

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, 5ms/div

Channel C2: **Output voltage**
2V/div, 5ms/div

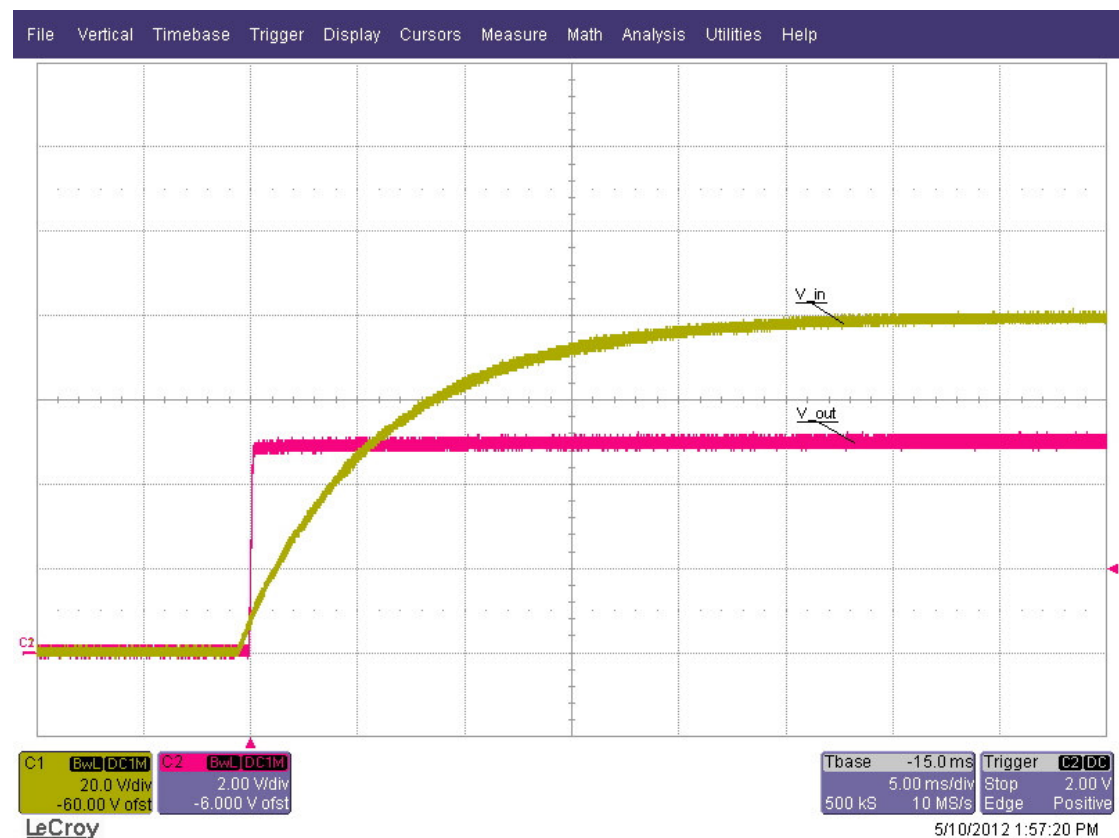


Figure 1

2 Shutdown

The shutdown waveform is shown in Figure 2. The input voltage is set at 80V with a 600mA 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 without the UVLO circuit populated.

