

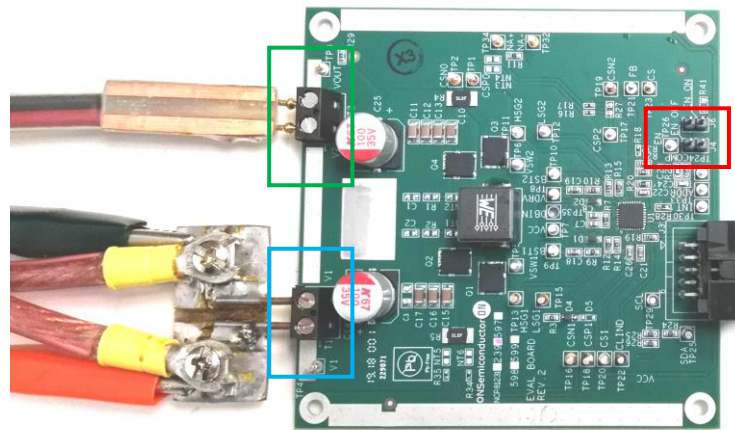


# Test Procedure for the NCP81239 Evaluation Board

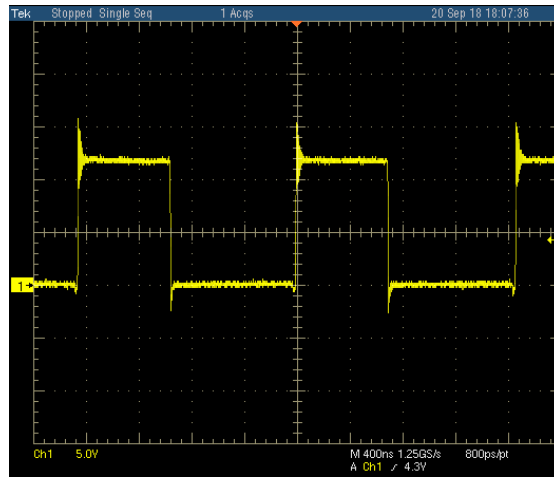
## Required Equipment:

- NCP81239 evaluation board
- UM232H I2C interface board set
- USB Type A to USB mini Type B cable
- Power Supply capable of supplying 30V/10A, 100W
- Electronic Load capable of consuming (30V/5A, 100W)
- Personal computer
- Multimeter or Oscilloscope

1. Connecting NCP81239 evaluation board as shown in the figure below.



- a. Connect 12V (typical) input supply to T1 (V1 and GND) port.
  - b. Connect the electronic load to T2 (V2 and GND) port.
  - c. Connect a second voltage source to EN pin (test point TP26) or pin2 of J4.
2. Once connected, turn on the input power supply and electronic load.
  3. Enable the converter. Apply a voltage 0.8V~5V to the EN pin or simply short J6 (connecting EN to VCC). Now you should see 5V at the output.
  4. With the oscilloscope, verify that the switching node 1 (test point VSW1, TP5) looks like the waveform below.



**Note:** To test the I<sup>2</sup>C communication, please refer to “[NCP81239 GUI Software & Eval Board User Guide](#)”. One should install and run the dgSCOM user interface (GUI), load the register map, connect the I2C interface board and finally test different reference voltage.

In the GUI, under the “Register I/O” tab find the “dac\_target” register (01h). Click to select that row and press the **Read** button. If properly connected, you should see 50 in decimal format or 32 in hex format in the “Data” box. It indicates that the internal reference voltage is 0.5 V by default.

|                   |          |          |          |           |
|-------------------|----------|----------|----------|-----------|
| en_mask           | 0        | 1        | 2        | 0         |
| en_int            | 0        | 1        | 3        | 0         |
| <b>dac_target</b> | <b>1</b> | <b>8</b> | <b>0</b> | <b>50</b> |
| slew_rate         | 2        | 2        | 0        | 0         |
| pwm_frequency     | 3        | 3        | 0        | 0         |
| dac_target_lsb    | 3        | 1        | 4        | 0         |
| pfet              | 3        | 1        | 0        | 0         |
| cfet              | 4        | 1        | 1        | 0         |



Change the dac\_target register value and press the **Write** button. You will see the output voltage change. The table below shows some typical register setting and corresponding output.

| dac_target register(decimal) | Output voltage (V) |
|------------------------------|--------------------|
| 50                           | 5                  |
| 90                           | 9                  |
| 150                          | 15                 |
| 200                          | 20                 |

As you can see, there are many other customer registers. They can all be changed to accomplish different settings. Use the register map as a guide to change any register value.

This concludes the test of the NCP81239 evaluation board. Please turn off all power before disconnecting power supplies and electronic load.