# PMP5517RevA1 Test Results

# 1 Startup

The startup waveform is shown in the Figure 1. The input voltage was set at 2.9V, with 0.8A load at the output.

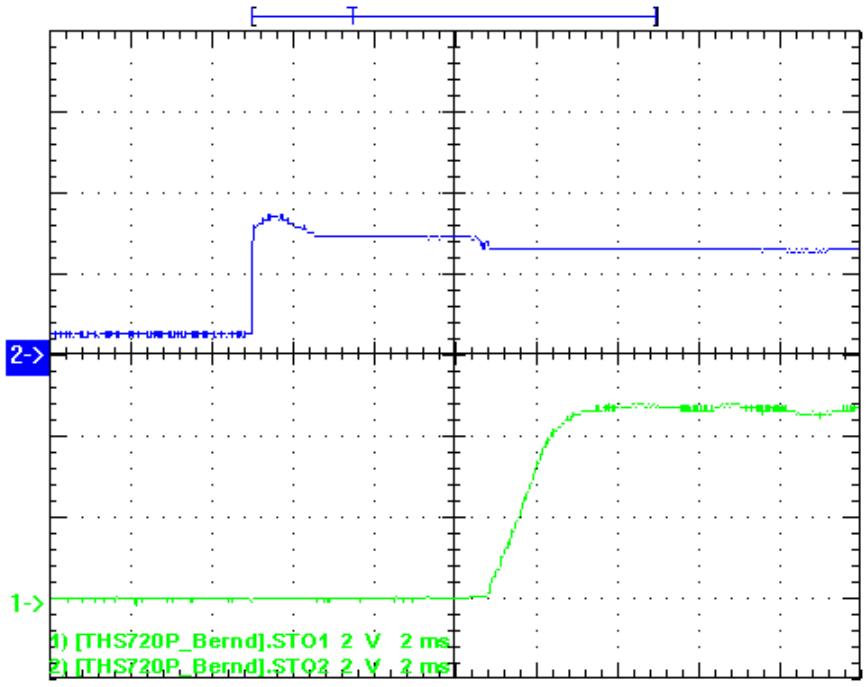



Figure 1

Ch2=> input voltage 2V/div

Ch1=> output voltage 2V/div

2ms/div

20MHz bandwidth

. The startup waveform with 9.6V input voltage shown in the Figure 2; with 0.8A load at the output.

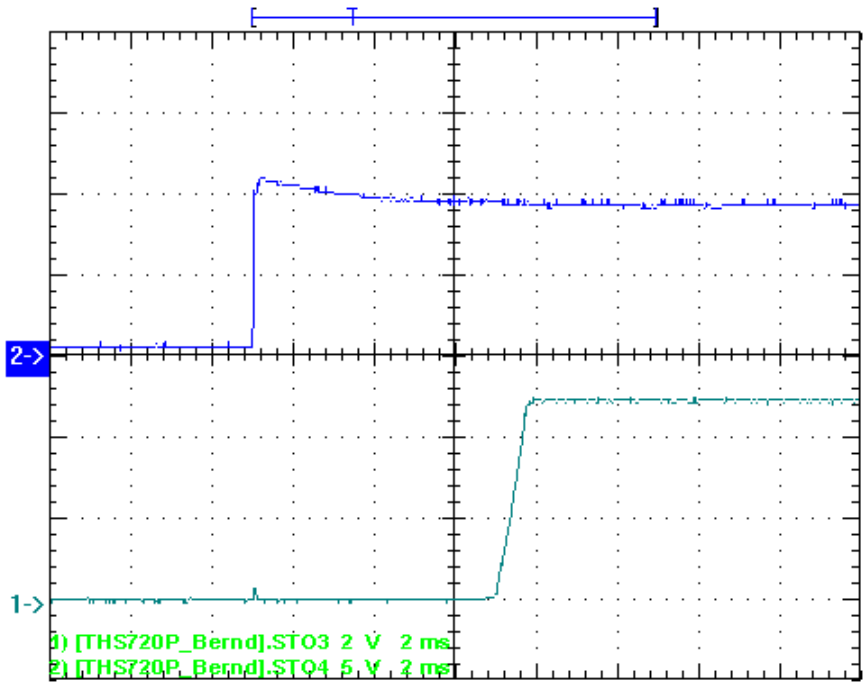



Figure 2

Ch2=> input voltage 5V/div

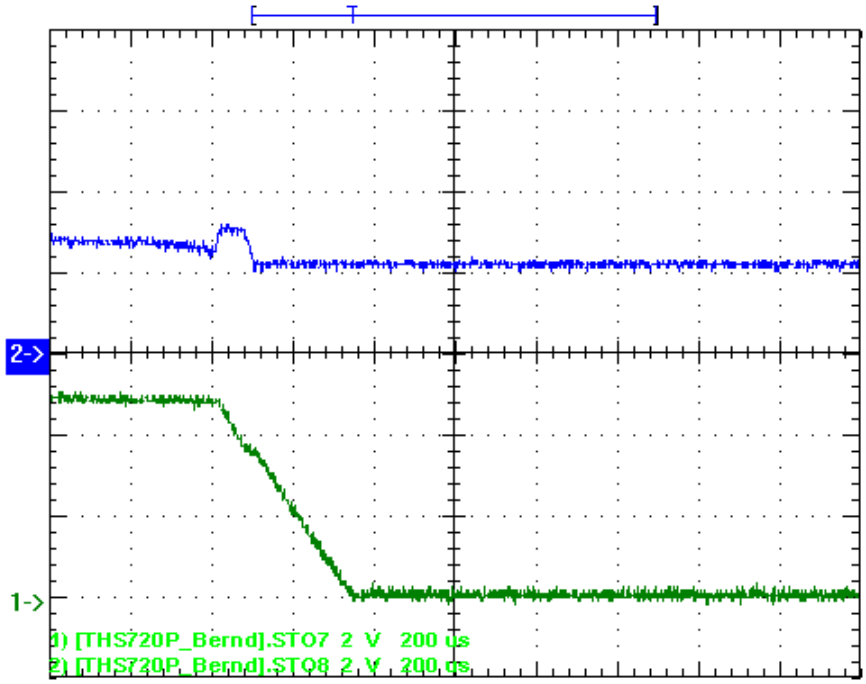
Ch1=> output voltage 2V/div

2ms/div

20MHz bandwidth

## 2 Shutdown

The shutdown waveform is shown in the Figure 3 at 2.9V input voltage. With 0.8A load applied at the output.




