ON Semiconductor

# Test Procedure for the NV47711PDAJGEVB Evaluation Board

## Test Procedure:

1. Connect the test setup as is shown in **Figure 1**. See **Table 1** with required equipment.
   - Letter **F** – Force line
   - Letter **S** – Sense line

2. Select output current limit by connecting jumper **$J_5$ – $J_8$**.
   - **$J_5$** – $I_{LIM0}$ ~ 10 mA
   - **$J_6$** – $I_{LIM1}$ ~ 170 mA
   - **$J_7$** – $I_{LIM2}$ ~ 340 mA
   - **$J_8$** – $I_{LIM3}$ – $R_{CSO3}$ position available for individual current limit setting by resistor from range 728 Ω to 25.5 kΩ

3. Set Input Voltage and turn on Power Supply.

4. Enable chip by connecting external Voltage Source on jumper **$J_3$**. Output voltage must be higher than 2.31 V but **maximally 7 V**.

5. Set load current (max 350 mA) and turn on Load.

6. Monitor Output voltage, it's given according to Equation 1.

$$V_{out} = 1.275 \left(1 + \frac{R_1}{R_2}\right) \qquad \text{(eq. 1)}$$

7. Monitor CSO voltage on connector **$J_4$**. It should be max 2.55 V in steady state. The CSO voltage is proportional to output current according to Equation 2.

$$V_{CSO} = I_{out} \left(R_{CSO} \times \frac{1}{100}\right) \qquad \text{(eq. 2)}$$

8. Compare your results with measured results in **Table 2.**

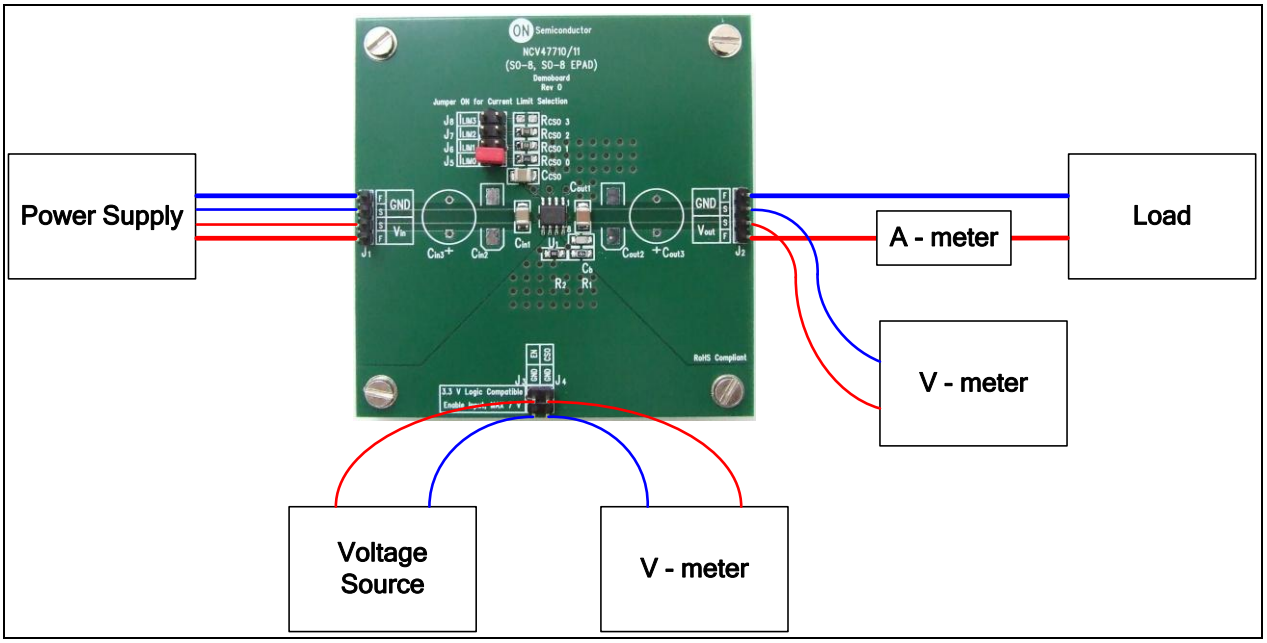



**Figure 1. Test Setup**

**Table 1: Required Equipment**

| Equipment | Ranges |
|---|---|
| Power Supply | 0 V – 45 V / 500 mA |
| Voltage Source | 0 V – 7 V |
| Load | 0 mA – 500 mA |
| V - meter | 0 V – 20 V |
| A - meter | 0 mA – 500 mA |

