

TSW14J56EVM Test Report

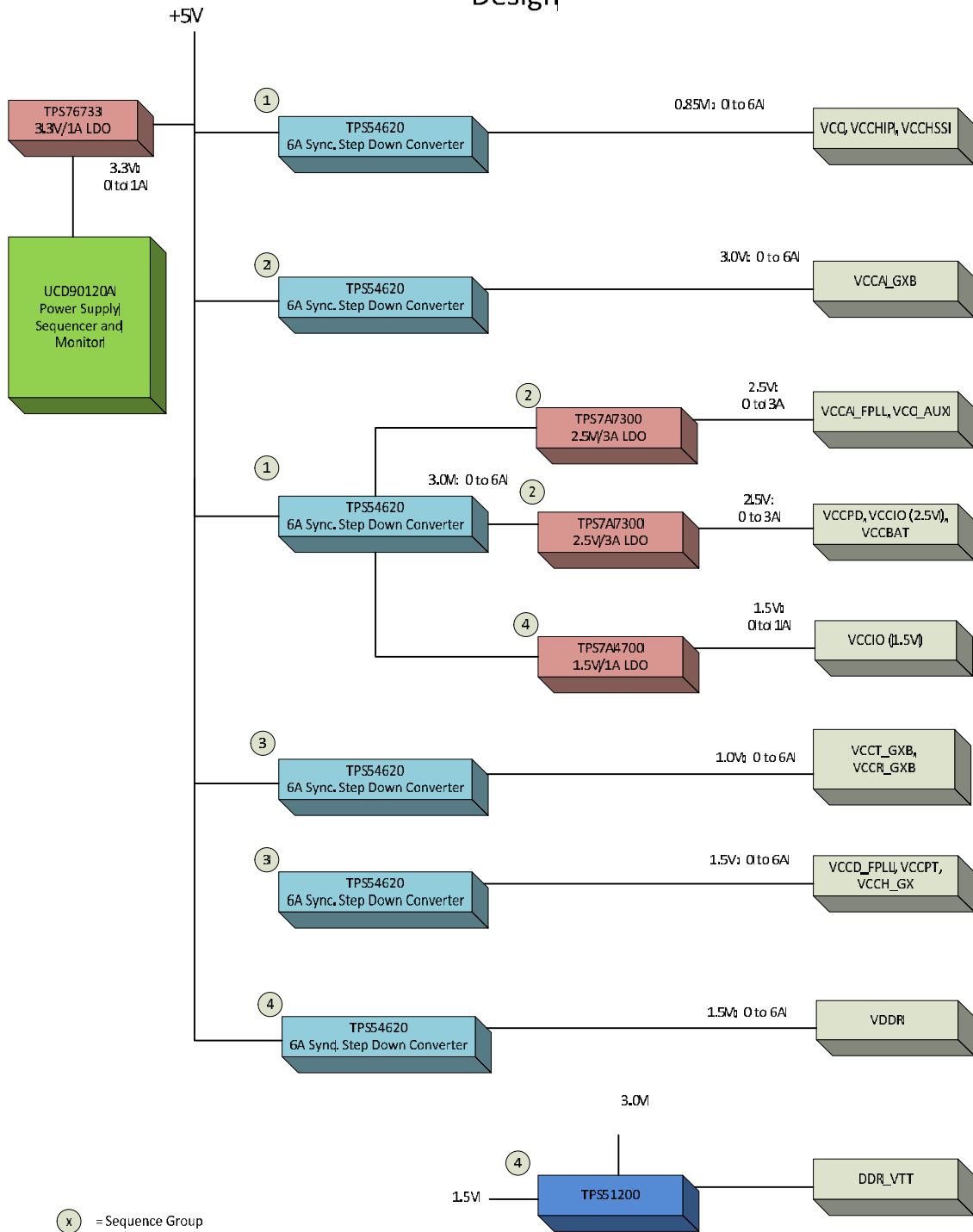
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1) Block Diagram

