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Strata Enabled LDO EVK User Guide and Test Report

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Introduction

The Strata Enabled LDO EVK provides an easy to use evaluation kit within the Strata Development Environment for many series of XDFN package LDOs. Through Strata, the developer can access datasheets, BOMs, schematics, and other collateral they may need. This document will provide instructions on how to use the evaluation kits as well as provide all the measurement results for these LDOs in these kits.

Features

- 4 different LDO series to choose from, each with a range of voltage options
- Vin range from 1.1V to 5.5V
- Max load range from 150mA to 300mA
- Vout range from 0.6V to 5.3V
- Automotive options available

Applications

- DC-DC Power
- Battery Powered Devices
- Analog and RF
- Automotive

User Guide

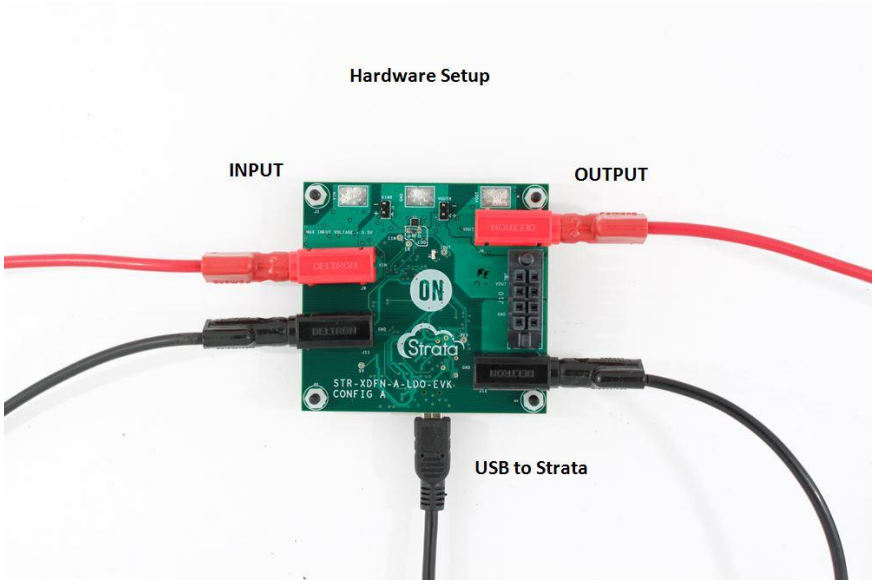
This section will explain how to use the Strata Enable LDO EVK in a step by step manner, and will cover both the hardware required as well as how to use the User Interface in Strata.

Hardware Setup

The hardware required for using the Strata Enabled LDO EVK are a computer (with Windows), a power supply, and a load. Follow the steps below.

1. Plug the power supply into the input of the LDO board using the banana plugs J9 and J11. Do not apply over 5.5V to the input because this will break the board. Depending on the LDO on the board, the UI will tell the user the minimal amount of voltage needed.
2. Connect the computer and the LDO using the mini USB connector J18 on the bottom of the board.
3. Plug the load into the output using the banana plugs J8 and J12.
4. There needs to be at least 100mV of dropout allowed at maximum load to regulate accurately to the desired output voltage.

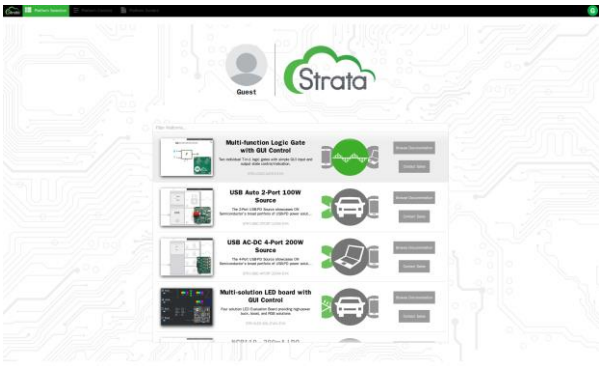
A picture of the setup can be found below.



