

## PMP30064 Rev. C

### TPS61040 – Flyback +9.5V/6V

#### 1 TPS61040 - +9.5V/6V Flyback Converter

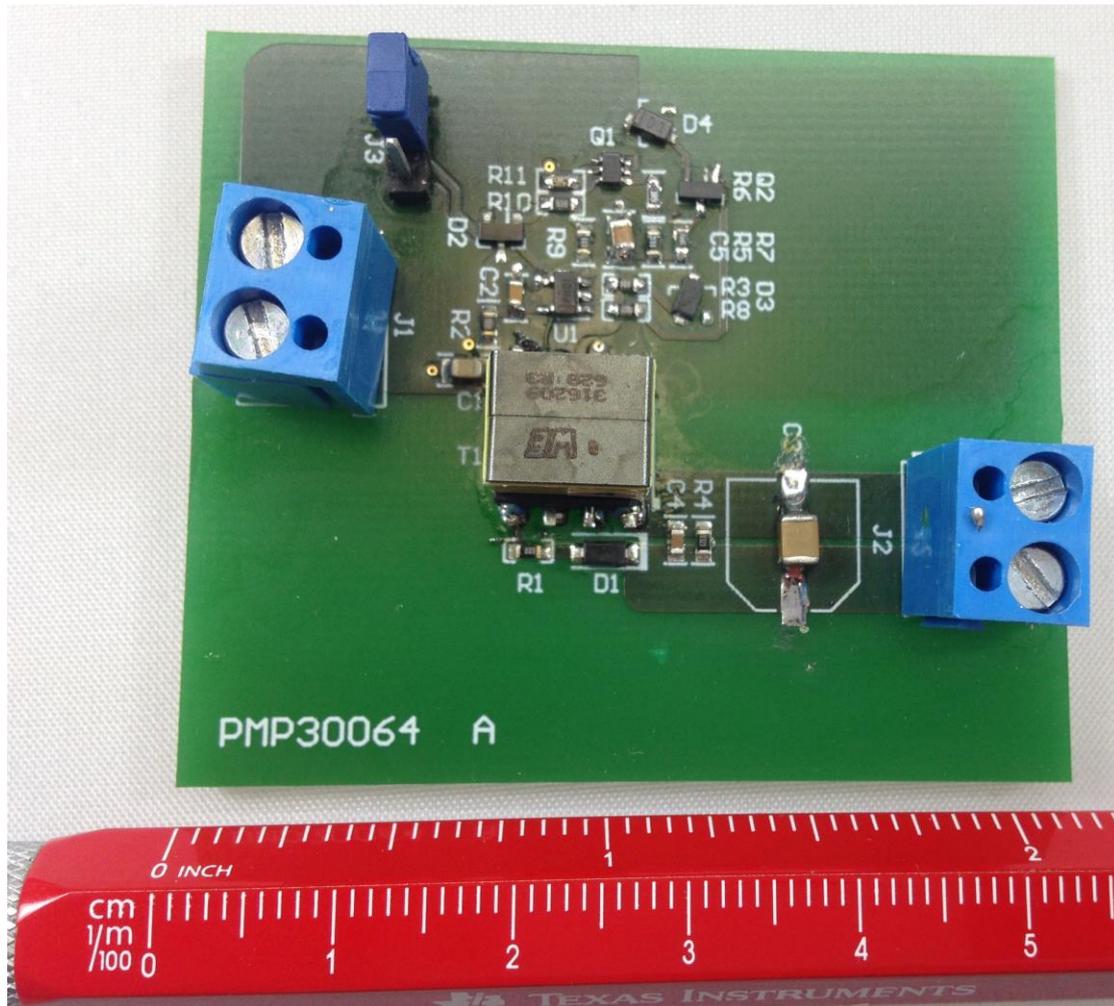
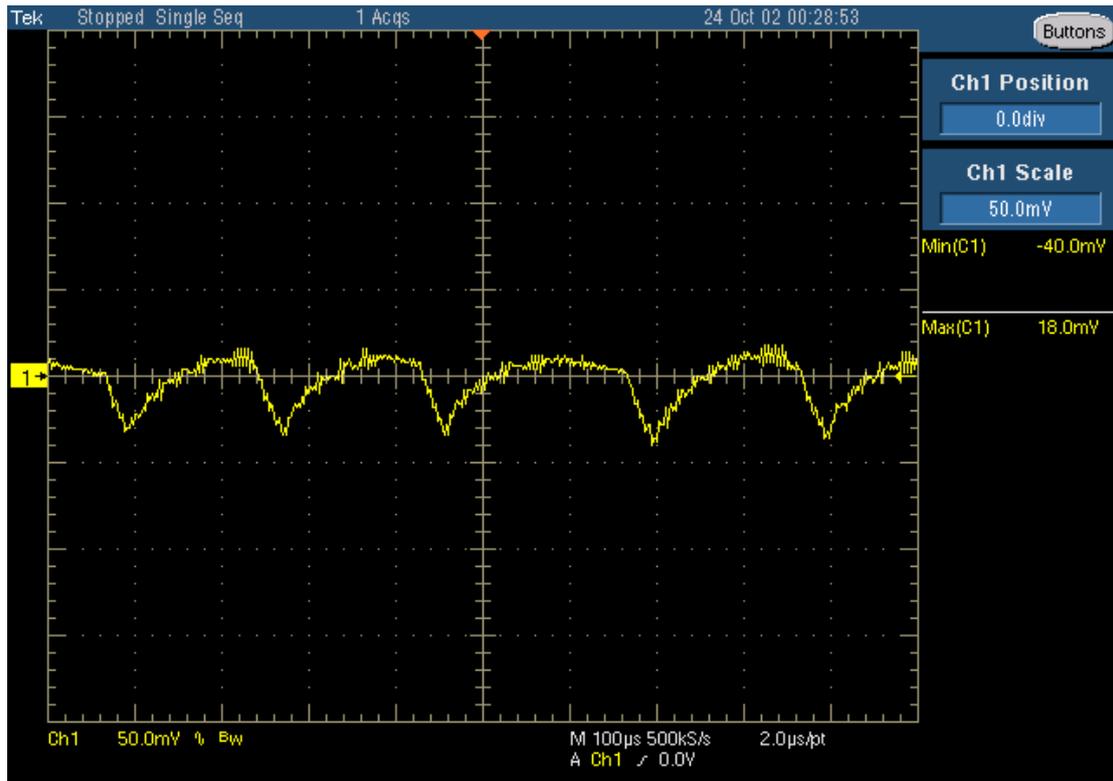


