Test Report
For PMP10668
6/24/2015

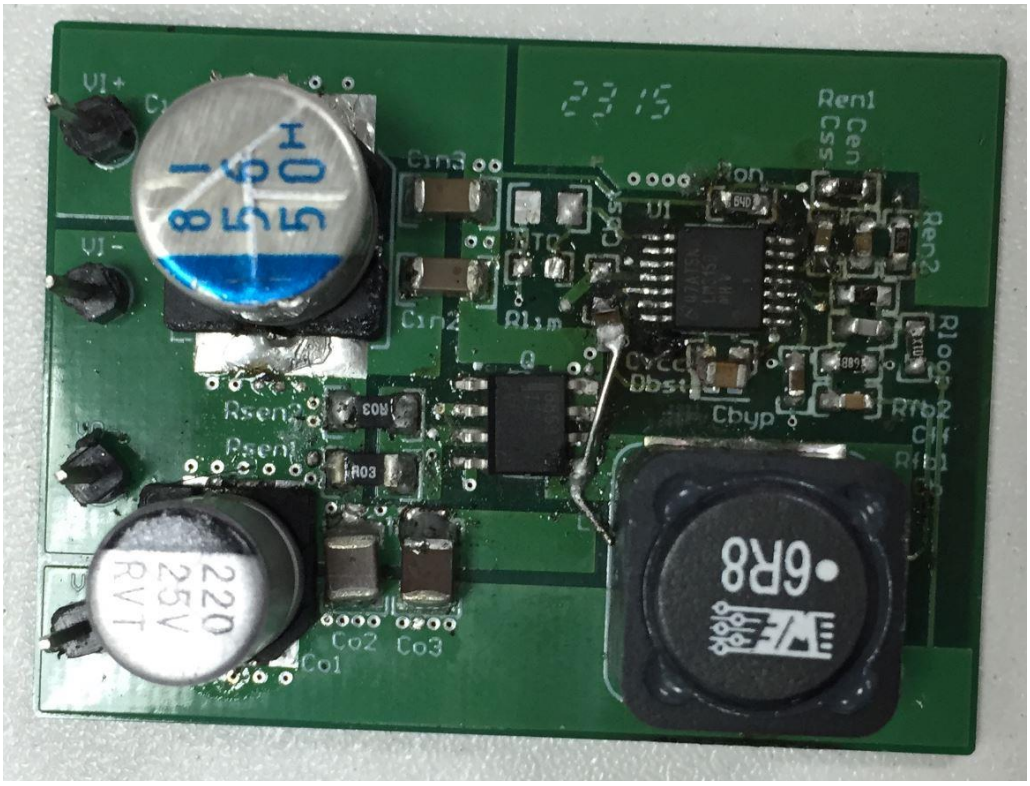
1. Design Specifications

Vin Min.	**13.2VDC**
Vin Max.	**36VDC**
Vout	**10VDC**
Iout	**4A Max.**
Target Switching Frequency	**250KHz**

