



Test Procedure for the NCV47551DAJGEVB Evaluation Board

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 **J₀ – J₃**.
 - **J₀** – $I_{LIM0} \sim 100 \mu A$
 - **J₁** – $I_{LIM1} \sim 10 \text{ mA}$
 - **J₂** – $I_{LIM2} \sim 20 \text{ mA}$
 - **J₃** – I_{LIM3} – R_{CSO3} position available for individual current limit setting by resistor from range 127.5Ω to $25.5 \text{ k}\Omega$
3. Set Input Voltage and turn on Power Supply.
4. Enable chip by connecting external Voltage Source on appropriate EN jumper. Enable voltage must be higher than 2.31 V .
5. Set load current (max 20 mA) and turn ON Load.
6. Monitor Output voltage, it's given according to Equation 1.

$$V_{out} = 1.265 \left(1 + \frac{R_1}{R_2} \right) \quad (\text{eq. 1})$$

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

$$V_{CSO} = I_{out} \times R_{CSO} \quad (\text{eq. 2})$$

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

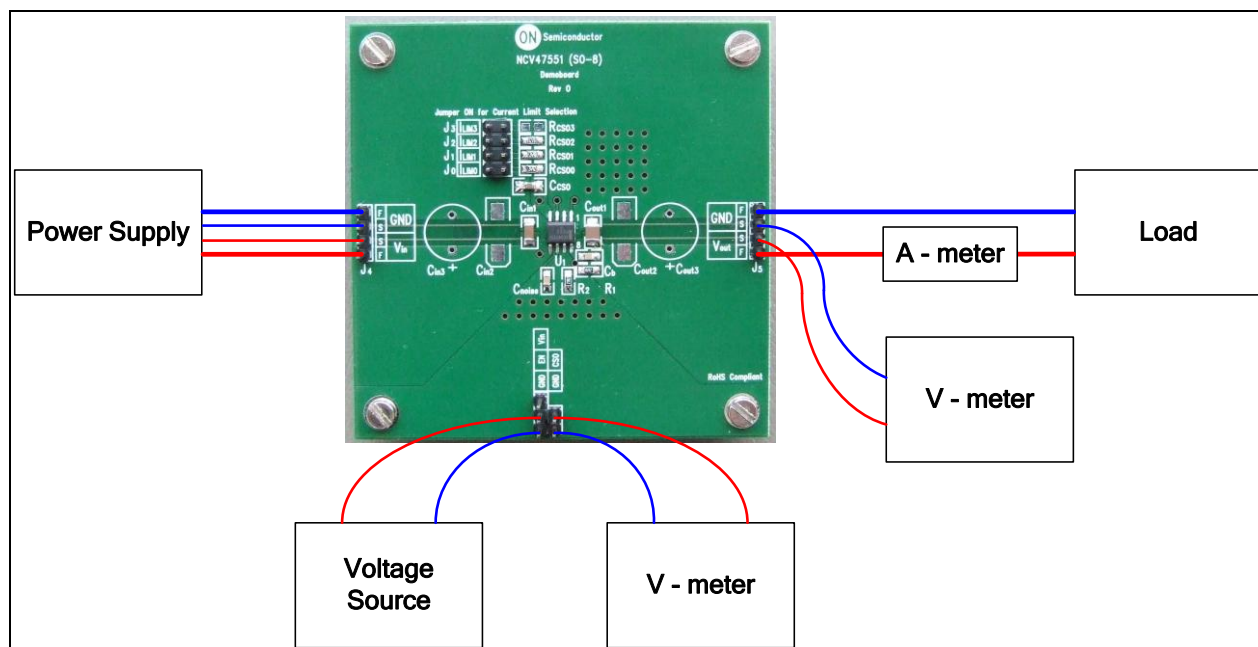


Figure 1. Test Setup

Table 1: Required Equipment

Equipment	Ranges
Power Supply	0 V – 45 V / 100 mA
Voltage Source	0 V – 45 V
Load	0 mA – 100 mA
V - meter	0 V – 20 V
A - meter	0 mA – 100 mA

