PMP9408 Test Report

Contents

Figures

1) Block Diagram

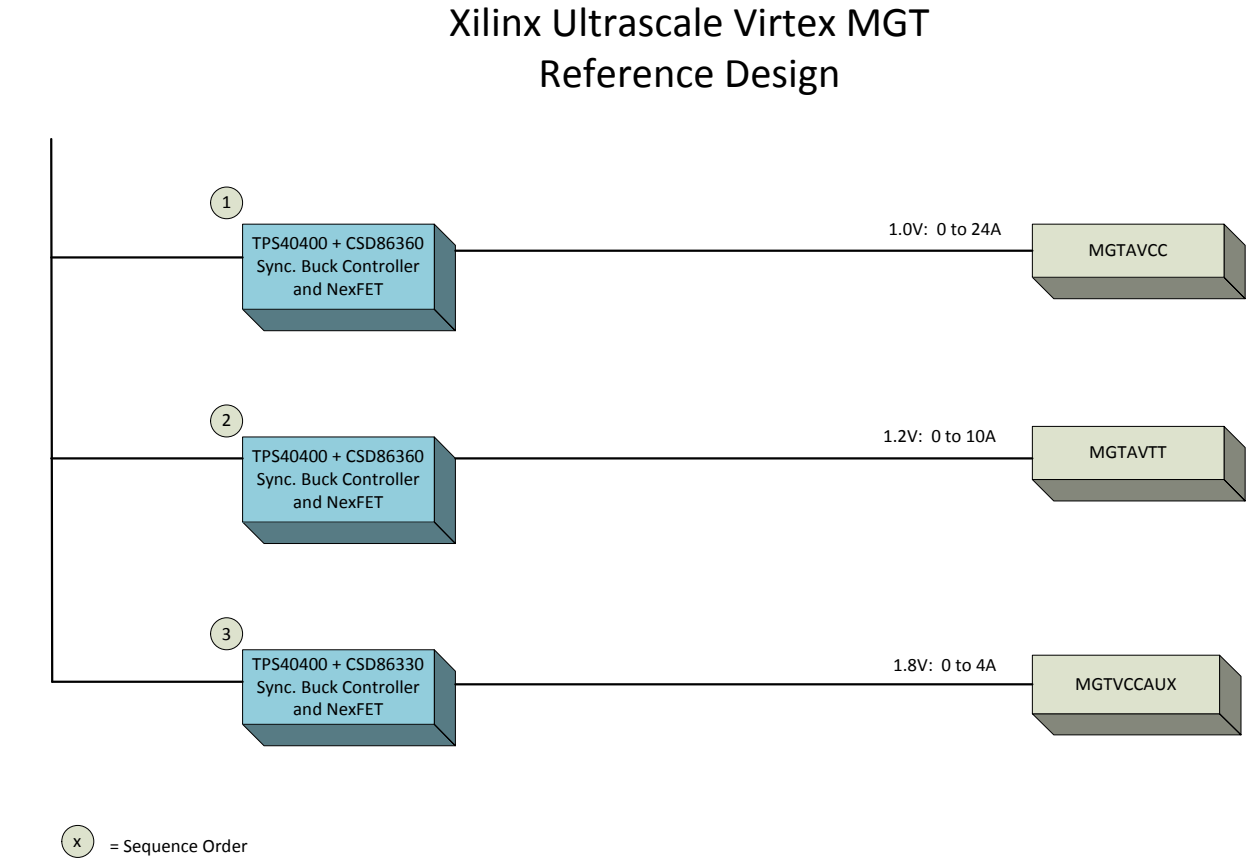


Figure 1. Block Diagram

2) Board Photos

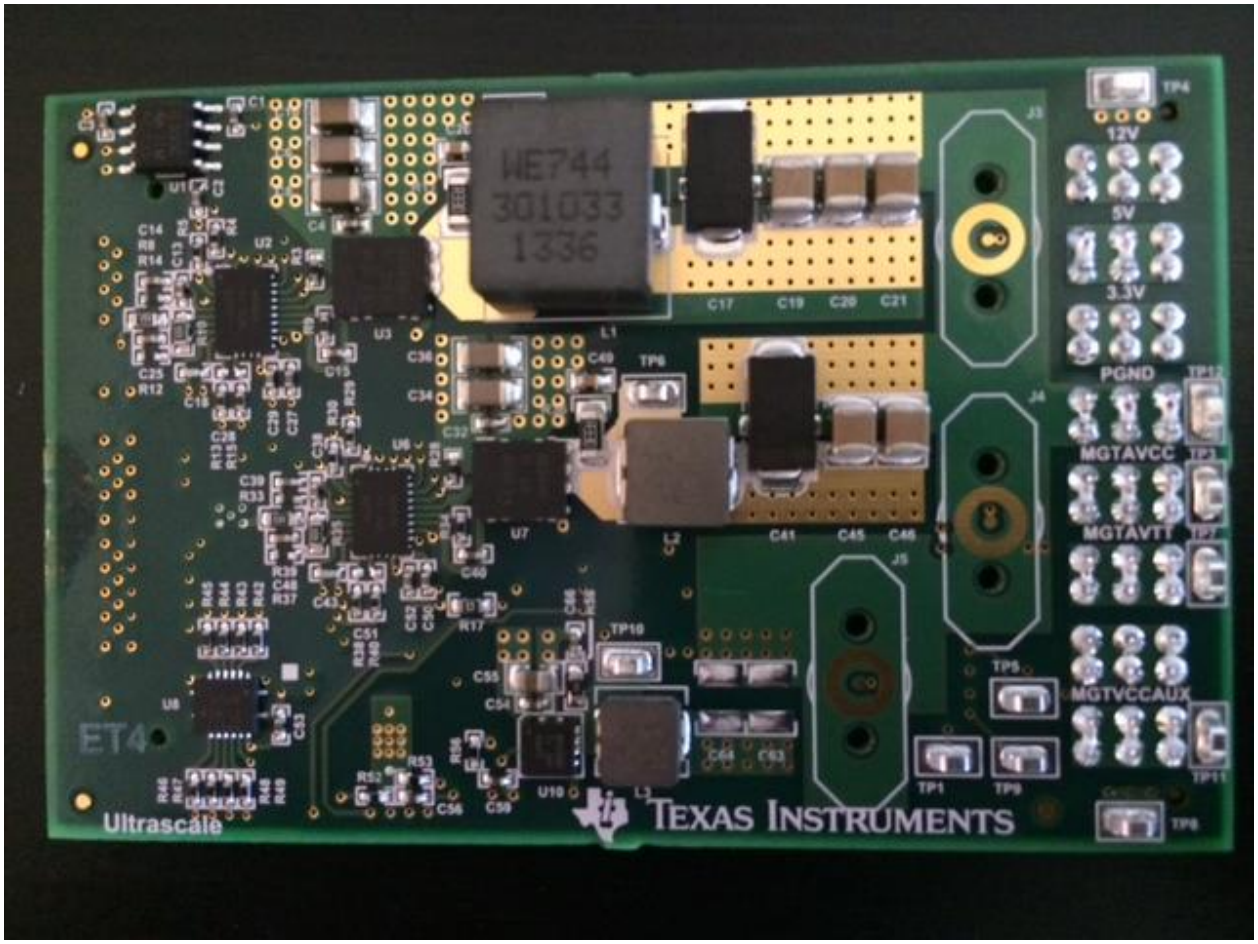


Figure 2. Board Photo Top

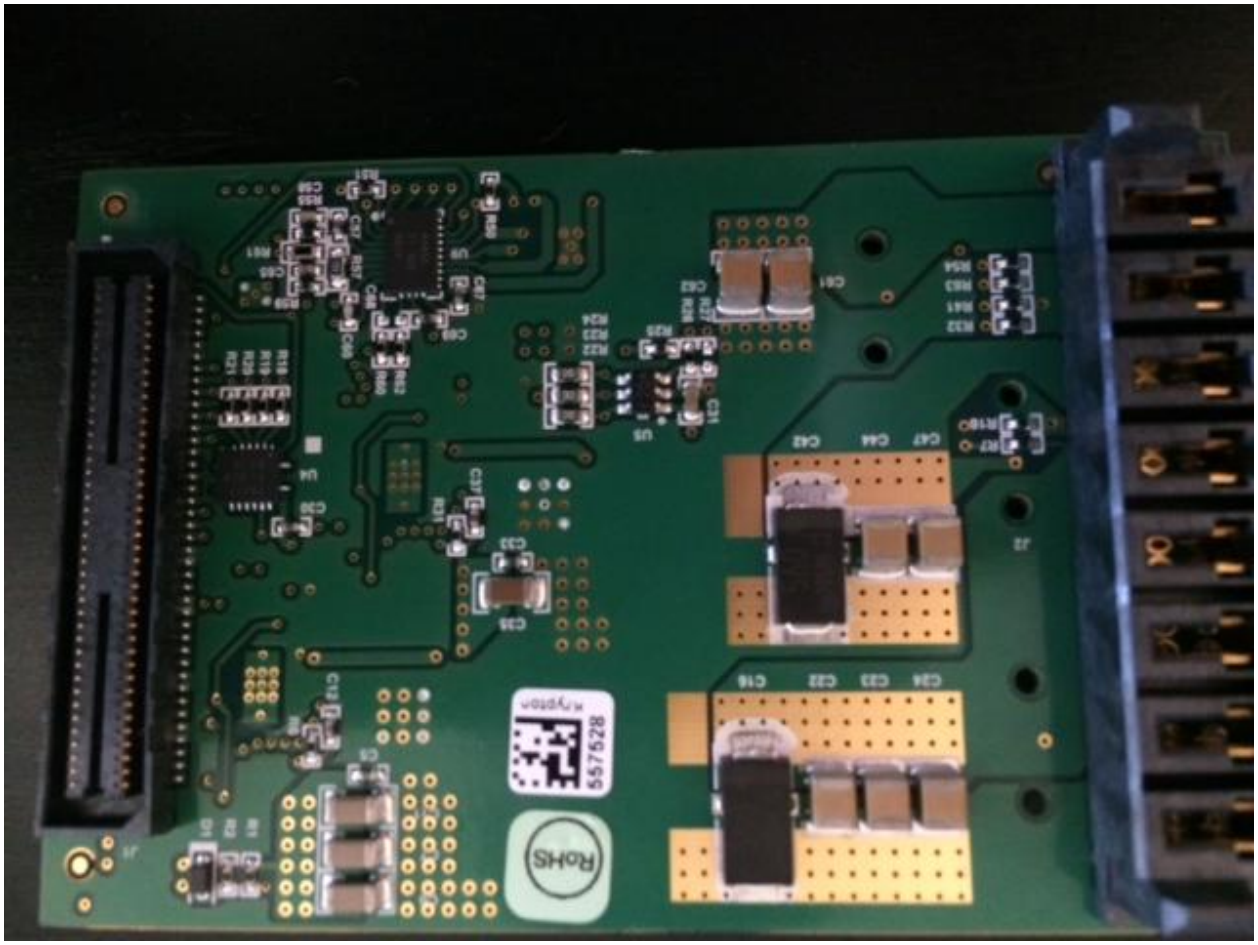


Figure 3. Board Photo Bottom

3) Efficiency

