1 Startup

The startup waveform is shown in Figure 1. The input voltage is set at 80V, with no load on the 5.0V output.

Channel C1: **Input voltage**
20V/div, 10ms/div

Channel C2: **Output voltage**
2V/div, 10ms/div

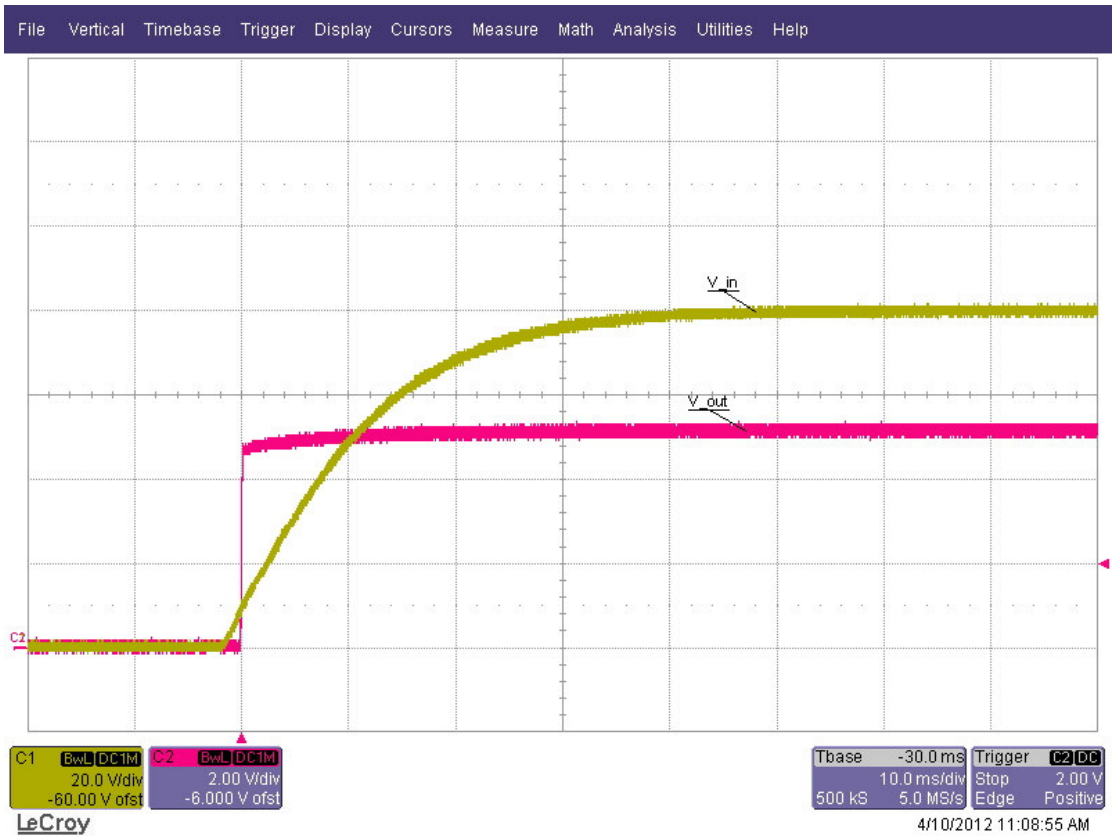

Figure 1

2 Shutdown

The shutdown waveform is shown in Figure 2. The input voltage is set at 80V with a 300mA load on the 5.0V output.

