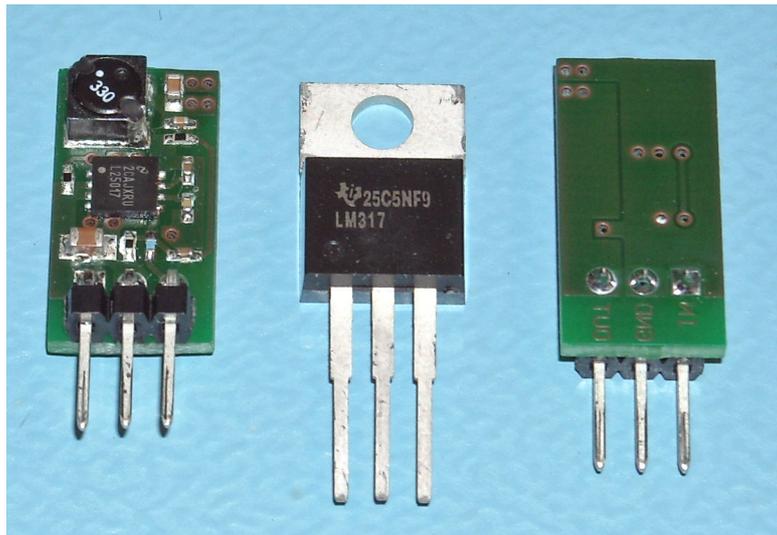


Wide input synchronous buck with 3.3V @ 600mA / 5.0V @ 600mA

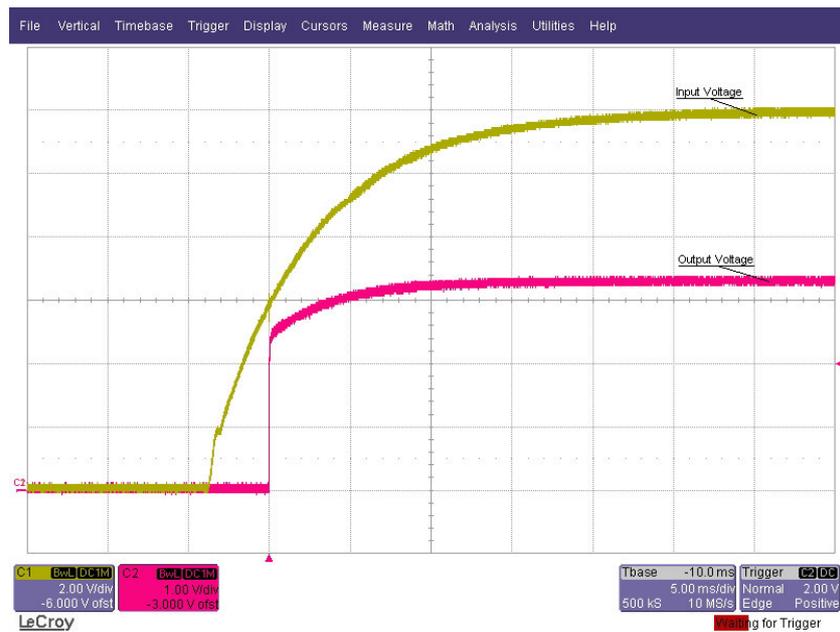
- Input 10 ..30V DC
- Output Version 1 with 3.3V @ 600mA, Version 2 with 5.0V @ 600mA
- Device LM(2)5017
- Built on PCB PMP8581 Rev.A



1 Startup

The startup waveform is shown below. The input voltage is set to 12.0V with no load on the output.

- Channel C1: **Input voltage**
2V/div, 5ms/div
- Channel C2: **Output voltage**
1V/div, 5ms/div



