

PMP5592RevC Test Results

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1 Startup

The startup waveform is shown in the Figure 1. The input voltage was set to 34V, with 600mA load at the output.

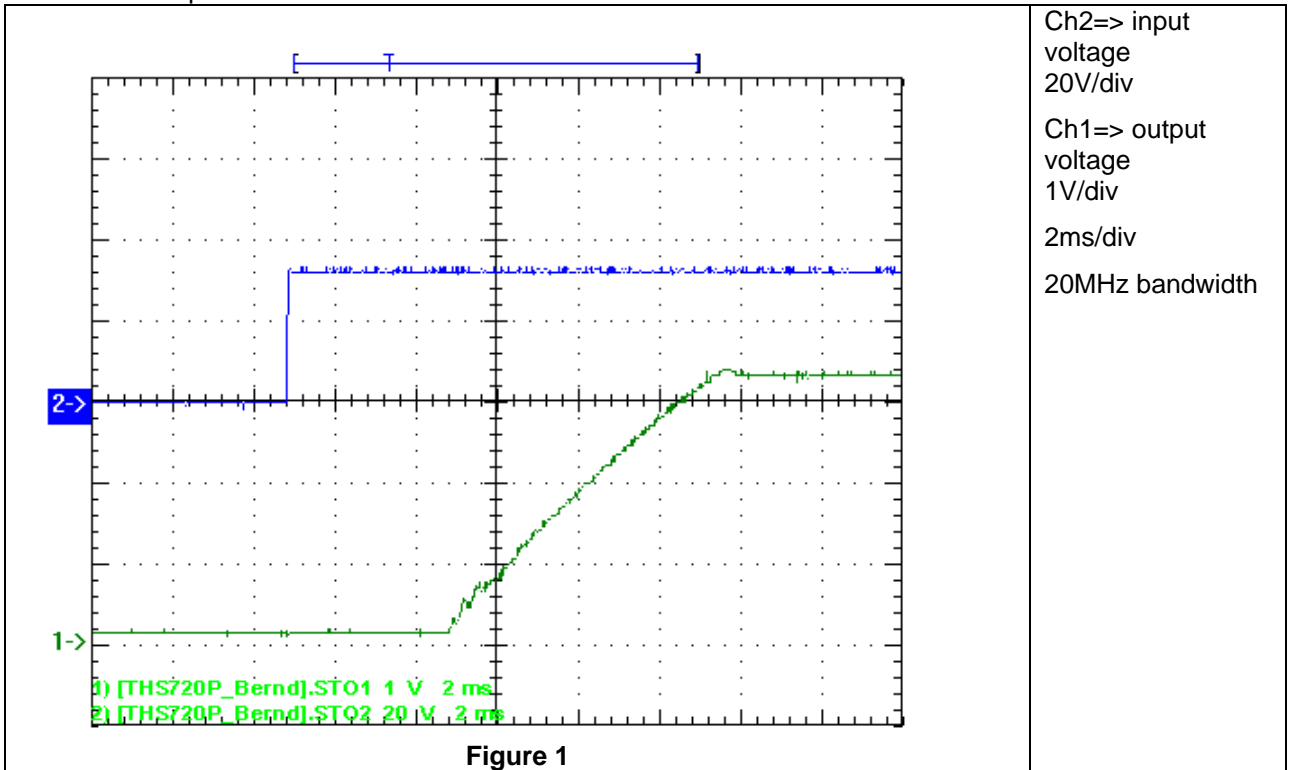


Figure 1

The startup waveform is shown in the Figure 2. The input voltage was set to 48V, with 600mA load at the output.

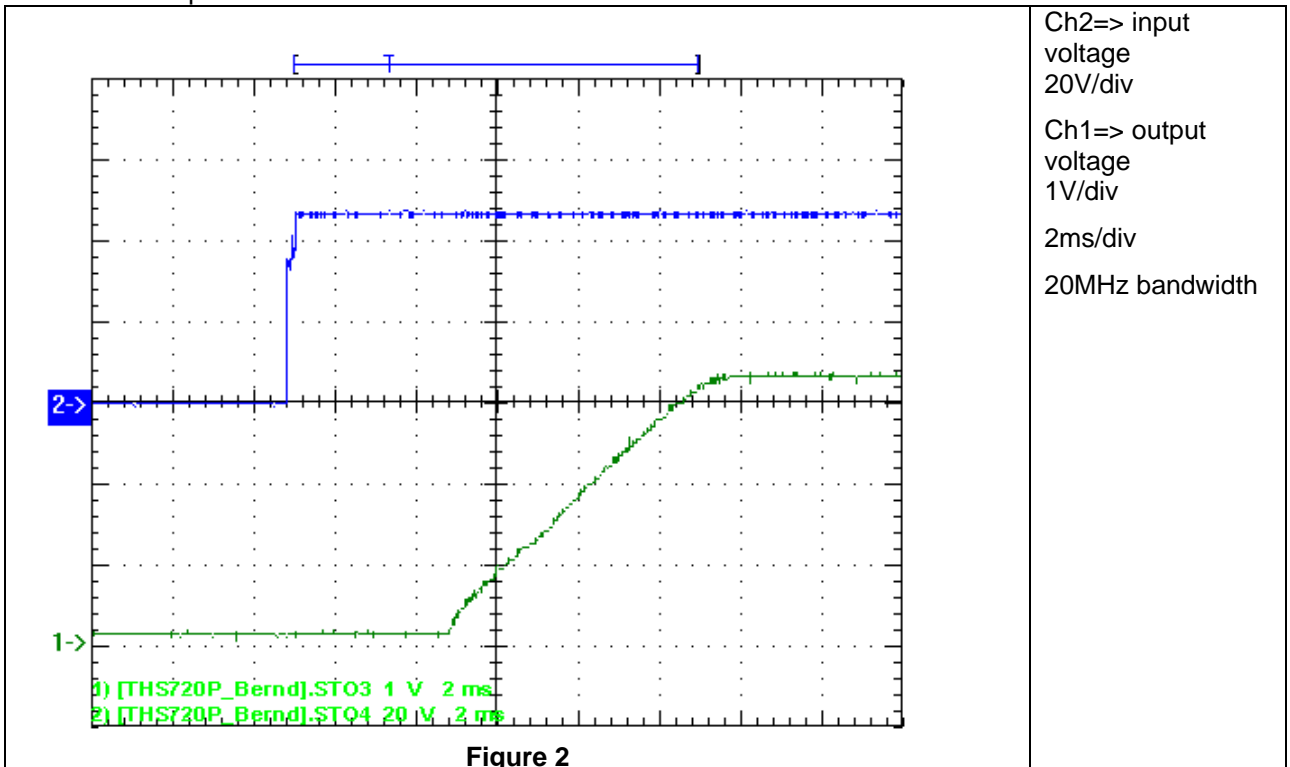
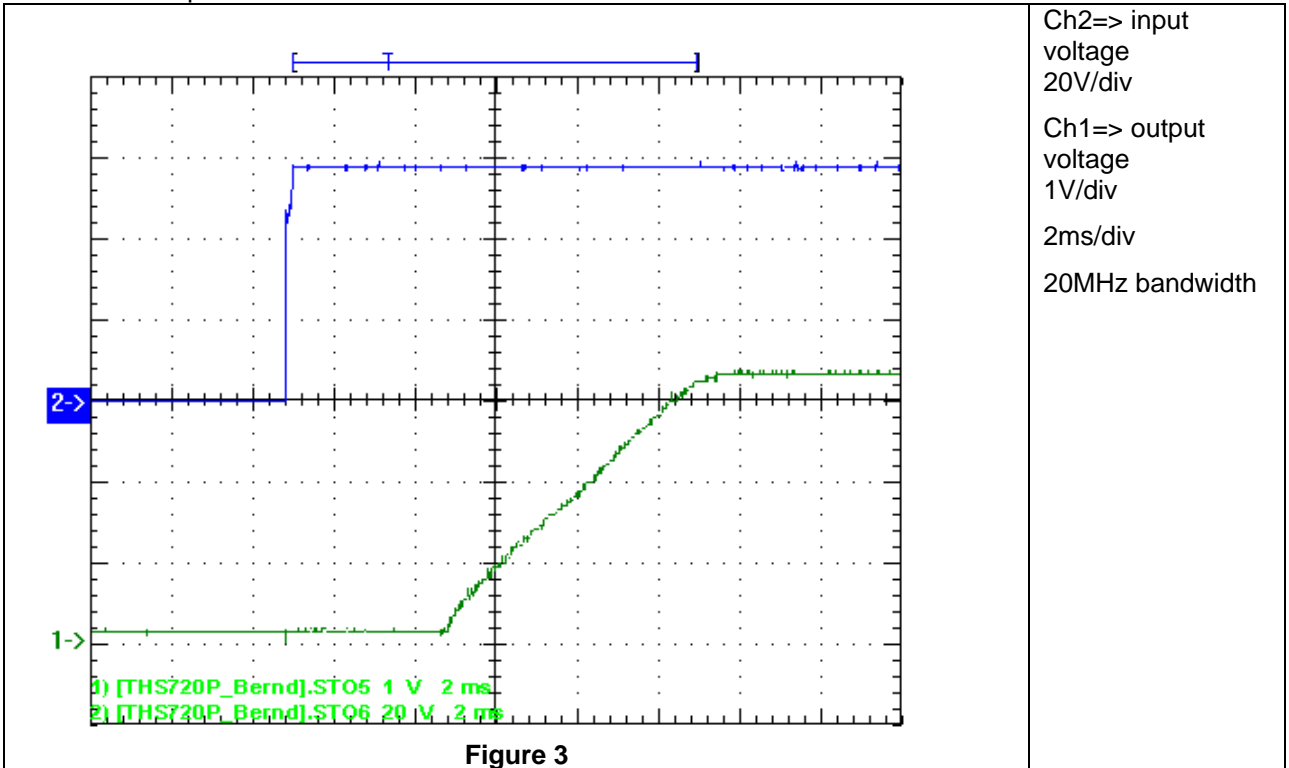


