

1 Startup

The startup waveform with input voltage=8V is shown in Figure 1. The Load was set to 1A.

Channel C2: **input voltage**
5V/div, 10ms/div

Channel C1: **output voltage**
2V/div, 10ms/div

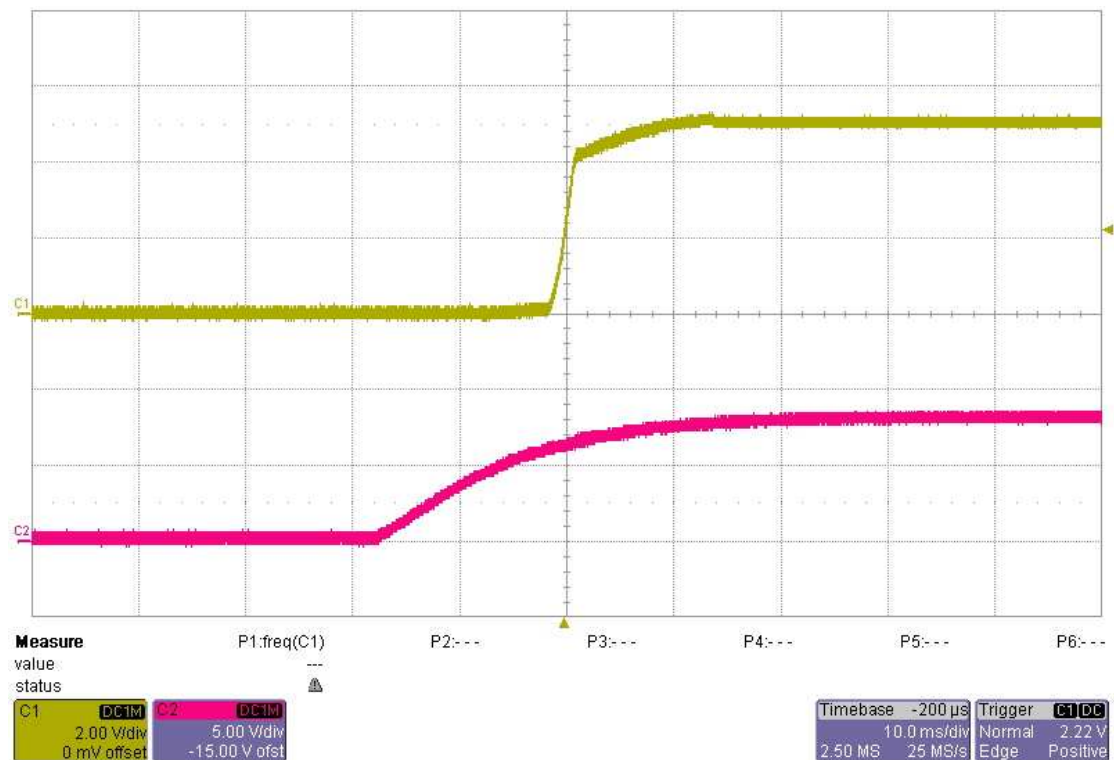


Figure 1

The startup waveform with input voltage=14V is shown in Figure 2. The load was set to 1A.

Channel C2: **input voltage**
5V/div, 10ms/div

Channel C1: **output voltage**
2V/div, 10ms/div

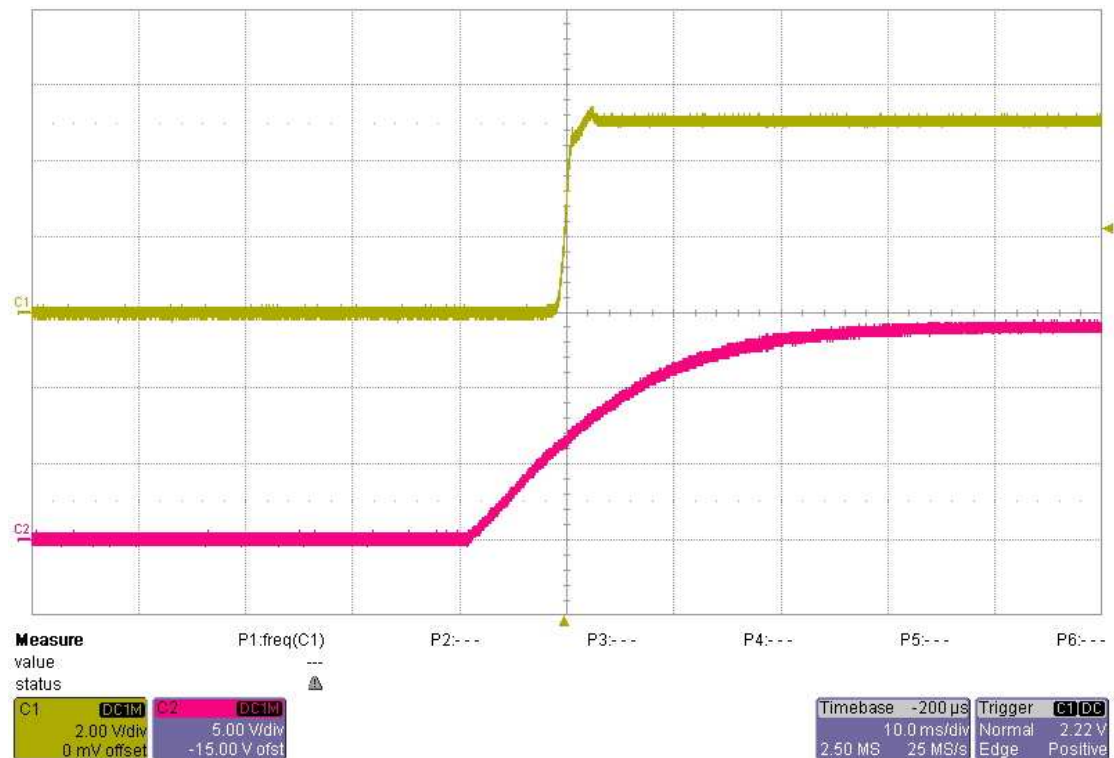


Figure 2

The startup waveform with input voltage=40V is shown in Figure 3. The load was set to 1A.

Channel C2: **input voltage**
10V/div, 10ms/div

Channel C1: **output voltage**
2V/div, 10ms/div



Figure 3

2 Shutdown

The shutdown waveforms are shown in Figure 4 to Figure 6.