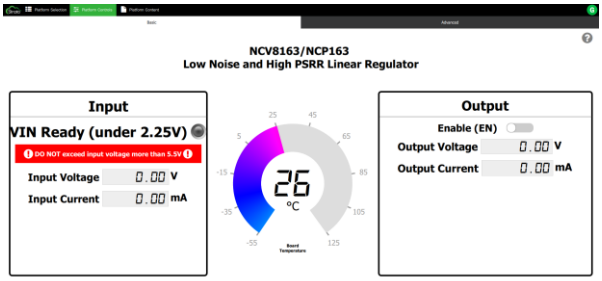
User Interface

The UI within the Strata app will allow the user to control the LDO and monitor its telemetry without needing other lab equipment or training to do so. The steps below cover what is in the UI.

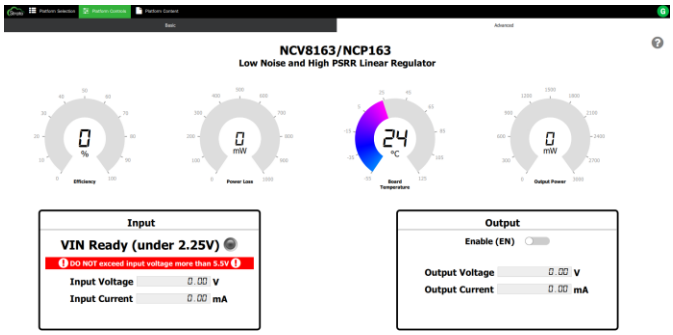
1. First, open the Strata app. Login and the home screen will appear.



2. The app will automatically detect the device that is plugged in and will bring up the UI for the board that is plugged in.



3. The view that comes up is the basic view, which offers basic telemetry and an enable switch for enabling/disabling the LDO.
4. In the top right hand corner the user can switch to the Advanced view which is shown below. The Advanced view offers more telemetry for the user to monitor.



5. The round button with a question mark in the top right corner is the Help button, and will show the user what everything on the UI is doing.
6. To look at the collateral provided with the EVK, click on the “Platform Content” tab at the top of the screen.

Test Report

This section will report important results and measurements from testing the Strata Enabled LDO EVK.

Thermals

Thermal data for the board is shown below. The thermals were the same for all LDOs on the board since they are all in the same physical package. The worst case scenario is shown below, which is 5.5Vin and 1.2Vout at 250mA load.

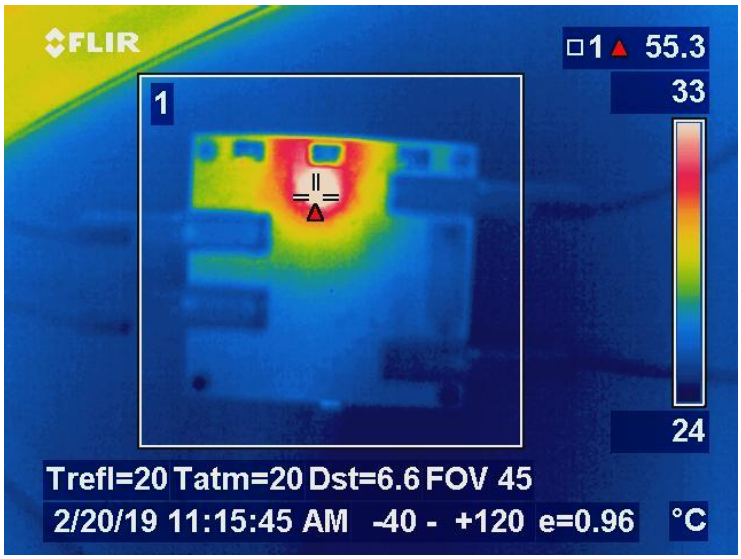


Figure 1: Thermal of LDO at 5.5Vin, 1.2Vout, and a load of 250mA.

NCV8163/NCP163 Transients

Transient data for the NCV8163/NCP163 LDO is included below.

Figure 2: Load step from 0 to 250mA at 10kHz frequency.

Figure 3: Load step from 250mA to 0A at 10kHz frequency.

