

PMP4741_2_RevB Test Results

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1 Startup

The startup waveform is shown in the Figure 1. The input voltage was set at 14V, with 4A load at the output.

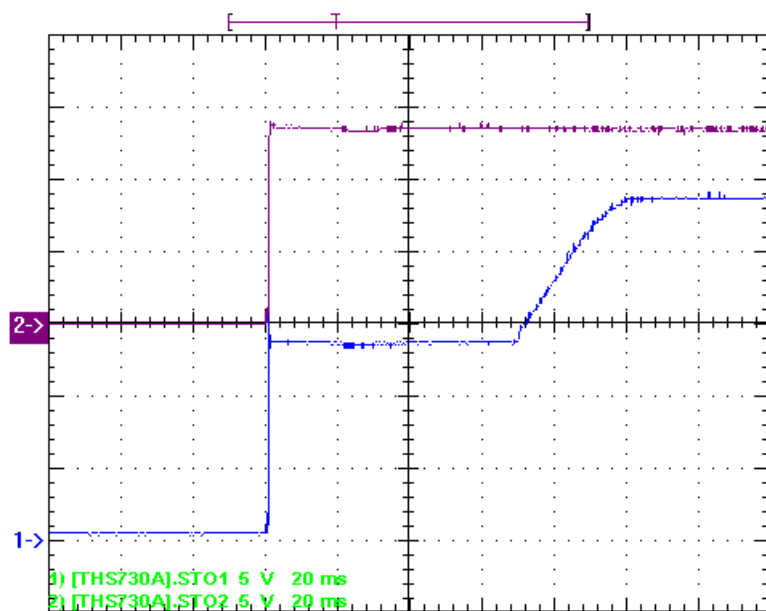


Figure 1

Ch2=> input
voltage
5V/div
CH1=> output
voltage
5V/div
20ms/div
20MHz bandwidth

The startup waveform with 14V input voltage shown in the Figure 2; with no load at the output.