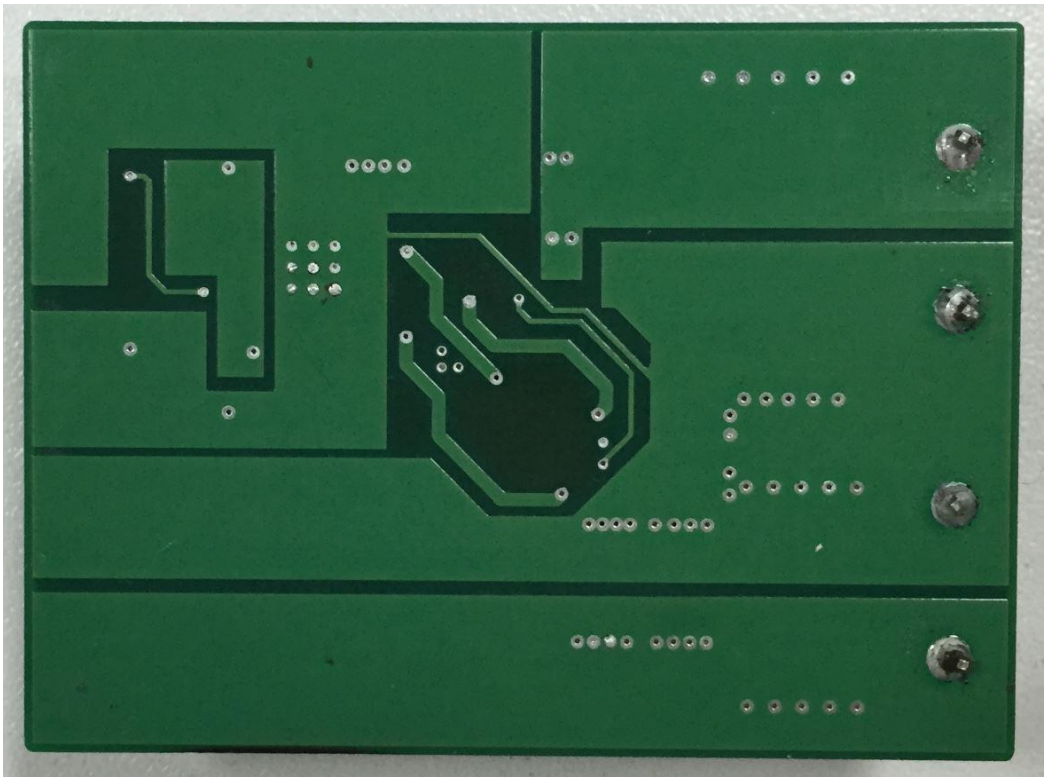
2. Circuit Description

PMP10668 is synchronous buck solution which accepts an input voltage of 13.2 to 36Vin and provides a 10V output capable of supplying continuous 4A and transient 10A of current to the load. With COT control, no loop compensation circuit needed and could get good load transient performance. Synchronous grants the high efficiency. This reference design could be used for high power and requirement of load transient such as motor of gimbal.

3. PMP10668 Board Photos

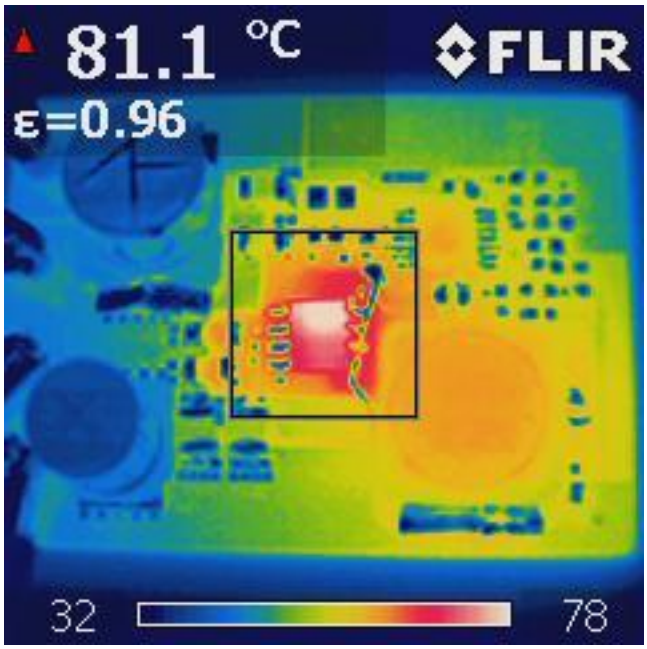


Board Photo (Top) (46.10mm*33.93mm)

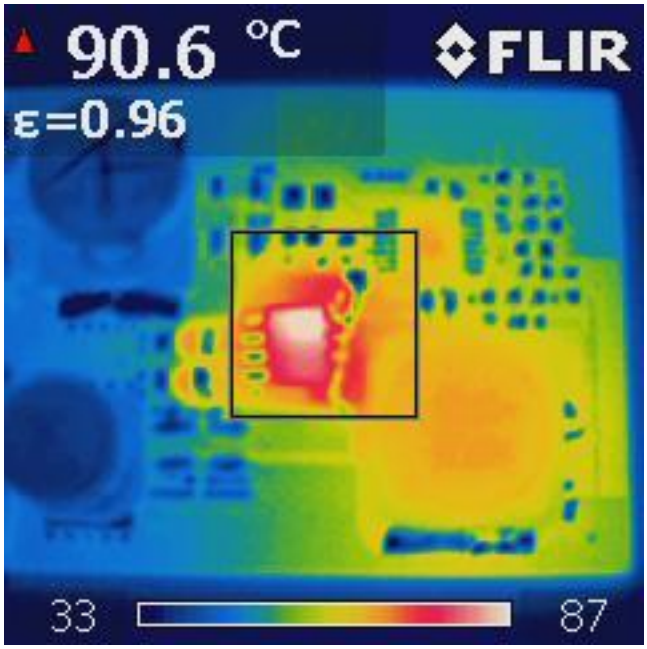


Board Photo (Bottom) (46.10mm*33.93mm)

