Test Procedure for the NCP160MXTBGEVB 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.
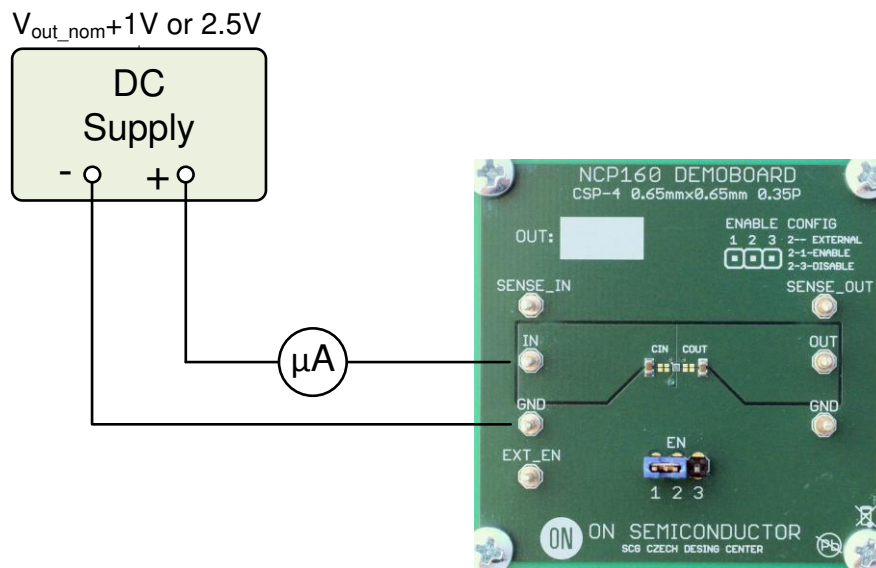
1. QUIESCENT CURRENT

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.
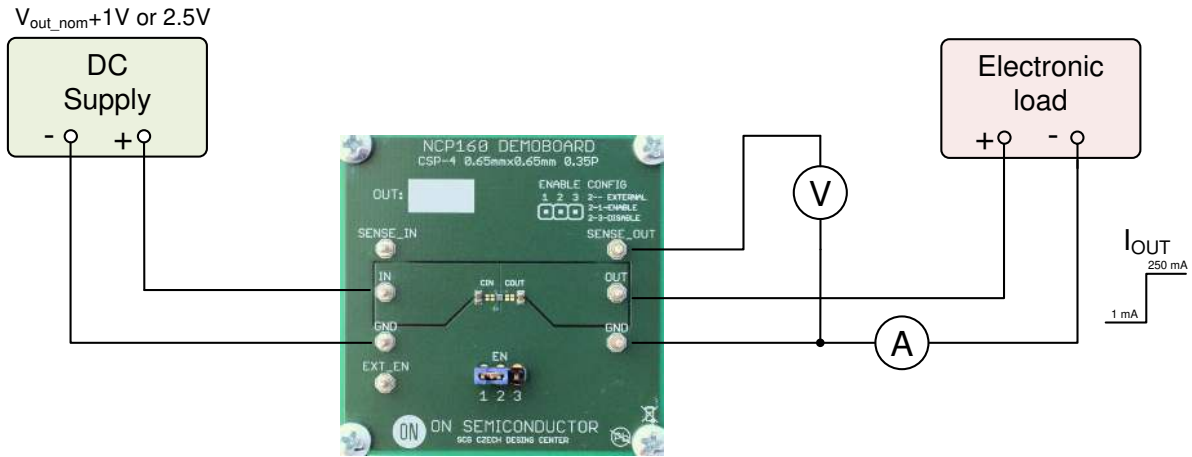
2. LOAD REGULATION

