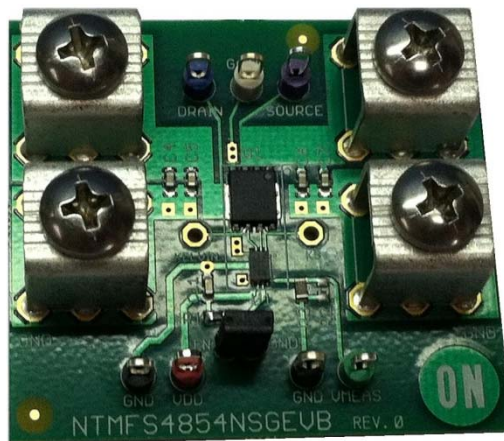




ON Semiconductor®

# 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  $5.0\text{ V} \pm 1\%$  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  $1.5\text{ V} \pm 1\%$  at the evaluation board terminals.
5. Measure VOUT using a digital voltage meter, connected at the evaluation board terminals. Verify that VOUT is  $1.5\text{ V} \pm 1\%$ .
6. Turn off the VIN power supply, followed by the VDD power supply.

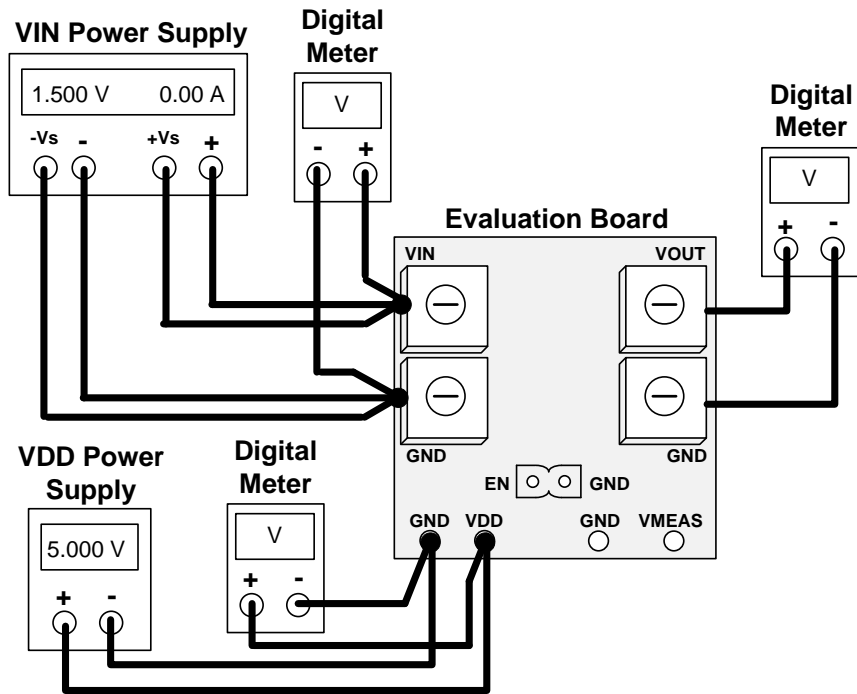


Figure 1. Evaluation Board Setup for Basic Function Test

## 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  $5.0\text{ V} \pm 1\%$  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  $1.5\text{ V} \pm 1\%$  at the evaluation board terminals.
5. Measure VOUT using a digital voltage meter, connected at the evaluation board terminals. Verify that VOUT is  $1.5\text{ V} \pm 1\%$ .
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  $0\text{ V} \pm 1\%$ .
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  $1.5\text{ V} \pm 1\%$ .
10. Turn off the VIN power supply, followed by the VDD power supply.