Version 1 with 3.3V output voltage



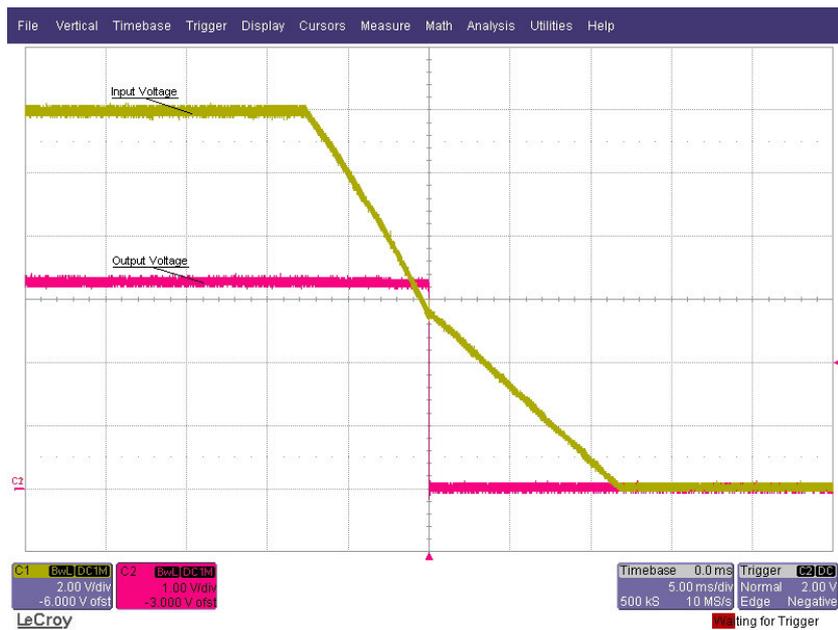
Version 2 with 5.0V output voltage

2 Shutdown

The shutdown waveform is shown below. The input voltage is set to 12.0V with a 600mA load on the output.