Arria V GZ FPGA Power Reference Design



2) Board Photos

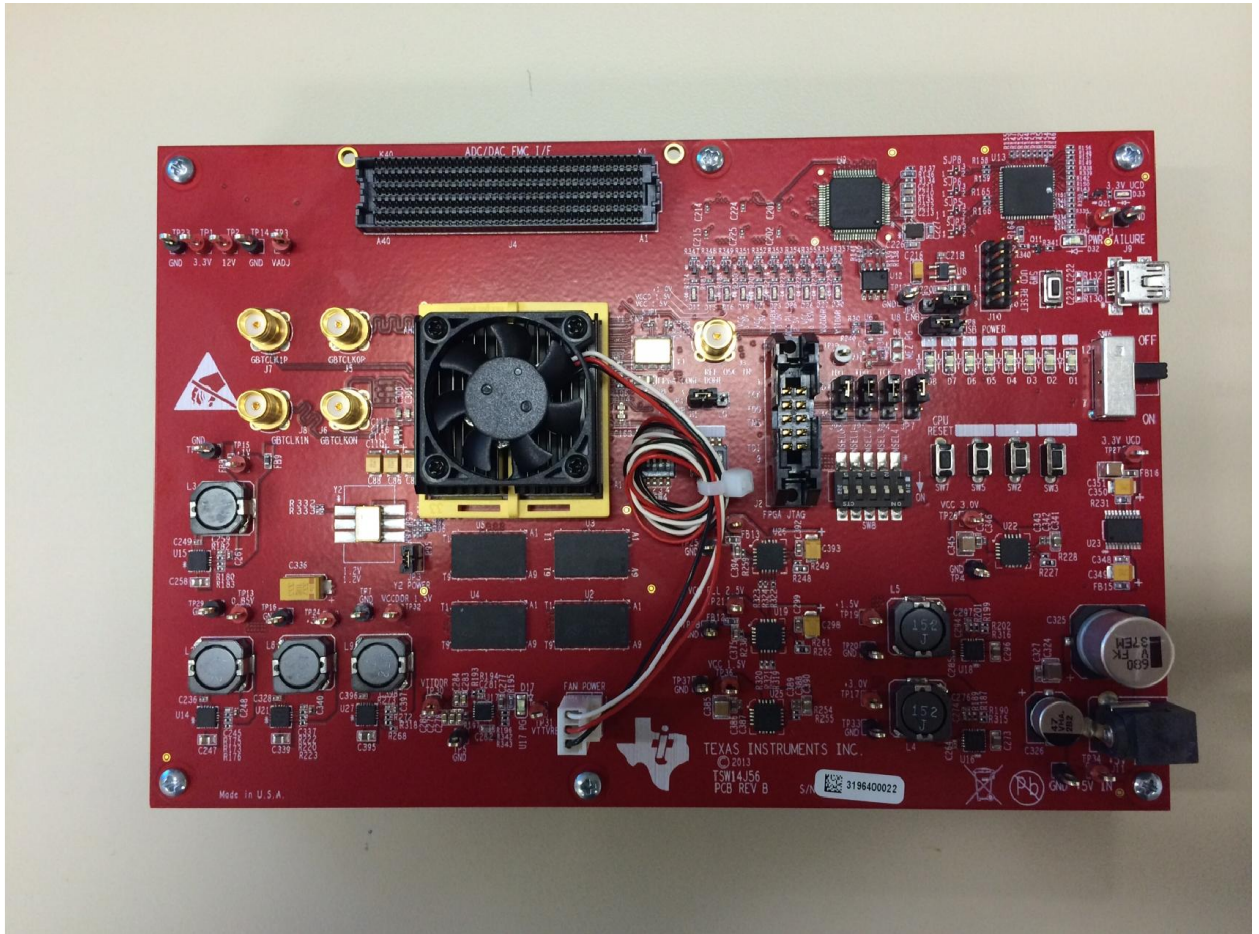


Figure 1. Board Photo Top

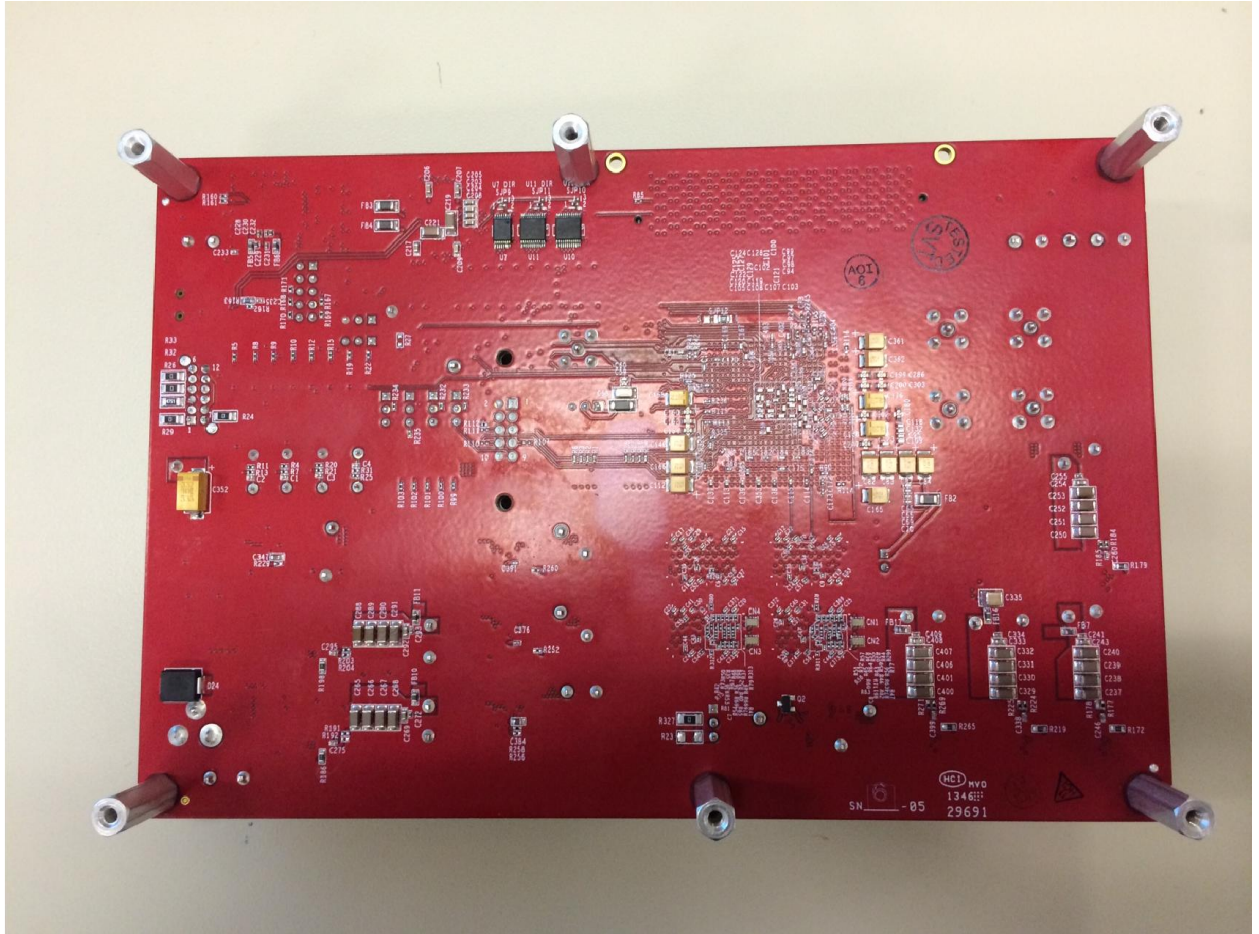


Figure 2. Board Photo Bottom

3) Efficiency

The efficiency of the converters is shown in the figures below. The input voltage is set to 5V.