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

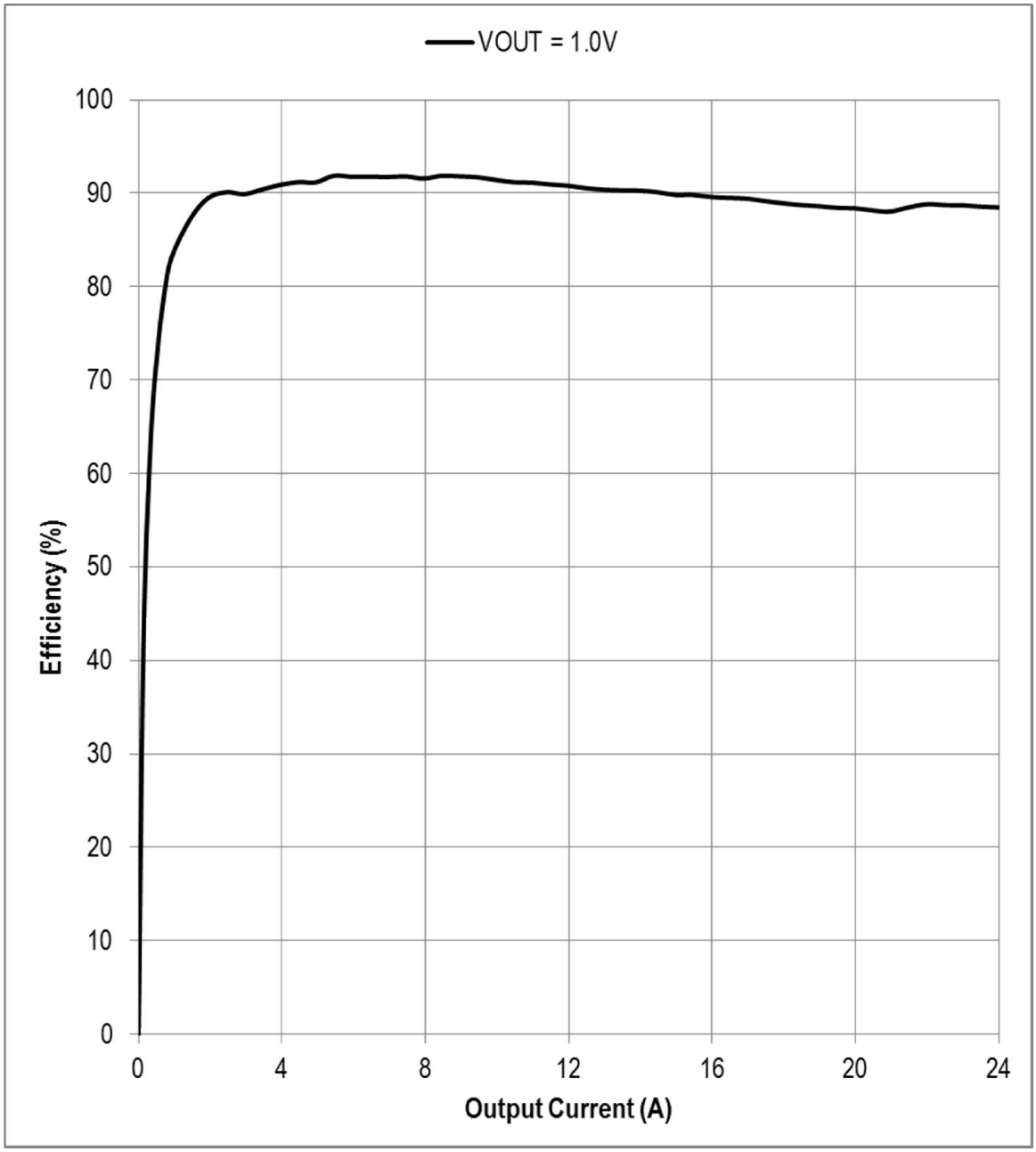


Figure 4. VIN = 5V, MGTAVCC Efficiency

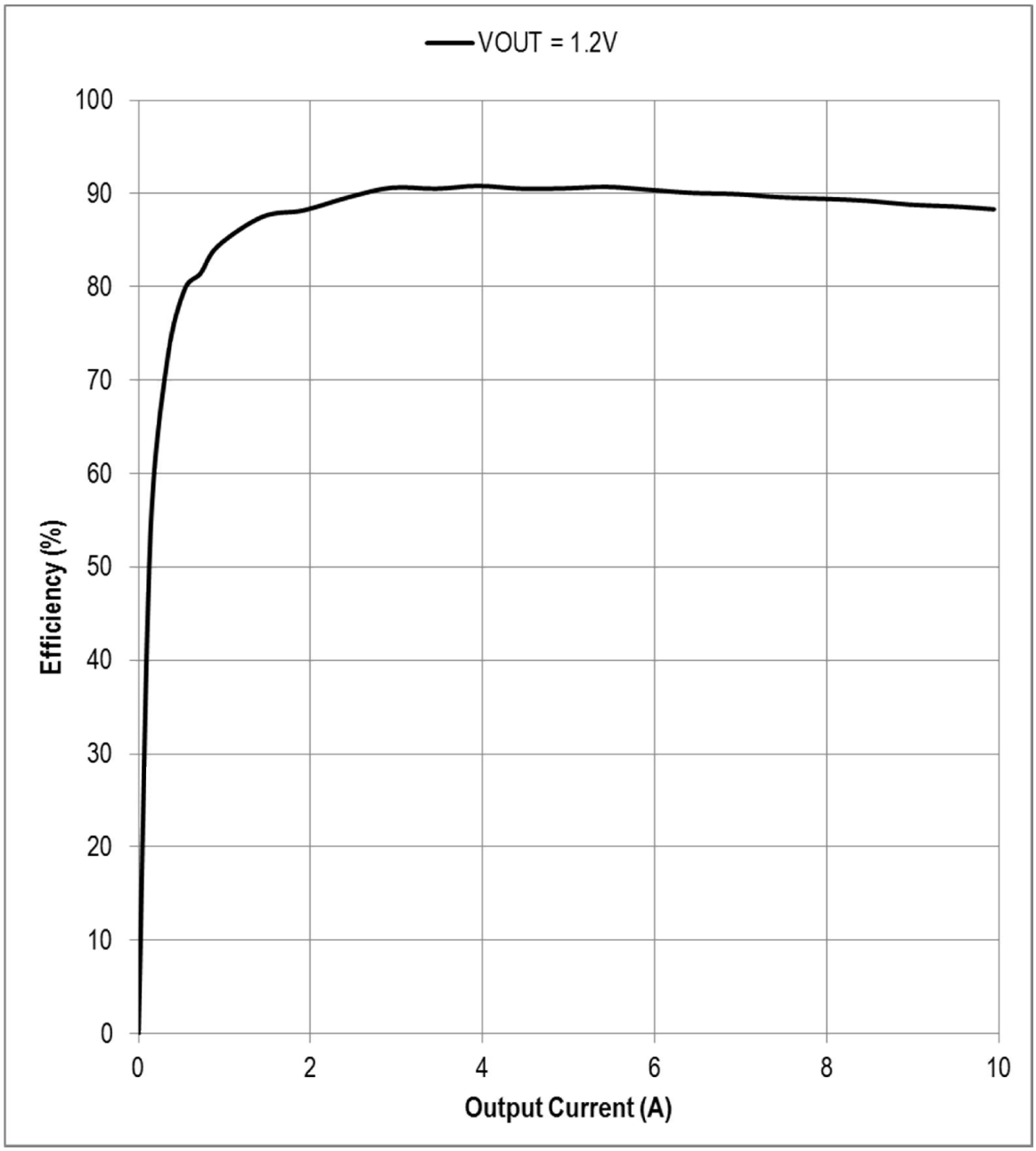


Figure 5. VIN = 5V, MGTAVTT Efficiency

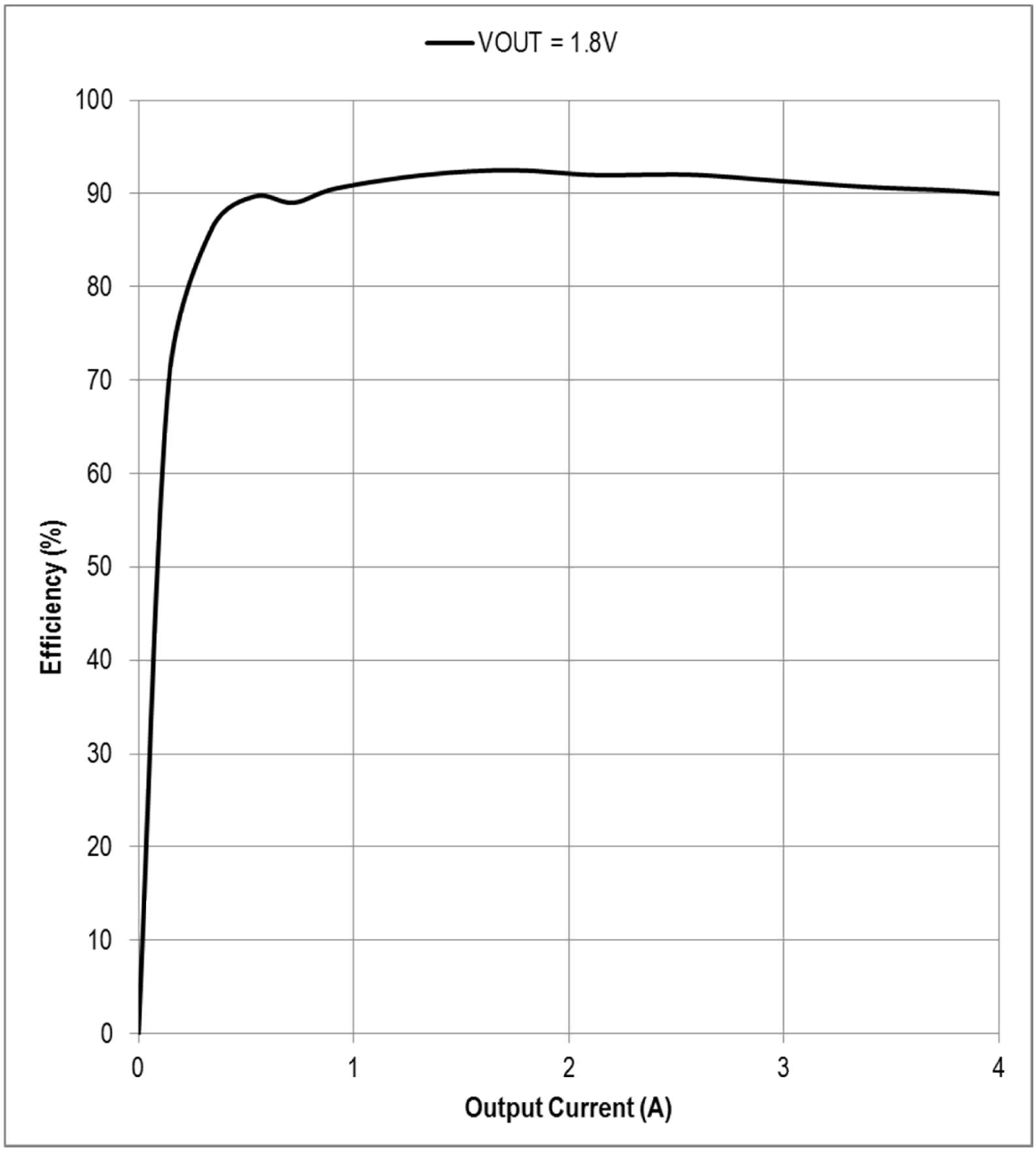


Figure 6. VIN = 5V, MGTVCCAUX Efficiency