The input voltage is set at 8V with a 1A load on the output.

Channel C2: **input voltage**
5V/div, 2ms/div

Channel C1: **output voltage**
2V/div, 2ms/div

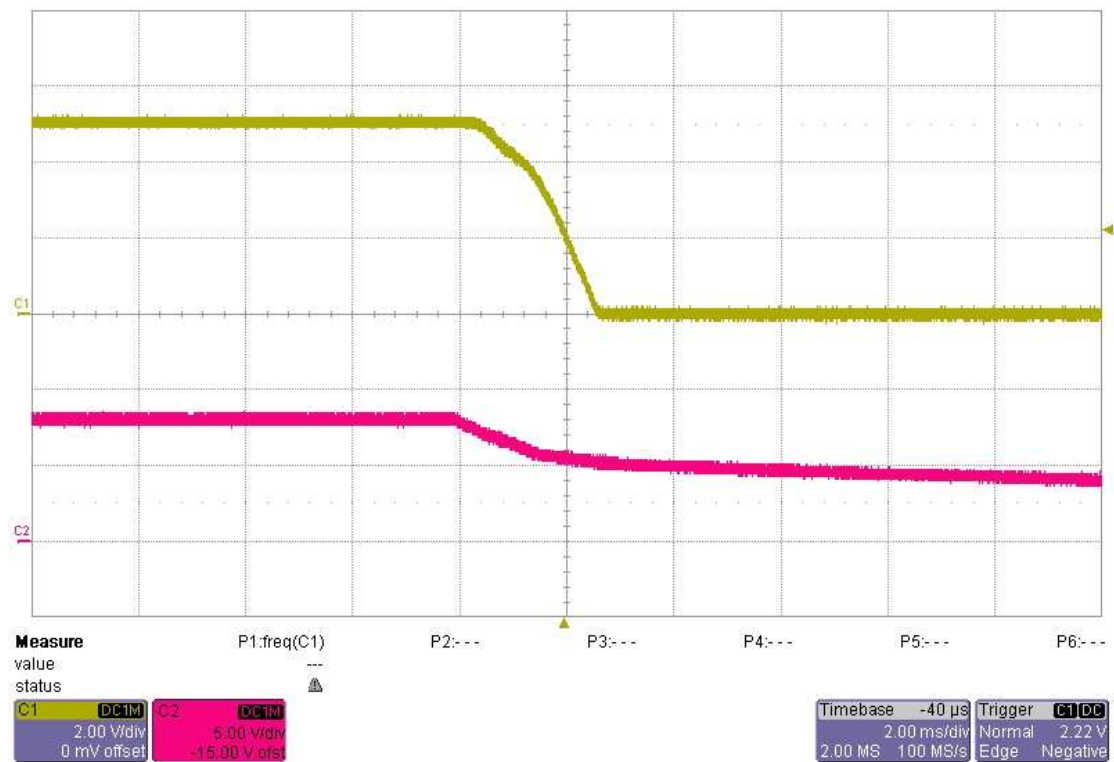


Figure 4

The input voltage is set at 14V with a 1A load on the output.

Channel C2: **input voltage**
5V/div, 2ms/div

Channel C1: **output voltage**
2V/div, 2ms/div

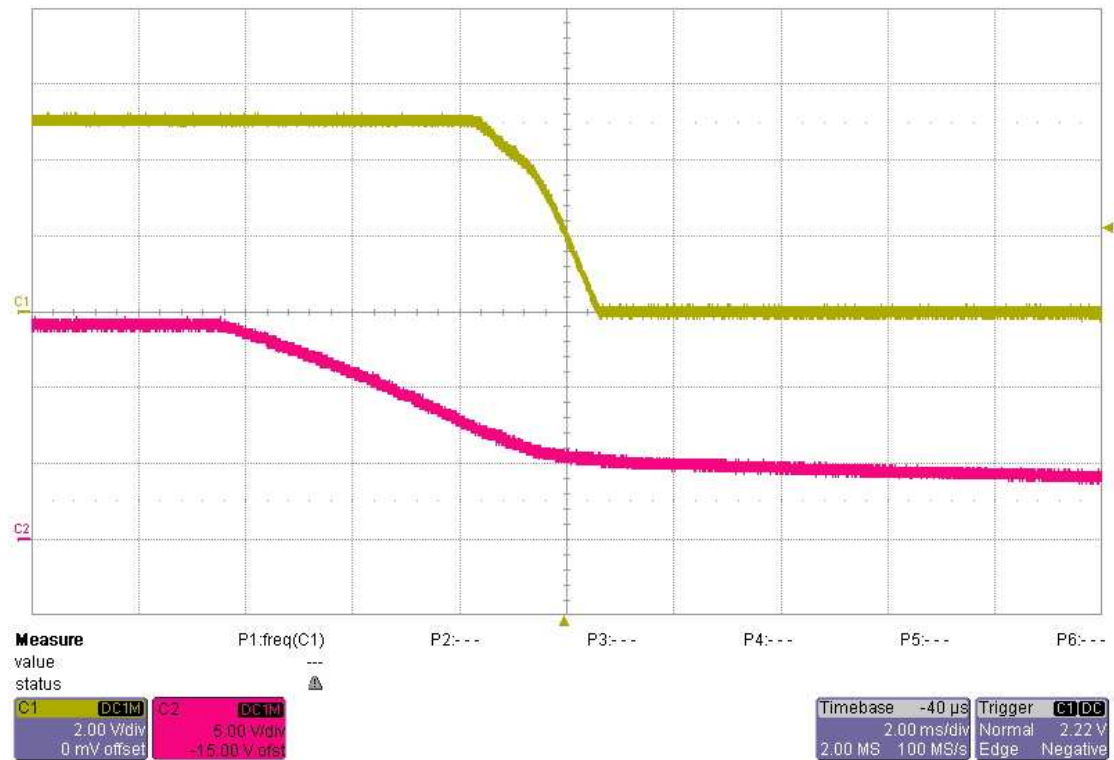


Figure 5

The input voltage is set at 40V with a 1A load on the output.