Ch2=> input voltage
2V/div

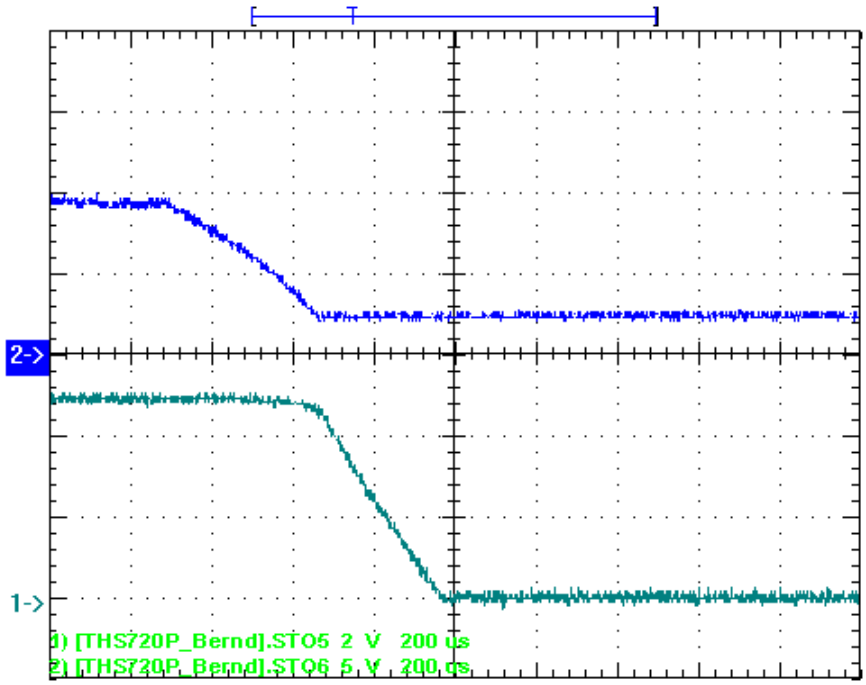
Ch1=> output voltage
2V/div

200µs/div

20MHz bandwidth

**Figure 3**

The shutdown waveform is shown in the Figure 4 at 9.6V input voltage. With 0.8A load applied at the output.




Ch2=> input voltage
5V/div

Ch1=> output voltage
2V/div

200µs/div

20MHz bandwidth

**Figure 4**

## 3 Efficiency

The efficiency is shown in the Figure 5 below. The input voltages were adjusted to 2.9V, 5V and 9.6V respectively.

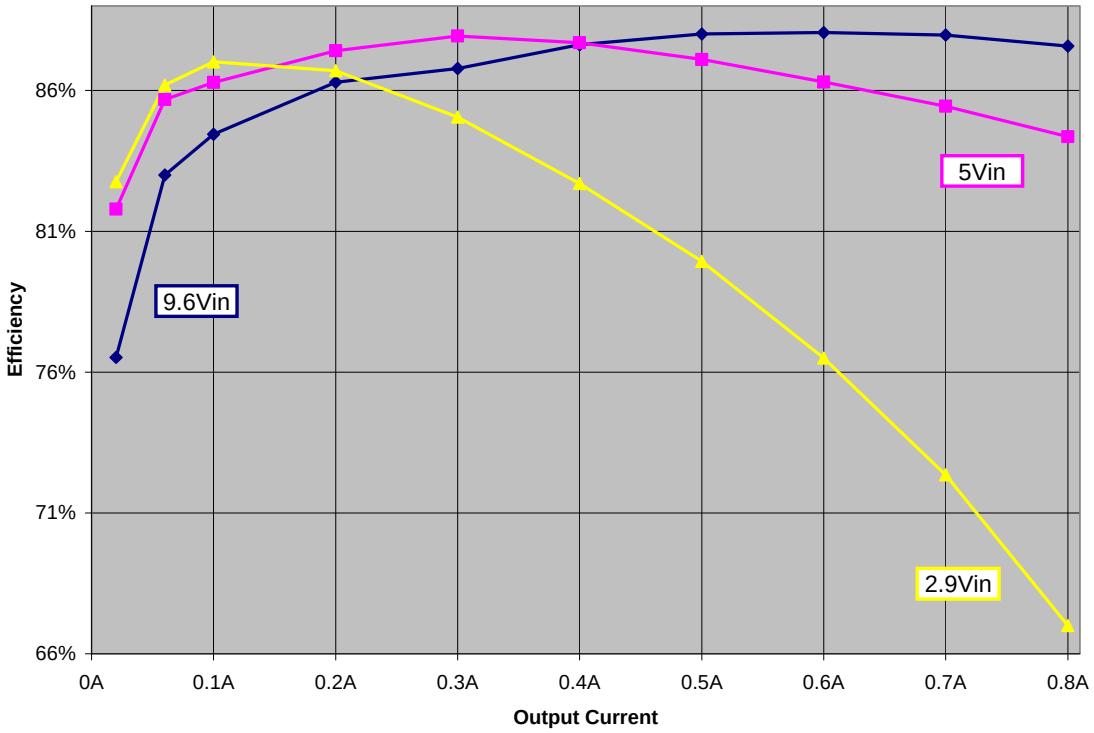



**Figure 5**

## 4 Load regulation

The load regulation for 2.9V, 5V and 9.6V input voltage is shown in Figure 6.

