ON Semiconductor®

Test Procedure for the NCV841x Evaluation Board

The NCV841x devices are three terminal protected Low−Side Smart Discrete FETs. The protection features include Delta Thermal Shutdown, Overcurrent, Overtemperature, ESD and Integrated Drain to Gate Clamping for over voltage protection. The devices also offer fault indication via the Gate pin. These devices are suitable for harsh automotive environments.

Necessary Equipment:
1x Power Supply up to 50 V with current limitation up to 50 A (at least in pulse mode)
1x Power Supply up to 15 V with current limitation up to 10 mA
1x DC Volt-Meter able to measure up to 15 V DC
2x DC Volt-Meter able to measure up to 50 V DC
1x Arbitrary function generator (optional)
1x Oscilloscope (optional)

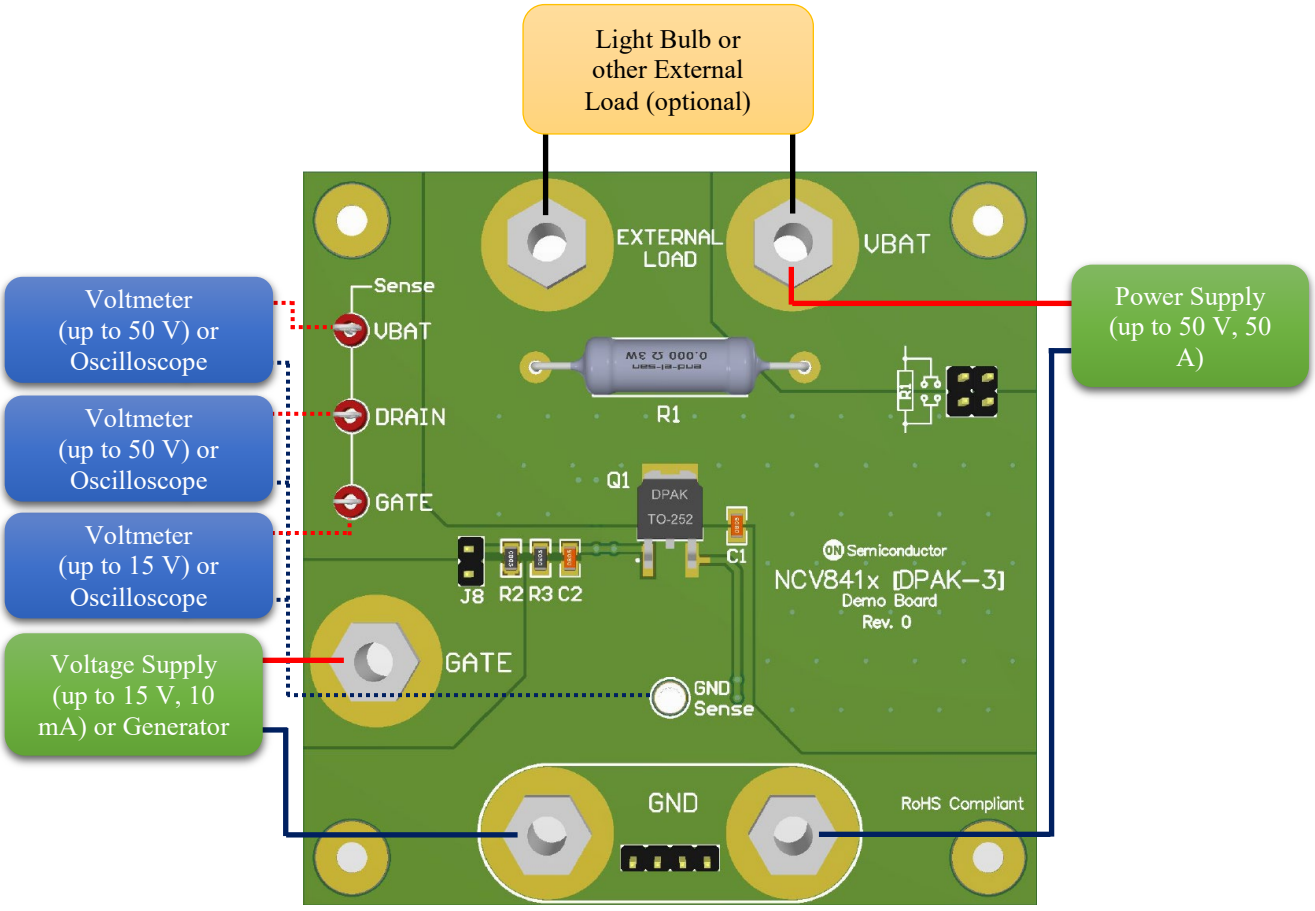

Figure 1. – Test setup

Test Procedure:

1. Connect the test setup as shown in Figure 1.
2. Set the Power Supply to any value between 0 V and 50 V, without exceeding the Drain pin's maximum rating at 42 V DC.
3. Set the Gate Voltage to the desired value without exceeding the Gate pin's maximum rating at ± 14 V.
4. Use Jumper J8 to connect the Gate Voltage Supply directly to the device pin or through a 100 kΩ resistor. Also you can use this jumper to connect a differential probe and measure the voltage drop across the resistor caused by the Gate Fault Current feature.
5. You may use the double jumper to short the load (for example for $R_{DS(ON)}$ measurement).
6. Turn ON the Power Supplies (or Generator).
7. Measure the desired voltages or currents in the circuit.
8. Turn off the Power Supplies (or Generator) connected to the device.
9. End of test.

In Figure 2 there is an example of Bulb Test measurement. An H4 automotive halogen bulb has been used with the NCV8411.

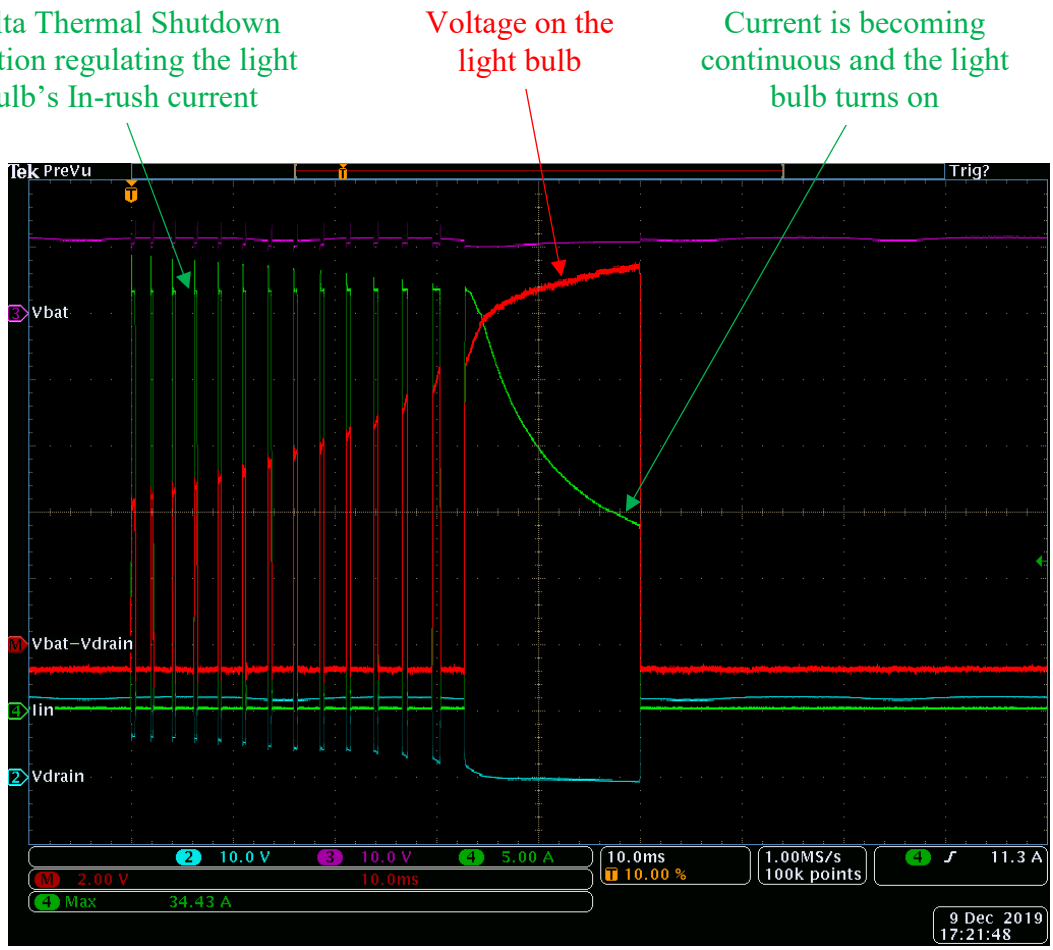

Figure 2. – Measurement of an H4 light bulb filament at -40 °C with the NCV8411

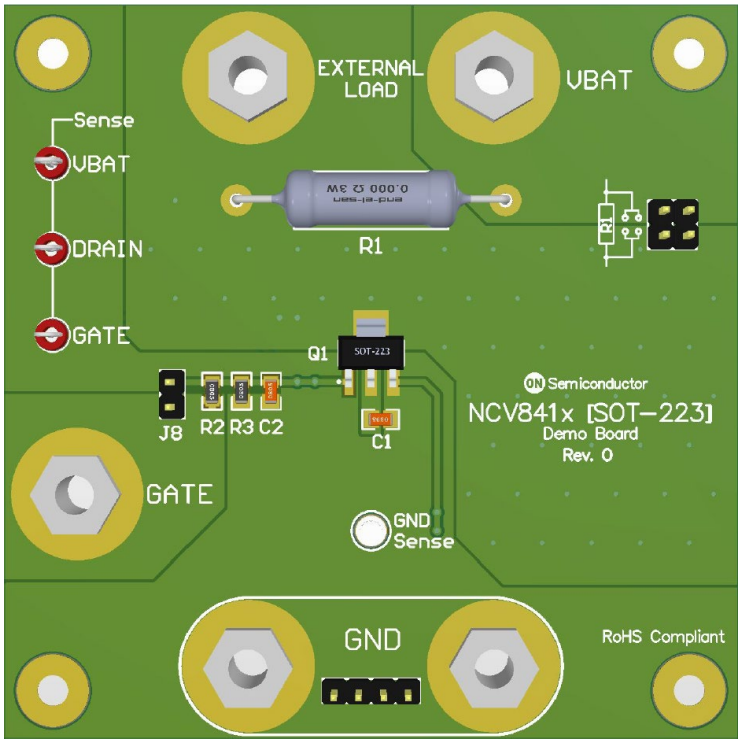

Figure 3. – Demo Board for the SOT-223 version

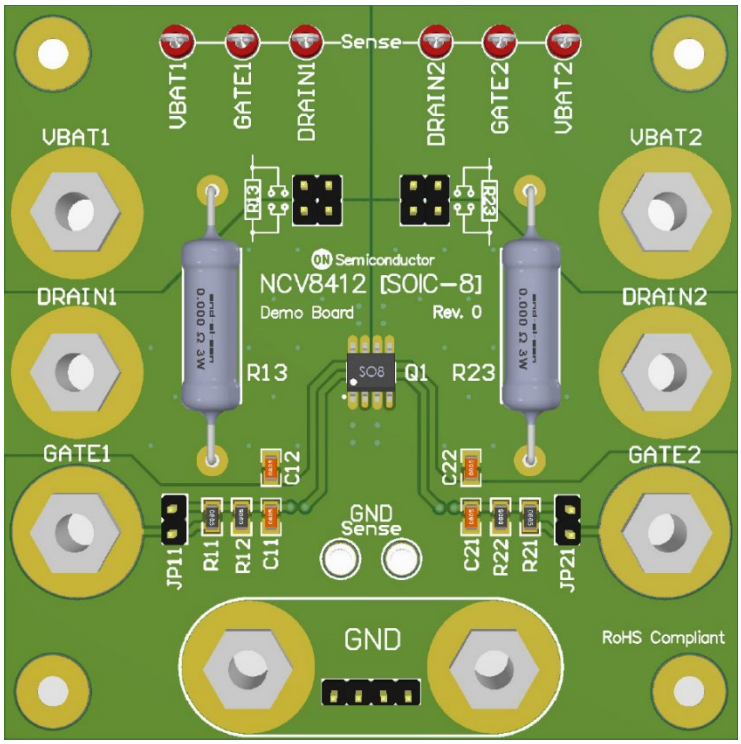

Figure 4. – Demo Board for the SOIC-8 Dual version