



Test Procedure for the NCV8842PWGEVB Evaluation Board

NCV8843 Demo Board Test Setup:

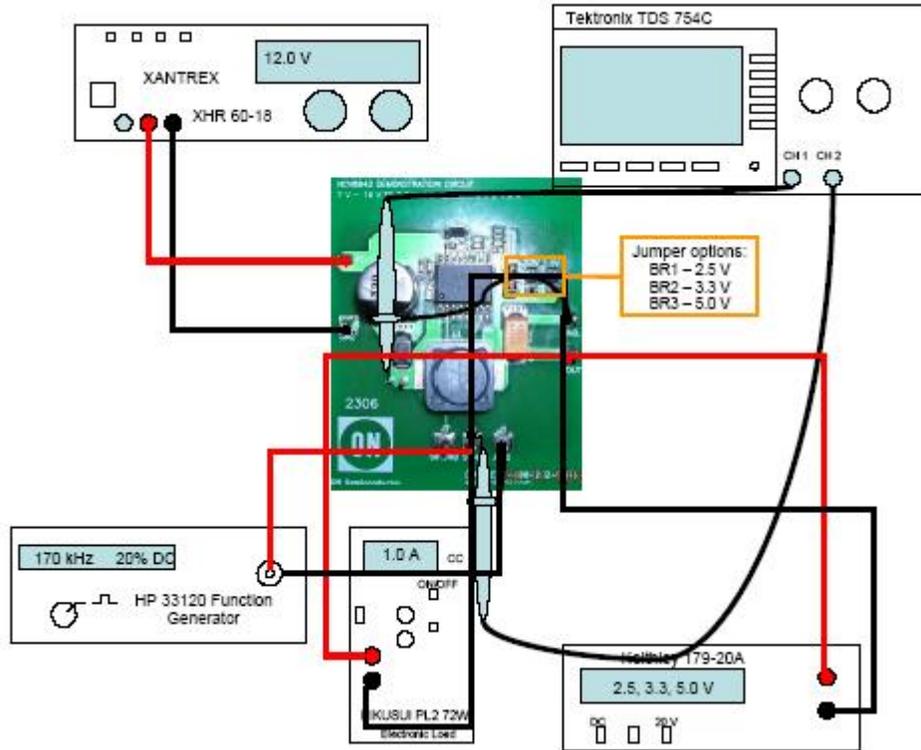


Figure 1: Test Setup

Equipment:

Required Equipment	
Equipment	Basic Specifications
Tektronix TDS 754C	Dual Channel Oscilloscope
Keithley 179-20A	DC Voltmeter 0.04% + 1 digit
HP 33120A Function Generator	193 – 237 kHz pulse at 20% duty cycle
XANTREX XHR 60-18 DC Power Supply	7 to 16 V @ 1A
KIKUSUI PL2 72 W Electronic Load	1.0 A load at 3.3 V input
NCV8842 Demo Board	7 – 16 V to 2.5-5.0 V @ 1.0 A Buck Regulator

Table 1: Showing equipment needed to perform test procedures

Pin Descriptions:

Connections	Description
J1, J5 and J8	GND
J2	Supply input (7 V to 16 V)
J3	Switch Node (SWN)
J4	Vout (2.5, 3.3 V, or 5.0 V)
J6	Sync Pin
J7	Shutdown (SHDNB) Pin



Test Procedure:

Normal Operation

1. Connect the test setup as shown in Figure 1, but with the function generator disconnected. Monitor switch node (SWN, J3) continuously for stability (no jitter).
2. Ensure BR2 jumper is closed to set V_{out} to 3.30 V.
3. Set the power supply (V_{in}) to 12.0 V.
4. Without load attached, look at SWN – the part will be in discontinuous conduction mode (DCM), as seen below:

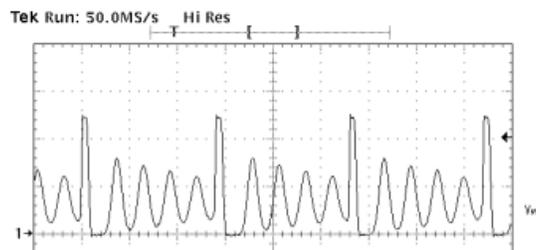


Figure 2: Switch-node in DCM

5. Verify that the output voltage (V_{out}) is within $\pm 4\%$ of nominal in DCM.
6. Adjust the electronic load (I_{out}) to draw a 300 mA load (to get out of DCM). With load attached, look at SWN – the part will be in continuous conduction mode (CCM), as seen below:

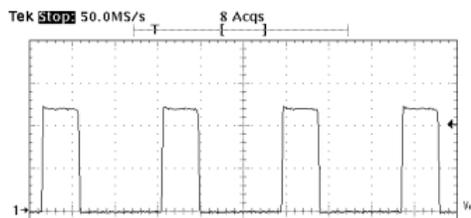


Figure 3: Switch-node in CCM

7. Verify that the output voltage (V_{out}) is within $\pm 4\%$ of nominal in CCM.
8. Measure the switching frequency via channel 1 (170.0 kHz $\pm 10\%$).
9. Set I_{out} to 1 A and vary V_{in} from 7.0 V to 16 V. Verify that V_{out} does not change more than approximately .02 % (typical line regulation).
10. Set V_{in} to 7.0 V and vary I_{out} from 300 mA to 1.0 A. Verify that V_{out} does not change more than approximately .15 % (typical load regulation).
11. Repeat Normal Operation, steps 3-8 for 2.50 V (BR1) and 5.00 V (BR3) options.

Shutdown mode

1. Short J7 (SHDNB) to J8 (GND).
2. Switching should stop and V_{out} should go to 0 V.
3. Remove short.
4. V_{out} should ramp up back into regulation.

Sync Function

1. Set the function generator 40 to 50 kHz higher than the switching frequency measured in step 7 of Normal Operation.
2. Disable the generator's output and connect it to sync (J6) and ground (J8) (see Figure 1).
3. While observing the oscilloscope's waveforms (CH1 and CH2), enable the function generator and verify that CH1 tracks CH2.