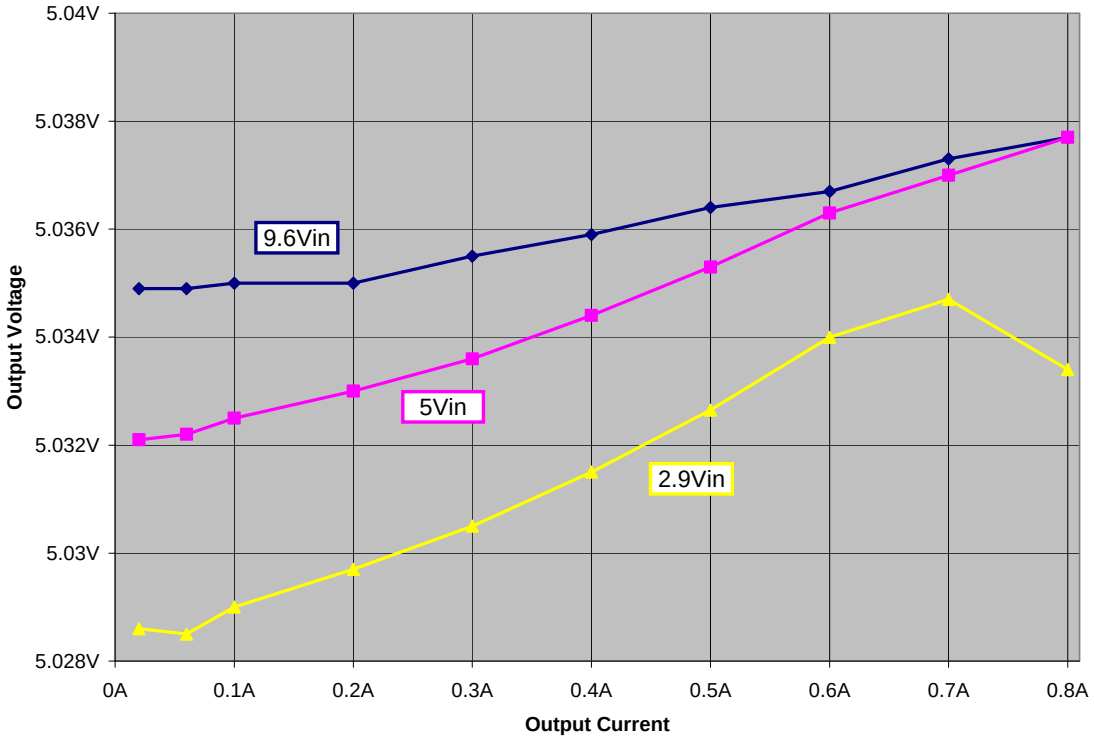



**Figure 6**

## 5 Line Regulation

The line regulation at 0.8A output current is shown in Figure 7

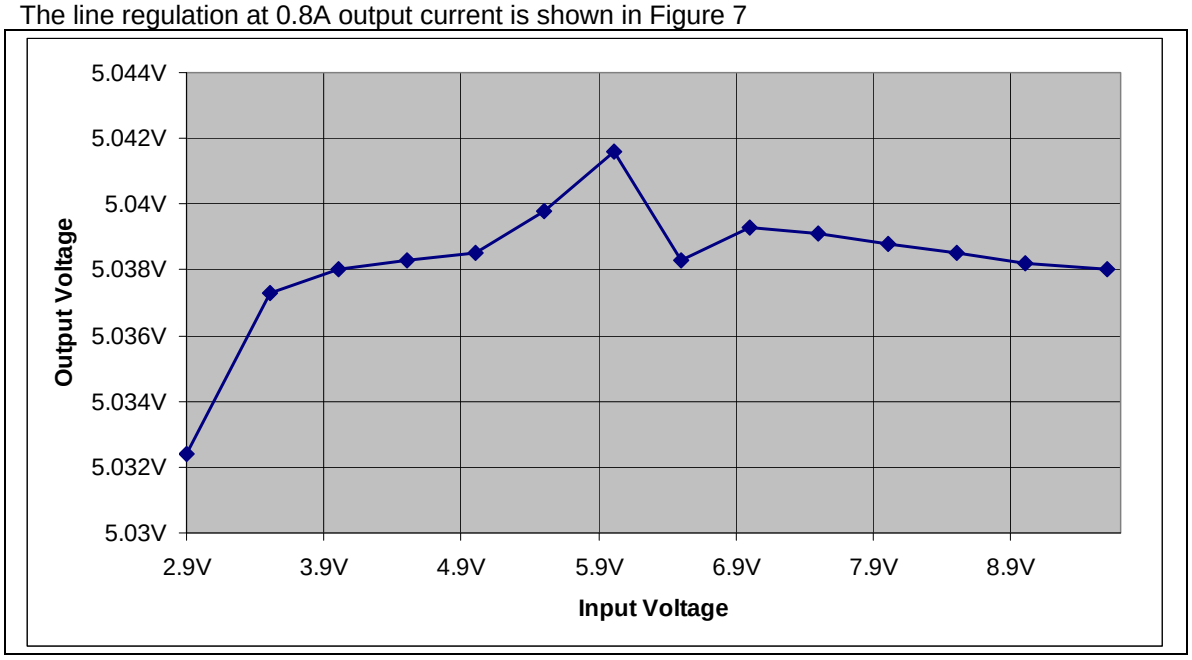



**Figure 7**

With the same measurement setup the efficiencies are shown in Figure 8.