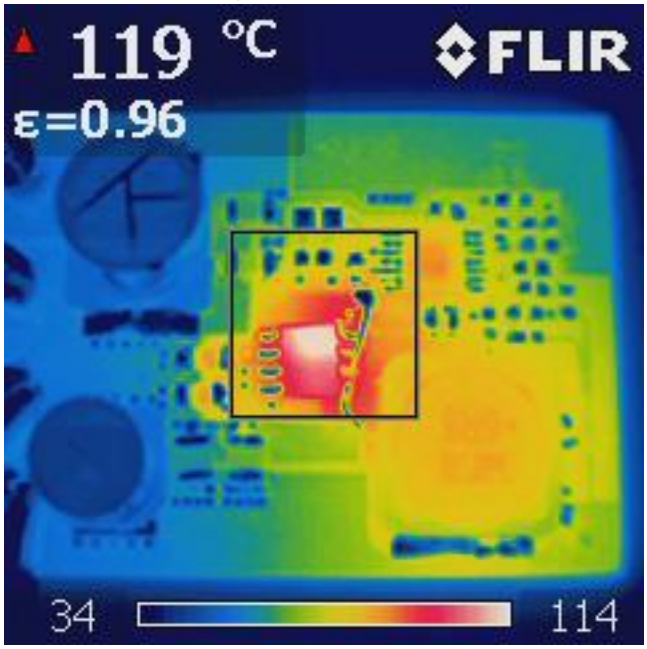
4. Thermal Data



IR thermal image taken at steady state at 4A load and Vin = 13.2V with no airflow (for improved thermal performance, it is recommended to use 2oz Copper or heavier, heatsinks, higher power rated current sense resistor, and/or airflow)



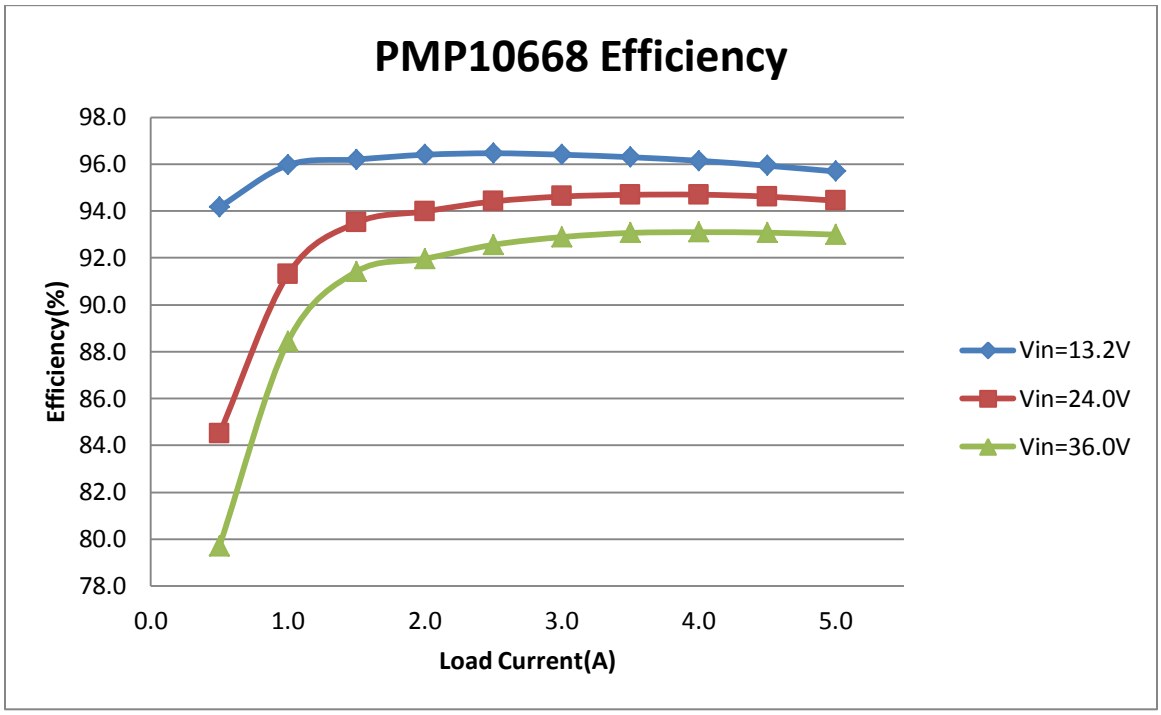
IR thermal image taken at steady state at 4A load and Vin = 24V with no airflow (for improved thermal performance, it is recommended to use 2oz Copper or heavier, heatsinks, higher power rated current sense resistor, and/or airflow)



