

# IS31AP4991A 1.1W AUDIO POWER AMPLIFIER WITH ACTIVE-LOW SHUTDOWN MODE

## DESCRIPTION

The IS31AP4991A has been designed for demanding audio applications such as mobile phones and permits the reduction of the number of external components. It is capable of delivering 1.1W of continuous RMS output power into an 8Ω load @ 5V.

An externally-controlled standby mode reduces the supply current to much less than 1μA. It also includes internal thermal shutdown protection. The unity-gain stable amplifier can be configured by external gain setting resistors.

## FEATURES

- Operating from  $V_{CC} = 2.7V \sim 5.5V$
- 1.1W output power @  $V_{CC} = 5V$ , THD+N= 1%,  $f = 1kHz$ , with 8Ω load
- Ultra-low consumption in standby mode (much less than 1μA)
- 56dB PSRR @217Hz in grounded mode
- Near-zero click-and-pop
- Ultra-low distortion (0.074%@0.5W, 1kHz)
- SOP-8 and MSOP-8 package

## QUICK START



Figure 1: Photo of IS31AP4991A Evaluation Board (MSOP-8)

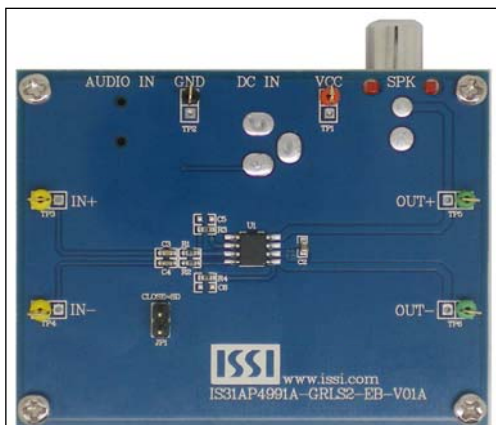


Figure 2: Photo of IS31AP4991A Evaluation Board (SOP-8)

## RECOMMENDED EQUIPMENT

- 5.0V, 1A power supply
- Audio source (i.e. MP3 player, Notebook PC, etc.)
- 8Ω speakers

## ABSOLUTE MAXIMUM RATINGS

- $\leq 5.5V$  power supply

**Caution: Do not exceed the conditions listed above, otherwise the board will be damaged.**

## PROCEDURE

The IS31AP4991A evaluation board is fully assembled and tested. Follow the steps listed below to verify board operation.

**Caution: Do not turn on the power supply until all connections are completed.**

- 1) Connect an 8Ω (or larger) speaker across the OUT- terminal and OUT+ terminal. Or connect speaker to the connector (SPK).
- 2) Connect the ground terminal of the power supply to the GND and the positive terminal to the VCC. Or connect DC power to the connector (DC IN).
- 3) If the audio source is differential, connect the negative of the audio source to the IN- terminal, and connect the positive of the audio source to IN+ terminal.
- 4) If the audio source is single-ended, C3 and R1 should disconnect, and R3 should be 0Ω. Connect the audio source to the IN- terminal, or connect audio source to the connector (AUDIO IN).
- 5) Turn on the power supply.
- 6) Turn on the audio source.





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## BILL OF MATERIALS

Name	Symbol	Description	Qty	Supplier	Part No.
Amplifier	U1	Class- AB Power Amplifier	1	ISSI	IS31AP4991A-SLS2 IS31AP4991A-GRLS2
Resistor	R1,R2,R3,R4	RES,20k,1/16W,±1%,SMD	4	Yageo	RC0603FR-0720KL
Resistor	R5	RES,100k,1/16W,±5%,SMD	1	Yageo	RC0603JR-07100KL
Capacitor	C1	CAP,10µF,16V,±20%,SMD	1	Yageo	CC0805KKX7R6BB106
Capacitor	C2,C8	CAP, 1µF, 50V,±10%,SMD	2	Yageo	CC0603KKX7R9BB105
Capacitor	C3,C4	CAP,0.1µF,50V,±10%,SMD	2	Yageo	CC0603KKX7R9BB104
Capacitor	C7	CAP,0.47µF,50V,±10%,SMD	1	Yageo	CC0603KKX7R9BB474
Connector	DC IN	2.5 mm DC connector	1		
Connector	SPK	RCA –type Connector	1		
connector	AUDIO IN	3.5mm min connector	1		
	C5,C6	Not Installed			