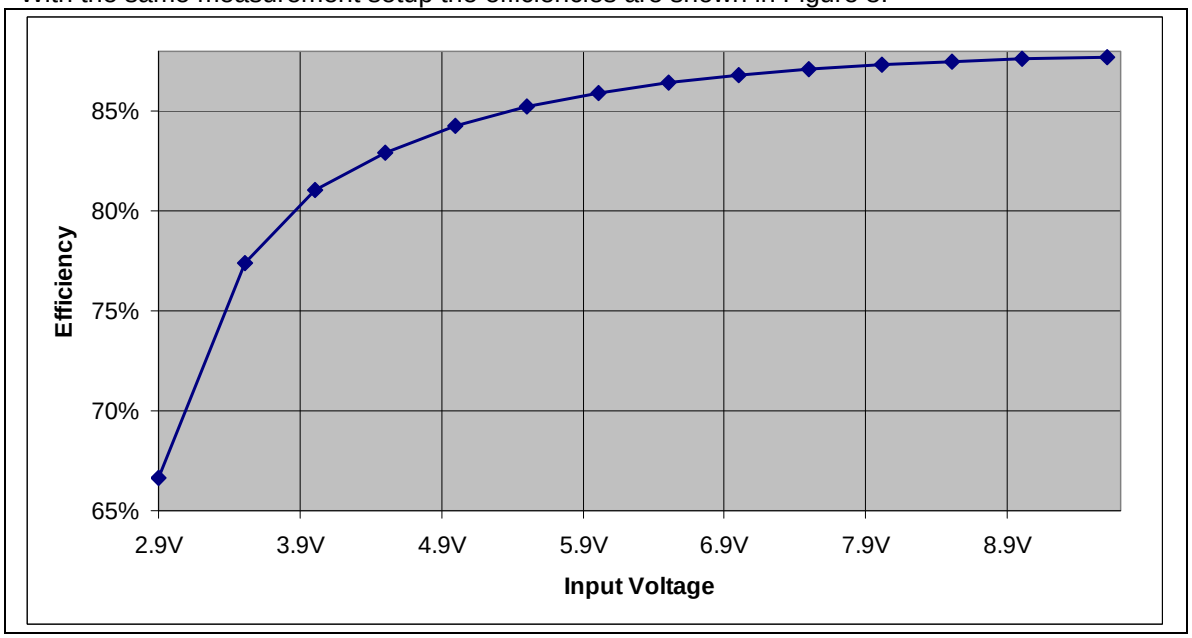



**Figure 8**

## 6 Control Loop Frequency Response

Figure 9 shows the loop response. 0.8A-load applied. The input voltages were set to 2.9V and 9.6V.

