Test Procedure for the NCP160FCT2GEVB Evaluation Board

There is a collection test procedures for NCP160 demoboards. This paper offers some helpful test configuration for first contact with ONSEMI NCP160 LDO.

1. QUIESCENT CURRENT

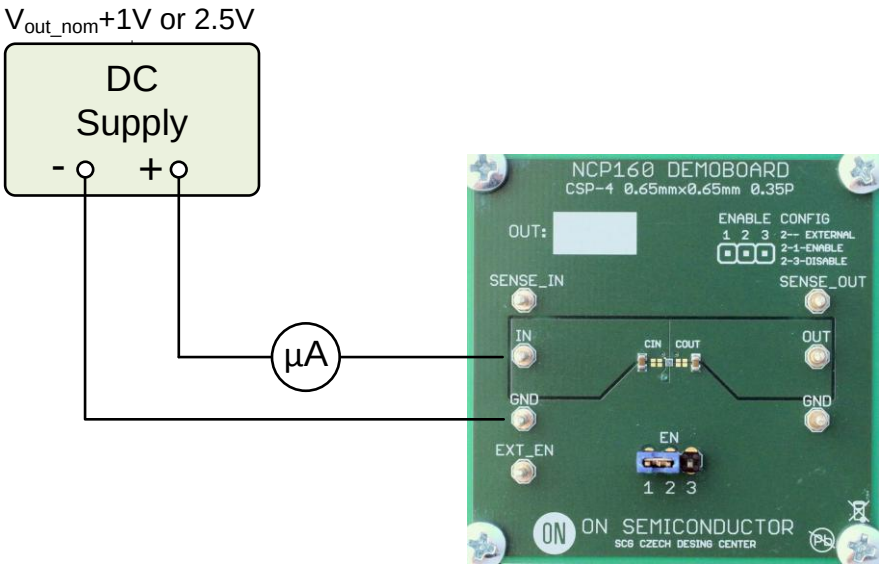


Figure 1: Test configuration for measurement I_Q, Quiescent Current

1. Connect circuit as shown figure on 1
2. Apply voltage at $V_{Input.}$ Default test V_{input} is V_{out_nom}+1 V or 2.5 V whichever is greater
3. Value shown µA meter is measured quiescent current.
4. Measurement is finished. Disconnect supply voltage.

**Note – Be carefully if any device is connected on output, because leakage current can affect measurement accuracy.*

2. LOAD REGULATION

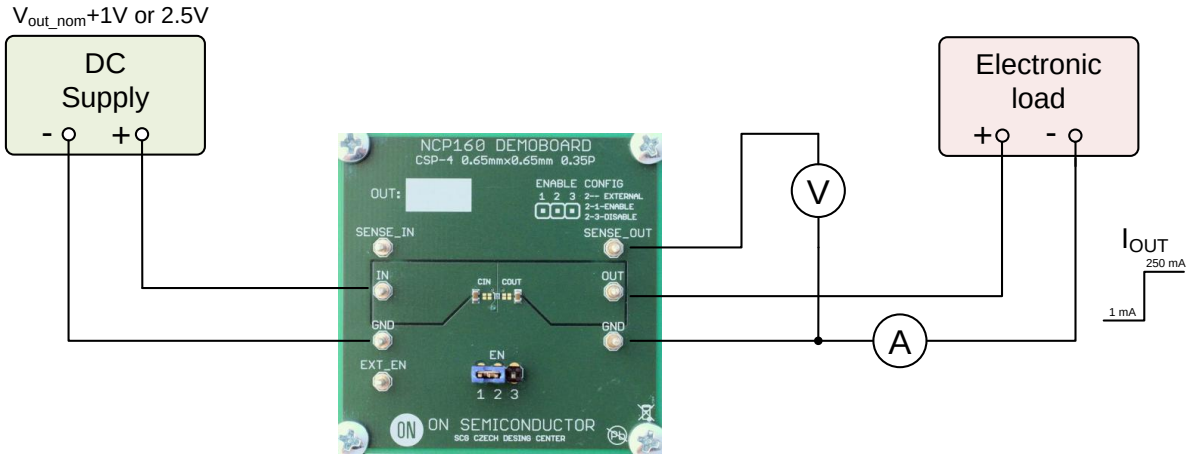


Figure 2: Test configuration for measurement REG_{LOAD}, Load Regulation

1. Connect circuit as shown figure on 2
2. Apply voltage at $V_{Input.}$ Default test V_{input} is V_{out_nom}+1 V or 2.5 V whichever is greater
3. Set minimal required current I_1, e.g. 1 mA, and switch load ON.
4. Note the value V1 from voltmeter Vo.
5. Switch load OFF and set maximal required current I2, e.g. 250 mA and switch load ON.
6. Note the value V2 from voltmeter Vo.
7. Load regulation is obtained via following formula: $REG_{LOAD}=(V_1-V_2)$, [V]
8. Measurement is finished. Disconnect supply voltage.