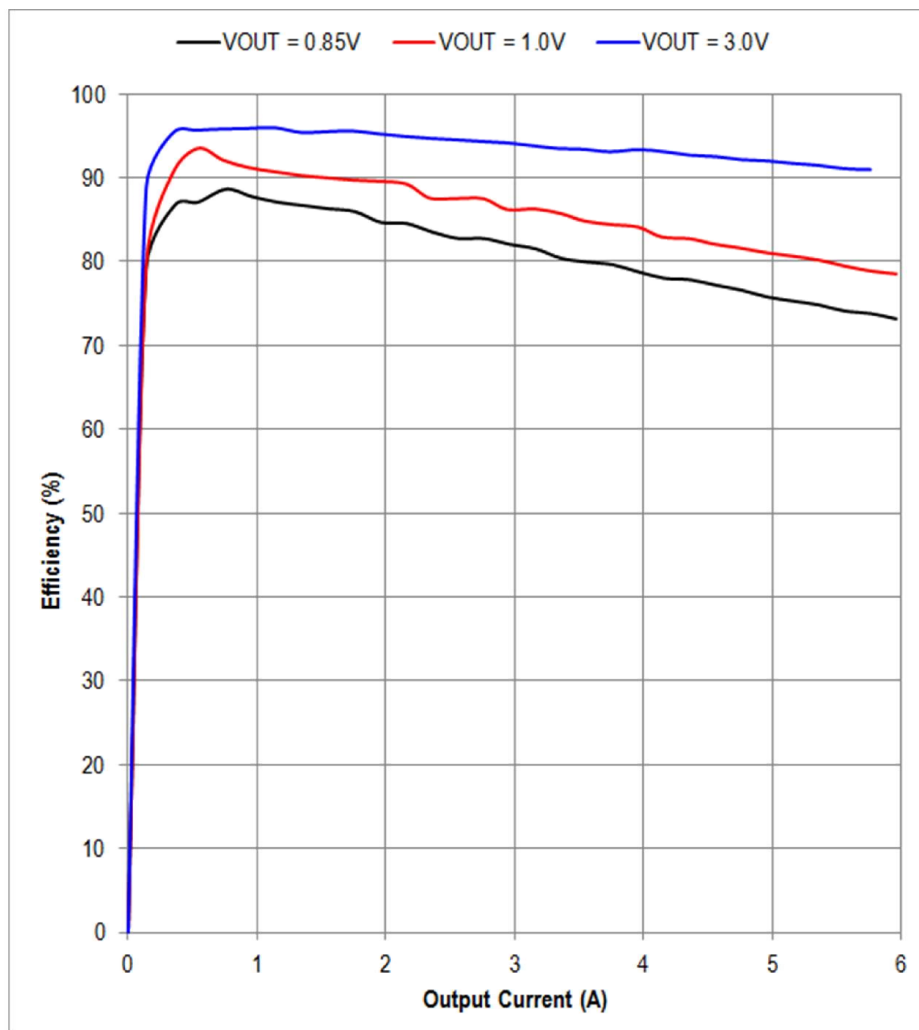


Figure 3. VIN = 5V Efficiency

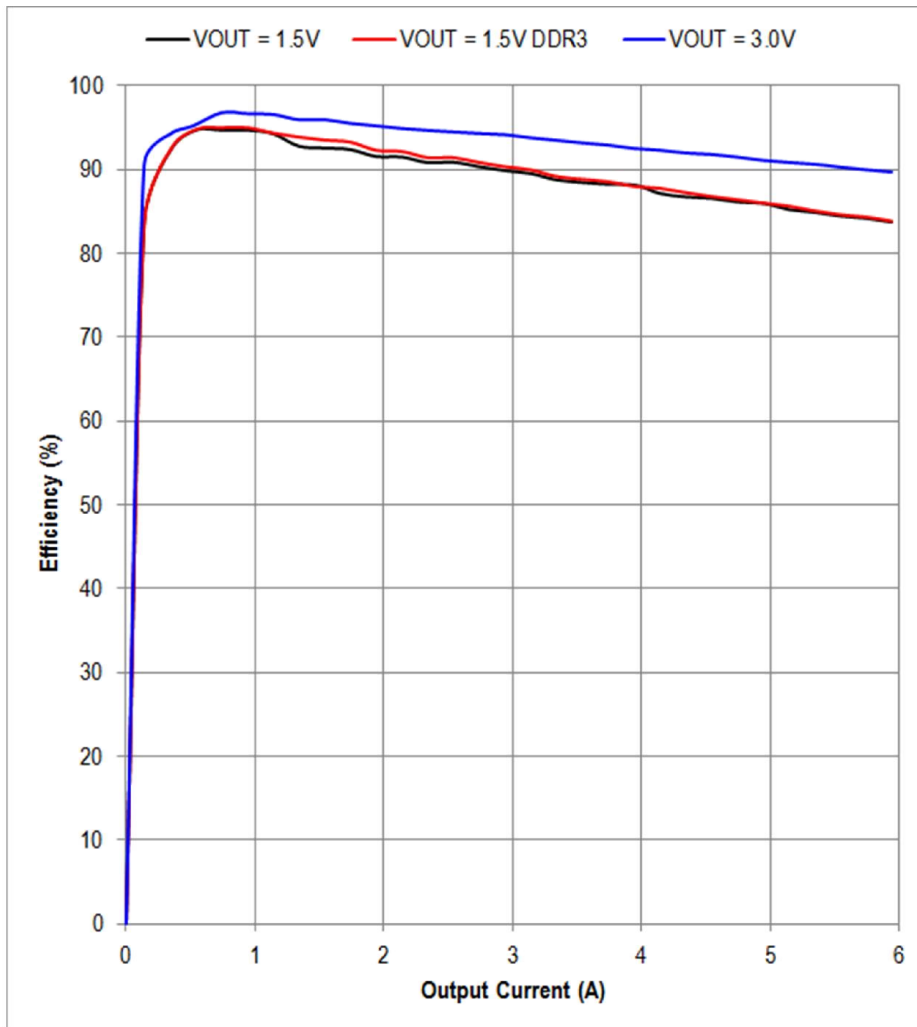


Figure 4. VIN = 5V Efficiency

4) Load Regulation

The images below show the output load regulation. The input voltage is 5V.

