winbond

Single and Dual Channel Voiceband CODEC

Winbond's family of voice CODEC solutions addresses the market requirements for voice-grade A/D and D/A conversion at the lowest possible cost. In order to digitize and reconstruct the cleanest voice signals possible, the single channel and dual channel CODECs were designed to the recommendations of the industry G.712 filters specification and the μ-Law and A-Law G.711 companding specifications.

Features: • A-Law/μ-Law companding according to ITU-T G.711 by pin selection • A/D and D/A filter according to ITU-T G.712 • Lowest power dissipation in the industry in standby and powered modes • Four PCM Digital Interface Clock Formats - Short Frame Sync, Long FrameSync, IDL and GCI • Fully-Differential Analog Circuit Design for lowest noise • On-Chip Precision Reference Voltage • Industrial Temperature Range: -40°C ~ 85°C

Applications: • PABX/SOHO systems • ISDN equipment • Modems/PC cards • Fiber-to-the-curb equipment • Enterprise phones • VOIP and Internet phones • Telematics • Speaker phones • Digital telephony systems

Description	Package	Digi-Key Part No.	Price Each	Winbond Part No.
IC Voiceband				
Single, 5V	20-DIP	W6810IE-ND	2.03	W6810IE
	20-SOP	W6810IS-ND	2.03	W6810IS
	20-TSSOP	W6810IW-ND	2.03	W6810IW
Single, 3/5V	24-DIP	W6811IE-ND	2.15	W6811IE
	24-SSOP	W6811IR-ND	2.15	W6811IR
Single, 5V	20-SOP	W681511S-ND	2.13	W681511S
	20-SOP	W681513S-ND	1.89	W681513S
Dual, 5V	20-DIP	W682510E-ND	2.86	W682510E
Evaluation System				
W6810 Series		W6810ES-ND	10.89	W6810ES
W681512 Series		W681512ES-ND	10.89	W681512ES
Development Kits				
W6810 Series		W6810DK-ND	96.56	W6810DK
W682310 Series		W682310DK-ND	77.25	W682310DK
W682510 Series		W682510DK-ND	77.25	W682510DK

ISD1700 Series Evaluation Board

This demo board allows the complete operation of the Winbond I17xx ChipCorder® IC controlled through the USB port of a PC. All the functions of the chip may be selected in real time to allow complete evaluation of this chip for an end application. The PC connects to the demo board using a standard USB cable. (Not included in the package) The demo board also works in stand alone mode (Push Button Mode)

Kit Contents: • One Sample ISD17150 • CD (with Applications Software and User's guide with demo boards schematics) • Three AA batteries • An Eight Ohm Speaker

Description	Digi-Key Part No.	Price Each
Demo Board	ISD-ES1700-USB-PB-ND	196.02

ChipCorder® Demo Boards

RoHS COMPLIANT

These Demo boards for the ISD1600 and ISD1700 families of ChipCorder devices demonstrate the functionalities and voice quality of the ISD devices. The default settings for sampling frequency and output are 8kHz and PWM speaker outputs, respectively. Sampling frequency can be changed by replacing a resistor on the demo board. **Kit Contents:** • Demo Board • Users Manual

Description	Duration	Digi-Key Part No.	Price Each
ISD1600 Series			
Demo Board for ISD1620	20 Sec.	I16-COB20-ND	3.86
ISD1700 Series			
Demo Board for ISD17150	150 Sec.	ISD-COB17150-ND	9.66
Demo Board for ISD17240	240 Sec.	ISD-COB17240-ND	9.66
Demo Board for ISD1730	30 Sec.	ISD-COB1730-ND	7.72
Demo Board for ISD1760	60 Sec.	ISD-COB1760-ND	7.72

Single-Chip Voice Record/Playback Devices

General Description:
Winbond's patented ChipCorder® technology is a revolutionary multilevel technique to record and play back sound on a single-chip. The advanced technology provides natural sound reproduction, in a cost-effective device that retains stored messages in the event of power loss or battery replacement. The technology, based on a unique multilevel storage approach, stores multiple voltage levels into previously binary, two level EEPROM memory cells. Unlike traditional voice solutions whereby voice is digitized, the Winbond approach stores analog signals directly into single cells as one of over 250 levels. All ChipCorder products integrate the oscillator, microphone pre-amplifier, automatic gain control, anti-aliasing filter, smoothing filter, and speaker amplifier on-chip to achieve a complete "system on a chip." Only a microphone, speaker, power source, and a few passive components are needed to implement a complete record/playback function.

ISD1600B Series: Description: The ISD1600B Series ChipCorder is a single-message, single-chip, record/playback solution with selectable durations from 6.6 to 40 seconds. With the ISD1600B device a minimum record/playback subsystem can be configured with a microphone, a speaker or buzzer, several passive components, two push buttons, and a power source. **Features:** 2.4 ~ 5.5 operating voltage. Sample frequency 4KHz ~ 12KHz controlled by external resistor.

