

# PMP10029RevA Test Results

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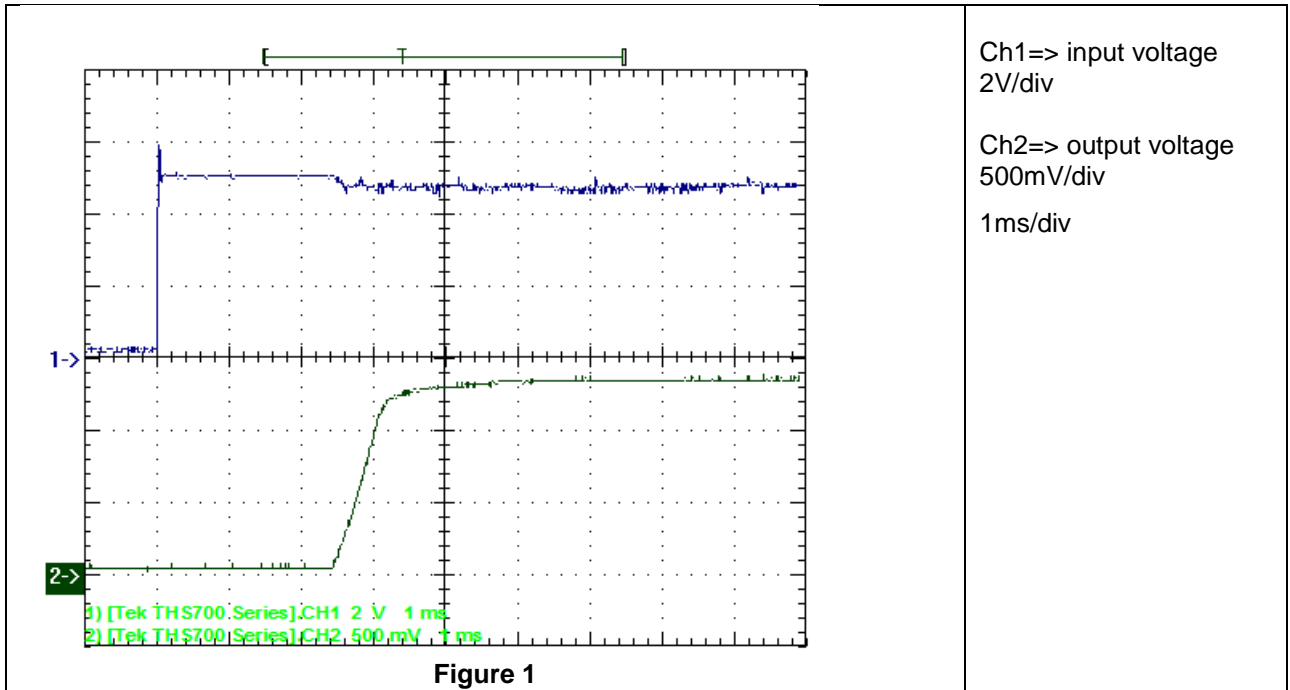
Topology: Buck

Device: controller TPS51716 and power block CSD87350Q5D (=dual FET)

Unless otherwise mentioned all measurements were done with VTT disabled (S3 LO; S5 HI) and with input voltage 5.0V

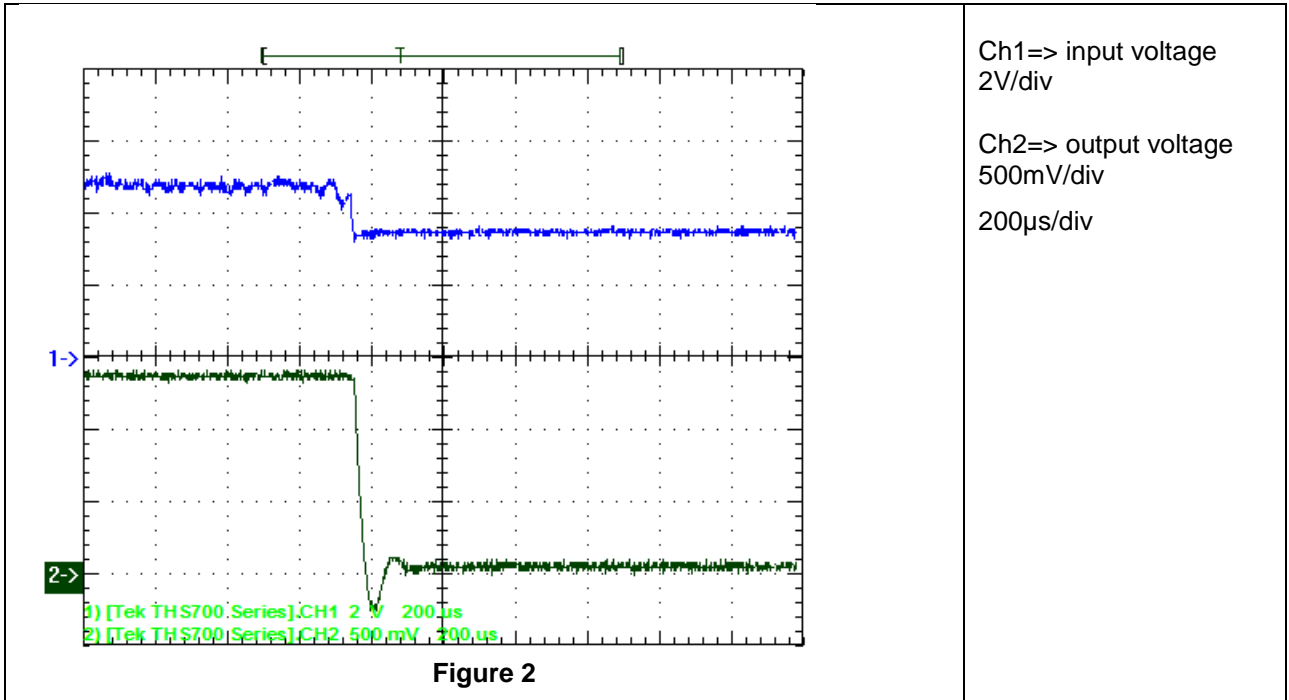
## 1 Startup

The startup waveform for 10A output current is shown in the Figure 1.