Figure 1: PCB Top

## 1.1 Output voltage ripple

The output ripple of the 6V TPS61040-Flyback converter is shown in Figure 2.

Channel Ch1: **9.5V input voltage**, 58.0mV peak-peak  
50mV/div, 100us/div



**Figure 2**

## 1.2 Switching node

The switching node is shown in Figure 3.

The input voltage is set to 10.5V with a 80mA load on the 6V output. The converter is operating in power save mode.

Channel Ch1: **Switching node**, -0.4V min, 22.8V max  
5V/div, 2.0us/div

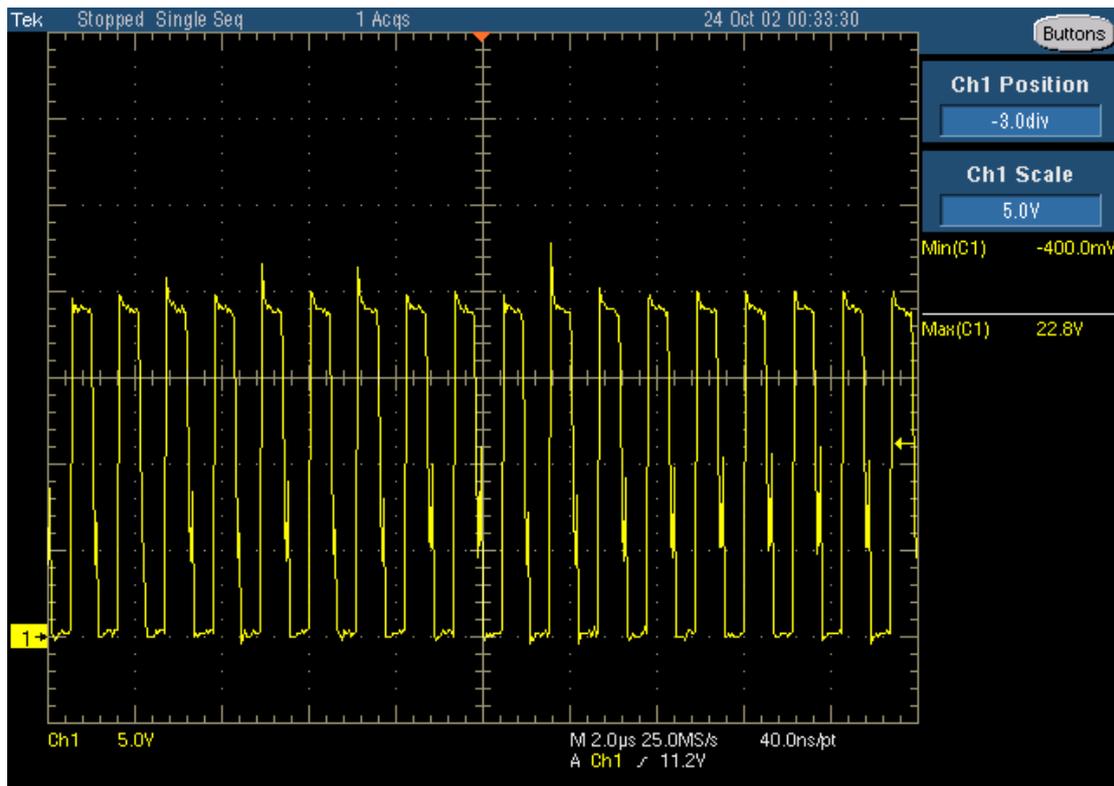


Figure 3

### 1.3 Start up

Figure 4 shows the startup of the 6V TPS61040-Flyback converter with no load.

Channel Ch1: **Input Voltage**, 9.5V, 5V/div, 4ms/div

Channel Ch2: **Output Voltage**, 6V, 2V/div, 4ms/div

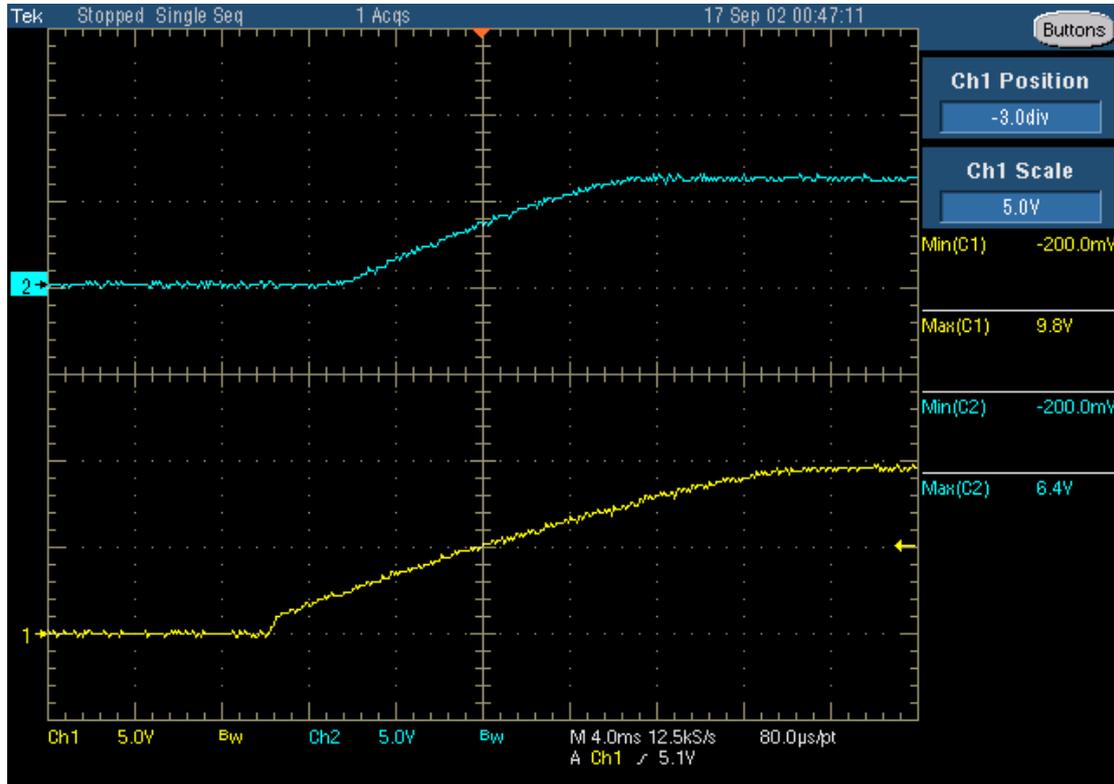


Figure 4

#### 1.4 Shut down

Figure 5 shows the shutdown behavior of the 6V TPS61040-Flyback converter with a 80mA load.

