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Strata Enabled NCP171 EVK User Guide and Test Report

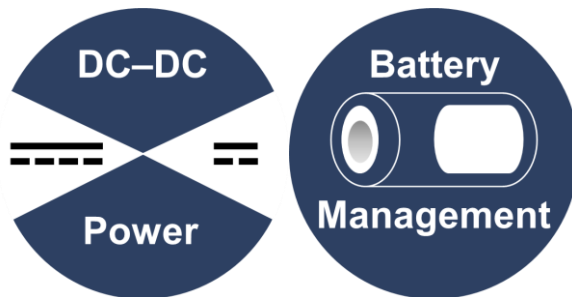


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Introduction

The Strata Enabled NCP171 EVK provides an easy to use evaluation kit within the Strata Development Environment for the NCP171 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 the NCP171.

Features

- Vin range from 1.7V to 5.5V
- Max load range of 80mA
- Vout range from 0.6V to 3.3V
- Super low quiescent current of 50nA
- Dual power mode for more power savings
- Factory programmed output voltage offset between Active/Low Power mode

Applications

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

User Guide

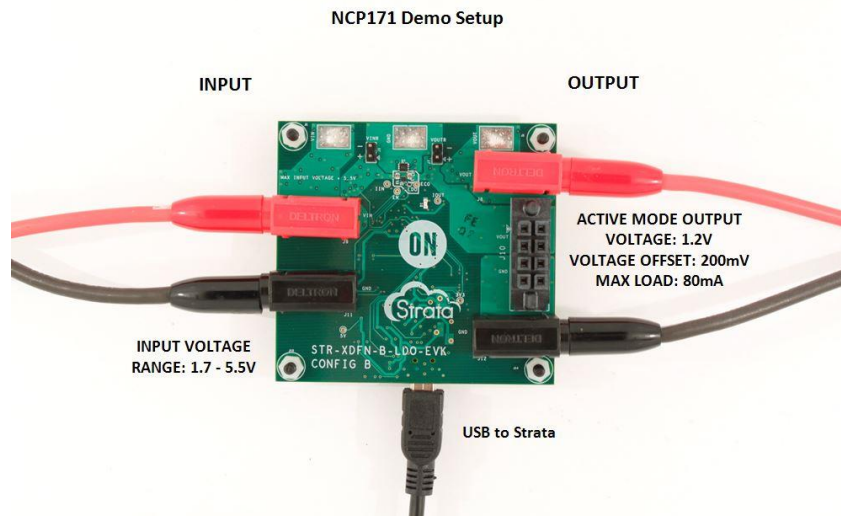
This section will explain how to use the Strata Enabled NCP171 EVK in a step by step manner, and will cover both the hardware required as well as how to use the User Interface in Strata.

Hardware Setup

The hardware required for using the Strata Enabled NCP171 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.



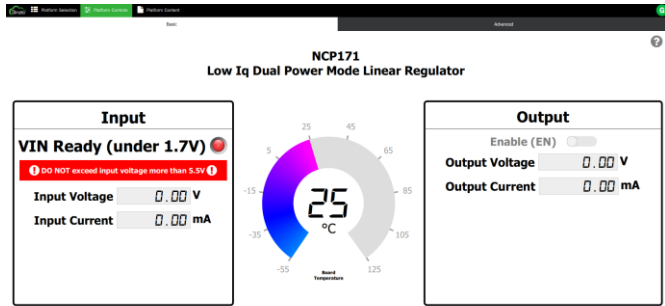
User Interface

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.

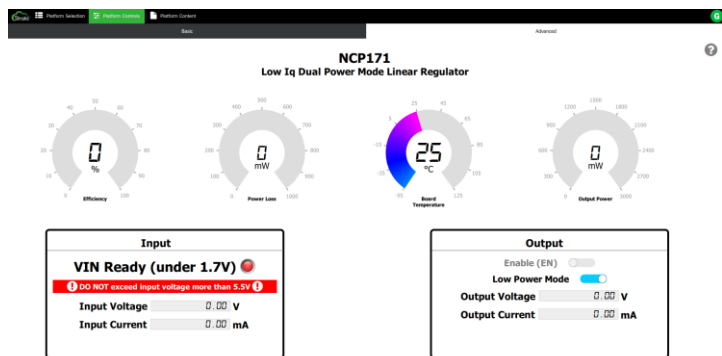
1. First, open the Strata app. Login and the home screen will appear.



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



- The view that comes up is the basic view, which offers basic telemetry and an enable switch for enabling/disabling the LDO.
- 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, as well as another switch to control Low/Active Power mode.



- 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.
- 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 NCP171 EVK.

Thermals

Thermal data for the board is shown below. The worst case scenario is shown below, which is 5.5V_{in} and 1.2V_{out} at 80mA load.

