

## 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

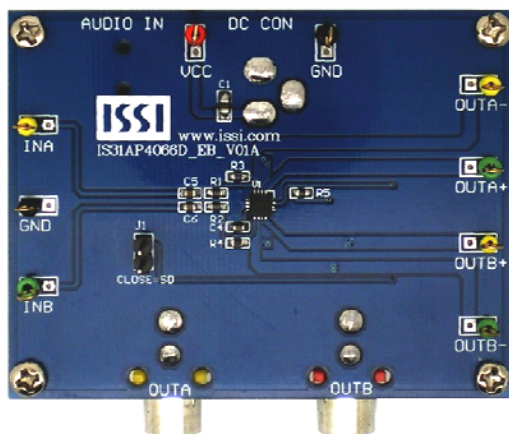


Figure 1. Photo of IS31AP4066D Evaluation Board

## 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.

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

## 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.

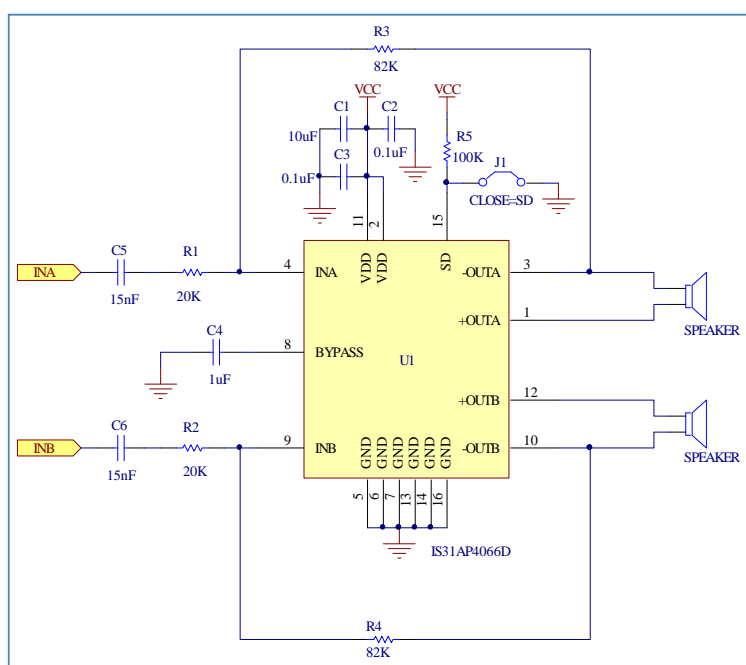


Figure 2: Schematic of IS31AP4066D within Evaluation Board

## Bill of Materials

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

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

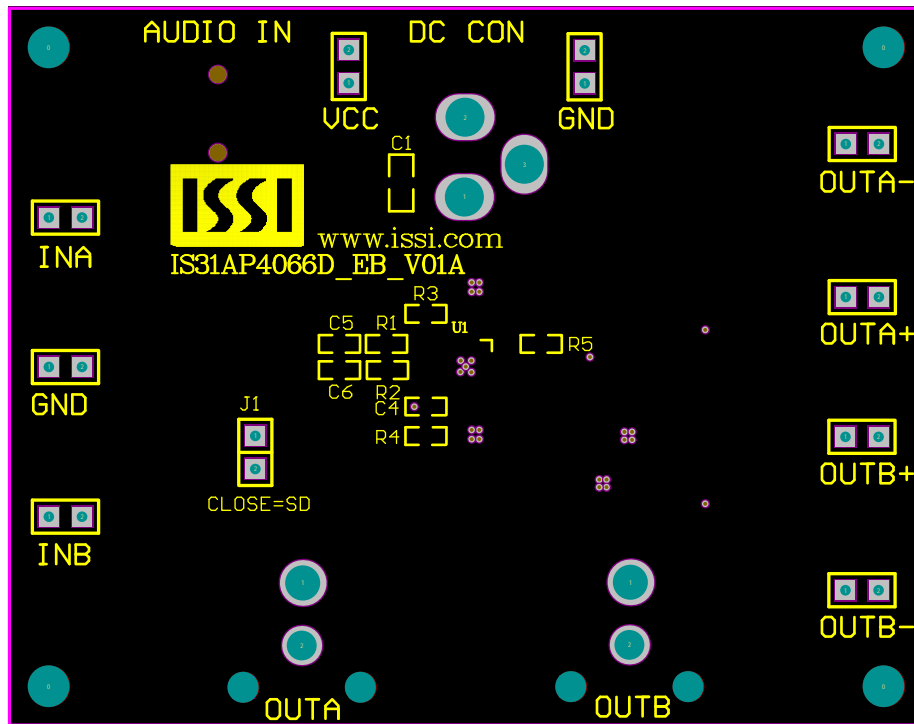


Figure 3. Board Component Placement Guide -Top Layer

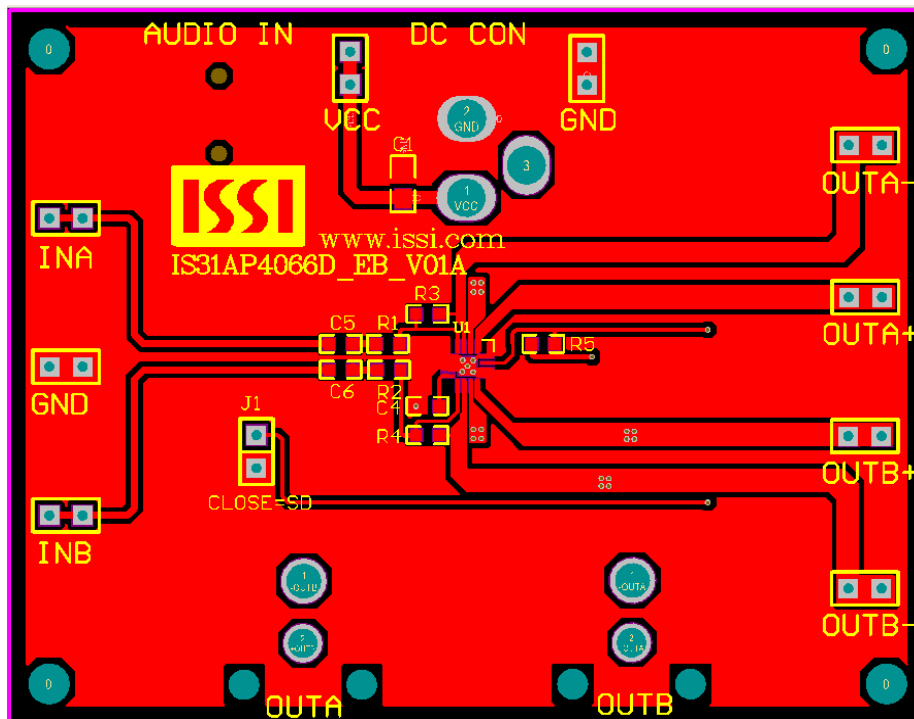