4) Load Regulation

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

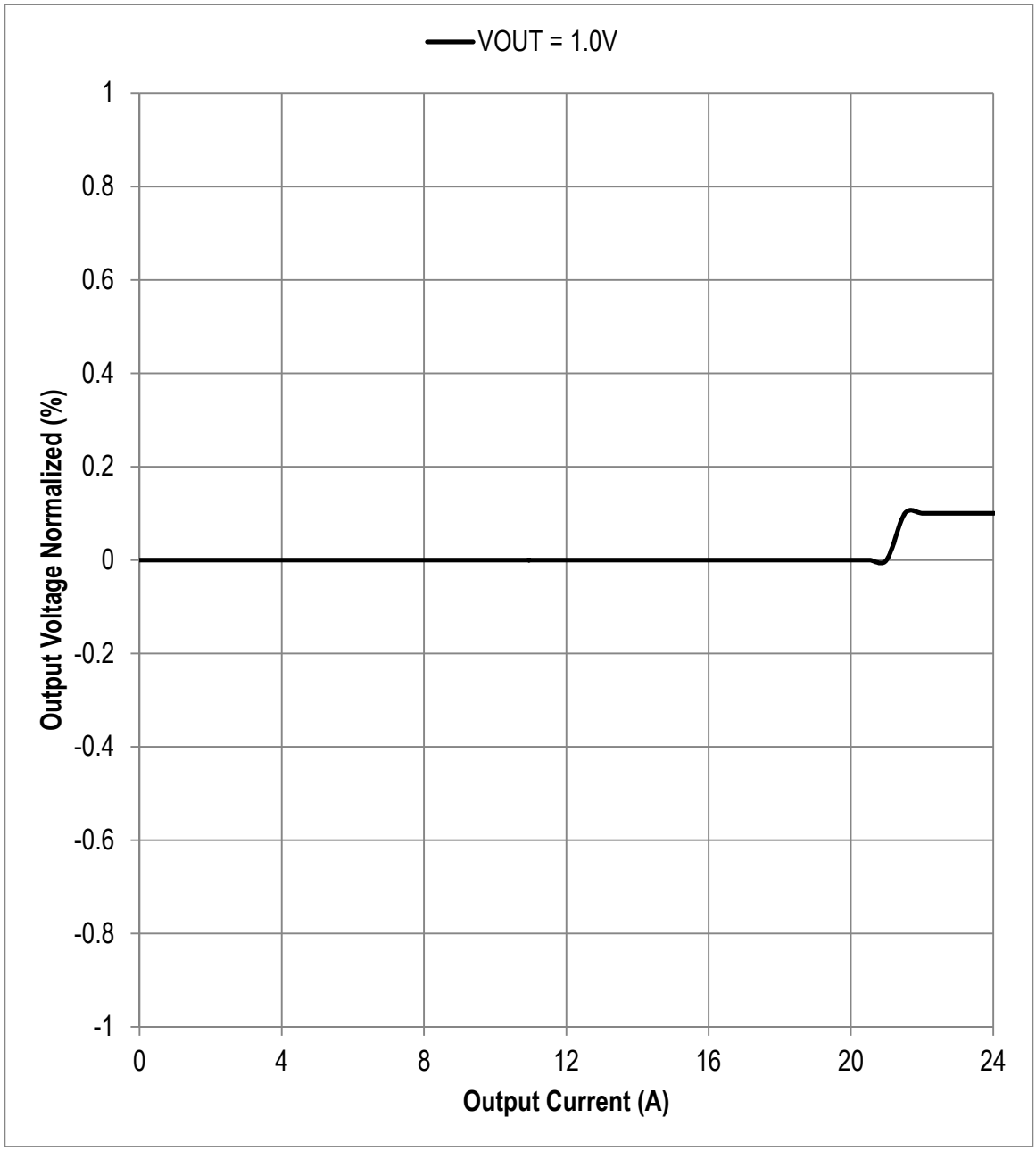


Figure 7. VIN = 5V Load Regulation

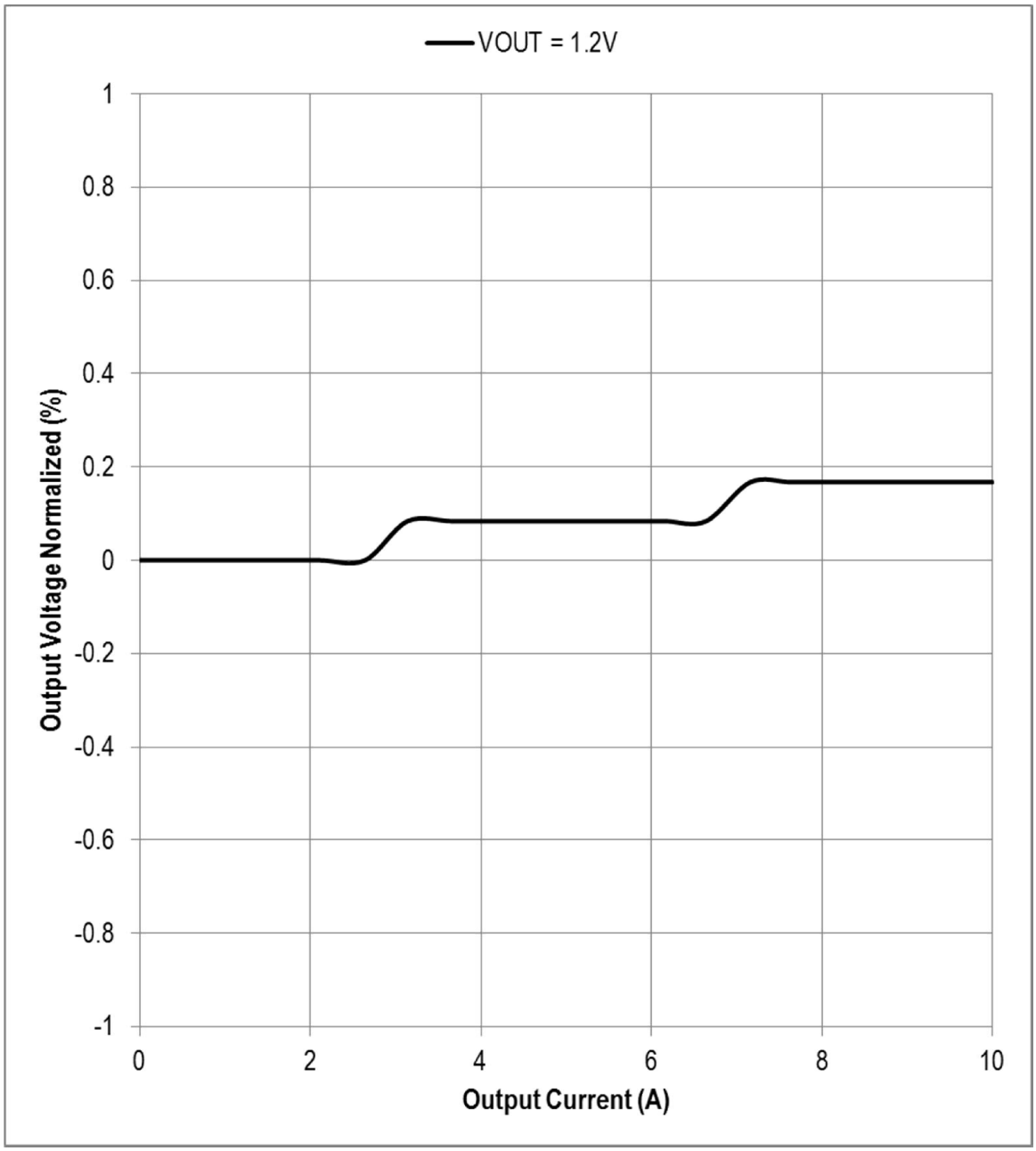


Figure 8. VIN = 5V Load Regulation

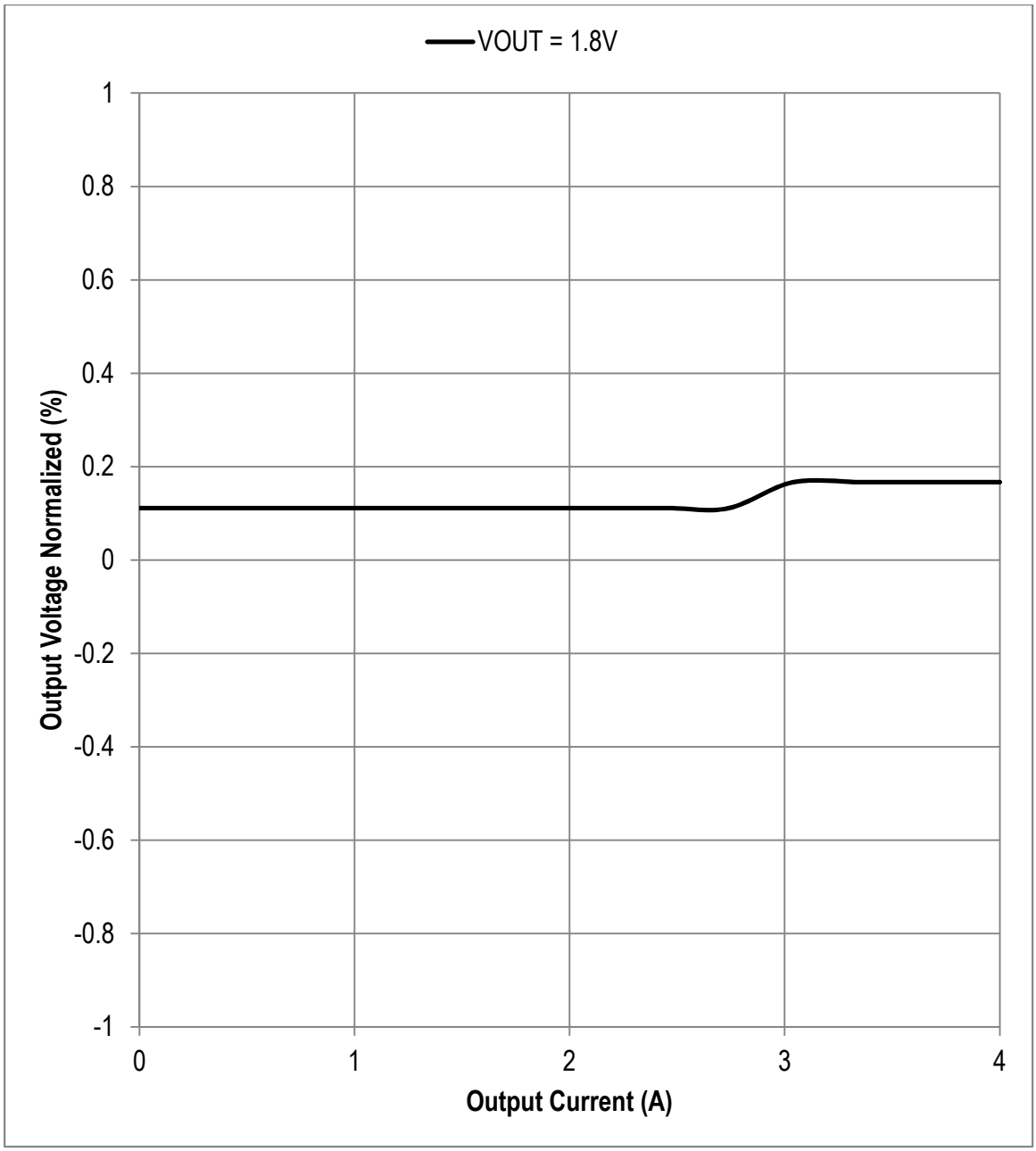
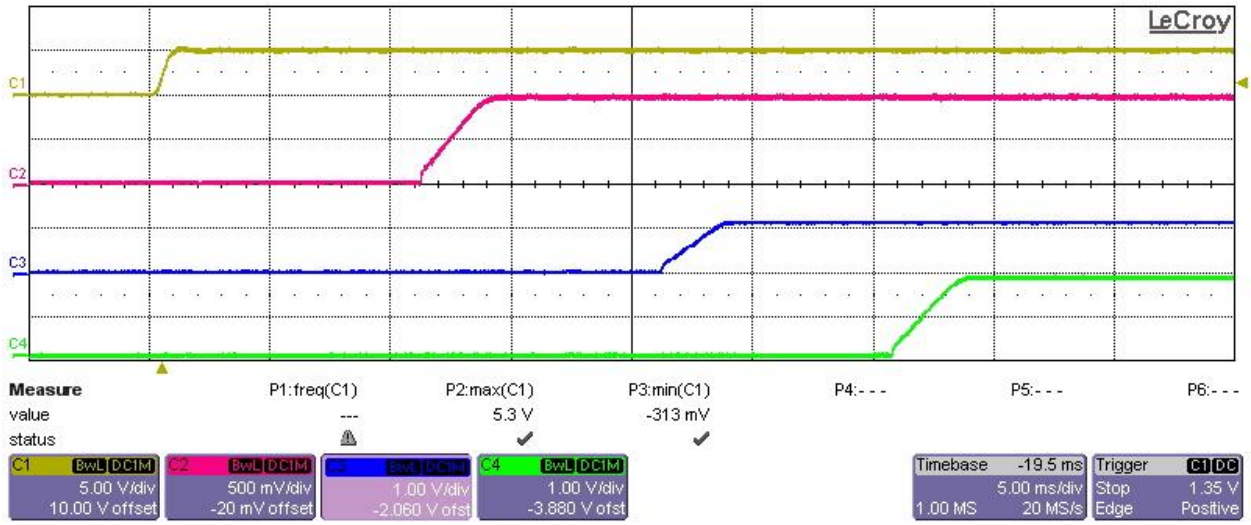