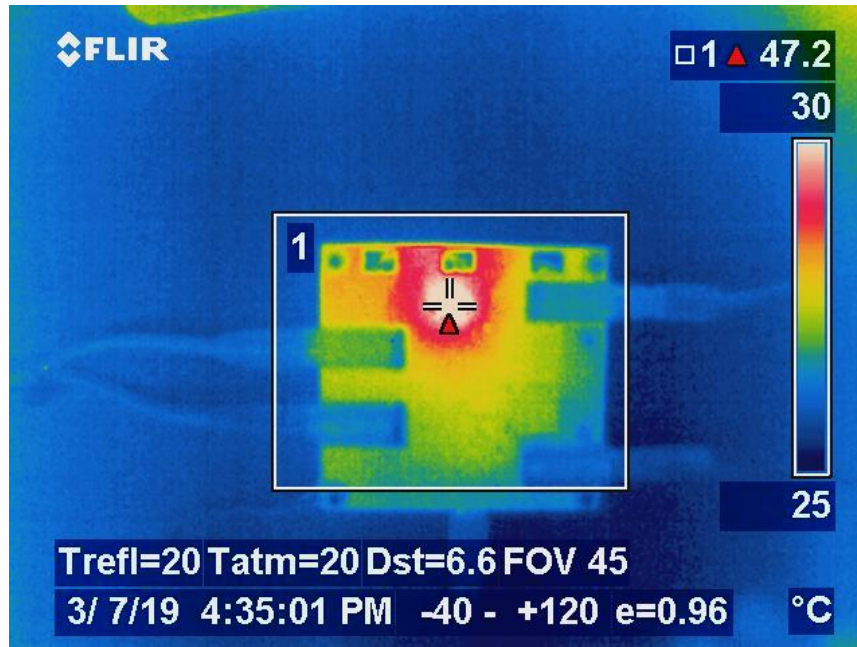


Figure 1: Thermal of LDO at 5.5V_{in}, 1.2V_{out}, and a load of 80mA.

Transients

Transient data for the NCP171 LDO is included below.

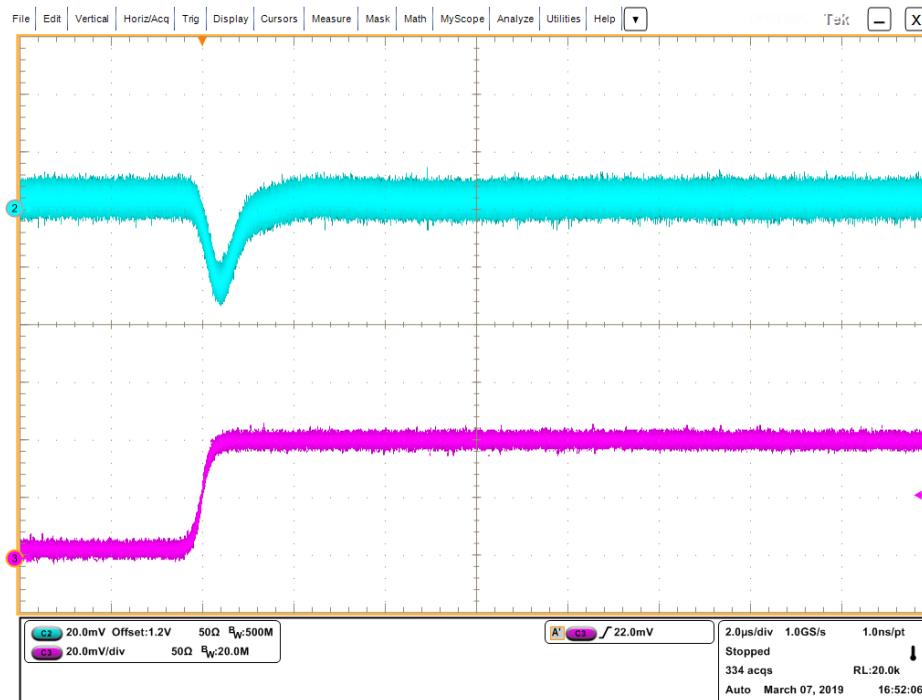


Figure 2: Load step from 0 to 80mA at 10kHz frequency.