Channel C2: **input voltage**
10V/div, 1ms/div

Channel C1: **output voltage**
2V/div, 1ms/div

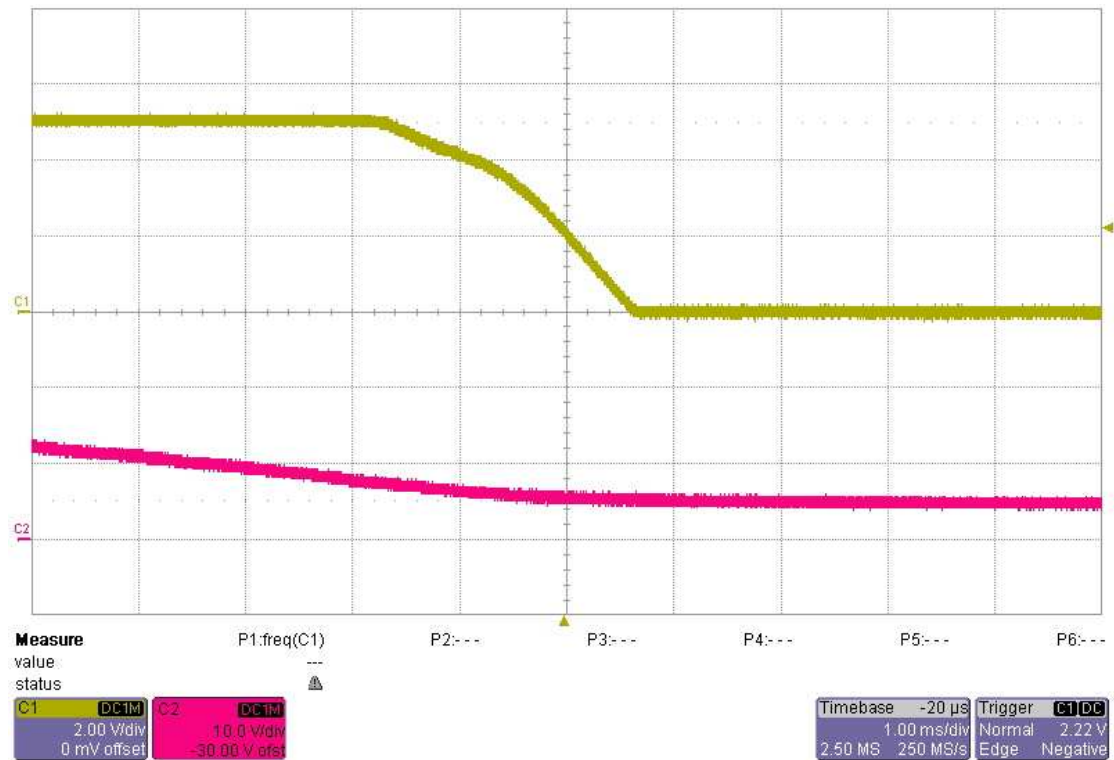


Figure 6

3 Efficiency

The efficiency with different input voltages is shown in Figure 7.

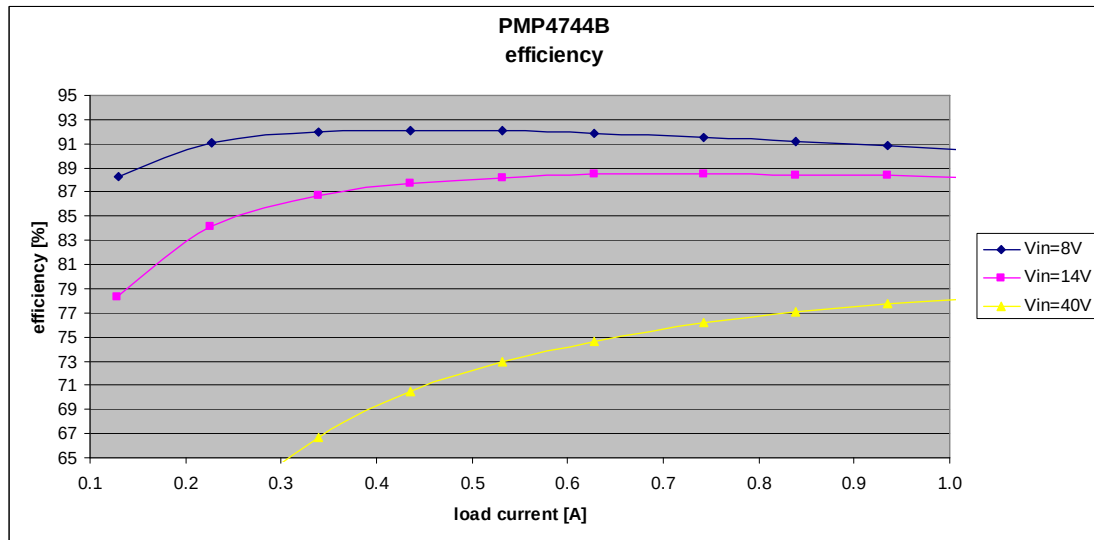


Figure 7

4 Load regulation

The load regulation with different input voltages is shown in Figure 8.

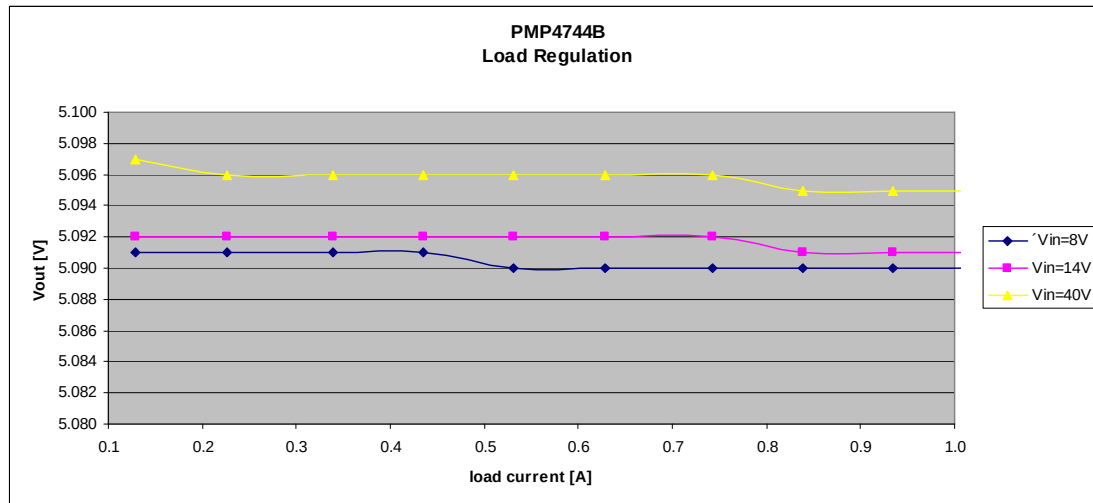


Figure 8

5 Output ripple voltage

The output ripple voltages at 1A load and 8V, 14V and 40V input voltages are shown in Figure 9 to Figure 11.