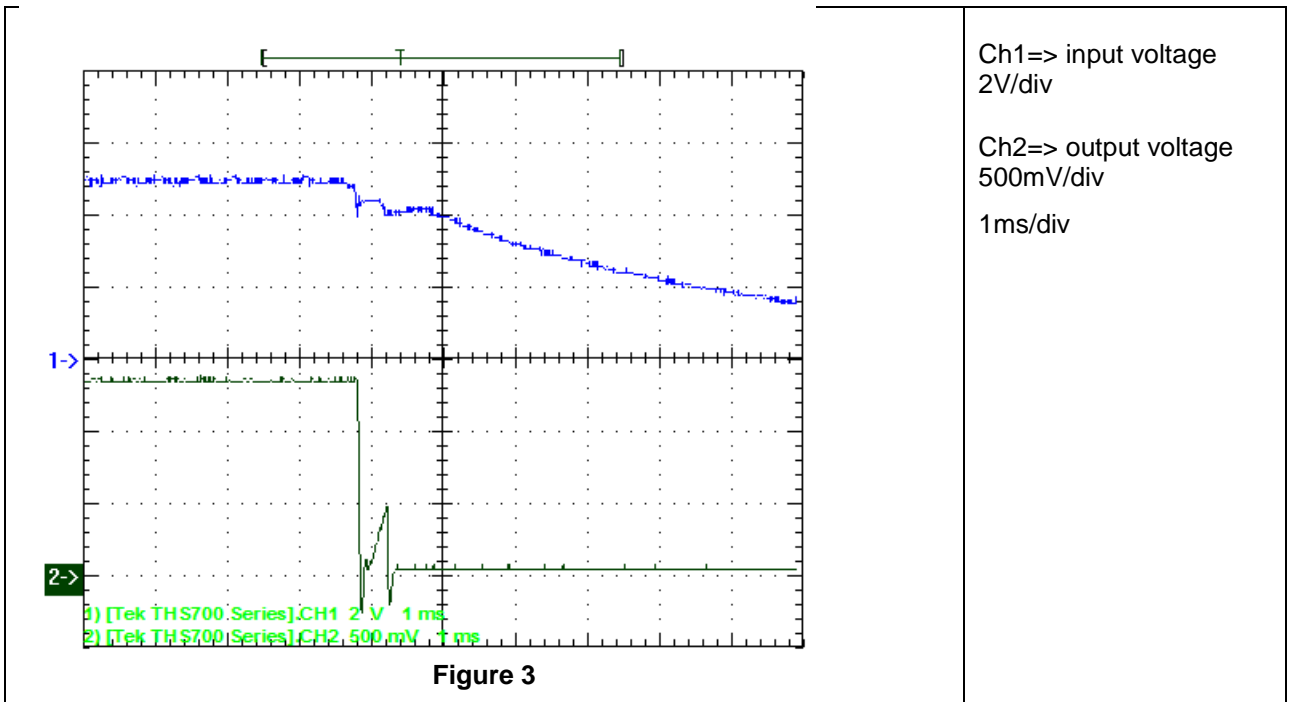


## 2 Shutdown

The shutdown waveform is shown in the Figure 2. With 10A output current, the load was disconnected



The shutdown waveform is shown in the Figure 3. With 10A output current, the load was switched off.



### 3 Efficiency

The efficiency is shown in the Figure 4 below.

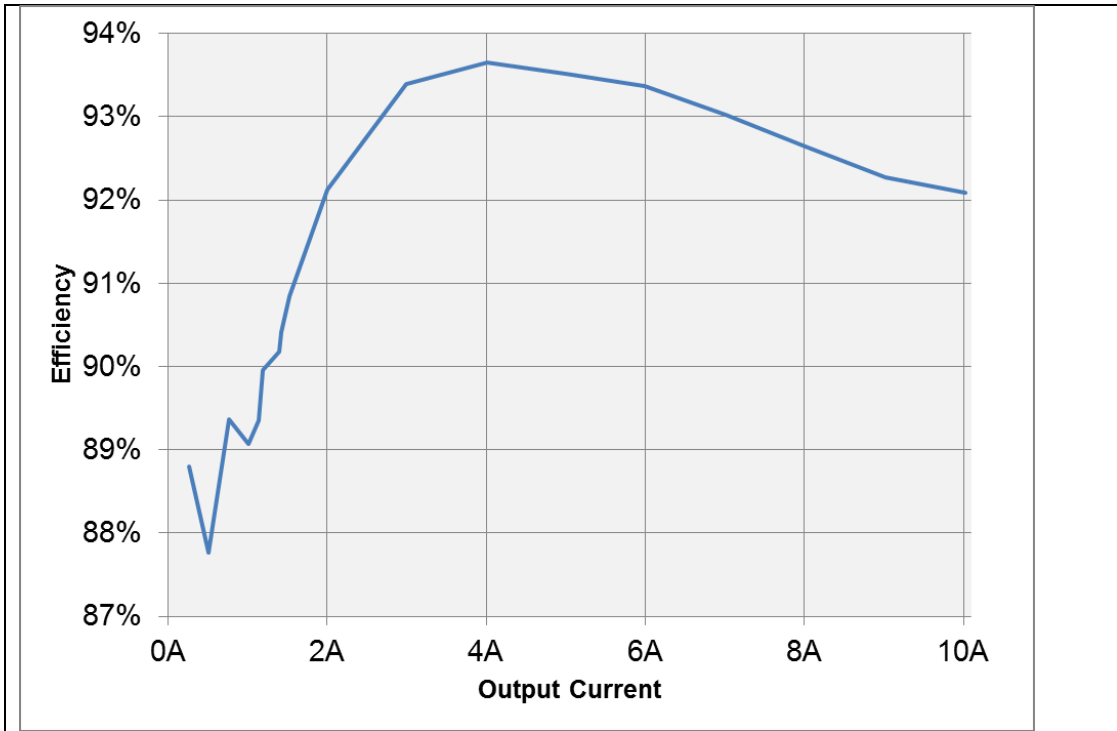


Figure 4

## 4 Load Regulation

The load regulation of the output is shown in the Figure 5 below.

