TLV320AIC20KIPFBR

Voiceband Audio Codec 2ADC / 2DAC Ch 48-Pin TQFP T/R

Manufacturer:	Texas Instruments, Inc
Package/Case:	48-TQFP
Product Type:	Communication & Networking ICs
RoHS:	RoHS Compliant/Lead free
Lifecycle:	Active

Images are for reference only

Inquiry

General Description

The TLV320AIC2x is a low-cost, low-power, highly-integrated, high-performance, dual-voice codec. It features two 16-bit analog-to-digital (A/D) channels and two 16-bit digital-to-analog (D/A) channels, which can be connected to a handset, headset, speaker, microphone, or a subscriber line via a programmable analog crosspoint.

The TLV320AIC2x provides high resolution signal conversion from digital-to-analog (D/A) and from analog-to-digital (A/D) using oversampling sigma-delta technology with programmable sampling rate.

The TLV320AIC2x implements the smart time division multiplexed serial port (SMARTDM). The SMARTDM port is a synchronous 4-wire serial port in TDM format for glue-free interface to TI DSPs (i.e.,TMS320C5000,TMS320C6000 DSP platforms) and microcontrollers. The SMARTDM supports both continuous data transfer mode and on-the-fly reconfiguration programming mode. The TLV320AIC2x can be gluelessly cascaded to any SMARTDM-based device to form a multichannel codec, and up to eight TLV320AIC2x codecs can be cascaded to a single serial port.

The TLV320AIC2x provides a flexible host port. The host port interface is a two-wire serial interface that can be programmed to be either an industrial standard I2C or a simple S2C (start-stop communication protocol).

The TLV320AIC2x integrates all of the critical functions needed for most voice-band applications including MIC preamplifier, handset amplifier headset amplifier, 8- speaker driver, sidetone control, antialiasing filter (AAF), input/output programmable gain amplifier (PGA), and selectable low-pass IIR/FIR filters.

The TLV320AIC2x implements an extensive power management; including device power-down, independent software control for turning off ADC, DAC, operational-amplifiers, and IIR/FIR filter (bypassable) to maximize system power conservation. The TLV320AIC2x consumes only 14.9 mW per channel at 3 V.

The TLV320AIC2x low power operation from 2.7-V to 3.6-V power supplies along with extensive power management make it ideal for portable applications including wireless accessories, hands-free car kits, VOIP, cable modem, and speech processing. Its low group delay characteristic makes it suitable for single or multichannel active control applications.

The TLV320AIC2x is characterized for commercial operation from 0°C to 70°C, and industrial operation from -40°C to 85°C. The TLV320AIC2xk is characterized for industrial operation from -40°C to 85°C.

Key Features

Stereo 16-Bit Oversampling Sigma-Delta A/D Converter

Stereo 16-Bit Oversampling Sigma-Delta D/A Converter

Support Maximum Master Clock of 100 MHz to Allow DSPs Output Clock to be Used as a Master Clock

Selectable FIR/IIR Filter With Bypassing Option

Programmable Sampling Rate up to:

Max 26 Ksps With On-Chip IIR/FIR Filter

Max 104 Ksps With IIR/FIR Bypassed

On-Chip FIR Produced 84-dB SNR for ADC and 92-dB SNR for DAC over 13-Khz BW

Smart Time Division Multiplexed (SMARTDM?) Serial Port

Glueless 4-Wire Interface to DSP

Automatic Cascade Detection (ACD) Self-Generates Master/Slave Device Addresses

Programming Mode to Allow On-The-Fly Reconfiguration

Continuous Data Transfer Mode to Minimize Bit Clock Speed

Support Different Sampling Rate for Each Device

Turbo Mode to Maximize Bit Clock For Faster Data Transfer and Allow Multiple Serial Devices to Share the Same Bus

Allows up to Eight Devices to be Connected to a Single Serial Port

Host port

2-Wire Interface

Selectable I2C or S2C

Differential and Single-Ended Analog Input/Output

Built-In Analog Functions:

Analog and Digital Sidetone

Antialiasing Filter (AAF)

Programmable Input and Output Gain Control (PGA)

Microphone/Handset/Headset Amplifiers

AIC20/21/20K Have a Built-In 8- Speaker Driver

Power Management With Hardware/Software Power-Down Modes 30 µW

Separate Software Control for ADC and DAC Power Down

Fully Compatible With Common TMS320? DSP Family and Microcontroller Power Supplies

1.65-V - 1.95-V Digital Core Power

1.1-V - 3.6-V Digital I/O

2.7-V - 3.6-V Analog

Internal Reference Voltage (Vref)

2s Complement Data Format

Test Mode Which Includes Digital Loopback and Analog Loopback

APPLICATIONS

Wireless Accessories

Hands-Free Car Kits

VOIP

Cable Modem

Speech Processing

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

TLV320AIC31IRHBR

Texas Instruments, Inc

VQFN32