Figure 2

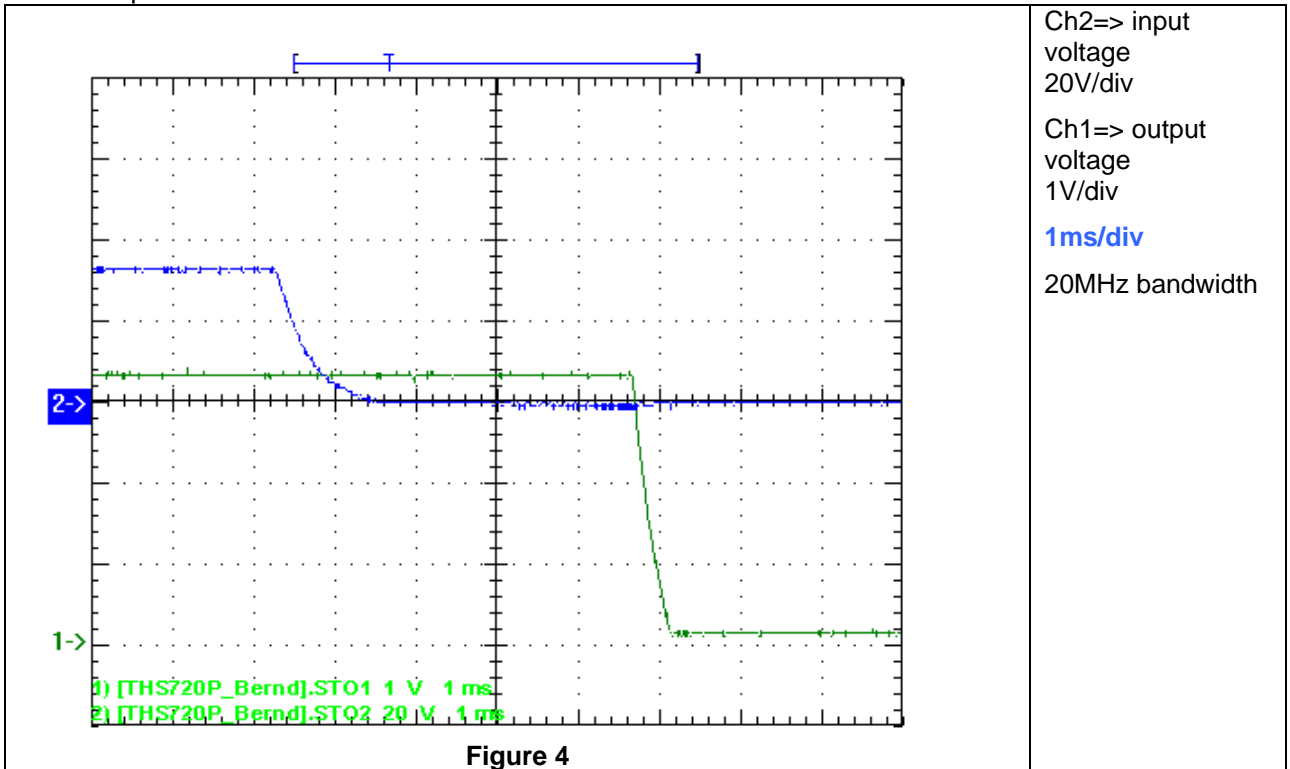
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The startup waveform is shown in the Figure 3. The input voltage was set to 60V, with 600mA load at the output.

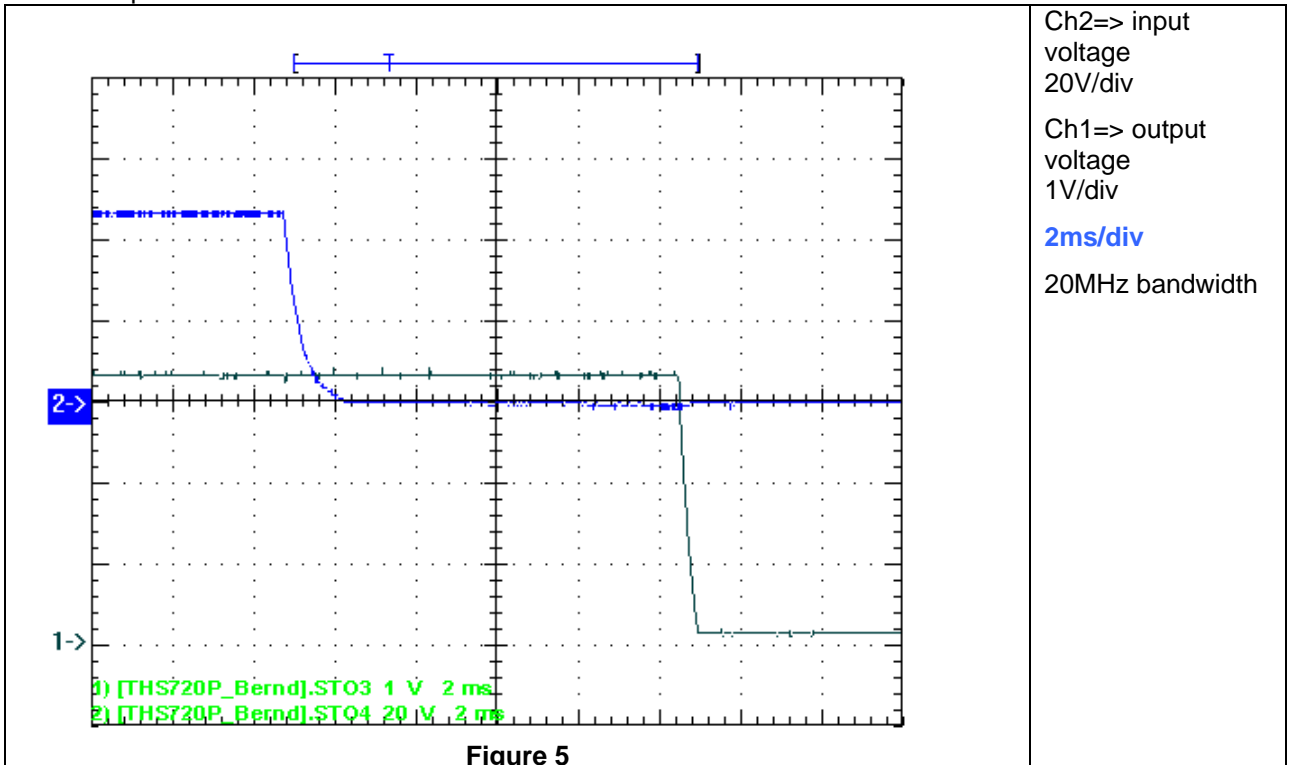


2 Shutdown

The shutdown waveform is shown in the Figure 4 at 34V input voltage. With 600mA load applied at the output.

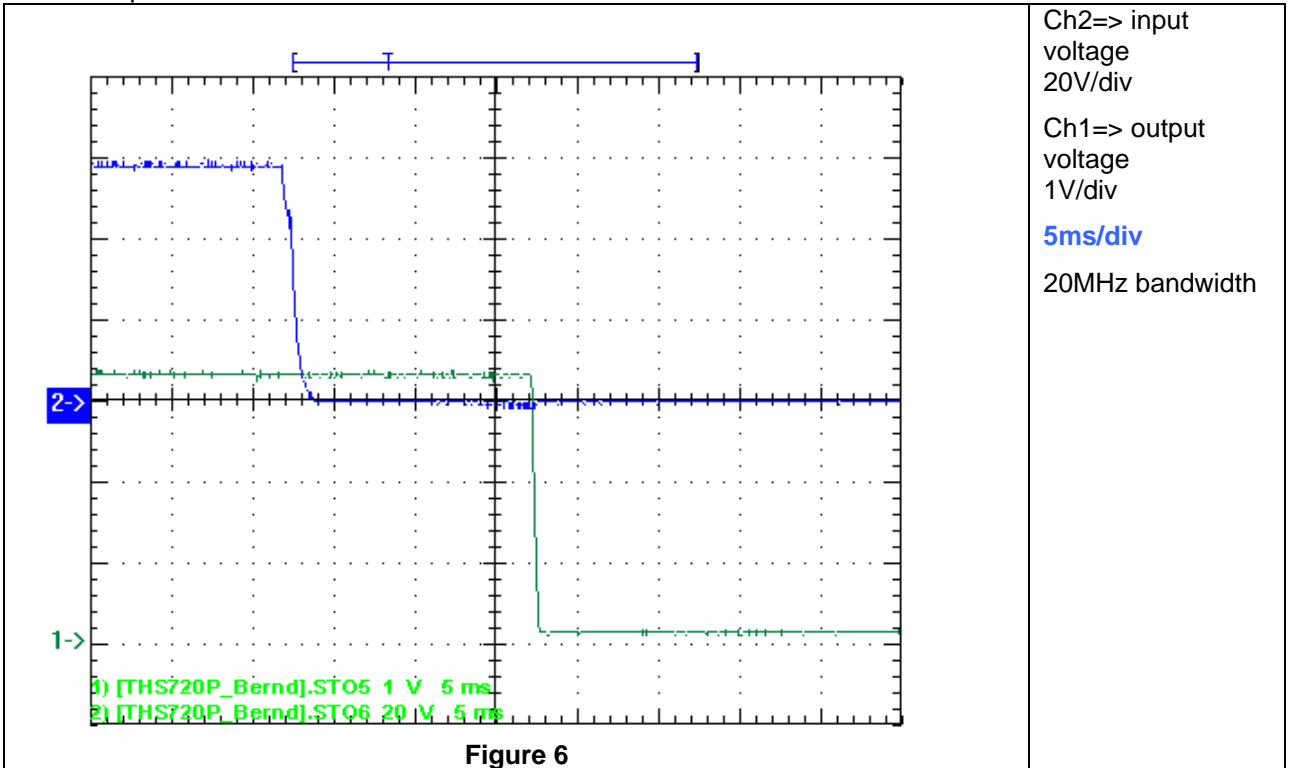


The shutdown waveform is shown in the Figure 4 at 48V input voltage. With 600mA load applied at the output.



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The shutdown waveform is shown in the Figure 5 at 60V input voltage. With 600mA load applied at the output.



3 Efficiency

The efficiencies with different input voltages are shown in the Figure 7 below.