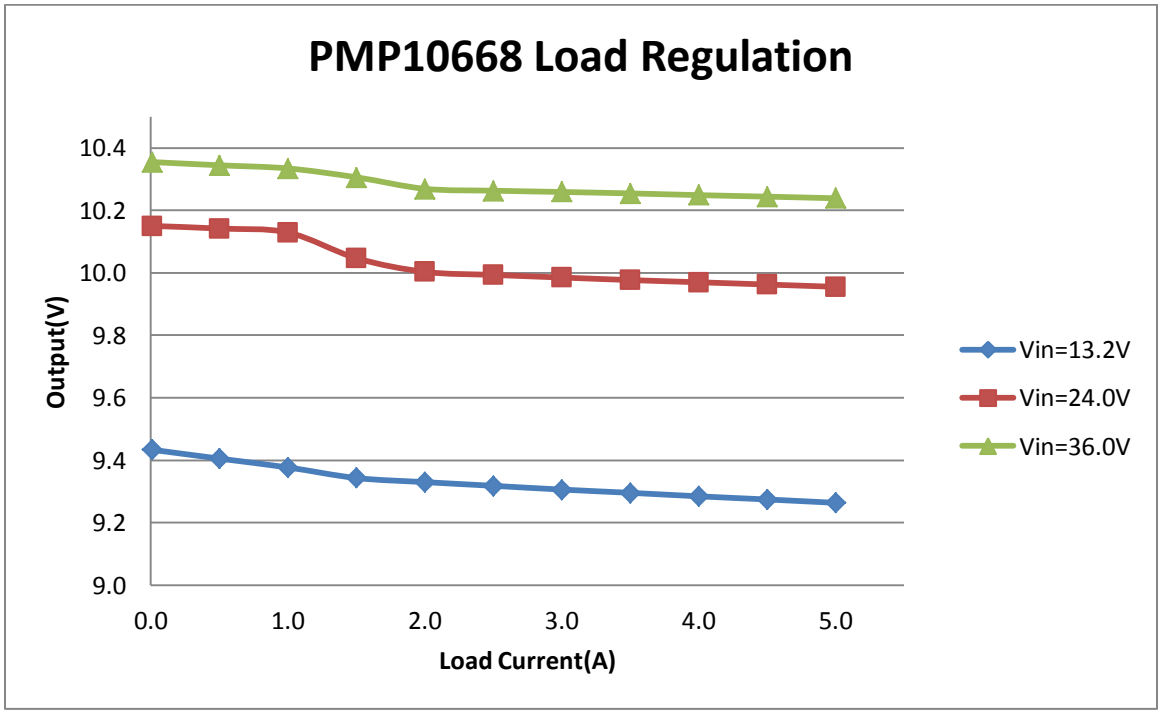
IR thermal image taken at steady state at 4A load and Vin = 36V with no airflow (for improved thermal performance, it is recommended to use 2oz Copper or heavier, heatsinks, higher power rated current sense resistor, and/or airflow)

5. Efficiency and Regulation

5.1 Efficiency Chart



5.2 Regulation Chart

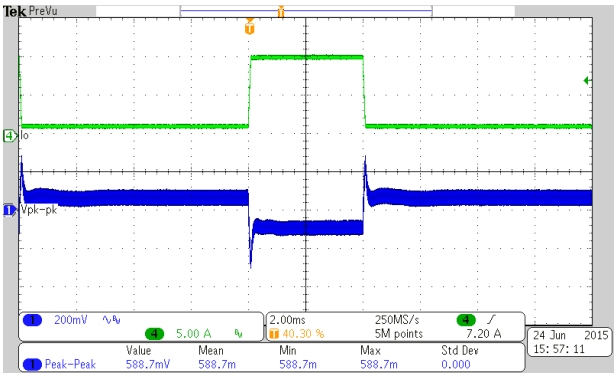


6 Waveforms

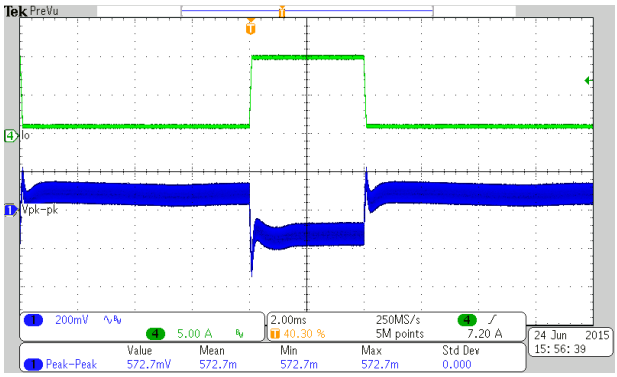
6.1 Load Transient Response (1A to 10A, 1A/us)

COT control could make the design achieve good transient performance. With 1A/us slew rate, the overshoot and undershoot data are as below:

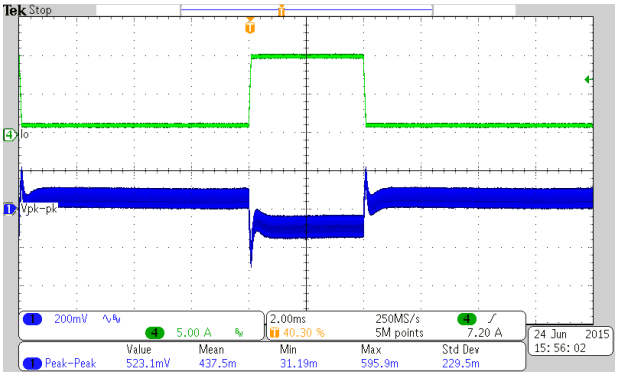
Vin	1A to 10A @1A/us(undershoot)	10A to 1A @1A/us(overshoot)
13.2	-300mV	+280mV
24	-360mV	+220mV
36	-320mV	+110mV



