

LM1971

μ Pot™ Digitally Controlled 62 dB Audio Attenuator with Mute

General Description

The LM1971 is a digitally controlled single channel audio attenuator fabricated on a CMOS process. Attenuation is variable in 1 dB steps from 0 dB–62 dB. A mute function disconnects the input signal from the output, providing a minimum of 80 dB of attenuation. The attenuation curve can be customized through software to fit the desired application.

The performance of a μ Pot is demonstrated through its ability to instantly change attenuation levels without audible clicks or pops, excellent signal-to-noise ratio (80 dB minimum), and low Total Harmonic Distortion plus noise (THD + N) of 0.01%.

The LM1971 is controlled by a 3-wire serial digital interface which is TTL and CMOS compatible. The LM1971 receives data that selects the desired attenuation setting on the DATA line. The LOAD/SHIFT line enables the data input registers and the CLOCK line provides system timing. Additionally, the interface is compatible with National Semiconductor's HPC line of microcontrollers.

Key Specifications

- Total harmonic distortion + noise 0.01% (typ)
- Frequency response 20 kHz (–3 dB) (min)
- Attenuation range (excluding mute) 62 dB (min)
- Signal-to-noise ratio 80 dB (min)

Features

- 3-wire serial interface
- 80 dB mute attenuation
- Pop and click free attenuation changes

Applications

- Music reproduction systems
- Sound reinforcement systems
- Electronic music (MIDI)
- Personal computer audio control
- Communication systems

Typical Application

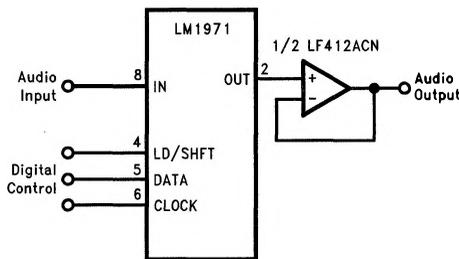
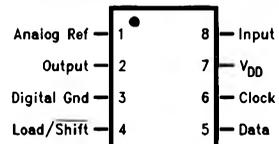


FIGURE 1. Typical Audio Attenuator Application Circuit

TL/H/12353-1

Connection Diagram

Small Outline Molded Package or Dual-In-Line Plastic Package



TL/H/12353-2

Top View

Order Number **LM1971M**
or **LM1971N**
See NS Package Number
M08A or N08E