TLV320AIC31IRHBR

General Purpose Audio Codec 2ADC / 2DAC Ch 32-Pin VQFN EP T/R

Manufacturer:	Texas Instruments, Inc
Package/Case:	VQFN32
Product Type:	Communication & Networking ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active

Images are for reference only

Inquiry

General Description

The TLV320AIC31 is a low-power stereo audio codec with a stereo headphone amplifier, as well as multiple inputs and outputs, programmable in single-ended or fully-differential configurations. Extensive register-based power control is included, enabling stereo 48-kHz digital-to-analog converter (DAC) playback as low as 14 mW from a 3.3-V analog supply, making it ideal for portable, battery-powered audio and telephony applications.

The record path of the TLV320AIC31 contains integrated microphone bias, a digitally-controlled stereo microphone pre-amp, and automatic gain control (AGC), with mix/mux capability among the multiple analog inputs.The playback path includes mix/mux capability from the stereo DAC and selected inputs, through programmable volume controls to the various outputs.

The TLV320AIC31 contains four high-power output drivers as well as two fully differential output drivers.The high-power output drivers are capable of driving a variety of load configurations, including up to four channels of single-ended, 16- speakers in a BTL configuration at 500 mW per channel.

The stereo audio DAC supports sampling rates from 8 kHz to 96 kHz and includes programmable digital filtering in the DAC path for 3D, bass/treble/midrange effects, speaker equalization, and de-emphasis for 32-kHz, 44.1-kHz, and 48-kHz rates.The stereo-audio analog-to-digital converter (ADC) supports sampling rates from 8 kHz to 96 kHz and is preceded by programmable gain amplifiers providing up to +59.5 dB analog gain for low-level microphone inputs.

The serial control bus supports the I2C protocol, while the serial-audio data bus is programmable for I2S, left-/right-justified, DSP, or TDM modes.A highly programmable PLL is included for flexible clock generation and support for all standard audio rates from a wide range of available MCLKs, varying from 512 kHz to 50 MHz, with special attention paid to the most popular cases of 12-MHz, 13-MHz, 16-MHz, 19.2-MHz, and 19.68-MHz system clocks.

The TLV320AIC31 operates from an analog supply of2.7 V to 3.6 V, a digital core supply of 1.65 Vto 1.95 V, and a digital I/O supply of 1.1 V to 3.6 V.The device is available in a 5 × 5 mm, 32-lead QFN package.

Key Features

Stereo Audio DAC:

100-dB (A-Weighted) Signal-to-Noise Ratio

16-/20-/24-/32-Bit Data

Supports Rates From 8 kHz to 96 kHz

3D/Bass/Treble/EQ/De-Emphasis Effects

Stereo Audio ADC:

92-dB (A-Weighted) Signal-to-Noise Ratio

Supports Rates From 8 kHz to 96 kHz

Six Audio Input Pins:

Two Stereo Differential/Single-Ended Inputs

Six Audio Output Drivers:

Stereo 8-, 500-mW/Channel Speaker Drive Capability

Stereo Fully-Differential or Single-Ended Headphone Drivers

Fully Differential Stereo Line Outputs

Low Power:14-mWStereo, 48-kHz Playback With 3.3-V Analog Supply

Programmable Input/Output Analog Gains

Automatic Gain Control (AGC) for Recording

Programmable Microphone Bias Level

Programmable PLL for Flexible Clock Generation

I2C Control Bus

Audio Serial Data Bus Supports I2S, Left-/Right-Justified, DSP, and TDM Modes

Extensive Modular Power Control

Power Supplies:

Analog:2.7 V to 3.6 V

Digital Core:1.65 V to 1.95 V

Digital I/O:1.1 V to 3.6 V

Available Packages: 5-mm × 5-mm, 32-Pin QFN

Recommended For You

TLV320AIC23BIPWR

Texas Instruments, Inc

TSSOP28

TLV320AIC3104IRHBR

Texas Instruments, Inc

QFN32

TL16C554AIPN

Texas Instruments, Inc

LQFP80

TLV320AIC3101IRHBR

Texas Instruments, Inc

QFN32

TL16C554APN

Texas Instruments, Inc

LQFP80

TLV320AIC24KIPFBR

Texas Instruments, Inc

TQFP-48

TL16C554PN

Texas Instruments, Inc

QFP

TLV320AIC24KIPFB

Texas Instruments, Inc

TQFP-48

TL16C752BLPTREP

Texas Instruments, Inc

LQFP-48

TL16C550DIPFBR

Texas Instruments, Inc

48-TQFP

TLC320AC01CFN

Texas Instruments, Inc

PLCC28

TL16C552AFN

Texas Instruments, Inc

PLCC

TL16C450FN

Texas Instruments, Inc

PLCC44

TL16C554FN

Texas Instruments, Inc

PLCC

TLV320AIC3100IRHBR

Texas Instruments, Inc

QFN32