

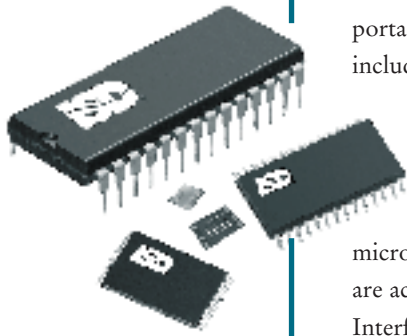


## Product Brief

ChipCorder®

# 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.

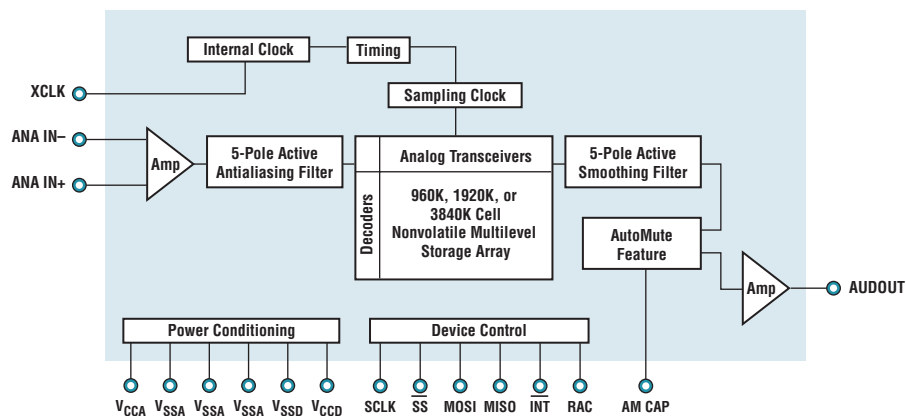
### ISD40000 SERIES CAN BE USED IN VARIOUS APPLICATIONS:

- 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  $\mu$ 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





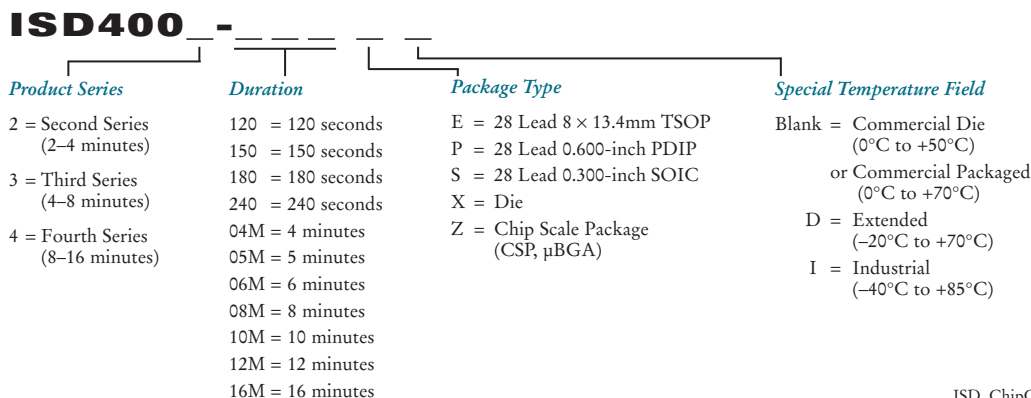
**ISD4000 SERIES AVAILABLE DURATIONS AND SAMPLING RATES**

|                                  | 8.0 KHz                      | 6.4 KHz                      | 5.3 KHz                      | 4.0 KHz                      |
|----------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| ISD4002 Series<br>(2-4 Minutes)  | ISD4002-120<br>(120 Seconds) | ISD4002-150<br>(150 Seconds) | ISD4002-180<br>(180 Seconds) | ISD4002-240<br>(240 Seconds) |
| ISD4003 Series<br>(4-8 Minutes)  | ISD4003-04M<br>(4 Minutes)   | ISD4003-05M<br>(5 Minutes)   | ISD4003-06M<br>(6 Minutes)   | ISD4003-08M<br>(8 Minutes)   |
| ISD4004 Series<br>(8-16 Minutes) | ISD4004-08M<br>(8 Minutes)   | ISD4004-10M<br>(10 Minutes)  | ISD4004-12M<br>(12 Minutes)  | ISD4004-16M<br>(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<br>(0° to +50°)      |                      |      |      | •   |     |                      |      |      | •   |     |                       |      |      | •   |     |
| Commercial Packaged<br>(0° to +70°) | •                    | •    | •    |     | •   | •                    | •    | •    |     | •   | •                     | •    | •    |     | •   |
| Extended<br>(-20° to +70°)          | •                    |      |      |     |     | •                    |      |      |     |     | •                     |      |      |     |     |
| Industrial<br>(-40° to +85°)        | •                    |      | •    |     | •   | •                    |      | •    |     | •   | •                     |      | •    |     | •   |

**ORDERING THE ISD4000 PRODUCTS**



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