

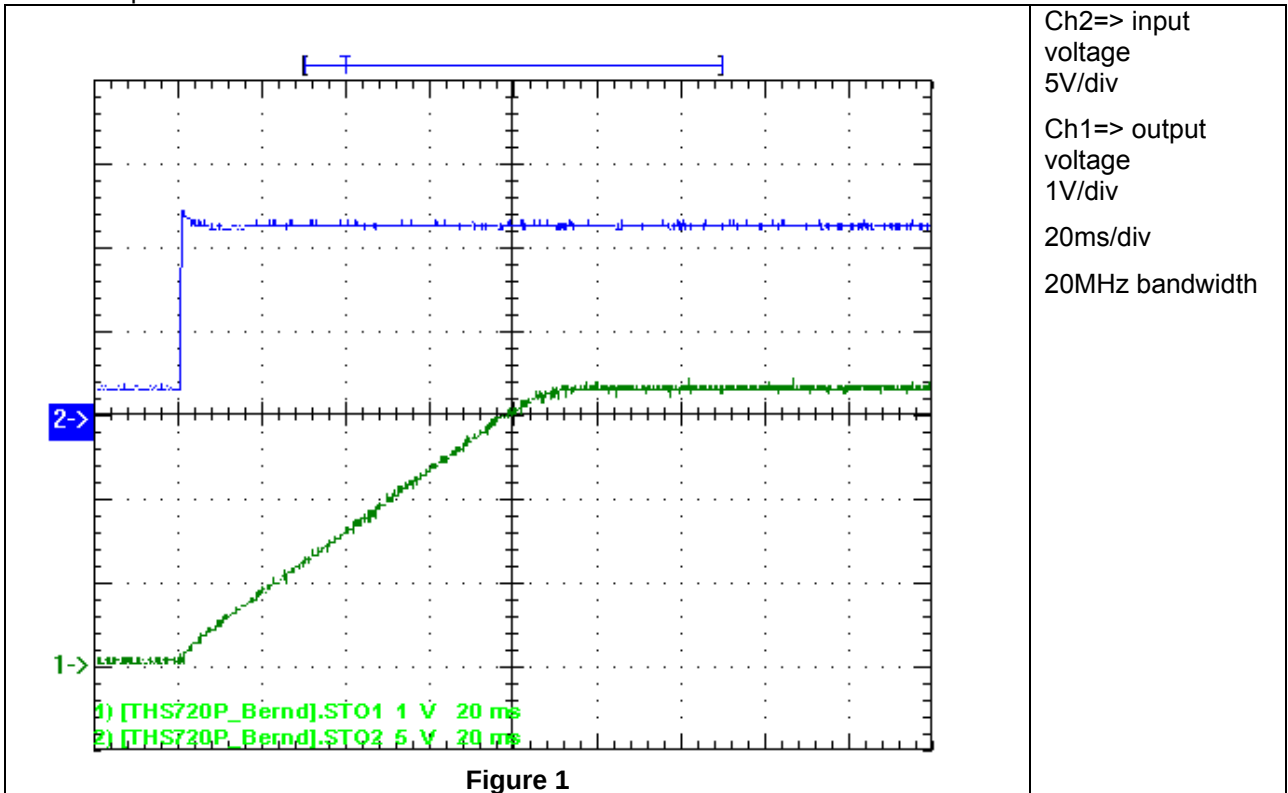
PMP5551RevC Test Results

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PMP5551RevC Test Results

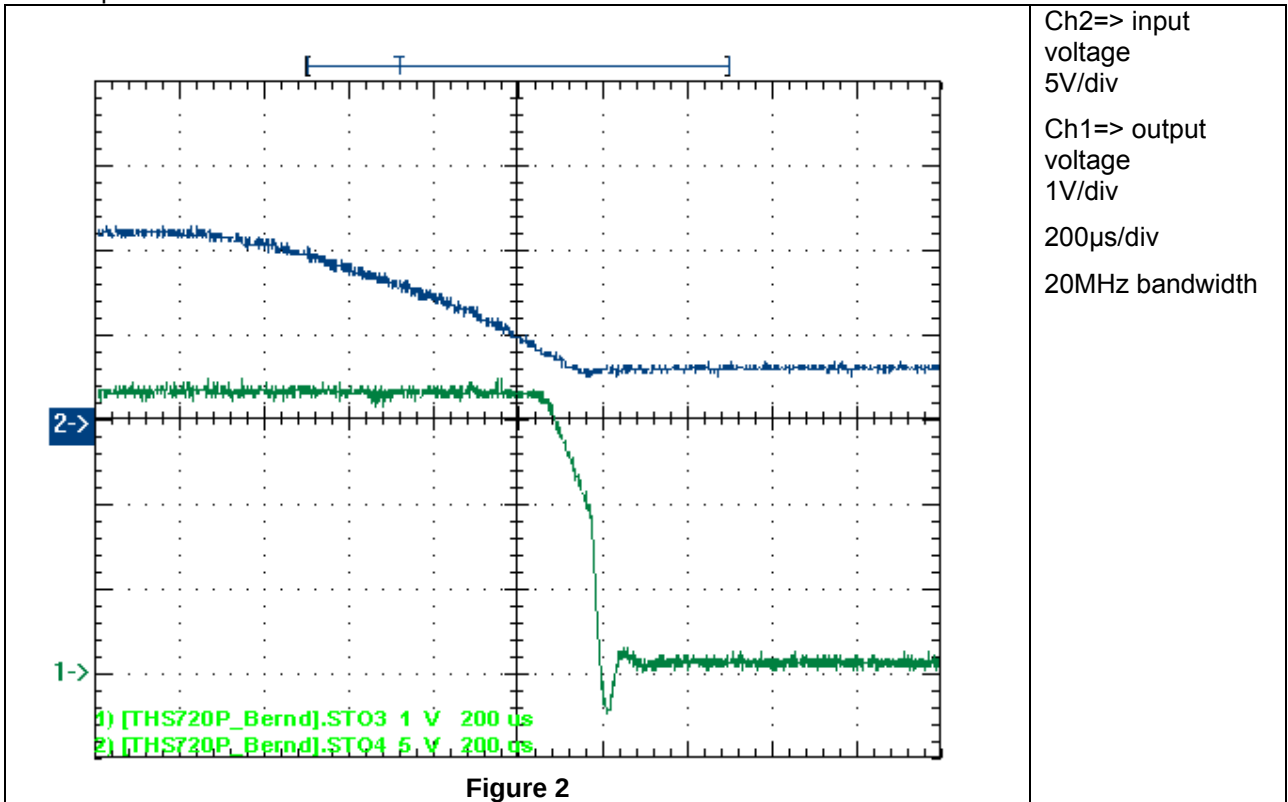
1 Startup

The startup waveform is shown in the Figure 1. The input voltage was set to 12V, with 10A load at the output.



2 Shutdown

The shutdown waveform is shown in the Figure 2 to 12V input voltage. With 10A load applied at the output.



3 Efficiency

The efficiency is shown in the Figure 3 below. The input voltage was set to 12V.