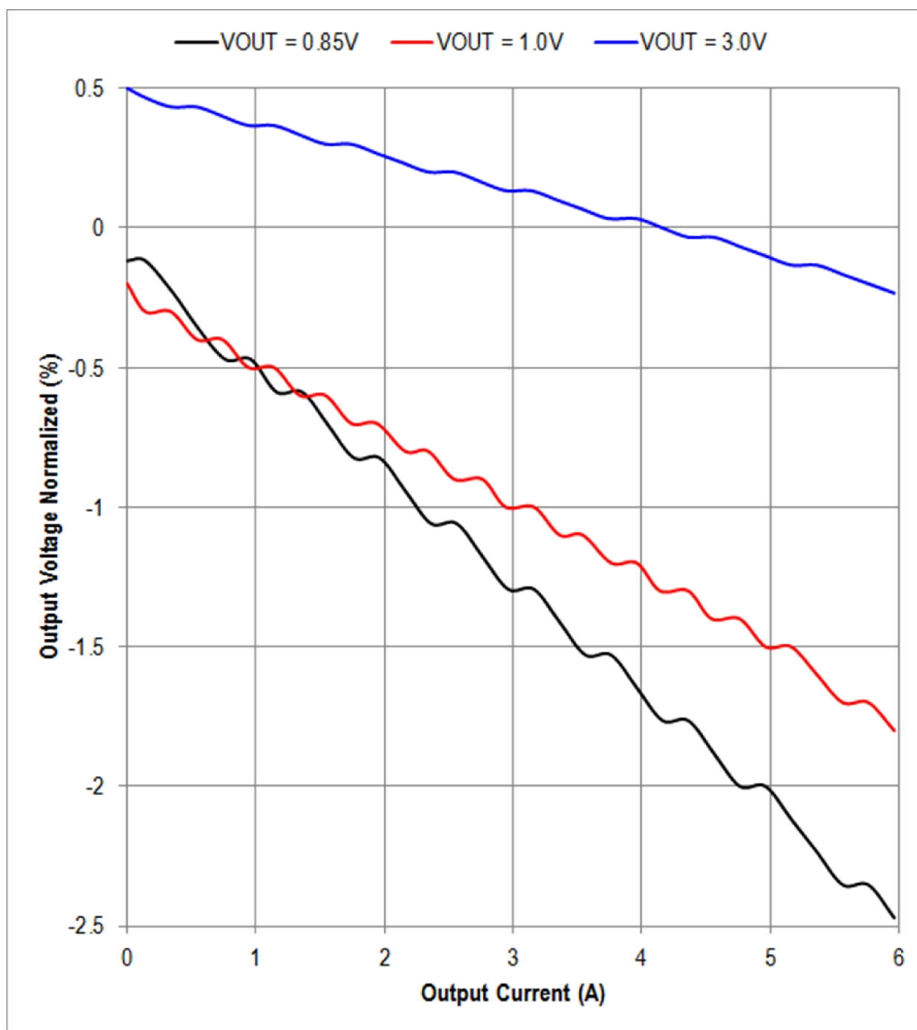


Figure 5. VIN = 5V Load Regulation

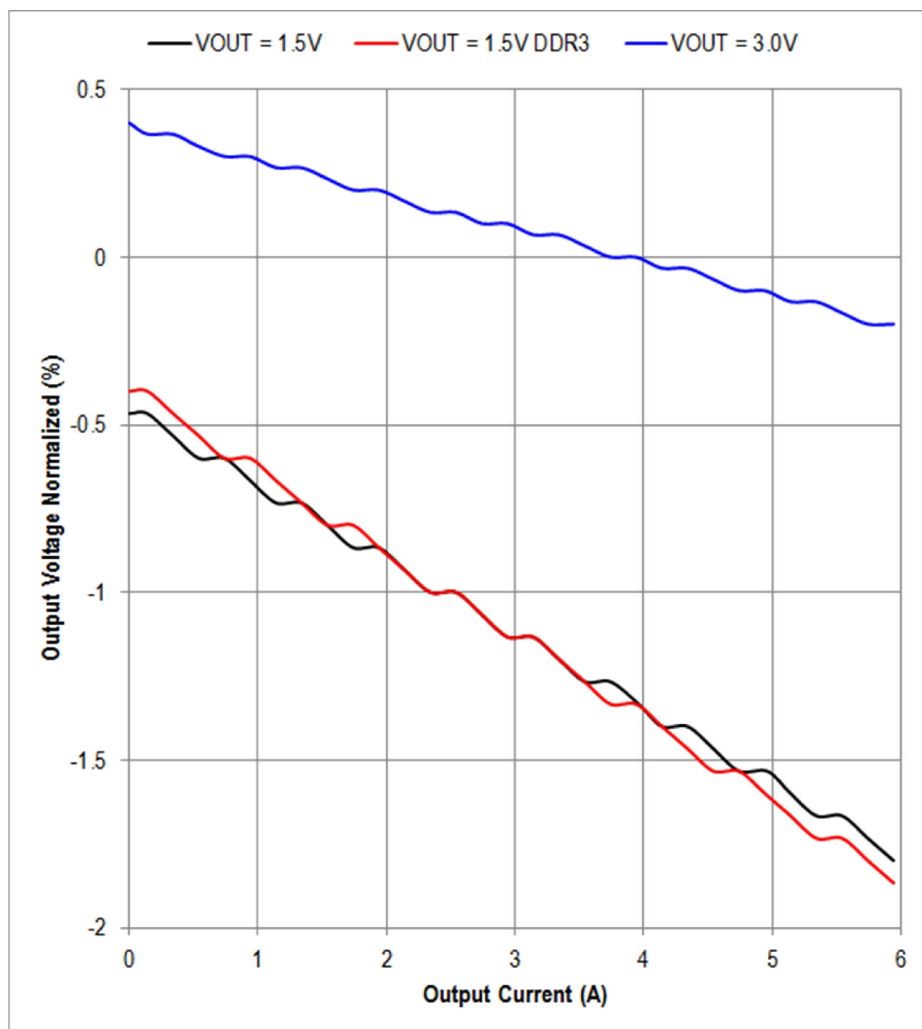
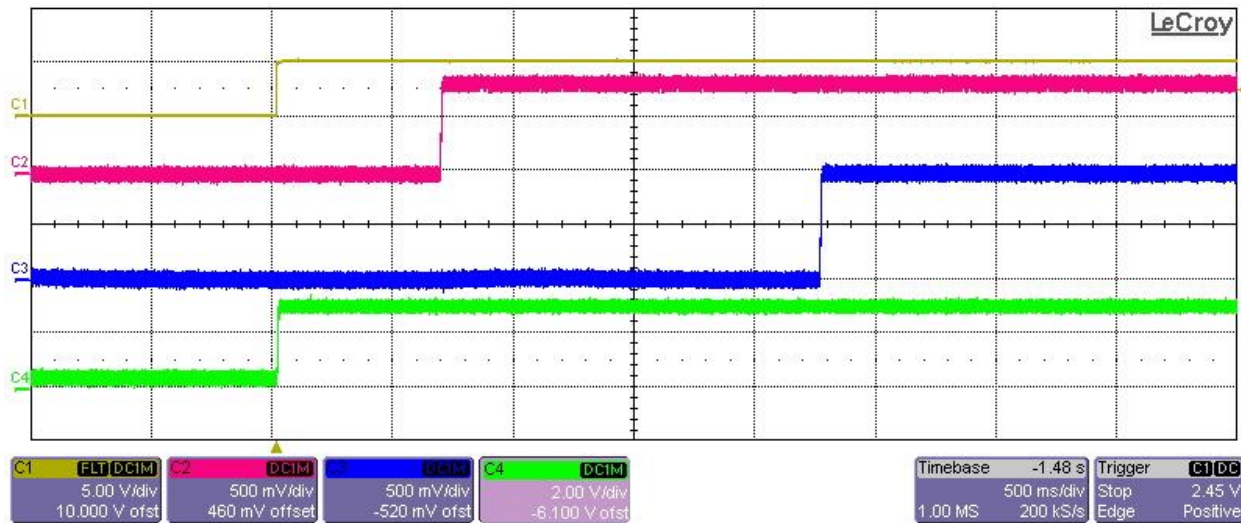


Figure 6. VIN = 5V Load Regulation

5) Startup No Load

The images below shows the startup waveforms. The output is not loaded. The input voltage is set to 5V.



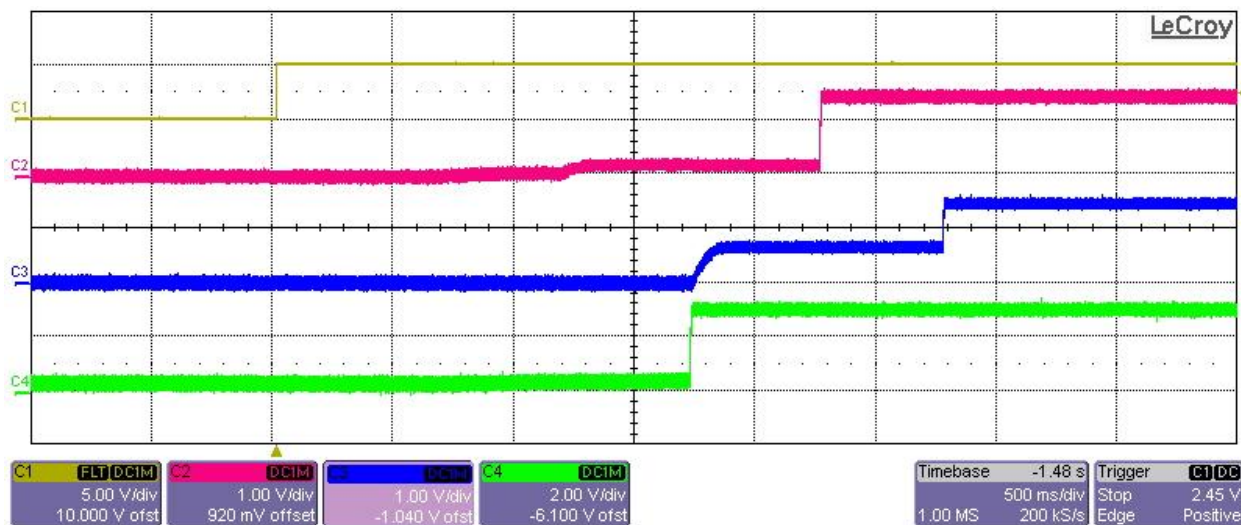
Ch.1: VIN = 5V

Ch.2: VOUT = 0.85V

Ch.3: VOUT = 1.0V

Ch.4: VOUT = 3.0V

Figure 7. VIN = 5V Startup with No Load



Ch.1: VIN = 5V

Ch.2: VOUT = 1.5V

Ch.3: VOUT = 1.5V DDR3

Ch.4: VOUT = 3.0V

Figure 8. VIN = 5V Startup with No Load

6) Output Voltage Ripple

The images below shows the output voltage ripple when load is fully applied. The input voltage is 5V.

