**ISD**®

# ISD33120/150/180/240 Products
## Single-Chip Voice Record/Playback Devices
## 2-, 2.5-, 3-, and 4-Minute Durations

## GENERAL DESCRIPTION

The ISD33120/150/180/240 ChipCorder® Products provide high-quality, 3-volt, single-chip record/playback solutions for 2- to 4-minute messaging applications which are ideal for cellular phones and other portable products. The CMOS devices include an on-chip oscillator, antialiasing filter, smoothing filter, AutoMute™ feature, audio amplifier, and high density, multilevel storage array. The ISD33000 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.

**Figure: ISD33000 Series Block Diagram**
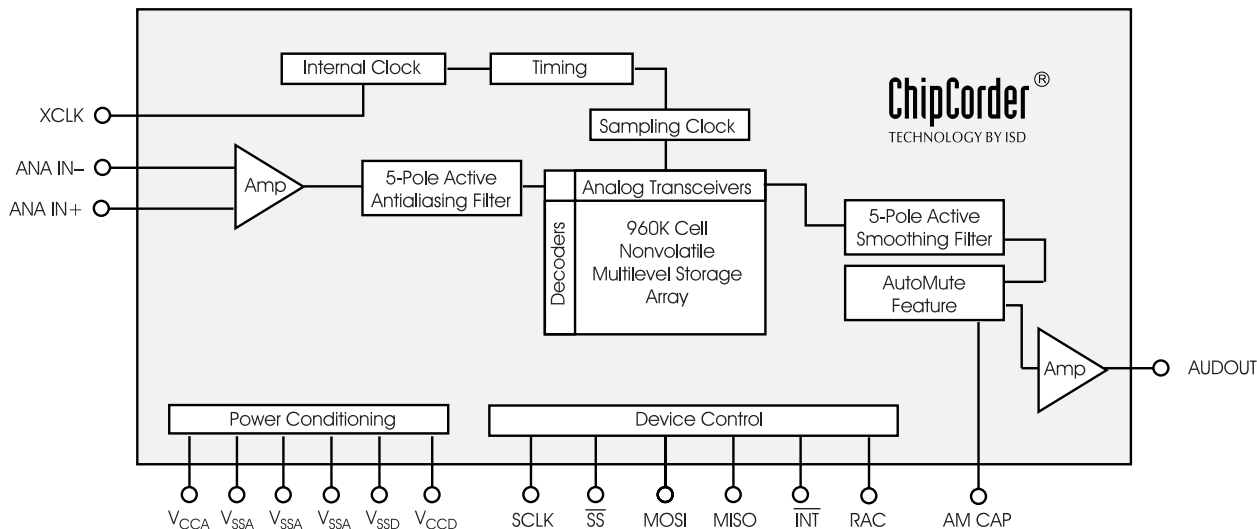
## FEATURES

- Single-chip voice record/playback solution

- Single +3 volt supply

- Low-power consumption
    - Operating current:
      $I_{CC}$ Play = 25 mA (typical)
      $I_{CC}$ Rec = 30 mA (typical)
    - Standby current: 1 $\mu$A (typical)

- Single-chip durations of 2 to 4 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)

- 100,000 record cycles (typical)

- On-chip clock source

- Available in die form, PDIP, SOIC, and TSOP packaging

- Extended temperature (–20°C to +70°C) and industrial temperature (–40°C to +85°C) versions available

**Table: ISD33120/150/180/240 Product Summary**

| Part Number | Duration | Input Sample Rate (KHz) | Typical Filter Pass Band (KHz) |
|---|---|---|---|
| ISD33120 | 2.0 Min. | 8.0 | 3.4 |
| ISD33150 | 2.5 Min. | 6.4 | 2.7 |
| ISD33180 | 3.0 Min. | 5.3 | 2.3 |
| ISD33240 | 4.0 Min. | 4.0 | 1.7 |

*Voice Solutions in Silicon*™

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