

TEST PROCEDURE FOR NCP163 AND NCV8163 EVALUATION BOARDS

There is a collection test procedures for NCP163 demoboards. This paper offers some helpful test configuration for first contact with ON SEMICONDUCTOR NCP163 LDO. Same procedure is also valid for automotive NCV8163 demoboards

1. QUIESCENT CURRENT

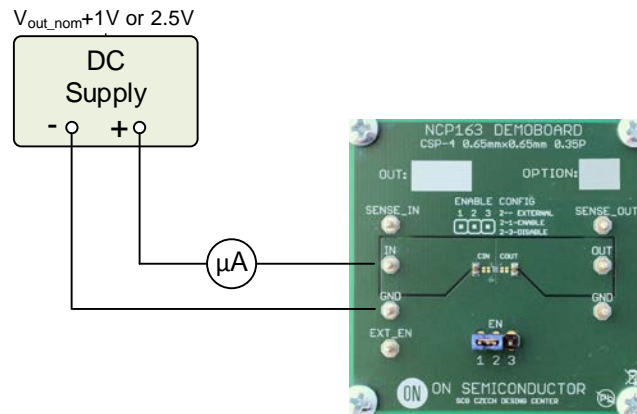


Figure 1: Test configuration for measurement I_Q , Quiescent Current

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

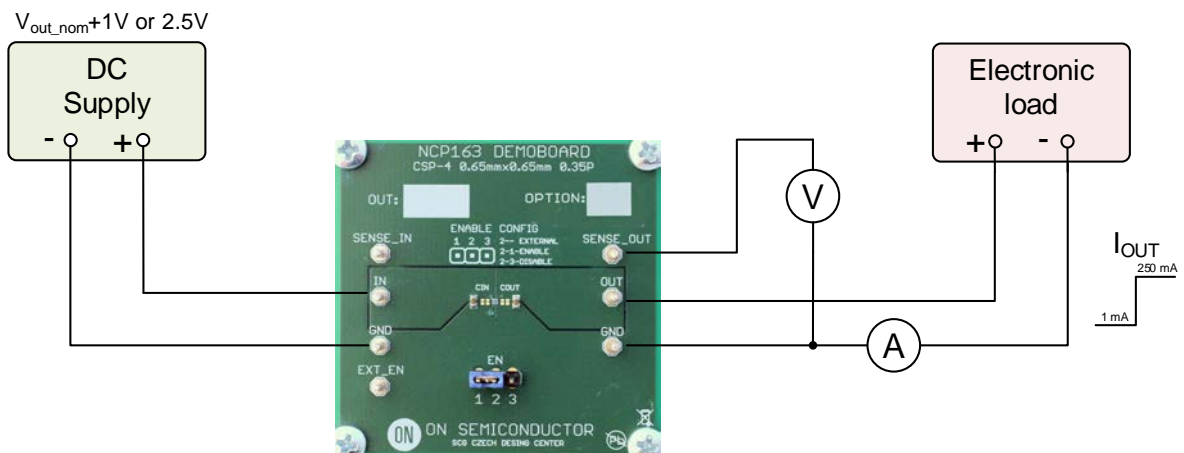


Figure 2: Test configuration for measurement REG_{LOAD} , Load Regulation

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 V_1 from voltmeter V_o .
5. Switch load OFF and set maximal required current I_2 , e.g. 250 mA and switch load ON.
6. Note the value V_2 from voltmeter V_o .
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