Channel C1: **Input voltage**
2V/div, 5ms/div

Channel C2: **Output voltage**
1V/div, 5ms/div



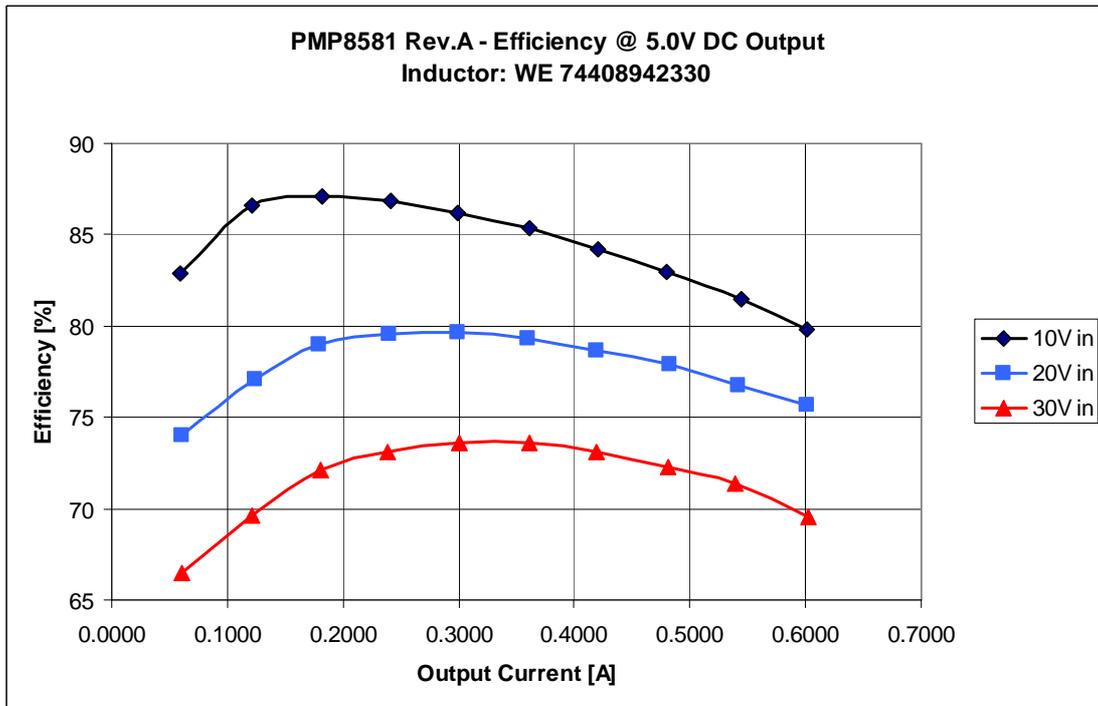
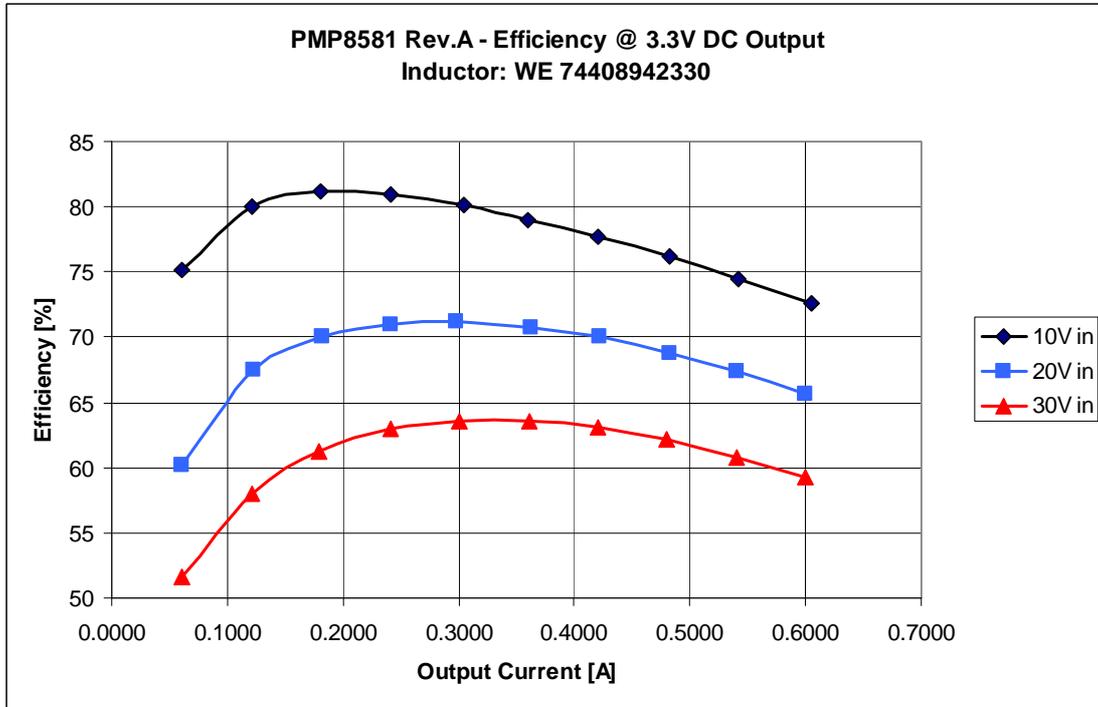
Version 1 with 3.3V output voltage