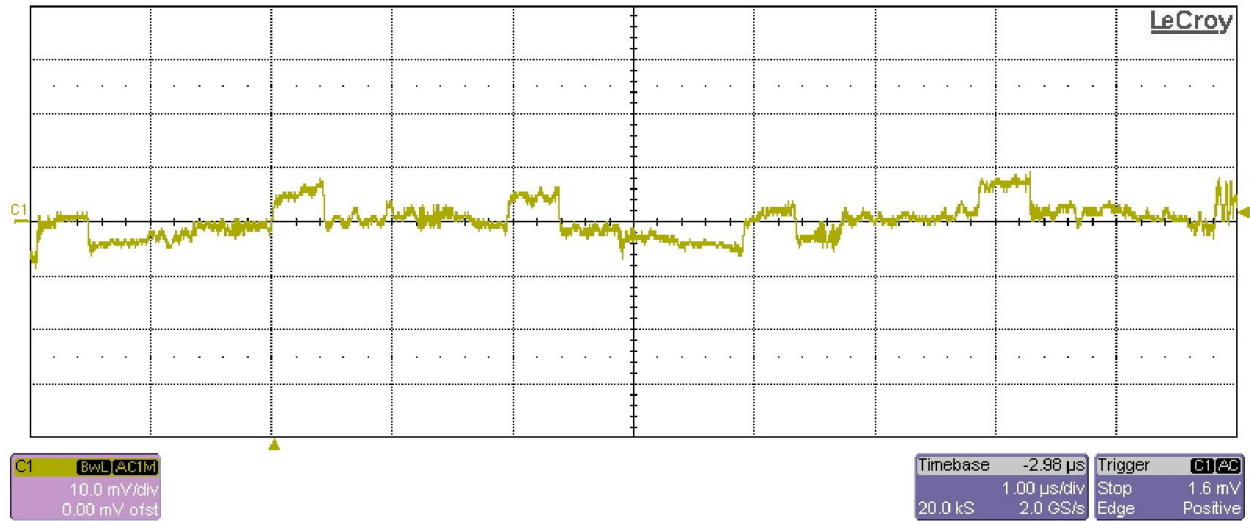


Figure 9. $V_{IN} = 5V$, $V_{OUT} = 0.85V$, $I_{OUT} = 6A$ Output Ripple Voltage

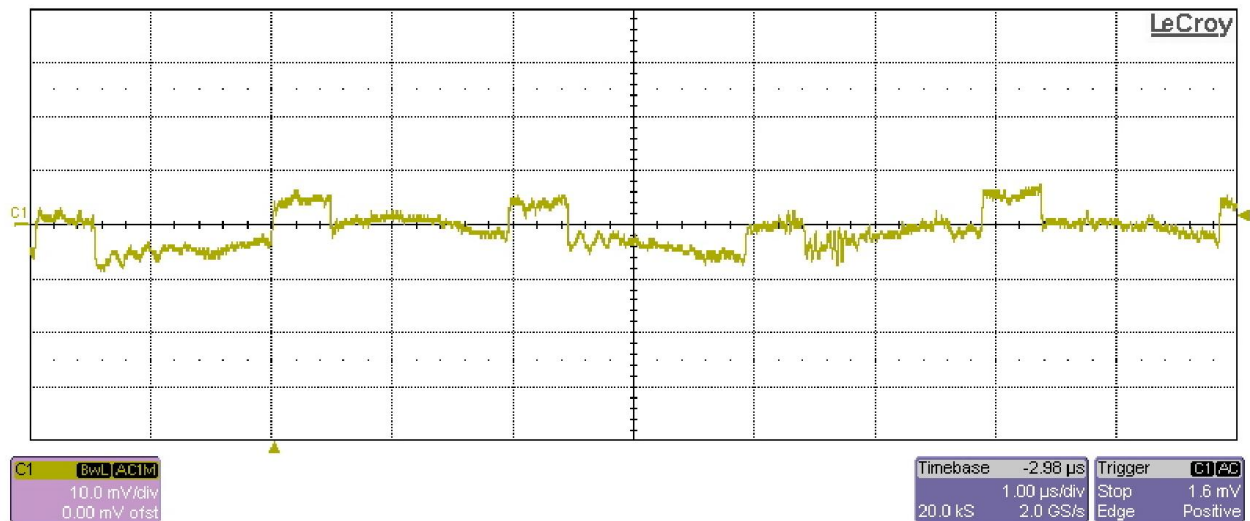


Figure 10. $V_{IN} = 5V$, $V_{OUT} = 1.0V$, $I_{OUT} = 6A$ Output Ripple Voltage

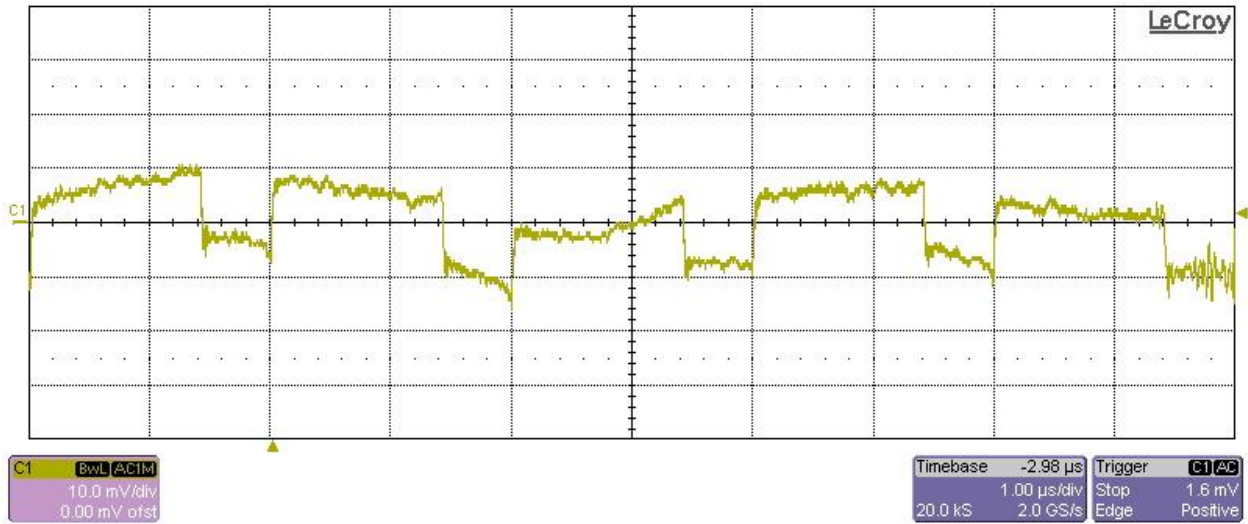


Figure 11. $V_{IN} = 5V$, $V_{OUT} = 3.0V$, $I_{OUT} = 6A$ Output Ripple Voltage

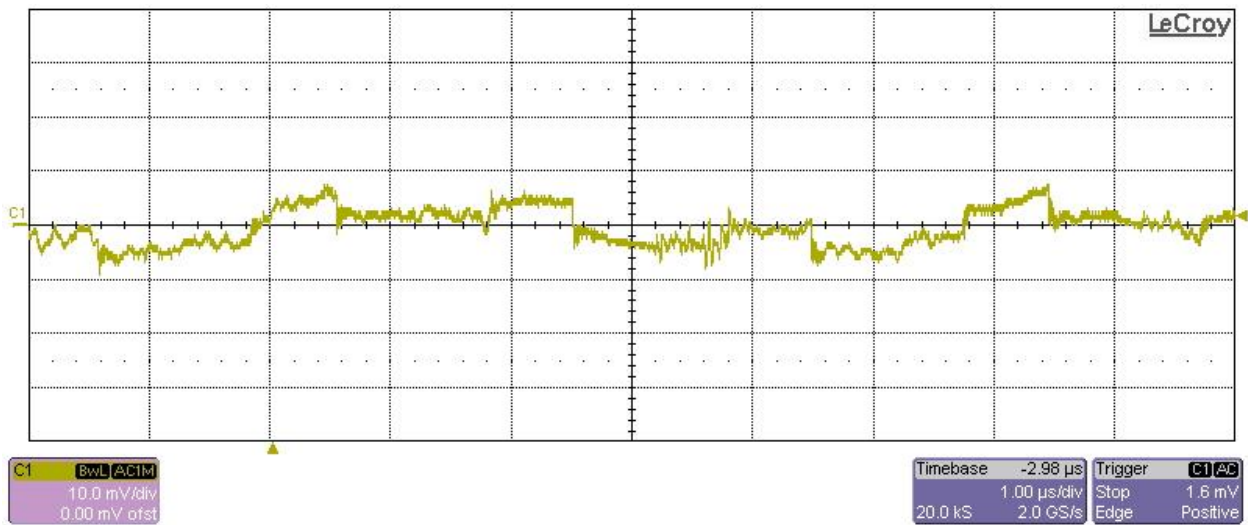


