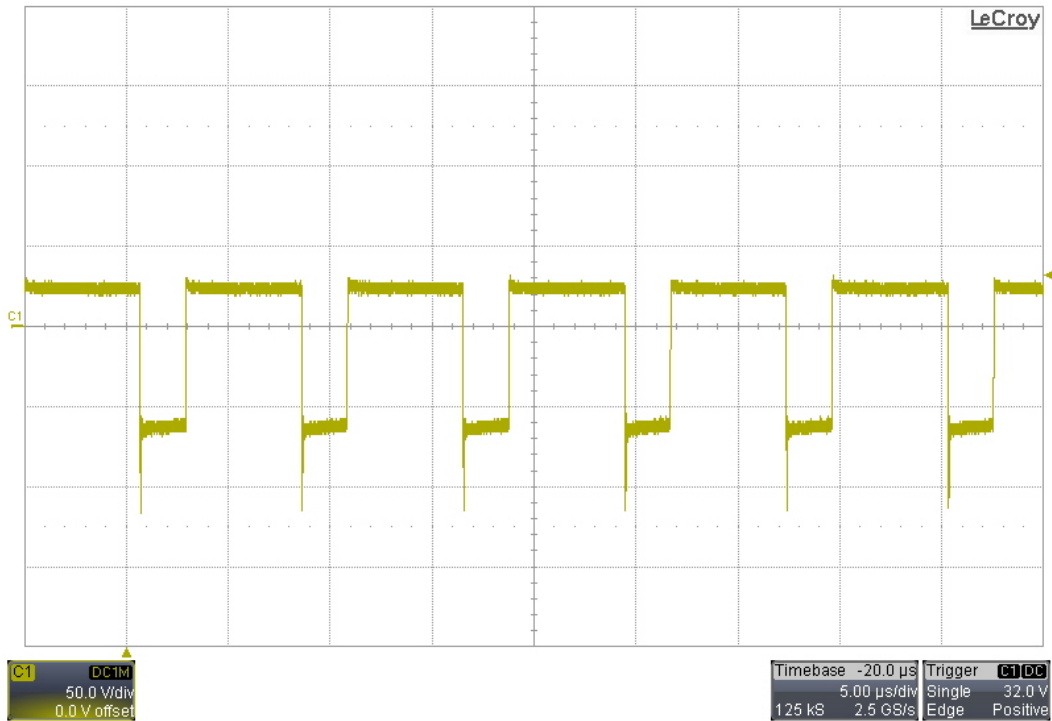
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