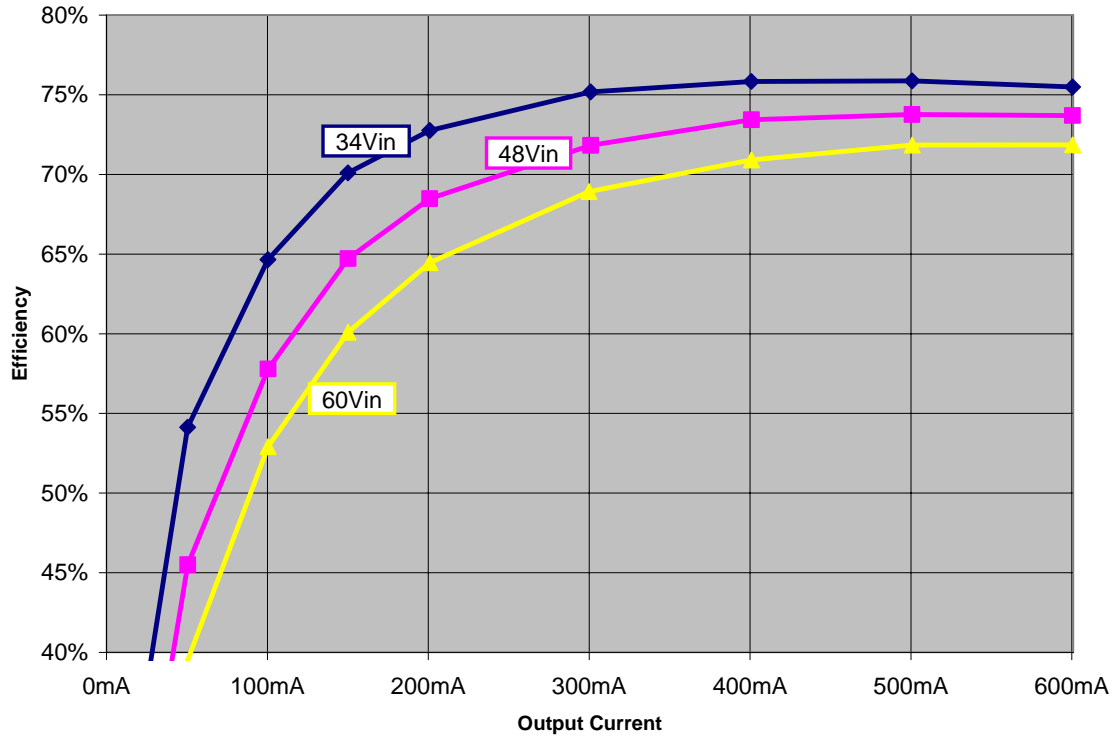


Figure 7

4 Load regulation

The load regulation at different input voltages are shown in Figure 8.

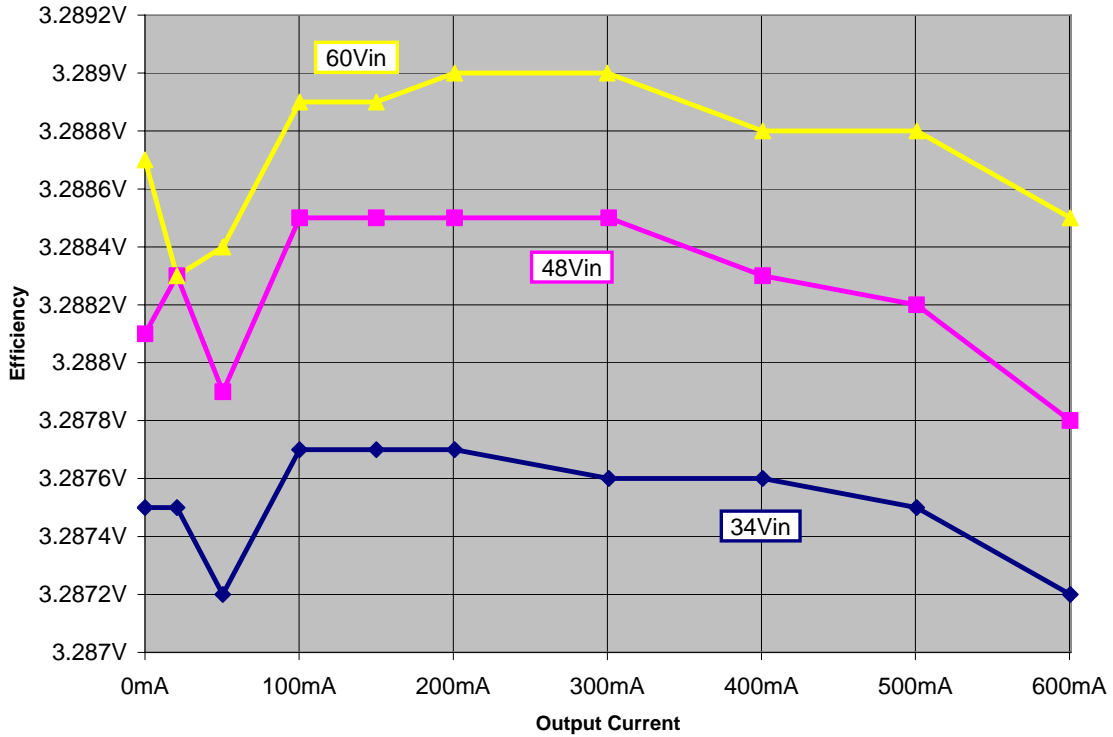


Figure 8

5 Line Regulation

The line regulation at 600mA output current is shown in Figure 9

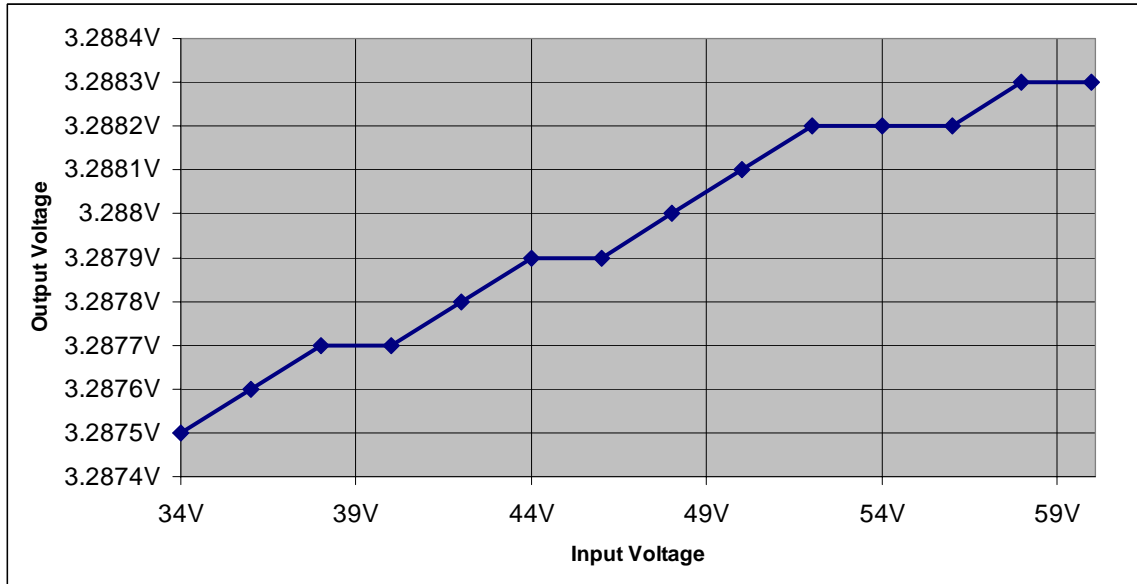


Figure 9

With the same measurement setup the efficiencies are shown in Figure 10.