Figure 12. $V_{IN} = 5V$, $V_{OUT} = 1.5V$, $I_{OUT} = 6A$ Output Ripple Voltage

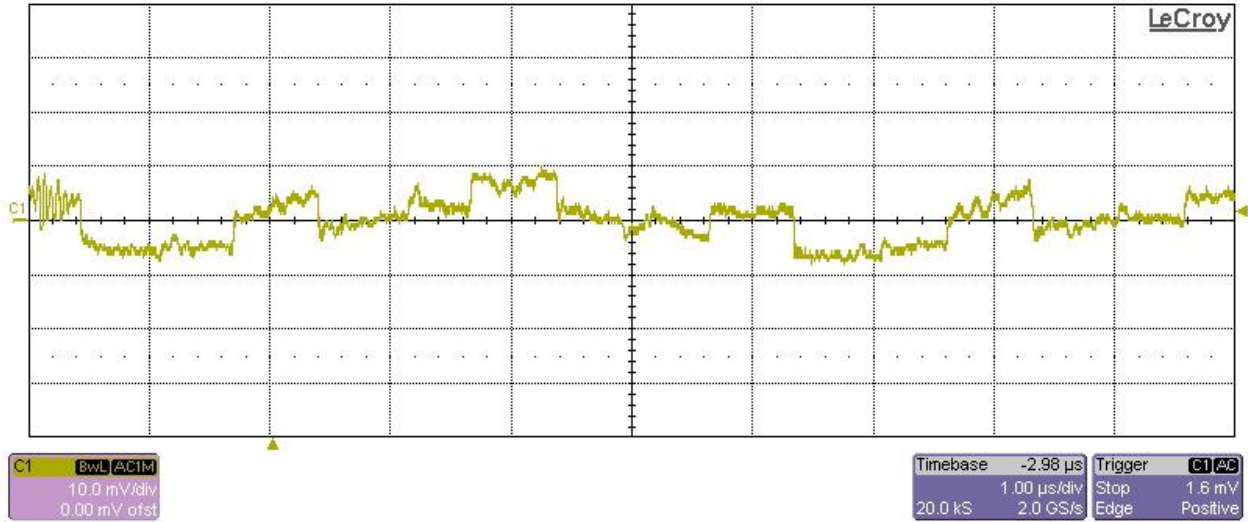


Figure 13. VIN = 5V, VOUT = 1.5V DDR3, IOU = 6A Output Ripple Voltage

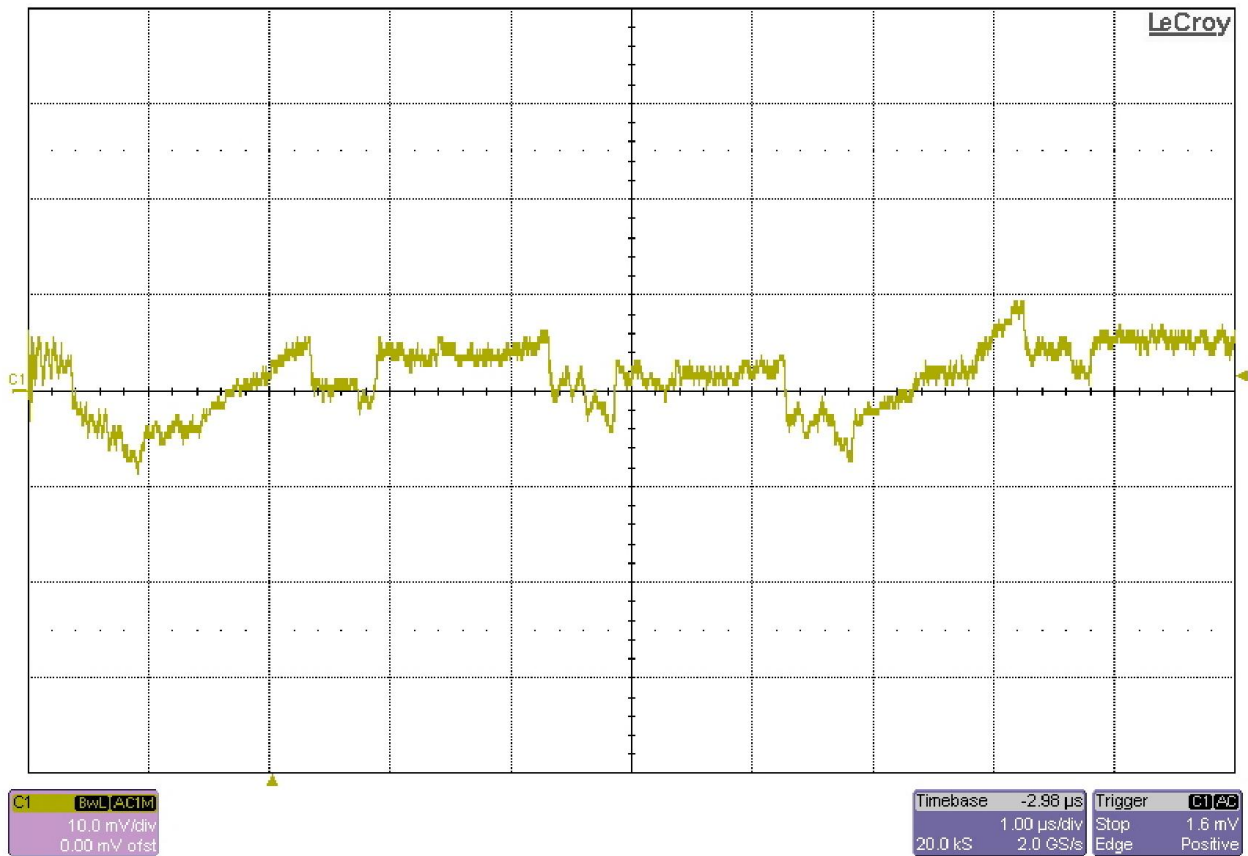


Figure 14. VIN = 5V, VOUT = 3.0V, IOU = 6A Output Ripple Voltage

7) Load Transients

The transient response of the converters is shown below. The input voltage is 5V. The output current is pulsed from 50% load to full load.