Figure 9. VIN = 5V Load Regulation

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: MGTAVCC = 1.0V
Ch.3: MGTAVTT = 1.2V
Ch.4: MGTVCCAUX = 1.8V
Figure 10. 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.

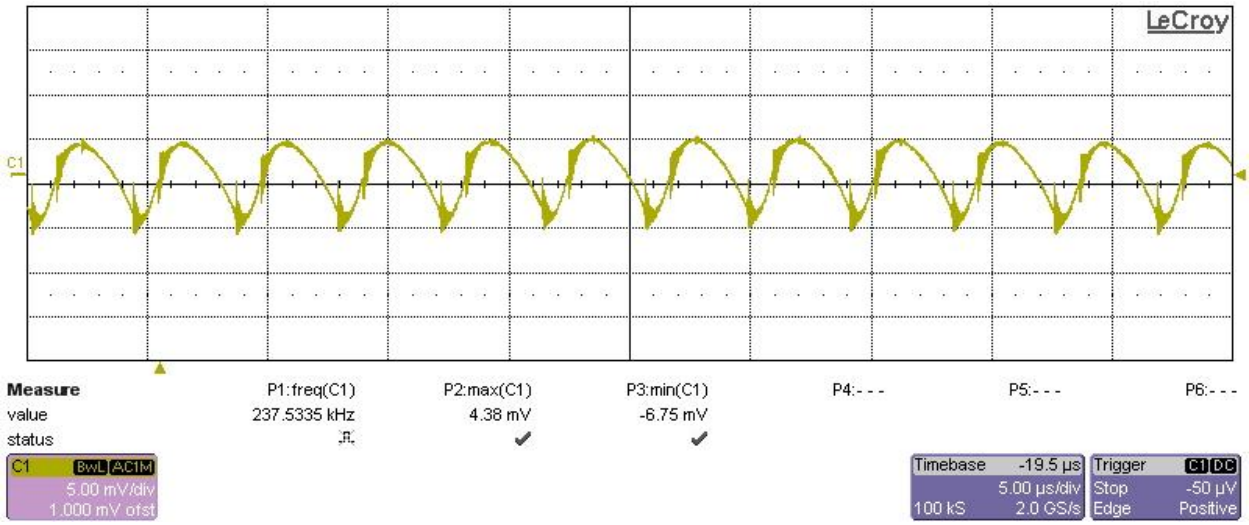


Figure 11. VIN = 5V, VOUT = 1.0V, IOUT = 24A Output Ripple Voltage

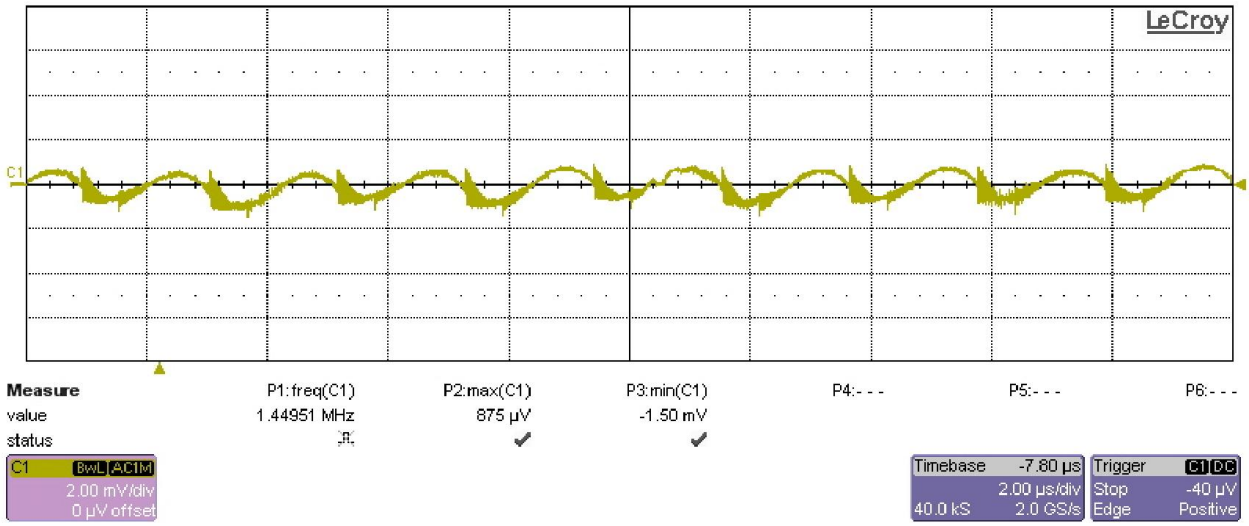


Figure 12. VIN = 5V, VOUT = 1.2V, IOUT = 10A Output Ripple Voltage

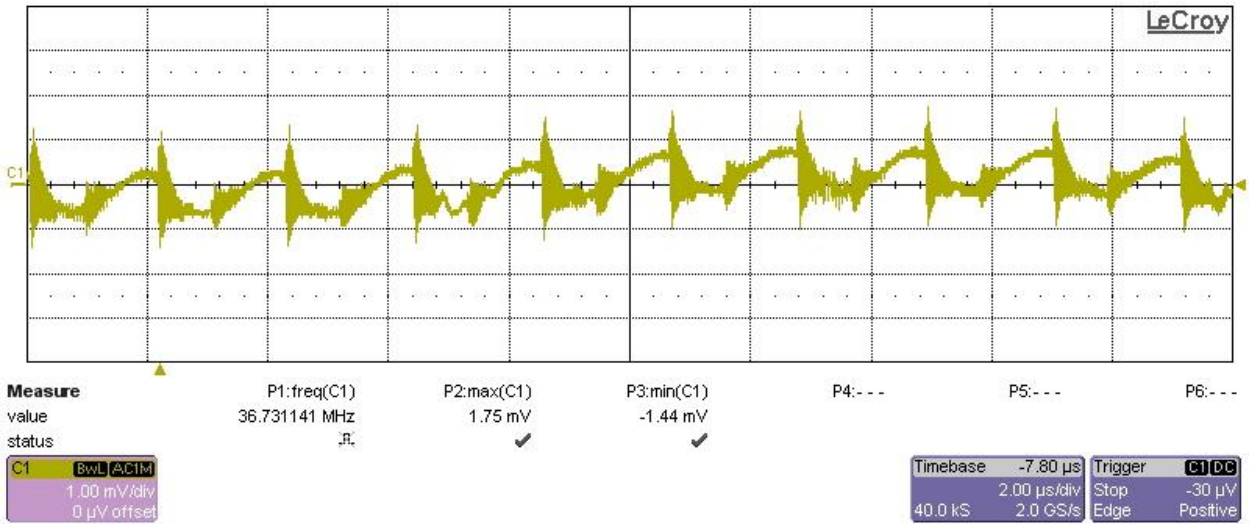


Figure 13. VIN = 5V, VOUT = 1.8V, IOUT = 4A Output Ripple Voltage

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.