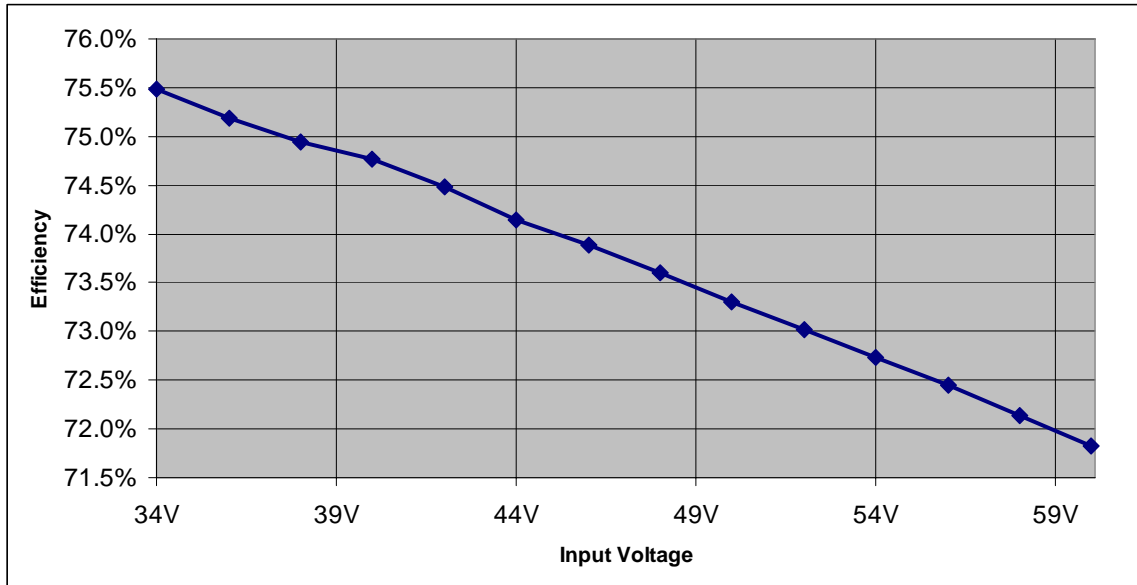
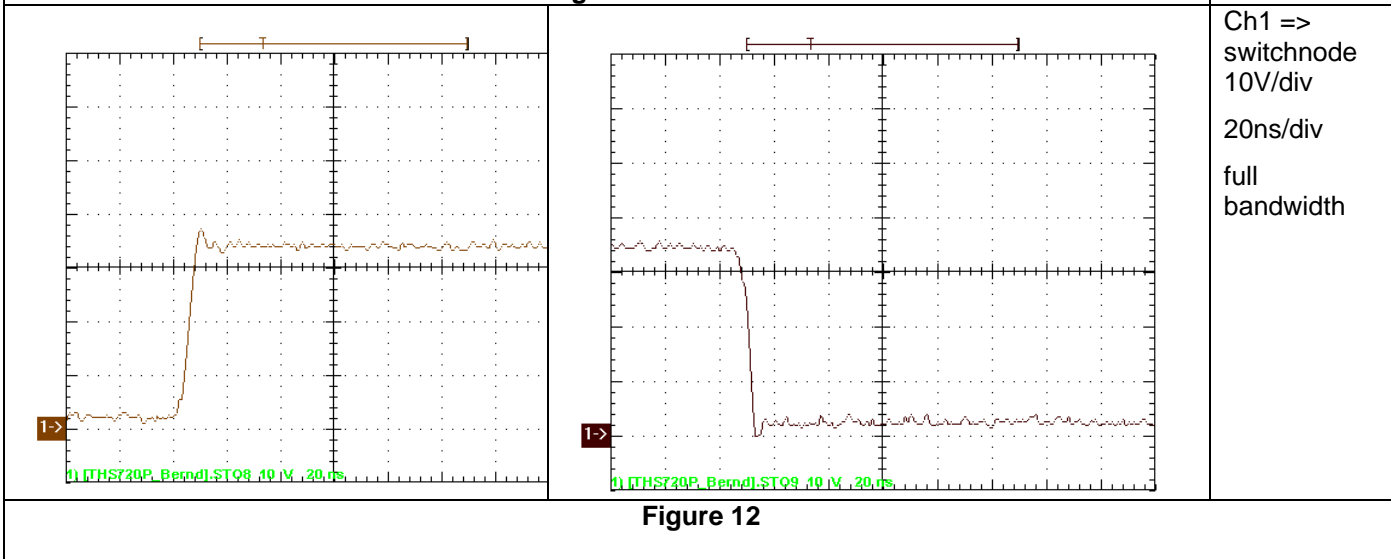
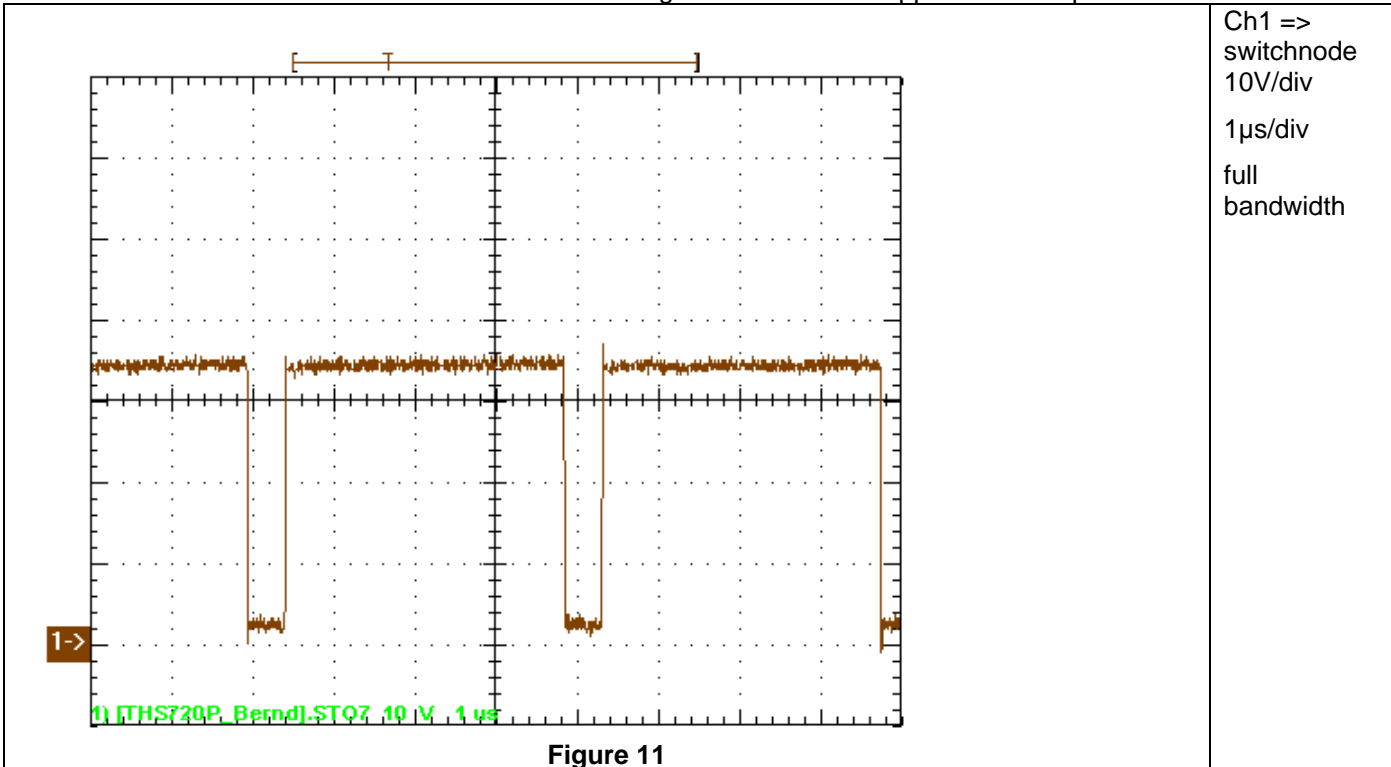


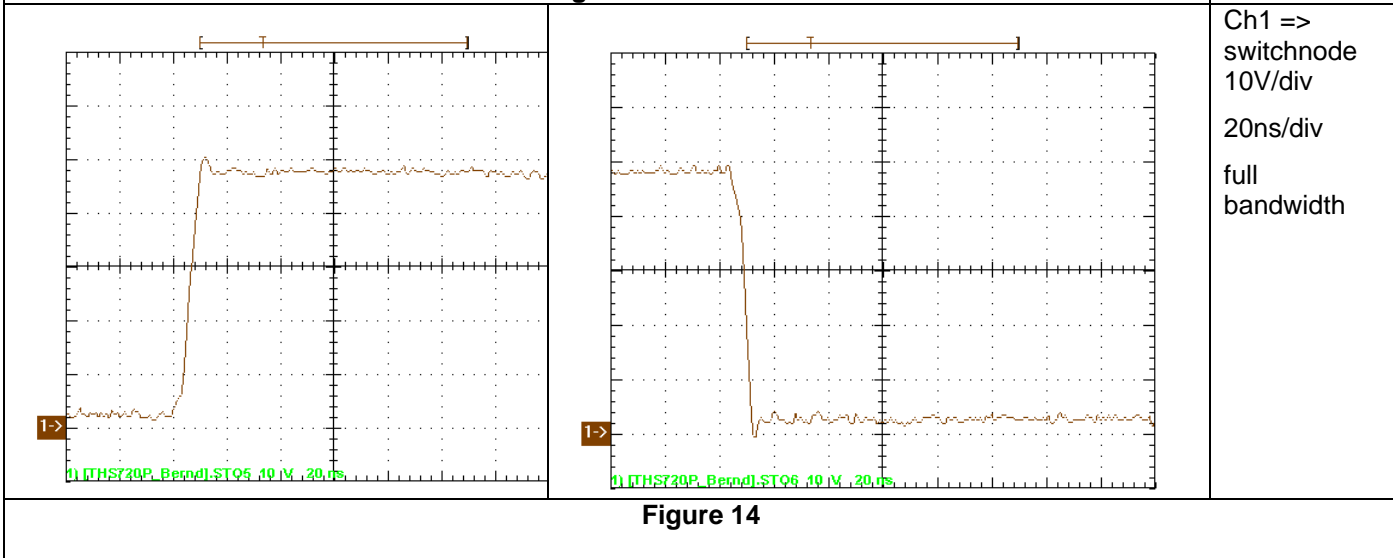
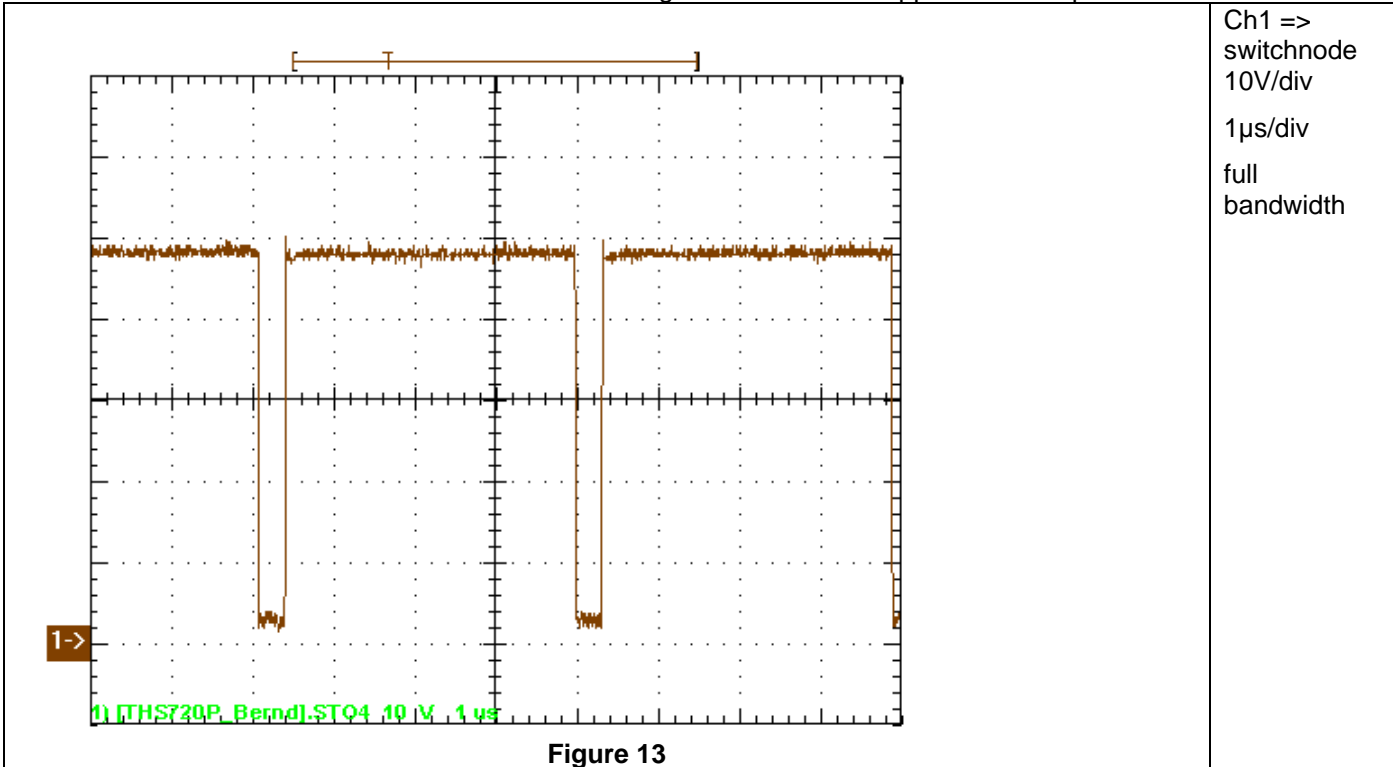
Figure 10

