



Demonstration Note for NCP2991 - 1.35 Watt Audio Power Amplifier with Selectable Fast Turn On Time

DEMONSTRATION NOTE

Goal of Document

The purpose of the document is to explain how to use the NCP2991 demoboard usermanual.

Applicable & Reference Documents

NCP2991/D: NCP2991 Datasheet

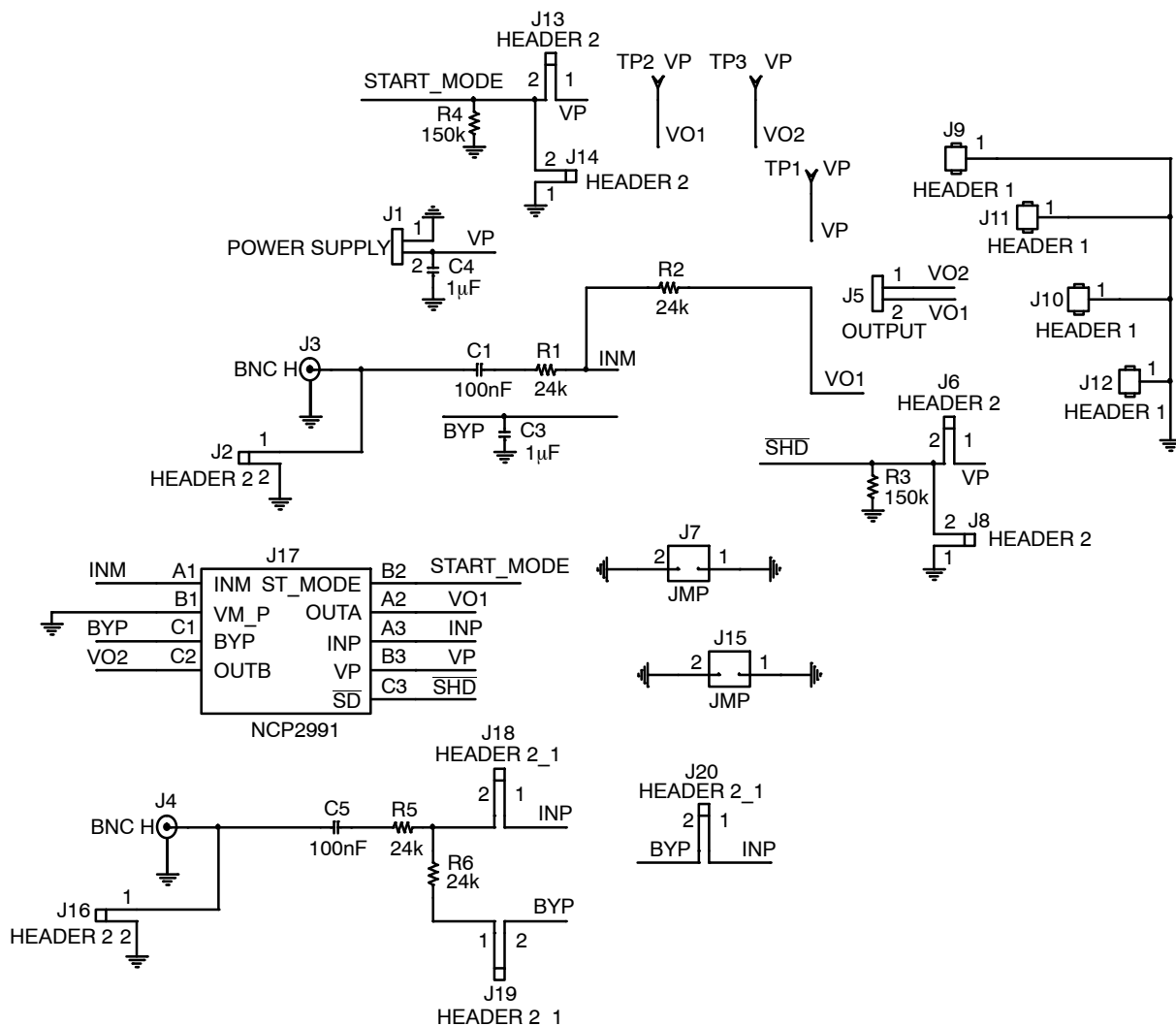


Figure 1. Demoboard Schematic

NCP2991DEMO/D

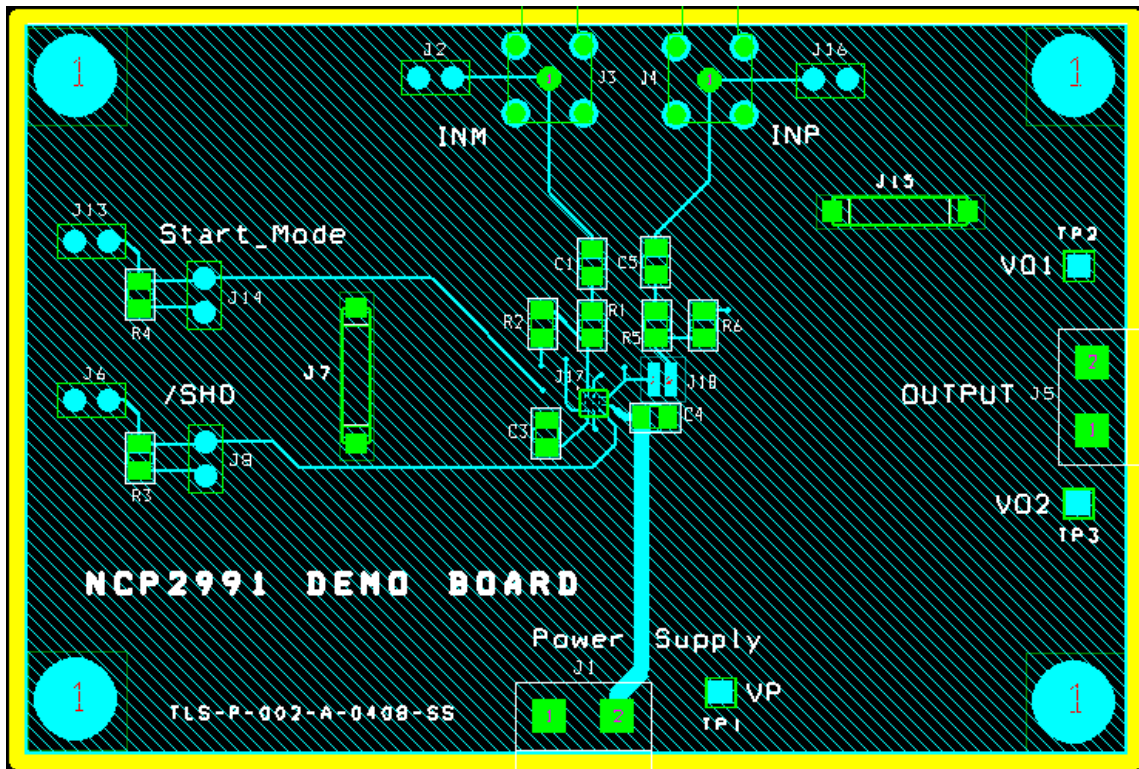


Figure 2. Demoboard Layout – Top View

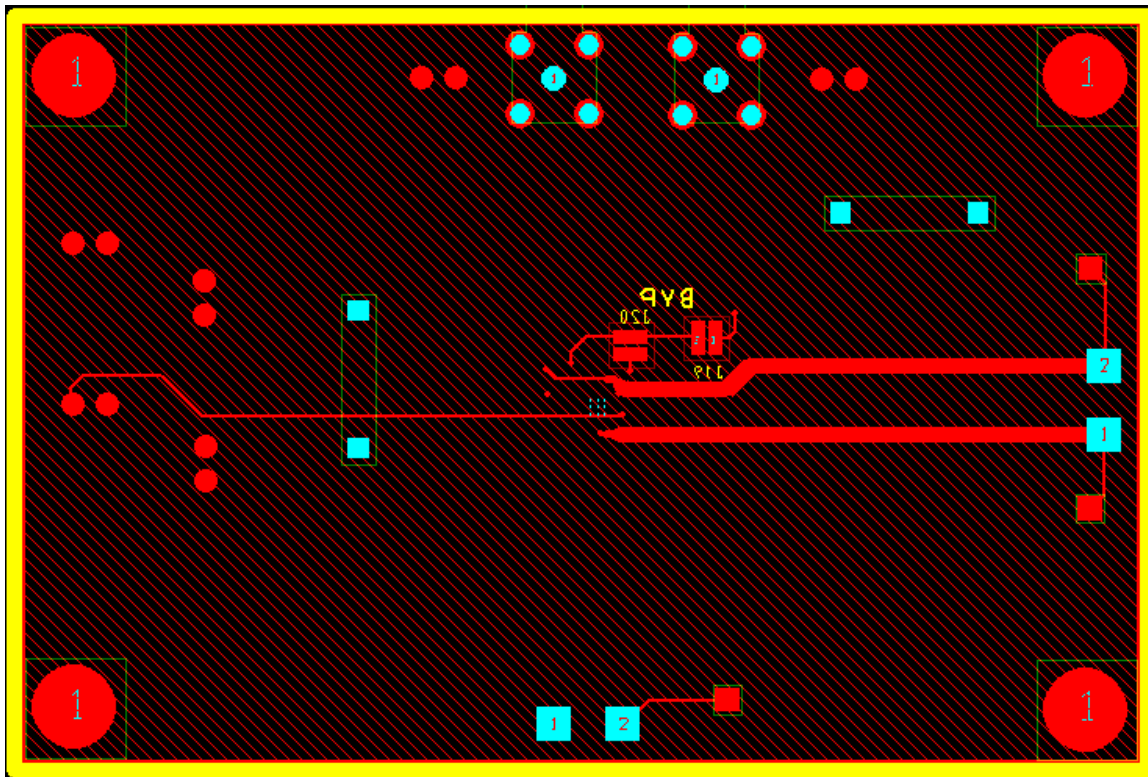