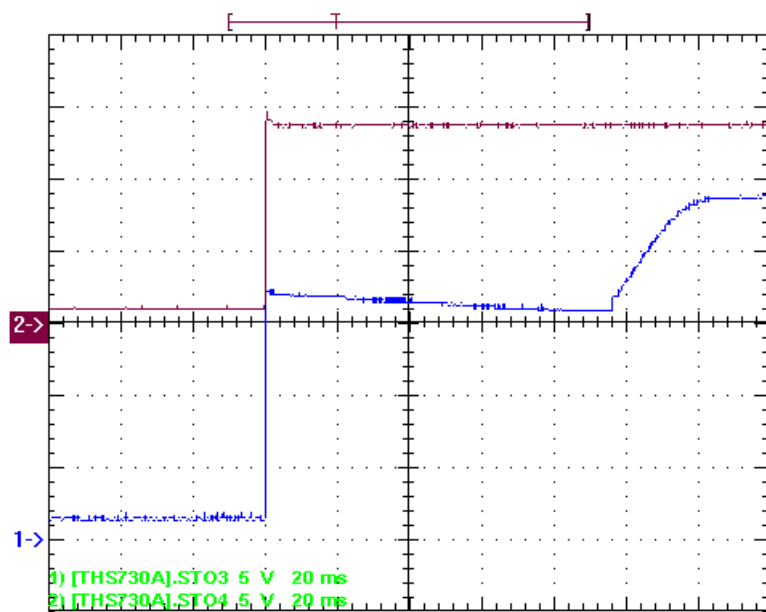
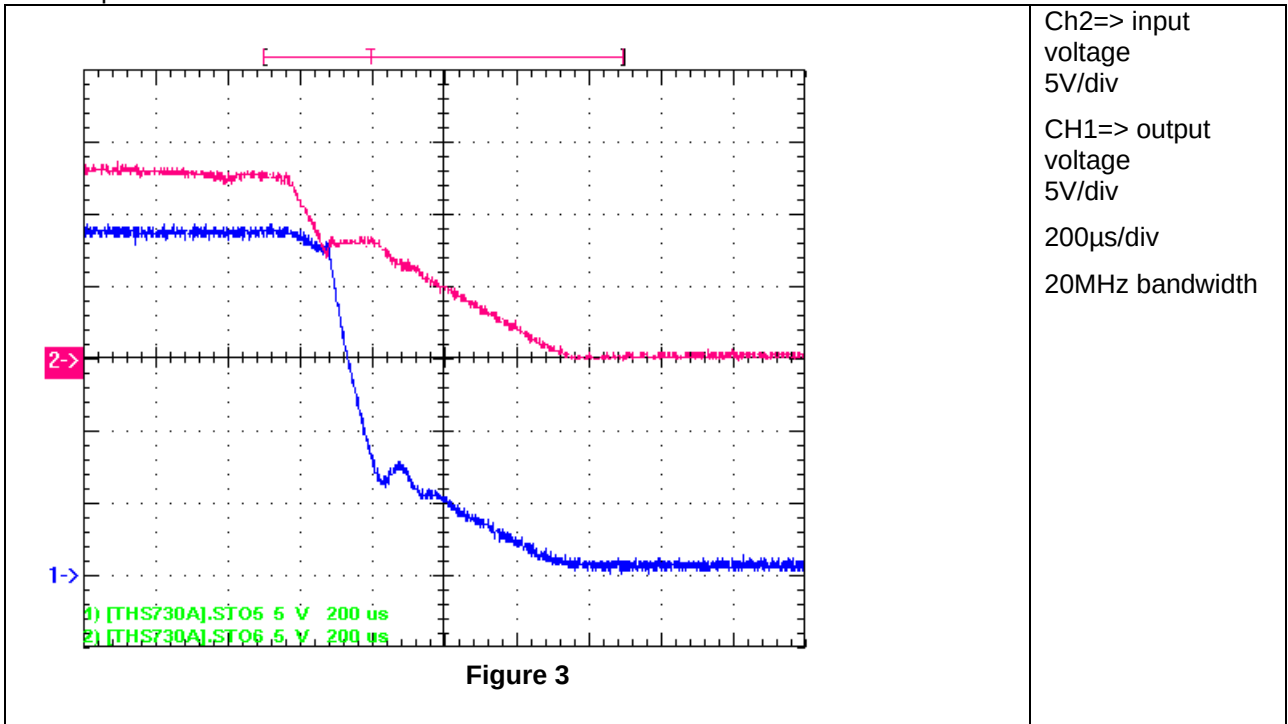


Figure 2

Ch2=> input
voltage
5V/div
CH1=> output
voltage
5V/div
20ms/div
20MHz bandwidth

2 Shutdown

The shutdown waveform is shown in the Figure 3 at 14V input voltage. With 4A load applied at the output.



3 Efficiency

The efficiency is shown in the Figure 4 below. The input voltage was set to 14V. In this figure two different inductor types (L1) with the same inductivity (10 μ H) are compared. All other measurements in this report were done with the IHLP inductor.