Vin = 13.2V

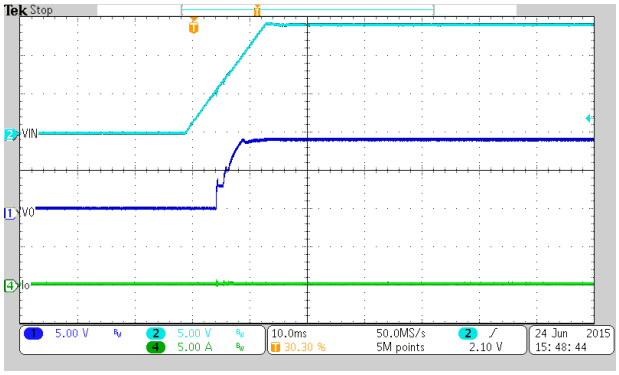


Vin = 24V

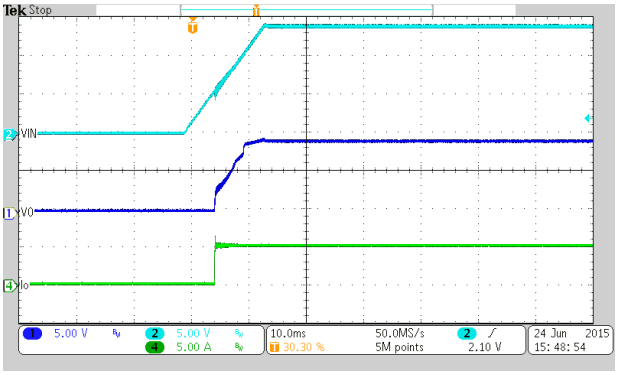


Vin = 36V

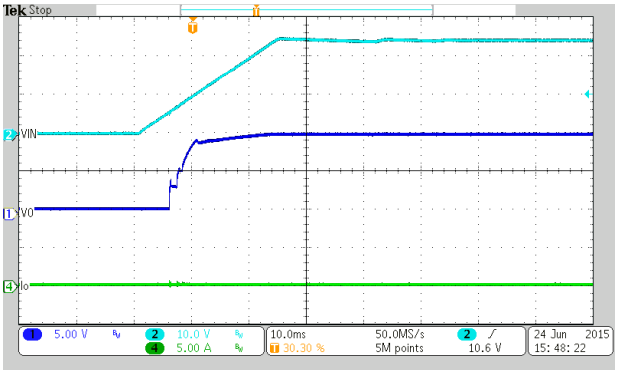
6.2 Startup



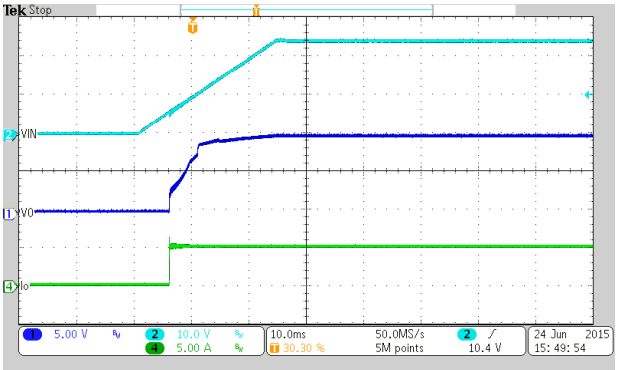
Vin=13.2V, Io=0A



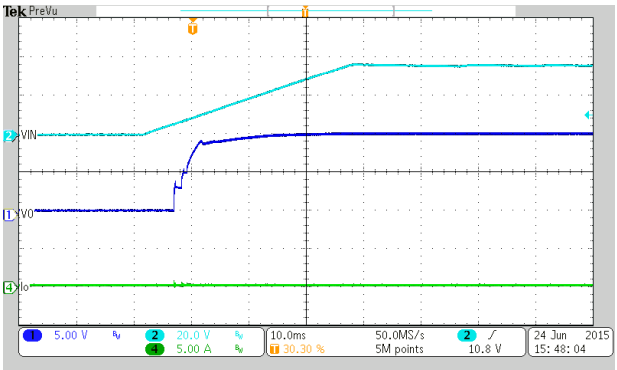
Vin=13.2V, Io=5A



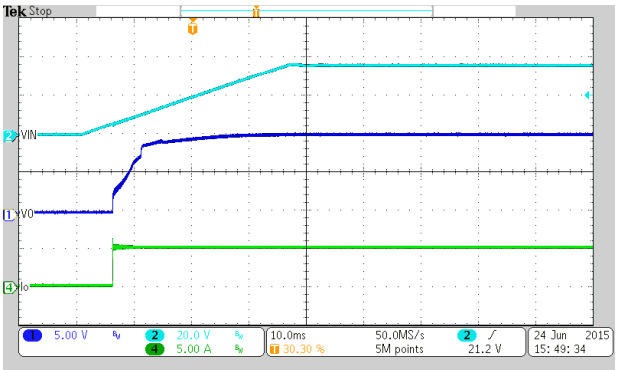
Vin=24V, Io=0A



Vin=24V, Io=5A

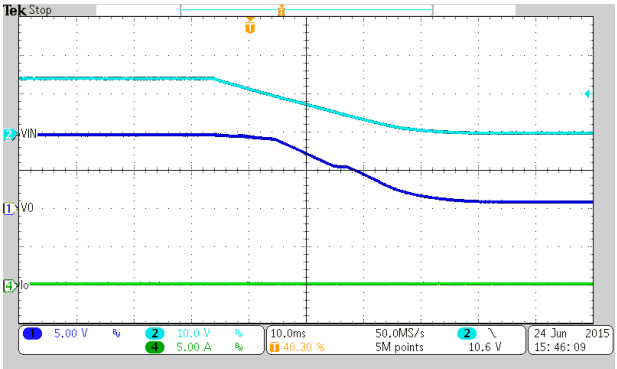


Vin=36V, Io=0A

