

## Description

The IS31AP4066D evaluation board is a fully assembled and tested PCB that uses the IS31AP4066D Class-AB stereo, bridge-tied-load audio amplifier. The chip is designed to drive speakers with impedance of 8Ω or larger. The evaluation board provides dual BTL output channels, capable of delivering 1.6W into an 8Ω speaker at 5V.

## Features

- Supply voltage range from 2.7V to 5.5V
- Delivers 2.6W with 4Ω load at 5V supply. (THD+N)=10%
- Delivers 1.8W with 8Ω load at 5V supply. (THD+N)=10%
- Available in MSOP-8 & DFN-8 packages

## Quick Start Guide

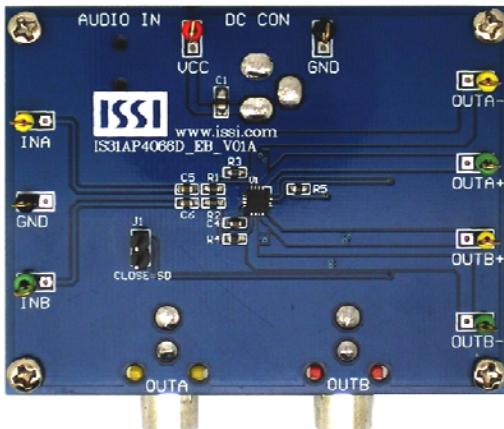


Figure 1. Photo of IS31AP4066D Evaluation Board

## Recommended Equipment

- 5.0V, 2A power supply
- Audio signal input source (Media player, Etc.)
- Speakers rated at 8Ω or 4Ω resistive load.

*Note: Speakers not supplied with EVB*

## Absolute Maximum Ratings

- VDD ≤ 5.5V power supply

*Caution: Exceeding the maximum ratings will lead to possible board damage.*

## Procedure

The IS31AP4066D evaluation board can be used to verify device operation via the following procedures:

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

1. Connect a 4Ω (or larger) speaker across the OUT- terminal and OUT+ terminal.
2. Connect the ground terminal of the power supply to the GND and the positive terminal to the VCC. You may also connect DC IN to a DC supply.
3. If the audio source is differential, remove jumper JP1, 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, connect the audio source to the IN+ terminal, and close jumper JP1; or connect audio source to the audio connector (AUDIO IN) and close jumper JP1.
5. Turn on the power supply.
6. Turn on the audio source.

## Ordering Information

Part No.	Temperature Range	IC Package
IS31AP4066D-QFLS2-EB	-40°C to +85°C (Industrial)	QFN-16, Lead-free

Table 1. Ordering Information

**For further information regarding orders, prices and delivery methods, please contact ISSI at [analog\\_mkt@issi.com](mailto:analog_mkt@issi.com) or (408) 969-6600.**

## Evaluation Board Operation

This evaluation board features the IS31AP4066D Class-AB stereo audio amplifier IC, which is ideal for driving speakers with internal impedances of  $\geq 8\Omega$ .

## Gain Configuration

The IS31AP4066D evaluation board ships with a default gain of 18.3dB. The amplitude of the gain can be adjusted by changing the values of R1, R2, R3, and R4. The following equation can be utilized to determine the proper resistance values for achieving desired gain results.

$$\text{Gain} = \frac{2 \times 150\text{k}\Omega}{R_I} \quad (1)$$

## High-pass Filter Configuration

The input capacitors C3 & C4 and input resistors R1 & R2 form a high-pass filter. The corner frequency can be calculated via Equation (2).

$$f_c = \frac{1}{(2\pi R_I C_I)} \quad (2)$$

## Shutdown-mode

Jumper (JP2) controls the shutdown behavior of IS31AP2005. Connect the shunt across pin 1 and 2 of the jumper (JP2) to enter shutdown mode.

