



ISD4004 Series

Single-Chip Voice Record/Playback Devices

8-, 10-, 12-, and 16-Minute Durations

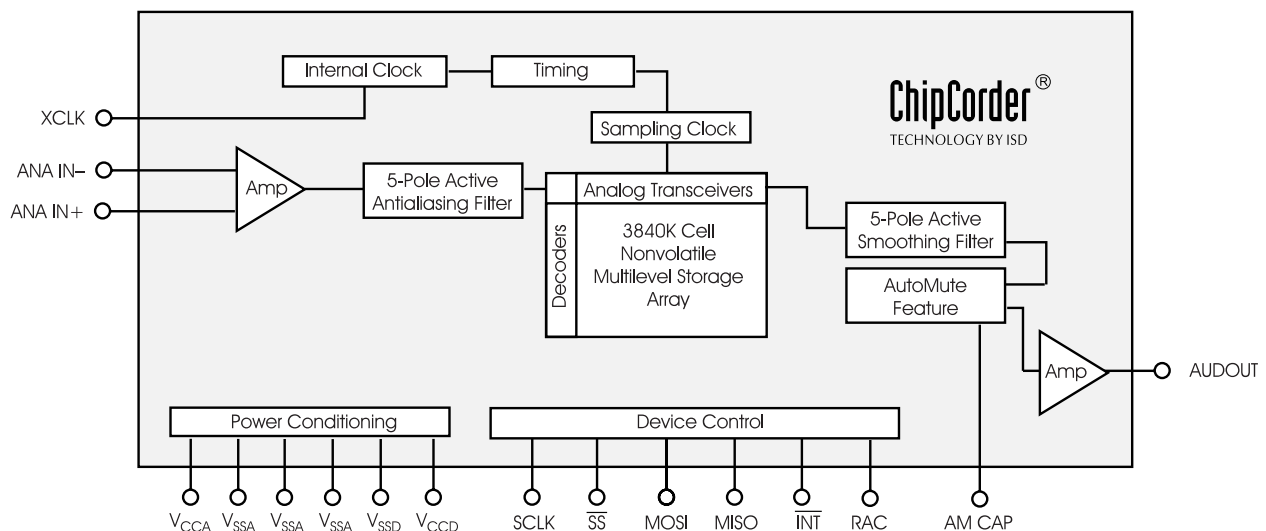
Advanced Information

GENERAL DESCRIPTION

The ISD4004 ChipCorder® Products provide high-quality, 3-volt, single-chip record/playback solutions for 8- to 16-minute messaging applications which are ideal for cellular phones and other portable products. The CMOS-based devices include an on-chip oscillator, antialiasing filter, smoothing filter, AutoMute™ feature, audio amplifier, and high density, multilevel Flash storage array. The ISD4004 series is designed to be used in a micro-processor- 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.

Figure: ISD4004 Series Block Diagram



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 8, 10, 12, and 16 minutes
- High-quality, natural voice/audio reproduction
- AutoMute feature provides background noise attenuation during periods of silence
- No 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, and TSOP
- Extended temperature (–20°C to +70°C) and industrial temperature (–40°C to +85°C) versions available

Table: ISD4004 Series Summary

Part Number	Duration (minutes)	Input Sample Rate (KHz)	Typical Filter Pass Band (KHz)
ISD4004-08M	8.0	8.0	3.4
ISD4004-10M	10.0	6.4	2.7
ISD4004-12M	12.0	5.3	2.3
ISD4004-16M	16.0	4.0	1.7

Table of Contents

DETAILED DESCRIPTION	1
Speech/Sound Quality	1
Duration	1
Flash Storage	1
Microcontroller Interface	1
Programming	1
PIN DESCRIPTIONS	1
Voltage Inputs (V_{CCA} , V_{CCD})	1
Ground Inputs (V_{SSA} , V_{SSD})	1
Non-Inverting Analog Input (ANA IN+)	3
Inverting Analog Input (ANA IN-)	3
Audio Output (AUD OUT)	3
Slave Select (SS)	3
Master Out Slave In (MOSI)	3
Master In Slave Out (MISO)	3
Serial Clock (SCLK)	3
Interrupt (\overline{INT})	3
Row Address Clock (RAC)	4
External Clock Input (XCLK)	4
AutoMute™ Feature (AM CAP)	4
SERIAL PERIPHERAL INTERFACE (SPI) DESCRIPTION	5
Message Cueing	5
Power-Up Sequence	6
SPI Port	7
SPI Control Register	7
TIMING DIAGRAMS	14
DEVICE PHYSICAL DIMENSIONS	18
ORDERING INFORMATION	23

FIGURES, CHARTS, AND TABLES IN THE ISD4004 SERIES DATA SHEET

Figure 1:	ISD4004 Series TSOP and PDIP/SOIC Pinouts	2
Figure 2:	ISD4004 Series ANA IN Modes	2
Figure 3:	SPI Port	7
Figure 4:	SPI Interface Simplified Block Diagram	8
Figure 5:	Timing Diagram	14
Figure 6:	8-Bit Command Format	14
Figure 7:	24-Bit Command Format	15
Figure 8:	Playback/Record and Stop Cycle	15
Figure 9:	Application Example Using SPI	16
Figure 10:	Application Example Using Microwire	17
Figure 11:	Application Example Using SPI Port on Microcontroller	17
Figure 12:	28-Lead 8x13.4 mm Plastic Thin Small Outline Package (TSOP) Type I (E)	18
Figure 13:	28-Lead 0.600-Inch Plastic Dual Inline Package (PDIP) (P)	19
Figure 14:	28-Lead 0.300-Inch Plastic Small Outline Integrated Circuit (SOIC) (S)	20
Figure 15:	ISD4004 Series Bonding Physical Layout (Unpackaged Die)	21
Table 1:	External Clock Input Clocking Table	4
Table 2:	Opcode Summary	6
Table 3:	SPI Control Register	7
Table 4:	Absolute Maximum Ratings (Packaged Parts)	8
Table 5:	Operating Conditions (Packaged Parts)	8
Table 6:	DC Parameters (Packaged Parts)	9
Table 7:	AC Parameters (Packaged Parts)	9
Table 8:	Absolute Maximum Ratings (Die)	11
Table 9:	Operating Conditions (Die)	11
Table 10:	DC Parameters (Die)	11
Table 11:	AC Parameters (Die)	12
Table 12:	SPI AC Parameters	13
Table 13:	Plastic Thin Small Outline Package (TSOP) Type I (E) Dimensions	18
Table 14:	Plastic Dual Inline Package (PDIP) (P) Dimensions	19
Table 15:	Plastic Small Outline Integrated Circuit (SOIC) (S) Dimensions	20
Table 16:	ISD4004 Series Device Pin/Pad Designations, with Respect to Die Center (μm)	22

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