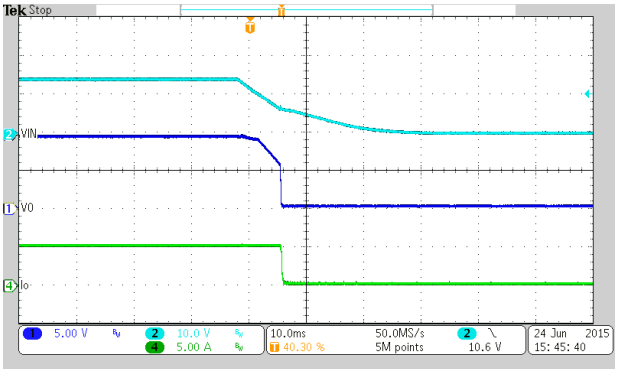


Vin=36V, Io=5A

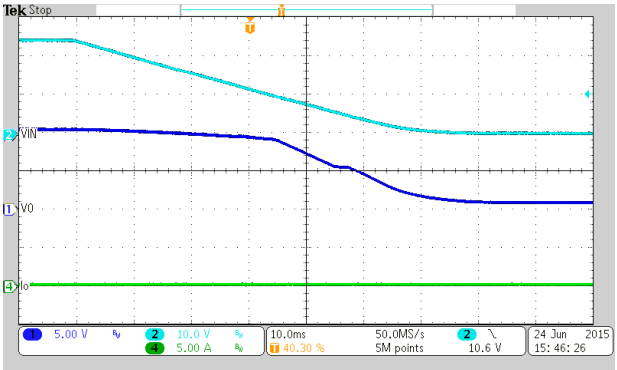
6.3 Shutdown



Vin=13.2V, Io=0A



Vin=13.2V, Io=5A



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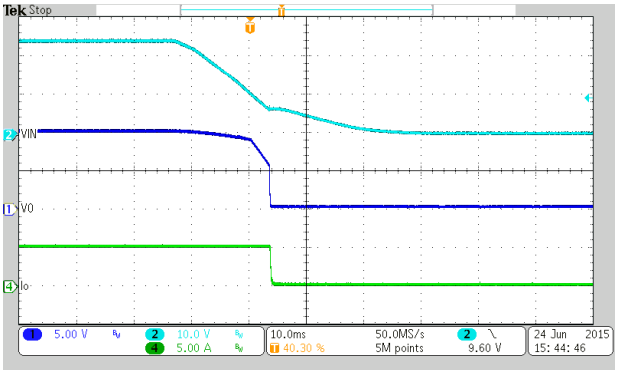

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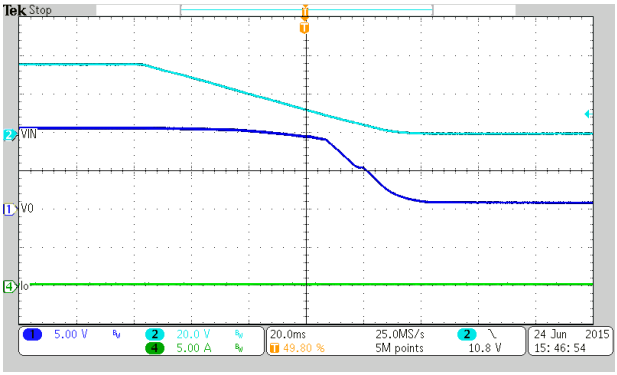
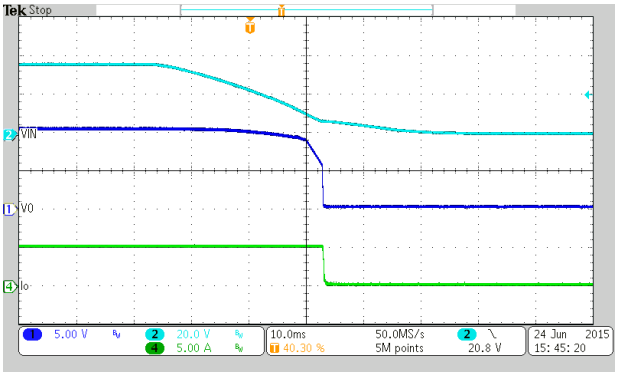
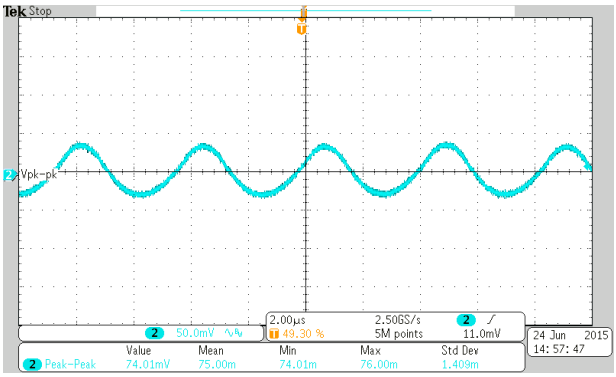


