PMP10152 Rev. A

LM5160 – Fly-Buck 12V/12V

1 +12V Fly-Buck Converter

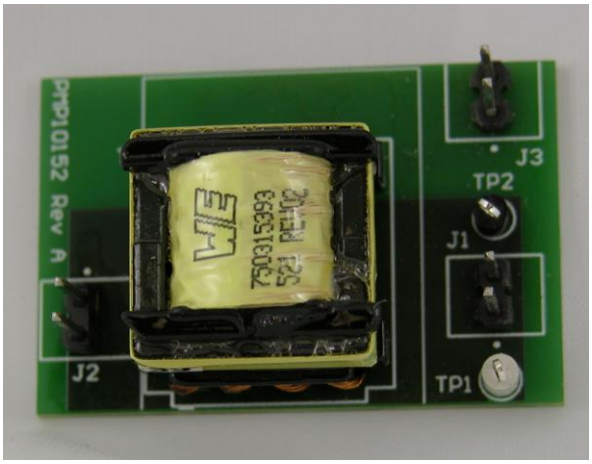

Figure 1: PCB Top

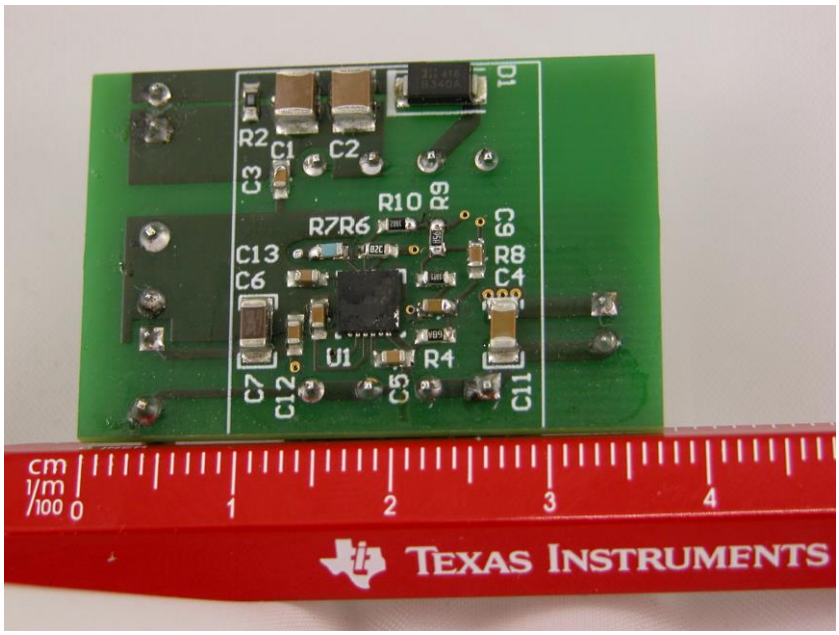

Figure 2: PCB Bottom

1.1 Output voltage ripple

The output ripple of the 12V Fly-Buck converter is shown in Figure 3.