Channel C1: **Input voltage**
20V/div, 50ms/div

Channel C2: **Output voltage**
2V/div, 50ms/div

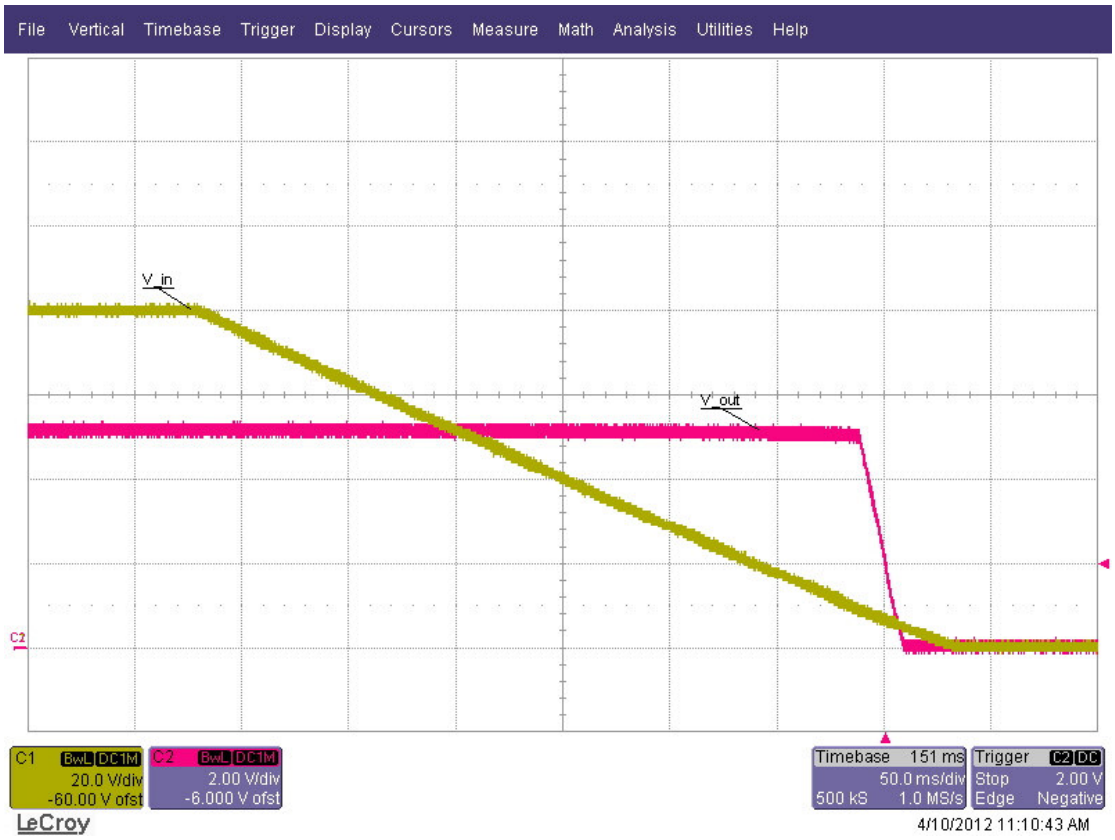

Figure 2

3 Efficiency

The efficiency is shown in Figure 3.