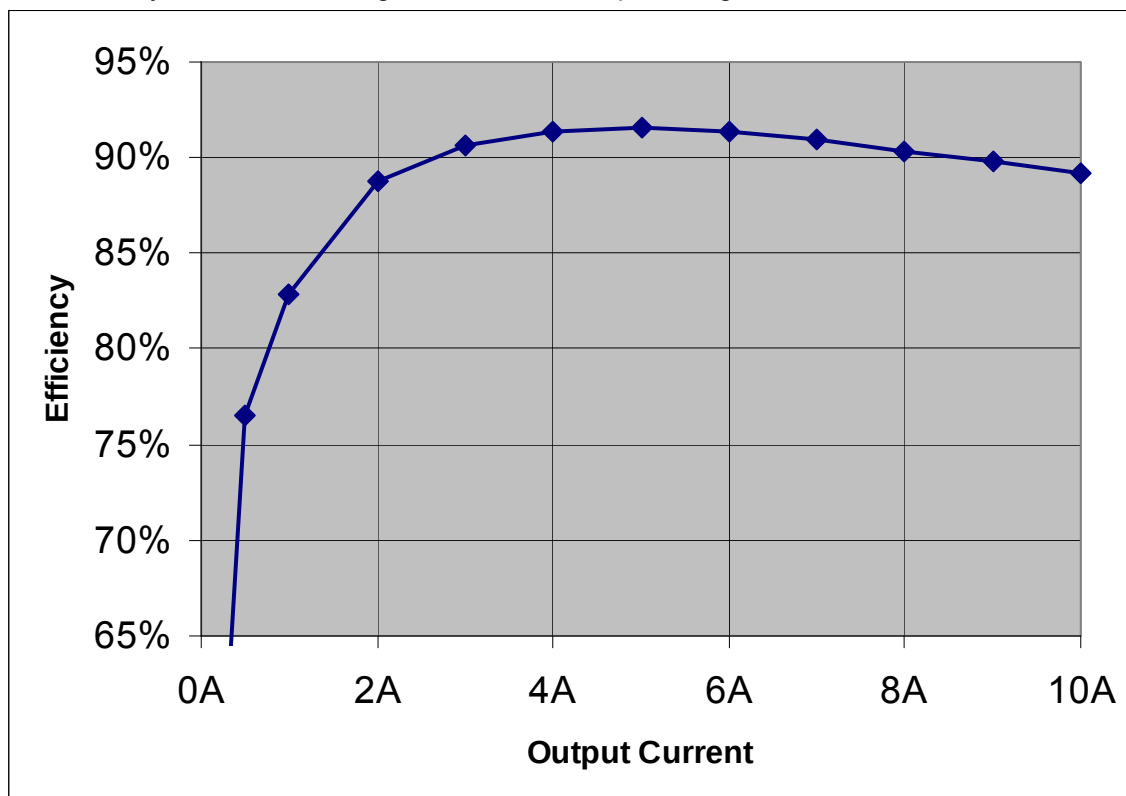


Figure 3

Efficiency Investigations

With PMP5551RevB version HS-FET CSD16322Q5 and LS-FETs 2 x CSD16408Q5 and snubber 3.3nF + 1.5Ω

Load	Efficiency
5A	91%
10A	89.6%

=> replaced R2 with 0R (resistor between Switchnode and controller pin SW)

Load	Efficiency
5A	91%
10A	89.7%

=> replaced all 3 MOSFETs with 3 x CSD16410Q5A and snubber 2.2nF + 2Ω

Load	Efficiency
5A	91.6%
10A	89.3%

=> changed (temporarily) inductor with SER2010-202ML

Load	Efficiency
5A	92.07%
10A	89.6%

PMP5551RevC Test Results

4 Load regulation

The load regulation with 12V input voltage is shown in Figure 4.