Reference R1: **10.8V input voltage**, 88mV peak-peak
100mV/div, 2us/div

Reference R2: **12V input voltage**, 79mV peak-peak
100mV/div, 2us/div

Reference R3: **13.2V input voltage**, 73mV peak-peak
100mV/div, 2us/div

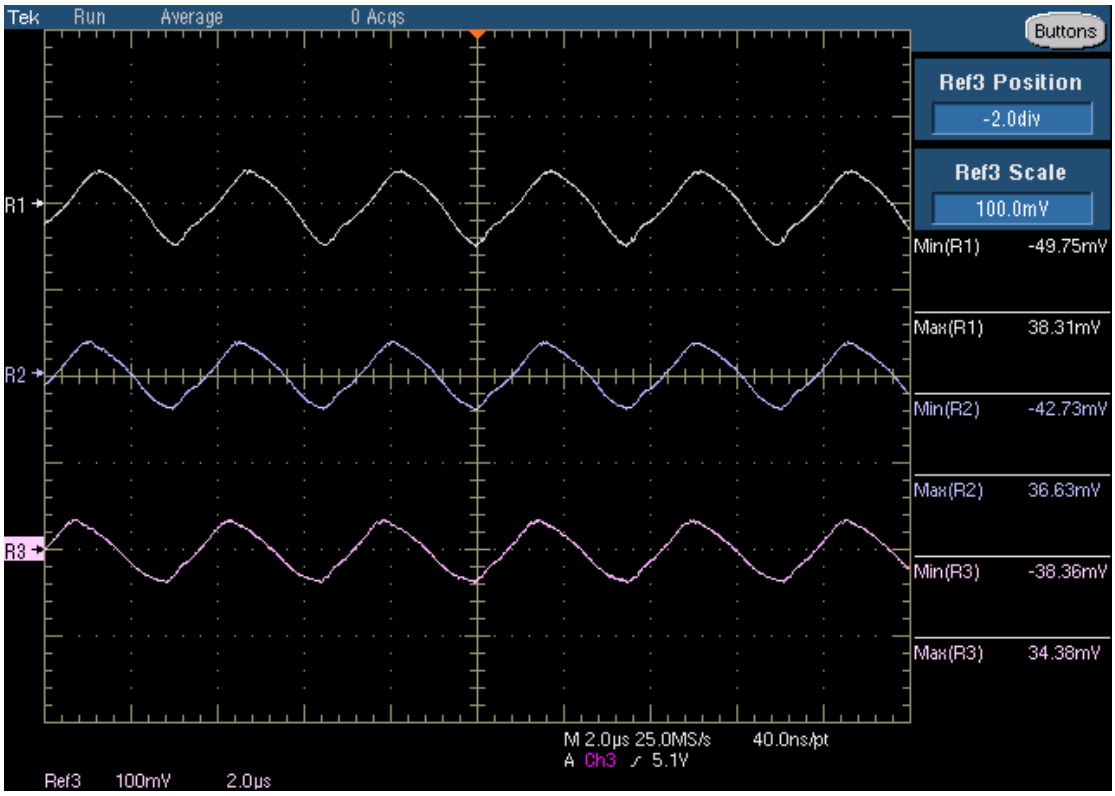

Figure 3

1.2 Switching node

The switching node is shown in Figure 4.
The input voltage is set to 13.2V with a 0.4A load on the 12V isolated output.