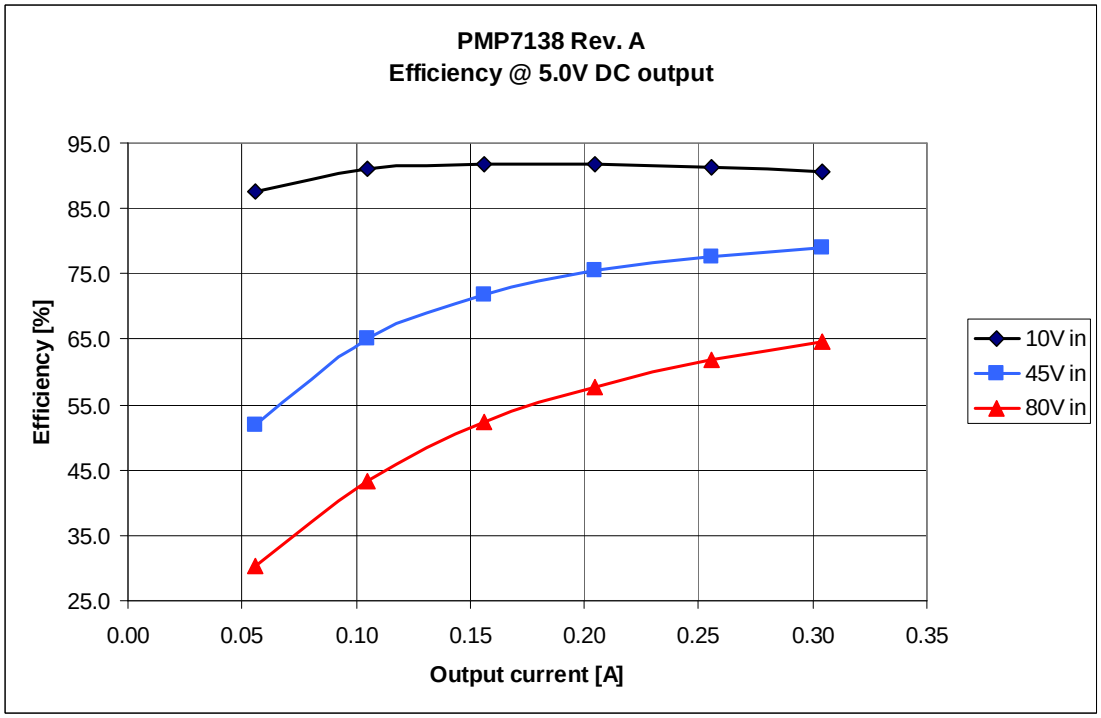

Figure 3

4 Load regulation

The load regulation of the 5.0V output is shown in Figure 4.

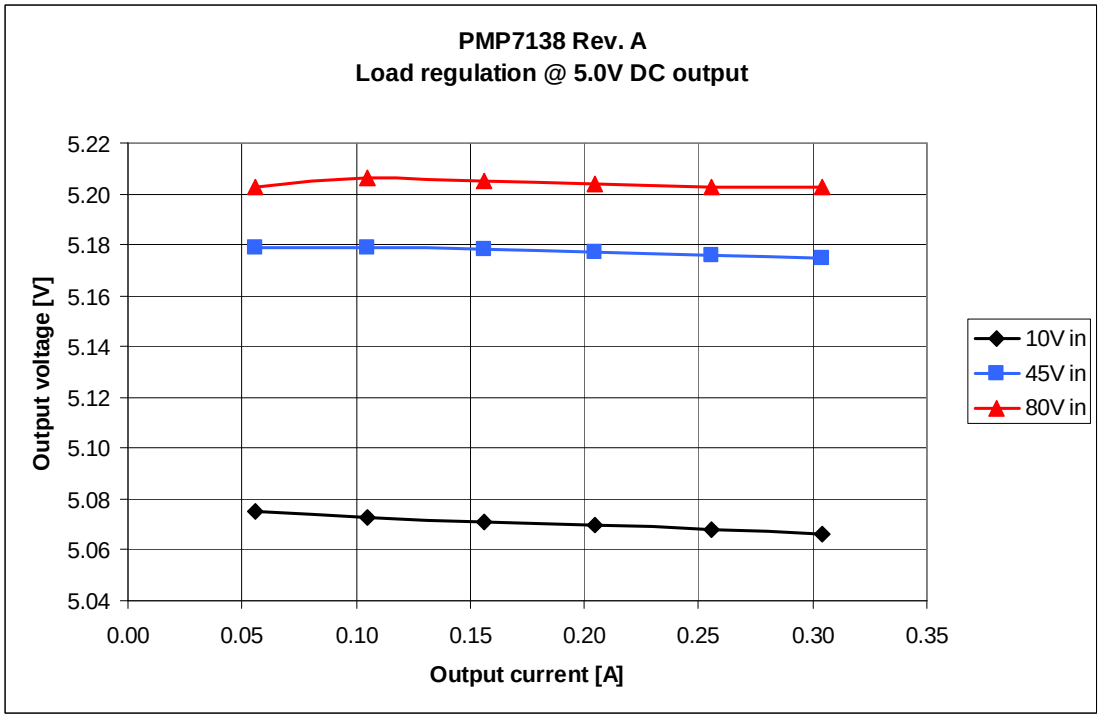

Figure 4

5 Output ripple voltage

The output ripple voltage at 300mA load and 10V, 45V and 80V input voltage is shown in Figure 5.