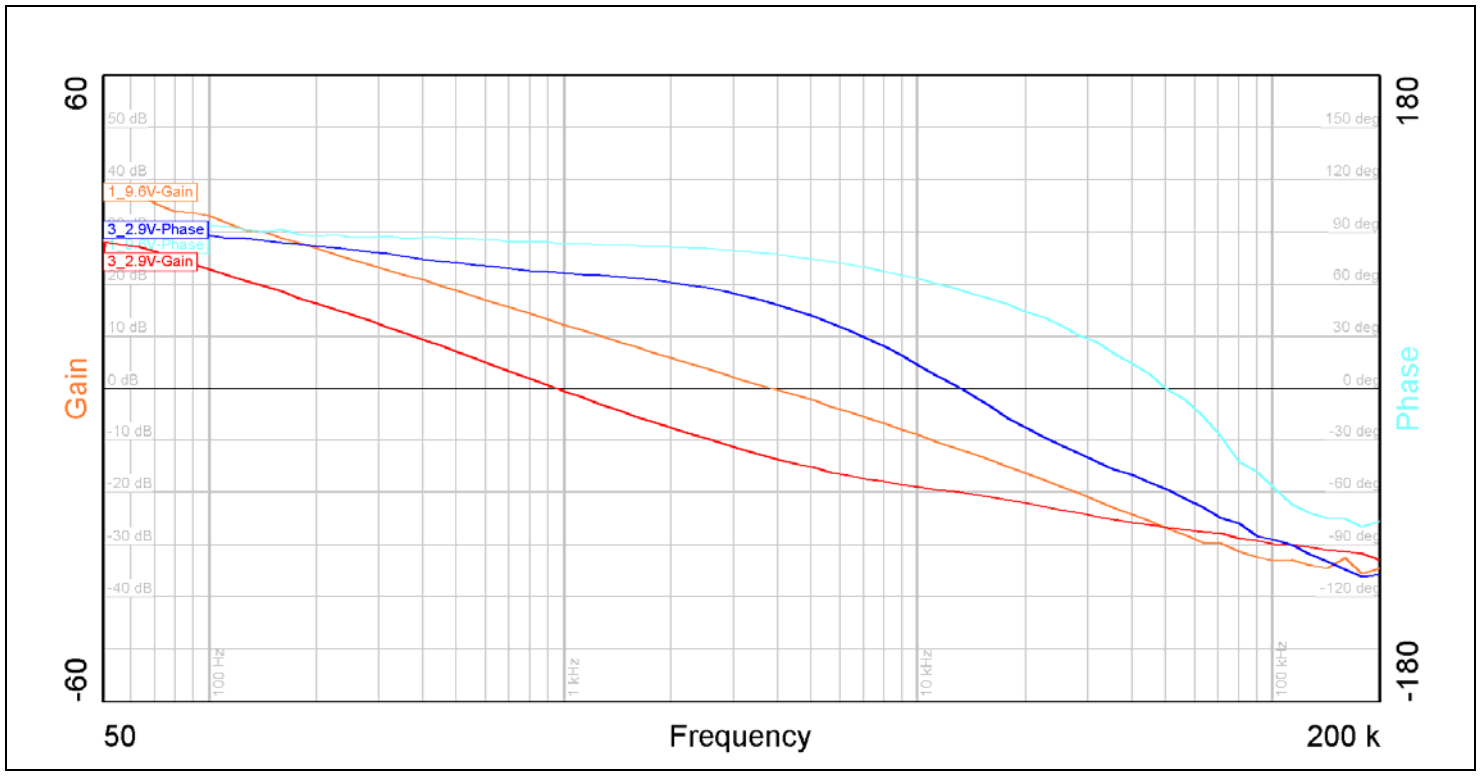



**Figure 9**

Table 1 summarizes the results from Figure 9

| | | |
|---|---|---|
| **Vin** | 2.9V | 9.6V |
| **Bandwidth (kHz)** | 0.953 | 3.87 |
| **Phase margin** | 66.8° | 77.5° |
| **slope (20dB/decade)** | -1.24 | -1.04 |
| | | |
| **gain margin (dB)** | -20 | -26.8 |
| **slope (20dB/decade)** | -0.508 | -1.45 |
| **freq (kHz)** | 13.14 | 49.9 |

**Table 1**

## 7 Switch Node Waveform

With 0.8A load results in the waveforms shown in Figure 10 and Figure 11. 2.9V were applied to the input.