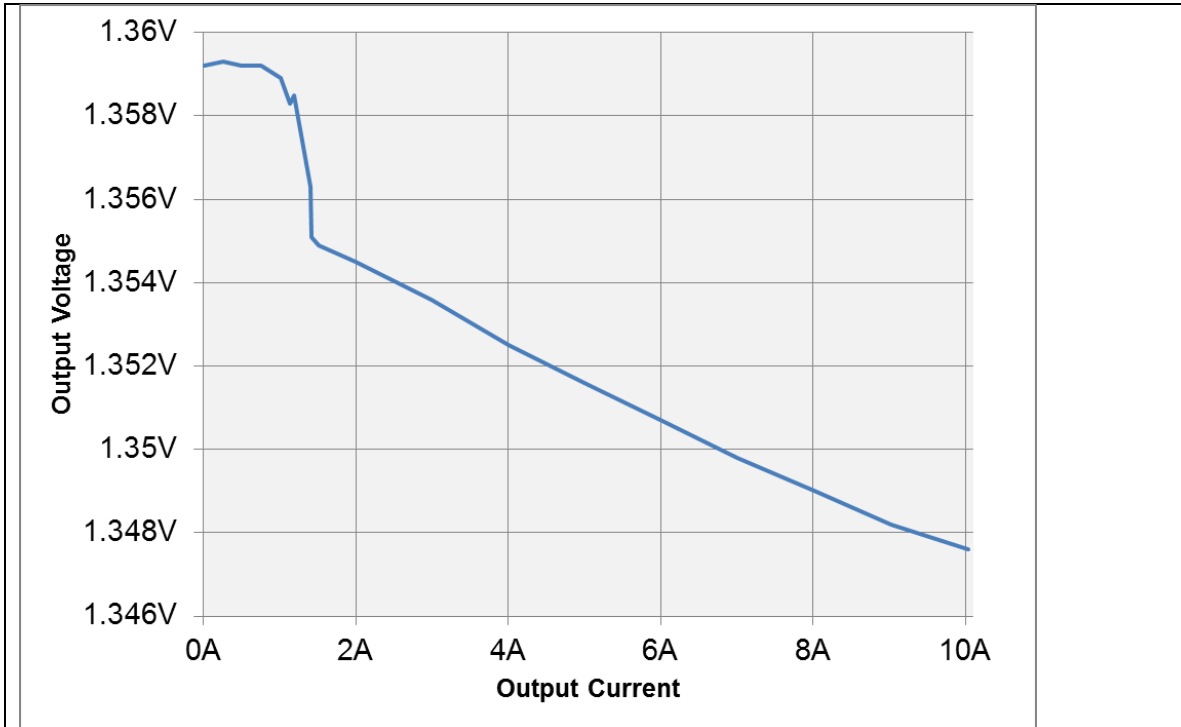
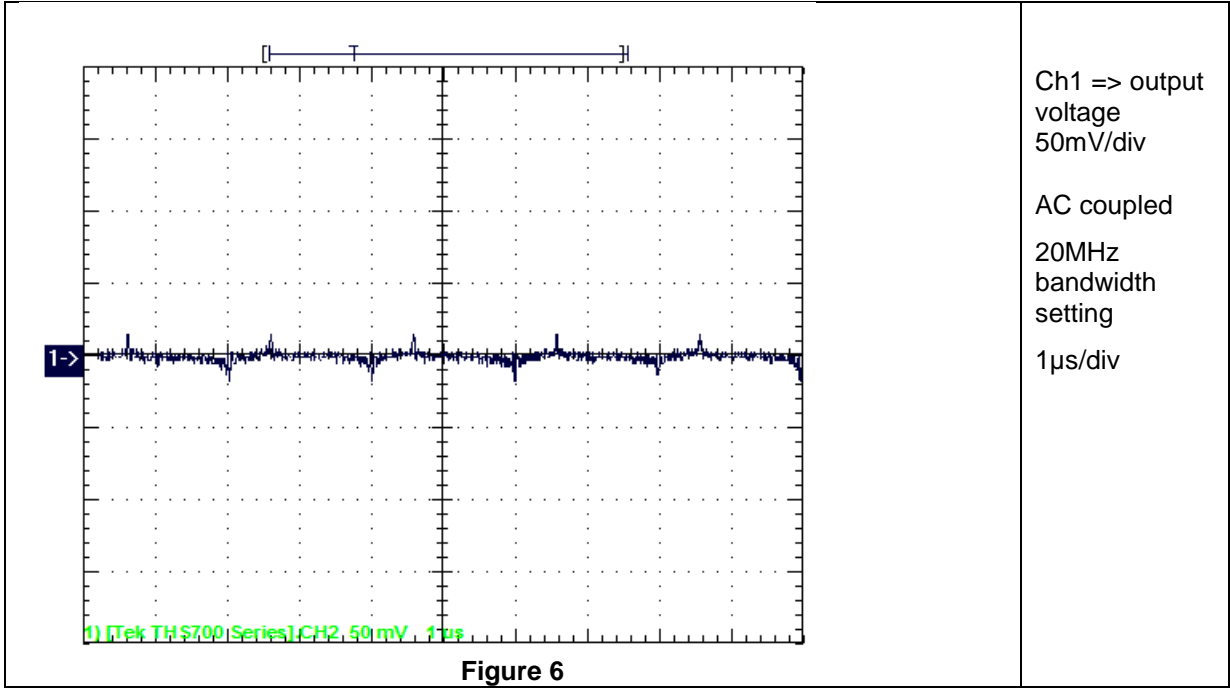