*Bill of materials, refer to Figure 2 above.*

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MSOP-8 Package

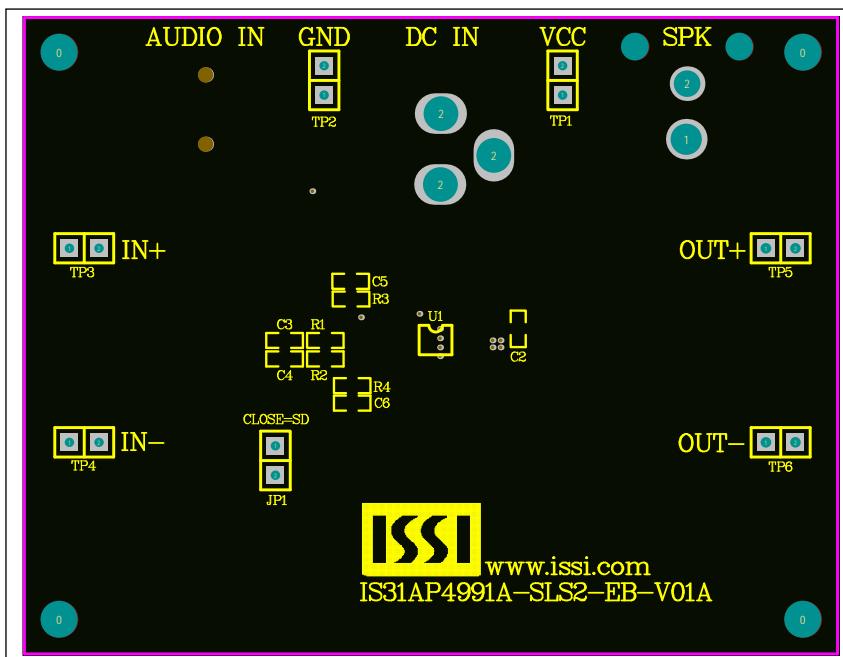


