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# NCP2811ADTBRGEVB

## NCP2811ADTBR Evaluation Board User's Manual



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### Description

NCP2811 is a dual audio power amplifier designed for portable communication device applications such as mobile phones. This board showcases the A version of this part in the TSSOP-14 package. This part is capable of delivering 27 mW of continuous average power into a 16  $\Omega$  load from a 2.7 V power supply with a THD+N of 1%.

Based on the power supply delivered to the device, an internal power management block generates a symmetrical positive and negative voltage. Thus, the internal amplifiers provide outputs referenced to Ground. In this True Ground configuration, the two external heavy coupling capacitors can be removed. It offers significant space and cost savings compared to a typical stereo application.

### EVAL BOARD USER'S MANUAL

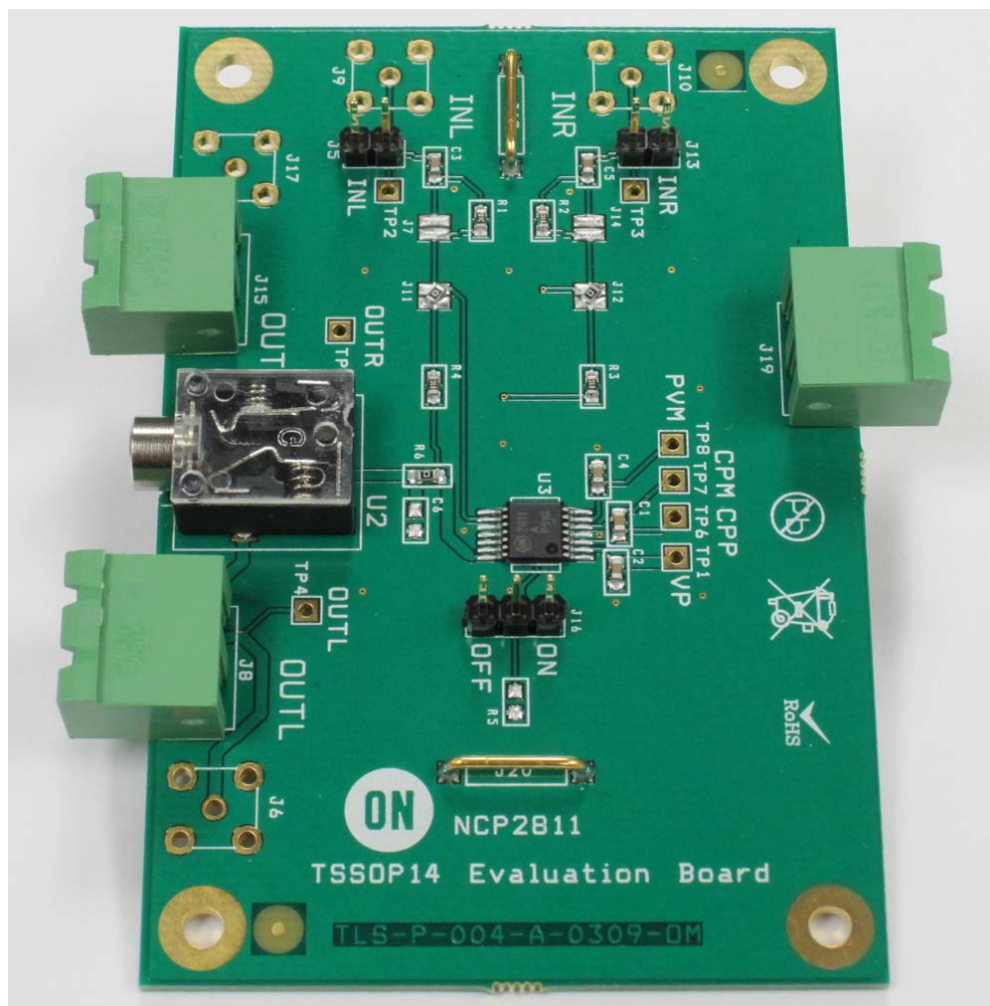


Figure 1. NCP2811ADTBRGEVB Board Picture

# NCP2811ADTBARGEVB

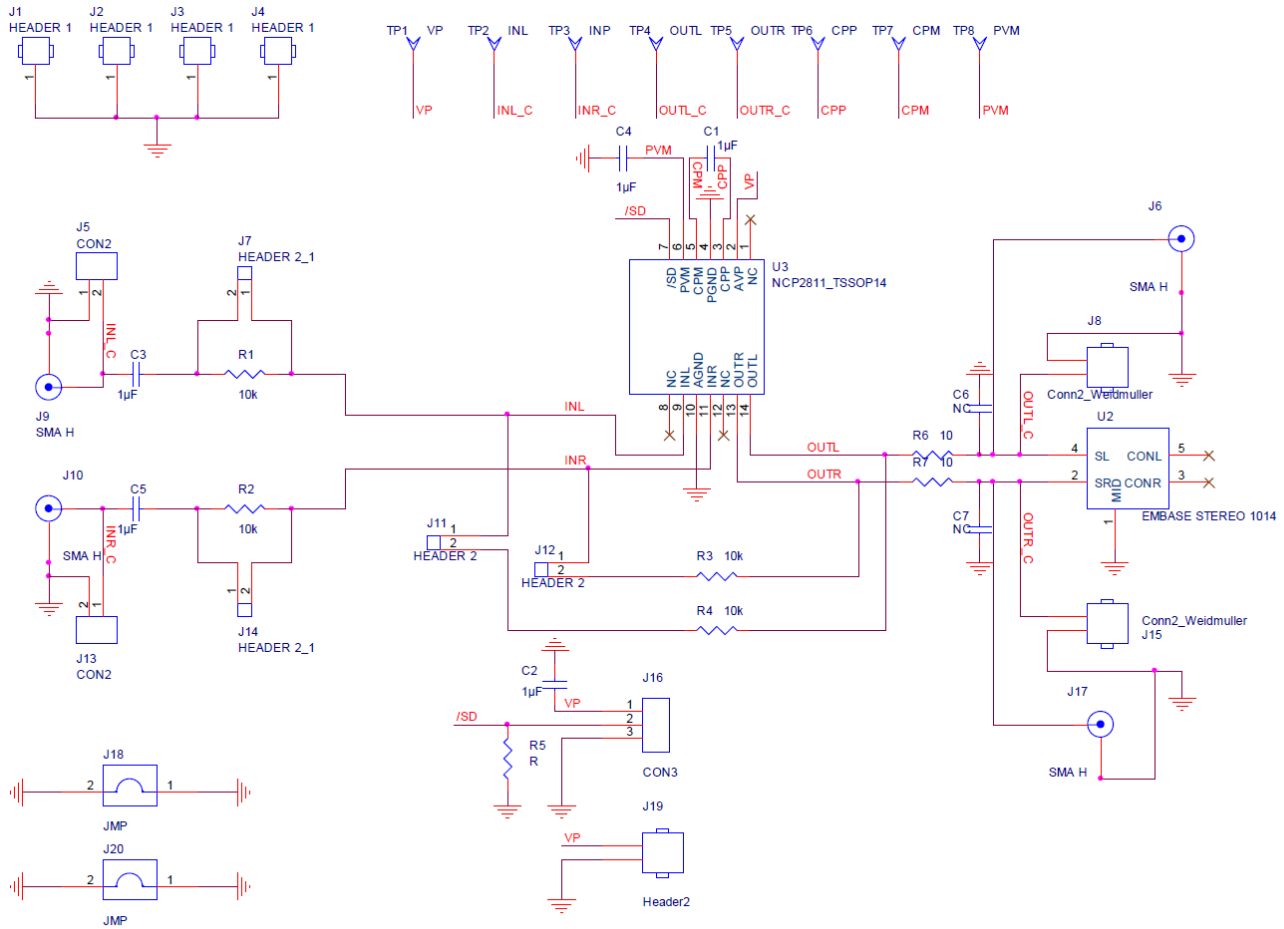


Figure 2. NCP2811ADTBARGEVB Board Schematic

# NCP2811ADTBGEVB

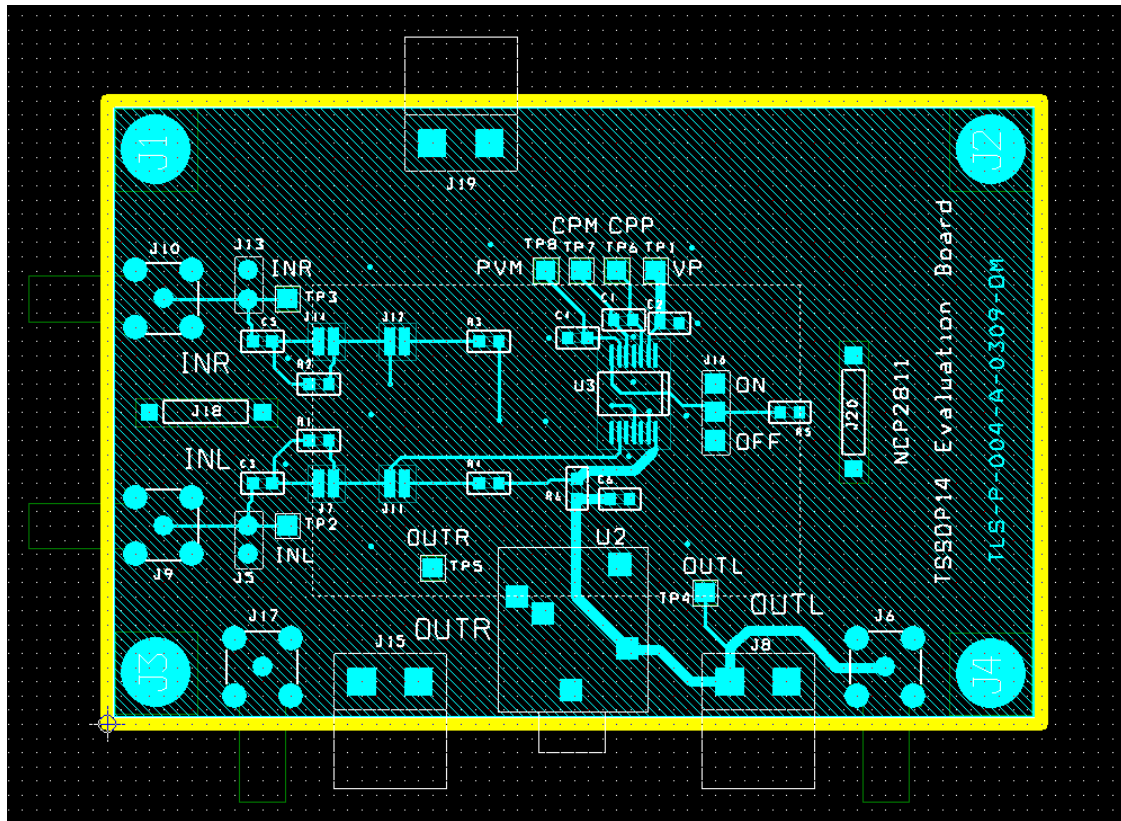


Figure 3. NCP2811ADTBGEVB Board Layout (Top View)