Channel Ch1: **Input Voltage**, 9.5V, 5V/div, 20ms/div

Channel Ch2: **Output Voltage**, 5V, 2V/div, 20ms/div

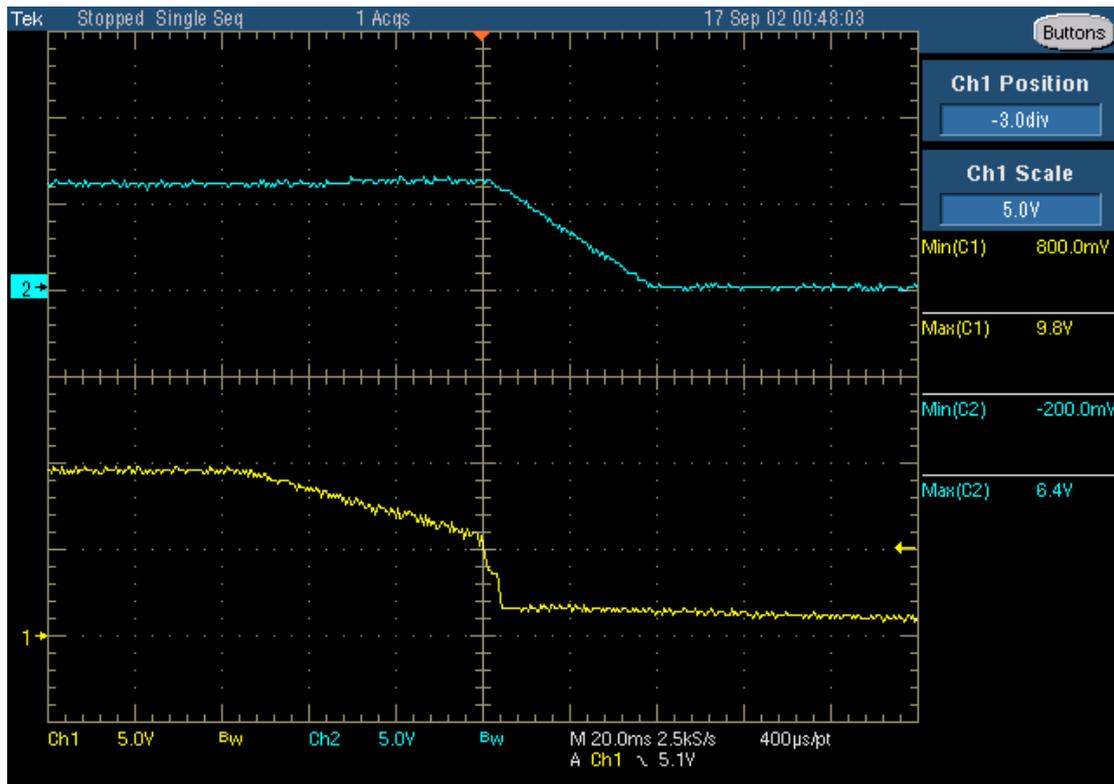
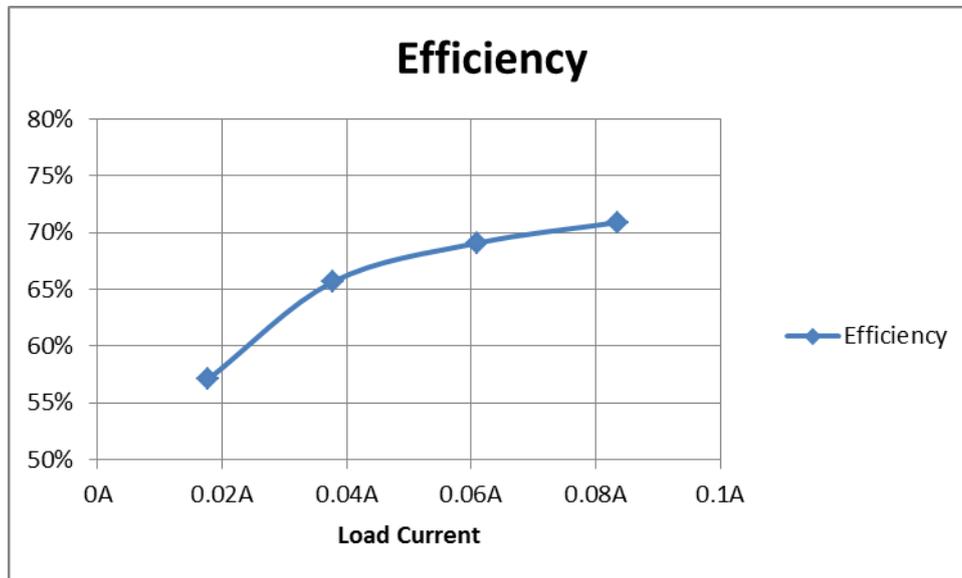