Figure 4: Board Component Placement Guide - Top Layer

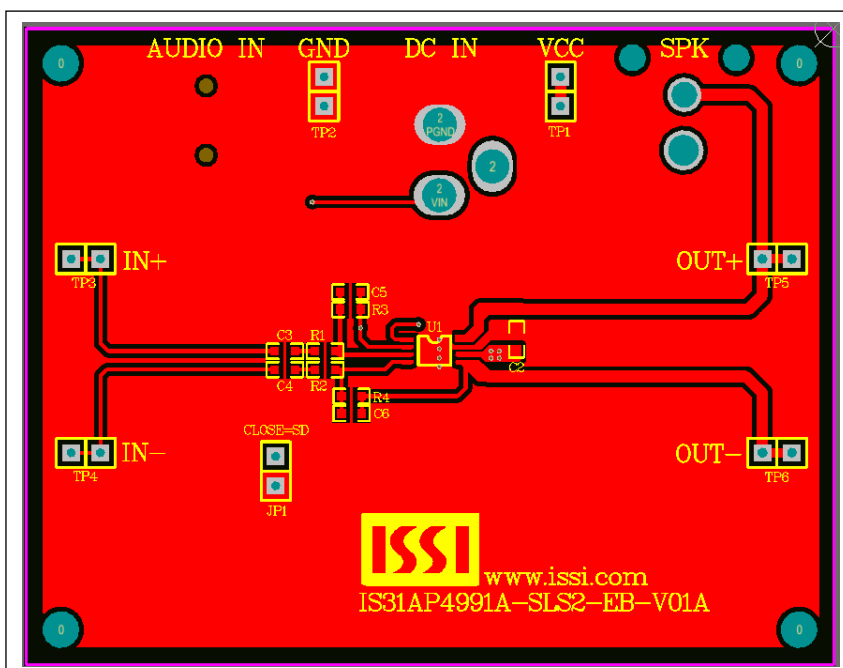
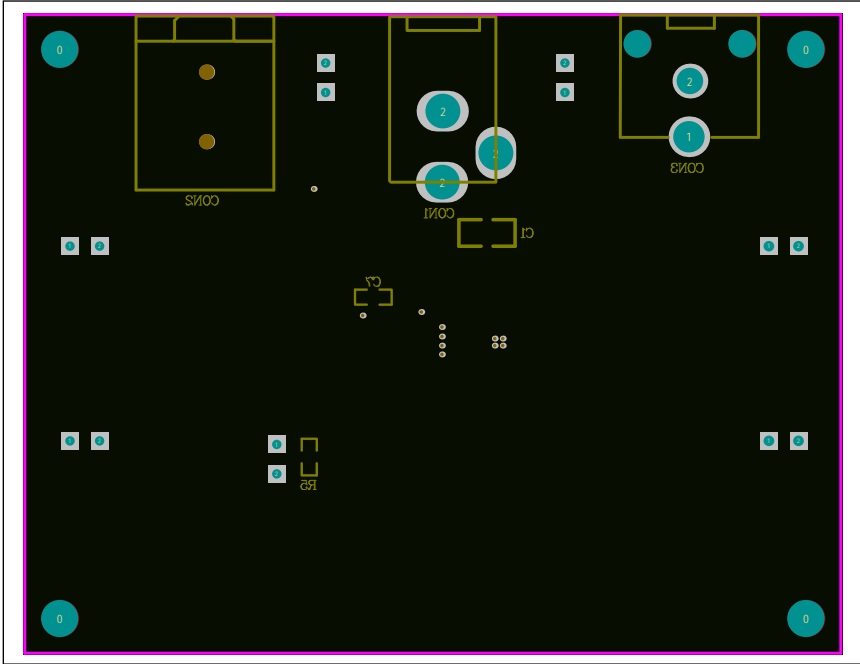
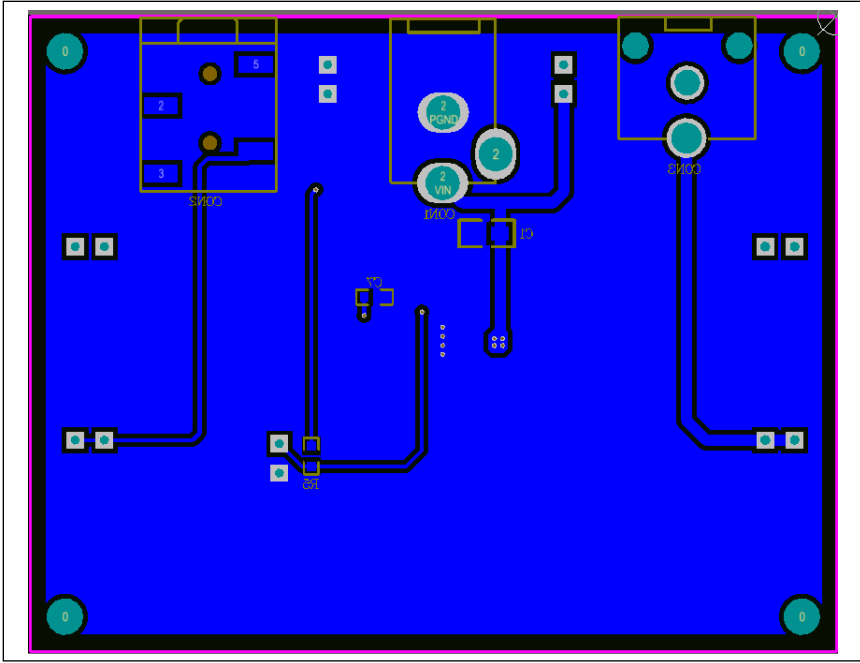