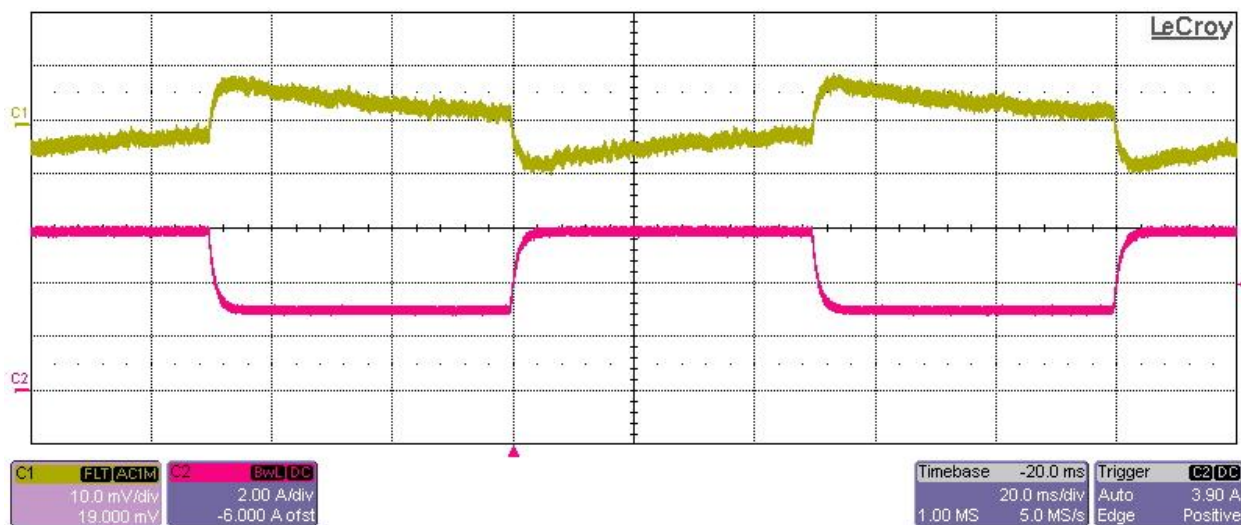


Figure 15. VIN = 5V, VOUT = 0.85V, 3A to 6A Load Transient

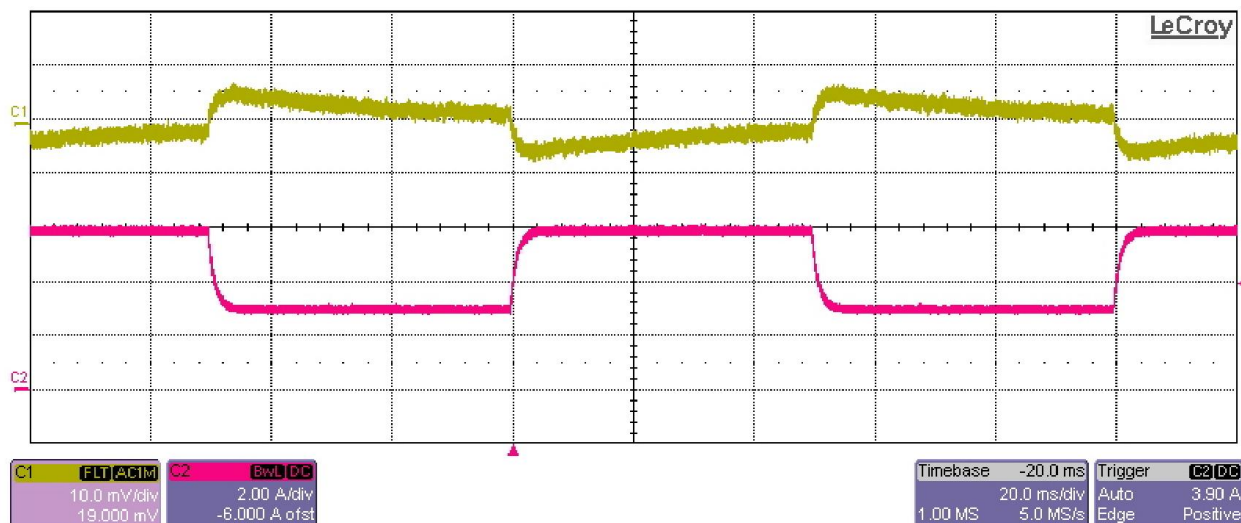


Figure 16. VIN = 5V, VOUT = 1.0V, 3A to 6A Load Transient

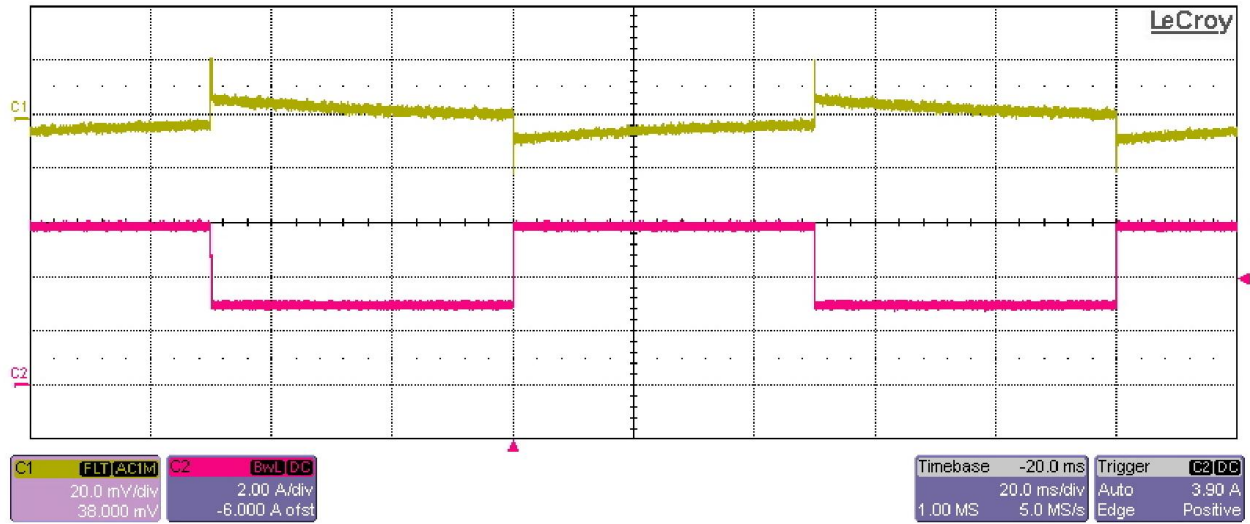


Figure 17. VIN = 5V, VOUT = 3.0V, 3A to 6A Load Transient

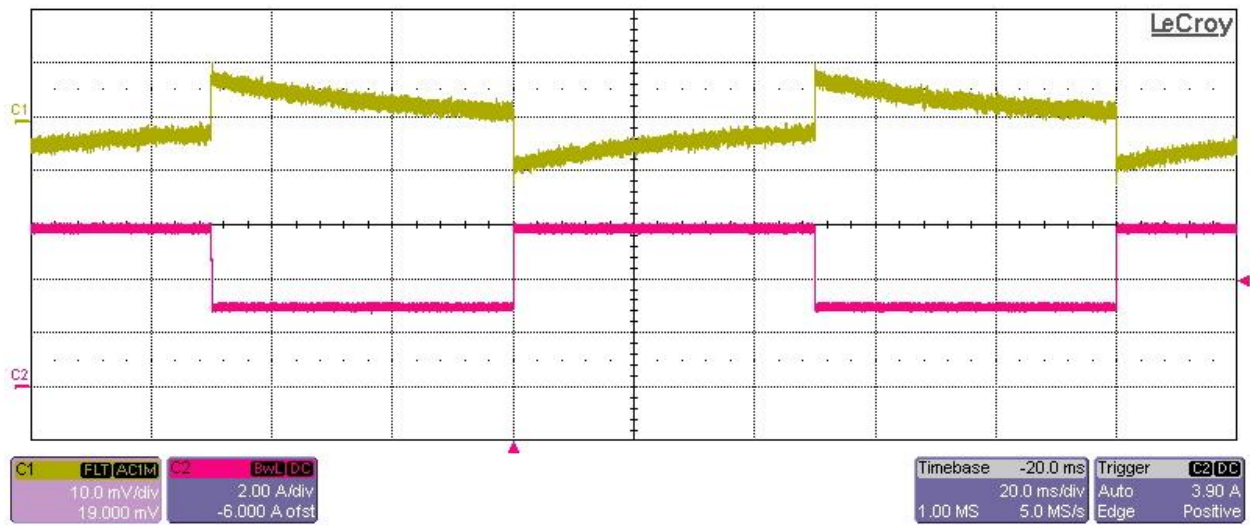