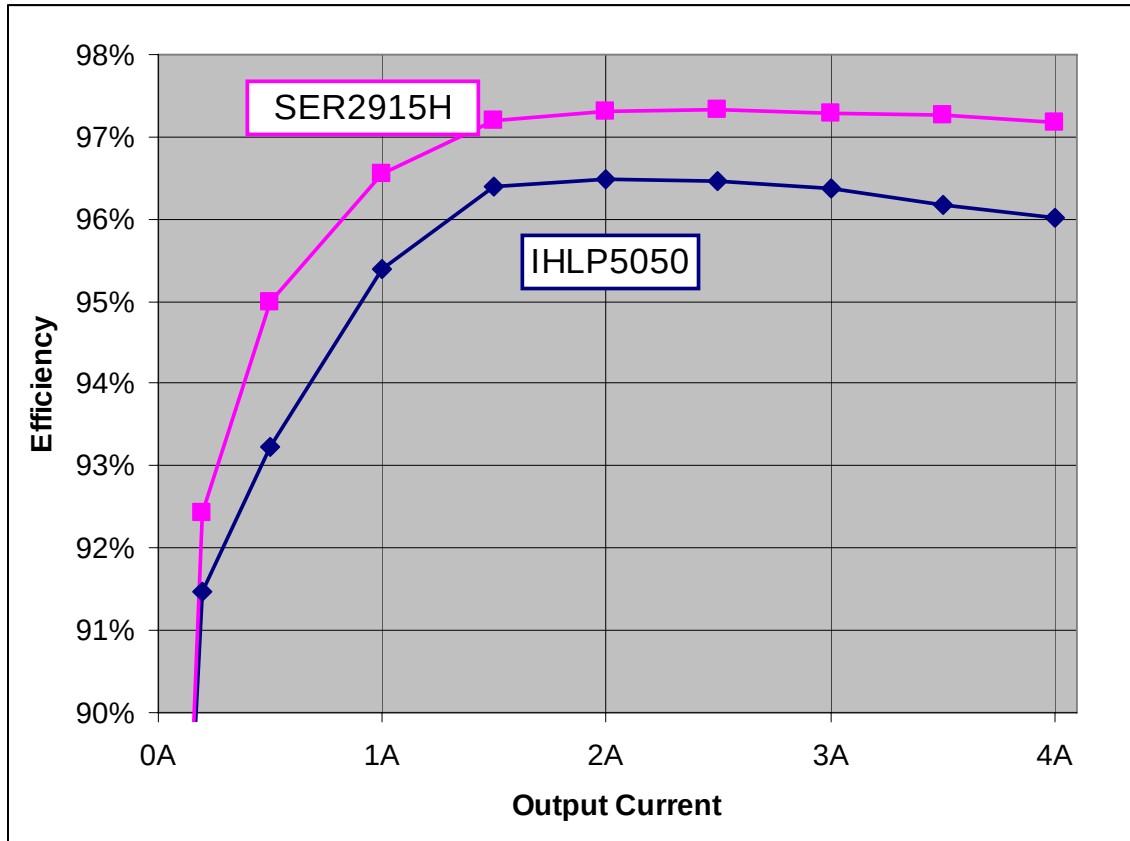


Figure 4

4 Load regulation

The load regulation for 14V input voltage is shown in Figure 5.