Reference R1: **Switching node**, -0.425V min, 13.44V max
5V/div, 2.0us/div

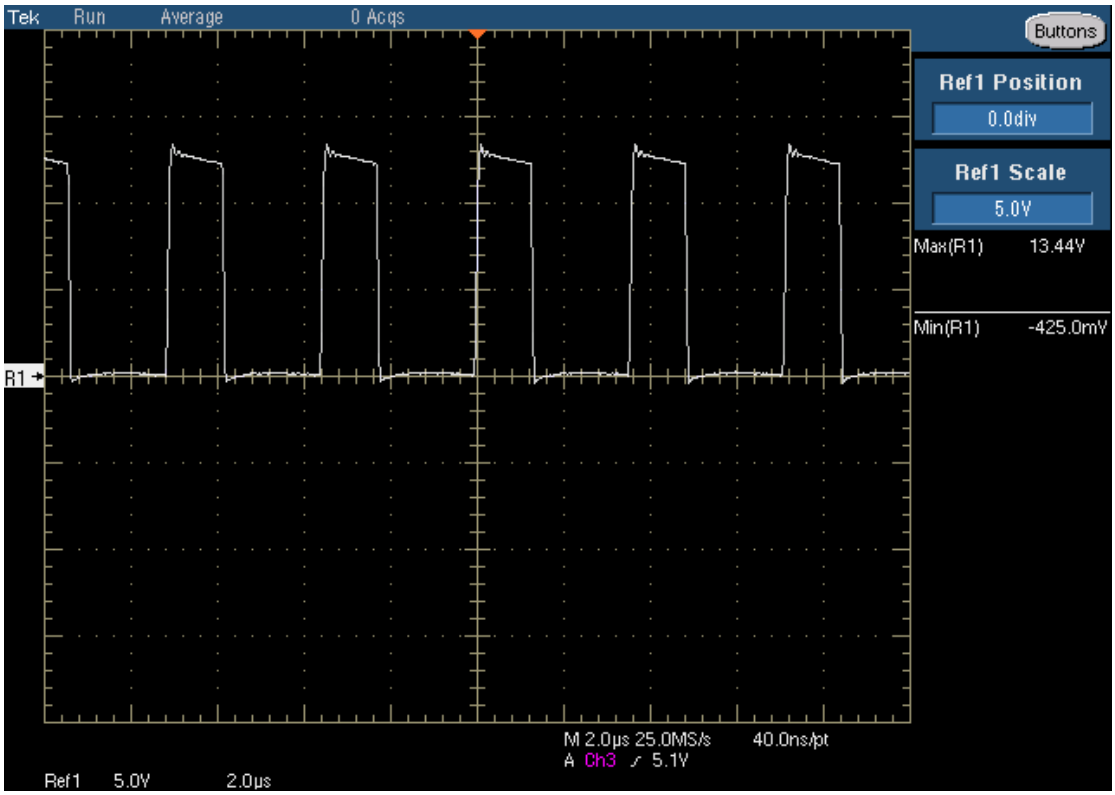

Figure 4

1.3 Start up

Figure 5 shows the startup of the 12V Fly-Buck with a 0.4A load.

Channel 3: **Input Voltage**, 12V, 5V/div, 20ms/div

Channel 4: **Output Voltage**, 12V, 5V/div, 20ms/div

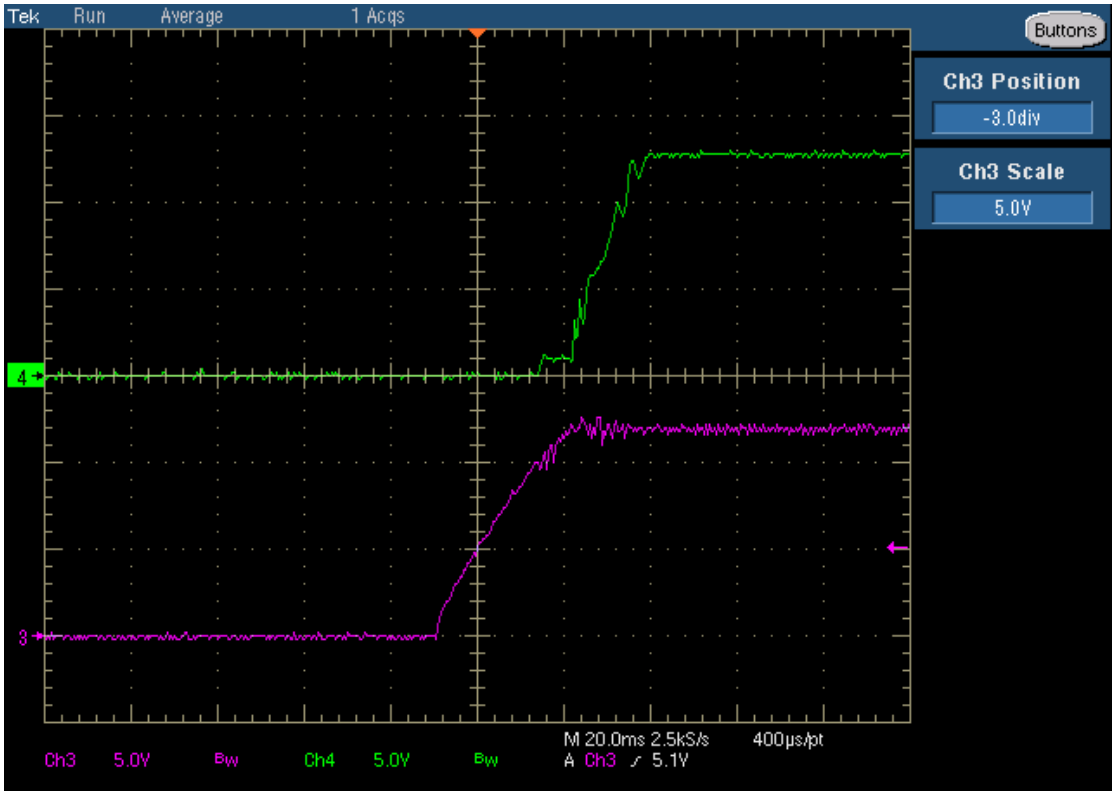

Figure 5

1.4 Shut down

Figure 6 shows the shutdown behavior of the 12V Fly-Buck converter with a 0.4A load.