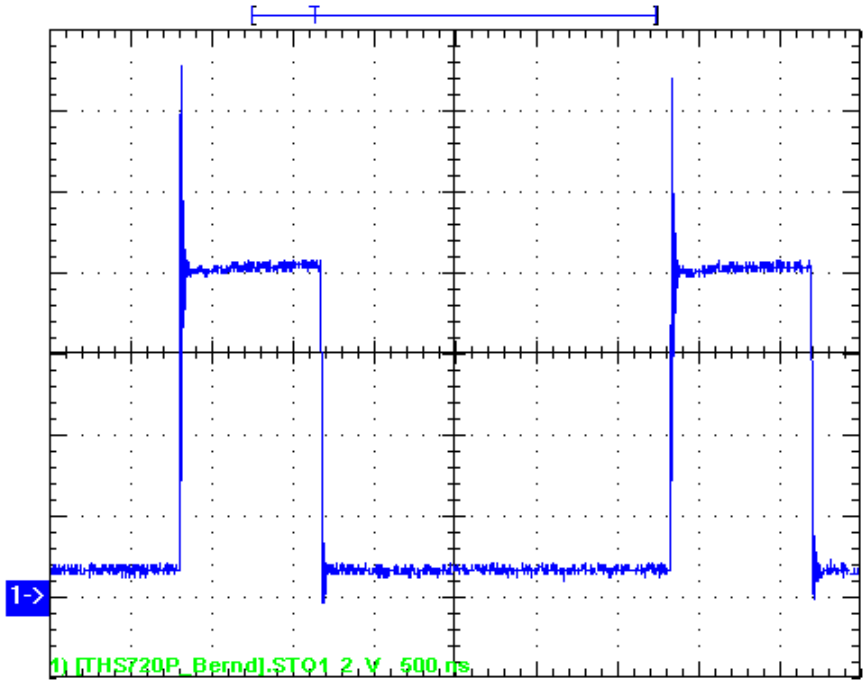



Figure 10

Ch1 => switchnode primary 2V/div

500ns/div

full bandwidth

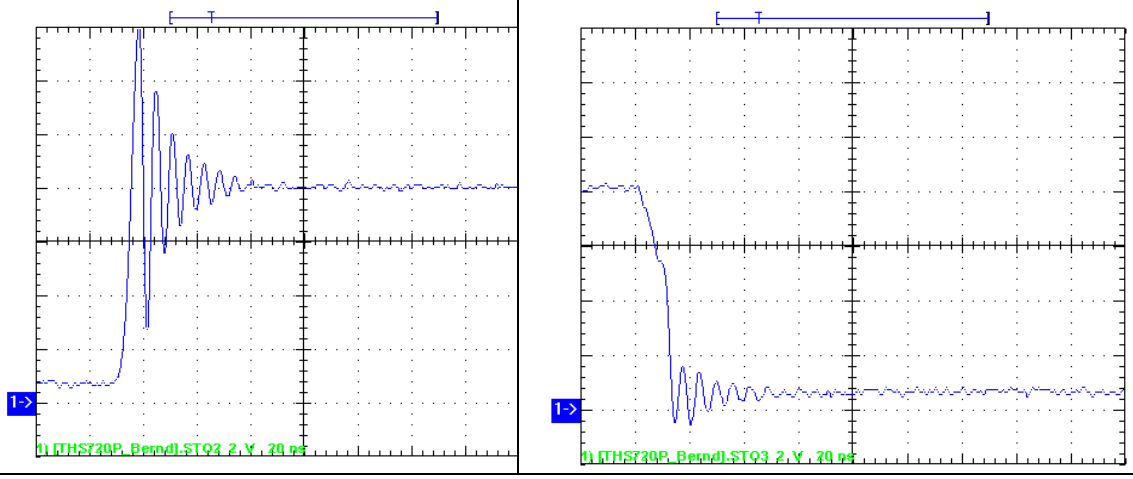


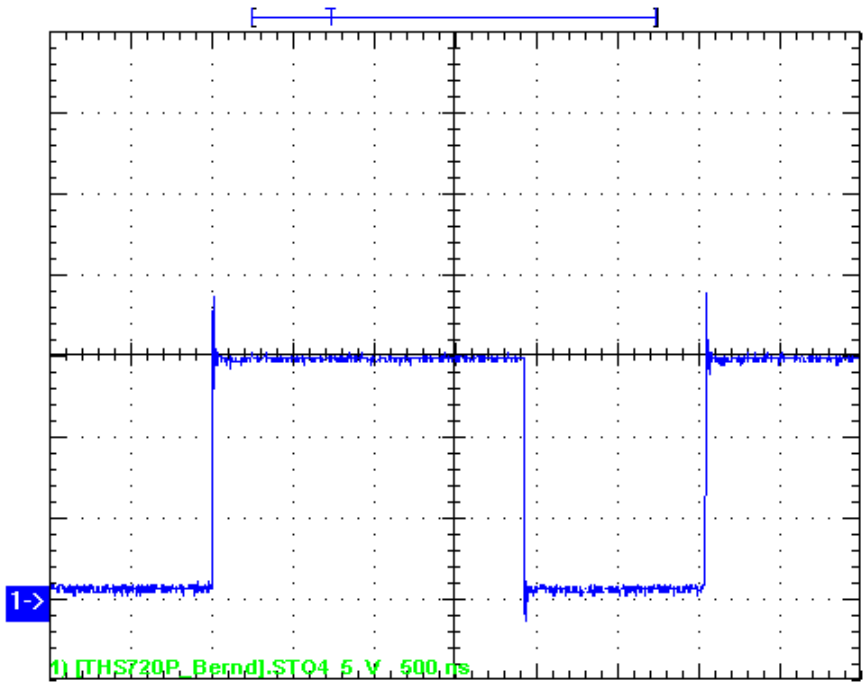

Figure 11

Ch1 => switchnode 2V/div

20ns/div

full bandwidth

With 0.8A load results in the waveforms shown in Figure 10 and Figure 11. 9.6V were applied to the input.

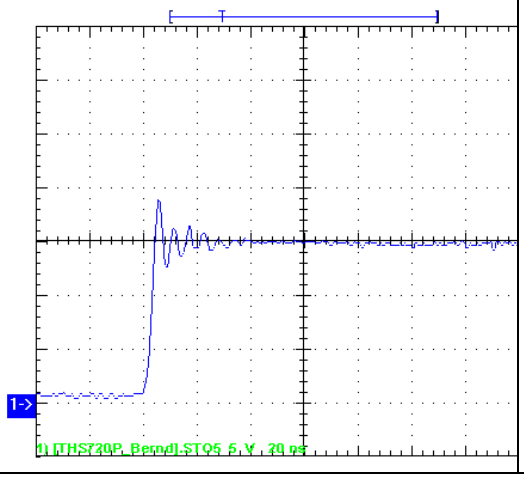


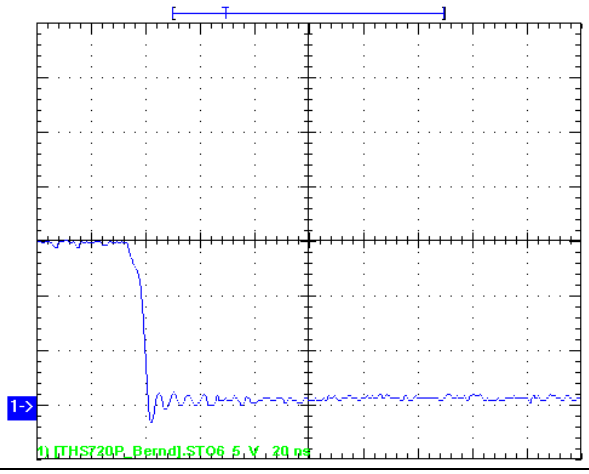

Ch1 => switchnode 5V/div

500ns/div

full bandwidth

**Figure 12**




Ch1 => switchnode primary 10V/div

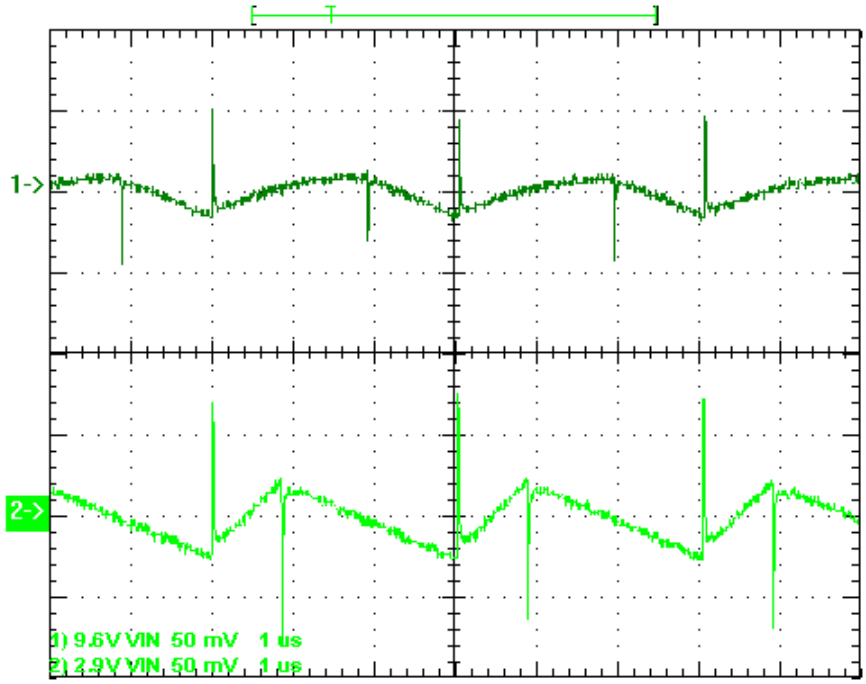
20ns/div

full bandwidth

**Figure 13**

## 8 Ripple Voltages

The output ripple voltage is displayed in Figure 14. The input voltage was set to 9.6V and 2.9V with output current 0.8A.