Channel M1: **Output voltage**, 10V input, 8mV peak-peak
20mV/div, 5us/div, AC coupled

Channel M2: **Output voltage**, 45V input, 13mV peak-peak
20mV/div, 5us/div, AC coupled

Channel M3: **Output voltage**, 80V input, 16mV peak-peak
20mV/div, 5us/div, AC coupled

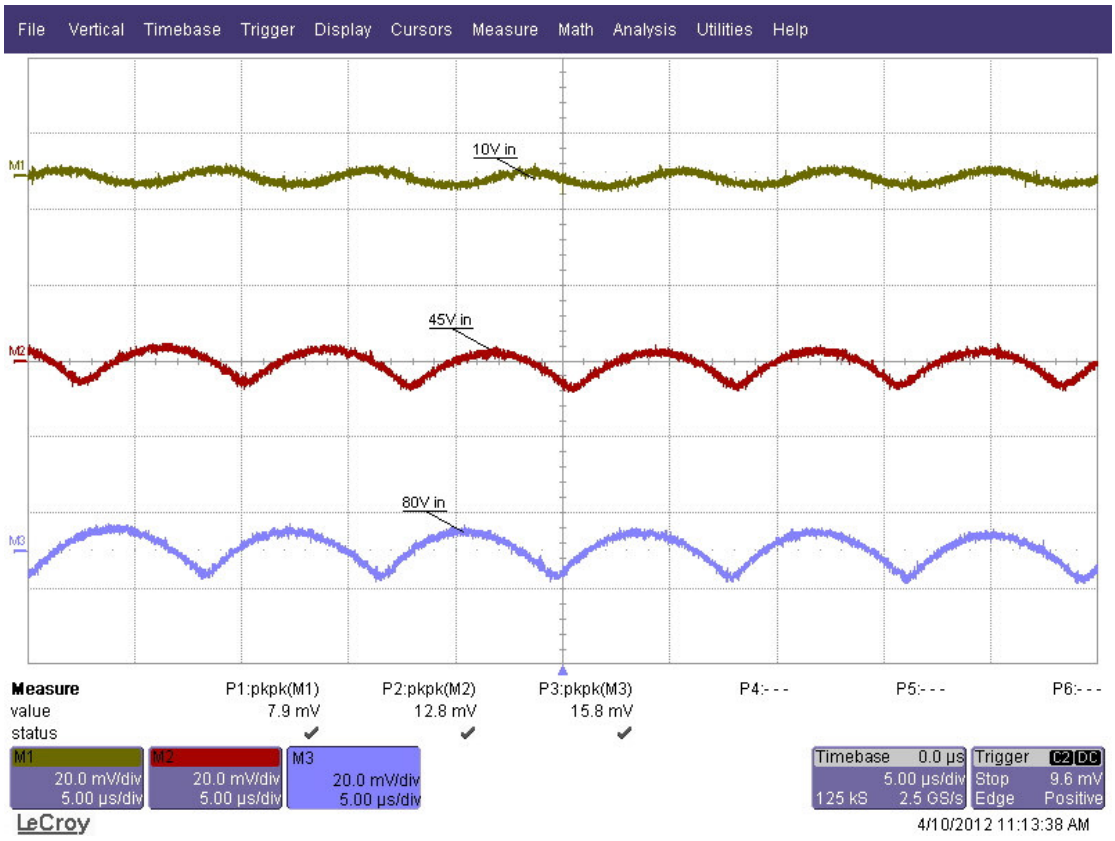

Figure 5

6 Load transients

The response to a load step and a load dump at an input voltage of 80V is shown in Figure 6.