Channel 3: **Input Voltage**, 12V, 5V/div, 40ms/div

Channel 4: **Output Voltage**, 12V, 5V/div, 40ms/div

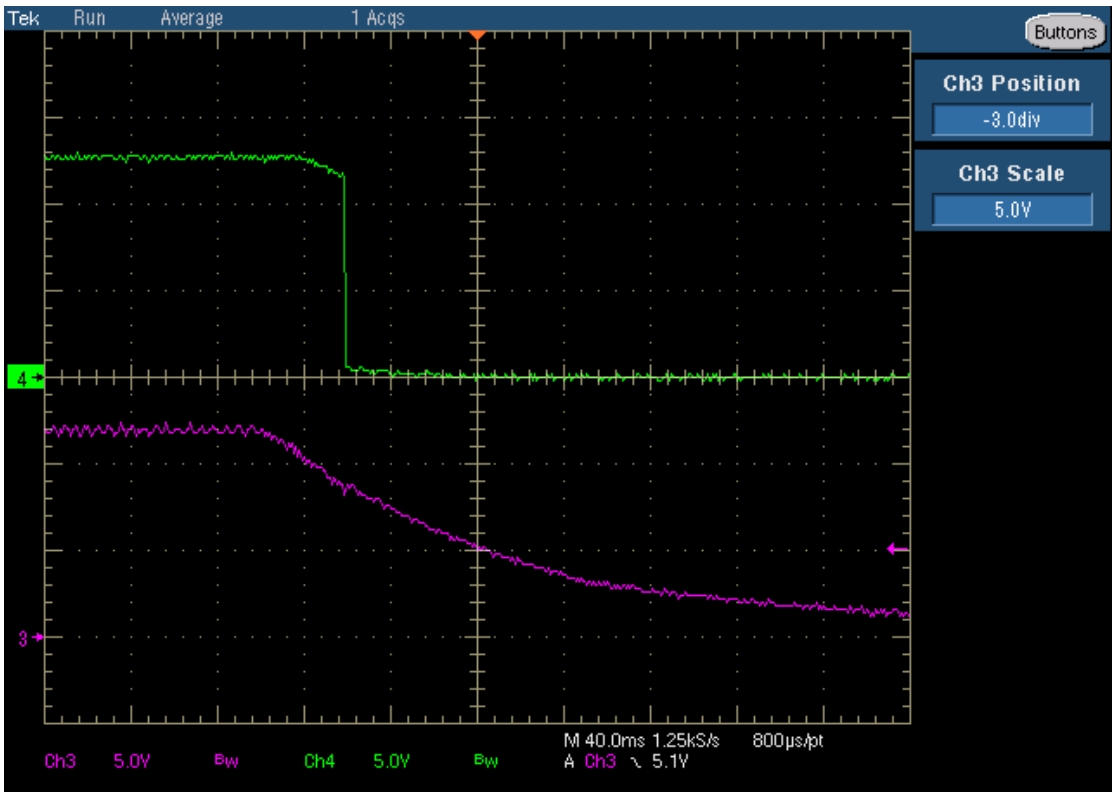

Figure 6

1.5 Efficiency (12.0V Fly-Buck Converter)

The efficiency at 10.8V, 12.0V and 13.2V input voltage is shown in Figure 7.

