

## Introduction

The MAXREFDES9009 is a reference design for a simple, compact, 8-channel digital input audio amplifier, and can deliver up to 14W per channel into an 8Ω load. It is based on the MAX98365, which is a tiny, cost-effective, 14V plug-and-play digital input Class-D amplifier. This design is true plug-and-play and does not require any programming of registers and does not use I<sup>2</sup>C. Just add power and input signal to get 8-channels of Class-D audio output.

The MAXREFDES9009 is compatible with all four variants of the MAX98365. For this 8-channel time-division multiplexing (TDM) reference design, the differences are shown in [Table 1](#):

Other features include the following:

- True plug-and-play 8-channel digital audio input Class-D amplifier
- Simple to use and does not require any programming, registers, and I<sup>2</sup>C
- Gain is preset to 21.5dB
- Just add the following:
  - Power: VDD (1.8V, 3.3V, or 5V), PVDD (3V-14V)
  - Input signal: (digital audio, 16-bit or 32-bit TDM, and 8kHz-192kHz sample rate)
  - 8 Speakers

## Designed–Built–Tested

The board design is fully assembled and tested. Not available for sale.

This document describes the hardware shown in [Figure 1](#).

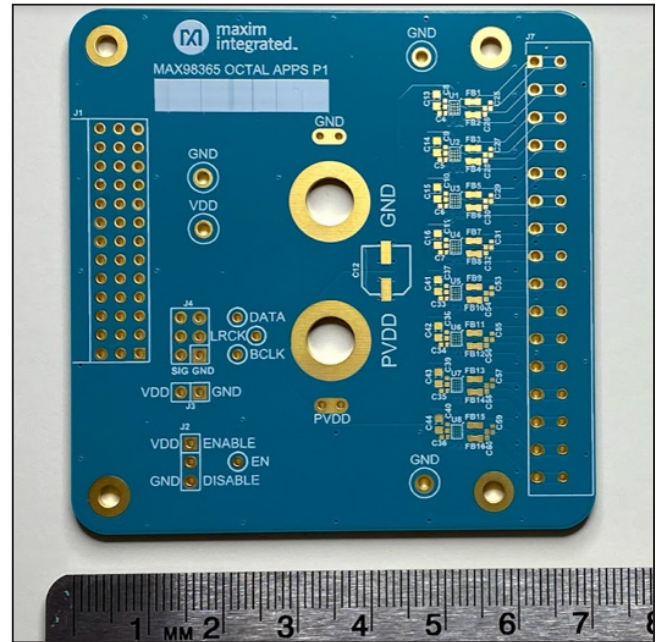


Figure 1. MAXREFDES9009 hardware.

**Table 1. Differences between the variants of the MAX98365**

VARIANTS	TURN-ON/OFF RAMP	TURN-ON TIME (ms)	DATA FORMAT WHEN LRCLK DUTY CYCLE IS 50%	TDM DATA BIT CLOCK VALIDITY WHEN LRCLK IS A SYNC PULSE
MAX98365A	Disabled	1	I <sup>2</sup> S	Rising edge
MAX98365B	Disabled	1	Left-justified	Falling edge
MAX98365C	Enabled	13	I <sup>2</sup> S	Rising edge
MAX98365D	Enabled	13	Left-justified	Falling edge

## Design Resources

Download the complete set of [Design Resources](#) including schematics, bill of materials, and PCB layout.

# Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	5/22	Initial release	—



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