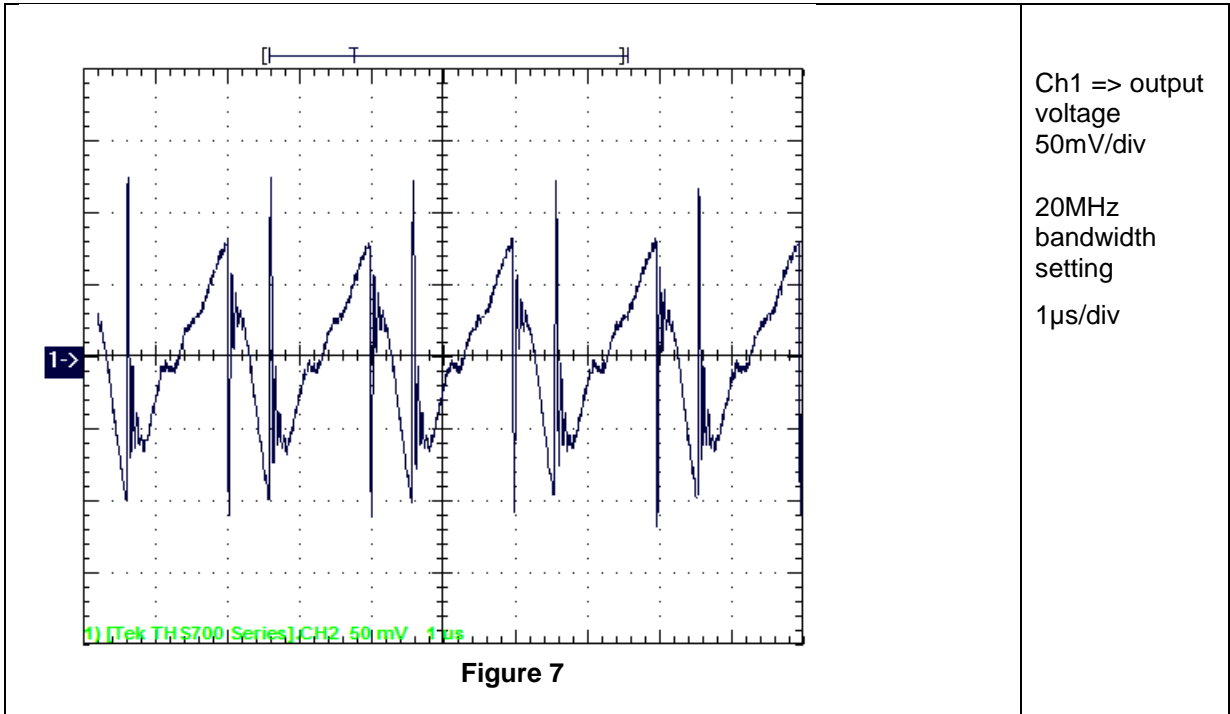
Figure 5

## 5 Ripple Voltage

The output ripple voltage is shown in Figure 6. The image was taken with a 10A load.



The input ripple voltage is shown in Figure 7. The image was taken with a 10A.



## 6 Load Transients

### 6.1 50% 5A to 10A

The Figure 8 shows the response to load transients. The load is switching from 5A to 10A with 100Hz frequency.