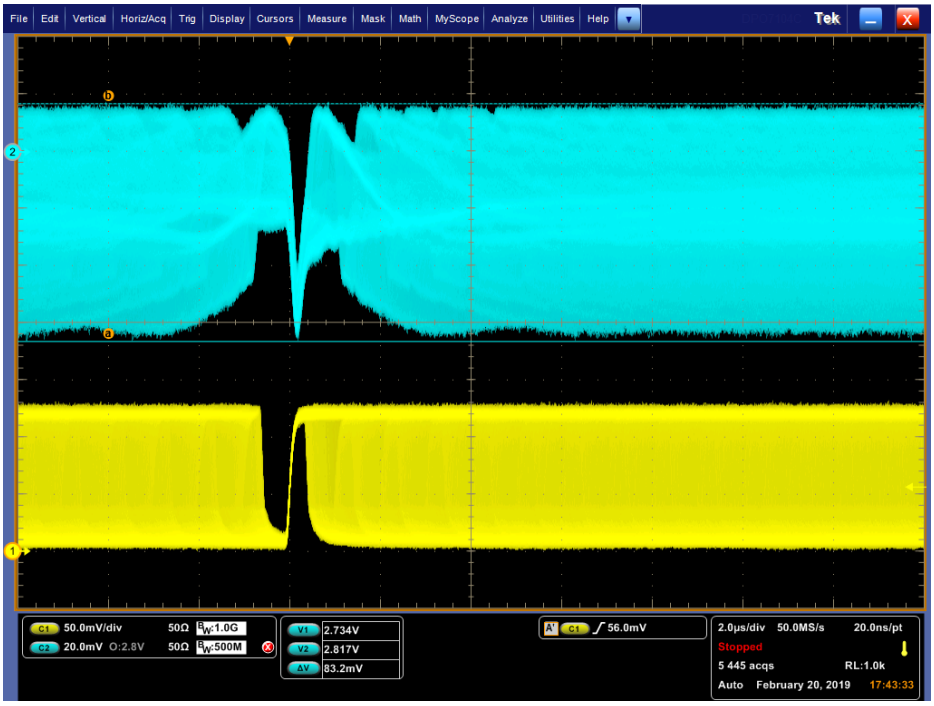


Figure 4: Transient sweep from 1kHz to 1MHz.

NCV8170/NCP170 Transients

Transient data for the NCV8170/NCP170 LDO is included below.

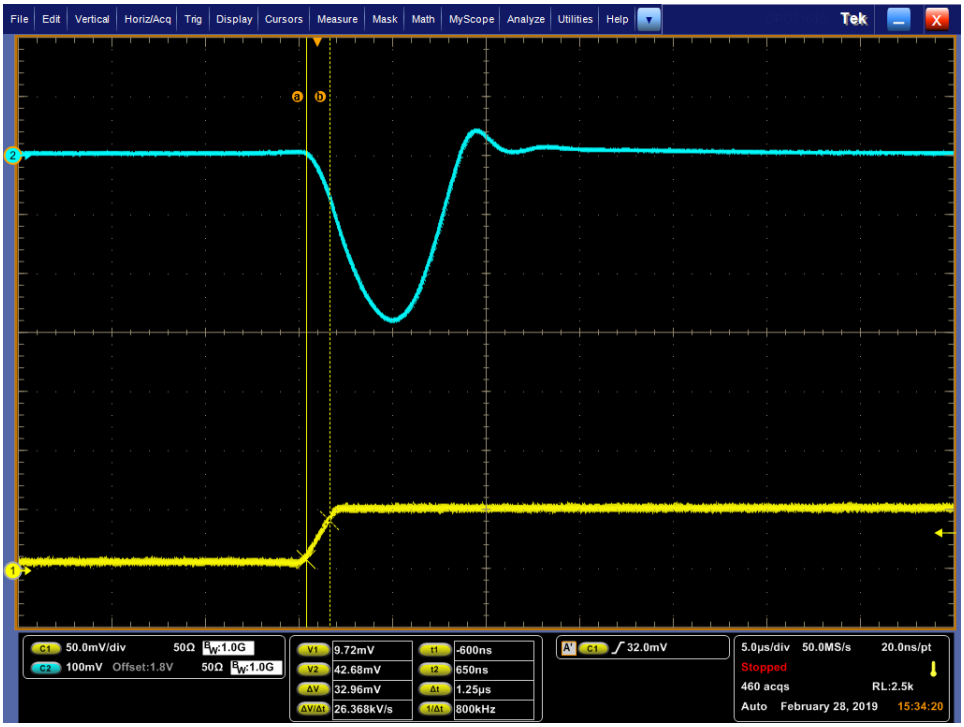


Figure 5: Load step from 0 to 125mA at 10kHz frequency.