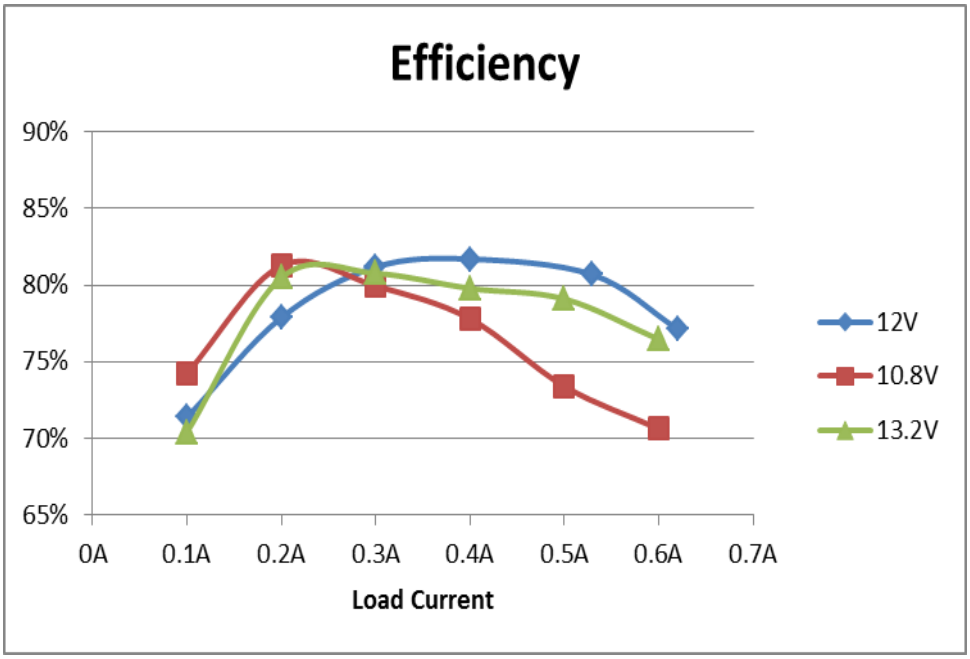

Figure 7

1.6 Load regulation (12V Fly-Buck Converter)

The load regulation of the 12V Fly-Buck converter is shown in Figure 8.

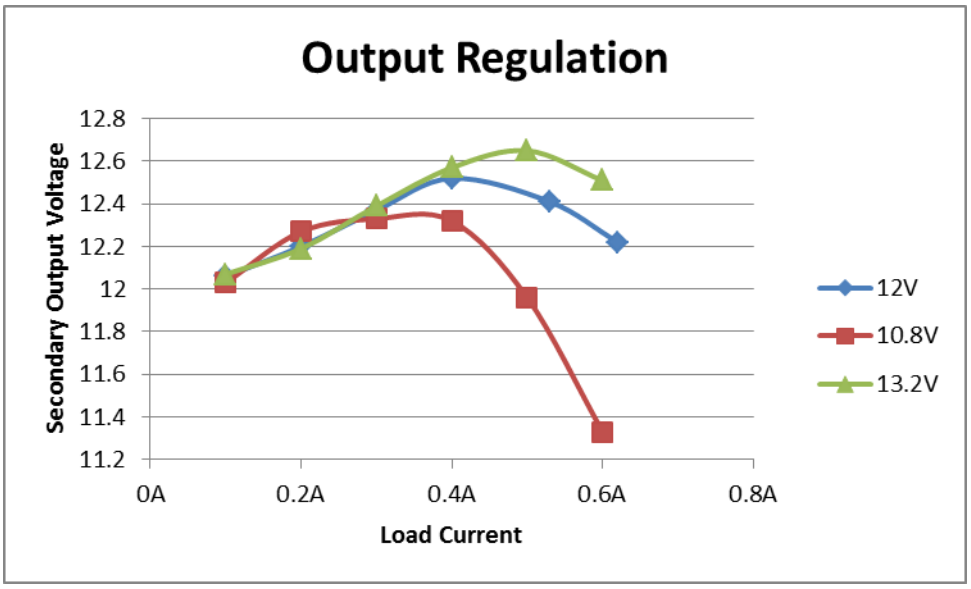

Figure 8

1.7 Thermal measurement

The thermal images (Figure 9 and Figure 10) show the circuit at an ambient temperature of 21 °C with an input voltage of 10.8V and 0.4A load @ 12V output.