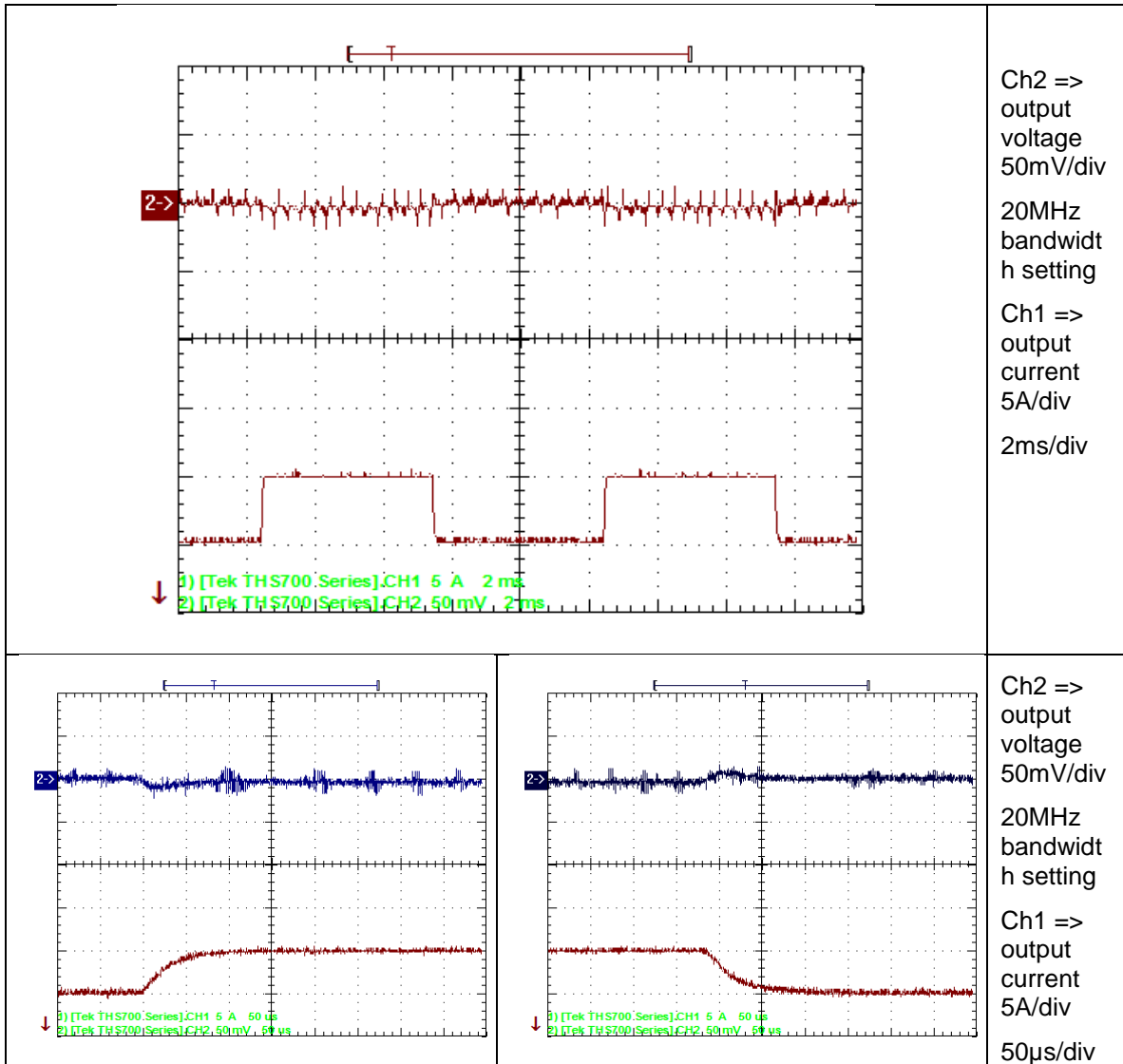


Figure 8

## 6.2 80% 2A to 10A

The Figure 8 shows the response to load transients. The load is switching from 2A to 10A with 100Hz frequency.

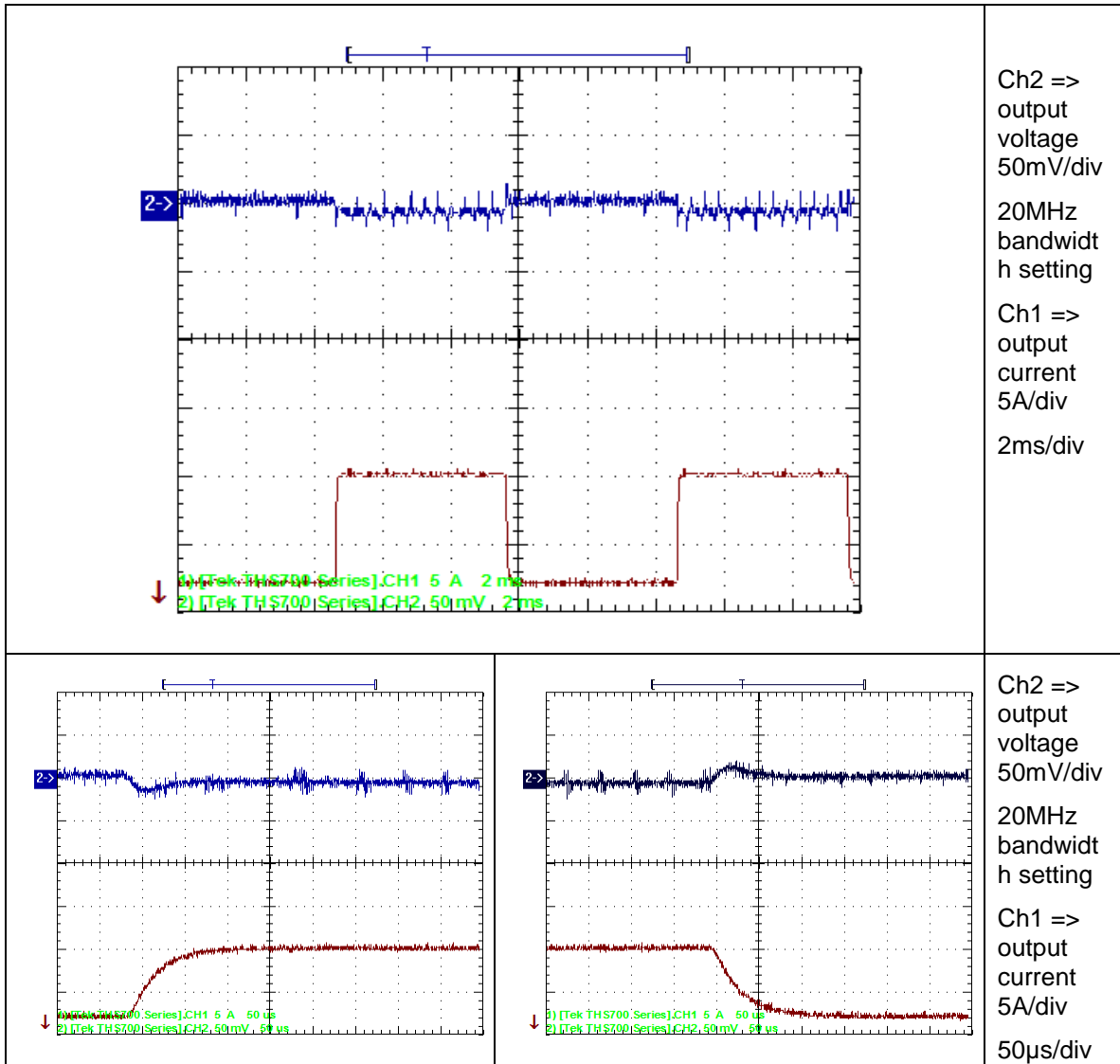


Figure 9



## 6.3 100% 0 to 10A

The Figure 10 shows the response to load transients. The load is switching from 0A to 10A with 100Hz frequency.

