ON Semiconductor

Test Procedure for the NCV8843G Evaluation Board

NCV8843 Demo Board Test Setup:

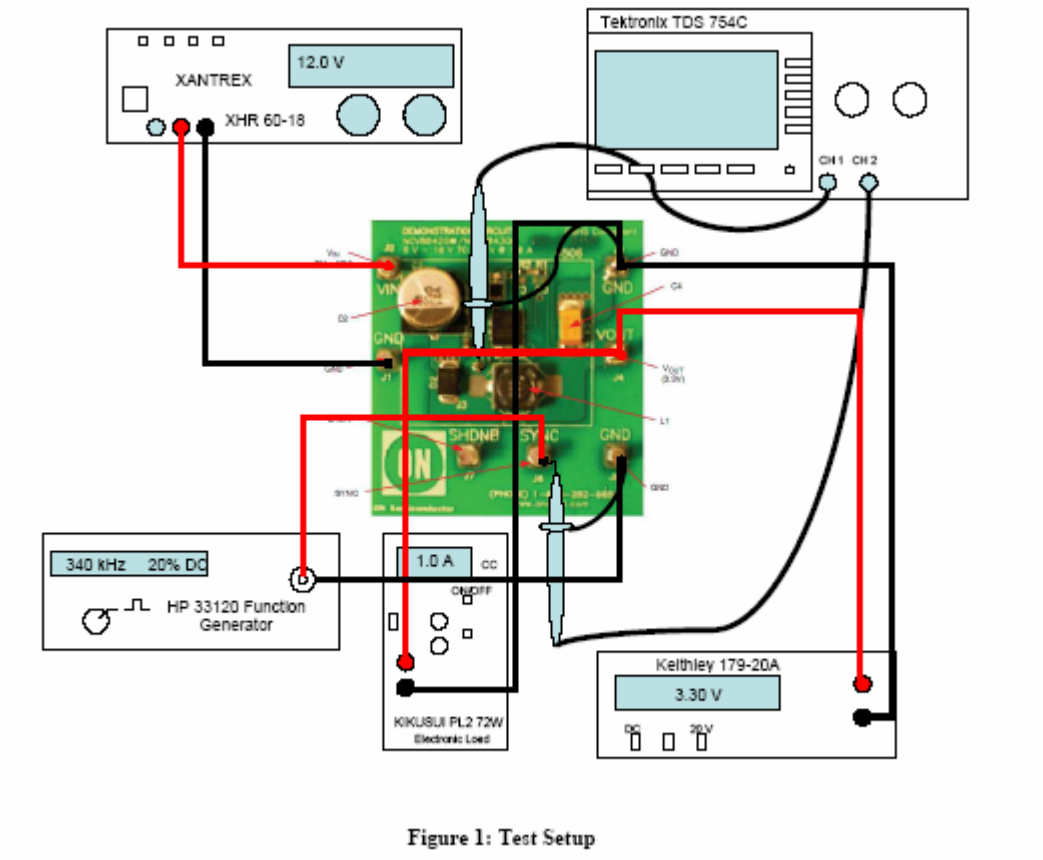

Figure 1: Test Setup

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	377 – 424 kHz pulse at 20% duty cycle
XANTREX XHR 60-18 DC Power Supply	6 to 16 V @ 1A
KIKUSUI PL2 72 W Electronic Load	1.0 A load at 3.3 V input
NCV8843 Demo Board	6 – 16 V to 3.3 V @ 1.0 A Buck Regulator

Table 1: Showing equipment needed to perform test procedures

Test Procedure:

Normal Operation

1. Connect the test setup as shown in Figure 1, but with the function generator disconnected.
2. Monitor switch node (SWN, left side of L1) continuously for stability (no jitter).
3. Set the power supply (Vin) to 12.0 V.
4. Without load attached, look at SWN – the part will be in discontinuous conduction mode
5. (DCM), as seen below:

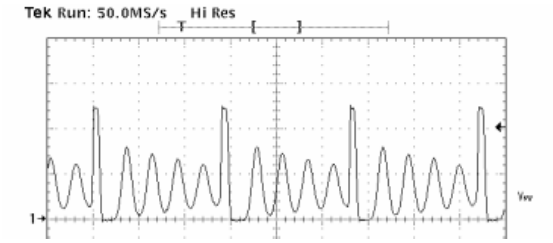

Figure 2: Switch-node in DCM

1. 4. Verify that the output voltage (Vout) is 3.30 V +/- 4% in DCM.
2. Adjust the electronic load (Iout) to draw a 100 mA load (to get out of DCM). With load
3. attached, look at SWN – the part will be in continuous conduction mode (CCM), as seen below:

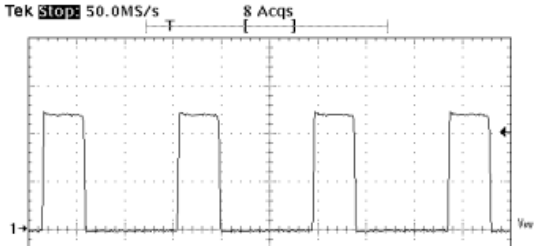

Figure 3: Switch-node in CCM

1. Verify that the output voltage (Vout) is 3.30 V +/- 4% in CCM.
2. Measure the switching frequency via channel 1 (340.0 kHz +/- 10%).
3. Set Iout to 1 A and vary Vin from 6.0 V to 16 V. Verify that Vout does not change more than
4. approximately .05 % (typical line regulation).
5. Set Vin to 7.0 V and vary Iout from 100 mA to 1.0 A. Verify that Vout does not change more
6. than approximately .06 % (typical load regulation).

Shutdown mode

1. Short J7 (SHDNB) to J8 (GND).
2. Switching should stop and Vout should go to 0 V.
3. Remove short.
4. Vout 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
2. of Normal Operation.
3. Disable the generator's output and connect it to J5 and ground (J8) (see Figure 1).
4. While observing the oscilloscope's waveforms (CH1 and CH2), enable the function generator
5. and verify that CH1 tracks CH2.