ISD2500 Series: Description: The ISD2500 family offers improvement in speech length up to a maximum of 90 seconds. This extends the single-chip voice solution to industrial and high-end consumer applications. This family offers sound capability for new applications such as cellular phones, answering machines, voice-response faxes, copy machines and industrial applications where voice prompting provides product differentiation for equipment and manufacturers. **Features:** • 5 volt operating range • Fully addressable to handle multiple messages • Directly cascadable for longer durations • Automatic power-down (push-button mode)

ISD400X Series: Description: The ISD4000 series provides high-quality, 3 volt, single-chip record/playback solutions for 2 to 4 minutes (ISD4002), 4 to 8 minutes (ISD4003), and 8 to 16 minutes (ISD4004) messaging applications. These CMOS-based devices include an on-chip oscillator, anti-aliasing filter, smoothing filter, AutoMute™ feature, audio amplifier, and high density, multilevel Flash storage array. **Features:** • Single +3 volt supply • Low-power consumption • AutoMute feature to provide background noise attenuation • Fully addressable to handle multiple messages • On-chip clock source • Microcontroller SPI or Microwire™ Serial Interface

ISD5008 Series: Description: The ISD5008 device is designed for use in a microprocessor- or microcontroller-based system. Address, control, and duration selection are accomplished through a Serial Peripheral Interface (SPI) or Microwire Serial Interface to minimize pin count. Recordings are stored in on-chip nonvolatile memory cells, providing zero-power message storage. Voice and audio signals are stored directly into solid-state memory in their natural, uncompressed form, providing superior quality voice and music reproduction. **Features:** • Fully-integrated solution • Low-power consumption • Single +3 volt supply • Enhanced voice features • Easy-to-use and control • High quality solution

ISD5116 Series: Description: The ISD5116 ChipCorder Product provides high quality, fully integrated, single-chip Record/Playback solutions for 8-16 minute messaging applications that are ideal for use in cellular phones, automotive communications, GPS/navigation systems and other portable products. **Features: Fully-integrated solution:** • Single-chip voice record/playback solution • Low-power consumption supports 2.0V and 3.0V interface logic • Enhanced voice features • Digital memory features up to 4 MB • Easy-to-use and control • High quality voice and music reproduction

ISD1700 Series: Description: The ISD1700 series allows durations of up to 480 seconds (dependant on sample rate). Because of an integrated trigger and SPI interfaces this series can operate in stand-alone or embedded mode. **Features:** 2.4 ~ 5.5 operating voltage. Sample frequency 4KHz ~ 12KHz controlled by external resistor

Duration	Interface	Input Sample Rate (KHZ)	Pkg.	Digi-Key Part No.	Price Each 1	10	25	Winbond Part No.
10 Sec.	Pushbutton	8.0	16-SOIC	ISD1610BSY-ND◆	3.20	2.62	2.10	ISD1610BSY
12 Sec.	Pushbutton	8.0	16-SOIC	ISD1612BSY-ND◆	3.47	2.84	2.27	ISD1612BSY
16 Sec.	Pushbutton	8.0	16-SOIC	ISD1616BSY-ND◆	3.88	3.17	2.54	ISD1616BSY
20 Sec.	Pushbutton	8.0	16-SOIC	ISD1620BSY-ND◆	4.25	3.47	2.78	ISD1620BSY
40 Sec.	Pushbutton/ SPI	8.0	28-TSOP	ISD1740EY-ND◆	5.23	4.19	3.35	ISD1740EY
			28-DIP	ISD1740PY-ND◆	5.23	4.19	3.35	ISD1740PY
			28-SOIC	ISD1740SY-ND◆	5.23	4.19	3.35	ISD1740SY
50 Sec.	Pushbutton/ SPI	8.0	28-TSOP	ISD1750EY-ND◆	5.47	4.38	3.50	ISD1750EY
			28-DIP	ISD1750PY-ND◆	5.47	4.38	3.50	ISD1750PY
1 Min.	Pushbutton/ SPI	8.0	28-TSOP	ISD1760EY-ND◆	5.62	4.59	3.68	ISD1760EY
			28-DIP	ISD1760PY-ND◆	5.62	4.59	3.68	ISD1760PY
			28-SOIC	ISD1760SY-ND◆	5.62	4.59	3.68	ISD1760SY
90 Sec.	SPI	8.0	28-DIP	ISD1790PY-ND◆	6.65	5.43	4.35	ISD1790PY
			28-SOIC	ISD1790SY-ND◆	6.65	5.43	4.35	ISD1790SY
2 Min.	Pushbutton/ SPI	8.0	28-SOIC	ISD17120PY-ND◆	7.32	5.86	4.69	ISD17120PY
			28-DIP	ISD17120SY-ND◆	7.32	5.86	4.69	ISD17120SY
150 Sec.	Pushbutton/ SPI	8.0	28-DIP	ISD17150PY-ND◆	7.67	6.26	5.01	ISD17150PY
3 Min.	Pushbutton/ SPI	8.0	28-TSOP	ISD17180EY-ND◆	8.43	6.89	5.51	ISD17180EY
			28-SOIC	ISD17180PY-ND◆	8.43	6.89	5.51	ISD17180PY
			28-DIP	ISD17180SY-ND◆	8.43	6.89	5.51	ISD17180SY
4 Min.	Pushbutton/ SPI	8.0	28-DIP	ISD17240PY-ND◆	9.64	7.71	6.17	ISD17240PY
			28-SOIC	ISD17240SY-ND◆	9.64	7.71	6.17	ISD17240SY
2 Min.	SPI/ Microwire	8.0	28-DIP	ISD4002-120PY-ND◆	7.91	6.47	5.17	ISD4002-120PY
			28-SOIC	ISD4002-120SY-ND◆	7.91	6.47	5.17	ISD4002-120SY
			28-TSOP	ISD4002-120E-ND	7.91	6.47	5.17	ISD4002-120E