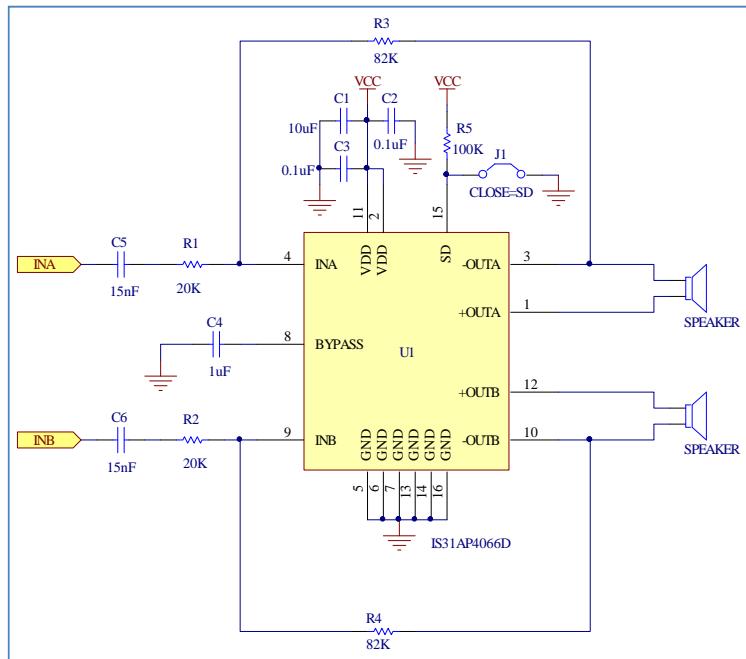


Figure 2: Schematic of IS31AP4066D within Evaluation Board

## Bill of Materials

No.	Name	Description	Symbol	Qty	Manufacturer P/N
1	IC	Class-AB Stereo Amp	U1	1	IS31AP4066D
2	Resistor	20kΩ	R1, R2	2	
3	Resistor	82kΩ	R3, R4	2	
4	Resistor	100kΩ	R5	1	
5	Capacitor	10μF	C1	1	
6	Capacitor	0.1μF	C3, C2	2	
7	Capacitor	1μF	C4	1	
8	Capacitor	15nF	C6, C5	2	