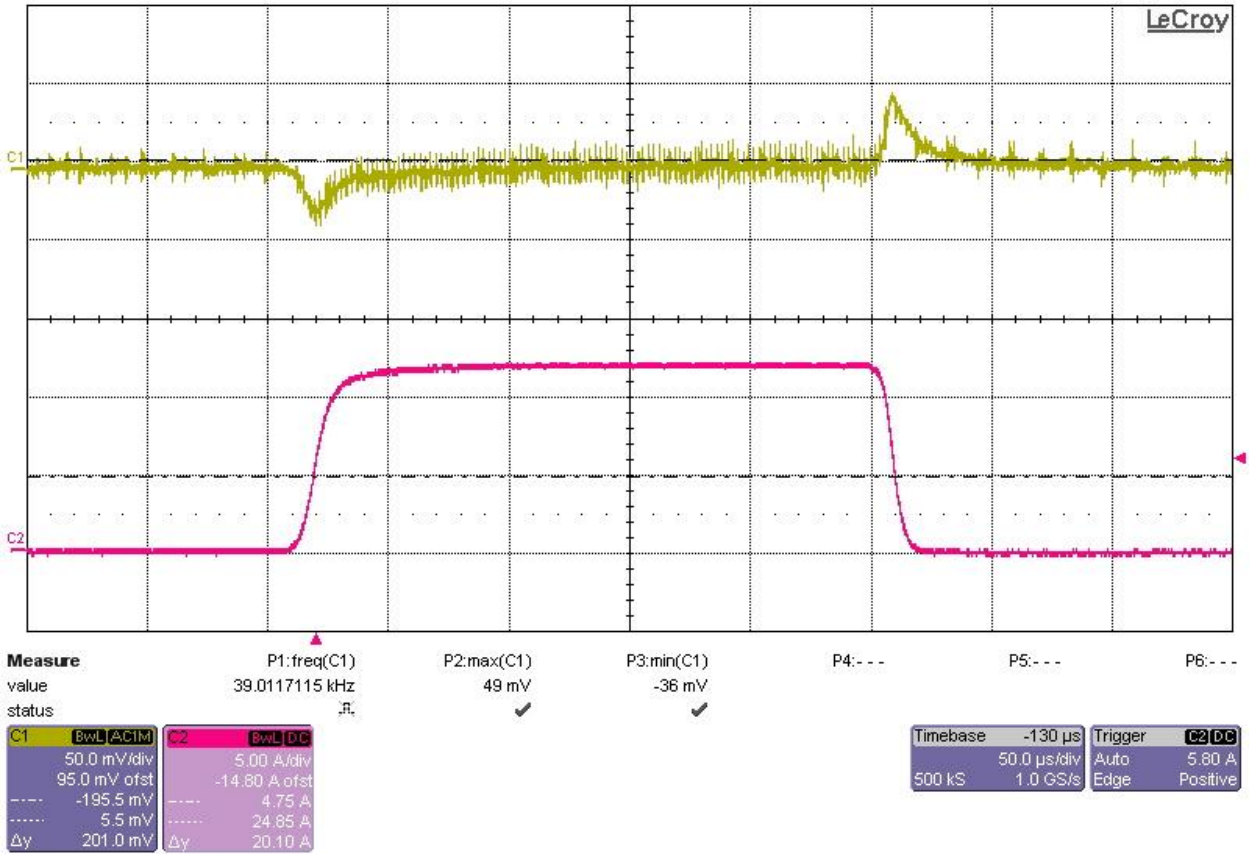


Figure 14. VIN = 5V, VOUT = 1.0V, 0A to 12A Load Transient

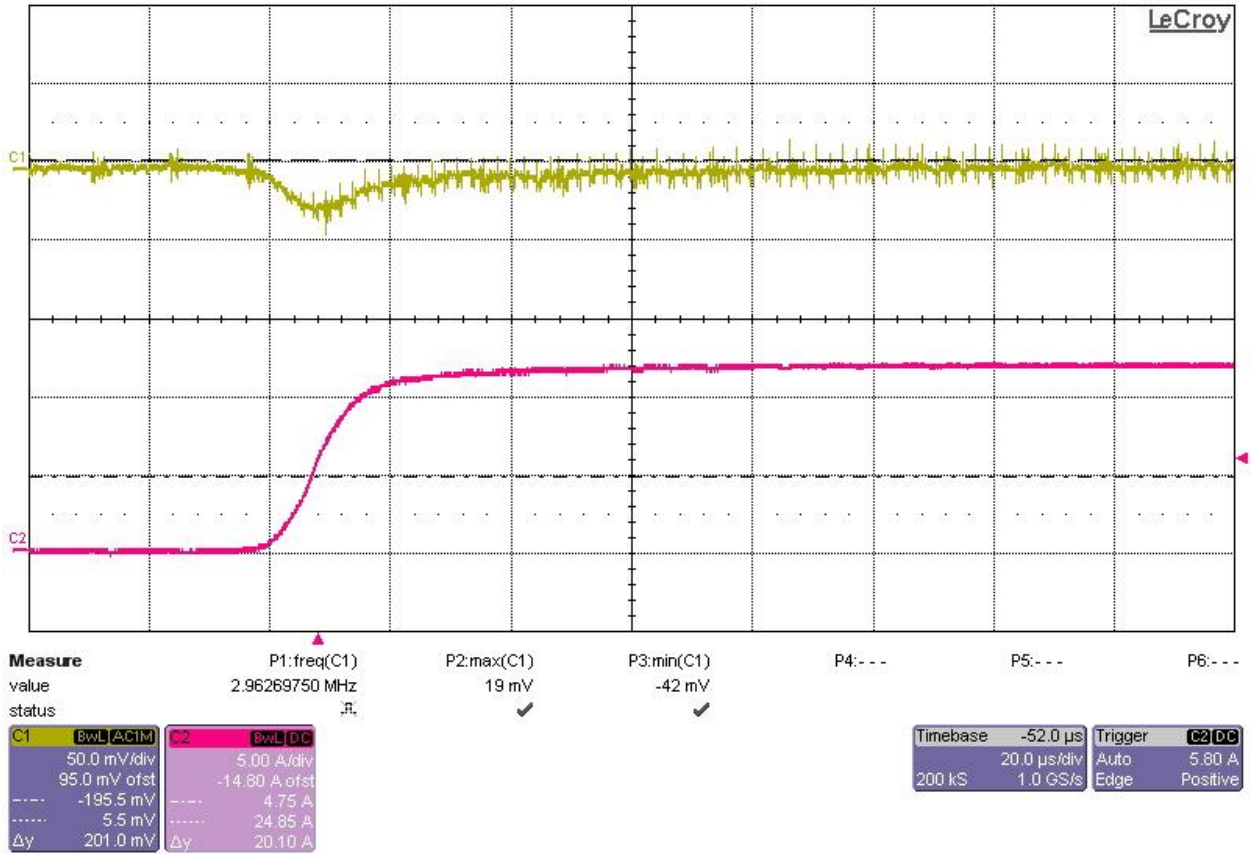


Figure 15. VIN = 5V, VOUT = 1.0V, 0A to 12A Load Transient

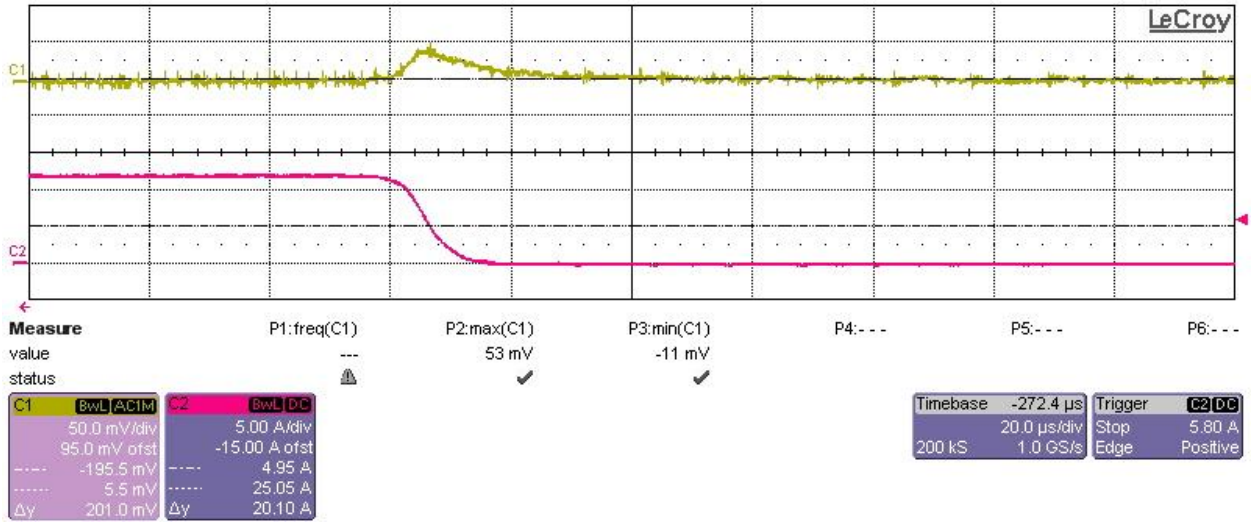


Figure 16. VIN = 5V, VOUT = 1.0V, 0A to 12A Load Transient

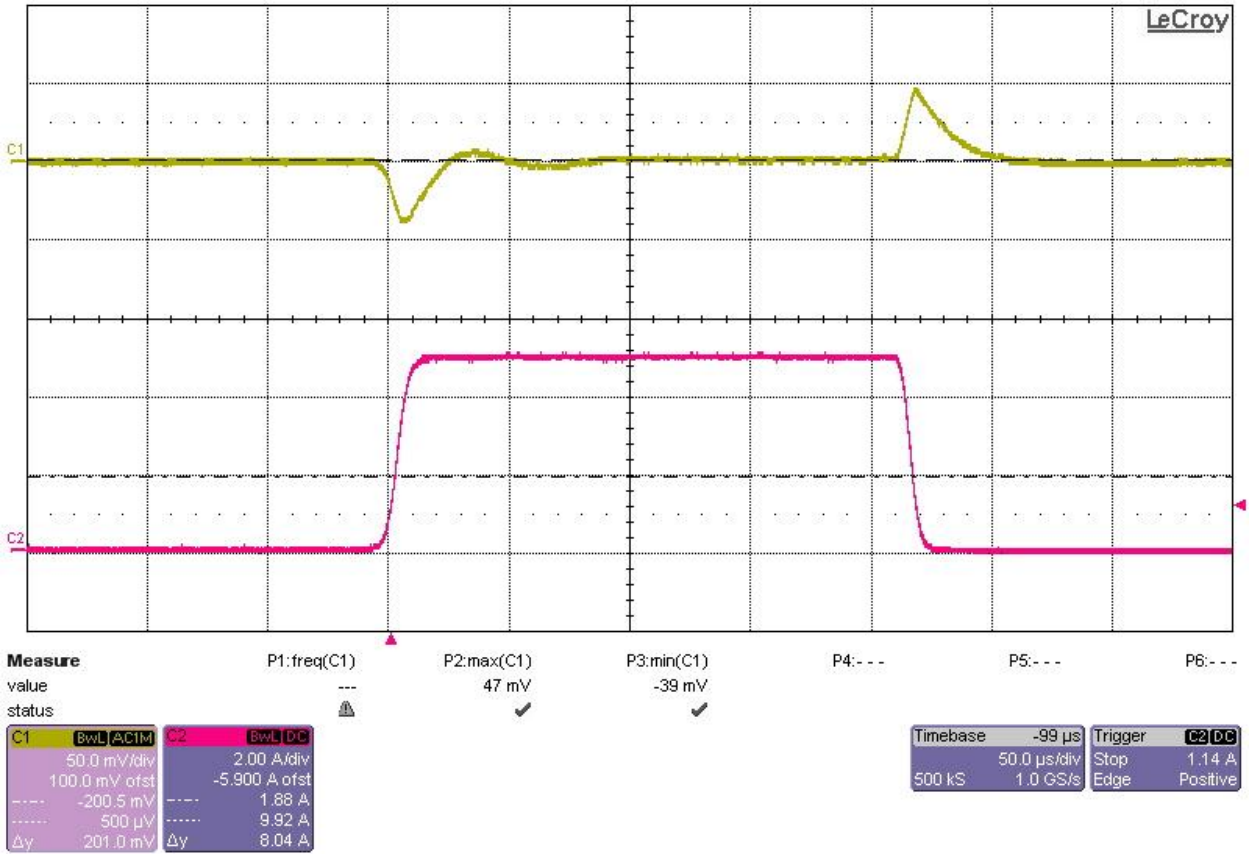


Figure 17. VIN = 5V, VOUT = 1.2V, 0A to 5A Load Transient

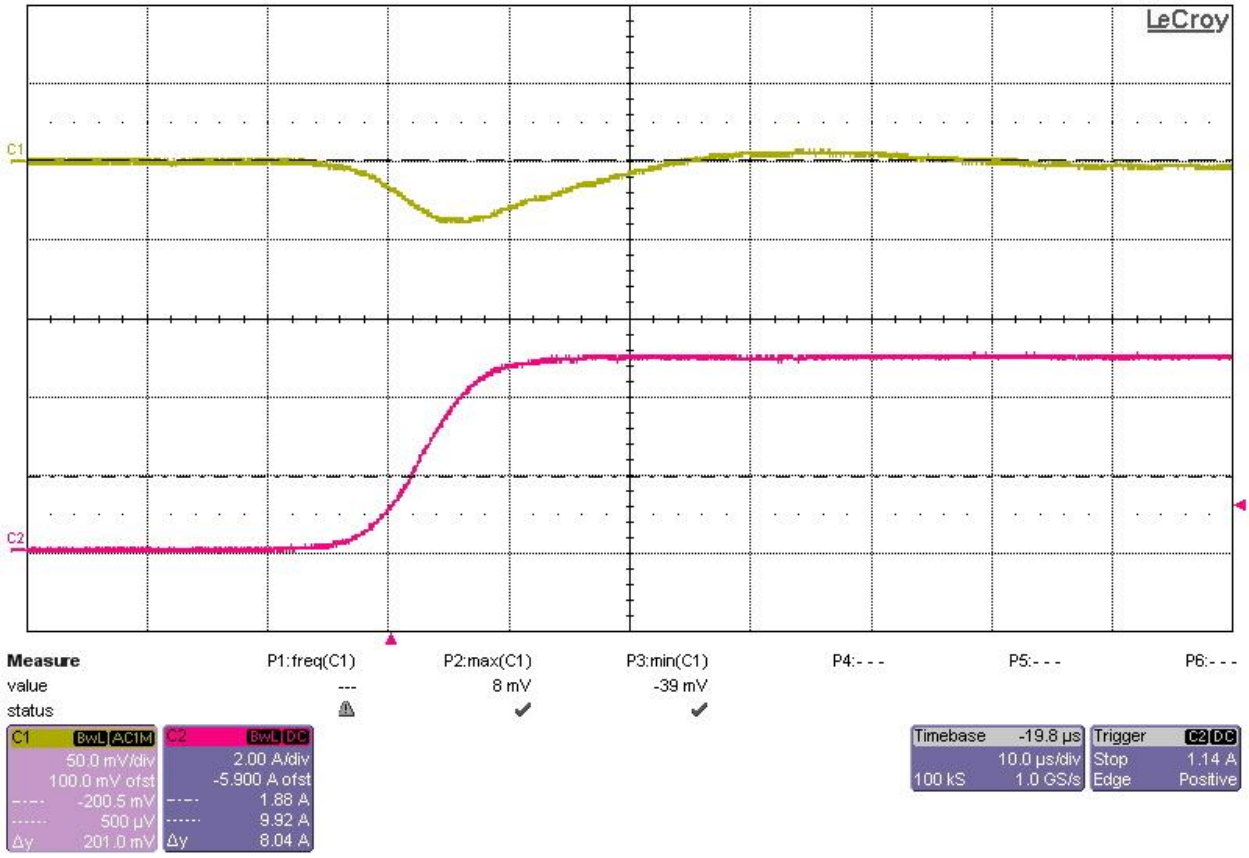