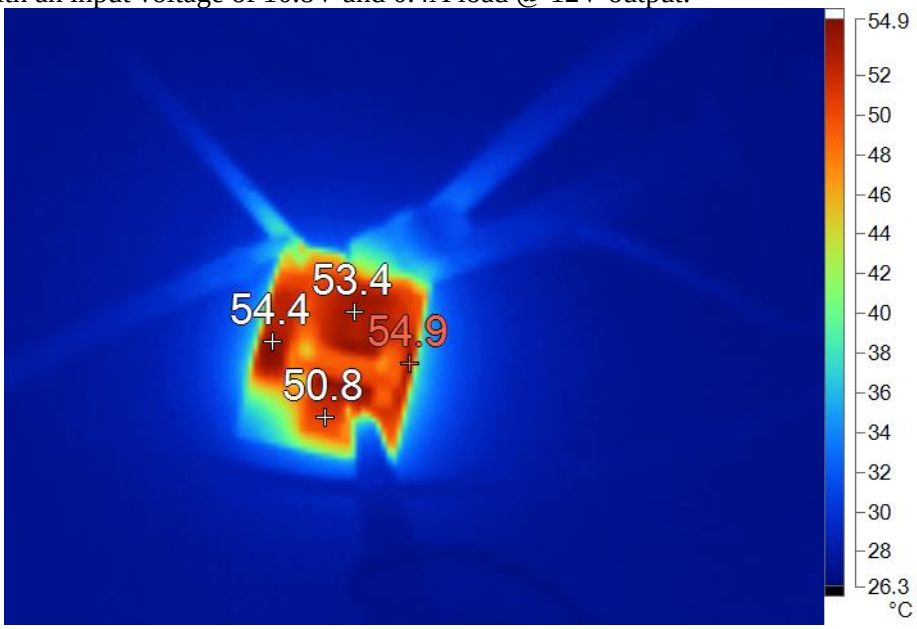

Figure 9: PCB top

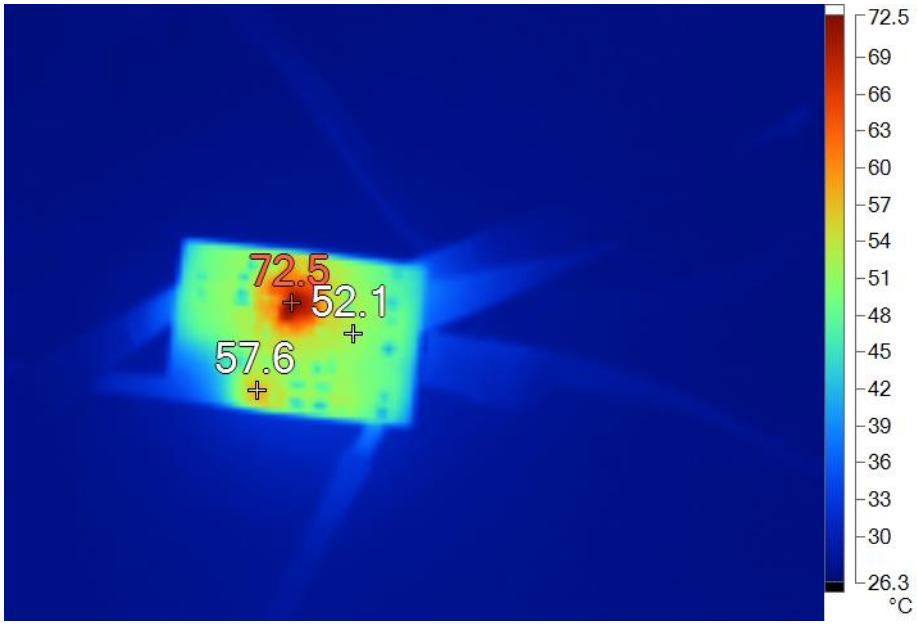

Figure 10: PCB bottom

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