Figure 5: Board PCB Layout - Top Layer

**IS31AP4991A 1.1W AUDIO POWER AMPLIFIER  
WITH ACTIVE-LOW SHUTDOWN MODE**



*Figure 6: Board Component Placement Guide - Bottom Layer*



*Figure 7: Board PCB Layout - Bottom Layer*

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SOP-8 Package

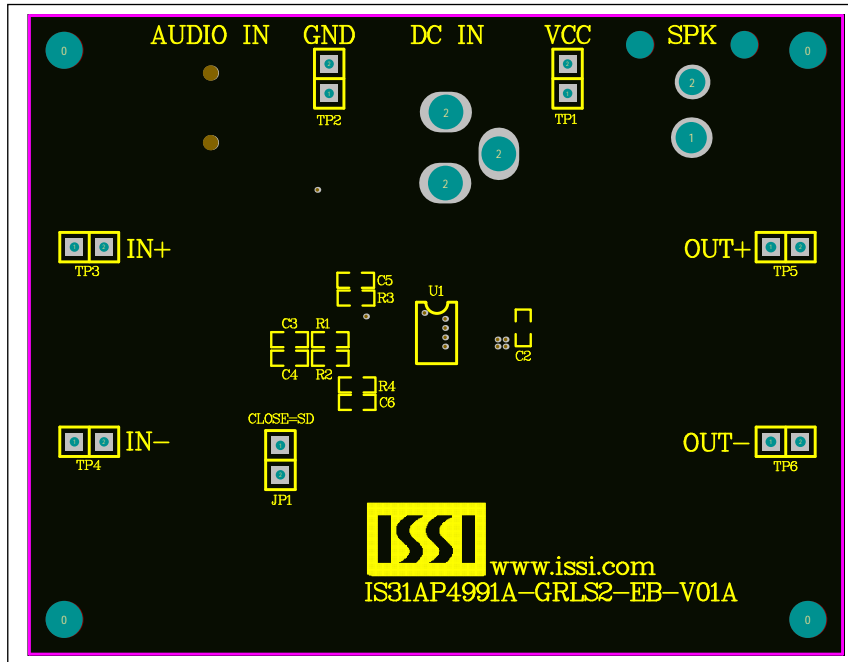