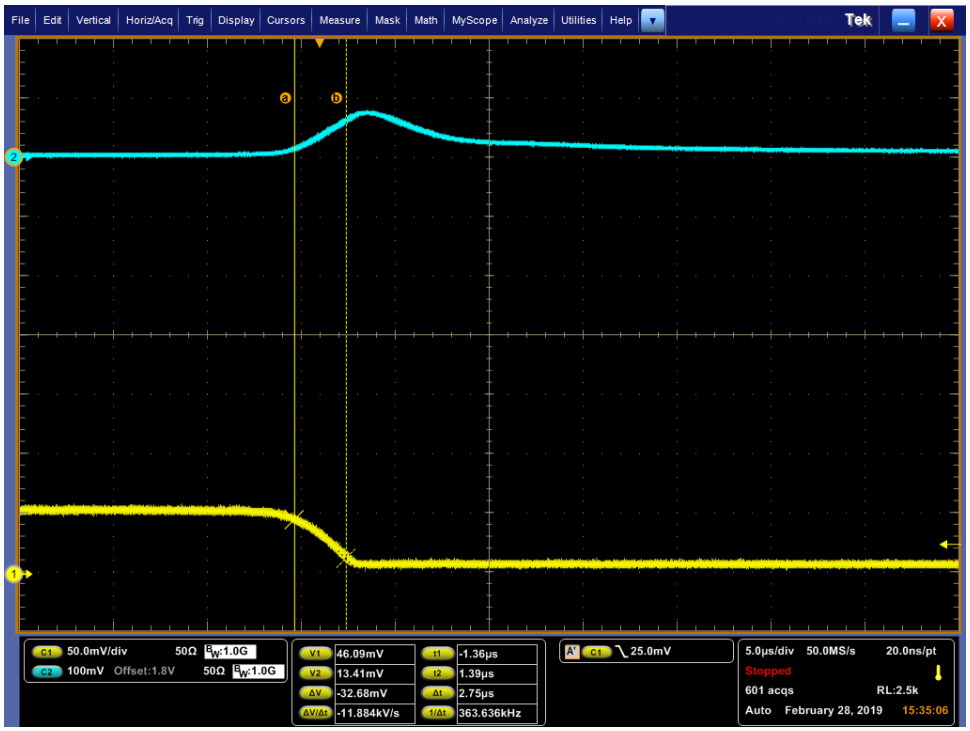


Figure 6: Load step from 125mA to 0A at 10kHz frequency.