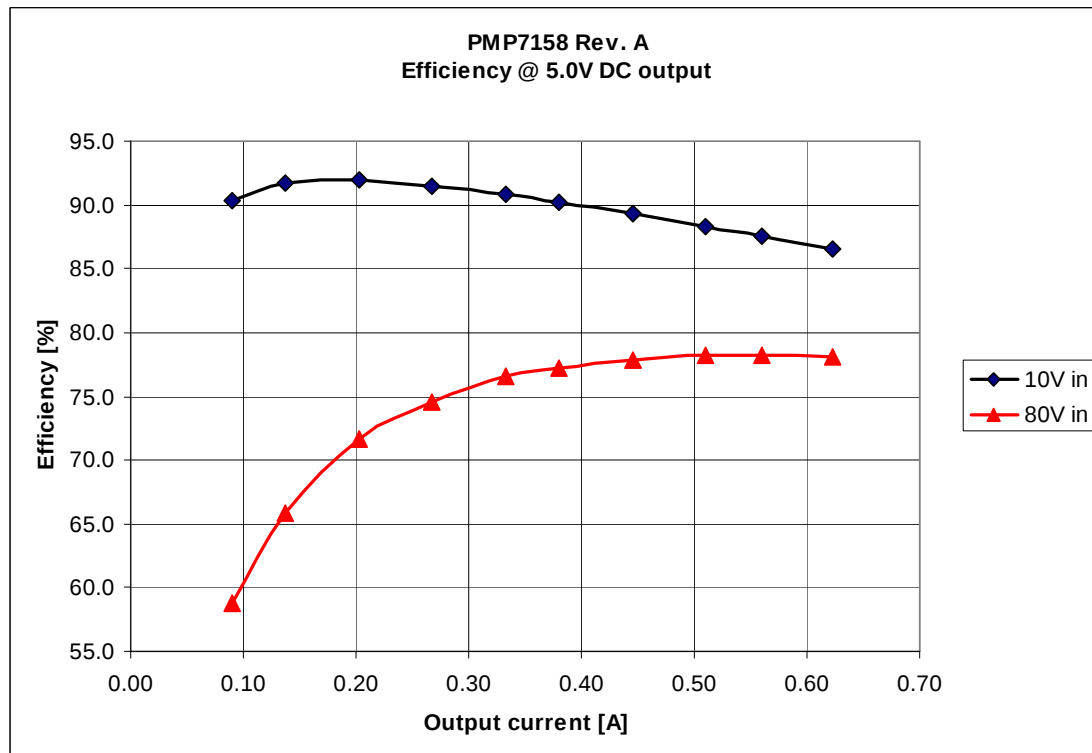


Figure 3

4 Load regulation

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

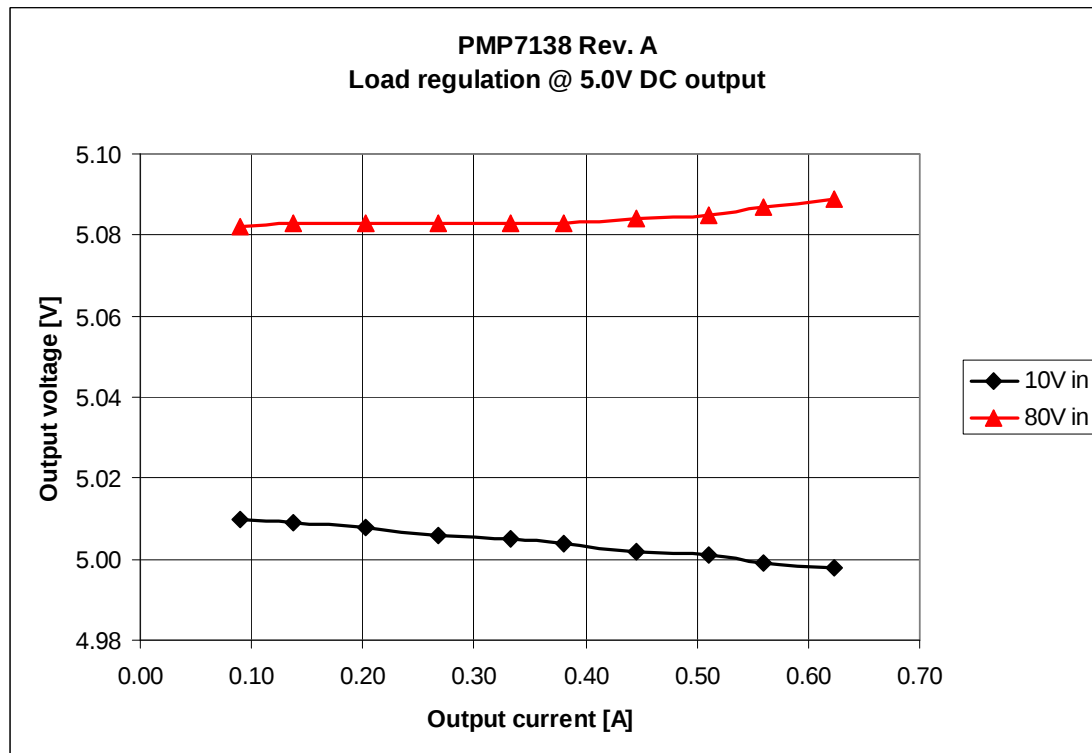


Figure 4

5 Output ripple voltage

The output ripple voltage at 600mA load and 10V, 45V and 80V input voltage is shown in Figure 5.

