TLV320AIC3101IRHBR

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

Manufacturer:	Texas Instruments, Inc
Package/Case:	QFN32
Product Type:	Communication & Networking ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active

Images are for reference only

Inquiry

General Description

The TLV320AIC3101 is a low-power stereo audio codec with stereo headphone amplifier, as well as multiple inputs and outputs that are programmable in single-ended or fully differential configurations. Extensive register-based power control is included, enabling stereo 48-kHz 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 TLV320AIC3101 contains integrated microphone bias, digitally controlled stereo microphone preamplifier, and automatic gain control (AGC), with mix/mux capability among the multiple analog inputs. Programmable filters are available during record which can remove audible noise that can occur during optical zooming in digital cameras. The playback path includes mix/mux capability from the stereo DAC and selected inputs, through programmable volume controls, to the various outputs.

The TLV320AIC3101 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-Ω headphones using ac-coupling capacitors, or stereo 16-Ω headphones in a capless output configuration. In addition, pairs of drivers can be used to drive 8-Ω 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 sample rates. The stereo audio ADC supports sampling rates from 8 kHz to 96 kHz and is preceded by programmable gain amplifiers or AGC that can provide up to 59.5-dB analog gain for low-level microphone inputs. The TLV320AIC3101 provides an extremely high range of programmability for both attack (8–1,408 ms) and for decay (0.05–22.4 seconds). This extended AGC range allows the AGC to be tuned for many types of applications.

For battery saving applications where neither analog nor digital signal processing are required, the device can be put in a special analog signal passthrough mode. This mode significantly reduces power consumption, as most of the device is powered down during this passthrough operation.

The serial control bus supports the I2C protocol, whereas 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 TLV320AIC3101 operates from an analog supply of 2.7 V–3.6 V, a digital core supply of 1.525 V–1.95 V, and a digital I/O supply of 1.1 V–3.6 V. The device is available in a 5-mm × 5-mm 32-pin QFN package.

Key Features

Stereo Audio DAC
102-dBA Signal-to-Noise Ratio

16/20/24/32-Bit Data

Supports Sample Rates From 8 kHz to 96 kHz

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

Flexible Power Saving Modes and Performance are Available

Stereo Audio ADC
92-dBA Signal-to-Noise Ratio

Supports Sample Rates From 8 kHz to 96 kHz

Digital Signal Processing and Noise Filtering Available During Record

Six Audio Input Pins
One Stereo Pair of Single-Ended Inputs

One Stereo Pair of Fully Differential Inputs

Six Audio Output Drivers
Stereo Fully Differential or Single-Ended Headphone Drivers

Fully Differential Stereo Line Outputs

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

Low Power: 14-mW Stereo 48-kHz Playback With 3.3-V Analog Supply

Ultralow-Power Mode With Passive Analog Bypass

Programmable Input/Output Analog Gains

Automatic Gain Control (AGC) for Record

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

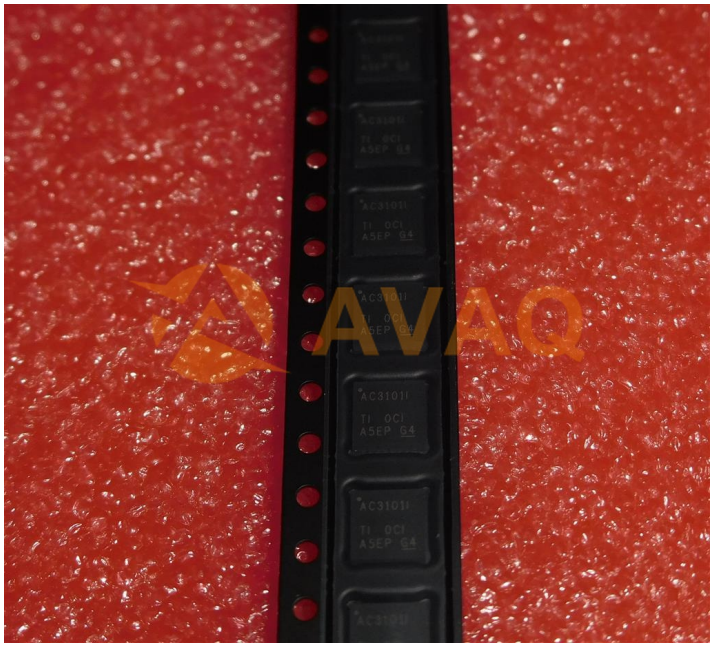
Extensive Modular Power Control

Power Supplies:
Analog: 2.7 V–3.6 V.

Digital Core: 1.525 V–1.95 V

Digital I/O: 1.1 V–3.6 V

Package: 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

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

TLV320AIC31IRHBR

Texas Instruments, Inc

VQFN32

TLV320AIC3100IRHBR

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QFN32