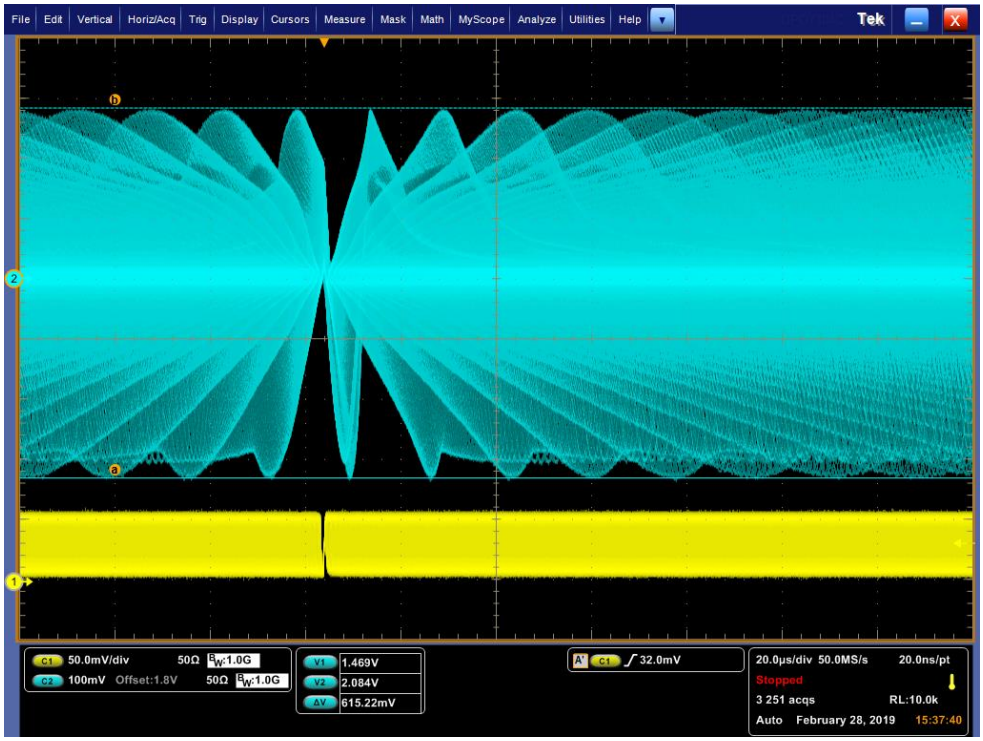


Figure 7: Transient Sweep from 1kHz to 1MHz.

NCP110 Transients

Transient data for the NCP110 LDO is included below.

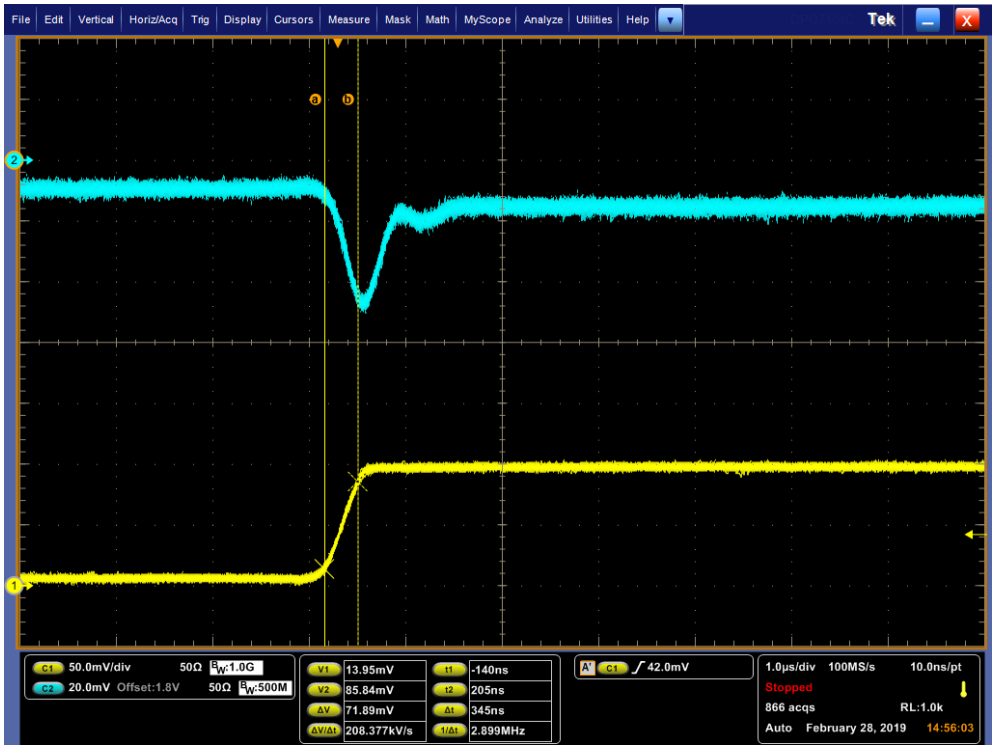


Figure 8: Load step from 0 to 200mA at 10kHz frequency.