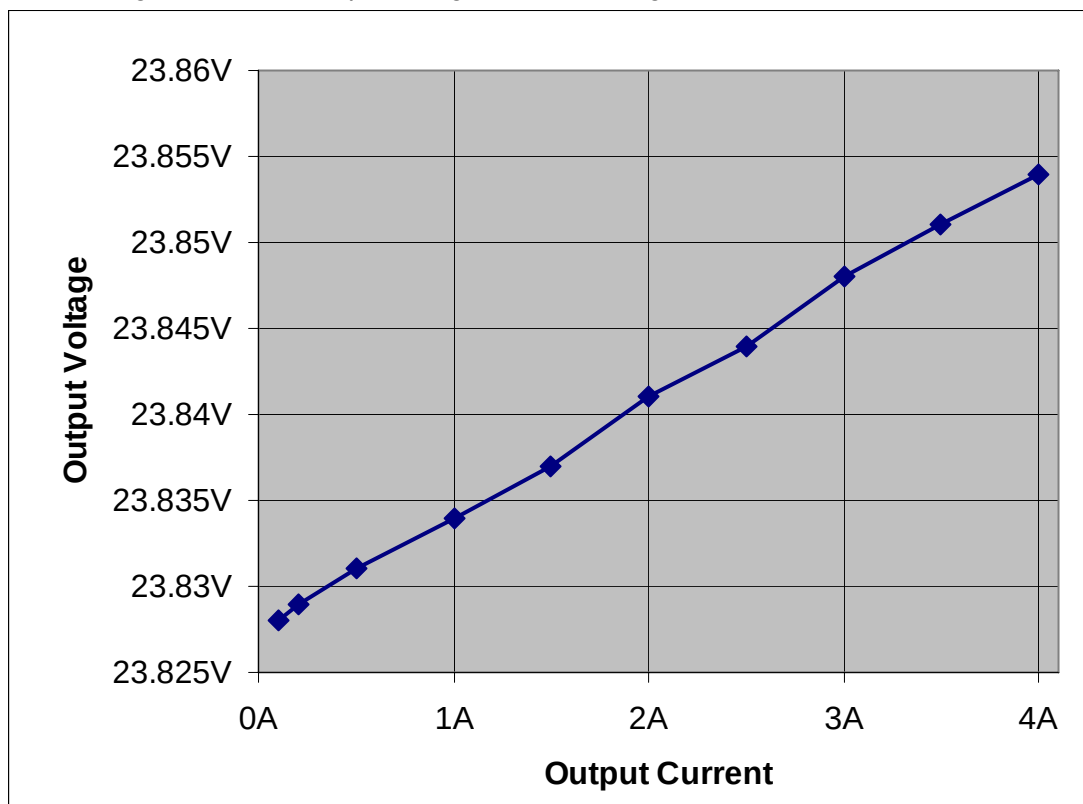


Figure 5

5 Control Loop Frequency Response

Figure 6 shows the loop response. 4-load applied. The input voltages was set to 14V.

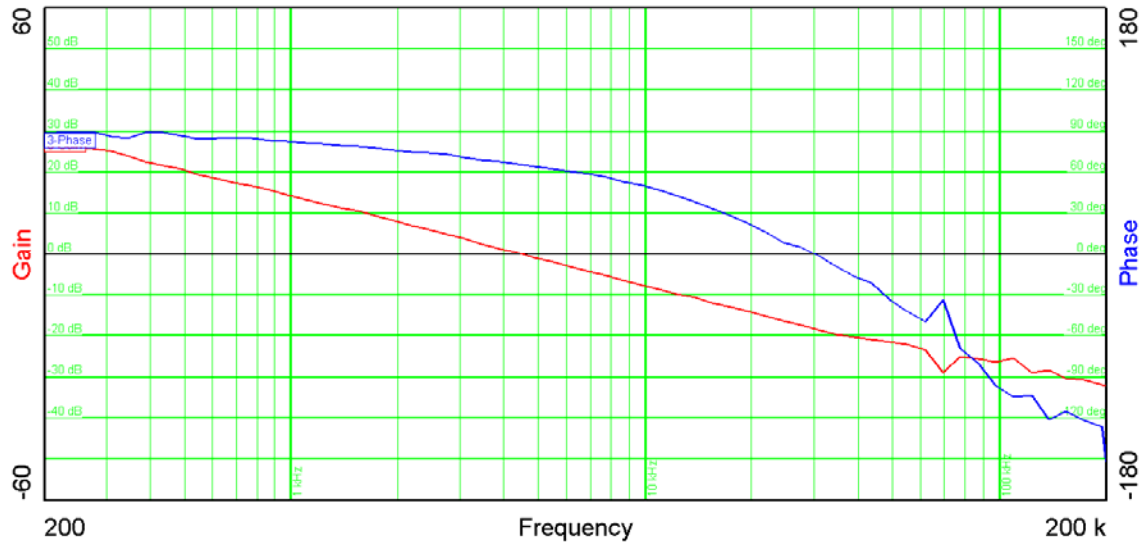


Figure 6

Table 1 summarizes the results from Figure 6

Bandwidth (kHz)	4.48
Phase margin	65.6°
slope (20dB/decade)	-1.37
gain margin (dB)	-18.25
slope (20dB/decade)	-1.14
freq (kHz)	30

Table 1

6 Switch Node Waveform

With 4A load results in the waveforms shown in Figure 7 and Figure 8. 14V were applied to the input.