Channel C2: **Output voltage**, -43mV undershoot, +62mV overshoot
50mV/div, 1ms/div, AC coupled

Channel C1: **Load current**, load step 150mA to 300mA
200mA/div, 1ms/div

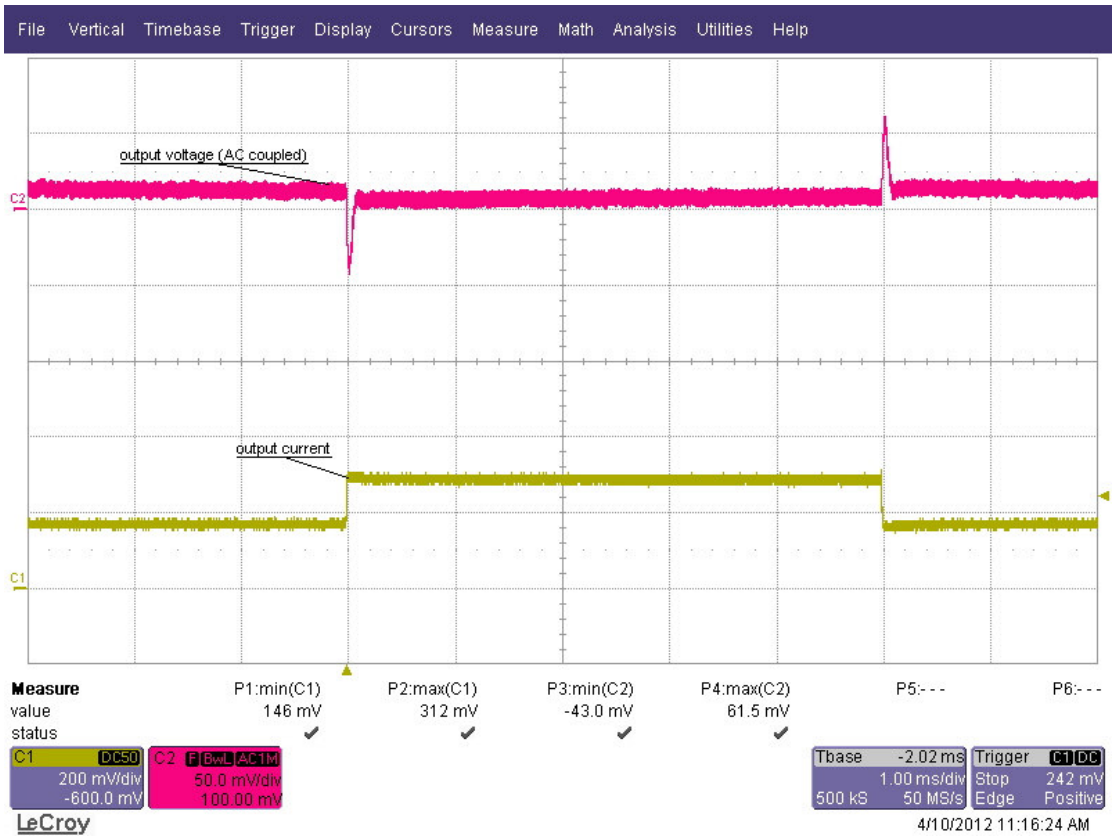

Figure 6

7 Frequency response

Figure 7 shows the loop response of the 5.0V output with 10V, 45V and 80V input and a 300mA load.

