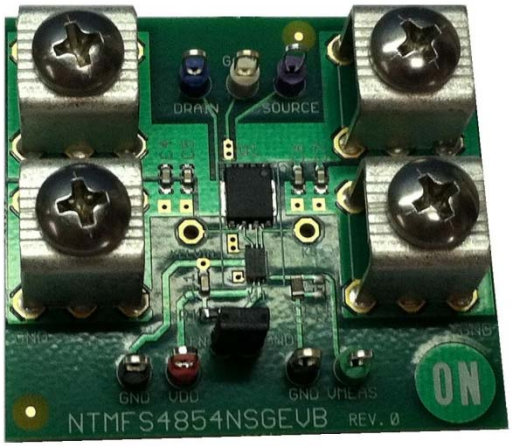
ON Semiconductor®

Test Procedure for the NTMFS4854NSGEVB Evaluation Board



Equipment List:

- **VIN DC Power Supply with Voltage Sense Lines** – Capable of supplying 2 V / 12 A
- **VDD DC Power Supply –** Capable of supplying 5 V / 2 A
- **Constant Current Electronic Load –** Capable of supplying 10 A continuous current
- **Digital Voltage Meters –** Capable of measuring 0 – 2 V DC
- **Digital Current Meter –** Capable of measuring 0 – 10 A DC
- **VMEAS Precision Digital Voltage Meter –** Capable of measuring down to 0.1 mV

IMPORTANT! REMOVE THE JUMPER CONNECTION BETWEEN EN AND GND PRIOR TO TESTING.

Evaluation Board Test Procedure

1.0 Basic Function Test (No Load Applied)

1. Make sure all power is off.
2. Connect the evaluation board as shown in Figure 1 below.
3. Apply 5.0 V to VDD. Measure the VDD voltage using a digital voltage meter, connected at the evaluation board terminals. Adjust the VDD power supply as needed to obtain 5.0 V ± 1% at the evaluation board terminals.
4. Apply 1.5 V to VIN. Measure the VIN voltage using a digital voltage meter, connected at the evaluation board terminals. Adjust the VIN power supply as needed to obtain 1.5 V ± 1% at the evaluation board terminals.
5. Measure VOUT using a digital voltage meter, connected at the evaluation board terminals. Verify that VOUT is 1.5 V ± 1%.
6. Turn off the VIN power supply, followed by the VDD power supply.

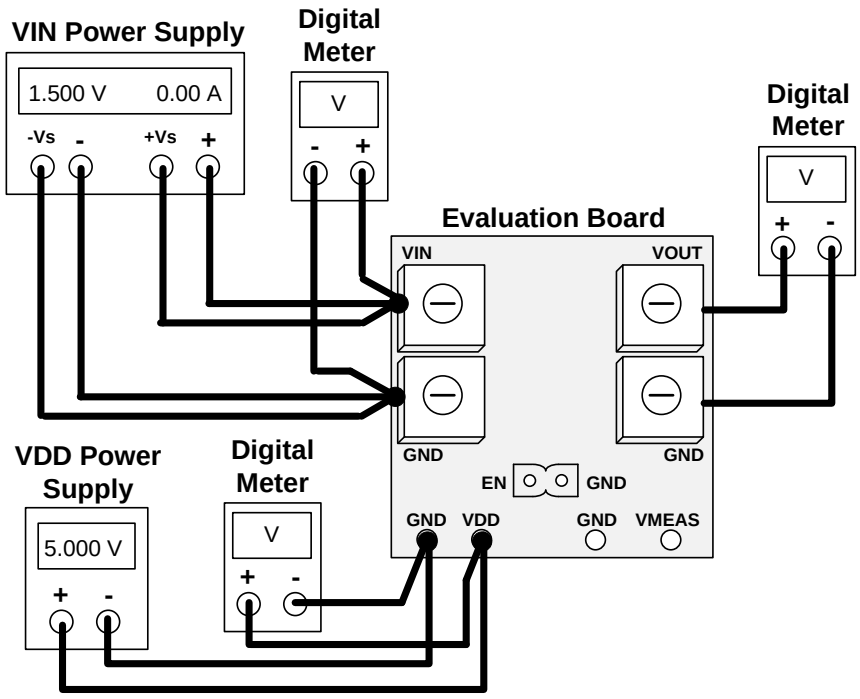


Figure 1. Evaluation Board Setup for Basic Function Test

2.0 ENABLE Function Test (No Load Applied)

1. Make sure all power is off.
2. Connect the evaluation board as shown in Figure 2 below (**except for the jumper in blue**).
3. Apply 5.0 V to VDD. Measure the VDD voltage using a digital voltage meter, connected at the evaluation board terminals. Adjust the VDD power supply as needed to obtain 5.0 V ± 1% at the evaluation board terminals.
4. Apply 1.5 V to VIN. Measure the VIN voltage using a digital voltage meter, connected at the evaluation board terminals. Adjust the VIN power supply as needed to obtain 1.5 V ± 1% at the evaluation board terminals.
5. Measure VOUT using a digital voltage meter, connected at the evaluation board terminals. Verify that VOUT is 1.5 V ± 1%.
6. Attach the jumper connecting EN and GND, as shown in **blue** in Figure 2.
7. Measure VOUT using a digital voltage meter, connected at the evaluation board terminals. Verify that VOUT drops to 0 V ± 1%.
8. Remove the jumper between EN and GND.
9. Measure VOUT using a digital voltage meter, connected at the evaluation board terminals. Verify that VOUT returns to 1.5 V ± 1%.
10. Turn off the VIN power supply, followed by the VDD power supply.