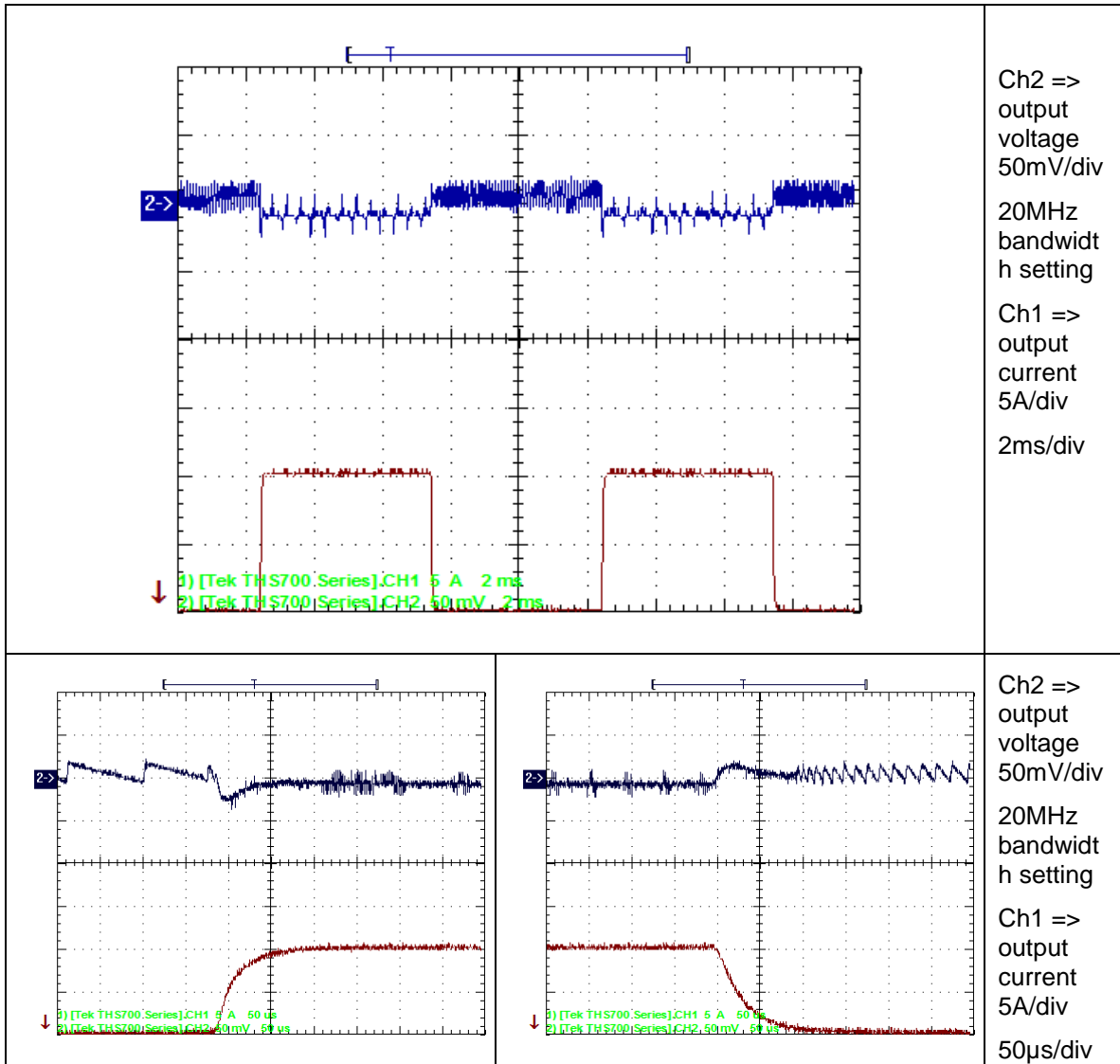


Figure 10

## 7 Miscellaneous Waveforms

### 7.1 Switch node (Low Side FET)

With 10A Iout results in the waveform shown in Figure 11

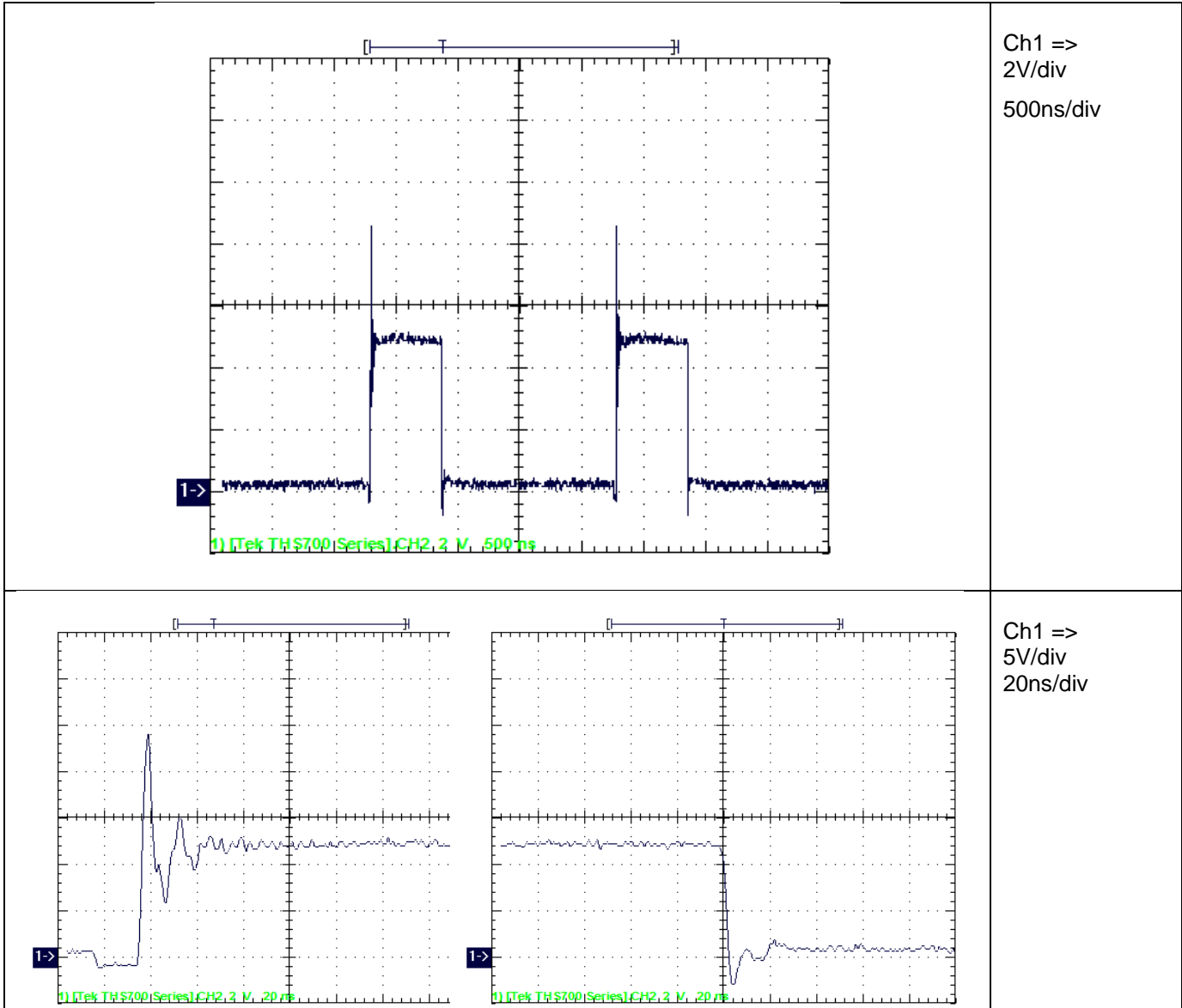