- 70 deg phase margin @ crossover frequency 4.8 kHz
- 26 dB gain margin

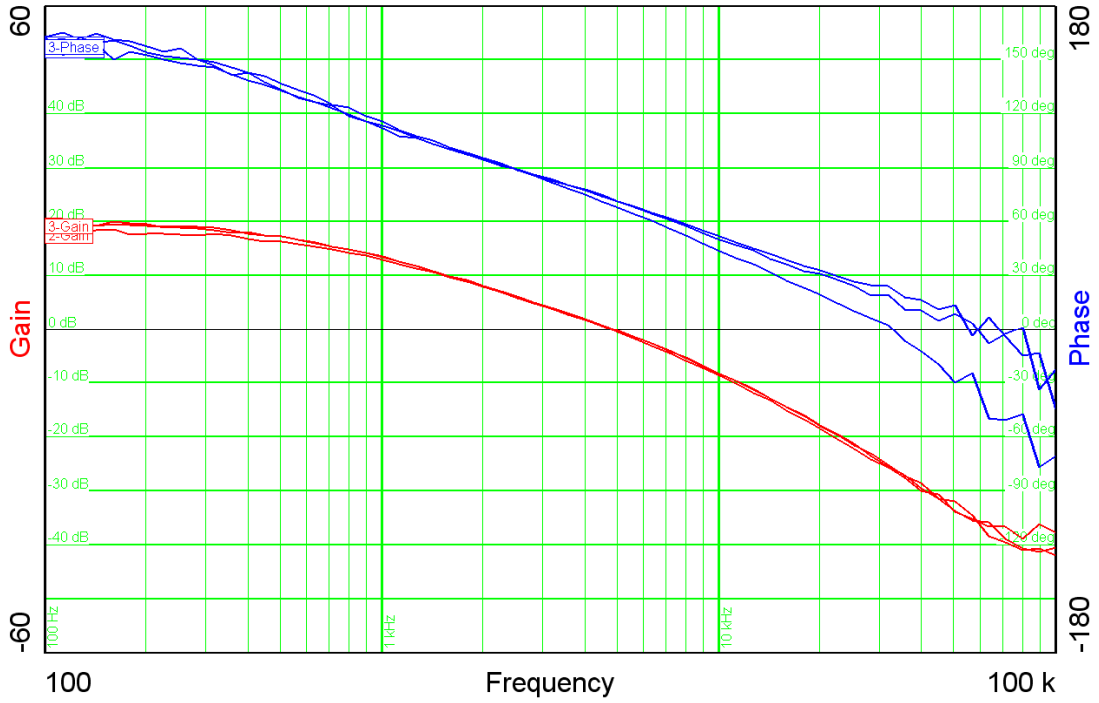

Figure 7

8 Miscellaneous waveforms

The drain-source voltage on the switching node is shown in Figure 8. The image was captured with 80V input and a 300mA load.

Channel C2: **Drain-source voltage**, -3.2V minimum voltage, 85.2V maximum voltage 20V/div, 5us/div