6 Switch Node Waveform

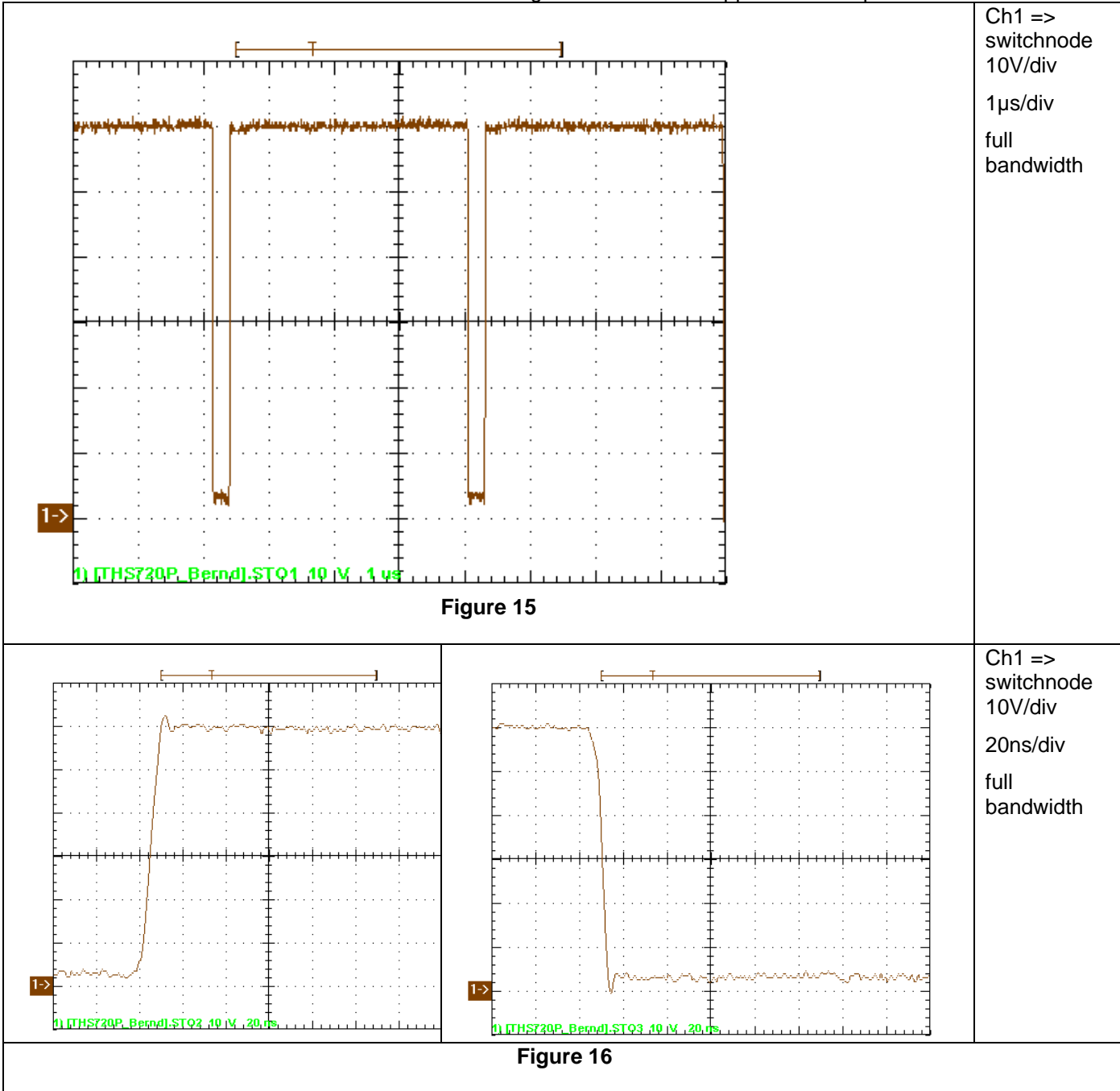
With 600mA load results in the waveforms shown in Figure 11. 34V were applied to the input.



With 600mA load results in the waveforms shown in Figure 13. 48V were applied to the input.



With 600mA load results in the waveforms shown in Figure 11. 60V were applied to the input.



7 Ripple Voltages

The output ripple voltage is displayed in Figure 17. The input voltage was set to 34V with output current 600mA.

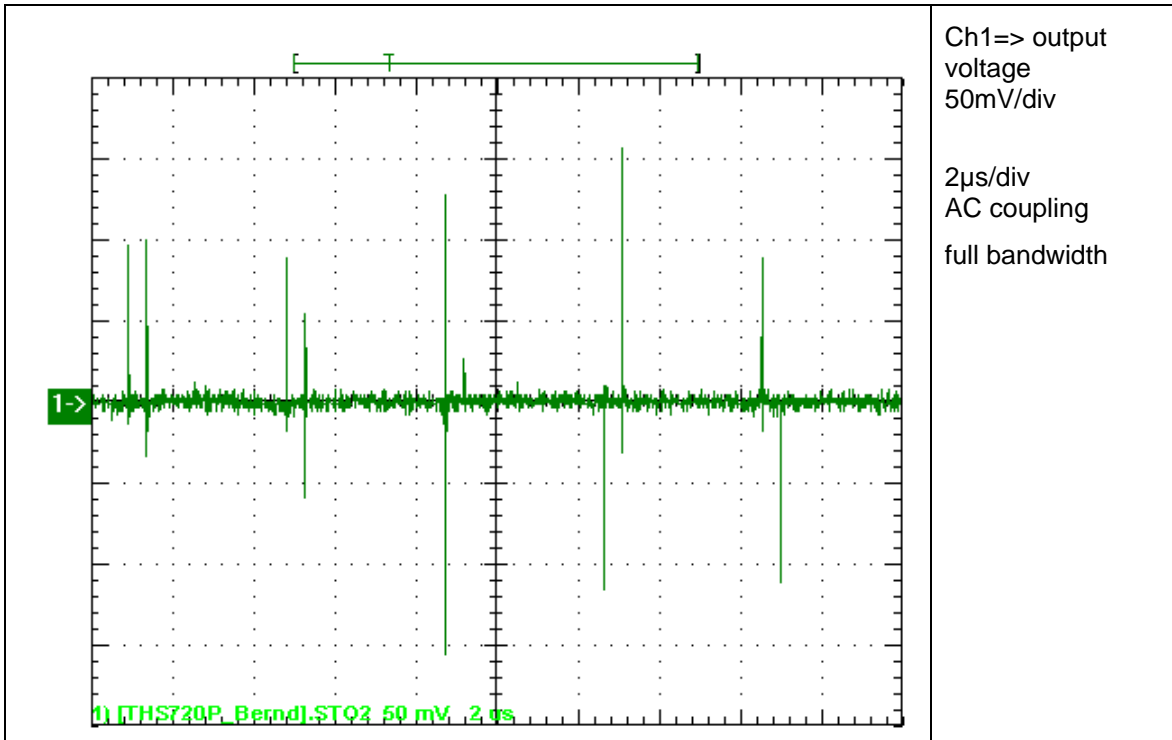


Figure 17

The output ripple voltage is displayed in Figure 17. The input voltage was set to 48V with output current 600mA.

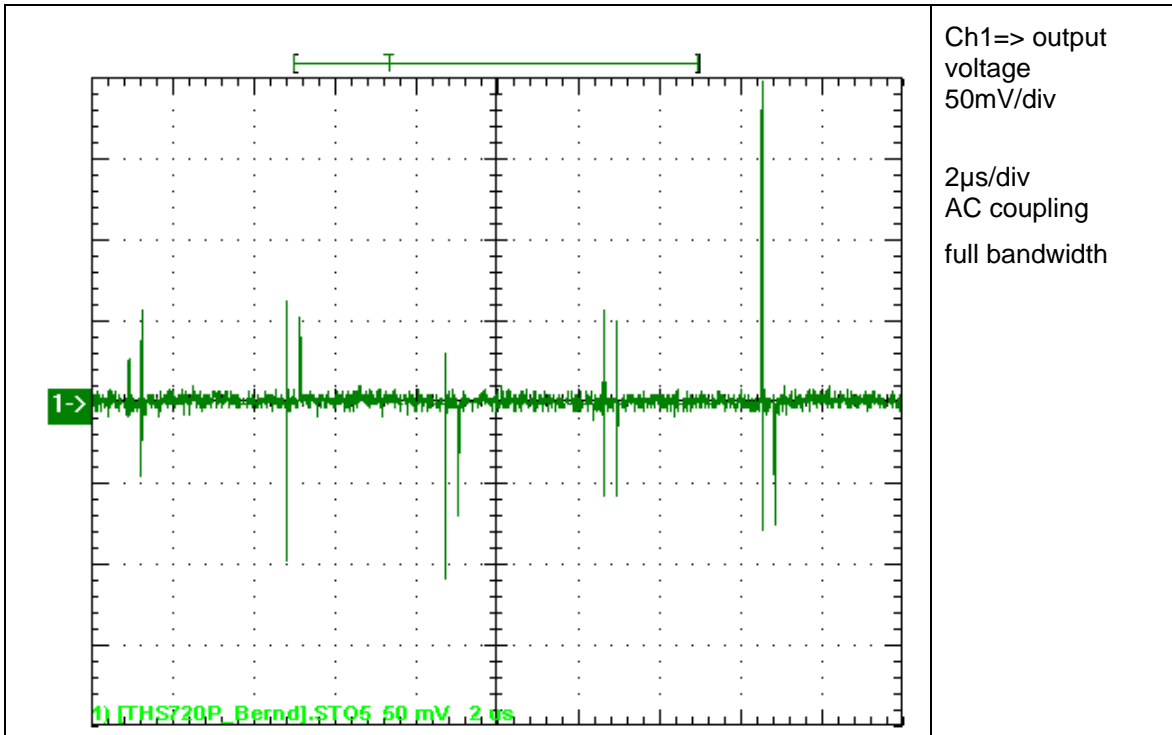


Figure 18

The output ripple voltage is displayed in Figure 17. The input voltage was set to 60V with output current 600mA.