Figure 18. VIN = 5V, VOUT = 1.2V, 0A to 5A Load Transient

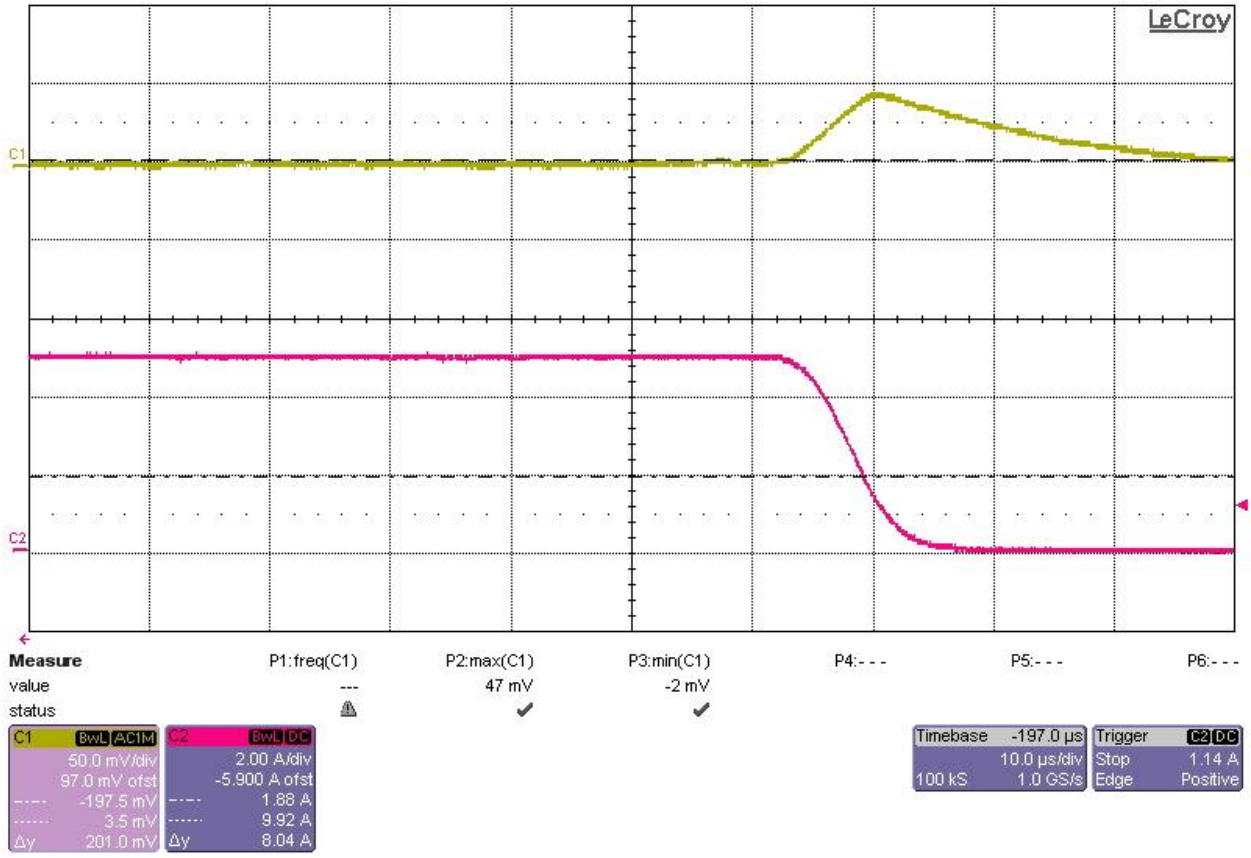


Figure 19. VIN = 5V, VOUT = 1.2V, 0A to 5A Load Transient

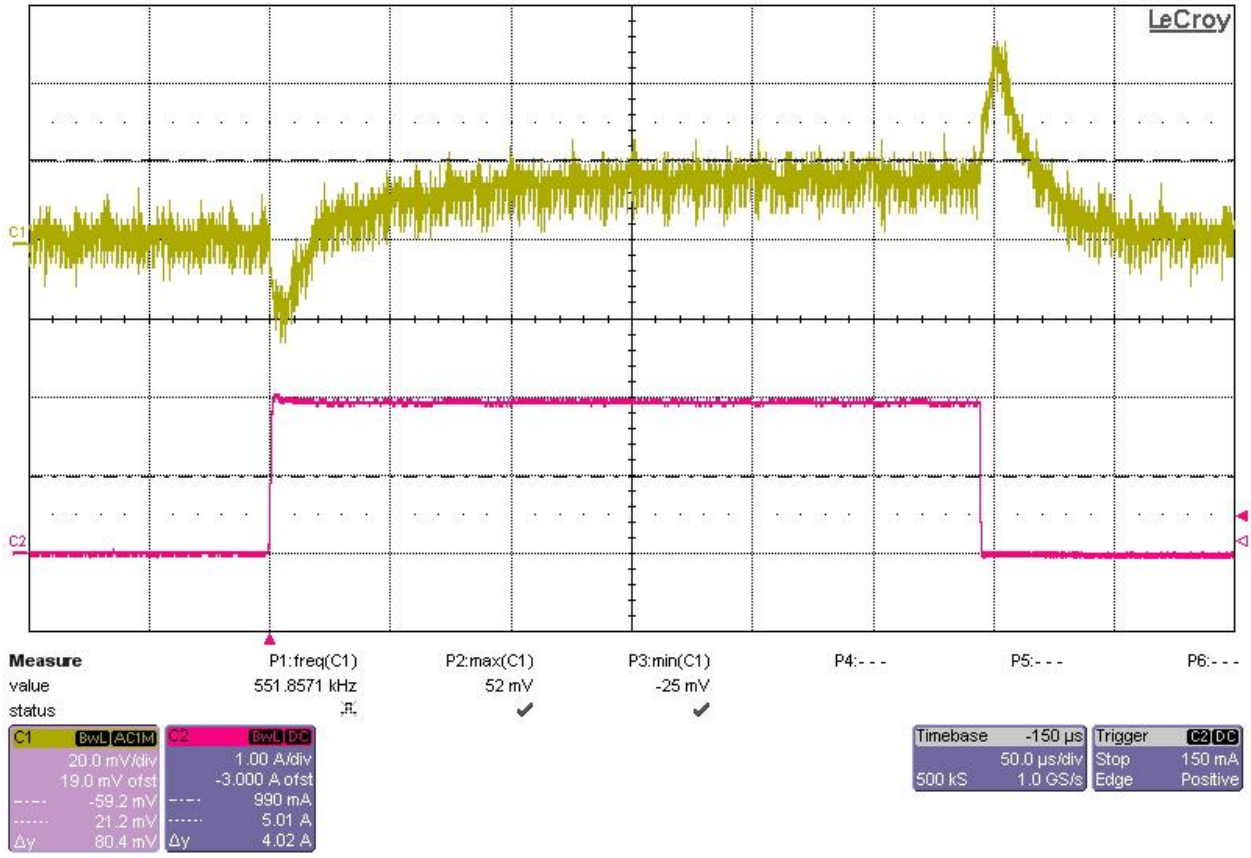


Figure 20. VIN = 5V, VOUT = 1.8V, 0A to 2A Load Transient

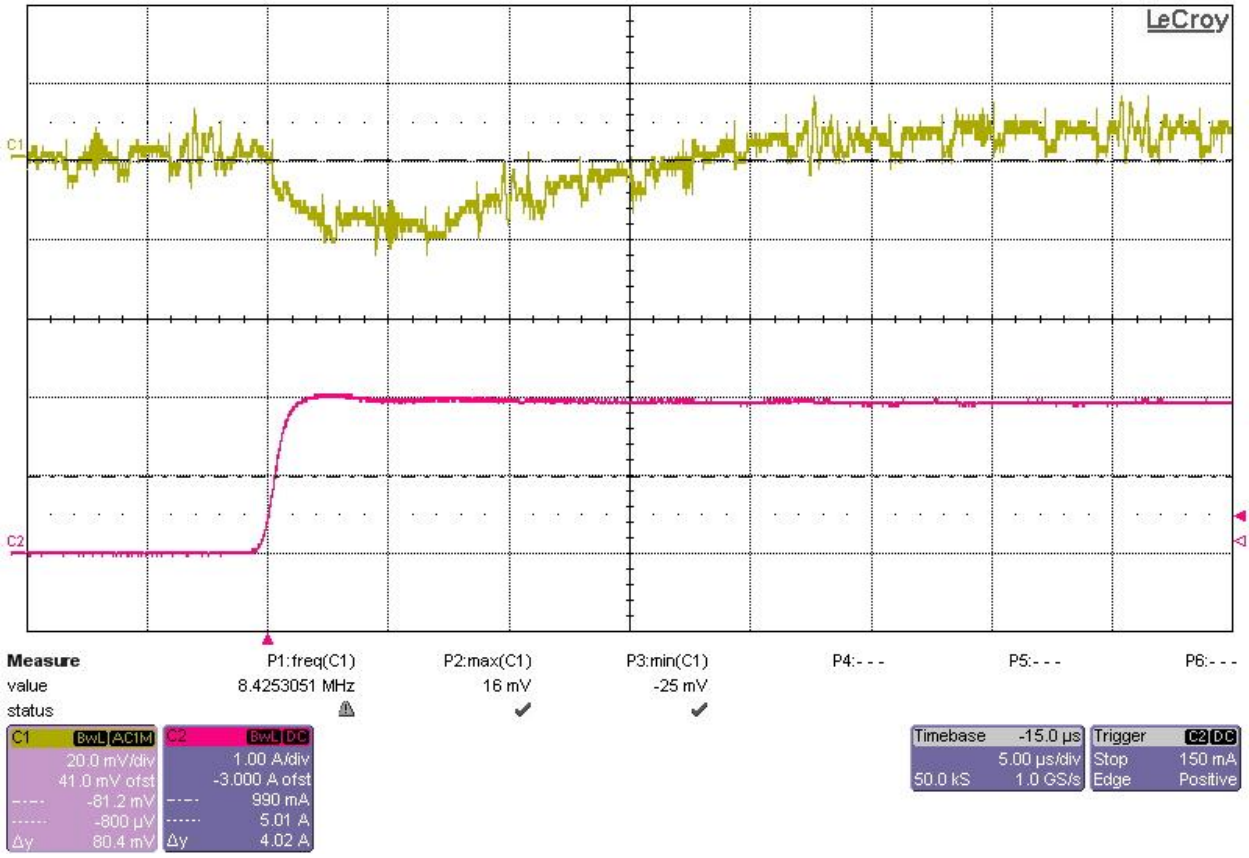


Figure 21. VIN = 5V, VOUT = 1.8V, 0A to 2A Load Transient

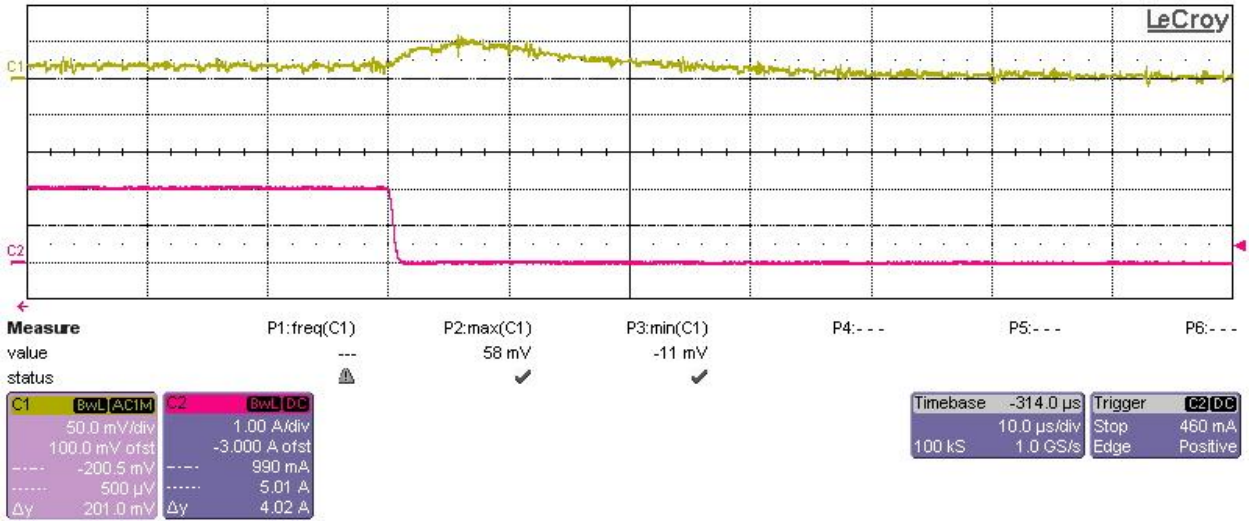


Figure 22. VIN = 5V, VOUT = 1.8V, 0A to 2A Load Transient