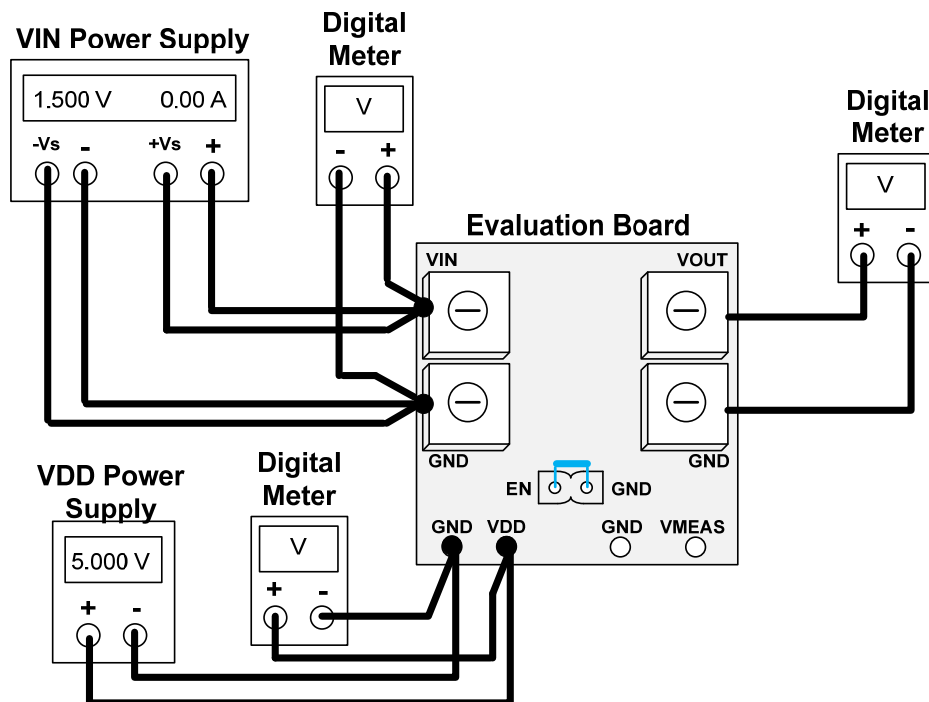


Figure 2. Evaluation Board Setup for ENABLE Function Test

### 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  $5.0\text{ V} \pm 1\%$  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  $1.5\text{ V} \pm 1\%$  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  $5.0\text{ A} \pm 1\%$  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  $376\text{ mV} \pm 8\%$ .
8. Turn off the electronic load.
9. Turn off the VIN power supply, followed by the VDD power supply.

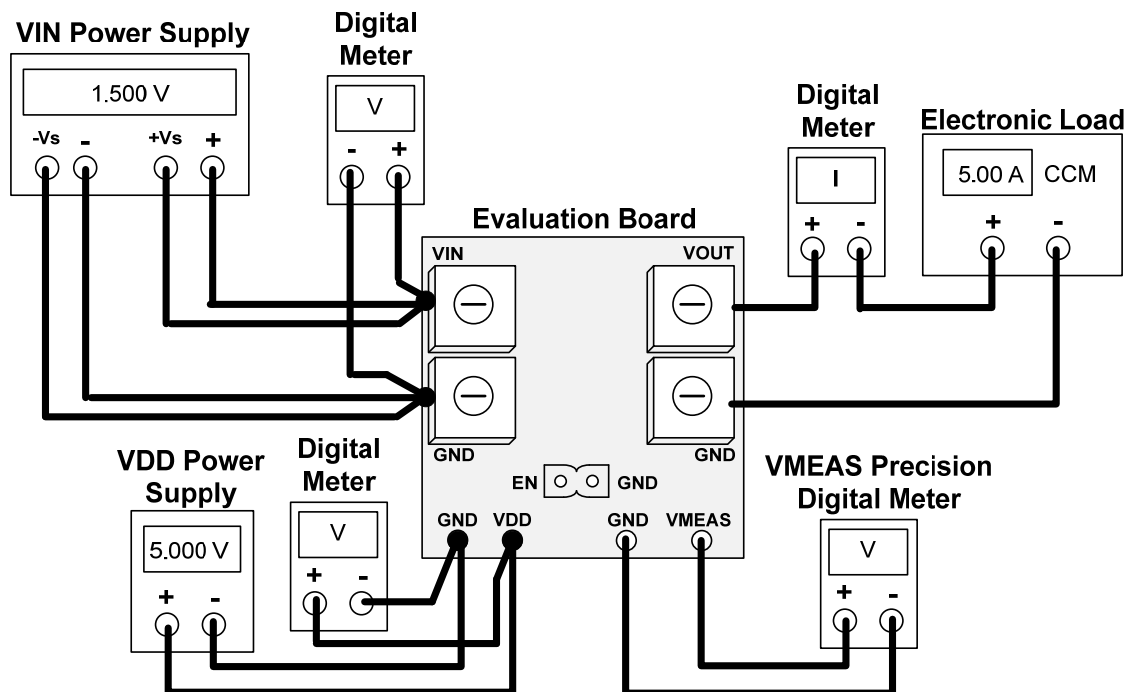


Figure 3. Evaluation Board Setup for 5 A Load Function Test