Figure 11

## 7.2 Gate of Low side MOS-FET

With input voltage set to 12V and 12A lout results in the waveform shown in Figure 11.

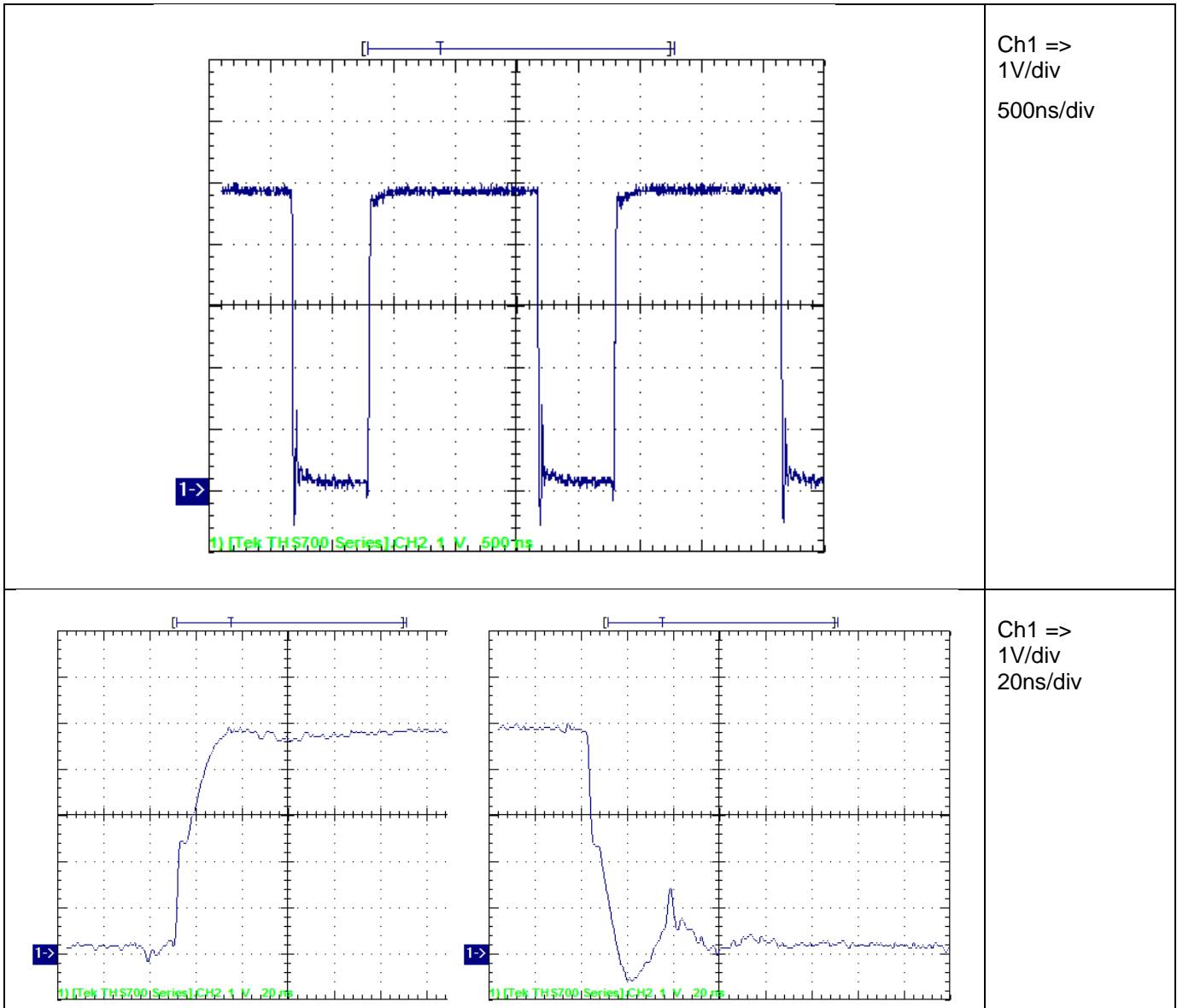
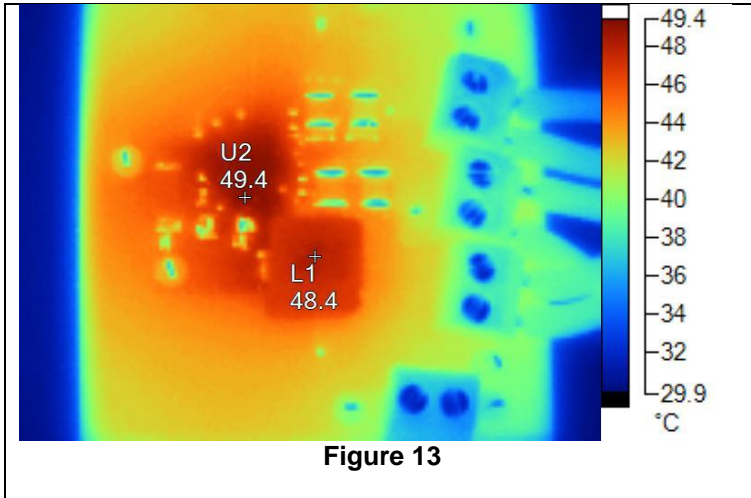