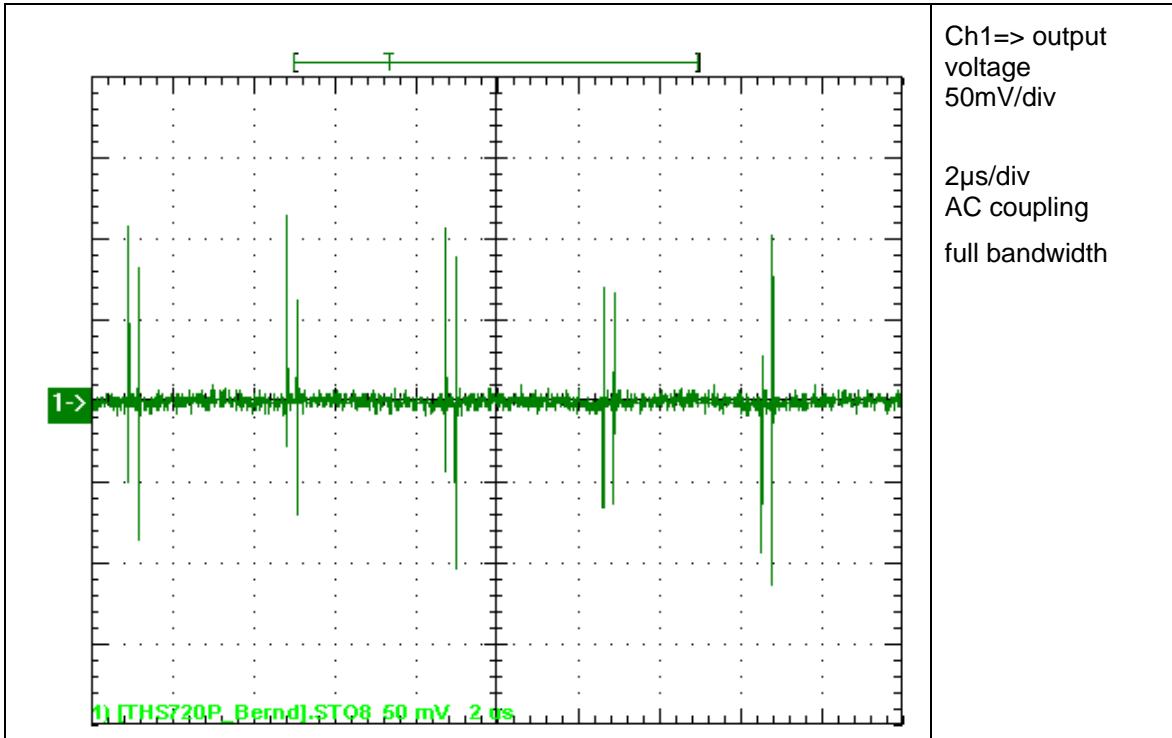


Figure 19

8 Input Ripple

The input ripple voltage is displayed in Figure 20. The input voltage was set to 34V with output current 600mA.

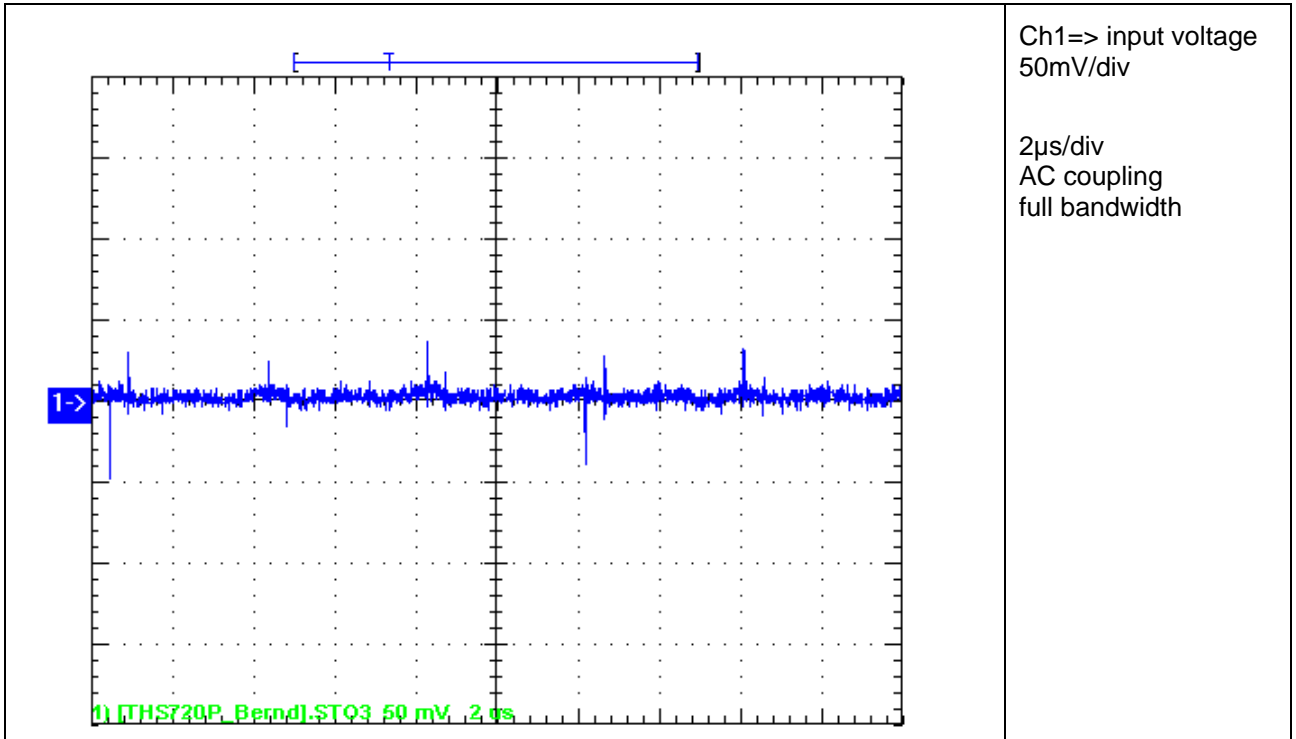


Figure 20

The input ripple voltage is displayed in Figure 21. The input voltage was set to 48V with output current 600mA.

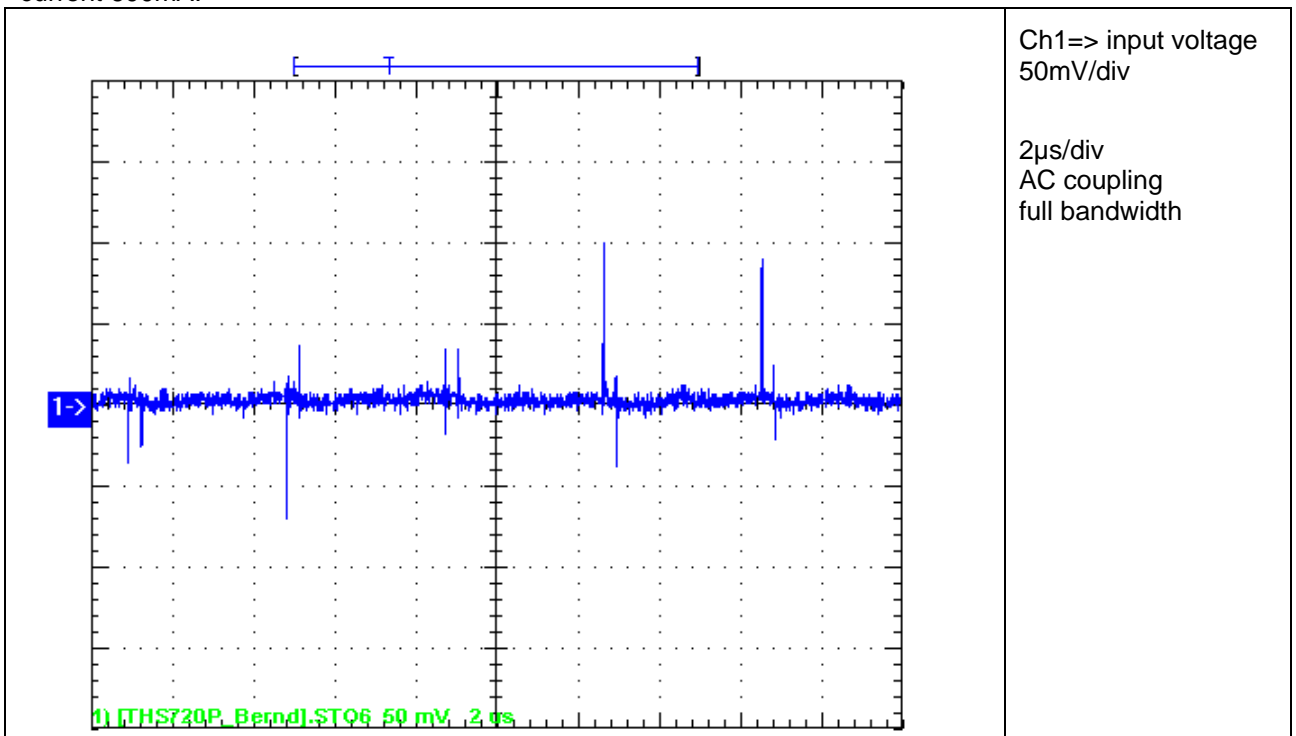


Figure 21

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The input ripple voltage is displayed in Figure 22. The input voltage was set to 60V with output current 600mA.