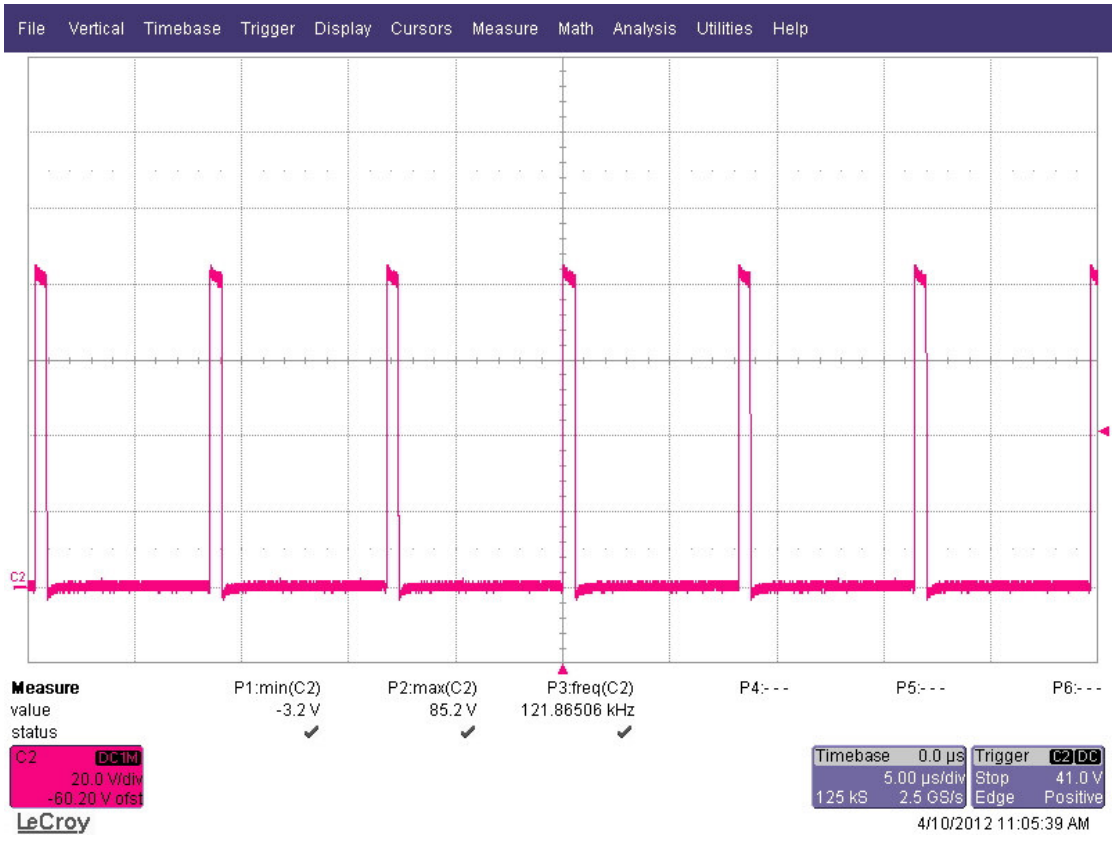

Figure 8

9 Thermal measurement

The thermal image (Figure 9) shows the circuit at an ambient temperature of 21 °C with an input voltage of 80.0V and a load of 300mA.

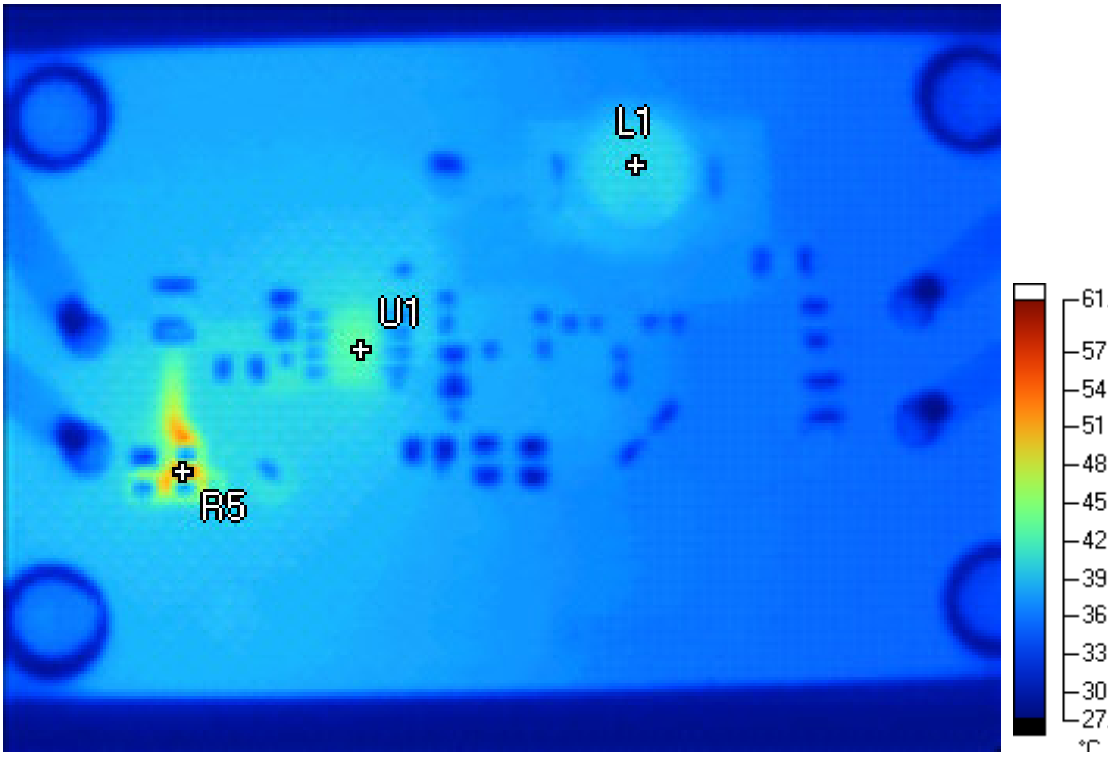

Figure 9

Markers

Label	Temperature	Emissivity	Background
L1	40.2 °C	0.95	21.0 °C
U1	43.1 °C	0.95	21.0 °C
R5	59.6 °C	0.95	21.0 °C

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