Figure 5

### 1.5 Efficiency (6V TPS61040 Flyback Converter)

The efficiency at 9.5V input voltage is shown in Figure 6.



**Figure 6**

### 1.6 Load regulation (6V TPS61040 Flyback Converter)

The load regulation of the 6V TPS61040 Flyback converter is shown in Figure 7.

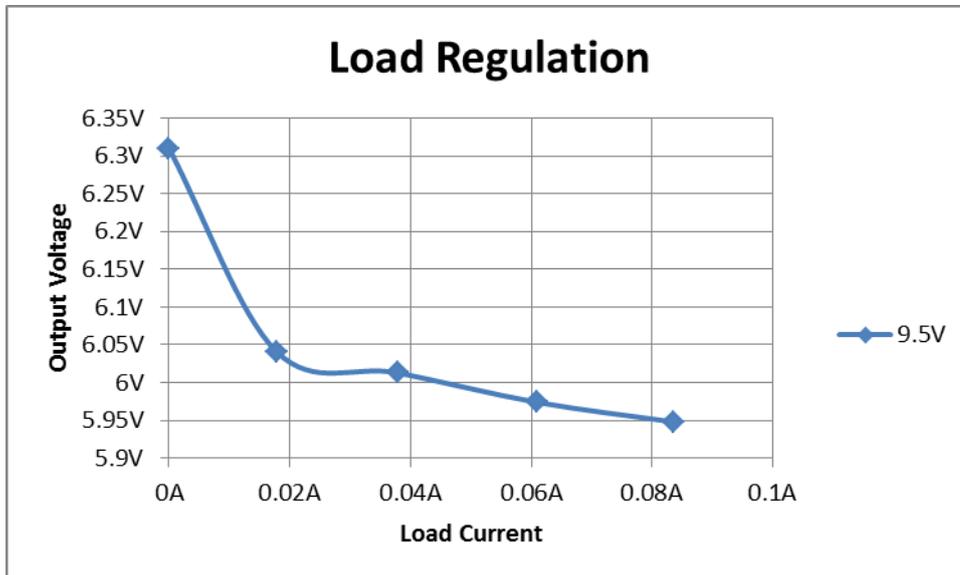


Figure 7

### 1.7 Transient response (6V TPS61040 Flyback Converter)

The response to a load step (0% - 100%) is shown in Figure 8.

Channel Ch1: **Output voltage**, -224.0mV undershoot, 176.0mV overshoot  
100mV/div, 10ms/div, AC coupled

Channel Ch3: **Load current**, load step 0mA to 72.0mA and vice versa @ 9.5V input  
50mA/div, 10ms/div