8) Bode Plots

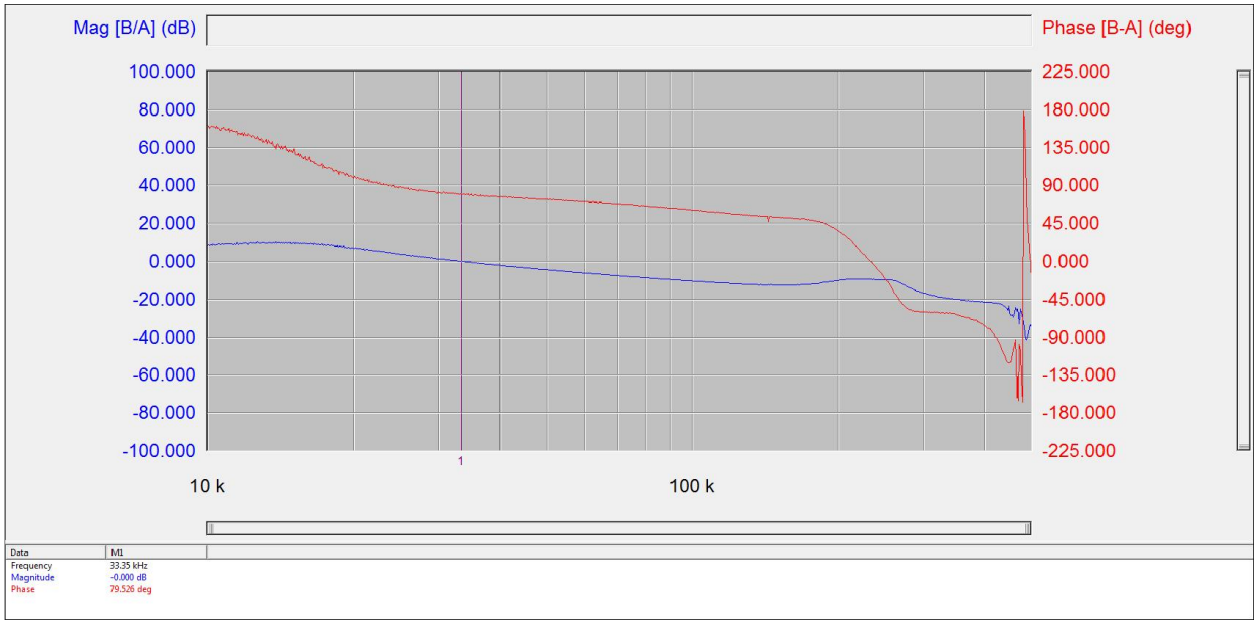


Figure 23. MGTAVCC Bode Plot

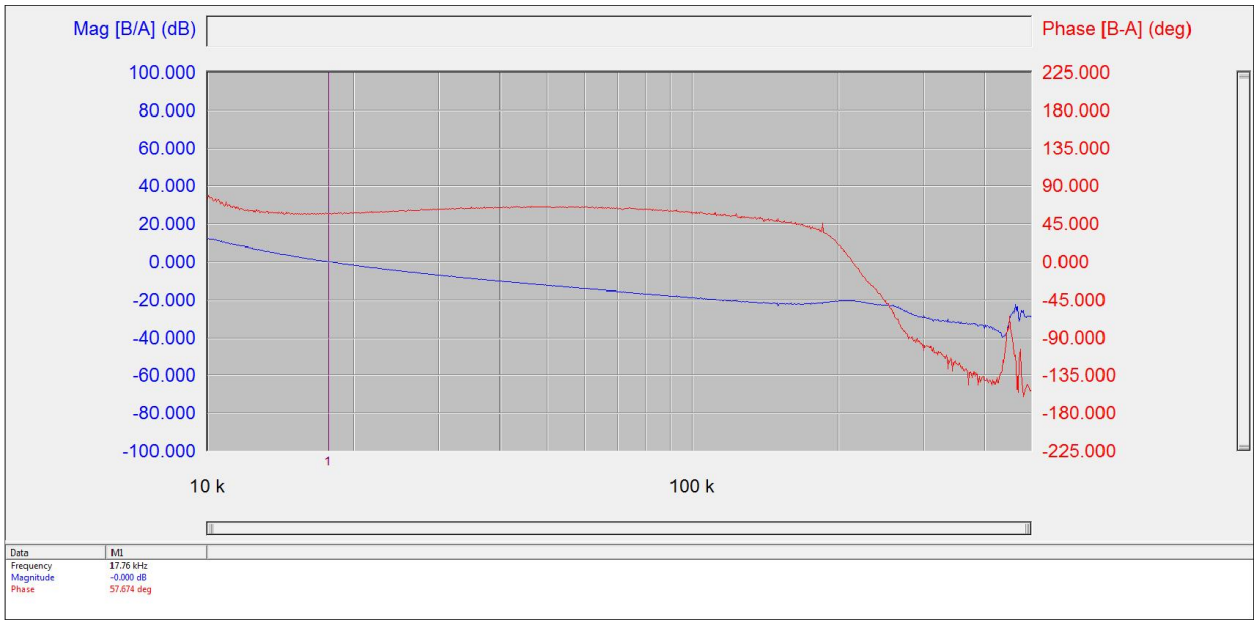


Figure 24. MGTAVTT Bode Plot

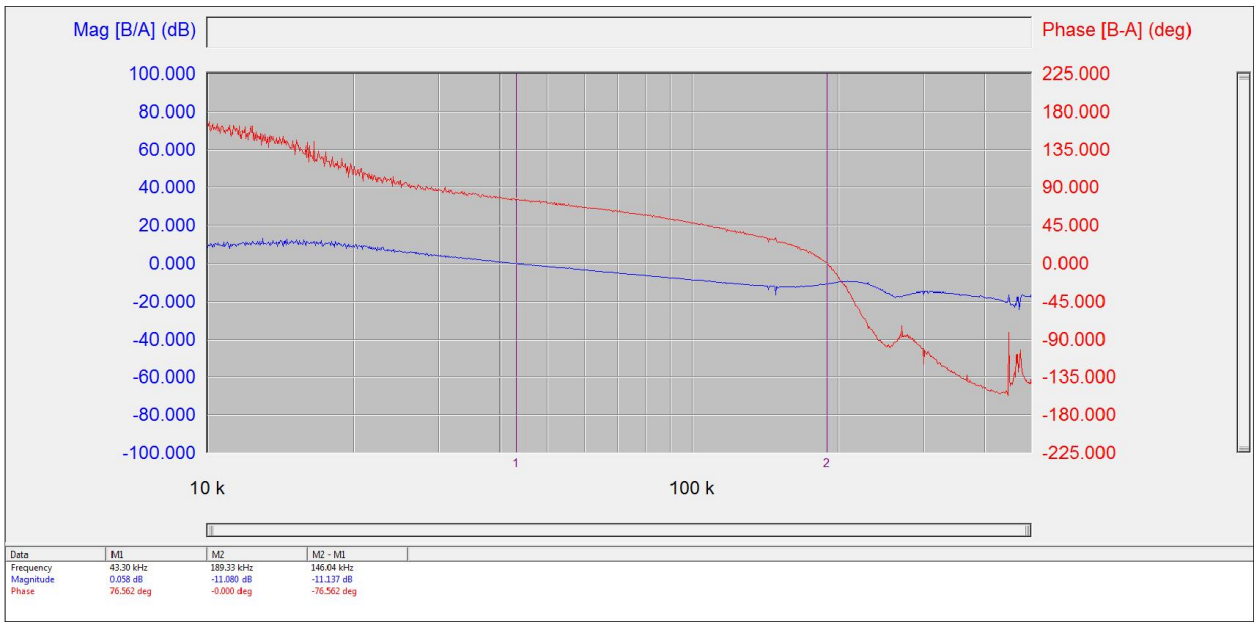


Figure 25. MGTVCCAUX Bode Plot

9) Thermal Images

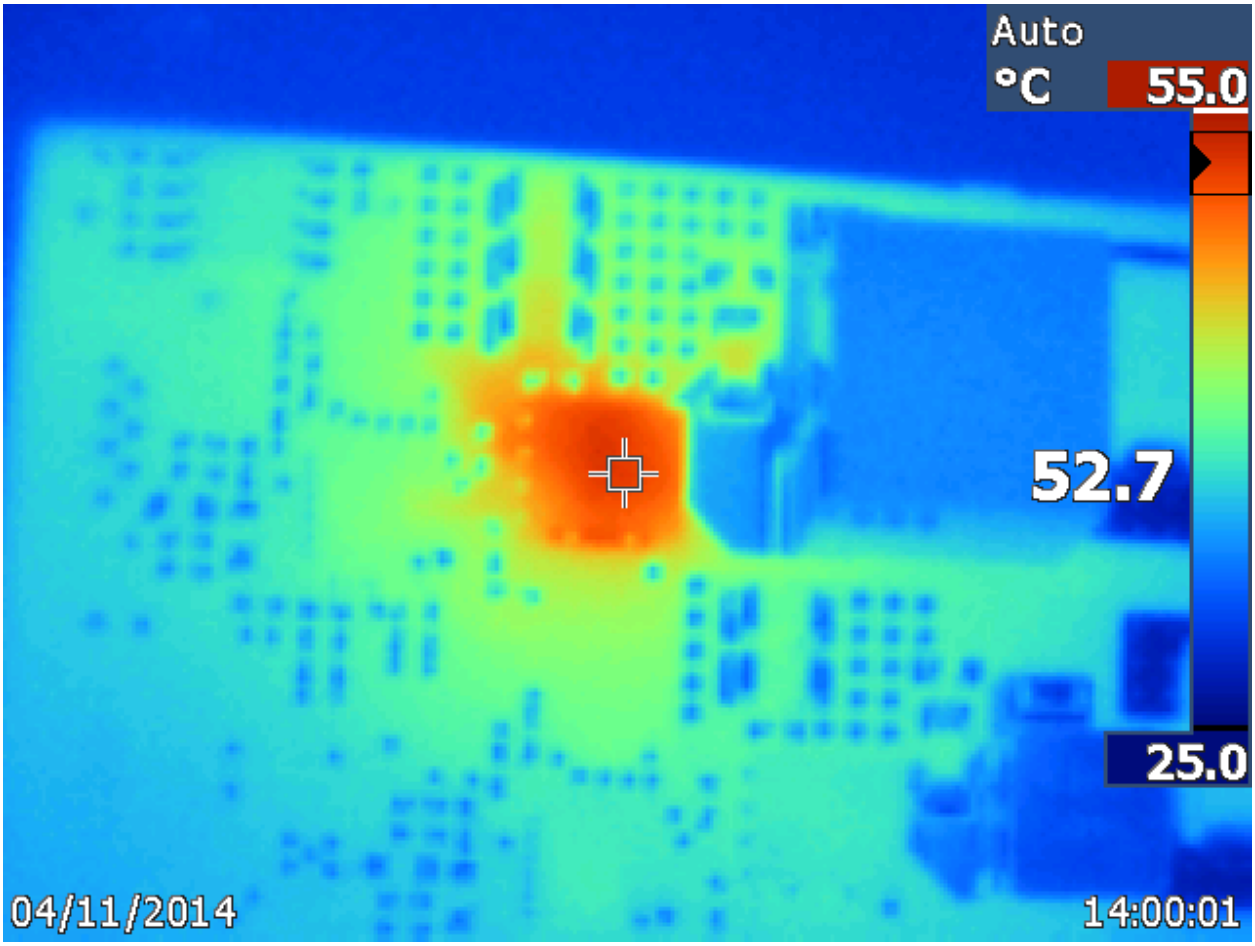


Figure 26. VIN = 5V, VOUT = 1.0V, IOUT = 24A Thermal Image

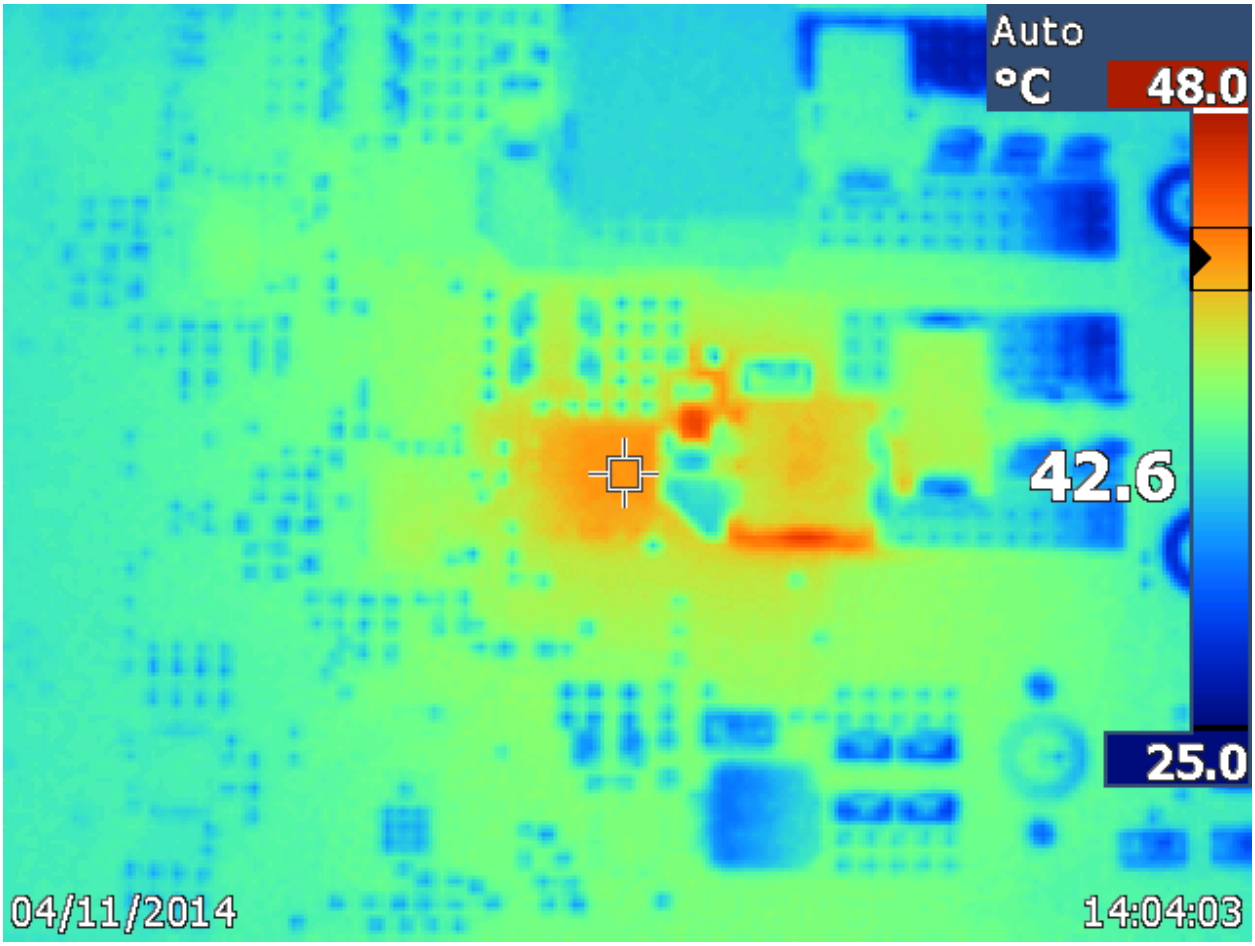


Figure 27. VIN = 5V, VOUT = 1.2V, IOUT = 10A Thermal Image