Figure 3. Demoboard Layout – Bottom View

NCP2991DEMO/D

Table 1. Bill of Materials

| Item | Part Description | Ref. | PCB Footprint | Manufacturer | Manufacturer Reference |
|------|---|---------------------------|---------------|------------------------|------------------------|
| 1 | NCP2991 Audio Amplifier | | | ON Semiconductor | NCP2991 |
| 2 | SMD Resistor 24 K Ω | R1, R2, R5, R6 | 0805 | Panasonic | ERJ6GEY203V |
| 3 | SMD Resistor 150 K Ω | R3, R4 | 0805 | Panasonic | ERJ6GEY203V |
| 4 | Ceramic Capacitor 100 nF 16 V X5R | C1, C5 | 0805 | Murata | GRM21BR71E104KA01 |
| 5 | Ceramic Capacitor 1 μ F 16 V X5R | C3, C4 | 0805 | Murata | GRM216R61C105KA88 |
| 6 | Jumper Header Vertical Mount, 2 positions, 100 mils | J2, J6, J8, J13, J14, J16 | 100 mils | Tyco Electronics / AMP | 58266290 |
| 7 | I/O Connector, 2 positions | J1, J5 | 200 mils | Phoenix Contact | 1757242 |
| 8 | Jumper Connector | J7, J15 | 400 mils | Harwin | D3082B01 |
| 9 | Not Mounted | J3, J4 | | | |