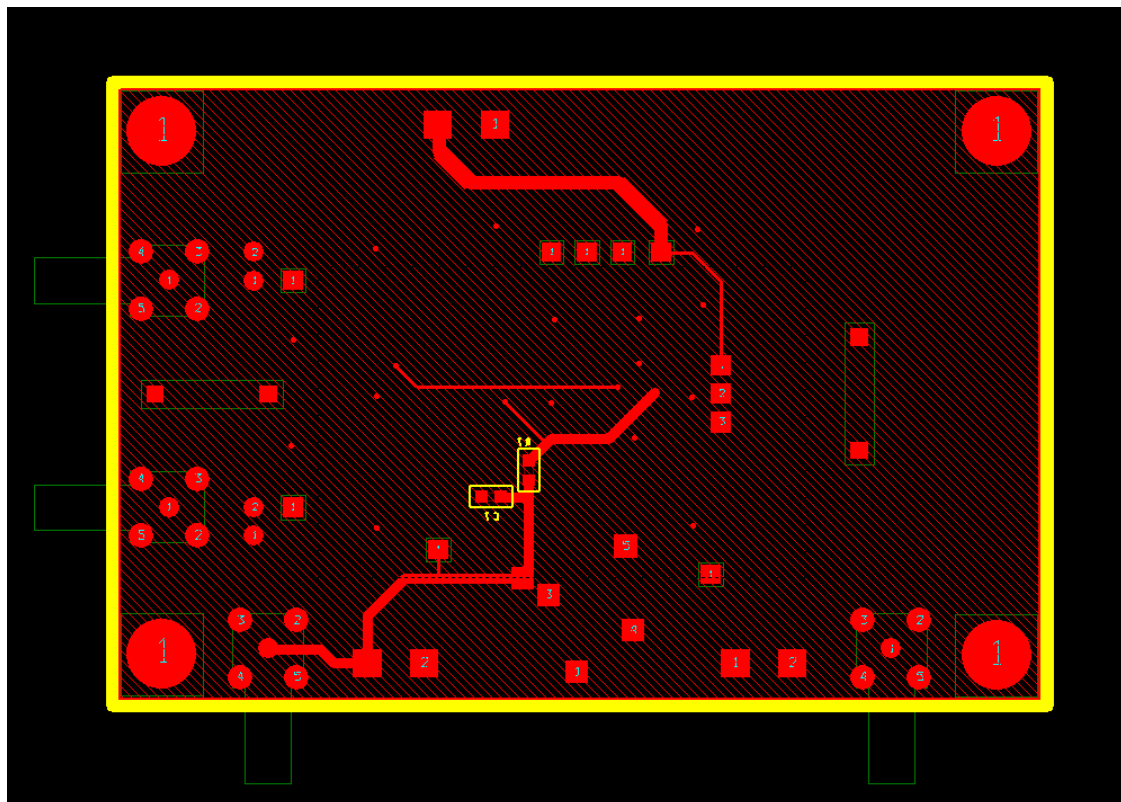


Figure 4. NCP2811ADTBGEVB Board Layout (Bottom View)

# NCP2811ADTBARGEVB

**Table 1. BILL OF MATERIALS**

| Item | Part Description                                   | Ref.                         | PCB Footprint | Manufacturer           | Manufacturer Reference |
|------|----------------------------------------------------|------------------------------|---------------|------------------------|------------------------|
| 1    | NCP2811 Audio Amplifier                            |                              |               | ON Semiconductor       | NCP2811                |
| 2    | SMD Resistor 10K $\Omega$                          | R1, R2, R3, R4               | 0603          | Panasonic              | ERJ-3GEY103V           |
| 3    | Ceramic Capacitor 1 $\mu$ F 6.3V X5R               | C1, C2, C3, C4, C5           | 0603          | Murata                 | GRM185R60J105KA01      |
| 4    | Stereo Connector                                   | U2                           |               | CUI Inc.               | SJ1-3515N              |
| 5    | Jumper Header Vertical Mount, 2 positions, 100mils | J16                          | 100 mils      | Tyco Electronics / AMP | 5-826629-0             |
| 6    | I/O Connector, 2 positions                         | J8, J19, J15                 | 200 mils      | Phoenix Contact        | 1757242                |
| 7    | Jumper Connector                                   | J18, J20                     | 400 mils      | Harwin                 | D3082-B01              |
| 8    | Not Mounted                                        | R5, J9, J10, J6, J17, C6, C7 |               |                        |                        |
| 9    | Shorted                                            | R6, R7                       | 0603          |                        |                        |

## NCP2811A OR NCP2811B CONFIGURATION

### V.1 NCP2811A

Connect J11, J12. Put 10kohms on R1, R2, R3, R4. Disconnect J7, J14.

### V.1 NCP2811B

Connect J7, J14. Disconnect J11, J12, R1, R2, R3, R4.

## NCP2811 TEST PROCEDURE

### Output Power:

1. Set  $V_p = 3.6$  V to power supply connector (J19).
2. Set a 16  $\Omega$  load (resistance) on each of the output connectors (J8 and J15).
3. Close the J16 connector (ON position).
4. With the function generator, set a single ended signal at 1 kHz and 0.5 Vrms. Apply each end of this signal to the positive sides of the J5 and J13 connectors.
  - a. On the NCP2811A, as  $R1 = R2 = R3 = R4 = 10k$ , OUTL\_C and OUTR\_C will see 0.5 Vrms. Place an oscilloscope probe on each output. You should get 0.5 Vrms output signal with a sine wave with no clipping.
  - b. On the NCP2811B, the gain is internally set to -1.5 V/V, OUTL\_C and OUTR\_C will see 0.75 Vrms. Place an oscilloscope probe on each output. You should get 0.75 Vrms output signal with a sine wave with no clipping.

### Quiescent Current:

Check the quiescent current. Place a 16  $\Omega$  load on each output (J8, J15); no input signal.  $V_p$  set to 3.6 V and J16 closed (ON position). You should measure around 6 mA for the input current.

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