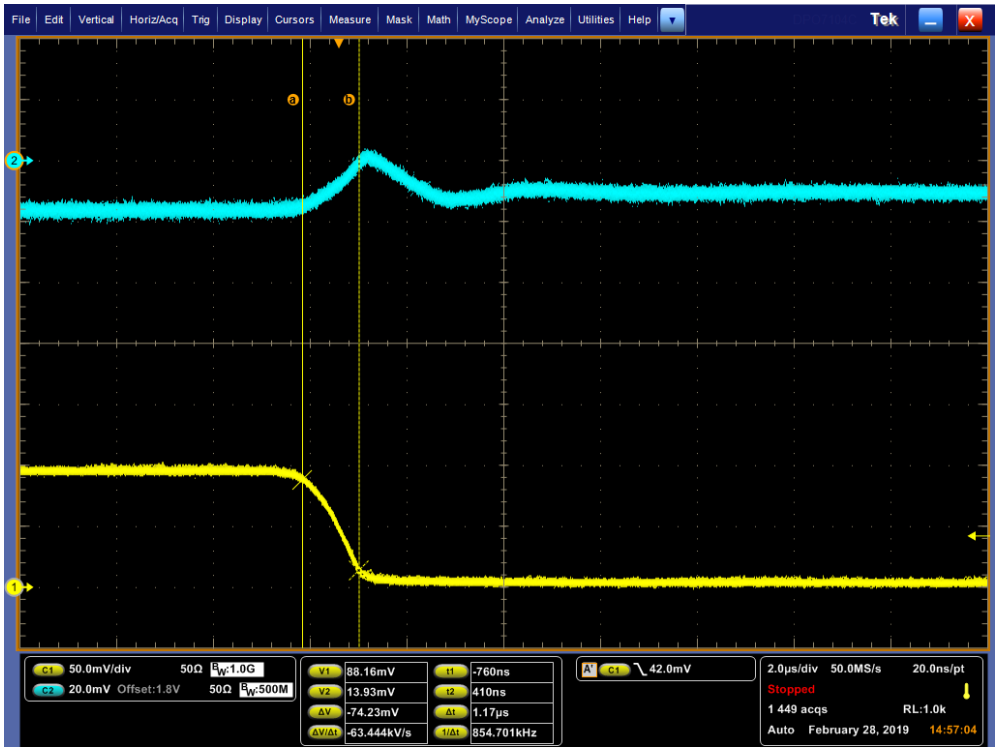


Figure 9: Load step from 200mA to 0A at 10kHz frequency.

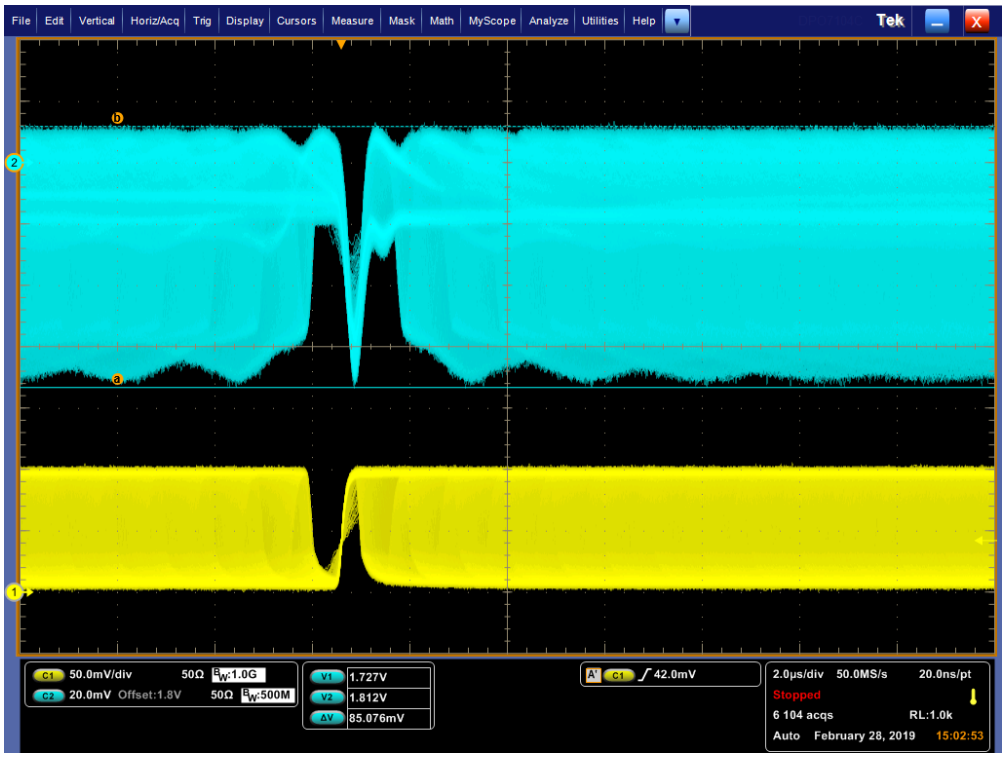


Figure 10: Transient sweep from 1kHz to 1MHz.