Figure 12

## 8 Thermal Image

### 8.1 10A output and 0A VTT output current (linear regulator OFF)

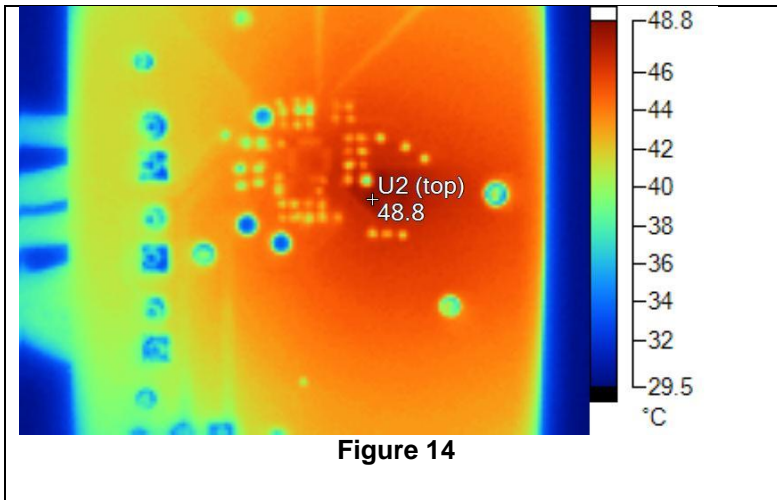
Top



Name	Temperature
U2	49.4°C
L1	48.4°C

**Table 1**

Bottom

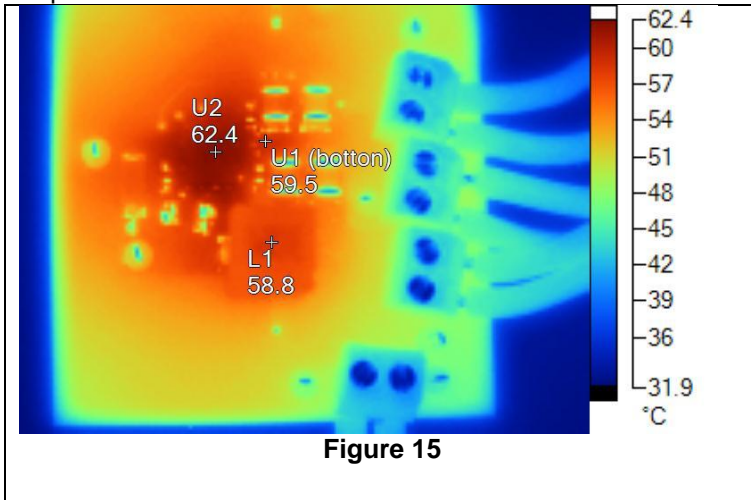


Name	Temperature
U2 (top)	48.8°C

**Table 2**

## 8.2 10A output and 1A VTT output current

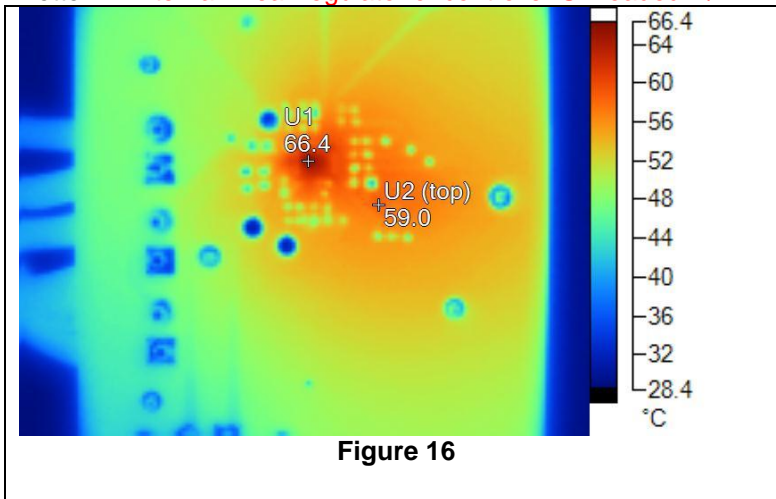
Top



Name	Temperature
U2	62.4°C
L1	58.8°C
U1 (bottom)	59.5°C

Table 3

Bottom – internal linear regulator of controller U1 loaded w/ 1Amp



Name	Temperature
U1	66.4°C
U2 (top)	59.0°C

Table 4

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