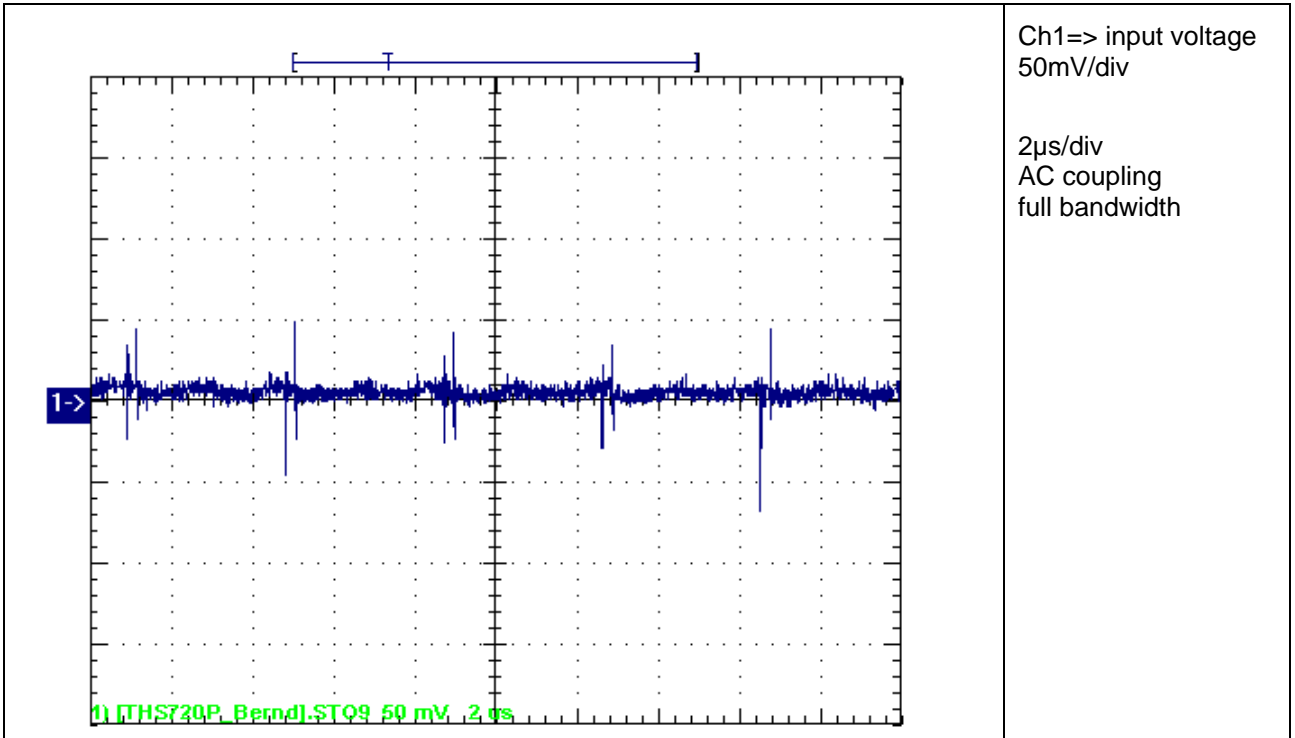


Figure 22

9 Control Loop Frequency Response

34V Input Voltage and 600mA Load results Figure 23 bode plot

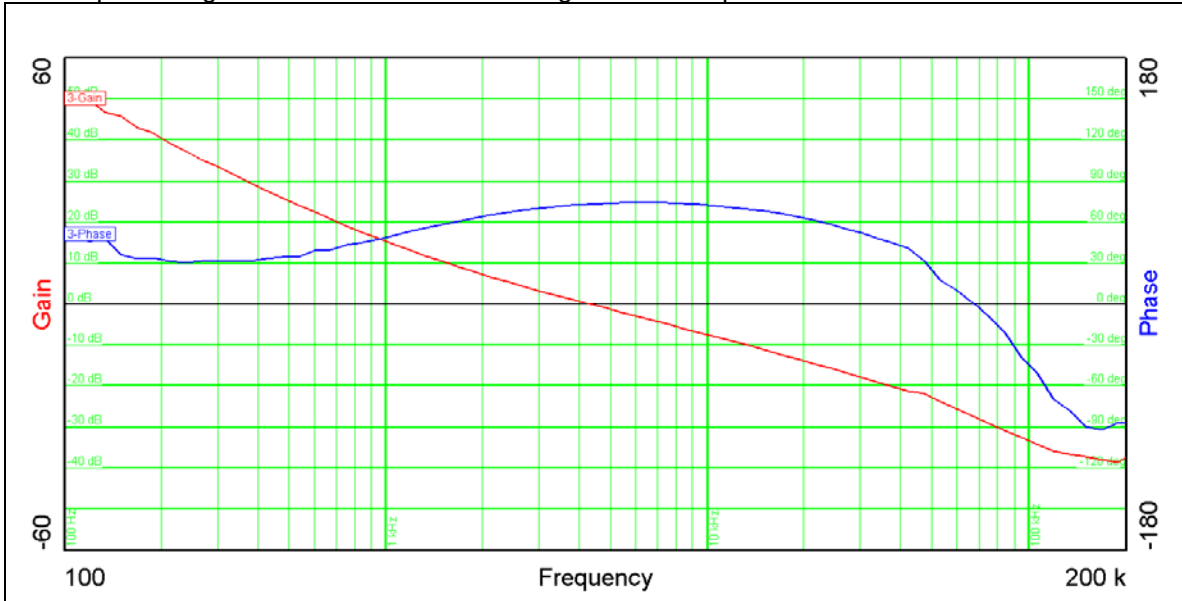


Figure 23

48V Input Voltage and 600mA Load results Figure 24 bode plot

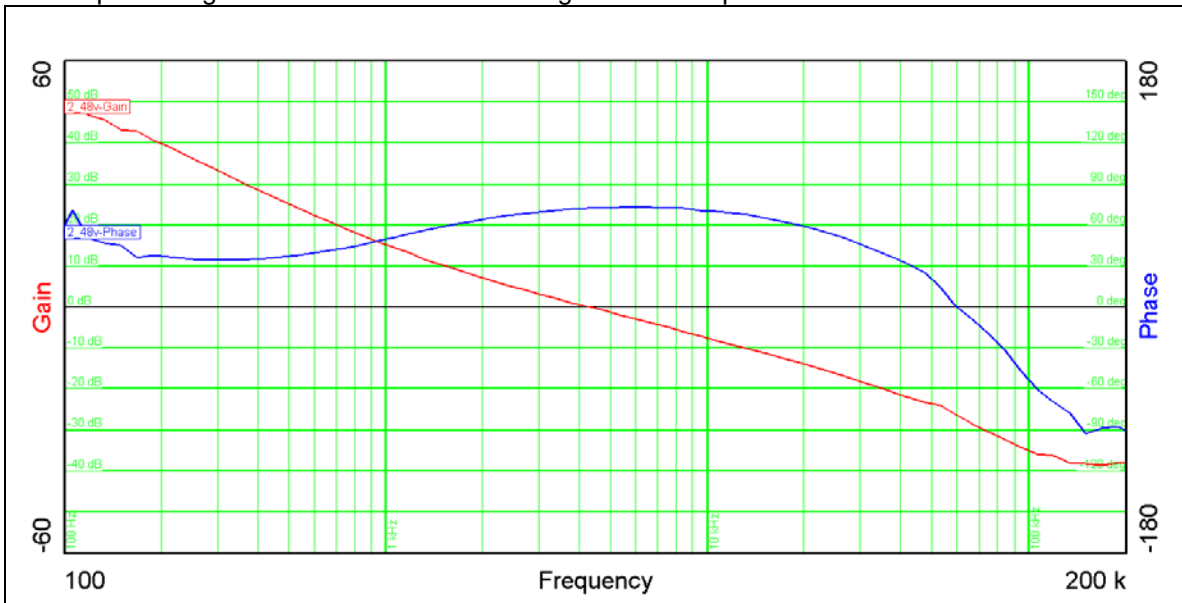


Figure 24

60V Input Voltage and 600mA Load results Figure 24 bode plot

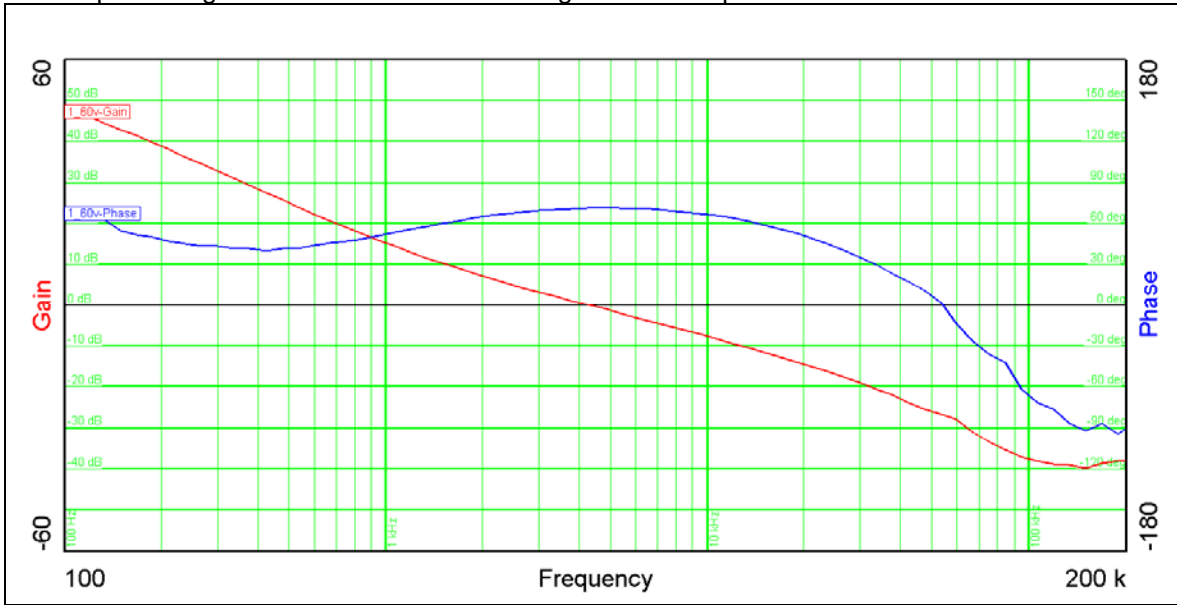


Figure 25

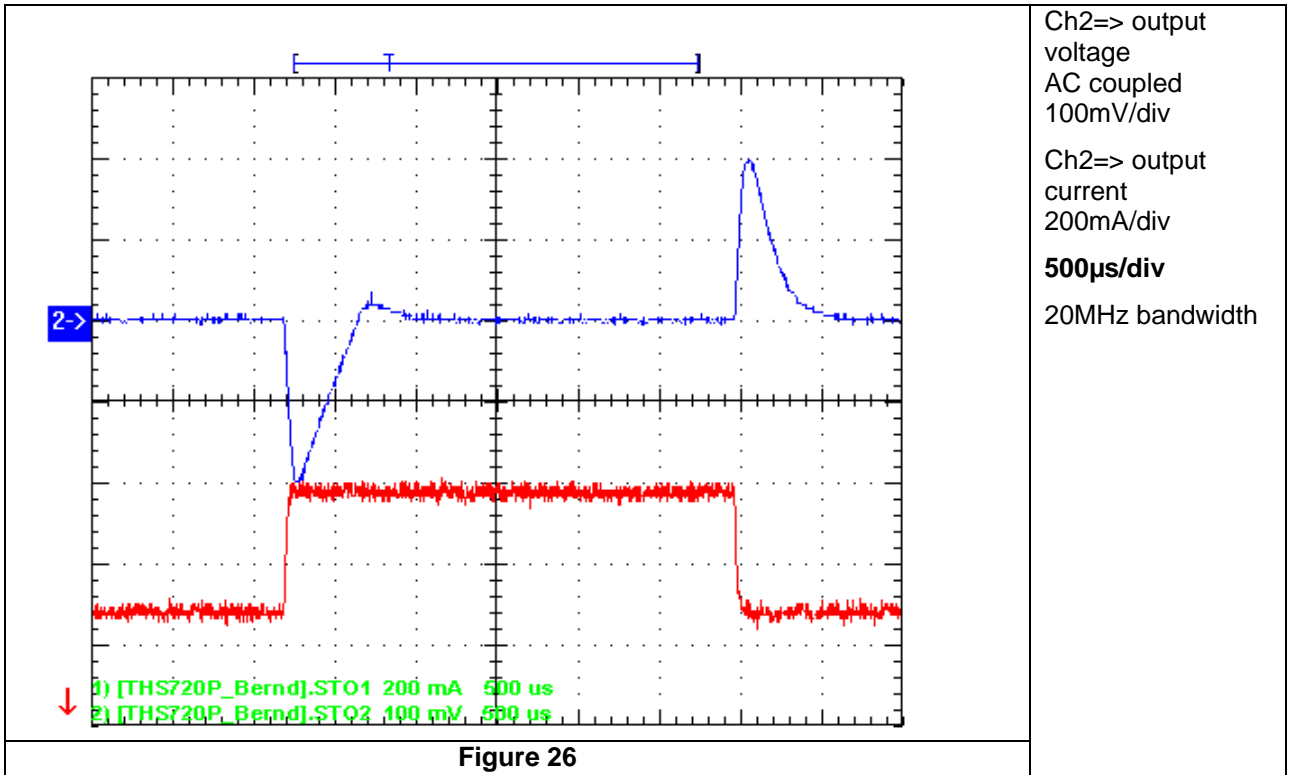
Table 1 summarizes the results.

Vin	34V	48V	60V
Bandwidth (kHz)	4.3	4.3	4.28
Phase margin	73°	72.5°	71.2°
slope (20dB/decade)	-1	-1.05	-1.05
gain margin (dB)	-27.6	-26.3	-26.8
slope (20dB/decade)	-1.71	-2.3	-1.42
freq (kHz)	68	59.8	54.2