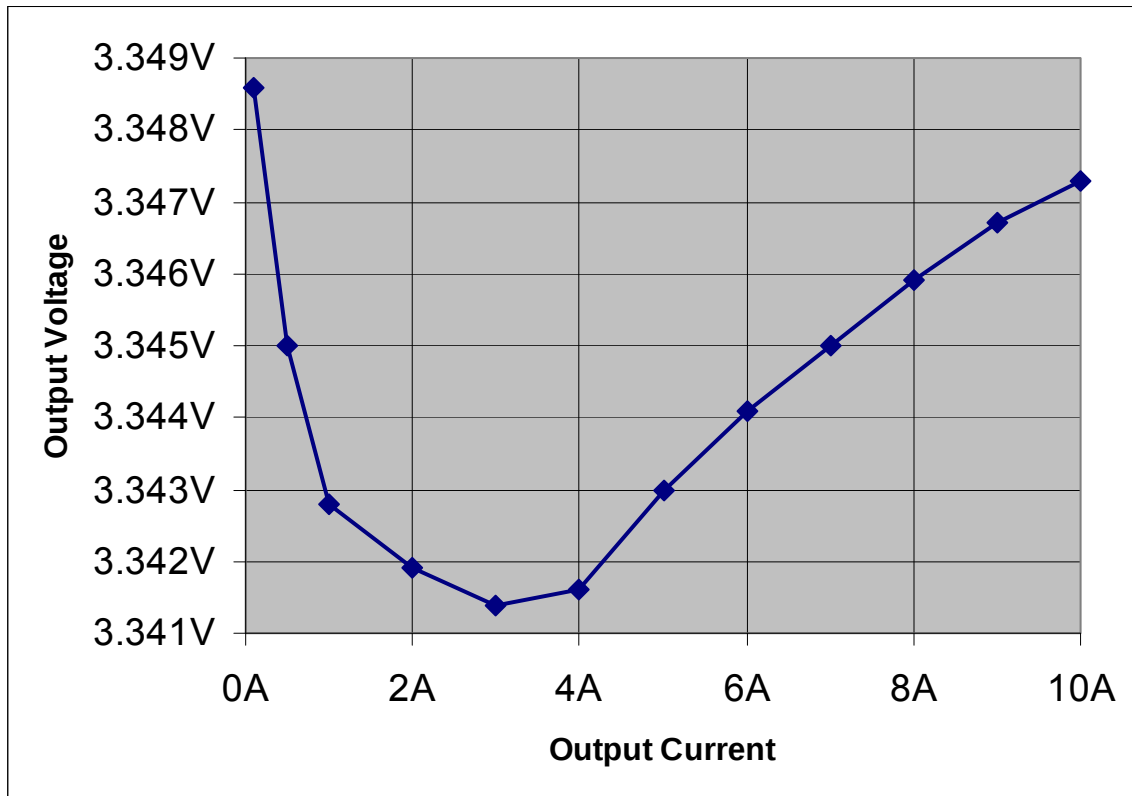


Figure 4

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5 Line Regulation

The line regulation at 10A output current is shown in Figure 5

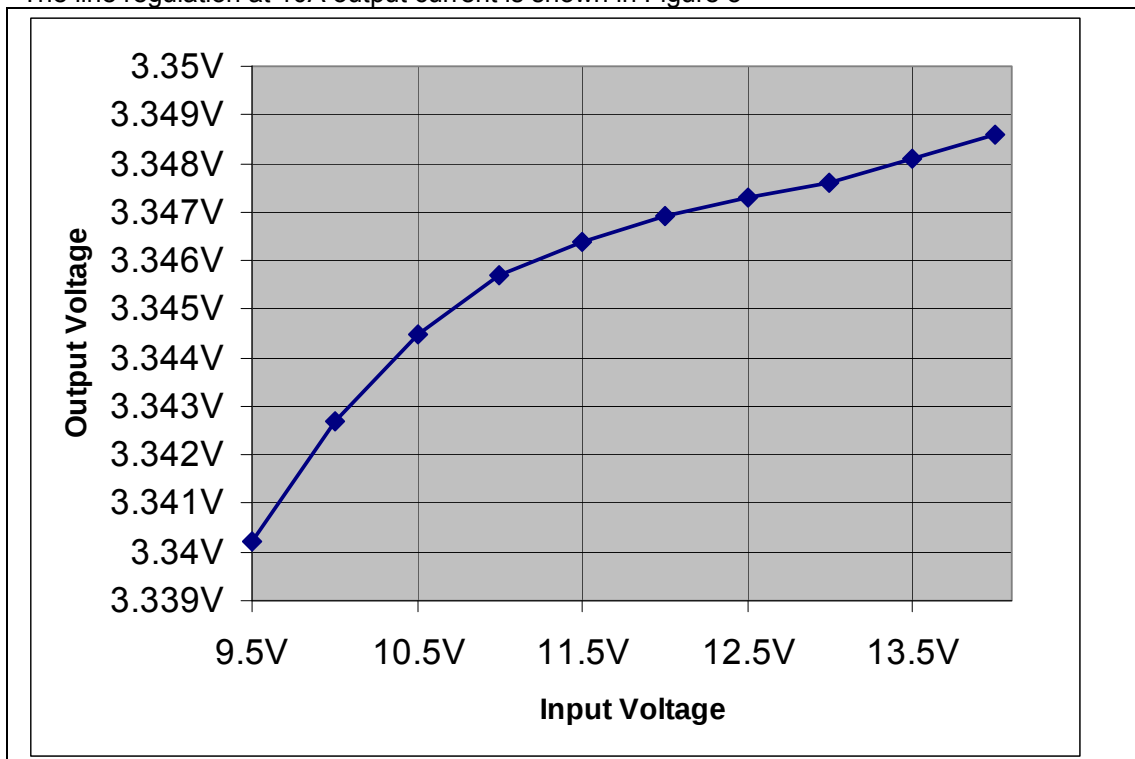


Figure 5

With the same measurement setup the efficiencies are shown in Figure 6.