Channel M1: **Output voltage, 10V input, 14mV peak-peak**
20mV/div, 5us/div, AC coupled

Channel M2: **Output voltage, 45V input, 27mV peak-peak**
20mV/div, 5us/div, AC coupled

Channel M3: **Output voltage, 80V input, 31mV peak-peak**
20mV/div, 5us/div, AC coupled

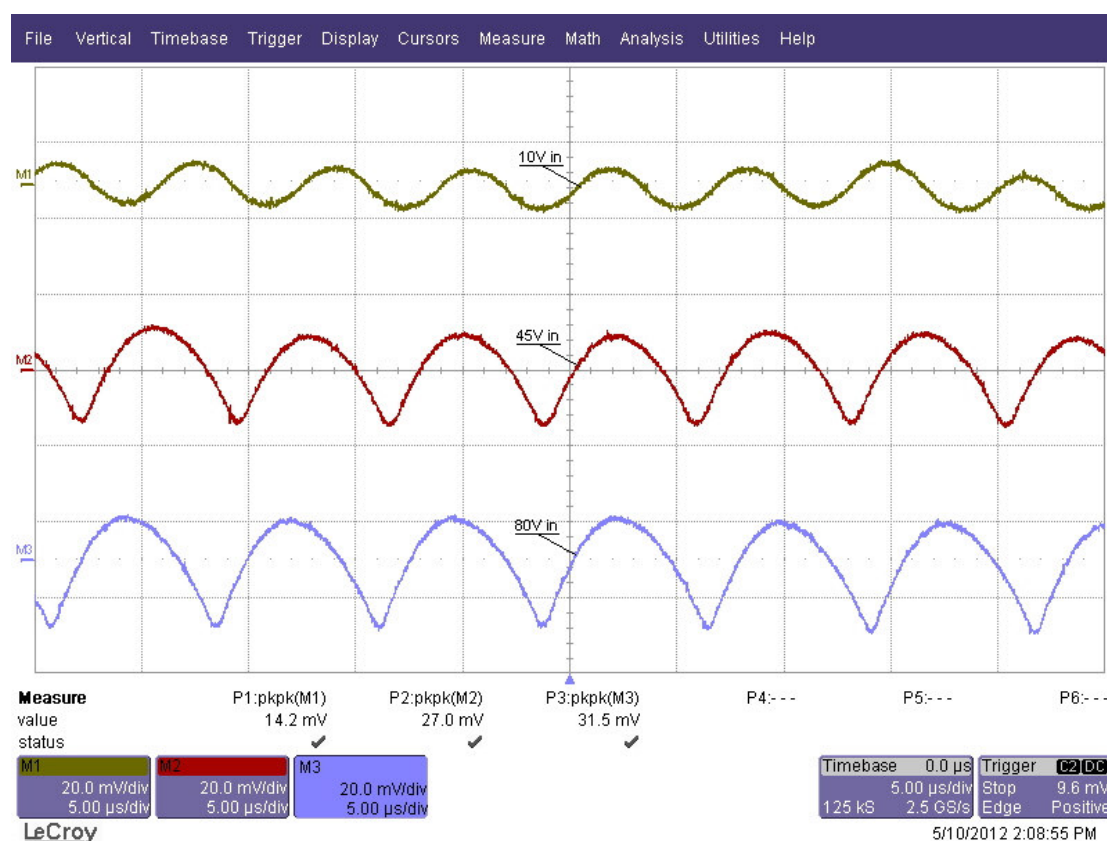


Figure 5

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**, -36mV undershoot, +62mV overshoot
50mV/div, 1ms/div, AC coupled

Channel C1: **Load current**, load step 300mA to 600mA
500mA/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 600mA load.