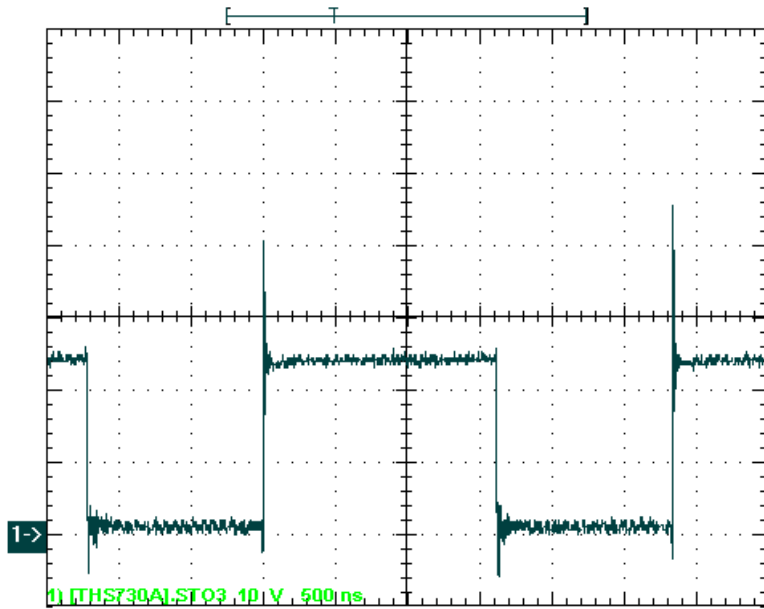


Figure 7

Ch3 =>
switchnode
10V/div
500ns/div
full
bandwidth

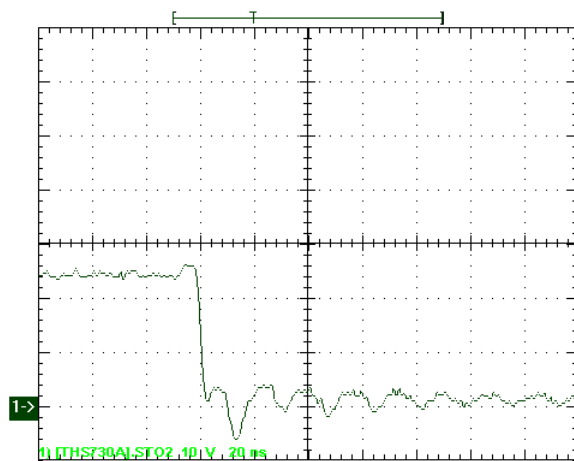
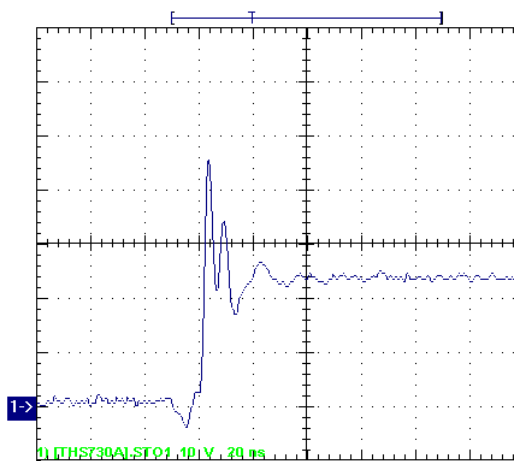


Figure 8

Ch1 =>
switchnode
20V/div
20ns/div
full
bandwidth

7 Ripple Voltages

The output ripple voltage at 4A load is displayed in Figure 9. The input voltage was set to 14V.