Version 2 with 5.0V output voltage

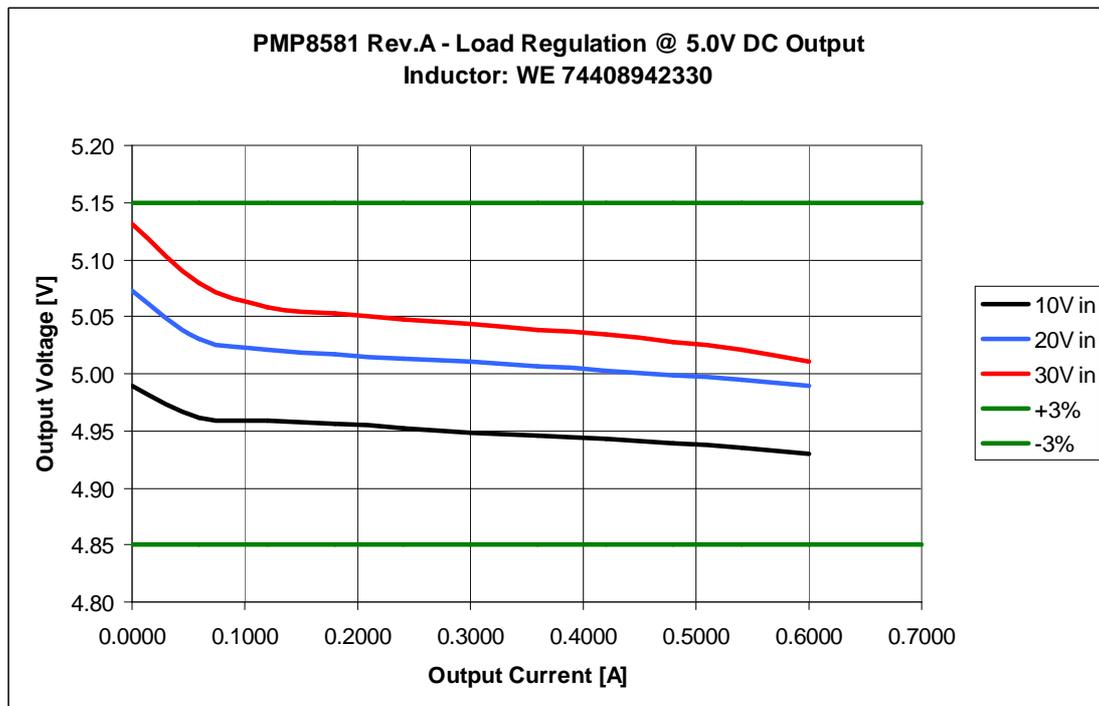
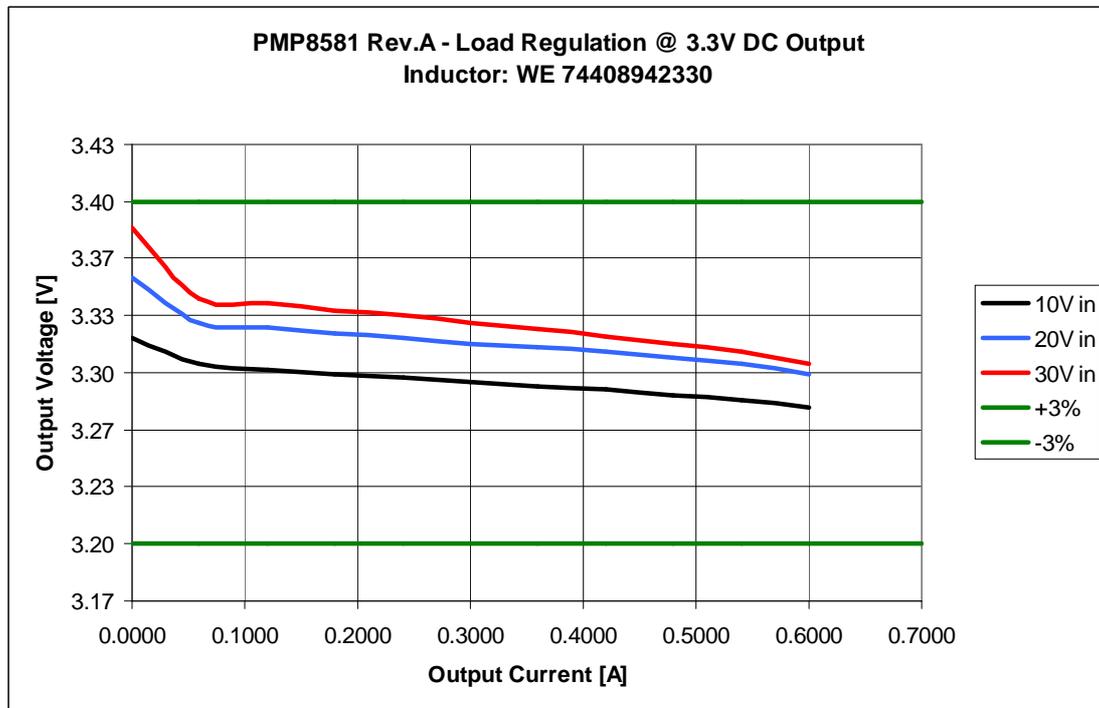
3 Efficiency

The efficiency of both versions is shown below.



4 Load Regulation

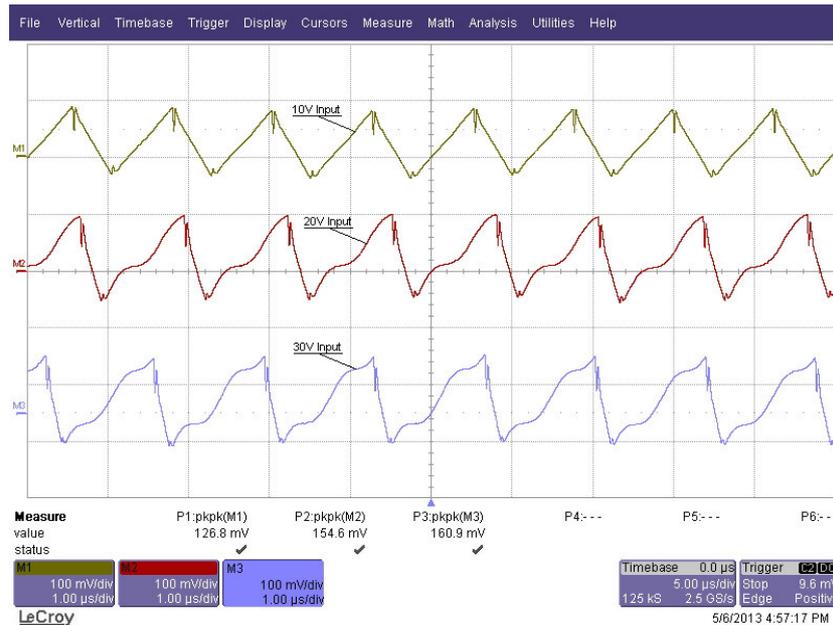
The load regulation of both versions is shown below.