- 88 deg phase margin @ crossover frequency 5.2 kHz
- 15 dB gain margin

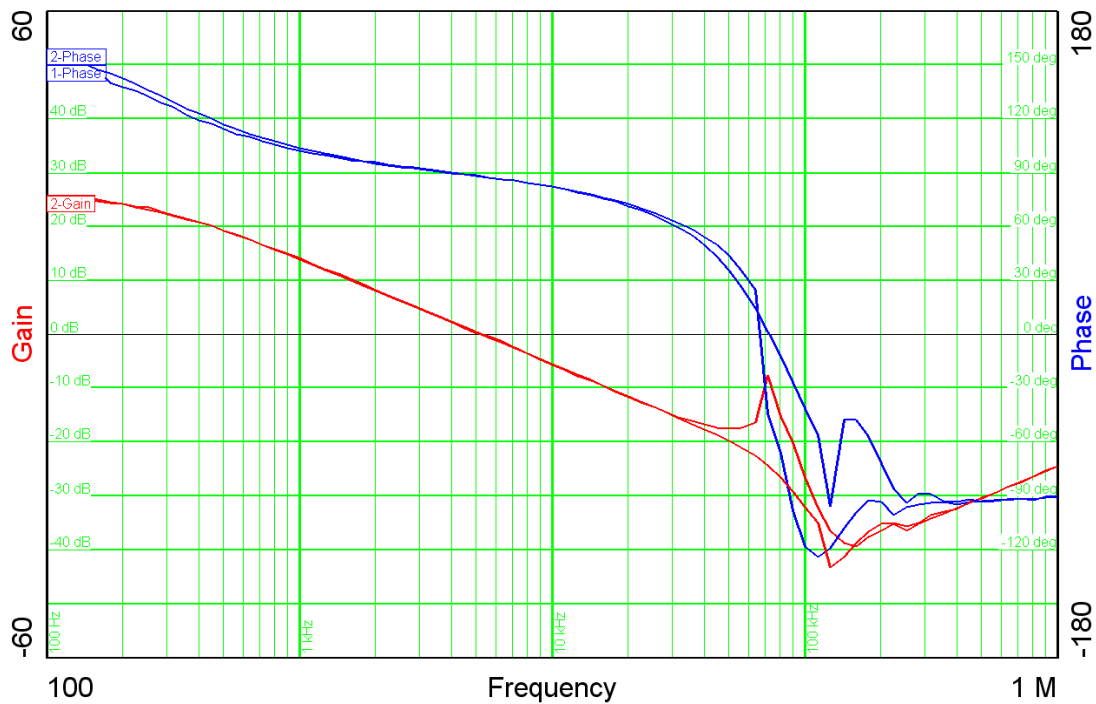


Figure 7

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 600mA load.

Channel C2: **Drain-source voltage**, -3.8V minimum voltage, 84.5V maximum voltage
20V/div, 5us/div