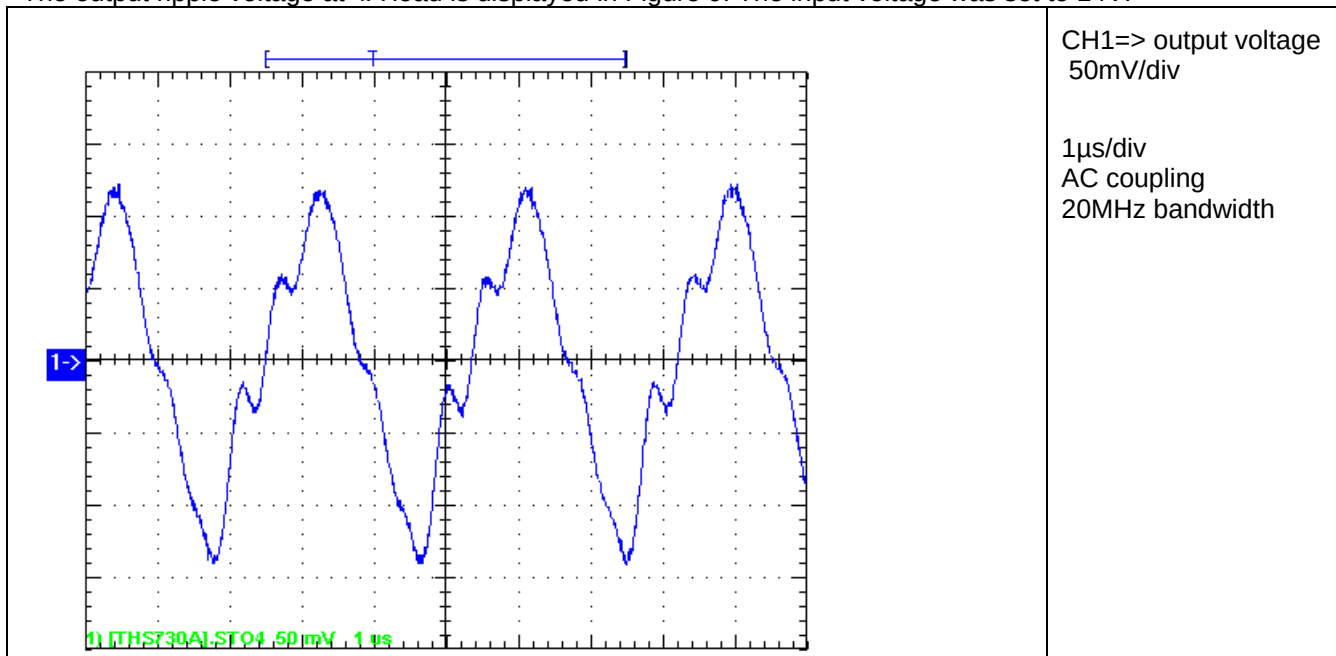


Figure 9

The input ripple voltage is displayed in Figure 10. The input voltage was set to 14V.