Vin=36V, Io=0A

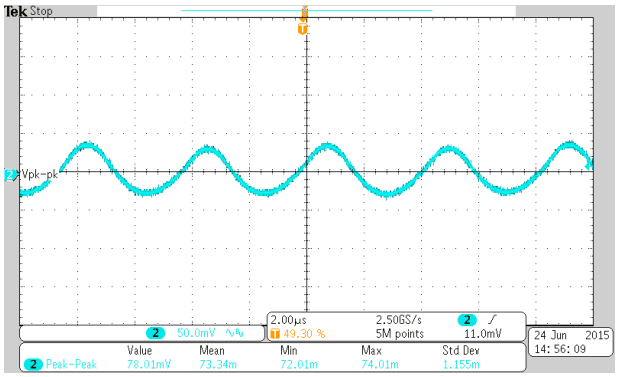


Vin=36V, Io=5A

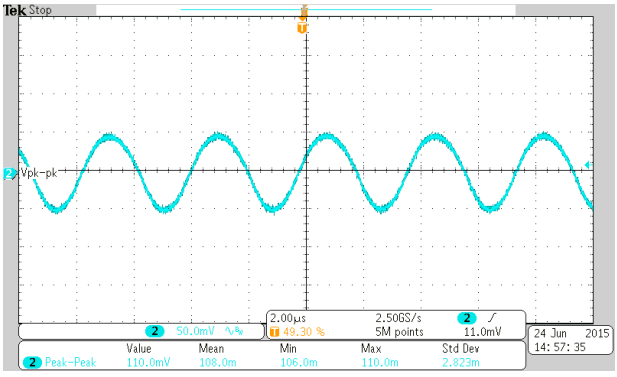
6.3 Ripple



Vin=13.2V, Io=0A



Vin=13.2V, Io=5A



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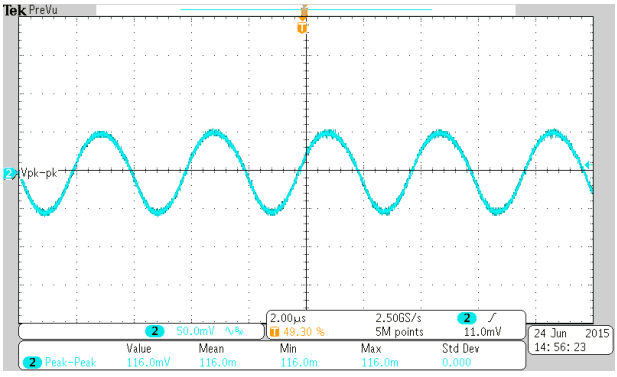

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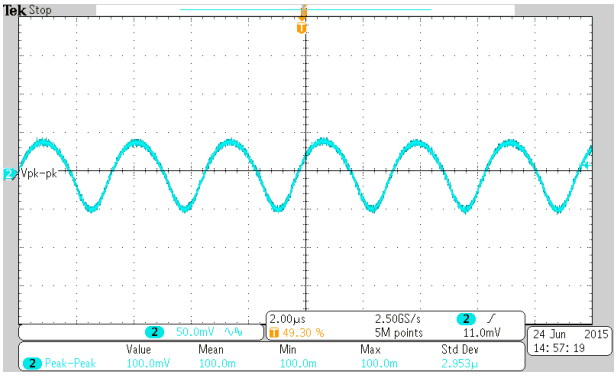