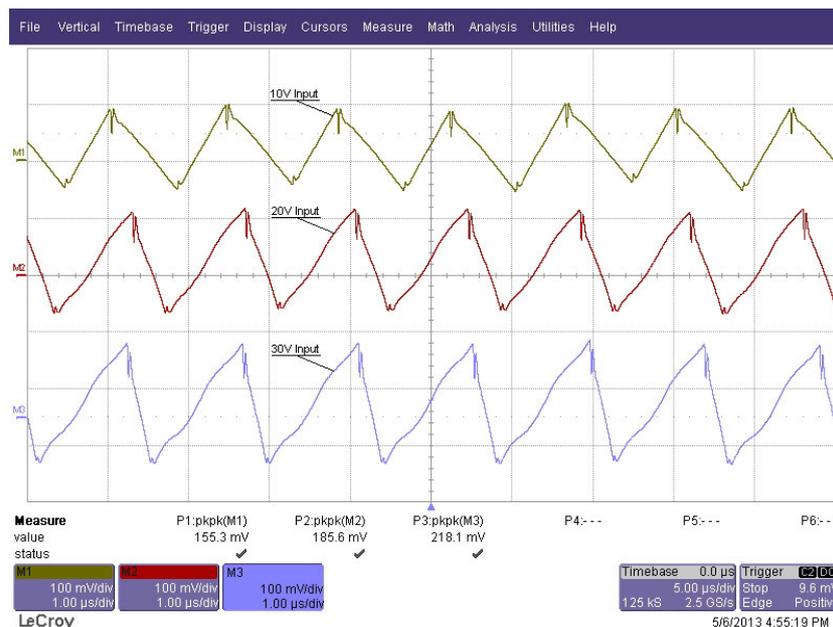
5 Input ripple voltage

The input ripple voltage at 600mA load is shown below.

- Version 1 with 3.3V output voltage
127mVpp @ 10V input, 155mVpp @ 20V input, 161mVpp @ 30V input
- Version 2 with 5.0V output voltage
155mVpp @ 10V input, 186mVpp @ 20V input, 218mVpp @ 30V input