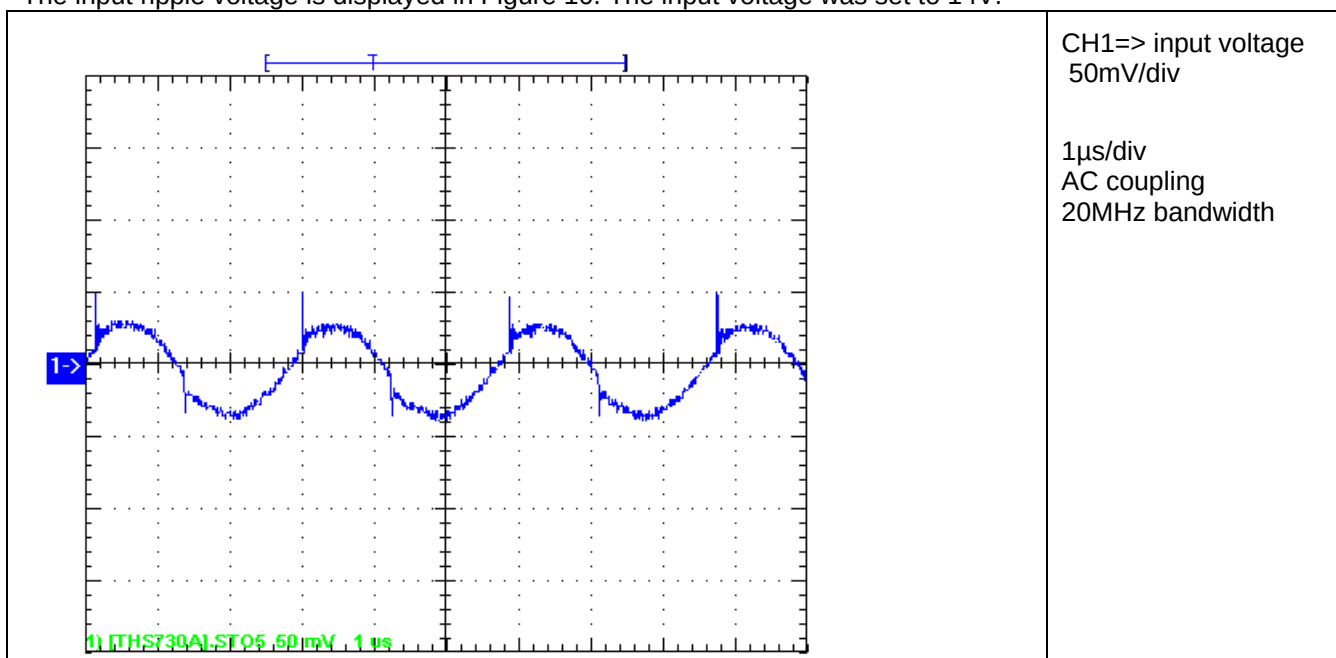
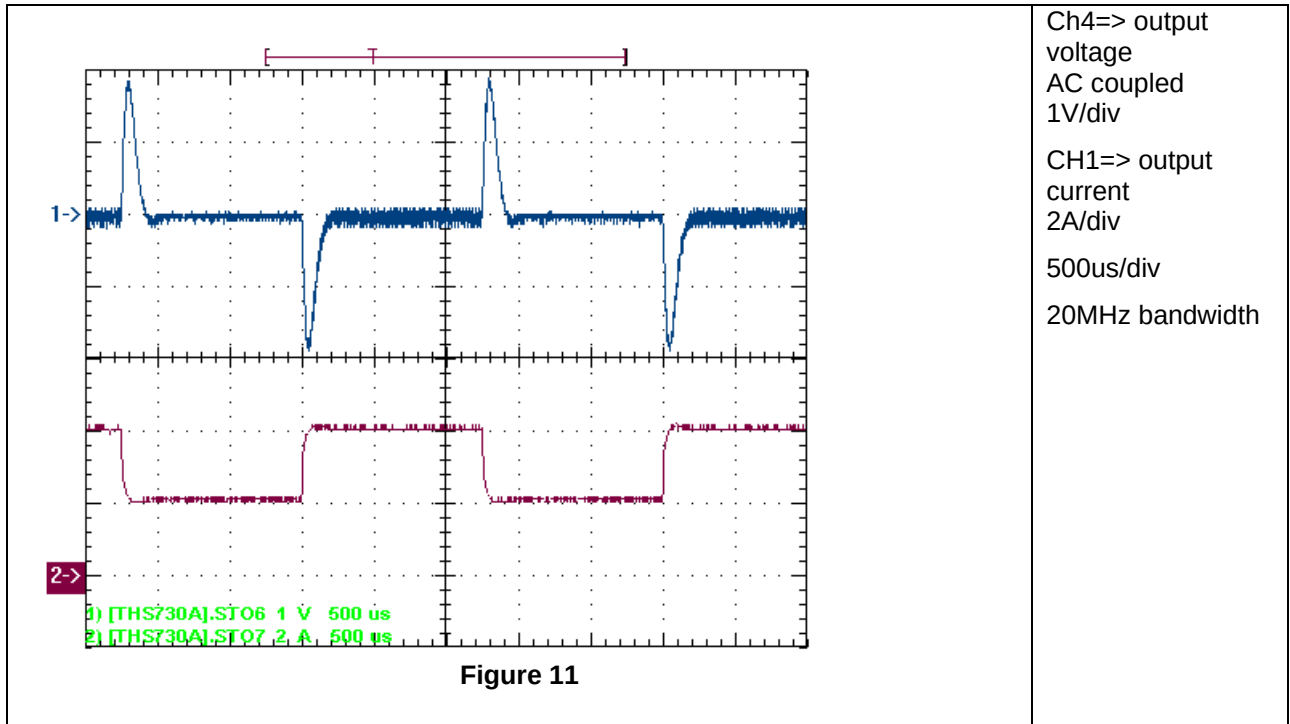


Figure 10

8 Load Transients

A output current change from 2A to 4A 400Hz results in following Figure 11. The input voltage was set to 14V



9 Thermal Image

The following two pictures show the thermal image at 4A output current. Figure 12 is the photo from the top side and Figure 13 from the bottom side.