NCP115 Transients

Transient data for the NCP115 LDO is included below.

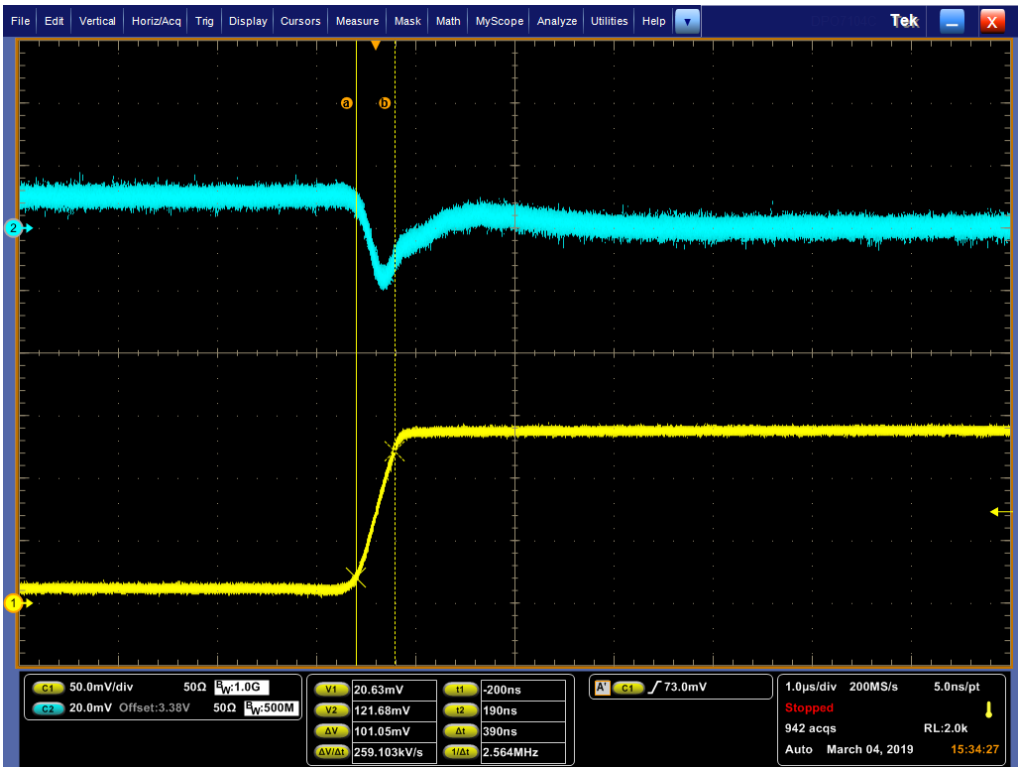


Figure 11: Load step from 0 to 300mA at 10kHz frequency.