Figure 18. VIN = 5V, VOUT = 1.5V, 3A to 6A Load Transient

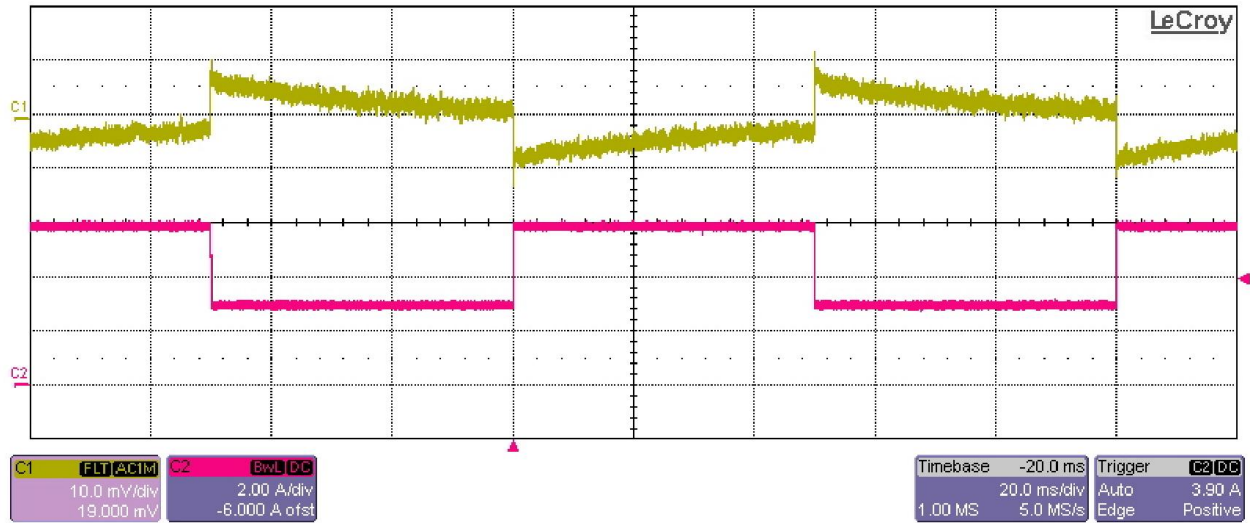


Figure 19. VIN = 5V, VOUT = 1.5V, 3A to 6A Load Transient

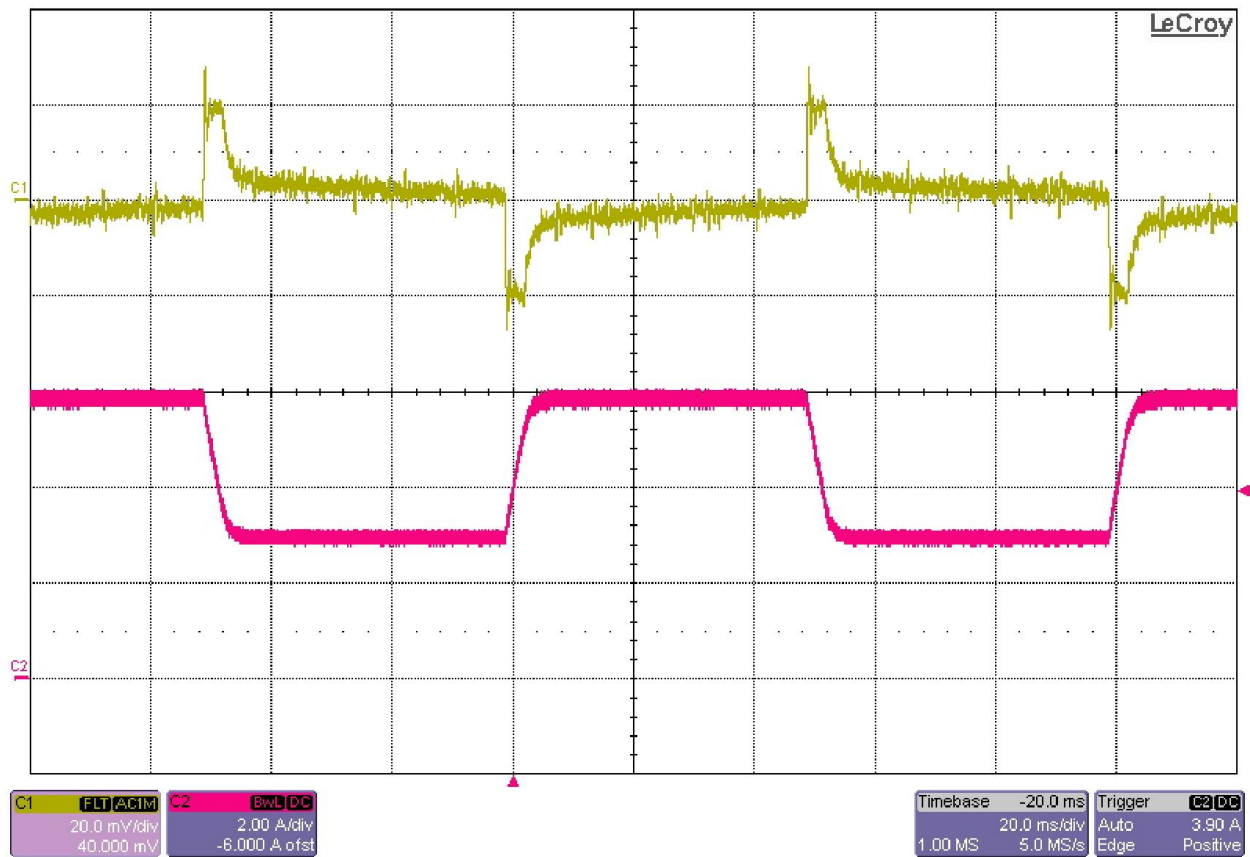


Figure 20. VIN = 5V, VOUT = 3.0V, 3A to 6A Load Transient

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