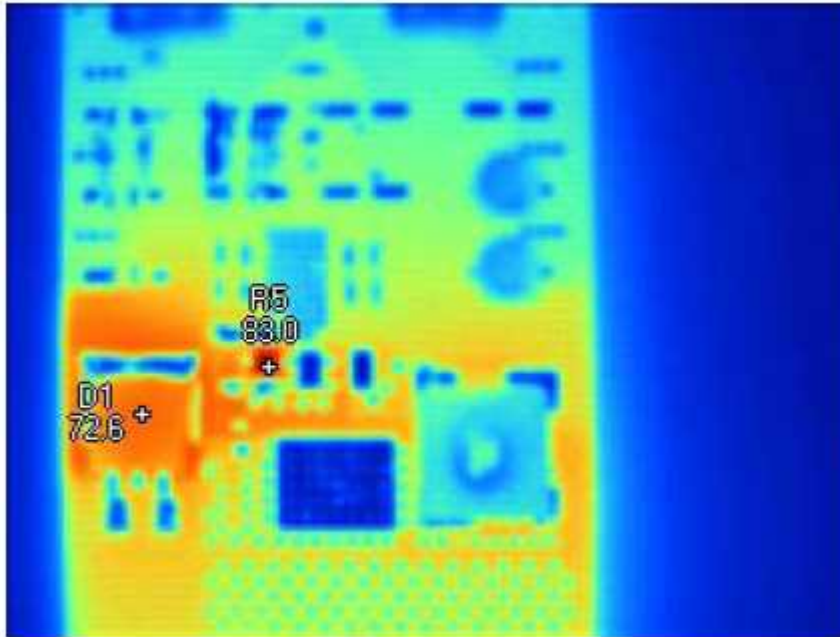


Figure 12

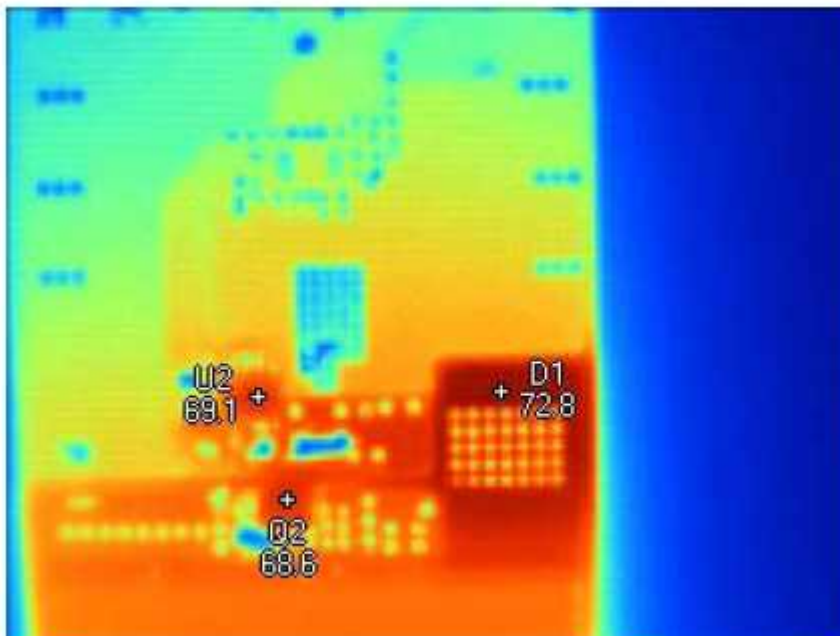


Figure 13

PMP4741_2_RevB Test Results

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