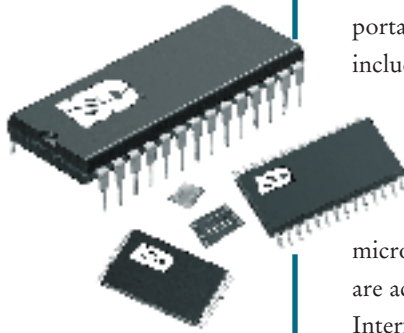






ISD4000 Series

Single-Chip Voice Record/Playback Devices
2- to 16-Minute Durations



The ISD4000 ChipCorder® Products provide high-quality, 3-volt, single-chip record/playback solutions for 2- to 16-minute messaging applications which are ideal for cellular phones and other portable products. The CMOS based devices include an oscillator, antialiasing filter, smoothing filter, AutoMute® feature, audio amplifier, and high density, multilevel Flash storage array. The ISD4000 series is designed to be used in a microprocessor- or microcontroller-based system. Address and control 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. This unique, single-chip solution is made possible through ISD's patented multilevel storage technology. Voice and audio signals are stored directly into memory in their natural form, providing high-quality, solid-state voice reproduction.

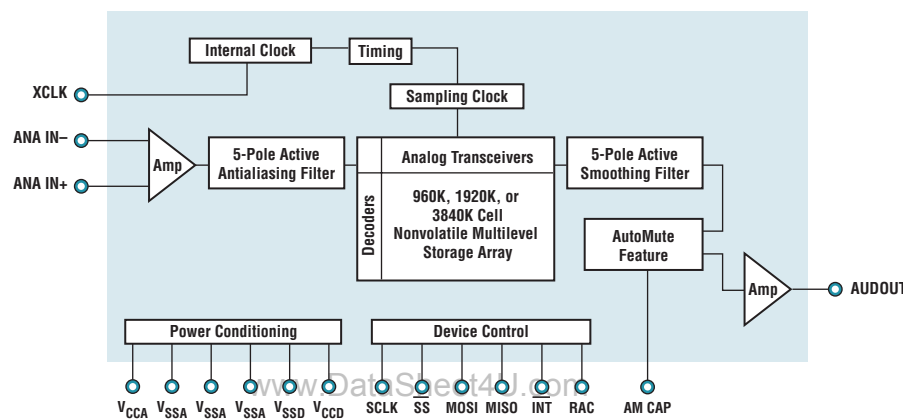
ISD4000 SERIES CAN BE USED IN VARIOUS APPLICATIONS:

- Cellular phones
- Portable Digital Recorders (PDR)
- Automotive
- Telephone Answering Devices (TAD)

FEATURES

- Single-chip voice record/playback solution
- Single +3 volt supply
- Low-power consumption
- Operating current:
 - I_{CC} Play = 15 mA (typical)
 - I_{CC} Rec = 25 mA (typical)
- Standby current 1 μ A (typical)
- Single-chip durations of 2, 2.5, 3, 4, 5, 6, 8, 10, 12 and 16 minutes
- High-quality, natural voice/audio reproduction
- AutoMute feature provides background noise attenuation during periods of silence
- No speech compression algorithm development required
- Microcontroller SPI or Microwire serial interface
- Fully addressable to handle multiple messages
- Nonvolatile message storage
- Power consumption controlled by SPI or Microwire control register
- 100-year message retention (typical)
- 100K record cycles (typical)
- On-chip clock source
- Available in die form, PDIP, SOIC, TSOP and chip scale packaging (CSP)
- Extended temperature (-20°C to +70°C) and industrial temperature (-40°C to +85°C) versions available

ISD4000 SERIES BLOCK DIAGRAM



ISD4000 SERIES AVAILABLE DURATIONS AND SAMPLING RATES

	8.0 KHz	6.4 KHz	5.3 KHz	4.0 KHz
ISD4002 Series (2-4 Minutes)	ISD4002-120 (120 Seconds)	ISD4002-150 (150 Seconds)	ISD4002-180 (180 Seconds)	ISD4002-240 (240 Seconds)
ISD4003 Series (4-8 Minutes)	ISD4003-04M (4 Minutes)	ISD4003-05M (5 Minutes)	ISD4003-06M (6 Minutes)	ISD4003-08M (8 Minutes)
ISD4004 Series (8-16 Minutes)	ISD4004-08M (8 Minutes)	ISD4004-10M (10 Minutes)	ISD4004-12M (12 Minutes)	ISD4004-16M (16 Minutes)

ISD4000 SERIES PACKAGE AND TEMPERATURE AVAILABILITY

	ISD4002 (2-4 Minute)					ISD4003 (4-8 Minute)					ISD4004 (8-16 Minute)				
	TSOP	PDIP	SOIC	DIE	CSP	TSOP	PDIP	SOIC	DIE	CSP	TSOP	PDIP	SOIC	DIE	CSP
Commercial Die (0° to +50°)				•					•					•	
Commercial Packaged (0° to +70°)	•	•	•		•	•	•	•		•	•	•			
Extended (-20° to +70°)	•					•					•				
Industrial (-40° to +85°)	•		•		•	•		•		•	•		•		•

ORDERING THE ISD4000 PRODUCTS
ISD4000 -
Product Series

- 2 = Second Series
(2-4 minutes)
- 3 = Third Series
(4-8 minutes)
- 4 = Fourth Series
(8-16 minutes)

Duration

- 120 = 120 seconds
- 150 = 150 seconds
- 180 = 180 seconds
- 240 = 240 seconds
- 04M = 4 minutes
- 05M = 5 minutes
- 06M = 6 minutes
- 08M = 8 minutes
- 10M = 10 minutes
- 12M = 12 minutes
- 16M = 16 minutes

Package Type

- E = 28 Lead 8 × 13.4mm TSOP
- P = 28 Lead 0.600-inch PDIP
- S = 28 Lead 0.300-inch SOIC
- X = Die
- Z = Chip Scale Package
(CSP, µBGA)

Special Temperature Field

- Blank = Commercial Die
(0°C to +50°C)
or Commercial Packaged
(0°C to +70°C)
- D = Extended
(-20°C to +70°C)
- I = Industrial
(-40°C to +85°C)



ISD, ChipCorder and AutoMute are registered trademarks of ISD.
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 Printed in the U.S.A. ISD4000PB2-699



A Winbond Company

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