ON Semiconductor

Test Procedure for the NV47700PDAJGEVB 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 jumper **J_3** to Vin or by external Voltage Source.
   Output Voltage must be higher than 3.5 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.**

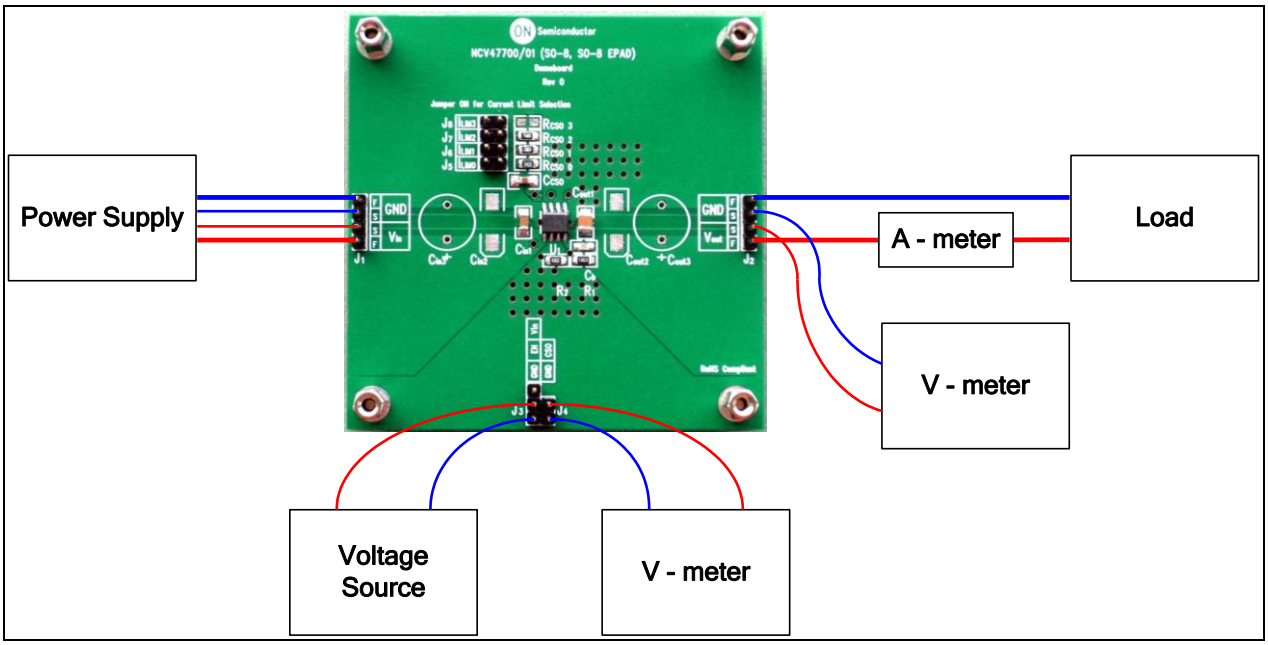


Figure 1. Test Setup

Table 1: Required Equipment

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

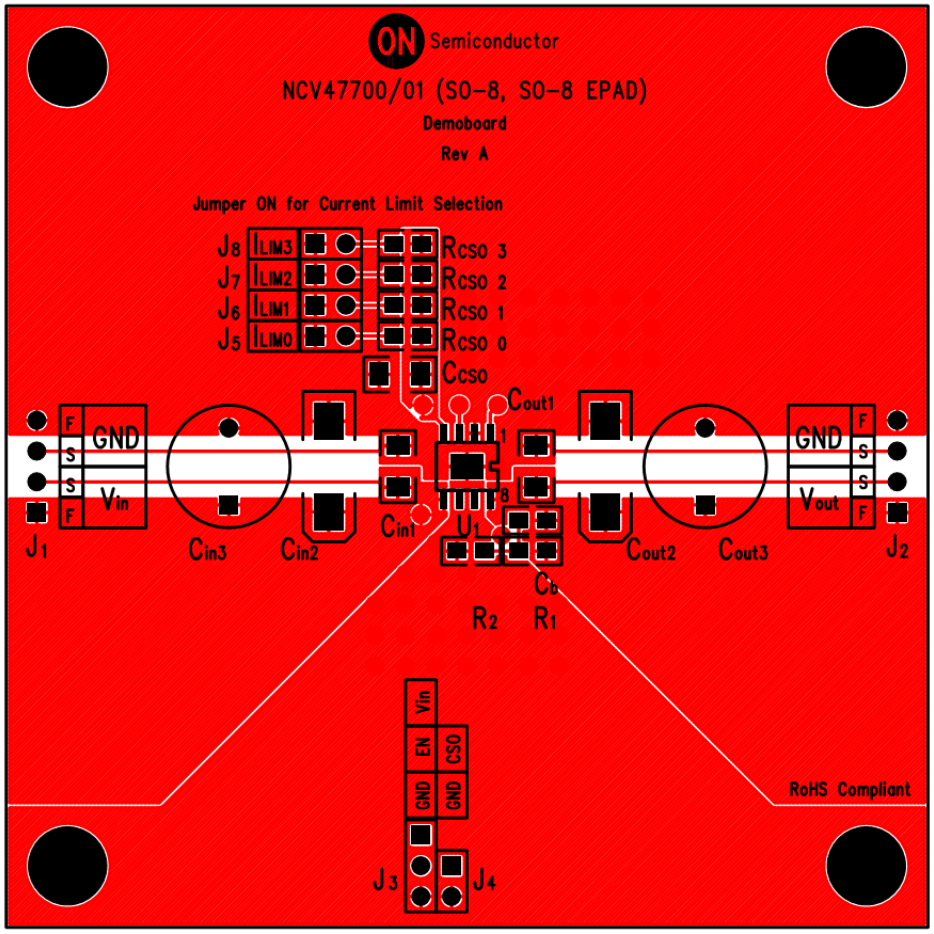


Figure 2. PCB Layout

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	