

NCV7680 Demo Board Test Procedure (Rev 2).

Setup

- 1) Make sure all 15 jumpers are connected on the board.
- 2) Move all 3 switches on the board to the left.
 - a. This turns the outputs off and connects the external ballast FET.
- 3) Connect a power supply (16V 1 Amp) to the STOP Input.

Functional Check

- 4) Toggle SW2 (Tail Input) to the right.
 - a. Verify all LEDs turn on.
- 5) Toggle SW3 (STOP Input) to the right.
 - a. Verify the intensity of all LEDs get brighter.

Measurements

- 6) Current Source operation (STOP Input) to the right.
 - a. Move all 3 switches to the left.
 - b. Remove Jumper J1.
 - c. Connect an ammeter between the posts of the jumper.
 - d. Toggle SW3 (STOP Input) to the right.
 - i. Verify the ammeter reading is between 33.25mA and 36.75mA.
- 7) VP Regulation
 - a. Toggle SW3 (STOP Input) back to the left.
 - b. Replace Jumper J1.
 - c. Toggle SW3 (STOP Input) to the right.
 - d. Measure the voltage on VP (SW1 to the left) with the ballast FET.
 - i. Confirm it is between 9.5V and 11.5V.
 - ii. **Confirm there is no oscillation using an oscilloscope!!**
 - e. Toggle SW1 to the Right.
 - i. Confirm VP is between 15V and 16V.
- 8) FB Voltage
 - a. Toggle SW1 to the left (with ballast FET).
 - i. Confirm the voltage on FB is between 0.95 and 1.05V.
- 9) Tail dc
 - a. Toggle SW2 (Tail Input) to the right.
 - b. Toggle SW3 (STOP Input) to the left.
 - i. Measure the duty cycle of the waveform on OUT8 using either a voltage probe or current probe. Waveform should have relatively square edges, and minimal under/overshoot.
 1. Confirm the duty cycle is between 10% and 15%.
- 10) DIAG
 - a. Toggle SW3 (STOP Input) to the right.
 - i. Remove Jumper J1.
 1. Confirm DIAG goes from low to high.
- 11) Quiescent Current.
 - a. Replace Jumper J1.
 - b. Remove Jumper J15.
 - c. Connect an ammeter between the posts of the jumper.
 - d. Toggle SW3 (STOP Input) to the right.
 - i. Measure the current through the meter.
 - e. Toggle SW3 (STOP Input) to the left.
 - f. Toggle SW2 (Tail Input) to the right.
 - i. Measure the current through the meter.
 1. Confirm $I_q < 10\text{mA}$.

High Voltage Operation

- 12) Visual Inspection.
 - a. Go through steps 1, 2, and 3 above to properly setup the board using 28V for the STOP Input.
 - b. Toggle SW1 to the right (disconnecting ballast FET).
 - c. Toggle SW3 (STOP Input) to the right.
 - i. Verify the LED's do not turn off (thermal shutdown) for a period of 20 minutes. Note – there will be a reduction in output current. Inspection is for devices which turn off.