Version 1 with 3.3V output voltage

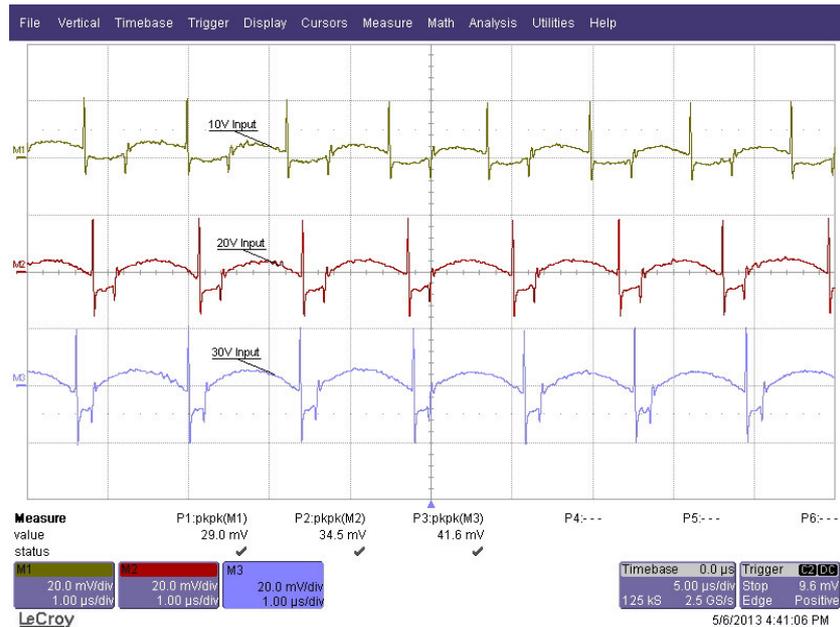


Version 2 with 5.0V output voltage

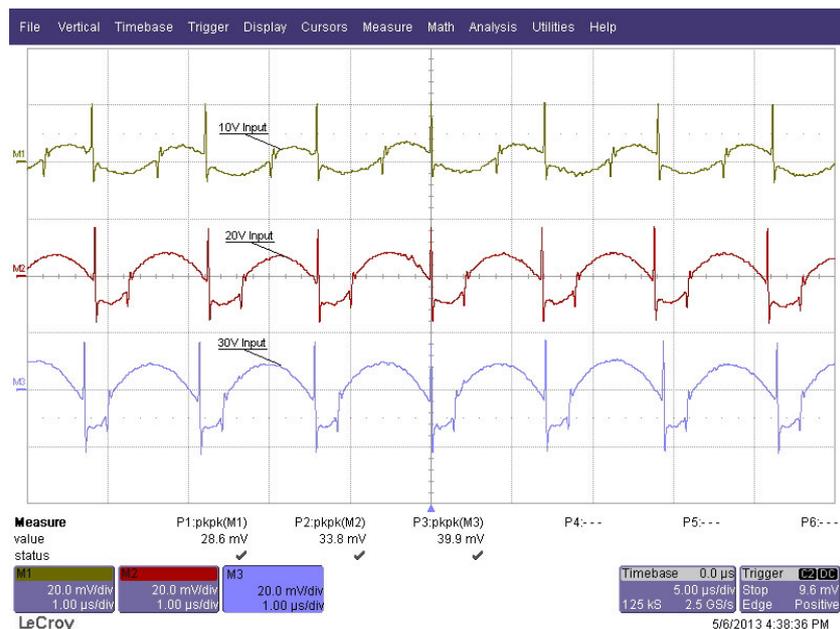
6 Output ripple voltage

The output ripple voltage at 600mA load is shown below.

- Version 1 with 3.3V output voltage
29mVpp @ 10V input, 35mVpp @ 20V input, 42mVpp @ 30V input
- Version 2 with 5.0V output voltage
29mVpp @ 10V input, 34mVpp @ 20V input, 40mVpp @ 30V input



Version 1 with 3.3V output voltage



Version 2 with 5.0V output voltage

7 Load step

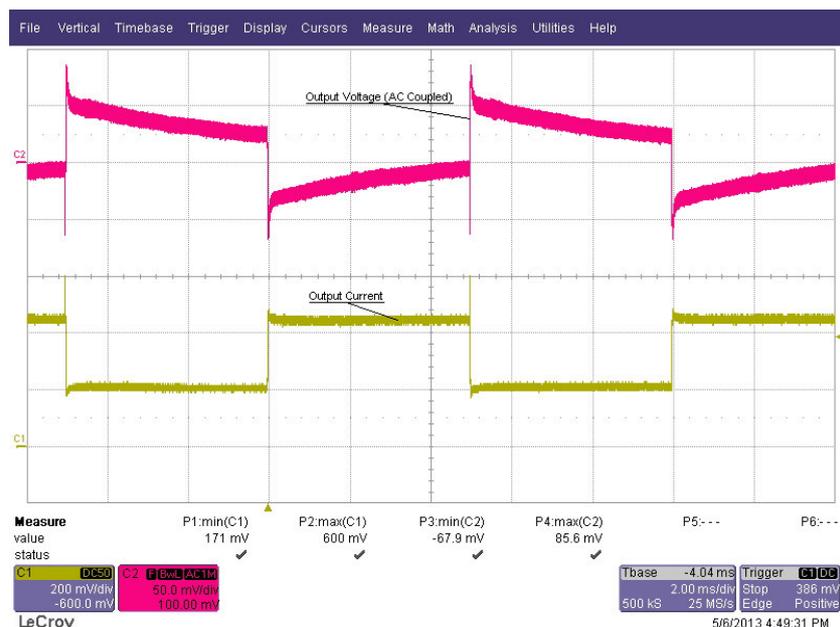
The response to a load step and a load dump at an input voltage of 20V is shown below.