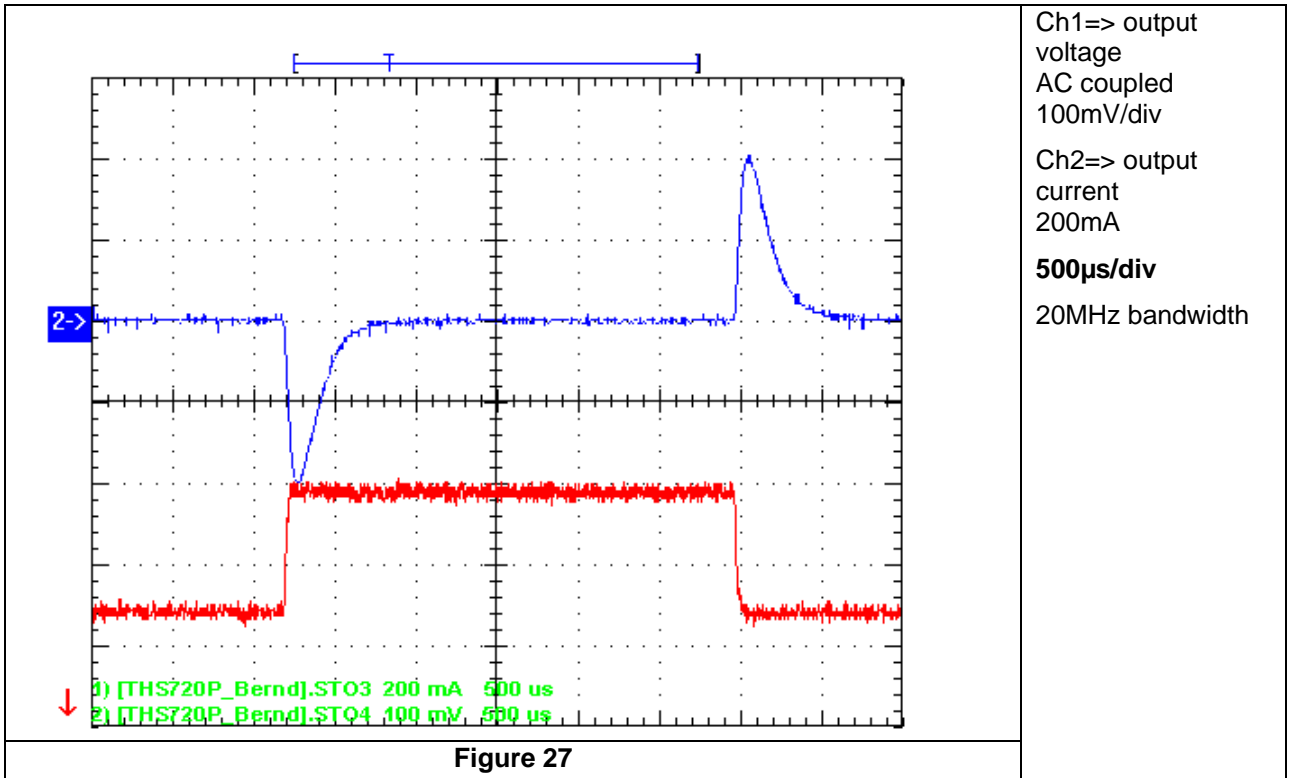
Table 1

10 Load Transients

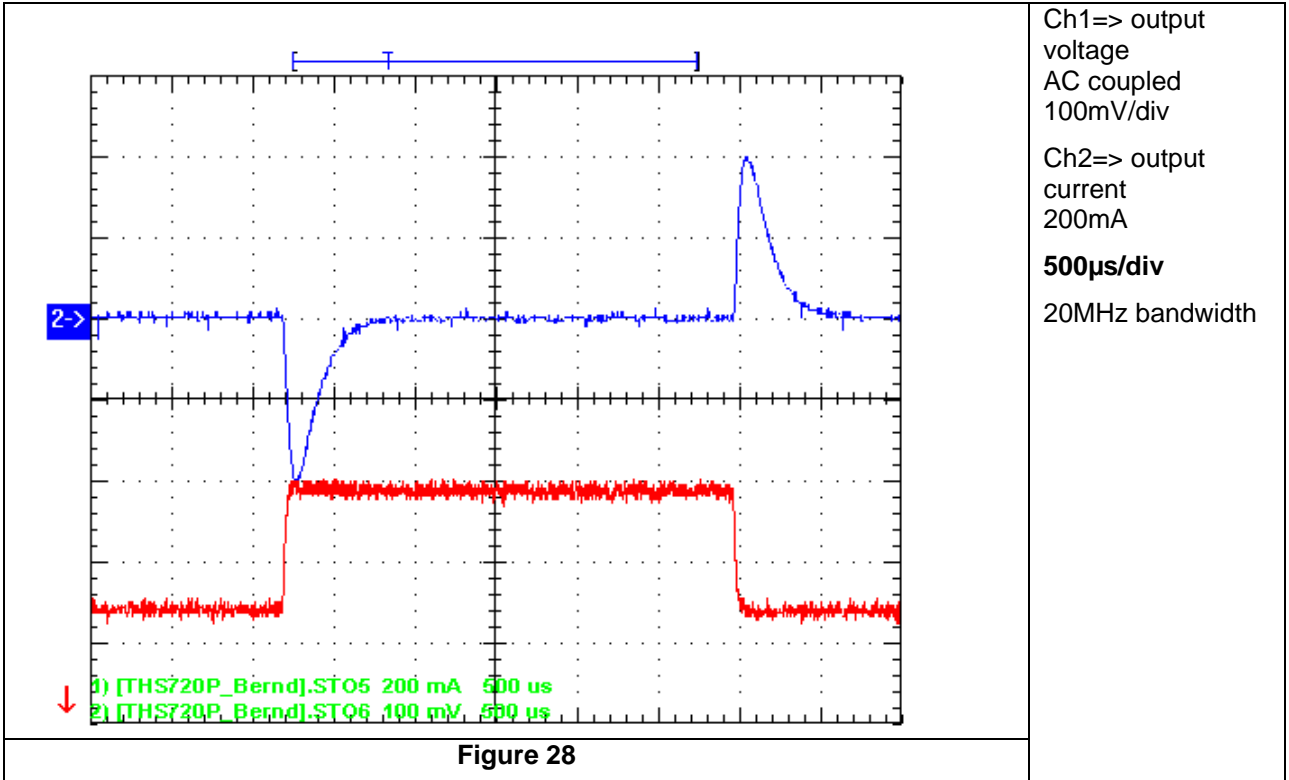
A output current change from 300mA to 600mA results in following Figure 26. The input voltage was set to 34V



A output current change from 300mA to 600mA results in following Figure 27. The input voltage was set to 48V



A output current change from 300mA to 600mA results in following Figure 28. The input voltage was set to 60V



11 Thermal Image

Figure 29 shows the thermal image for 48V input and 600mA output current. Table 2 summarizes the temperatures.

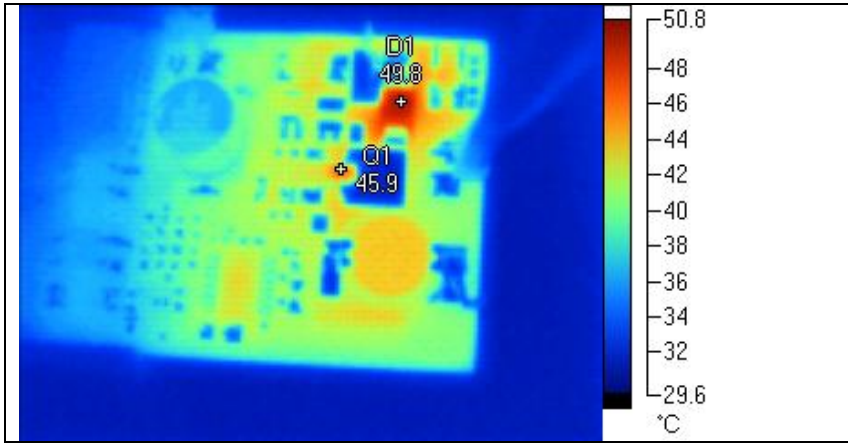


Figure 29

Name	Temperature
D1	49.8°C
Q1	45.9°C

Table 2

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