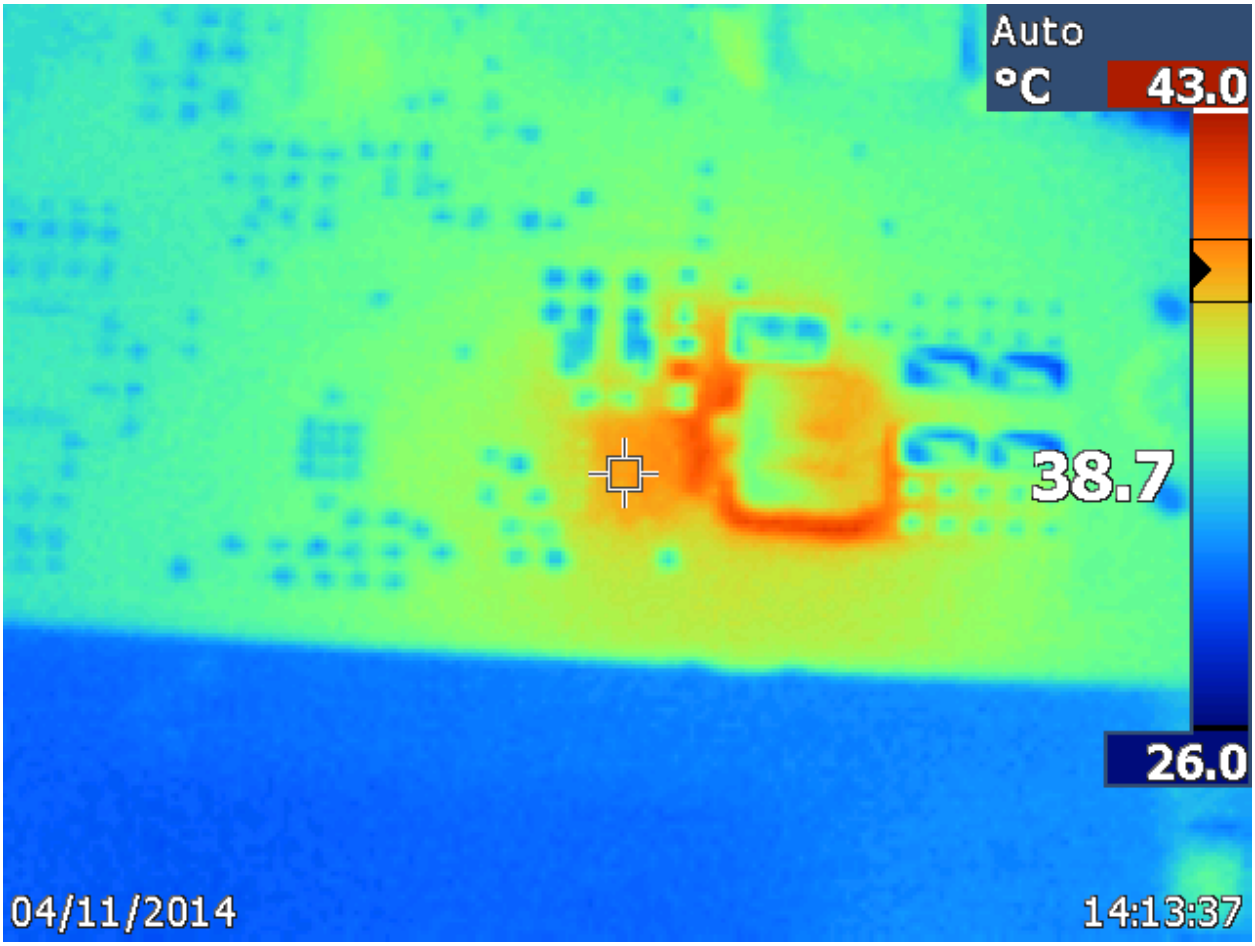


Figure 28. VIN = 5V, VOUT = 1.8V, IOUT = 4A Thermal Image

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES “AS IS” AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI’s products are provided subject to TI’s Terms of Sale (https:www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI’s provision of these resources does not expand or otherwise alter TI’s applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265