Figure 8: Board Component Placement Guide - Top Layer

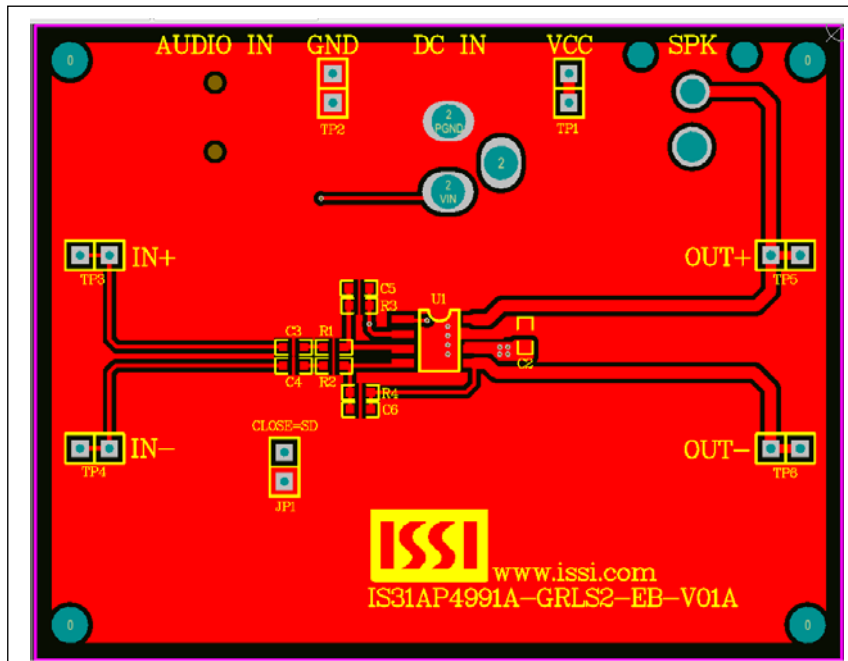
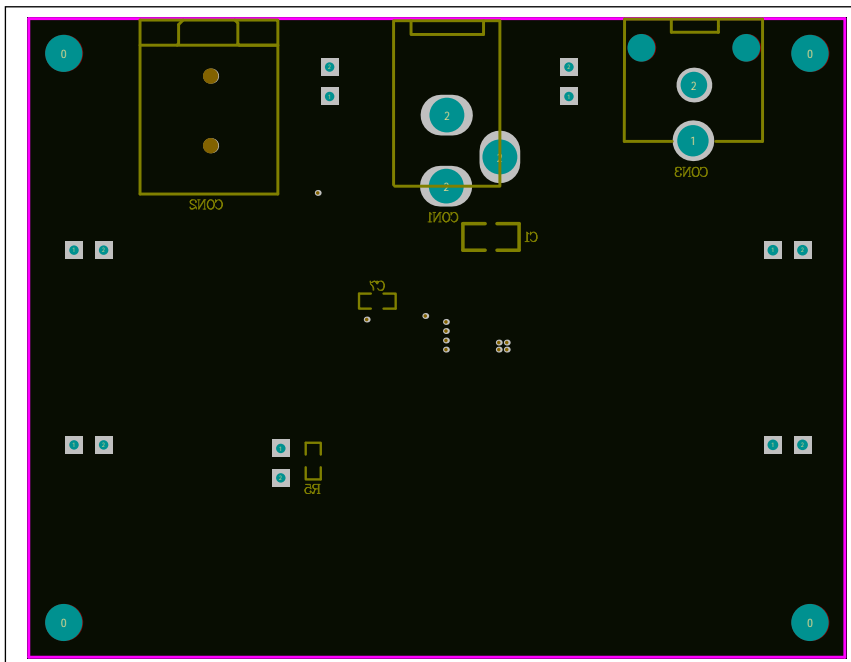
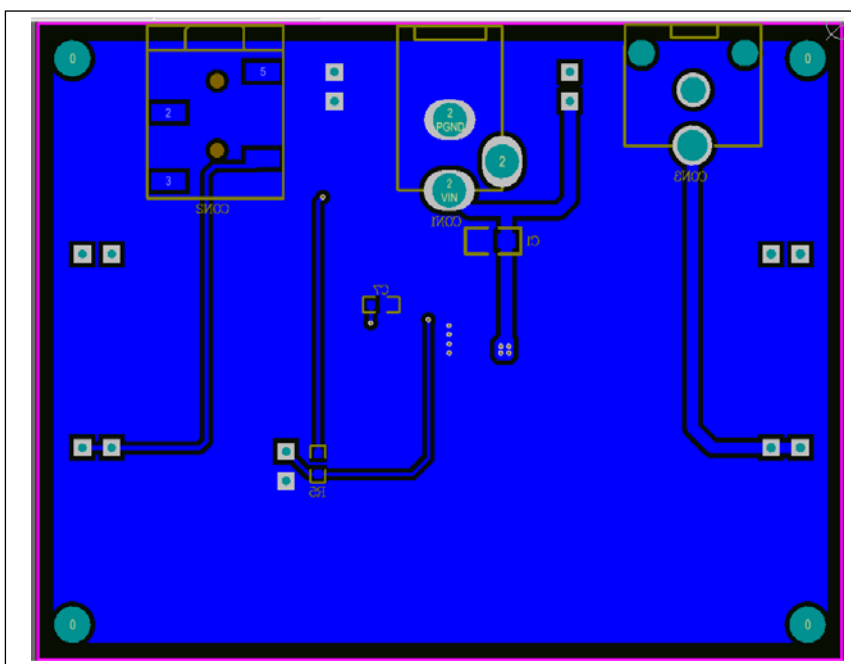


Figure 9: Board PCB Layout - Top Layer



*Figure 10: Board Component Placement Guide - Bottom Layer*



*Figure 11: Board PCB Layout - Bottom Layer*

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