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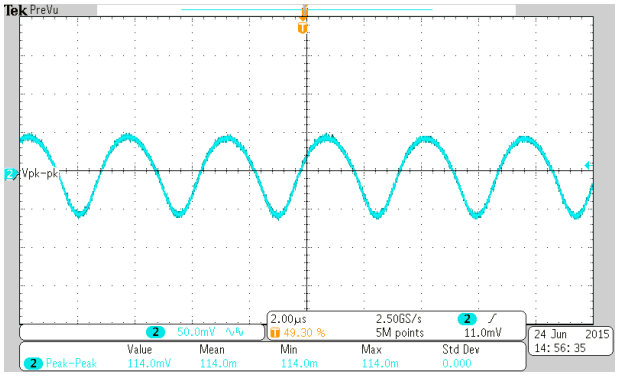
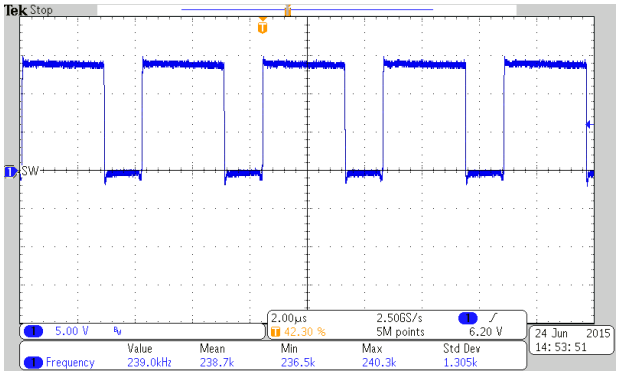
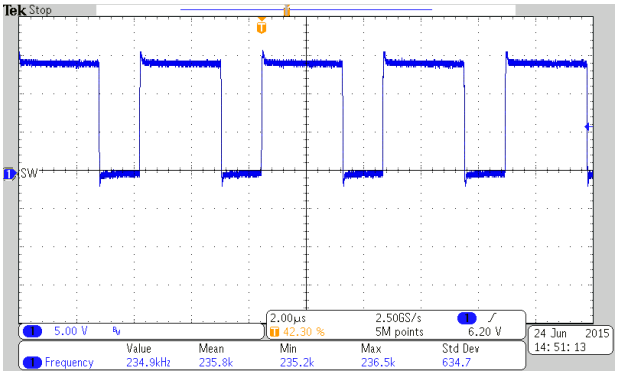


Vin=36V, Io=5A

6.4 Switching



Vin=13.2V, Io=0A



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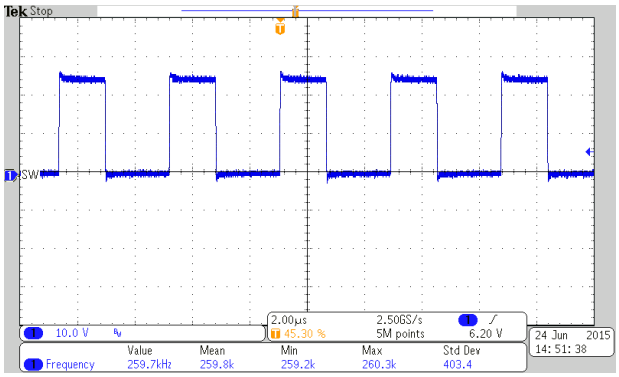

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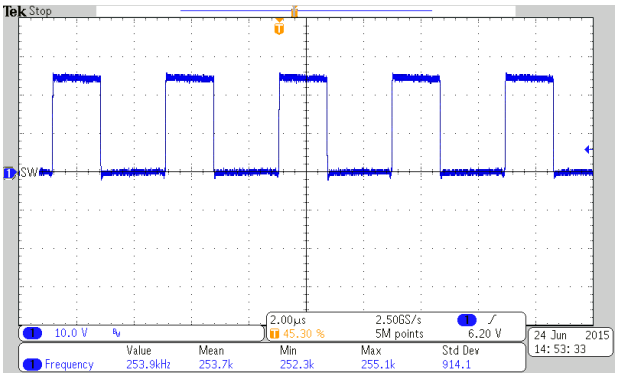

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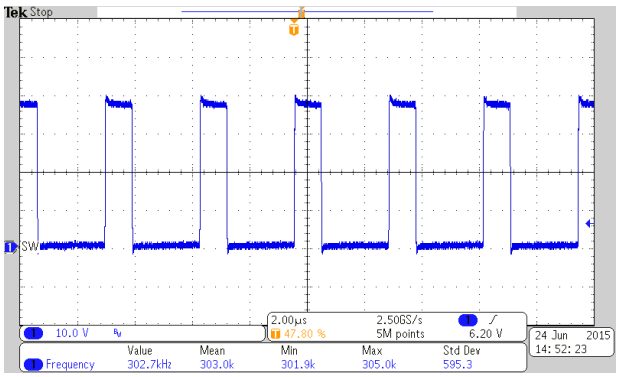

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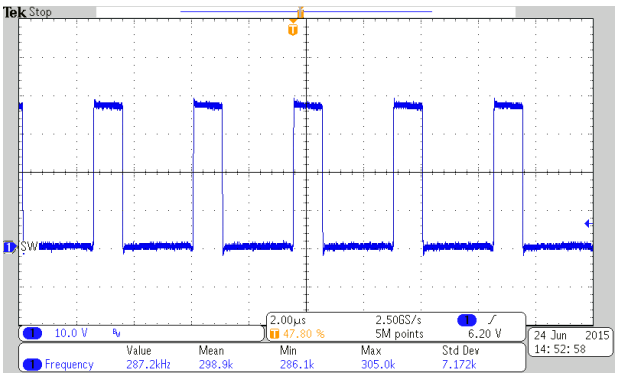

Vin=36V, Io=5A

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