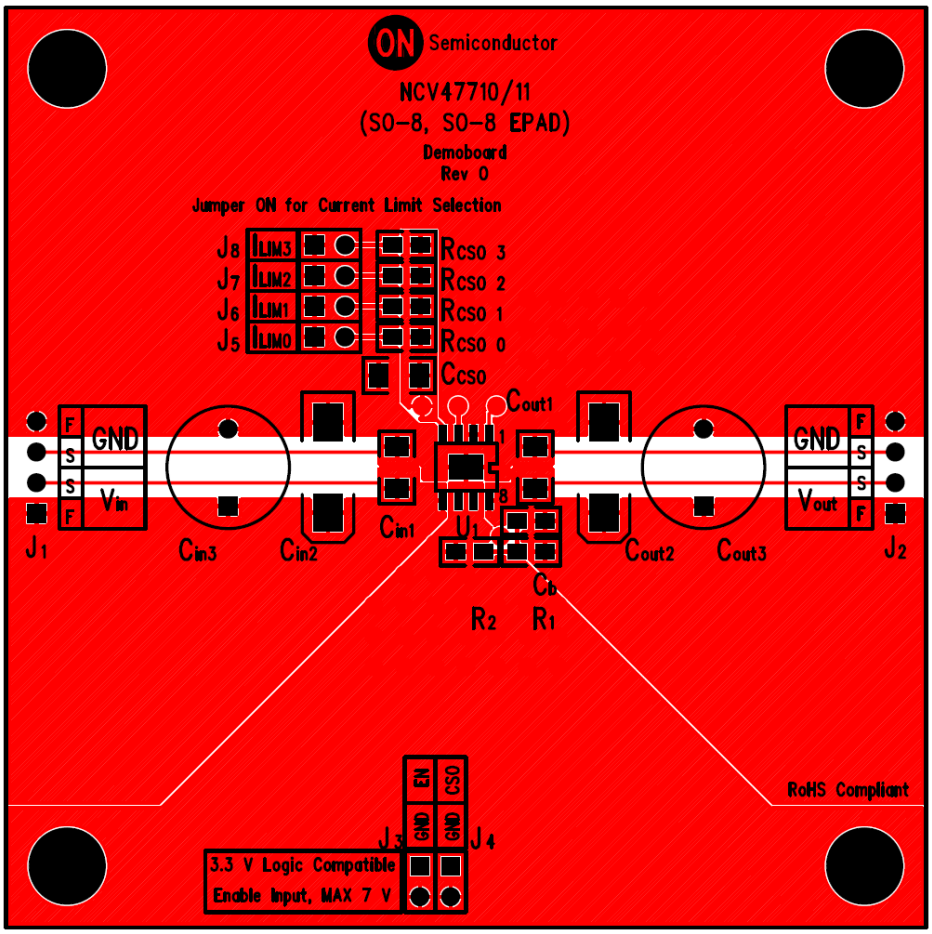



**Figure 2. PCB Layout**

**Table 2: Measured Results**

| Parameter | Test Conditions | Value | | Unit |
|---|---|---|---|---|
| | | Nominal | Measured | |
| Output Voltage | $V_{in}$ = 13.5 V, $V_{out_nom}$ = 5.02 V, $I_{out}$ = 5 mA, $R_{CSO}$ = Short to ground | 5.02 | 5.03 | V |
| | $V_{in}$ = 13.5 V, $V_{out_nom}$ = 5.02 V, $I_{out}$ = 350 mA, $R_{CSO}$ = Short to ground | 5.02 | 5.04 | |
| Output Current | $V_{in}$ = 13.5 V, $V_{out_nom}$ = 5.02 V, $V_{out}$ = 0 V, $R_{CSO}$ = 25.5 kΩ | 10 | 10.45 | mA |
| | $V_{in}$ = 13.5 V, $V_{out_nom}$ = 5.02 V, $V_{out}$ = 0 V, $R_{CSO}$ = 1.5 kΩ | 170 | 175.6 | |
| | $V_{in}$ = 13.5 V, $V_{out_nom}$ = 5.02 V, $V_{out}$ = 0 V, $R_{CSO}$ = 750 Ω | 340 | 353 | |