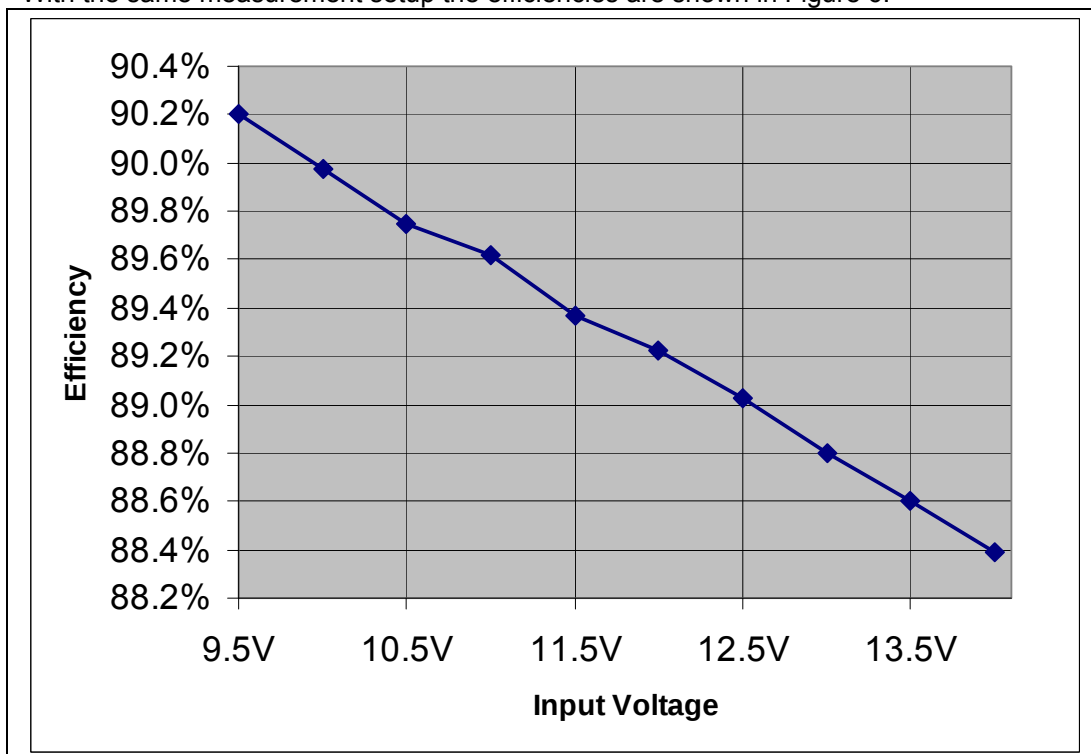


Figure 6

6 Switch Node Waveform

With 10A load results in the waveforms shown in Figure 7. 12V were applied to the input.

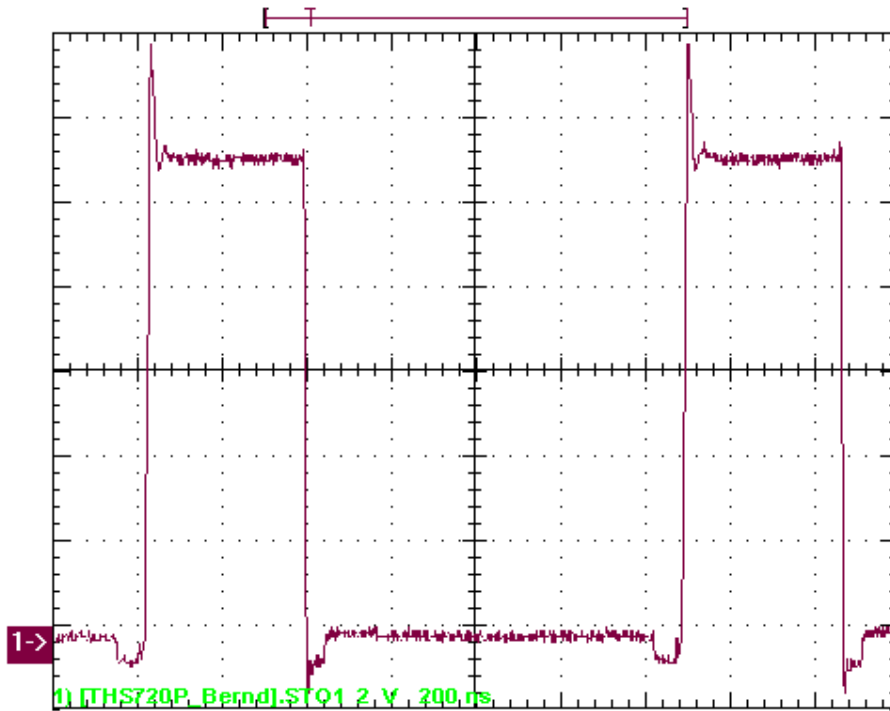


Figure 7

Ch1 =>
switchnode
2V/div
200ns/div
full
bandwidth

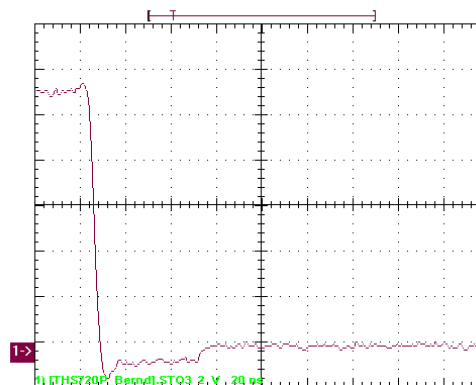
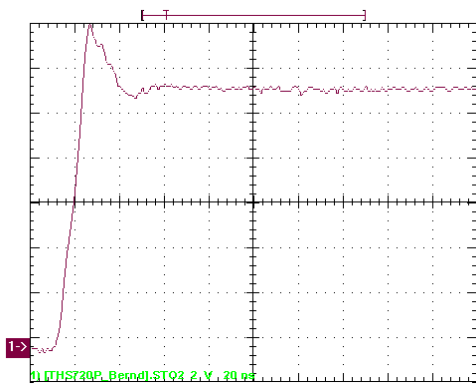


Figure 8

Ch1 =>
switchnode
2V/div
20ns/div
full
bandwidth

7 Ripple Voltages

The output ripple voltage is displayed in Figure 9. The input voltage was set to 12V with output current 10A.