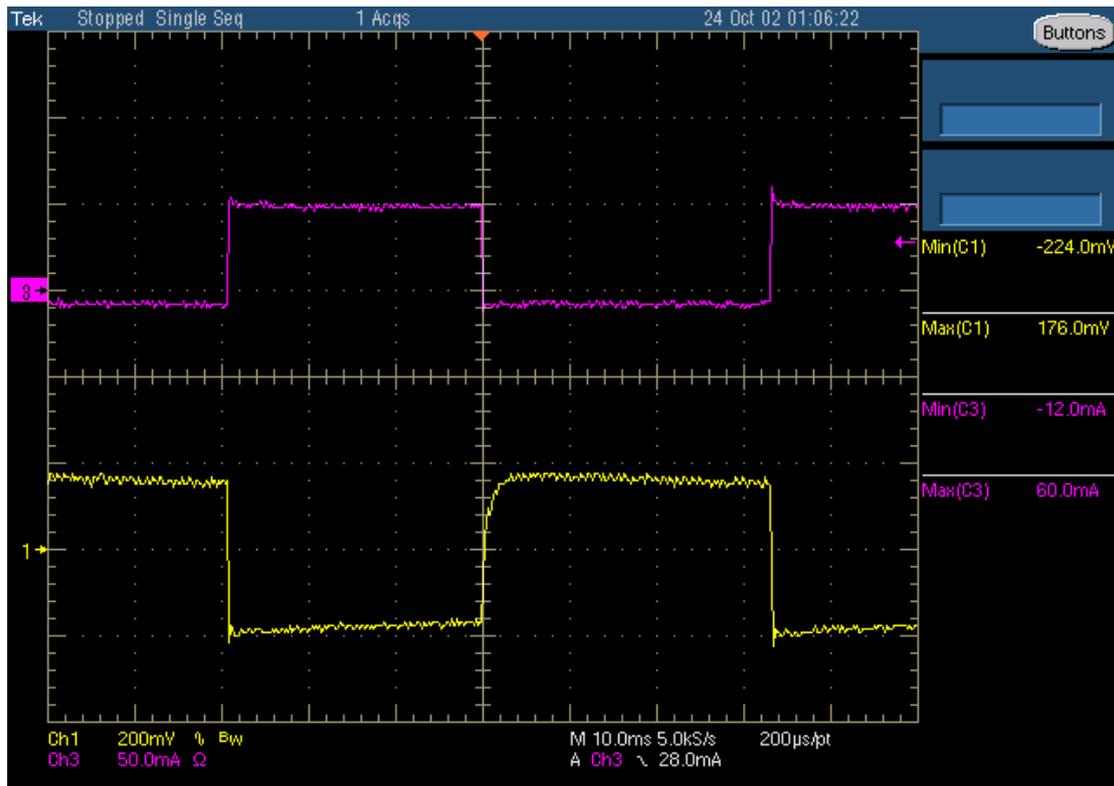


Figure 8

### 1.8 Thermal measurement

The thermal image (Figure 9) shows the circuit at an ambient temperature of 21 °C with an input voltage of 9.5V and 80mA load @ 6V output.

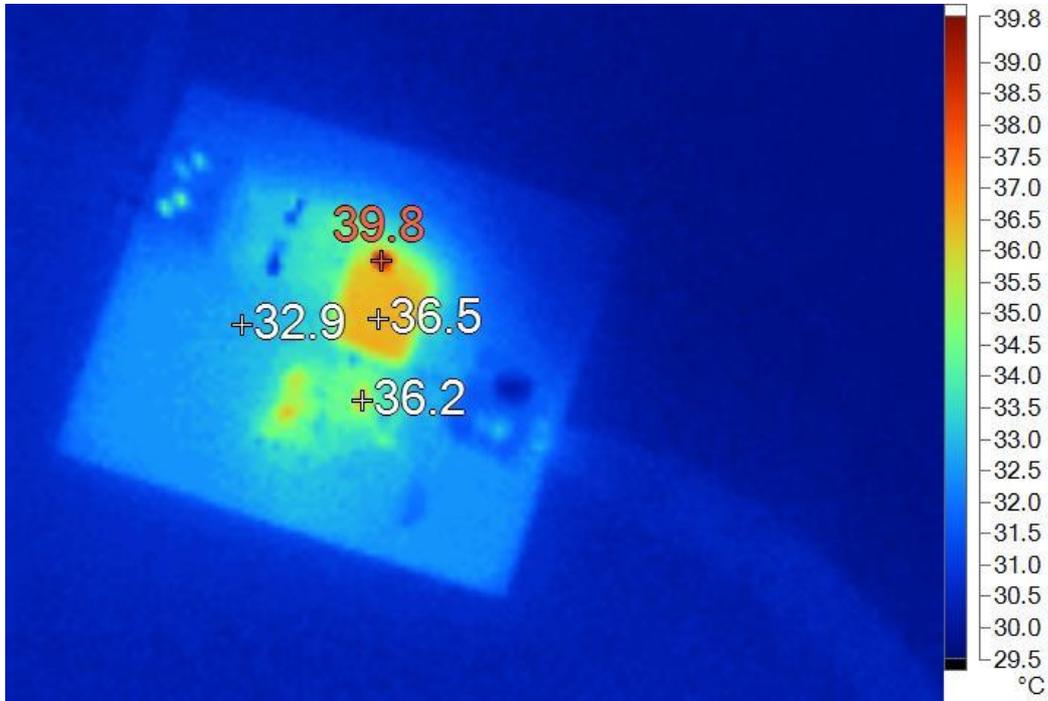


Figure 9: PCB top

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