V$_{out\_nom}$+1V or 2.5V

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

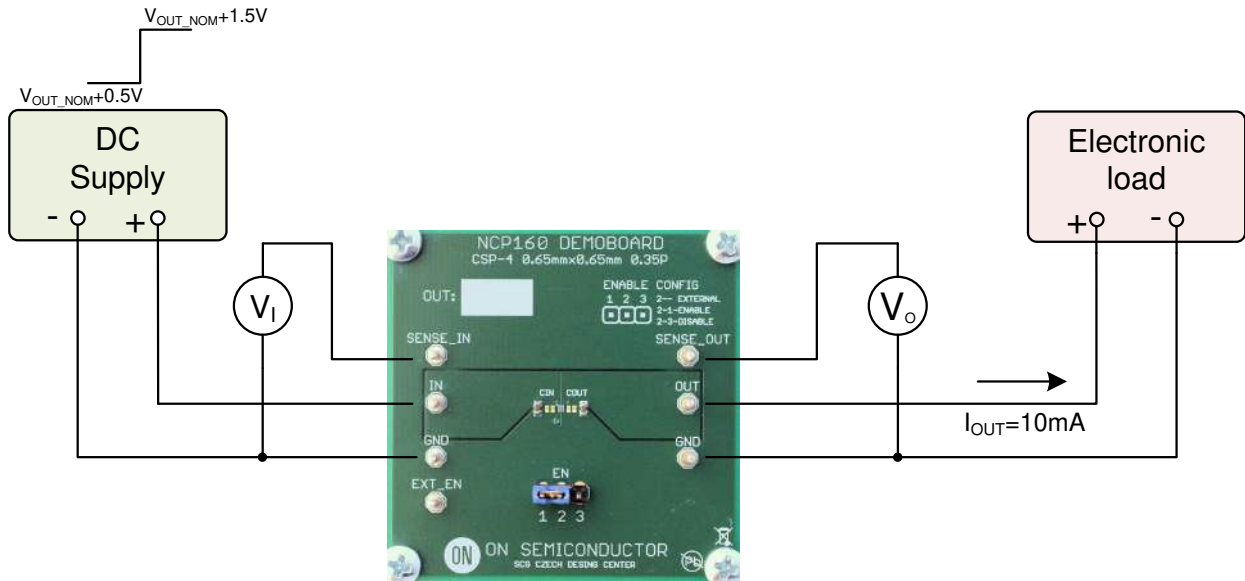

Figure 3: Test configuration for measurement REG_{LINE}, Line Regulation

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]
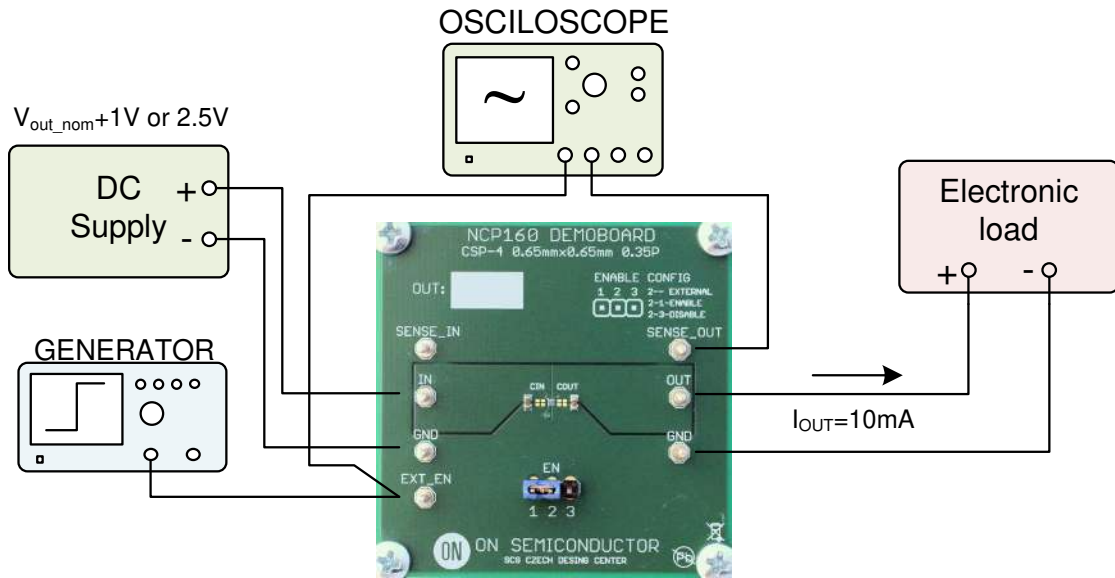8. Measurement is finished. Disconnect supply voltage.

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, $0.9 \leq$ AMPLITUDE $\leq V_{IN}$, 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.