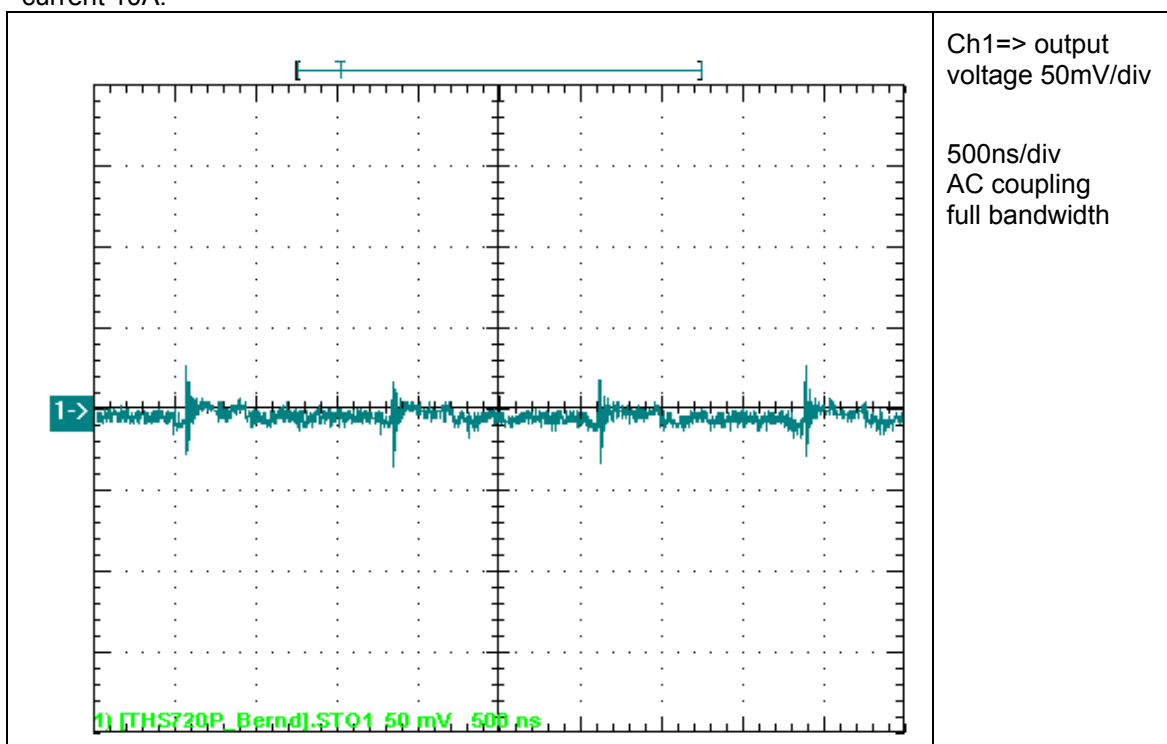


Figure 9

The input ripple voltage is displayed in Figure 10. The input voltage was set to 12V with output current 10A.

