NCP2811BDTBRGEVB

NCP2811BDTBR Evaluation Board User's Manual

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EVAL BOARD USER'S MANUAL

Description

NCP2811 is a dual audio power amplifier designed for portable communication device applications such as mobile phones. This board showcases the B version NCP2811 in the TSSOP-14 package. This part is capable of delivering 27 mW of continuous average power into a 16 Ω 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.

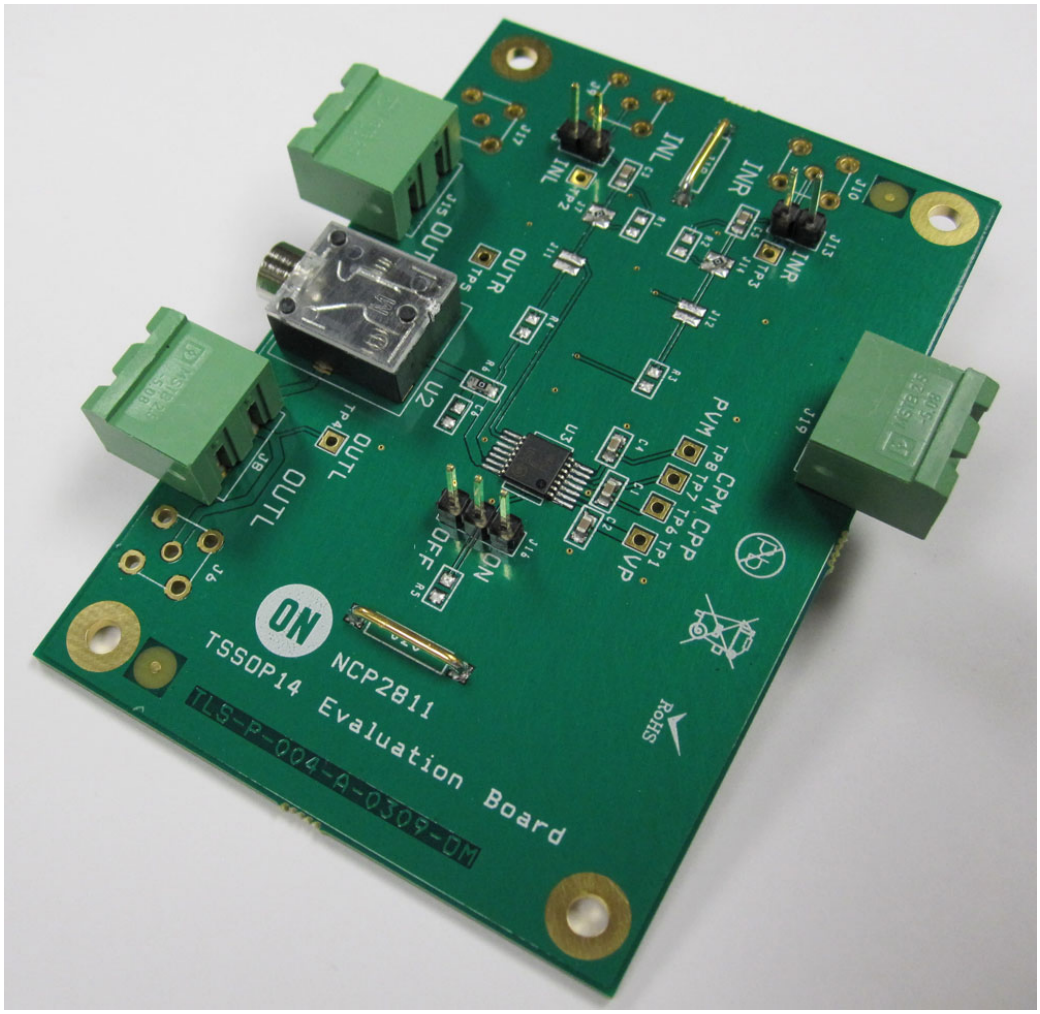


Figure 1. NCP2811BDTBRGEVB Board Picture

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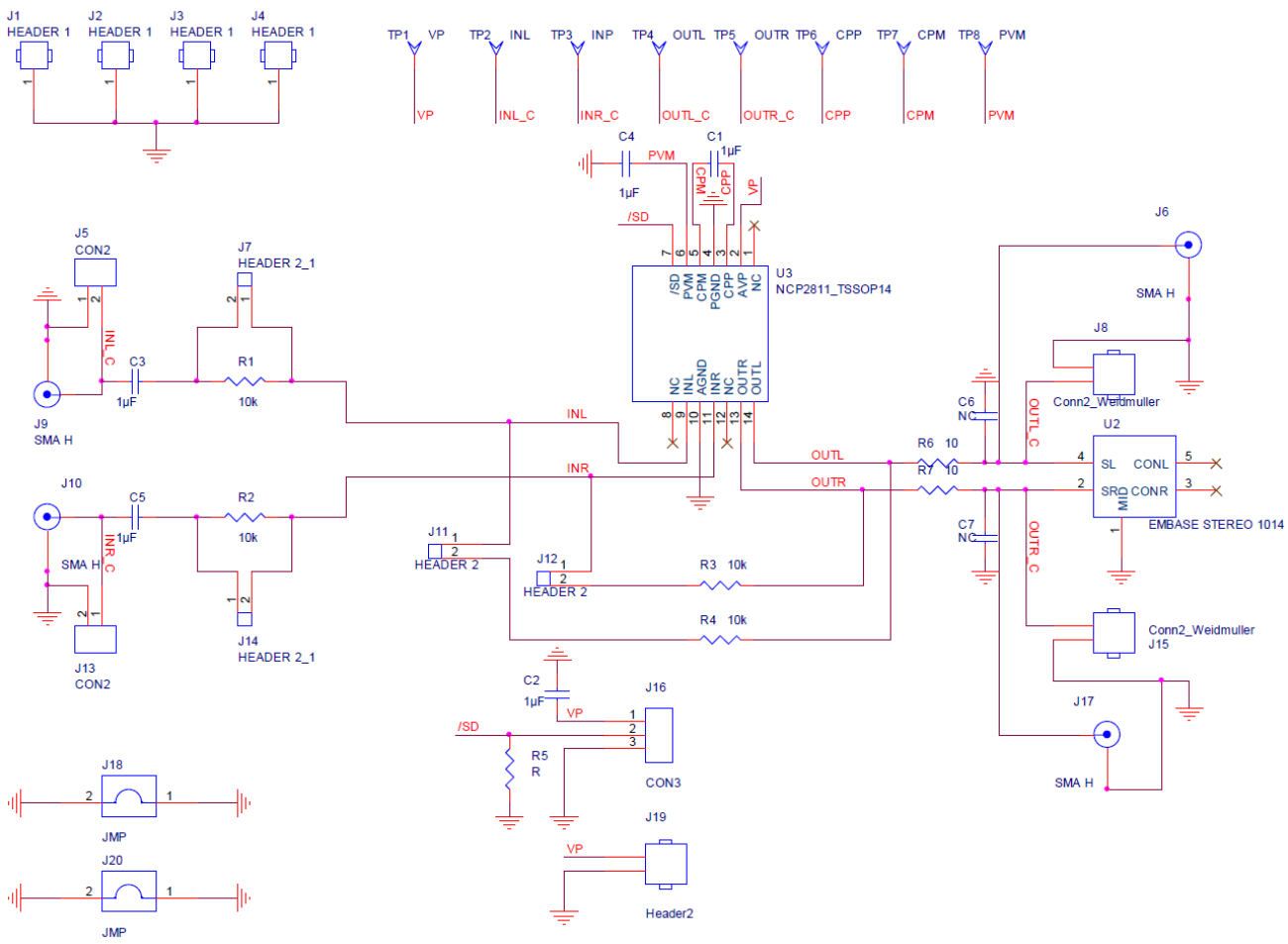