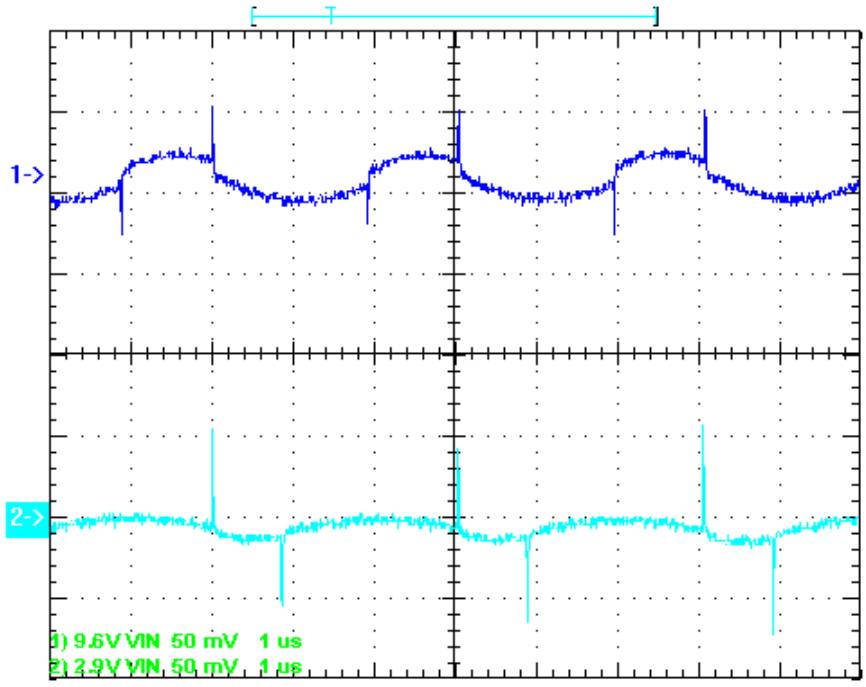

Ch1=> output voltage
50mV/div @ 9.6V Vin

Ch1=> output voltage
50mV/div @ 2.9V Vin

1µs/div
AC coupling
20MHz bandwidth

**Figure 14**

The input ripple voltage is displayed in Figure 15. The input voltage was set to 9.6V and 2.9V with output current 4A.




Ch1=> input voltage
50mV/div @ 9.6V Vin

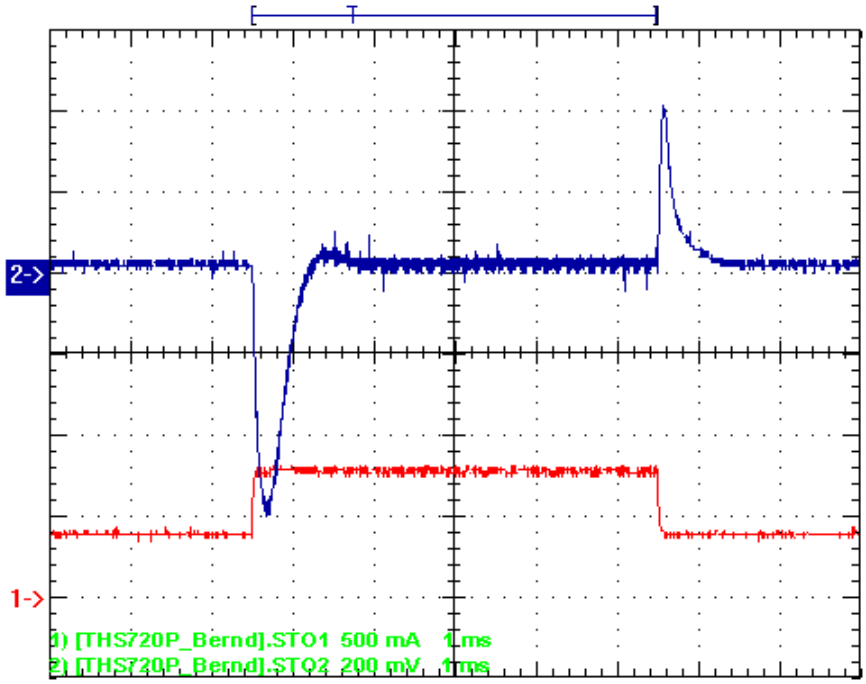
Ch2=> input voltage
50mV/div @ 2.9V Vin

1µs/div
AC coupling
20MHz bandwidth

**Figure 15**

## 9 Load Transients

A output current change from 0.4A to 0.8A results in following Figure 16.The input voltage was set to 2.9V




Ch2=> output voltage
AC coupled
200mV/div

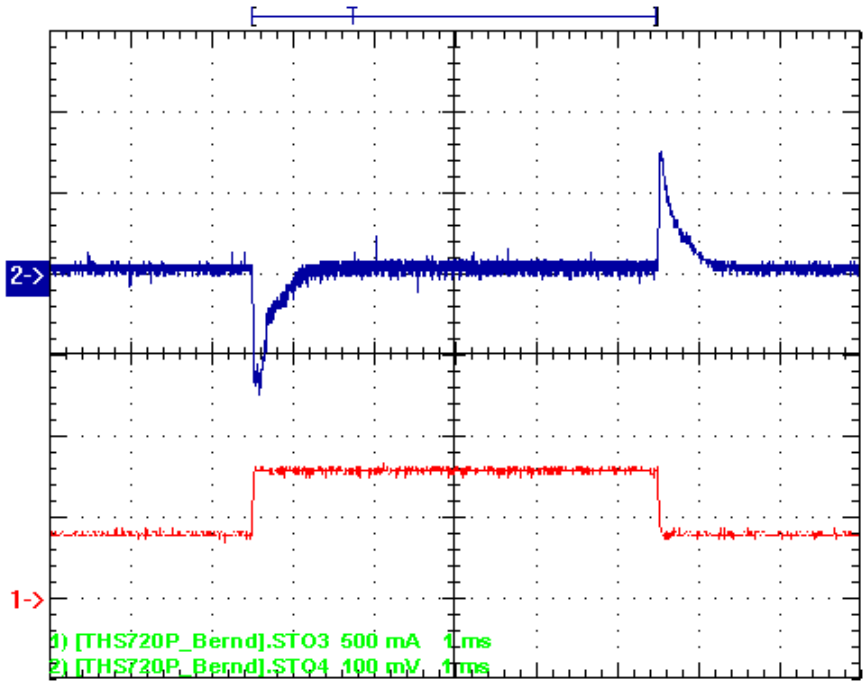
CH1=> output current
500mA/div

1ms/div

20MHz bandwidth

**Figure 16**

A output current change from 0.4A to 0.8A results in following Figure 17.The input voltage was set to 9.6V.