Single-ended or Differential Configuration

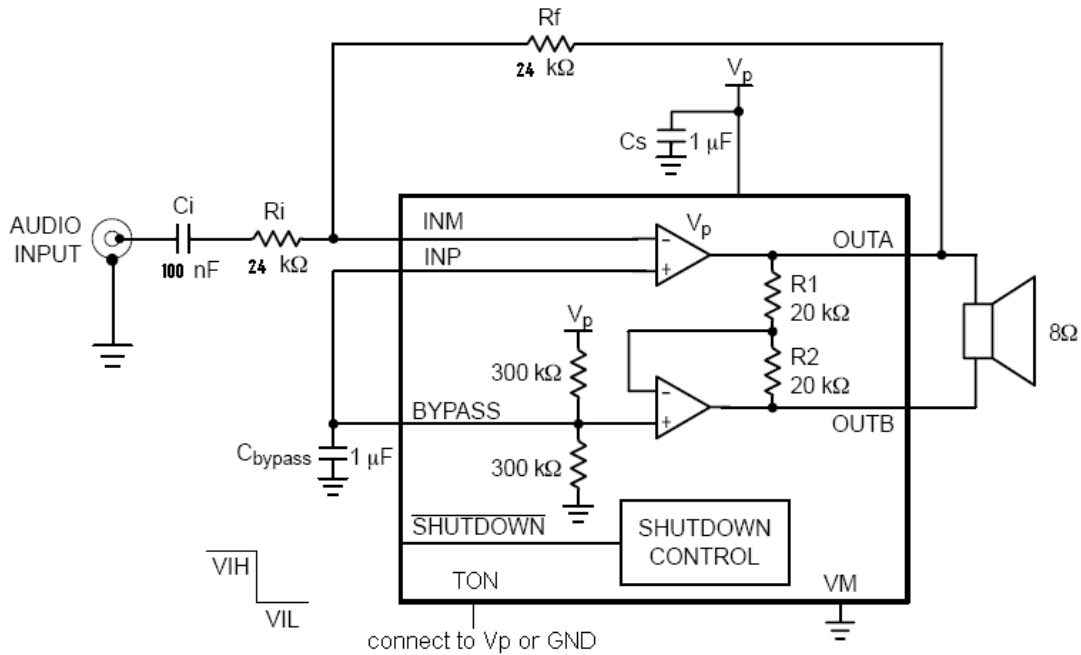


Figure 4. Single-ended Configuration

Connect J20, disconnect J18 and J19 to use the demoboard in Singleended configuration.

NCP2991DEMO/D

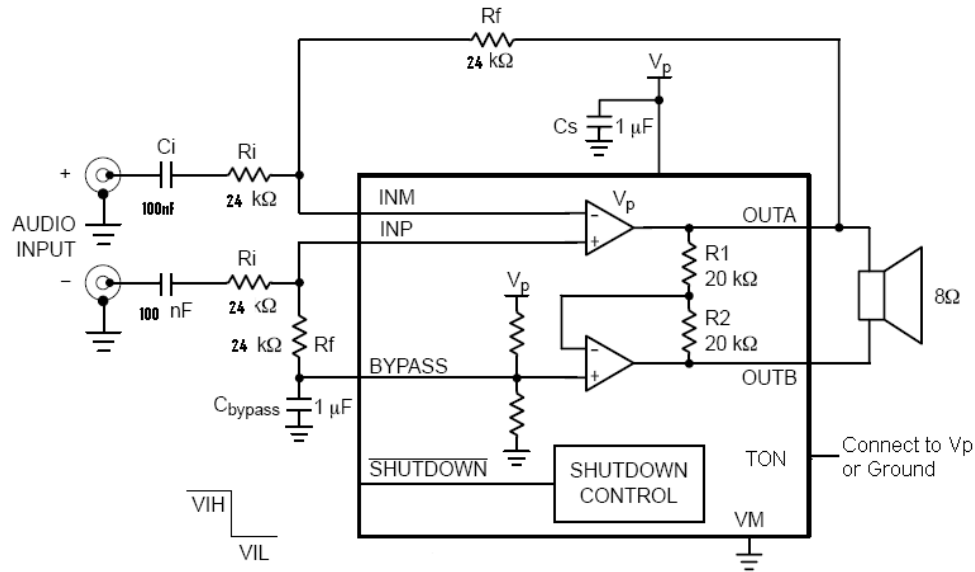


Figure 5. Differential Configuration

Connect J18 and J19, disconnect J20 to use the demoboard in Differential configuration.

Test Procedure


Output Power:

1. Set $V_p = 5\text{ V}$ to power supply connector (J1).
2. Set an $8\ \Omega$ load (resistance) on the output connector (J5).
3. With the function generator, set a single ended signal at 1 kHz and 0.5 Vrms input signal on the negative input. Apply this signal either on J2 or J3 connector. As $R_1 = R_2 = 24\text{ k}$, VO1 will see 0.5 Vrms . As VO1 signal is inverted by the second amplifier, VO2 will also see 0.5 Vrms with 180° delay. Thus, the load between VO1 and VO2 will see 1 Vrms .

4. Place 2 oscilloscope probes on the output (differential measurement). You should get 1 Vrms output signal with a "perfect sine wave". That is to say no clipping at the minima and maxima of the sine wave.

Quiescent Current:

Check the quiescent current. Place an $8\ \Omega$ load, no input signal. V_p set to 5 V and J6 closed. You should measure around 1.9 mA .

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