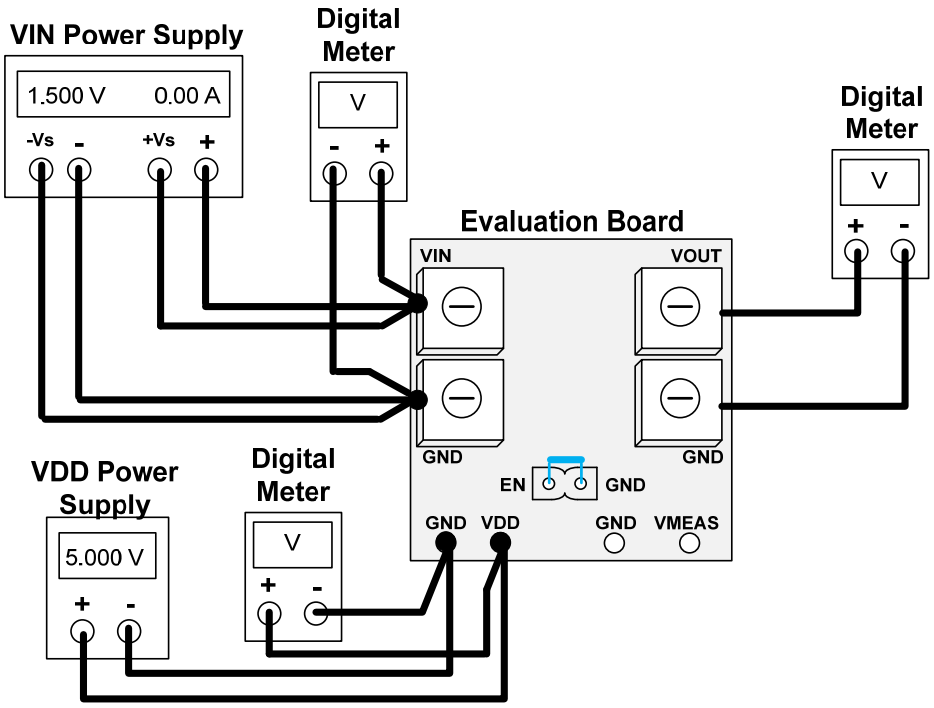


Figure 2. Evaluation Board Setup for ENABLE Function Test

3.0 Board Function Test with a 5 Amp Load Applied

1. Make sure all power is off.
2. Connect the evaluation board as shown in Figure 3 below.
3. Apply 5.0 V to VDD. Measure the VDD voltage using a digital voltage meter, connected at the evaluation board terminals. Adjust the VDD power supply as needed to obtain 5.0 V ± 1% at the evaluation board terminals.
4. Apply 1.5 V to VIN. Measure the VIN voltage using a digital voltage meter, connected at the evaluation board terminals. Adjust the VIN power supply as needed to obtain 1.5 V ± 1% at the evaluation board terminals.
5. Apply a constant current electronic load of 5 A to VOUT. Adjust the electronic load as needed to obtain 5.0 A ± 1% on the digital current meter.
6. Measure VMEAS using the precision digital voltage meter, connected at the evaluation board terminals.
7. Verify that VMEAS is 376 mV ± 8%.
8. Turn off the electronic load.
9. Turn off the VIN power supply, followed by the VDD power supply.

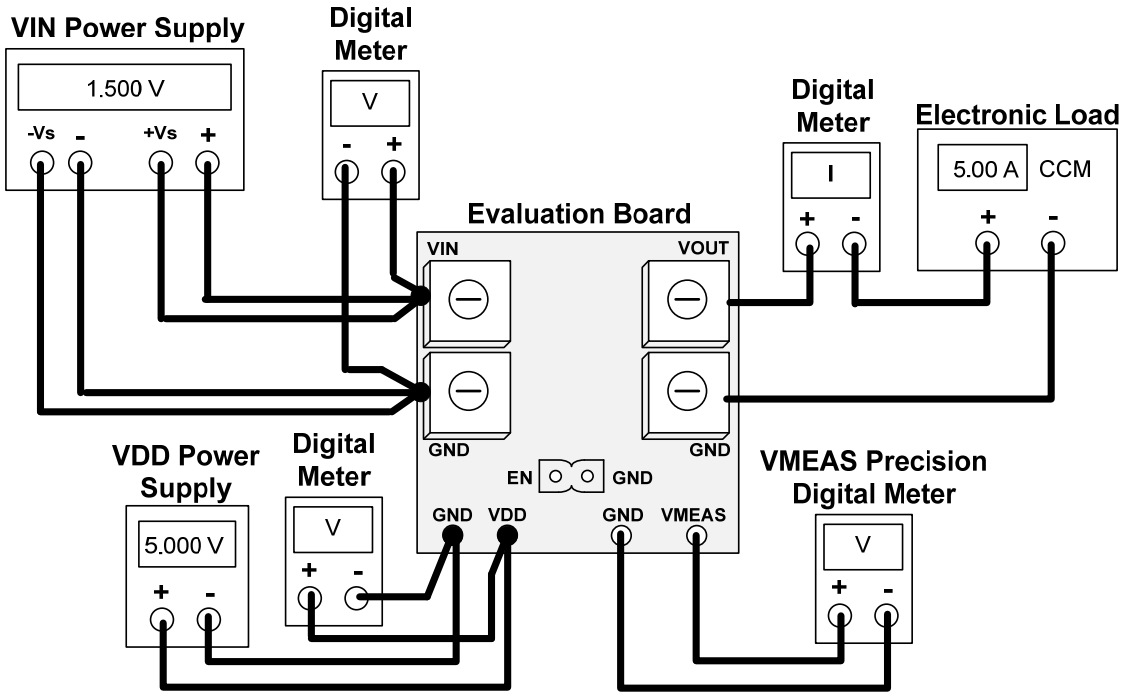


Figure 3. Evaluation Board Setup for 5 A Load Function Test