Ch1=> output voltage
AC coupled
100mV/div

CH1=> output current
500mA/div

1ms/div

20MHz bandwidth

**Figure 17**

## 10 Thermal Image

The following two pictures show the thermal image at 0.8A output current. Figure 18 is the photo taken with 2.9V input voltage and Figure 19 9.6V input.

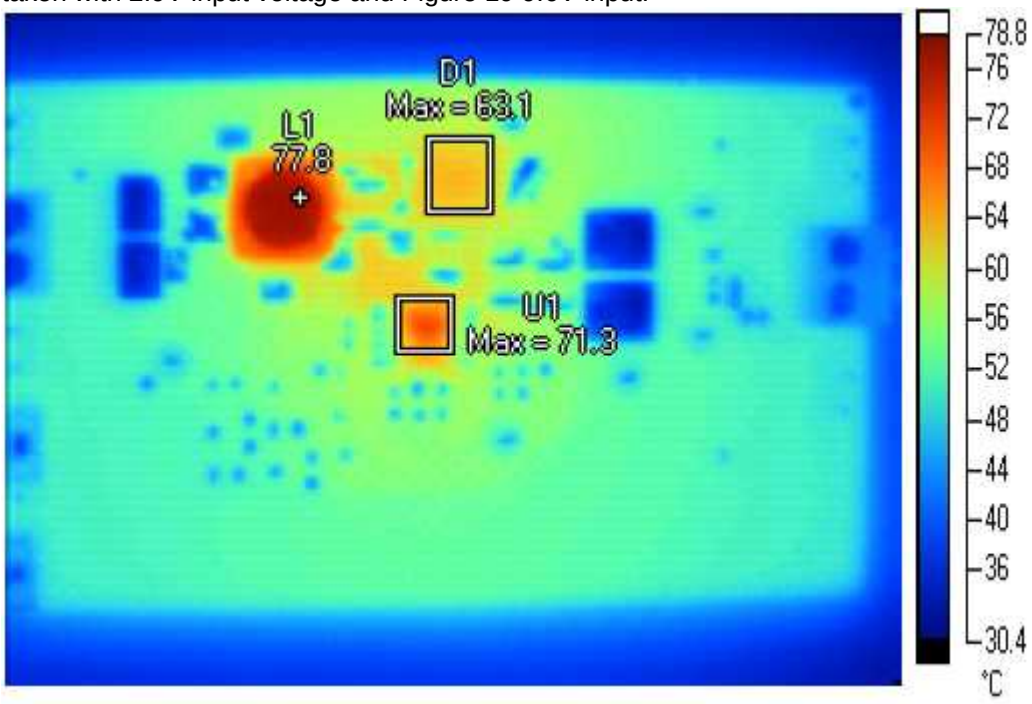



**Figure 18**

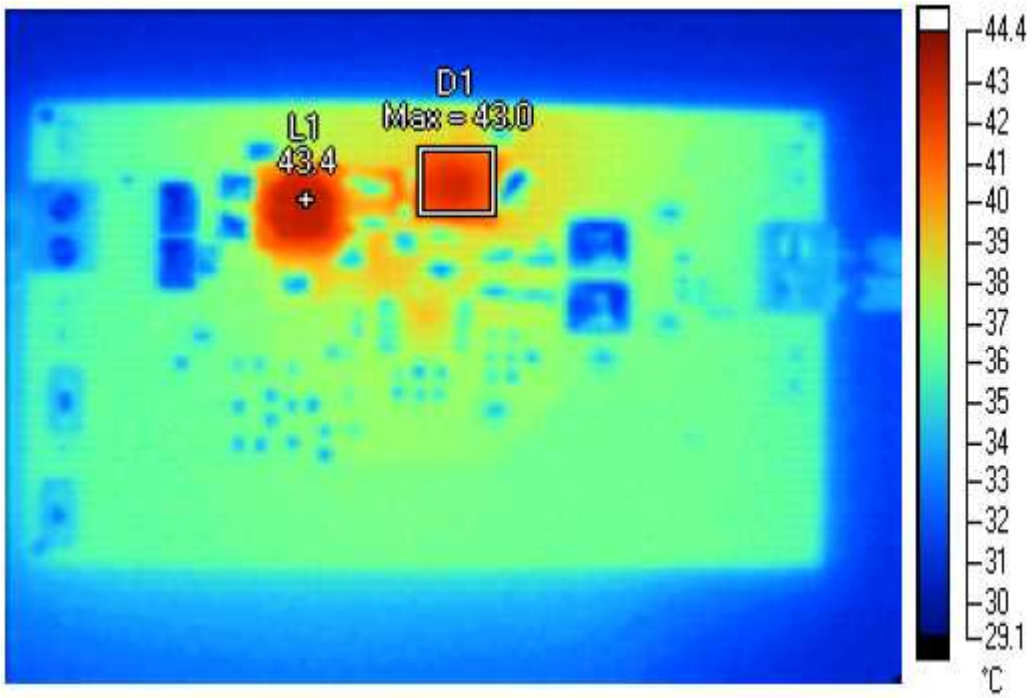



**Figure 19**

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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265