Channel C2: **Output voltage**, -68mV undershoot, 86mV overshoot
 50mV/div, 2ms/div, AC coupled

Channel C1: **Load current**, load step 200mA to 400mA and vice versa
 200mA/div, 2ms/div



Version 1 with 3.3V output voltage

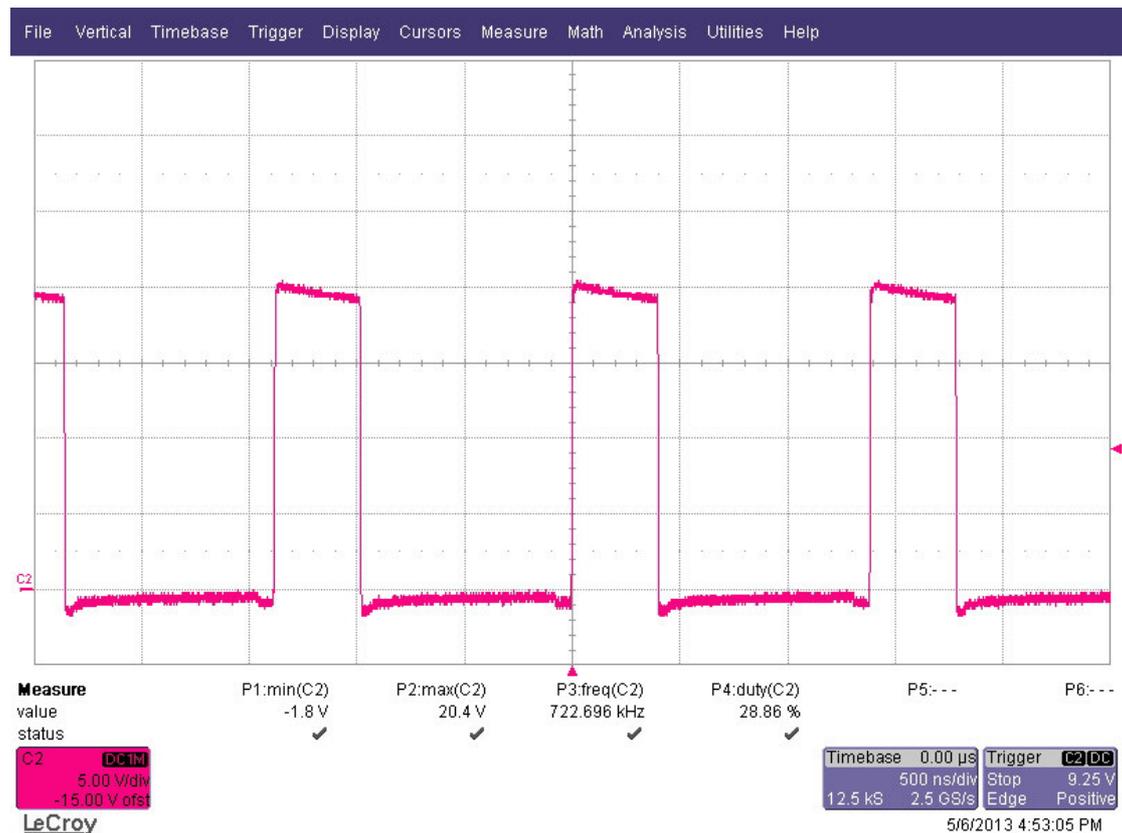


Version 2 with 5.0V output voltage

8 Switching Node

The drain-source voltage on the switching node is shown below. The image was captured with 20V input voltage and 600mA load.

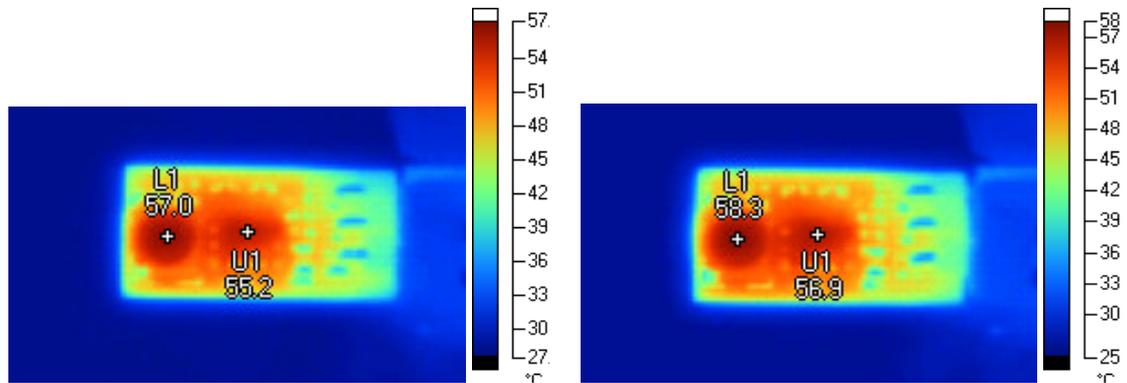
Channel C2: **Drain-source voltage**, -1.8V minimum voltage, 20.4V maximum voltage
5V/div, 500ns/div