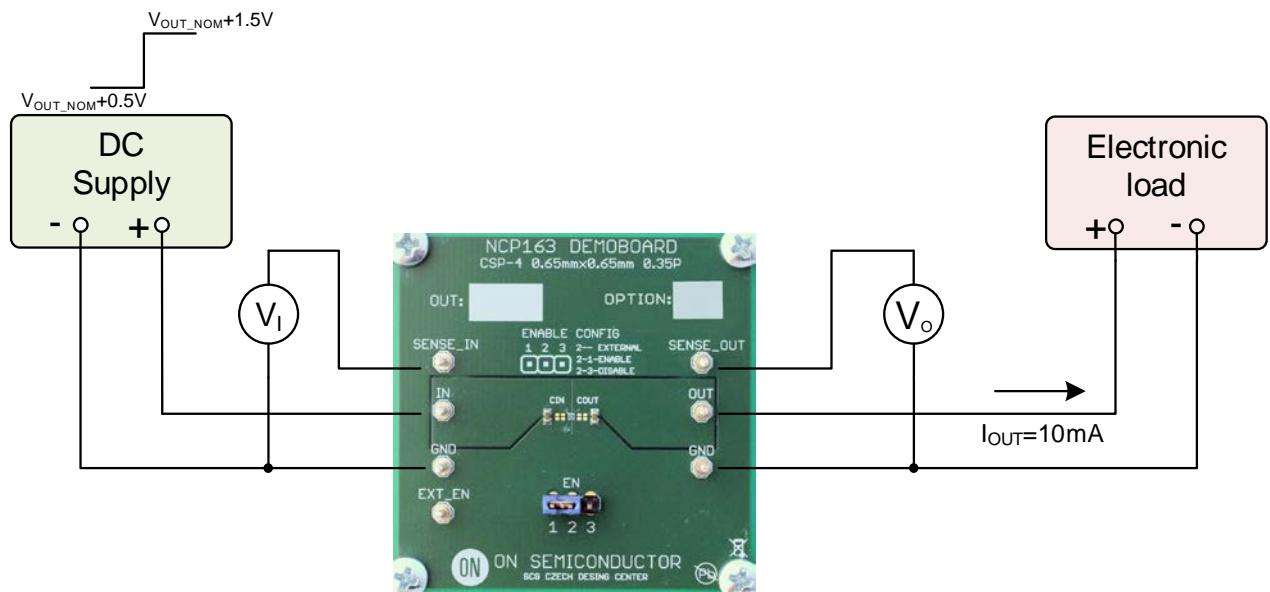


Figure 3: Test configuration for measurement REG_{LINE} , Line Regulation

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} , $V_{OUT_NOM}+1\text{V}$ or 2.5V whichever is greater
4. Note the value V_{I1} and V_{O1} .
5. Set maximal input voltage $V_{I2} = 5.5\text{V}$
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

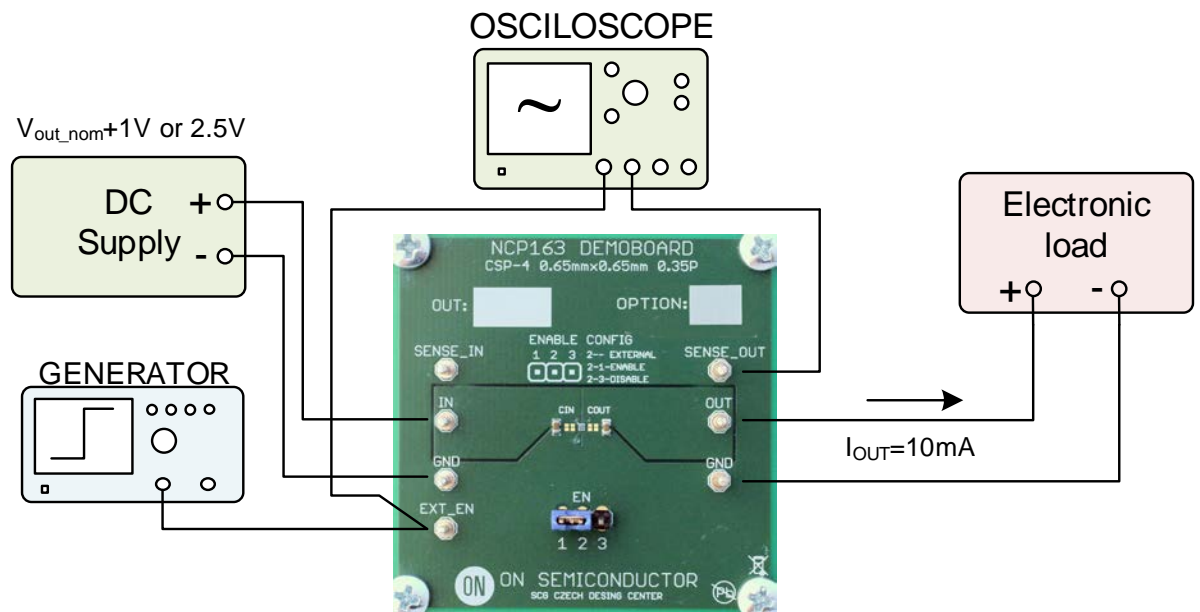


Figure 4: Test configuration for measurement enables response

1. Connect circuit as shown on figure 4
2. Set generator to SQUARE PULSE, $0.9 \leq \text{AMPLITUDE} \leq V_{IN}$, FREQUENCY=10Hz, DUTY=10%
3. Apply voltage at V_{input} . Default test V_{input} is $V_{out_nom} + 1V$ or $2.5V$ 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.