Channel 1: **output voltage**, at 8V at the input. AC coupled, full bandwidth

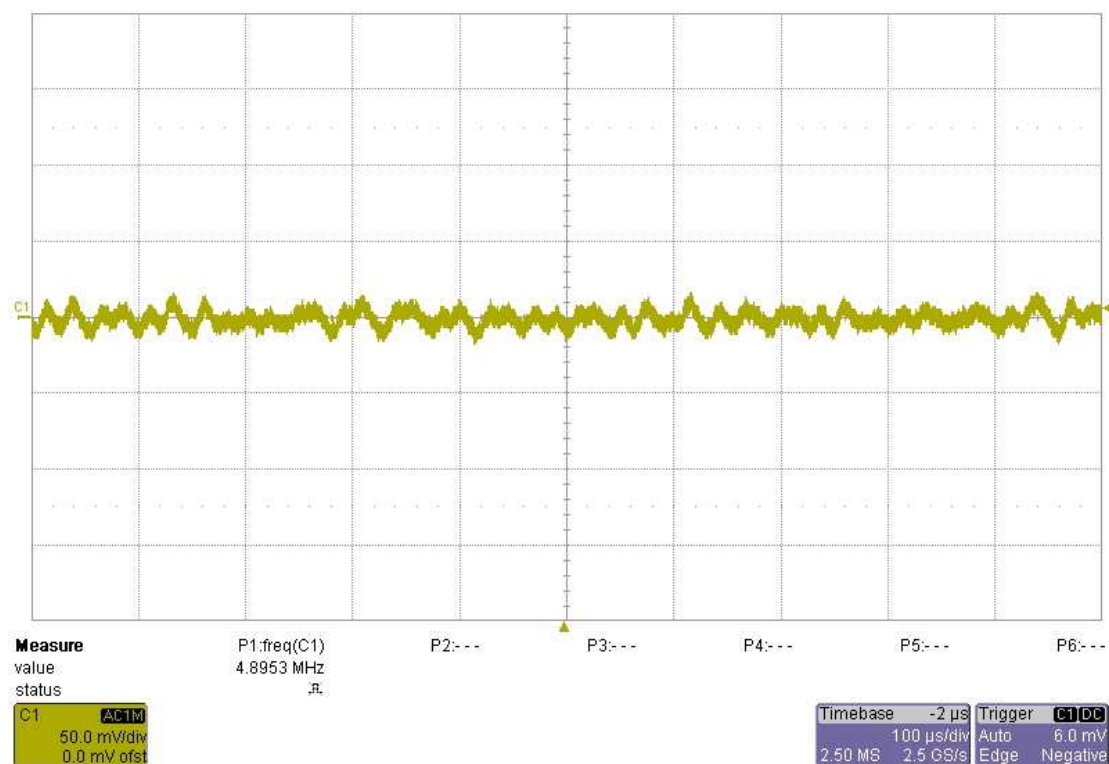


Figure 9

Channel 1: **output voltage**, at 14V at the input. AC coupled, full bandwidth

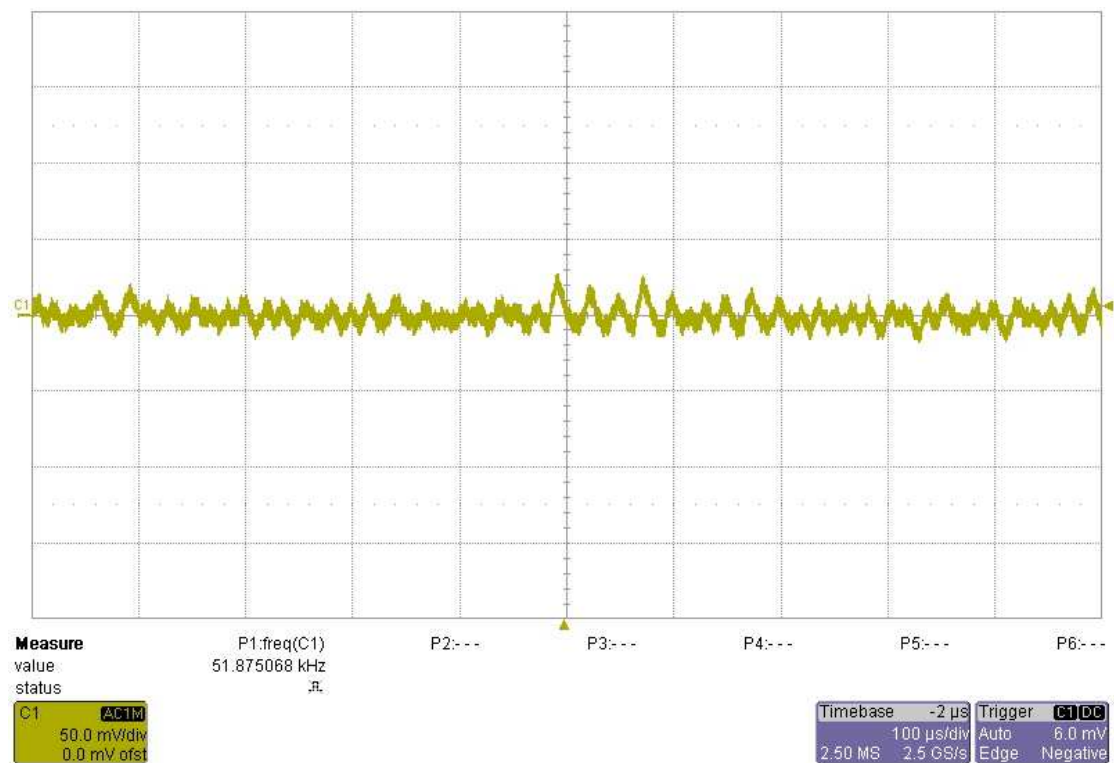


Figure 10

Channel 1: **output voltage**, at 40V at the input. AC coupled, full bandwidth

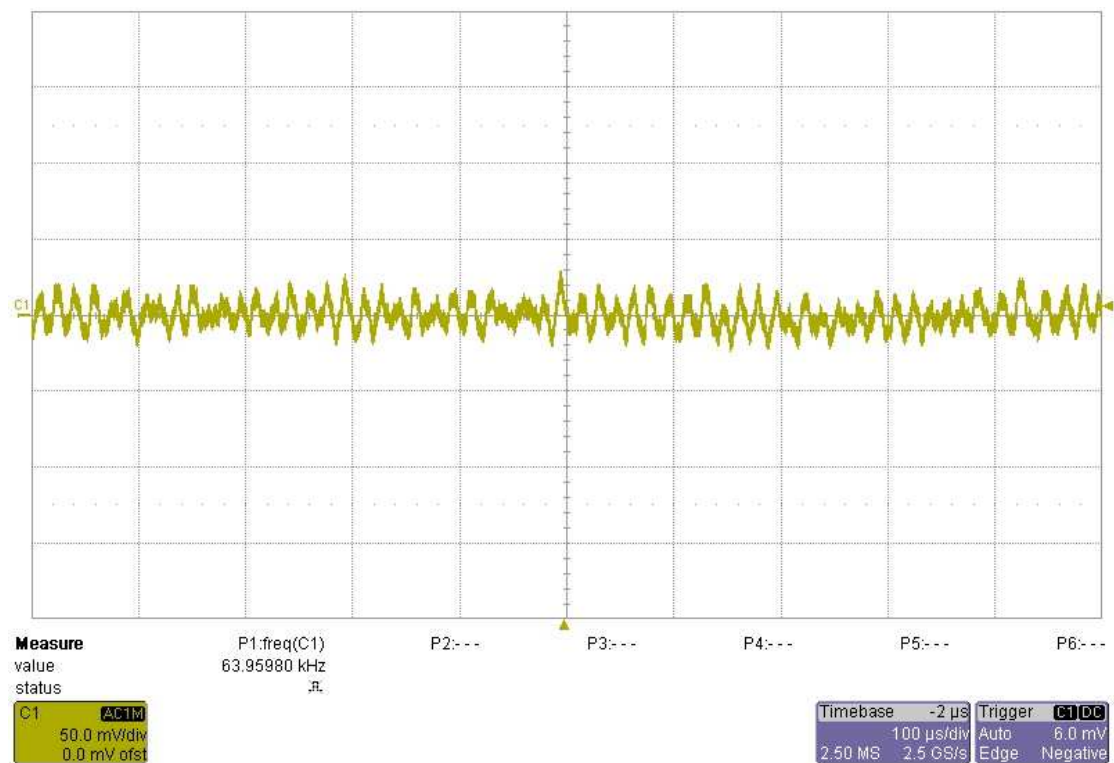