Duration	Interface	Input Sample Rate (KHZ)	Pkg.	Digi-Key Part No.	Price Each 1	10	25	Winbond Part No.
150 Sec.	SPI/ Microwire	6.4	28-TSOP	ISD4002-150E-ND	7.91	6.47	5.17	ISD4002-150E
3 Min.	SPI/ Microwire	5.3	28-DIP	ISD4002-180PY-ND◆	7.91	6.47	5.17	ISD4002-180PY
			28-SOIC	ISD4002-180S-ND	7.91	6.47	5.17	ISD4002-180S
4 Min.	SPI/ Microwire	8.0	28-DIP	ISD4003-04MPY-ND◆	9.71	7.93	6.35	ISD4003-04MPY
			28-SOIC	ISD4003-04MSY-ND◆	9.71	7.93	6.35	ISD4003-04MSY
			28-TSOP	ISD4003-04ME-ND	9.71	7.93	6.35	ISD4003-04ME
5 Min.	SPI/ Microwire	6.4	28-DIP	ISD4003-05MP-ND	9.71	7.93	6.35	ISD4003-05MP
6 Min.	SPI/Microwire	5.3	28-SOIC	ISD4003-06MS-ND	9.71	7.93	6.35	ISD4003-06MS
8 Min.	SPI/ Microwire	4.0	28-SOIC	ISD4003-08MS-ND	9.71	7.93	6.35	ISD4003-08MS
			28-TSOP	ISD4003-08ME-ND	9.71	7.93	6.35	ISD4003-08ME
8 Min.	SPI/ Microwire	8.0	28-DIP	ISD4004-08MPY-ND◆	13.92	11.37	9.10	ISD4004-08MPY
			28-SOIC	ISD4004-08MSY-ND◆	13.92	11.37	9.10	ISD4004-08MSY
			28-TSOP	ISD4004-08MEY-ND◆	13.92	11.37	9.10	ISD4004-08MEY
10 Min.	SPI/ Microwire	6.4	28-DIP	ISD4004-10MP-ND	13.92	11.37	9.10	ISD4004-10MP
			28-TSOP	ISD4004-10ME-ND	13.92	11.37	9.10	ISD4004-10ME
			28-TSOP	ISD4004-10MEY-ND◆	13.92	11.37	9.10	ISD4004-10MEY
12 Min.	SPI/ Microwire	5.3	28-DIP	ISD4004-12MP-ND	13.92	11.37	9.10	ISD4004-12MP
			28-TSOP	ISD4004-12ME-ND	13.92	11.37	9.10	ISD4004-12ME
16 Min.	SPI/ Microwire	4.0	28-DIP	ISD4004-16MPY-ND◆	13.92	11.37	9.10	ISD4004-16MPY
			28-SOIC	ISD4004-16MSY-ND◆	13.92	11.37	9.10	ISD4004-16MSY
4–8 Min.	SPI/ Microwire	4.0-8.0	28-TSOP	ISD5008E-ND	12.02	9.82	7.86	ISD5008E
8–16 Min.	I^2C	4.0-8.0	28-DIP	ISD5116PY-ND◆	14.59	11.68	9.34	ISD5116PY
			28-SOIC	ISD5116SY-ND◆	14.59	11.68	9.34	ISD5116SY
4 Min.	Pushbutton/ SPI	8.0	28-DIP	ISD4002-240PY-ND◆	7.91	6.47	5.17	ISD4002-240PY
4–8 Min.			28-DIP	ISD5008PY-ND◆	12.52	10.23	8.18	ISD5008PY

◆ *RoHS Compliant*

Free shipping on orders over £50! All prices are in British pound sterling and include duties.