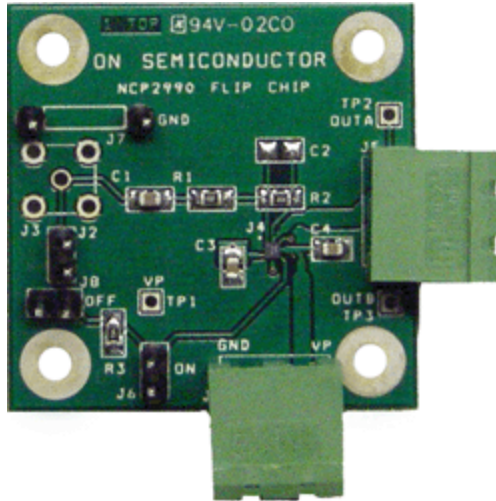




1.3 W Audio Amplifier Evaluation Board

Part Number: NCP2990FCT2GEVB

ON Semiconductor



Evaluation/Development Tool Description

The NCP2990 is an audio power amplifier designed for portable communication device applications such as mobile phone applications. The NCP2990 is capable of delivering 1.3 W of continuous average power to an 8.0 Ω load from a 5.0 V power supply, and 1 W to a 4.0 Ω load from a 3.6 V power supply. The NCP2990 provides high quality audio while requiring few external components and minimal power consumption. It features a low-power consumption shutdown mode, which is achieved by driving the SHUTDOWN pin with logic low. In case of a single ended input, the NCP2990 contains circuitry to prevent from 'pop and click' noise that would otherwise occur during turn-on and turn-off transitions. For maximum flexibility, the NCP2990 provides an externally controlled gain (with resistors), as well as an externally controlled turn-on time (with the bypass capacitor). When using a 1 μ F bypass capacitor, it offers 60ms wake up time. Due to its excellent PSRR, it can be directly connected to the battery, saving the use of an LDO.

Features

- External Turn-On time setting: 60 ms (1 μ F bypass capacitor)
- Zero Pop and Click Noise in case of a single ended audio input
- 1.3 W to an 8.0 Load from a 5.0 V power supply
- Superior PSRR: Direct Connection to the Battery

Bill of Materials for the NCP2990 Evaluation Board

ON Semiconductor



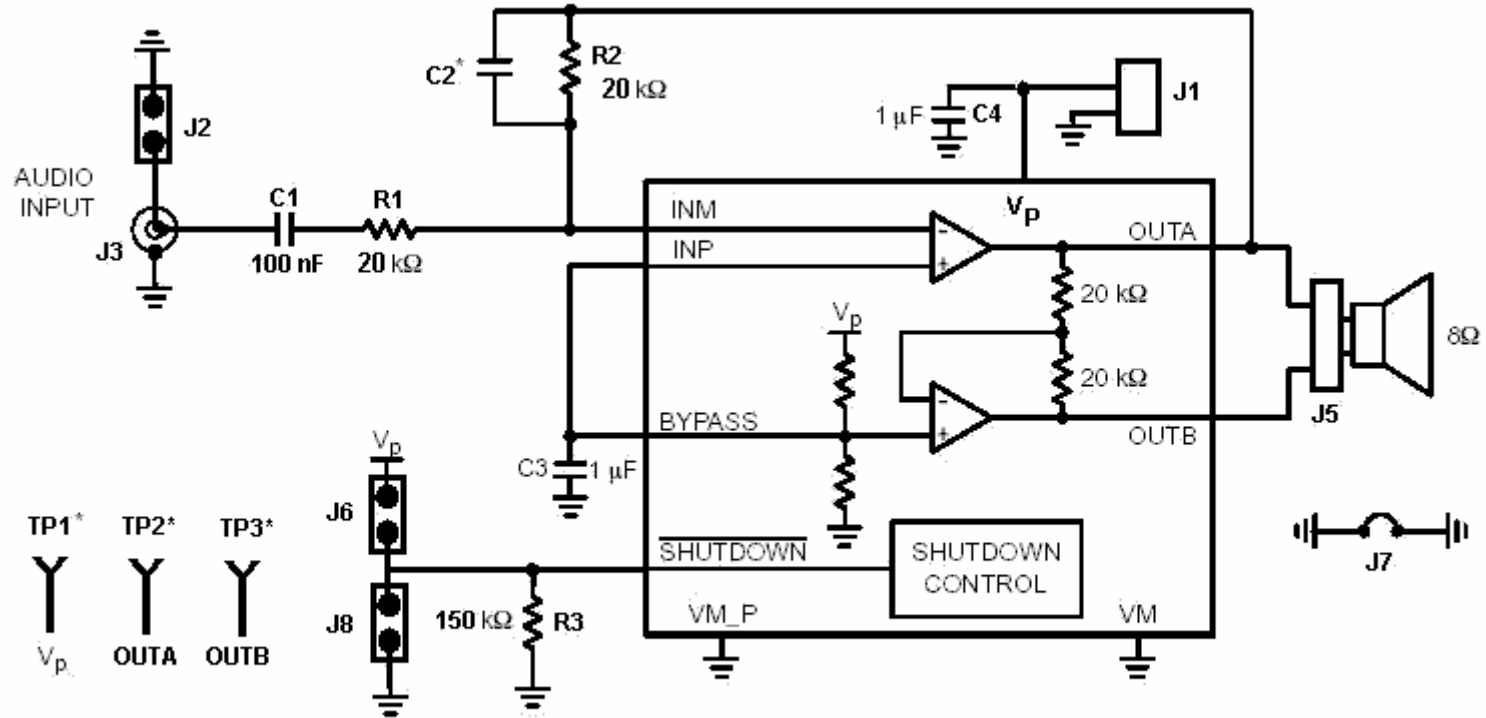
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Designator	Quantity	Description	Value	Tolerance	Footprint	Manufacturer	Manufacturer Part Number	Substitution Allowed	RoHS Compliant
-	1	NCP2990 Audio Amplifier	NA	NA	9 pin flip chip	ON Semiconductor	NCP2990FCT2G	No	Yes
R1, R2	2	SMD Resistor	20 kΩ	5%	0805	Panasonic	ERJ-6GEYJ203V	Yes	Yes
R3	1	SMD Resistor	150 kΩ	5%	0805	Panasonic	ERJ-6GEYJ154V	Yes	Yes
C1	1	Ceramic Capacitor / X7R	100 nF / 100 V	10%	0805	TDK	C2012X7R2A104K	Yes	Yes
C3, C4	2	Ceramic Capacitor / X7R	1.0 μF / 10 V	10%	0805	TDK	C2012X7R1A105K	Yes	Yes
J2, J6, J8	3	Jumper Header Vertical, 2 positions	NA	NA	100 mils	Molex	90120-0160	Yes	Yes
J1, J5	2	I/O Connector, 2 positions	NA	NA	200 mils	Phoenix Contact	1757242	Yes	Yes
J7	1	Jumper Header Vertical, 2X1 positions	NA	NA	400 mils	Molex	90120-0160	Yes	Yes

Schematic for the NCP2990 Evaluation Board



11/28/2006



*C2, TP1, TP2 and TP3: Not Mounted

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Test Procedure for the NCP2990EVB

09/13/2006

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 $R1=R2=20\text{k}$, 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 a 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 1.7 mA.