Version 2 with 5.0V output voltage

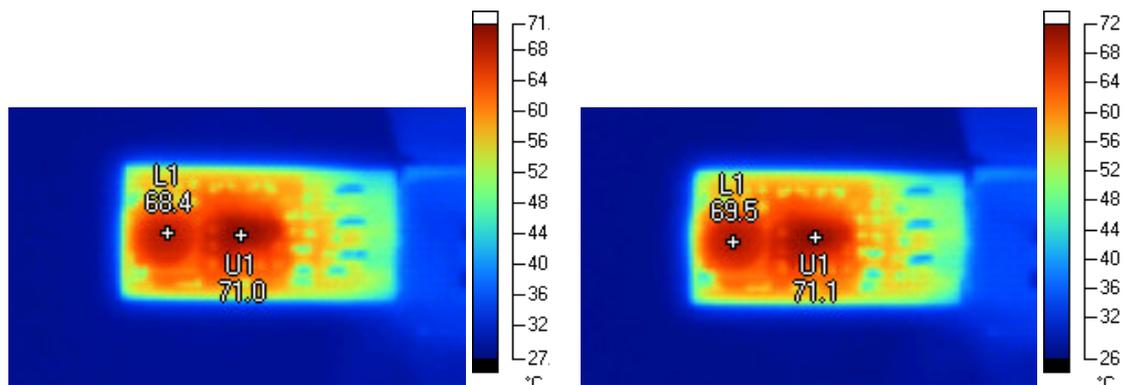
9 Thermal measurement

The thermal images below show the circuits at an ambient temperature of 21 °C with an input voltage of 10V, 20V and 30V and a load of 400mA.



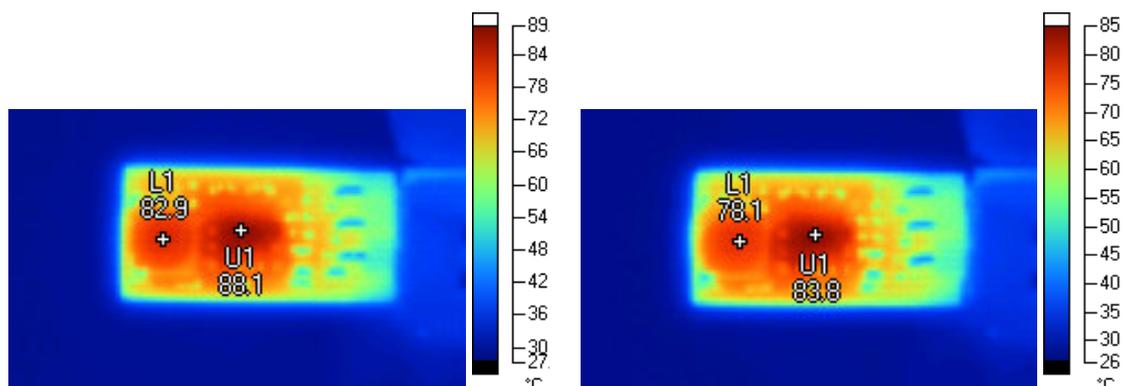
10V input, 3.3V @ 400mA

10V input, 5.0V @ 400mA



20V input, 3.3V @ 400mA

20V input, 5.0V @ 400mA



30V input, 3.3V @ 400mA

30V input, 5.0V @ 400mA

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3. Since the EVM is not a completed product, it may not meet all applicable regulatory and safety compliance standards (such as UL, CSA, VDE, CE, RoHS and WEEE) which may normally be associated with similar items. You assume full responsibility to determine and/or assure compliance with any such standards and related certifications as may be applicable. You will employ reasonable safeguards to ensure that your use of the EVM will not result in any property damage, injury or death, even if the EVM should fail to perform as described or expected.

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