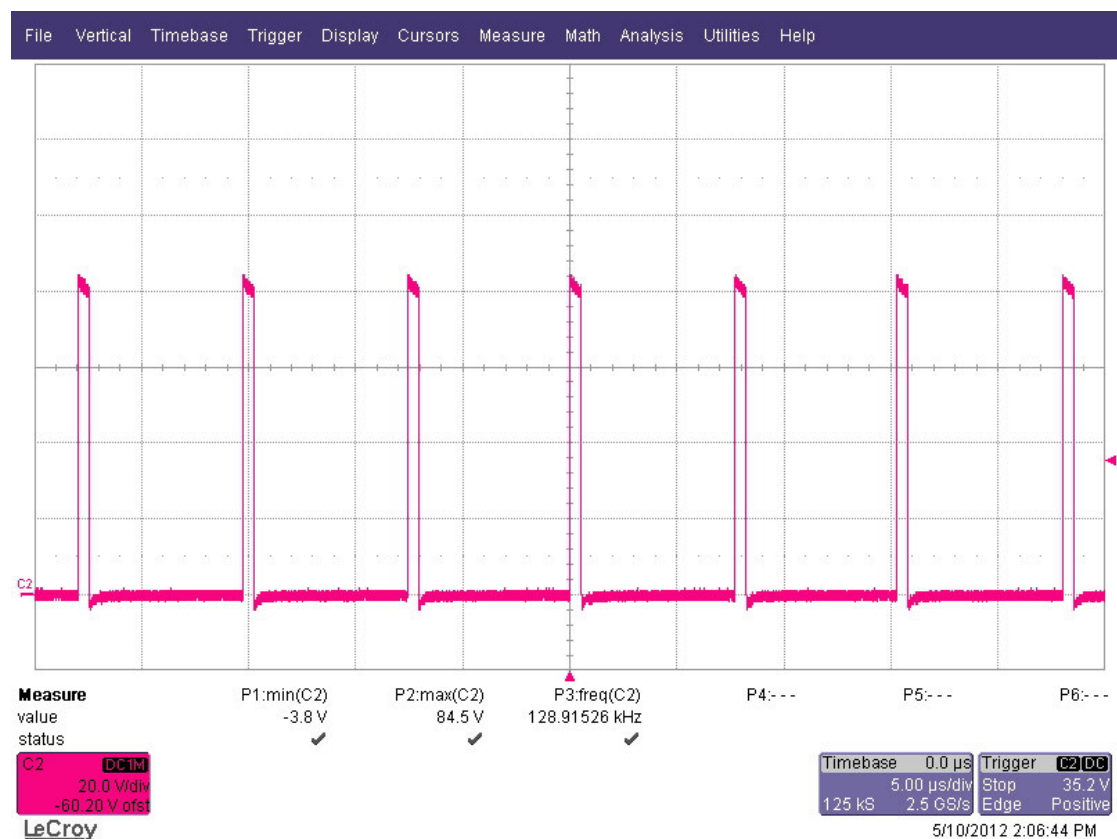


Figure 8

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 600mA.

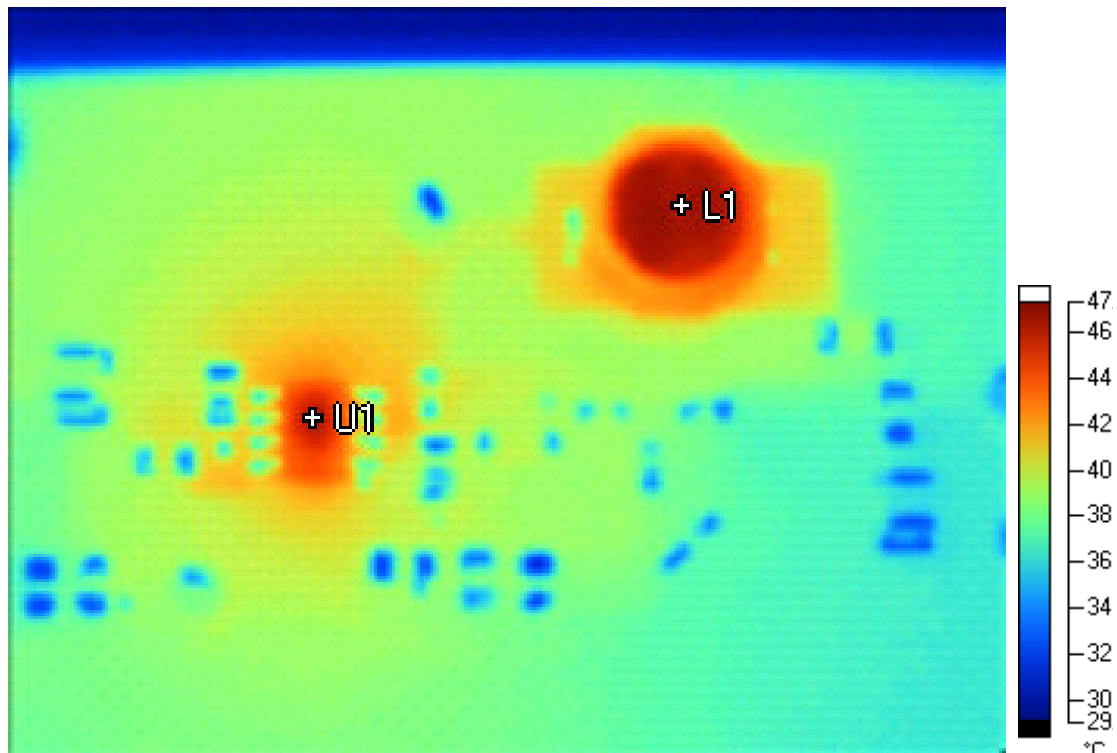


Figure 9

Markers

Label	Temperature	Emissivity	Background
L1	46.7 °C	0.95	21.0 °C
U1	46.5 °C	0.95	21.0 °C

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