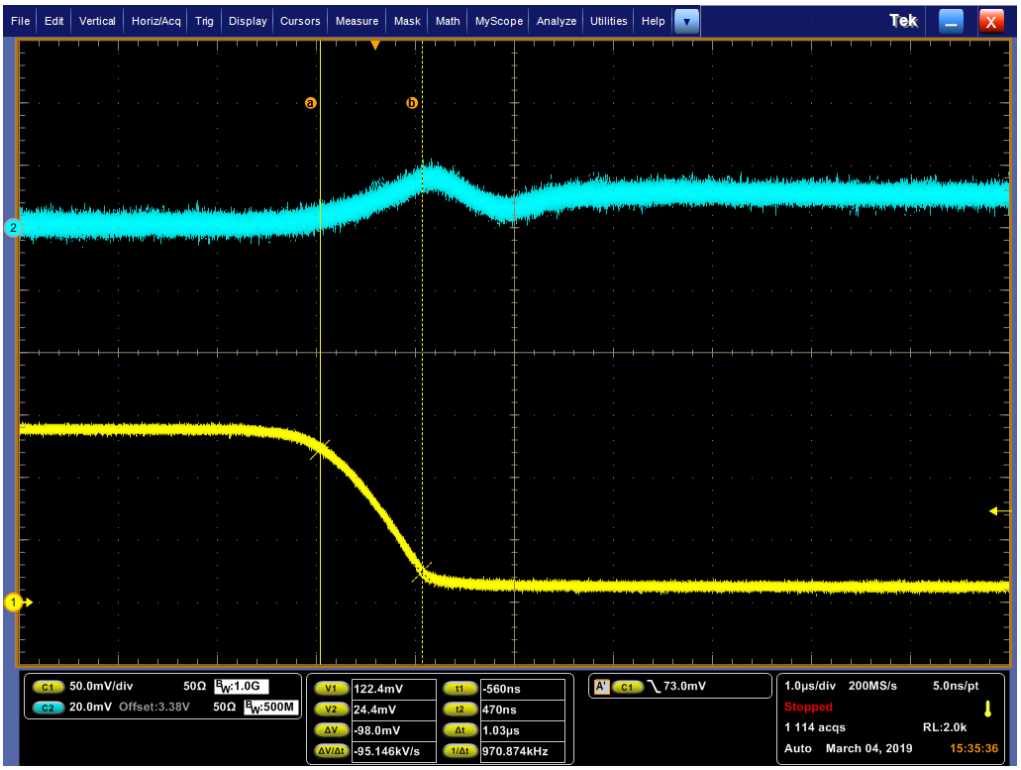


Figure 12: Load step from 300mA to 0A at 10kHz frequency.

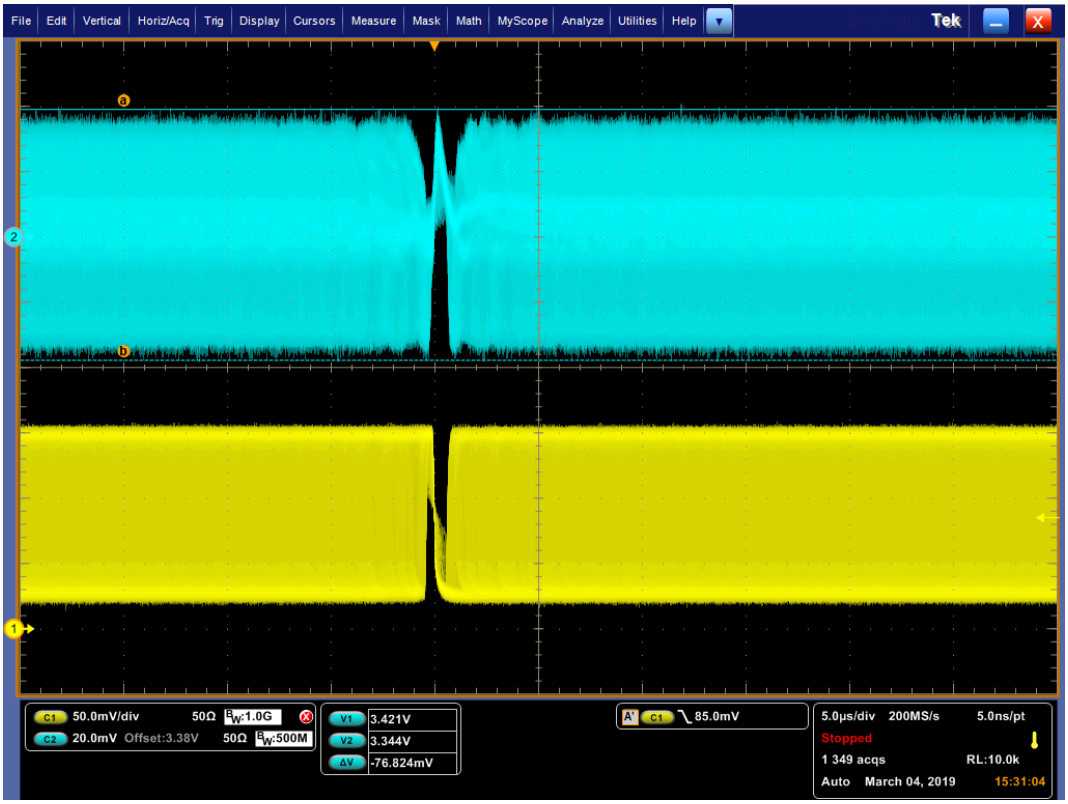


Figure 13: Transient sweep from 1kHz to 1MHz.

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