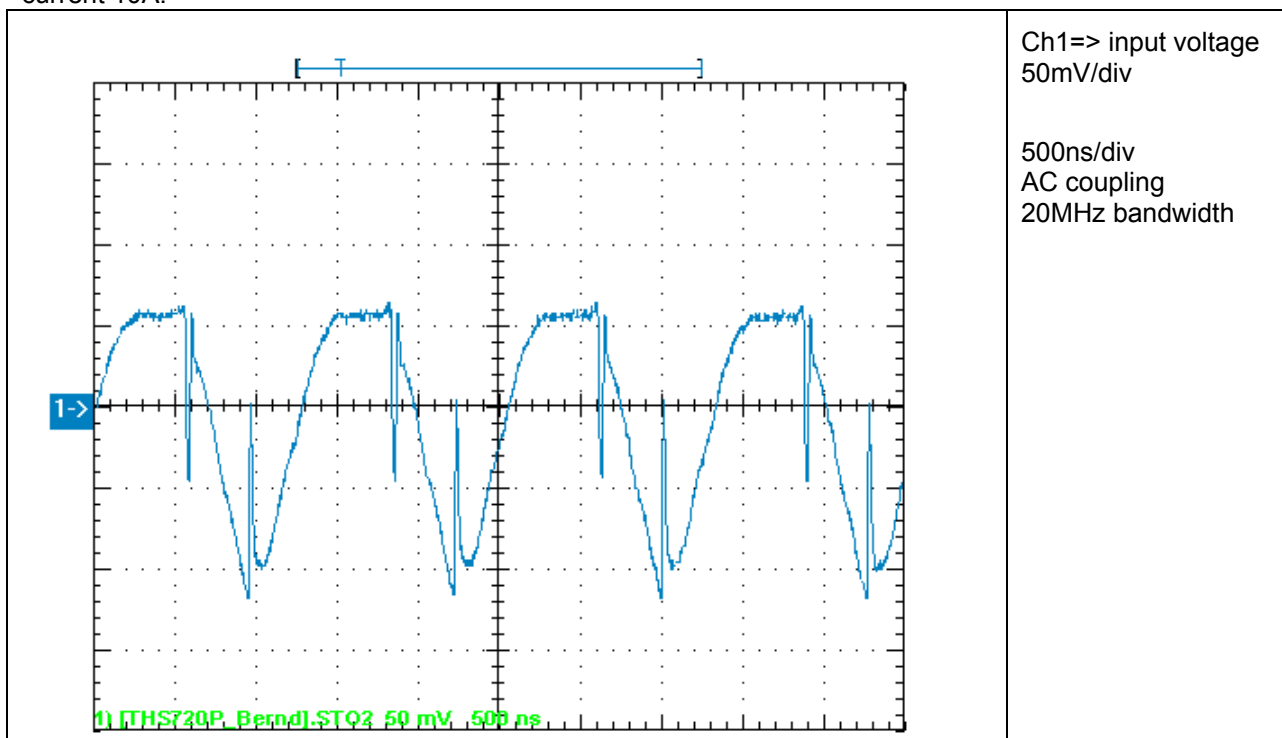
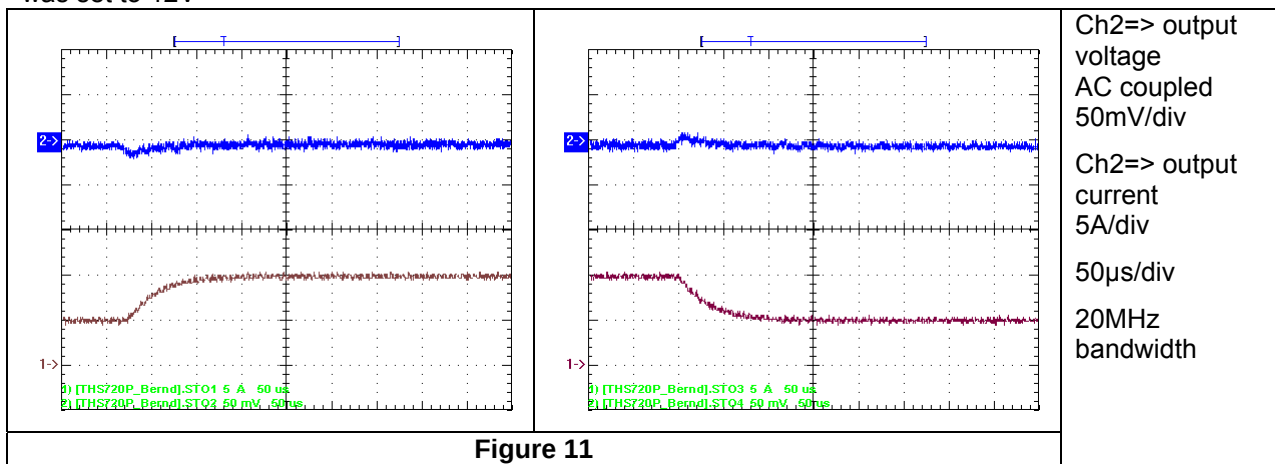