Figure 11

6 Load transients

The response to a load step and a load dump at an input voltage of 8V is shown in Figure 12.

Channel C2: **load current**, load step 0.5A to 1A

Channel C1: **output voltage**, AC coupled

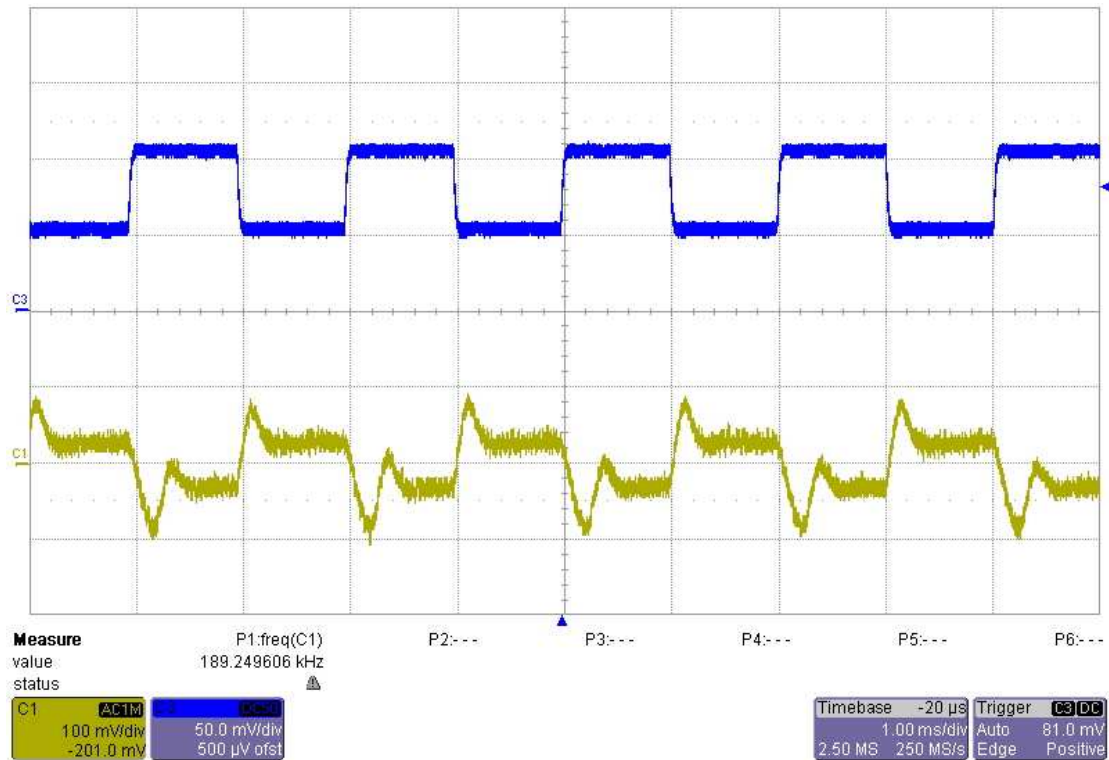


Figure 12

The response to a load step and a load dump at an input voltage of 14V is shown in Figure 13.