Strata Enabled LDO EVK

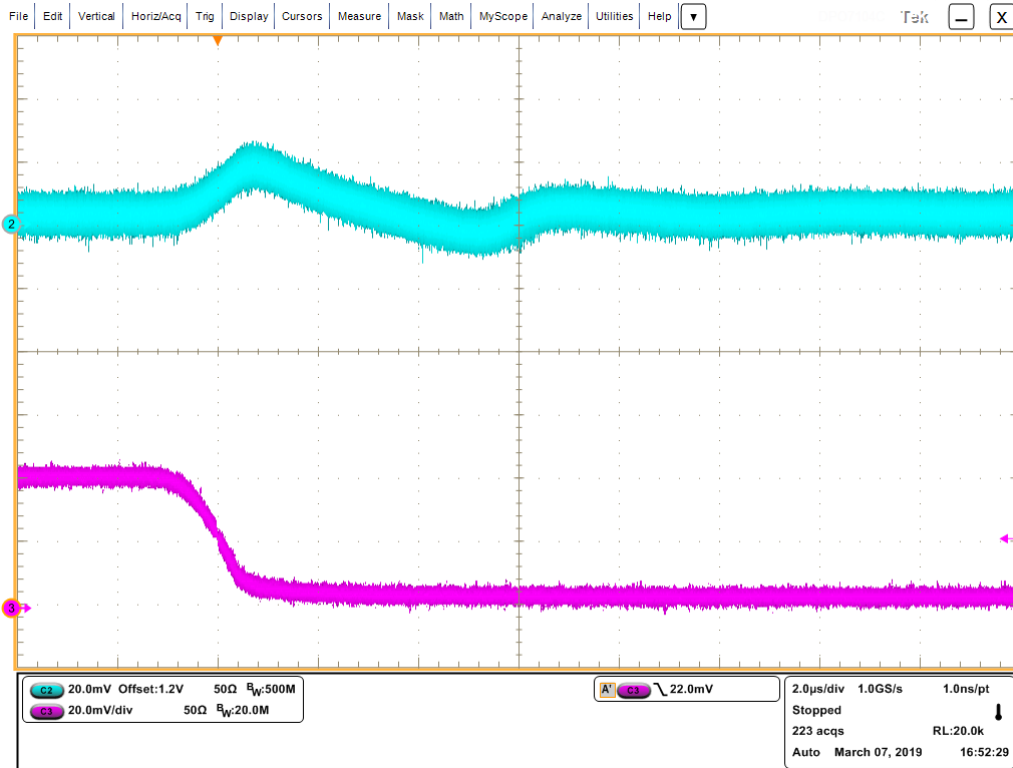


Figure 3: Load step from 80mA to 0A at 10kHz frequency.

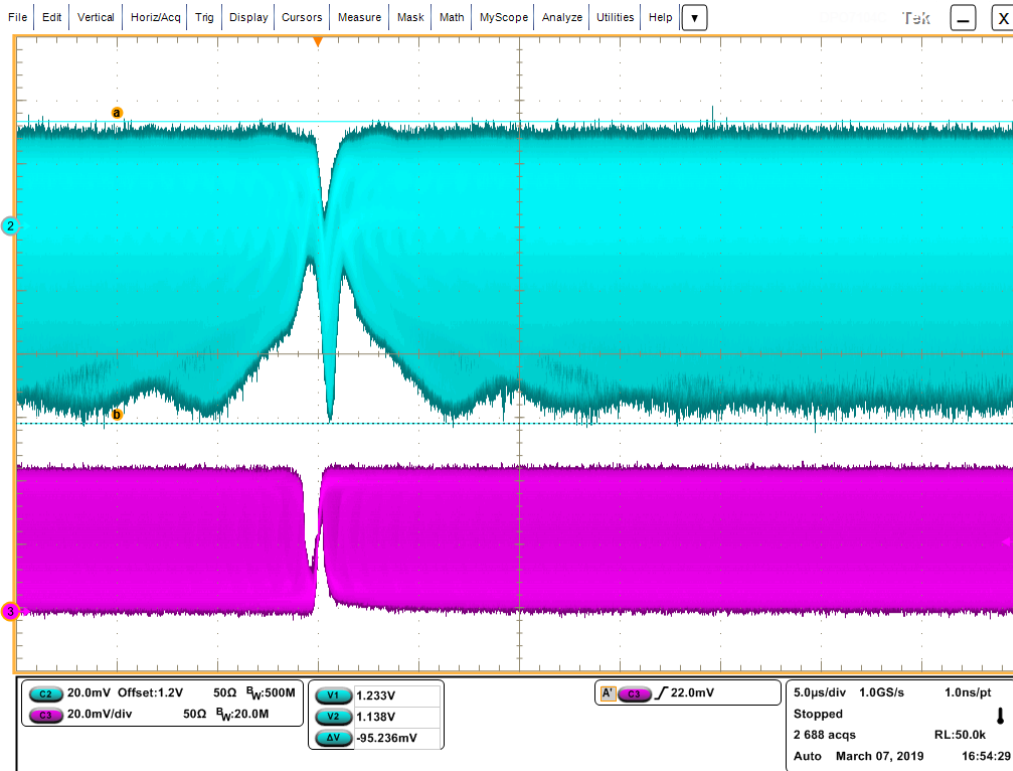


Figure 4: Transient sweep from 1kHz to 1MHz.

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