Table 2: Bill of Materials; Refer to Figure 2 for additional information

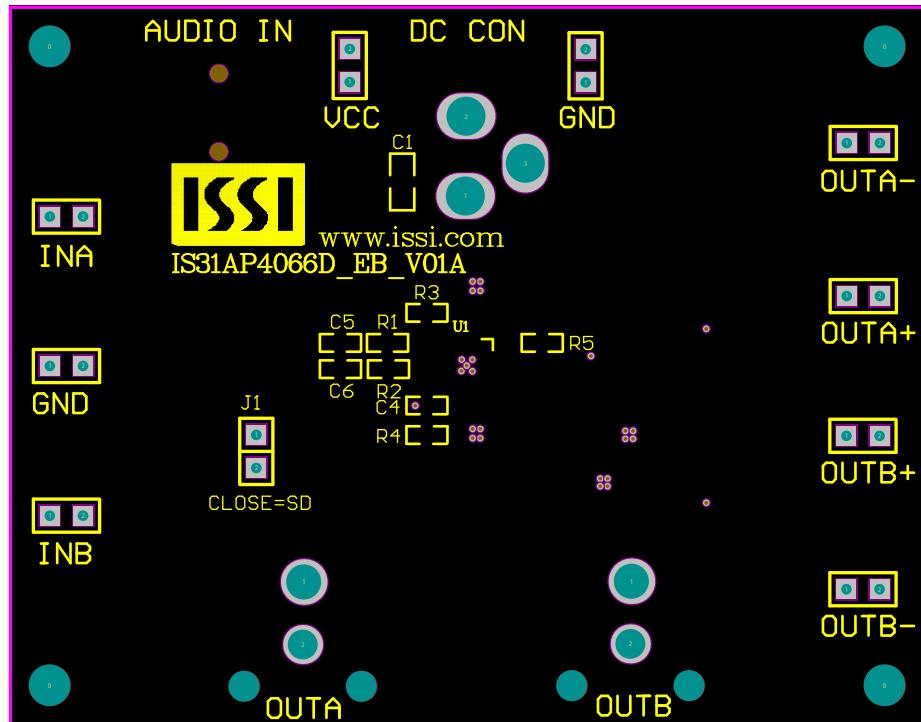


Figure 3. Board Component Placement Guide - Top Layer

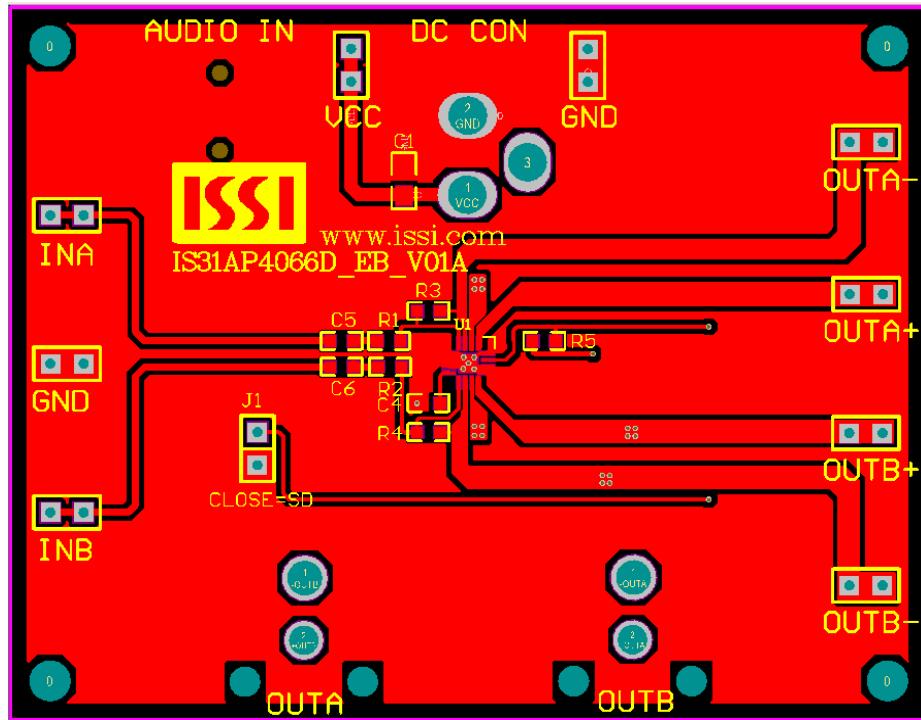


Figure 4. Board PCB Layout- Top Layer

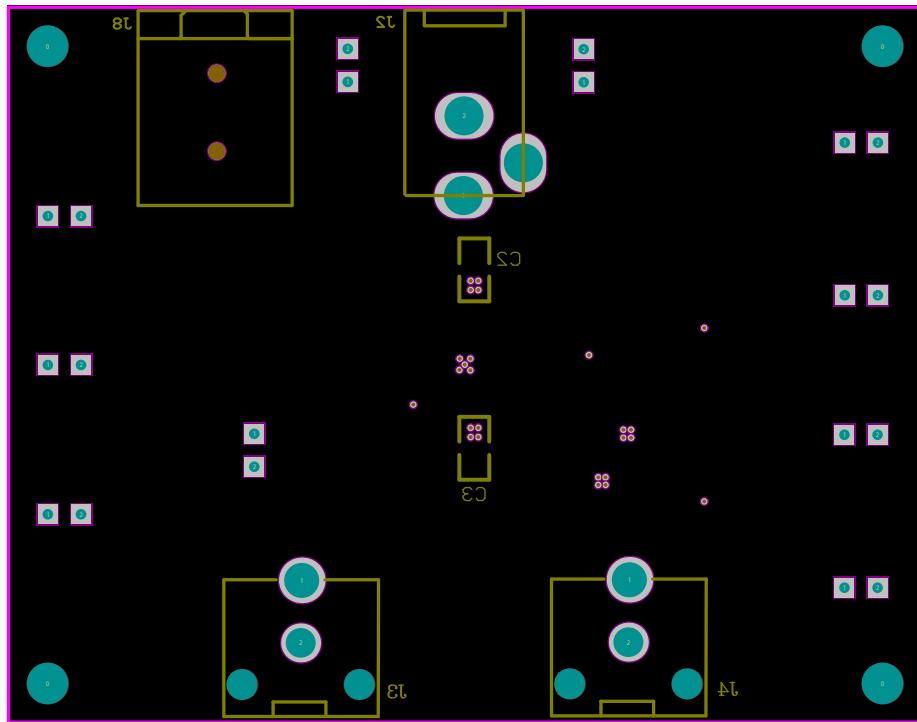


Figure 5.. Board Component Placement Guide -Bottom Layer

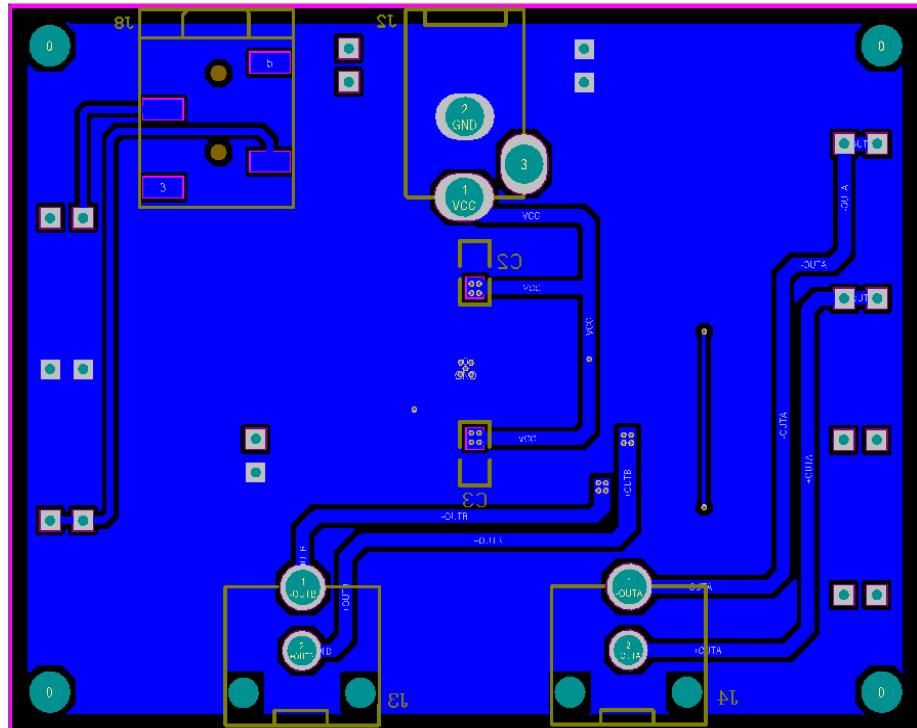


Figure 6. Board PCB Layout-Bottom Layer

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