Figure 2. NCP2811BDTBRGEVB Board Schematic

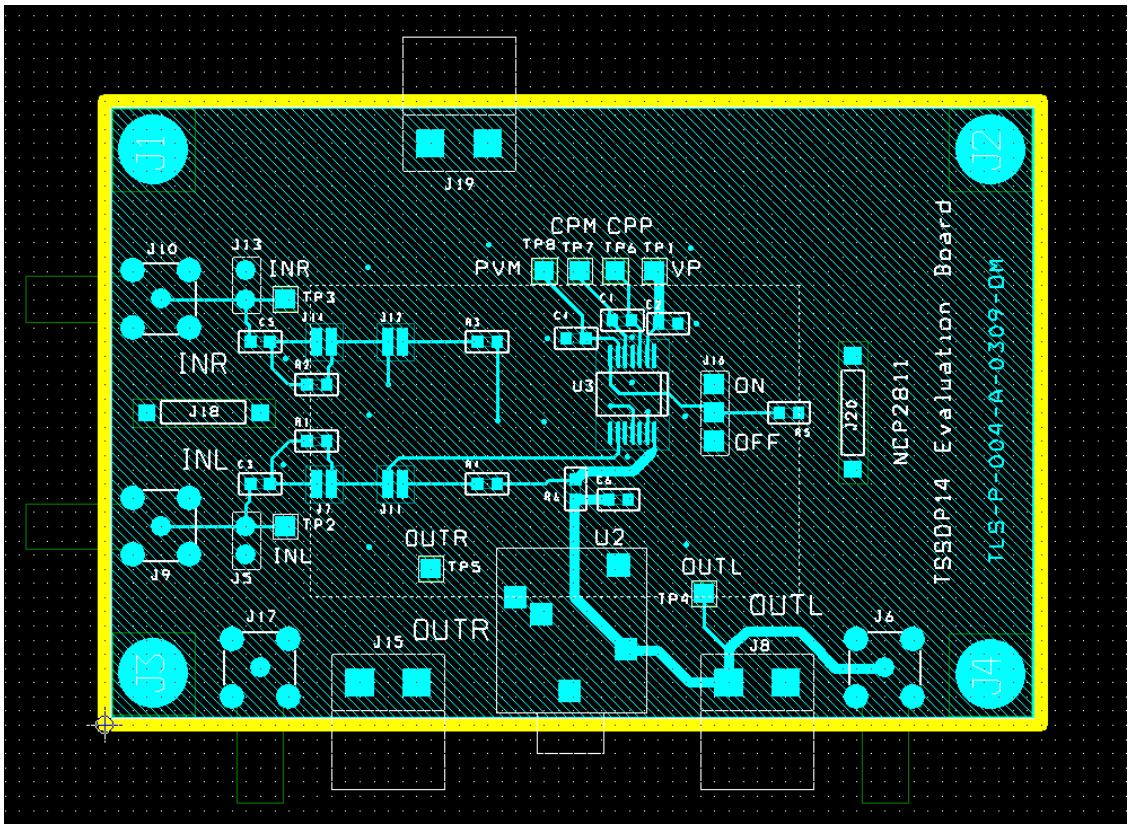


Figure 3. NCP2811BDTBRGEVB Board Layout (Top View)

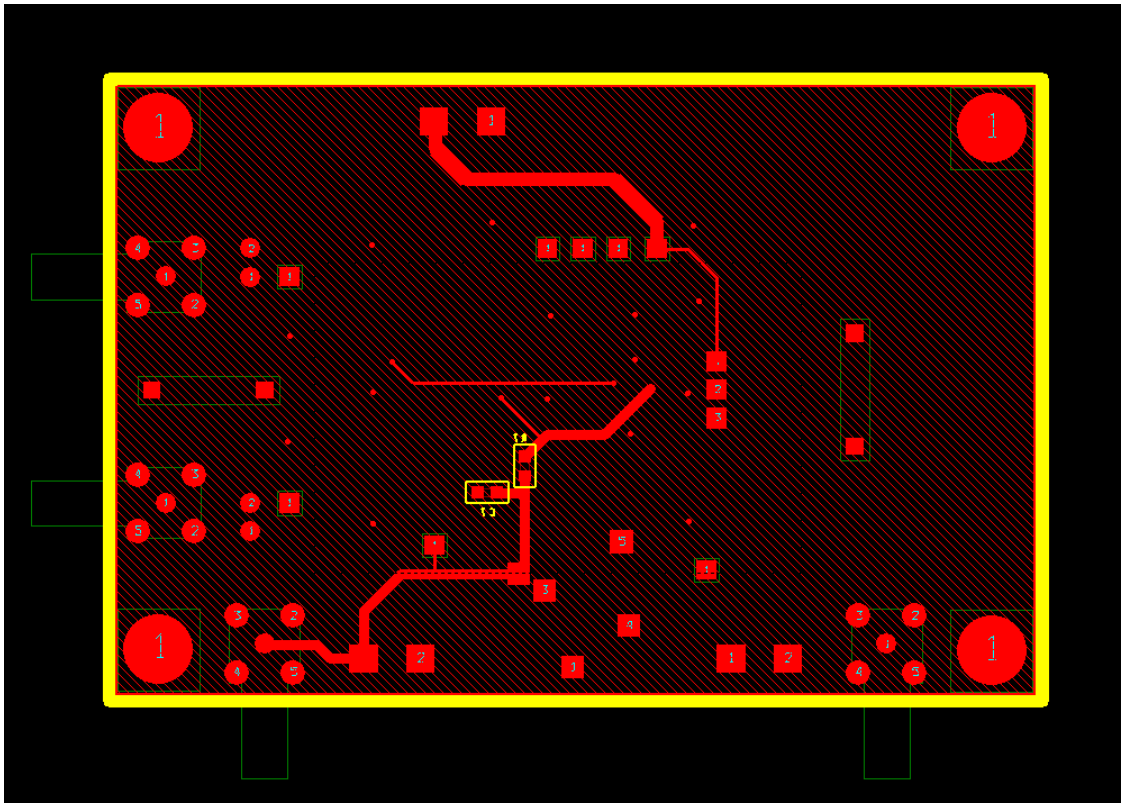


Figure 4. NCP2811BDTBRGEVB Board Layout (Bottom View)

Table 1. BILL OF MATERIALS

Item	Part Description	Ref.	PCB Footprint	Manufacturer	Manufacturer Reference
1	NCP2811 Audio Amplifier			ON Semiconductor	NCP2811
2	SMD Resistor 10KΩ	R1, R2, R3, R4	0603	Panasonic	ERJ−3GEY103V
3	Ceramic Capacitor 1 μF 6.3 V 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 Vp = 3.6 V to power supply connector (J16).
2. Set an 16 Ω load (resistance) on the output connectors (J8 and J17).
3. With the function generator, set a single ended signal at 1 kHz and 0.5 Vrms input signal on the left and right inputs. Apply this signal 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 “perfect sine wave”. That is to say no clipping at the minima and maxima of the sine wave.
   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 “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 16 Ω load on each output (J8, J17); no input signal. Vp set to 3.6 V and J6 closed. You should measure around 6 mA.

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