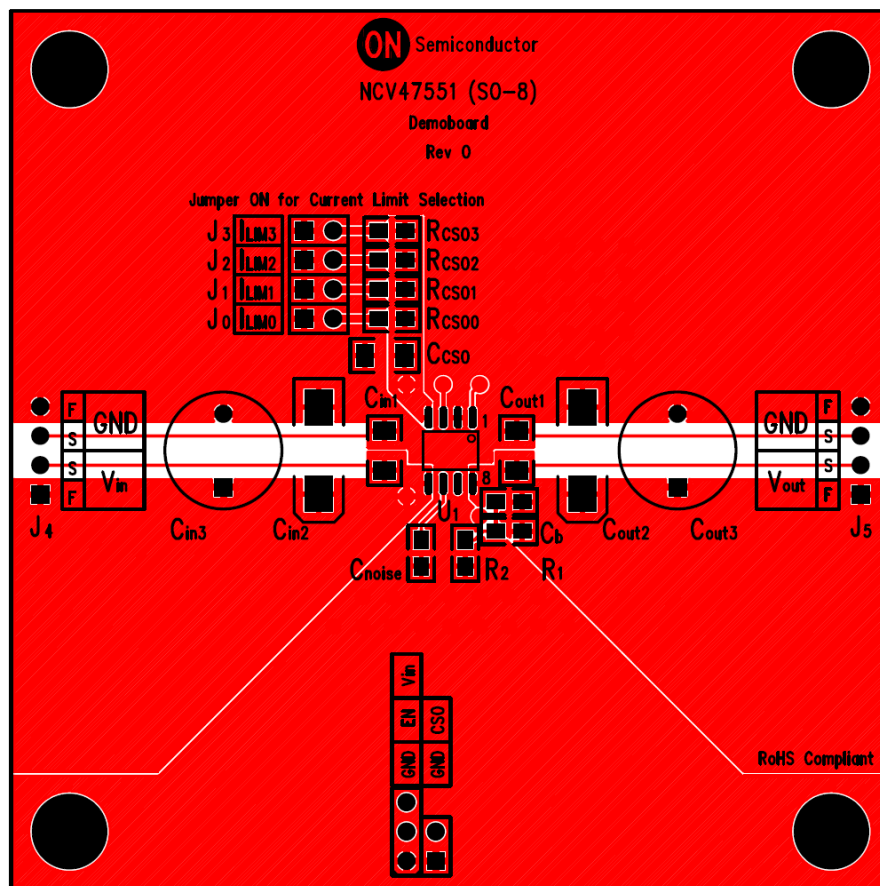


Figure 2. PCB Layout

Table 2: Measured Results

Parameter	Test Conditions	Value		Unit
		Nominal	Measured	
Output Voltage	$V_{in} = 13.5\text{ V}$, $V_{out_nom} = 5.1\text{ V}$, $I_{out} = 0.1\text{ mA}$, $R_{CS0} = \text{Short to ground}$	5.1	5.11	V
	$V_{in} = 13.5\text{ V}$, $V_{out_nom} = 5.1\text{ V}$, $I_{out} = 20\text{ mA}$, $R_{CS0} = \text{Short to ground}$	5.1	5.12	
Output Current	$V_{in} = 13.5\text{ V}$, $V_{out_nom} = 5.1\text{ V}$, $V_{out} = 0\text{ V}$, $R_{CS0} = 24.9\text{ k}\Omega$	0.102	0.11	mA
	$V_{in} = 13.5\text{ V}$, $V_{out_nom} = 5.1\text{ V}$, $V_{out} = 0\text{ V}$, $R_{CS0} = 249\text{ }\Omega$	10.2	10.6	
	$V_{in} = 13.5\text{ V}$, $V_{out_nom} = 5.1\text{ V}$, $V_{out} = 0\text{ V}$, $R_{CS0} = 127\text{ }\Omega$	20	20.8	
PSRR	$I_{out} = 1\text{ mA}$, $R_1 = 82\text{ k}\Omega$, $R_2 = 27\text{ k}\Omega$, $C_{in} = \text{none}$, $C_b = 10\text{ nF}$, $C_{noise} = 10\text{ nF}$, $f = 100\text{ Hz}$, 0.5 V_{p-p}	80	86.4	dB
	$I_{out} = 1\text{ mA}$, $R_1 = 82\text{ k}\Omega$, $R_2 = 27\text{ k}\Omega$, $C_{in} = \text{none}$, $C_b = 10\text{ nF}$, $C_{noise} = 10\text{ nF}$, $f = 1\text{ kHz}$, 0.5 V_{p-p}	70	89	