Channel C2: **load current**, load step 0.5A to 1A

Channel C1: **output voltage**, AC coupled

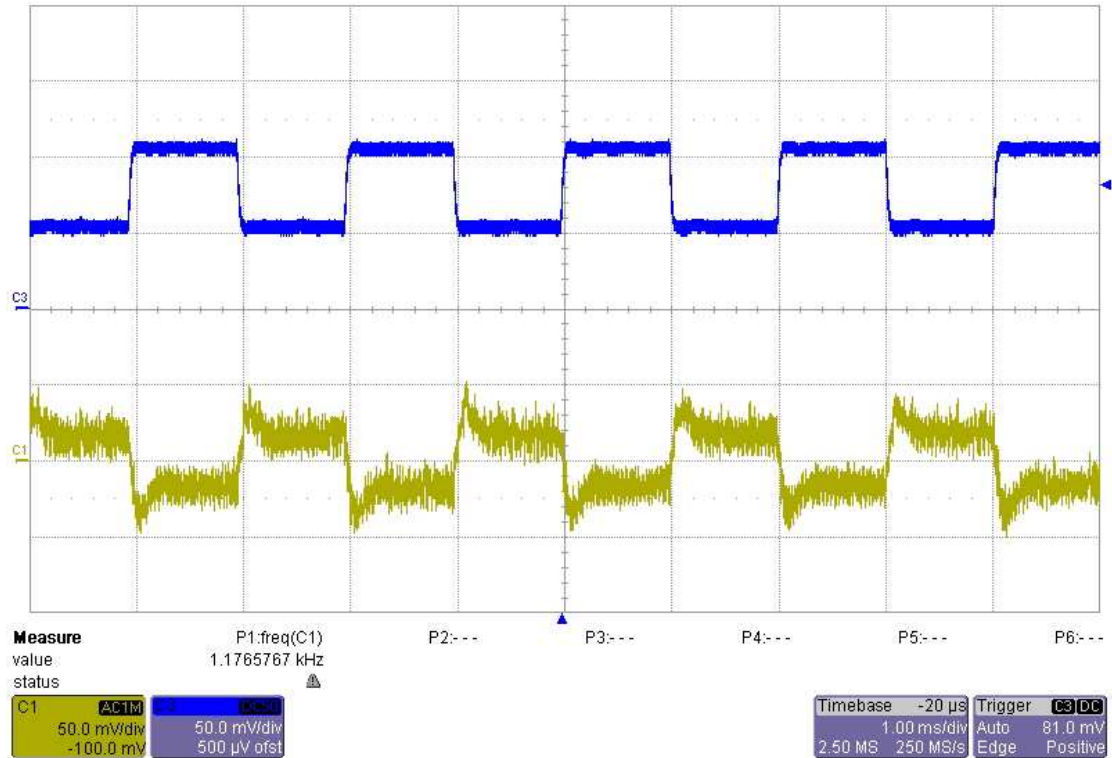


Figure 13

The response to a load step and a load dump at an input voltage of 40V is shown in Figure 14.

Channel C2: **load current**, load step 0.5A to 1A

Channel C1: **output voltage**, AC coupled

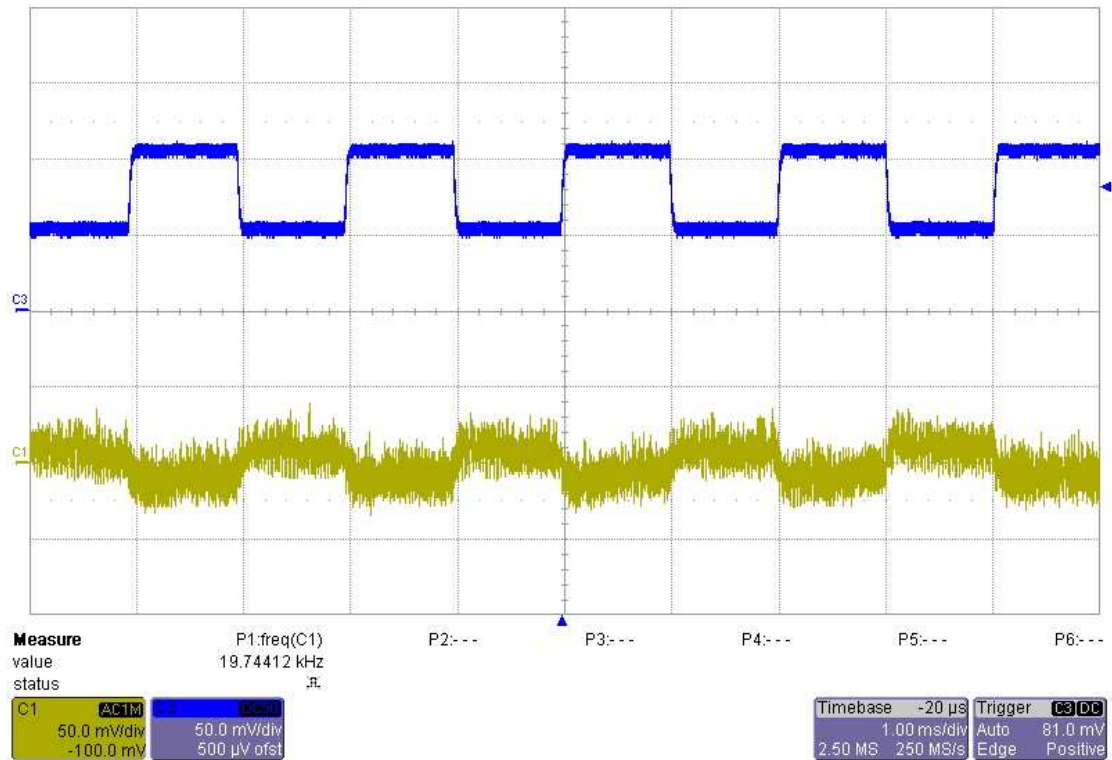
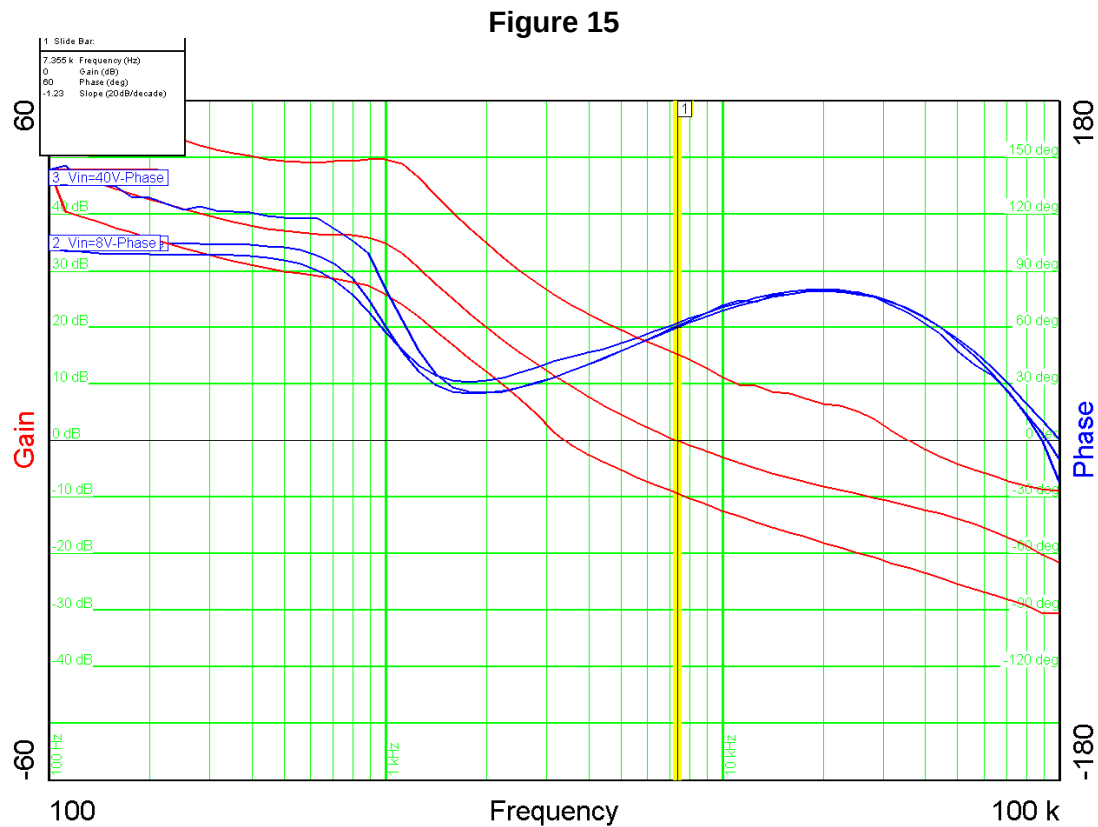