3. LINE REGULATION

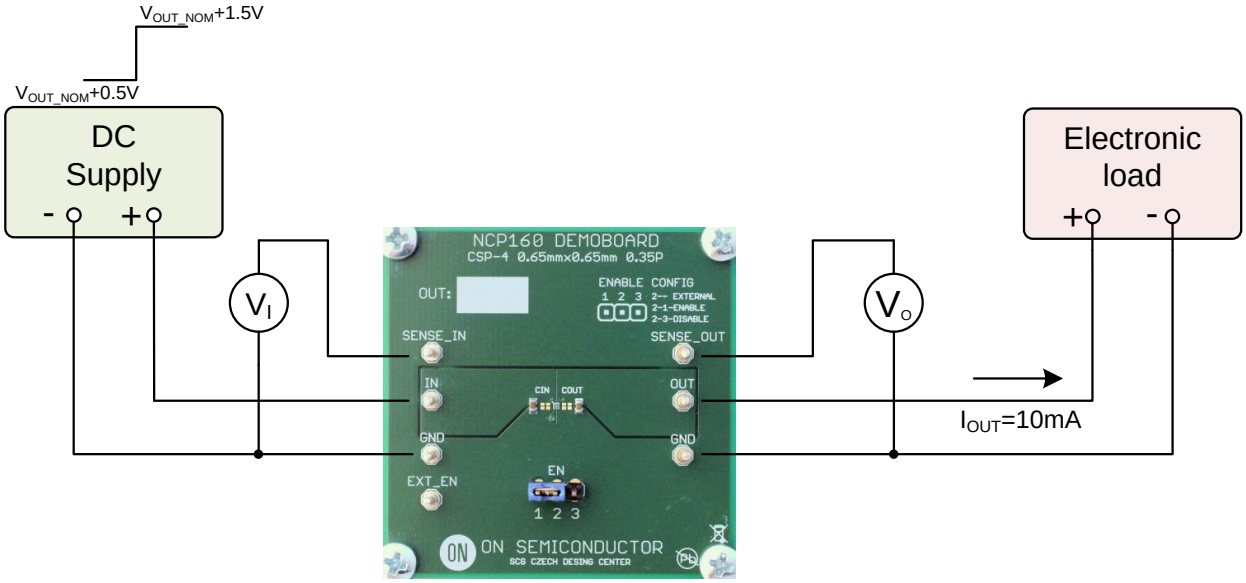


Figure 3: Test configuration for measurement REG_{LINE}, Line Regulation

1. Connect circuit as shown on figure 3
2. Set load to the required current e.g. 10 mA
3. Set minimal input voltage V_{I1}, V_{OUT_NOM}+1V or 2.5V whichever is greater
4. Note the value V_{I1} and V_{O1}.
5. Set maximal input voltage V_{I2} = 5.5 V
6. Note the value V_{I2} and V_{O2}.
7. Load regulation is obtained via following formula: $REG_{LINE}=(V_{O1}-V_{O2})/(V_{I1}-V_{I2})$, [V/V]
8. Measurement is finished. Disconnect supply voltage.

4. ENABLE START-UP

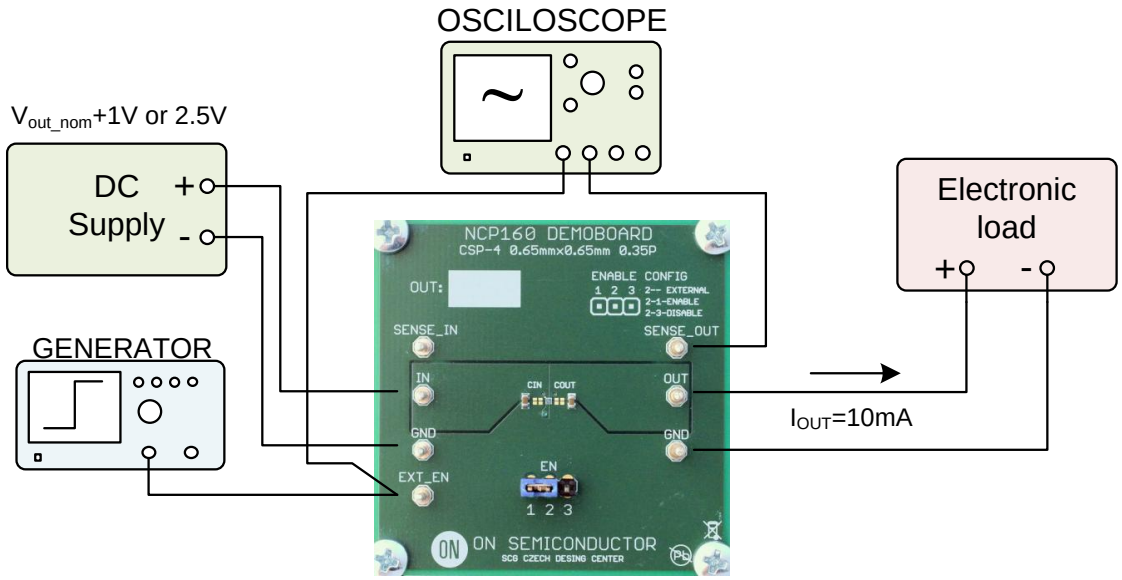


Figure 4: Test configuration for measurement enables response

1. Connect circuit as shown on figure 4
2. Set generator to SQUARE PULSE, 0.9 ≤ AMPLITUDE ≤ V_{IN}, FREQUENCY=10Hz, DUTY=10%
3. Apply voltage at $V_{Input.}$ Default test V_{input} is V_{out_nom}+1 V or 2.5 V whichever is greater
4. Set required I_{OUT}, e.g. 10 mA
5. Connect oscilloscope to EN signal and $V_{OUTPUT.}$
6. Watch enable response of the regulator after asserting EN pin.
7. Measurement is finished. Disconnect supply voltage.