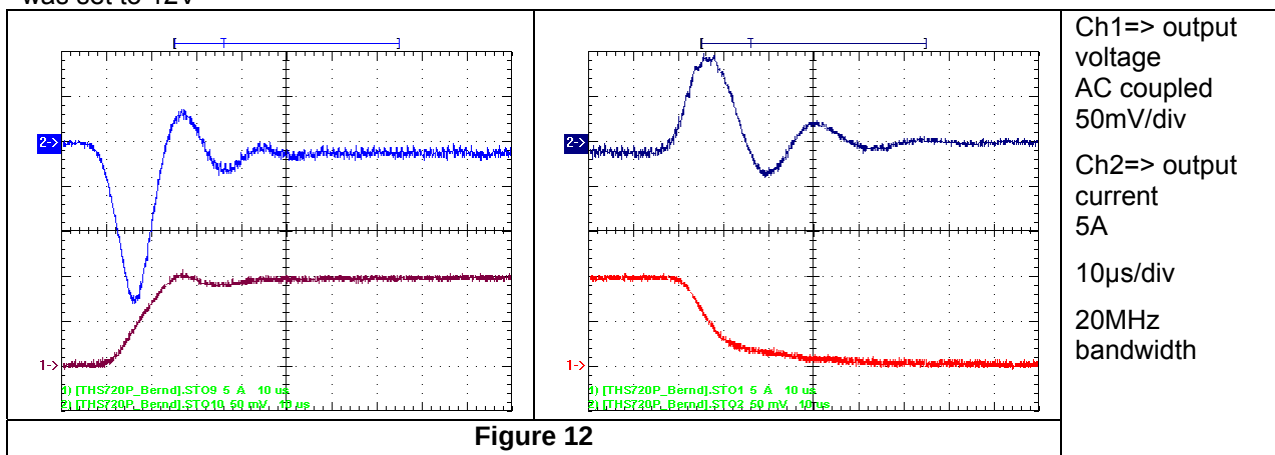
Figure 10

8 Load Transients

A output current change from 5A to 10A (100Hz) results in following Figure 11. The input voltage was set to 12V

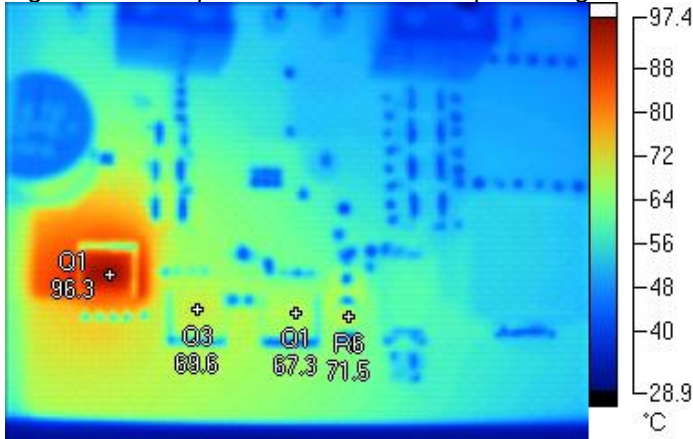


A output current change from 0A to 10A (100Hz) results in following Figure 12. The input voltage was set to 12V



9 Thermal Image

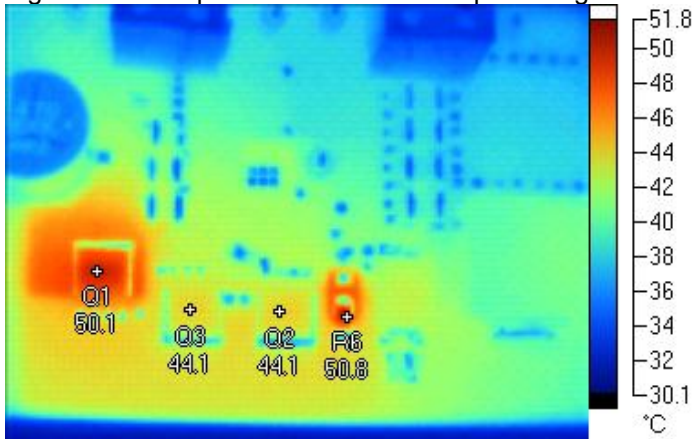
Figure 13 is the photo taken with 12V input voltage and 10A output current.



Name	Temperature
Q1	96.3°C
R6	71.5°C
Q3	69.6°C
Q1	67.3°C

Figure 13

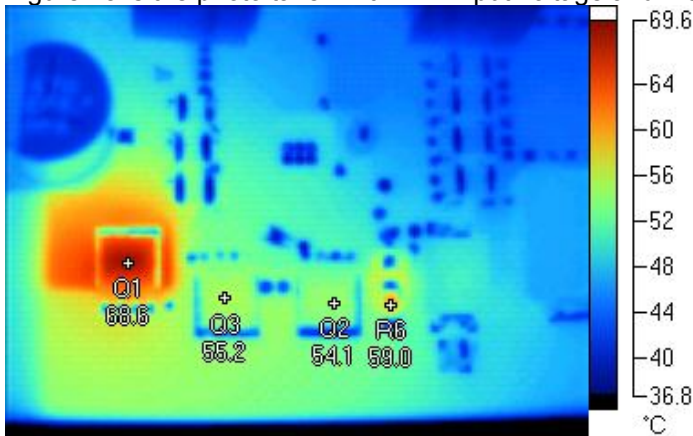
Figure 14 is the photo taken with 12V input voltage and 5A output current.



Name	Temperature
R6	50.8°C
Q1	50.1°C
Q3	44.1°C
Q2	44.1°C

Figure 14

Figure 15 is the photo taken with 12V input voltage and 7.5A output current.



Name	Temperature
Q1	68.6°C
Q3	55.2°C
Q2	54.1°C
R6	59.0°C

Figure 15

PMP5551RevC Test Results

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