Figure 14

7 Frequency response

Figure 15 shows the loop response with 8V, 14V and 40V at the input and a 1A load.



Input voltage = 14V:

60° phase margin @ crossover frequency 7.35kHz

8 Miscellaneous waveforms

The switch node voltage at 1A load is shown in Figure 16 to Figure 18.

Channel 1: switchnode @ 8 V input

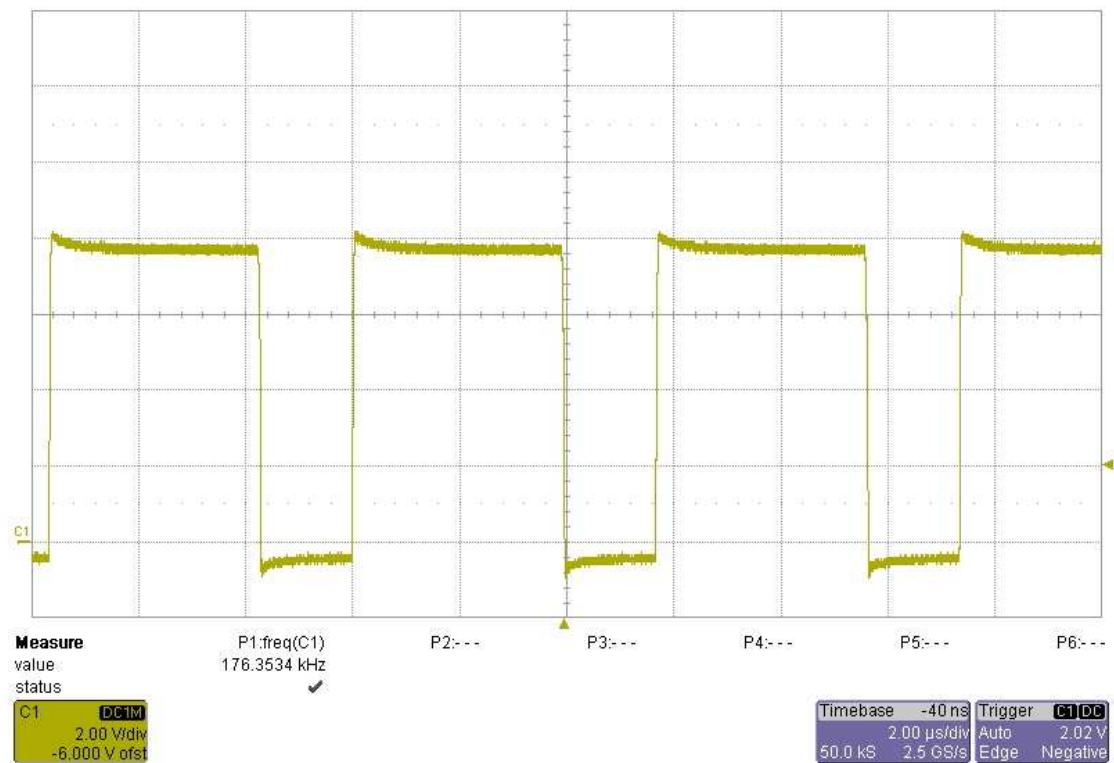


Figure 16