Figure 4. Board PCB Layout- Top Layer

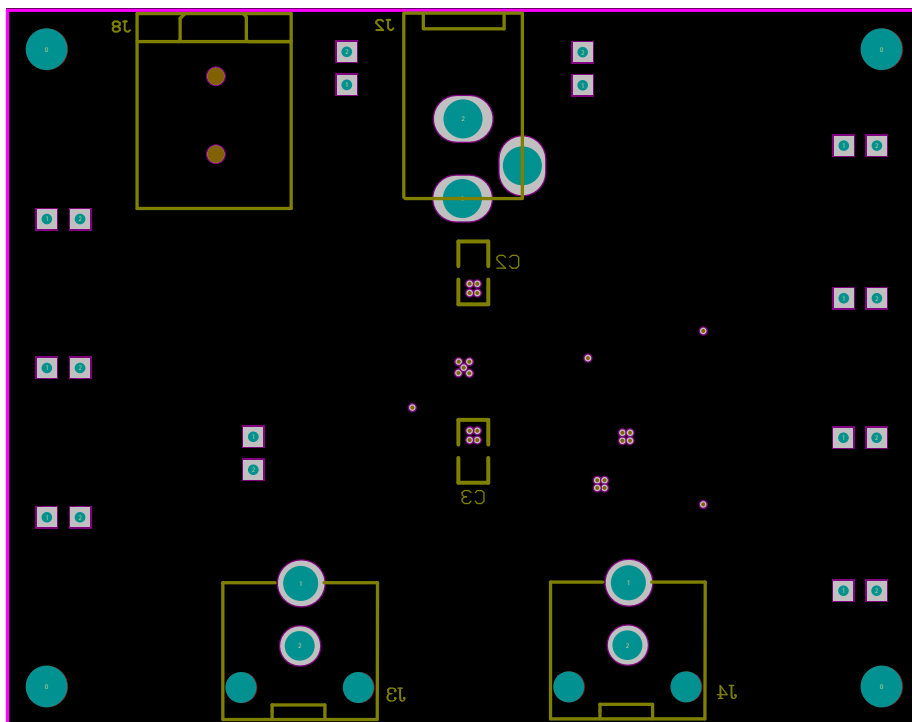


Figure 5.. Board Component Placement Guide -Bottom Layer

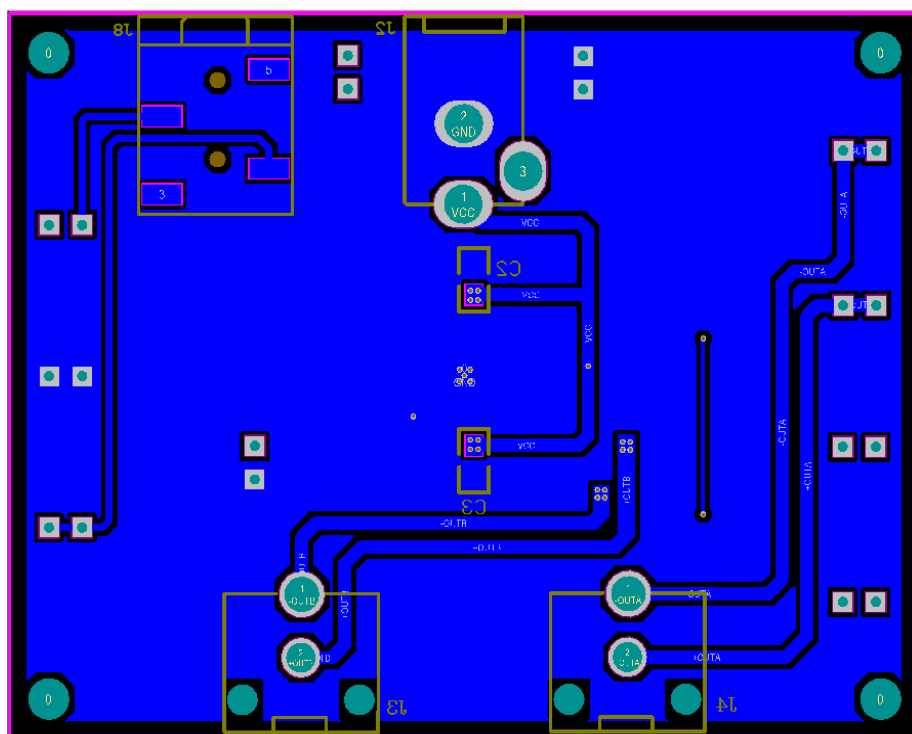


Figure 6. Board PCB Layout-Bottom Layer



Copyright © 2011 Integrated Silicon Solution, Inc. All rights reserved. ISSI reserves the right to make changes to this specification and its products at any time without notice. ISSI assumes no liability arising out of the application or use of any information, products or services described herein. Customers are advised to obtain the latest version of this device specification before relying on any published information and before placing orders for products.

Integrated Silicon Solution, Inc. does not recommend the use of any of its products in life support applications where the failure or malfunction of the product can reasonably be expected to cause failure of the life support system or to significantly affect its safety or effectiveness. Products are not authorized for use in such applications unless Integrated Silicon Solution, Inc. receives written assurance to its satisfaction, that:

- a.) the risk of injury or damage has been minimized;
- b.) the user assume all such risks; and
- c.) potential liability of Integrated Silicon Solution, Inc is adequately protected under the circumstances