Channel 1: switchnode @ 14 V input

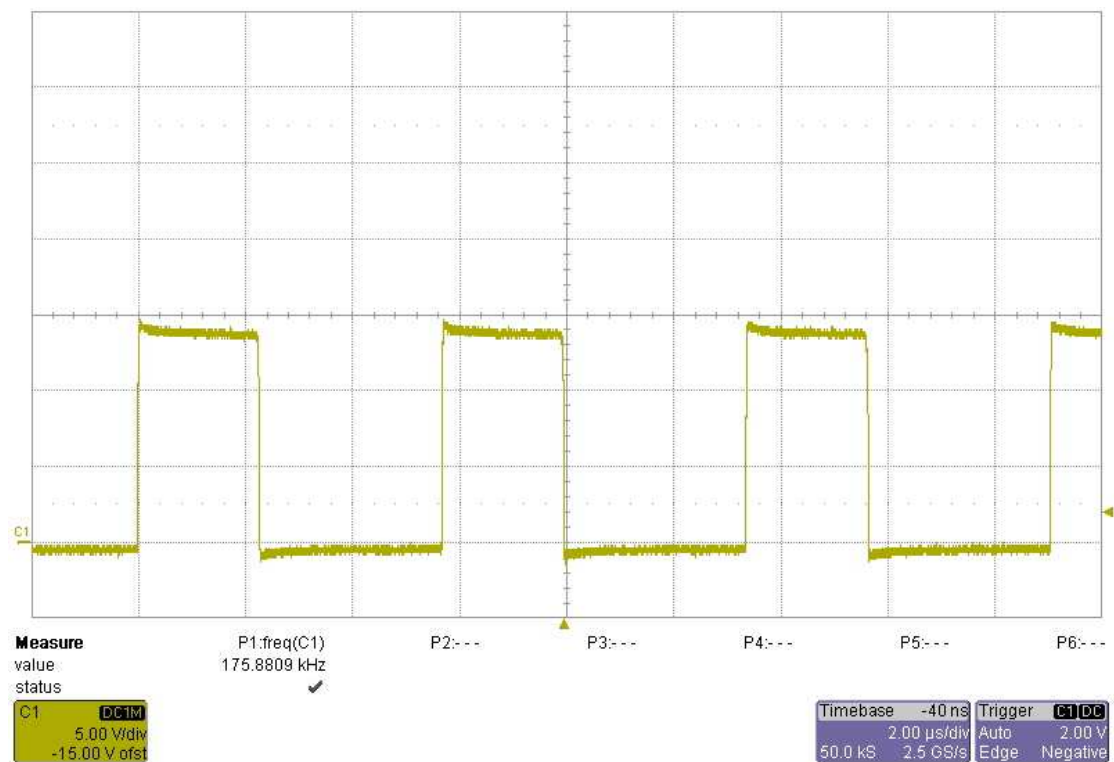


Figure 17

Channel 1: switchnode @ 40 V input

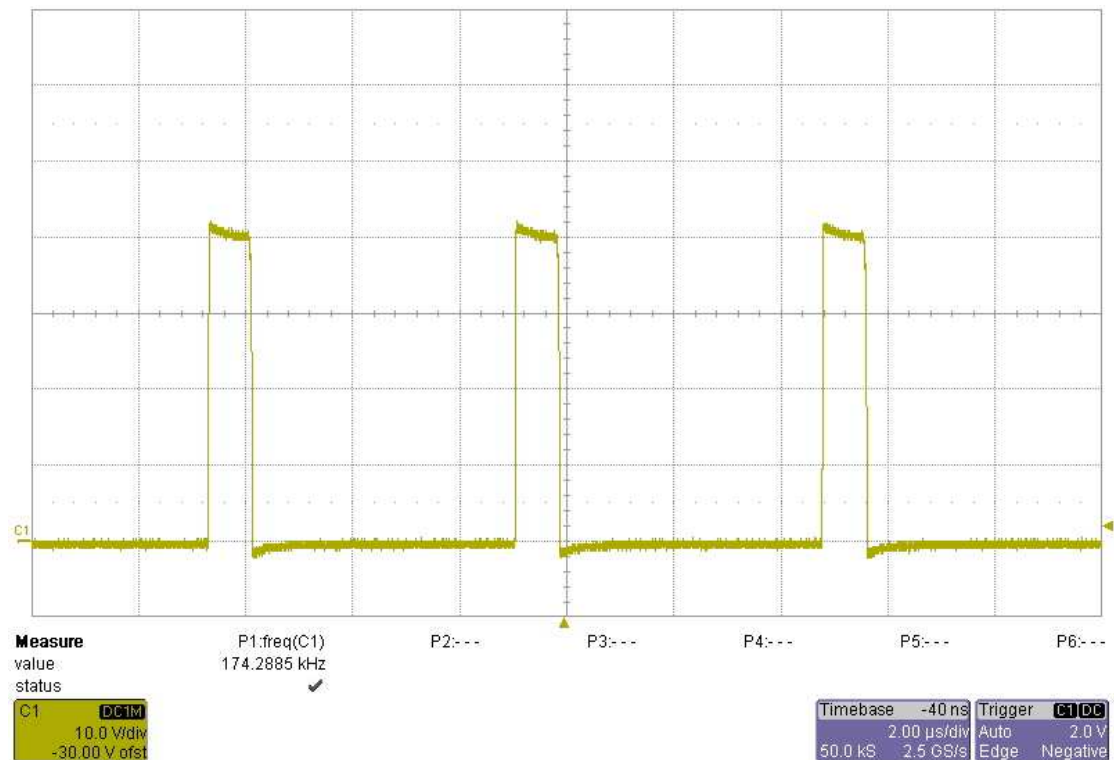
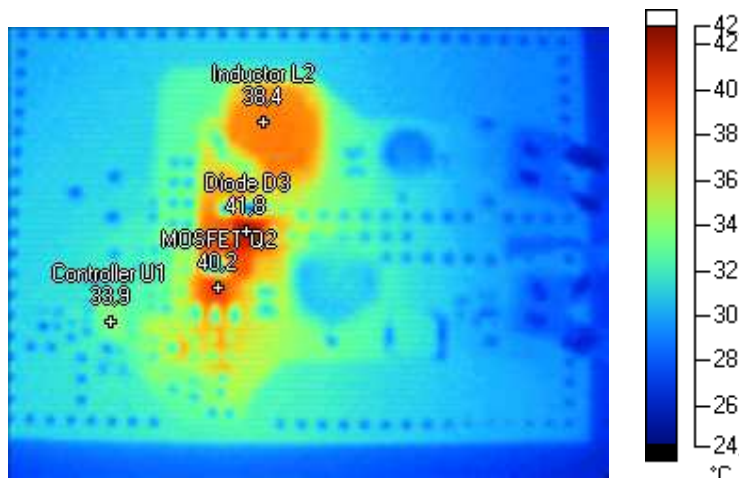


Figure 18

9 Thermal Picture

Load current = 1A

Input voltage = 14V



Controller U1	33,9 °C
MOSFET Q2	40,2 °C
Diode D3	41,8 °C
Inductor L2	38,4 °C

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