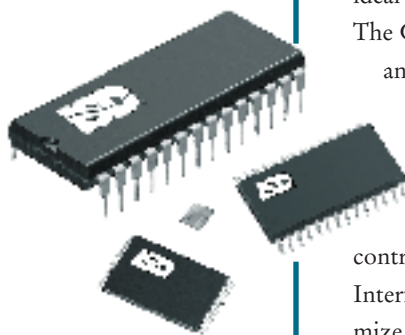


# ISD33000 Series

**Single-Chip Voice Record/Playback Devices**  
60-, 75-, 90- and 120-Second Durations and 2-, 2.5-, 3- and 4-Minute Durations



The ISD33000 ChipCorder® Series provides high-quality, 3-volt, single-chip record/playback solutions for 1- 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.

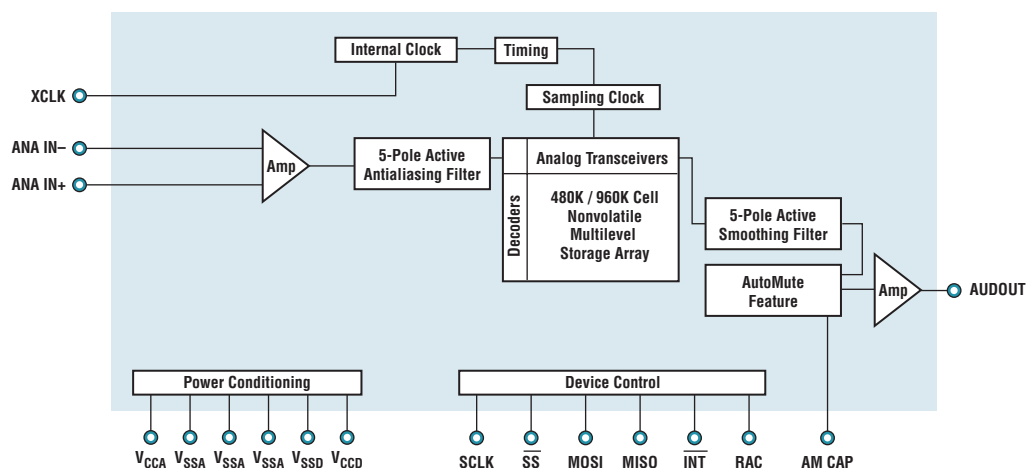
## ISD33000 SERIES CAN BE USED IN VARIOUS APPLICATIONS:

- Cellular phones
- Personal Digital Recorders (PDR)
- Automotive
- Personal Digital Assistants (PDA)

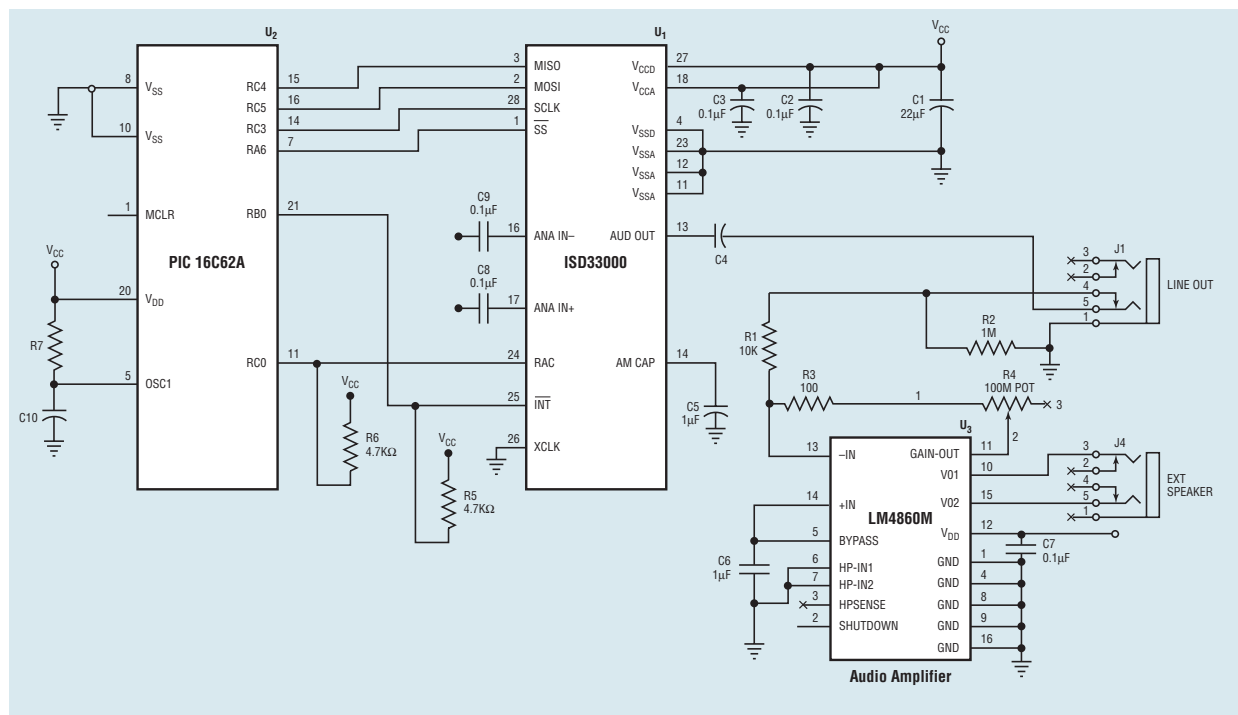
## FEATURES

- 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 60, 75, 90 and 120 seconds; 2, 2.5, 3 and 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 ( $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ ) and industrial temperature ( $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ) versions available

## ISD33000 SERIES BLOCK DIAGRAM



## ISD33000 SERIES APPLICATION EXAMPLE



| ISD33000 SERIES<br>PACKAGE AND<br>TEMPERATURE<br>AVAILABILITY | ISD33060 (60 Seconds), ISD33075 (75 Seconds)<br>ISD33090 (90 Seconds), ISD33120 (2 Minutes)<br>ISD33150 (2.5 Minutes), ISD33180 (3 Minutes) |      |      |     | ISD33120-4 (120 Seconds) |      |      |     | ISD33240 (4 Minutes) |      |      |     |
|---|---|------|------|-----|--------------------------|------|------|-----|----------------------|------|------|-----|
|   | TSOP  | PDIP | SOIC | DIE | TSOP                     | PDIP | SOIC | DIE | TSOP                 | PDIP | SOIC | DIE |
| Commercial Die<br>(0° to +50°)                                |   |      |      | •   |                          |      |      | •   |                      |      |      | •   |
| Commercial Packaged<br>(0° to +70°)                           | •   | •    | •    |     | •                        |      |      |     | •                    | •    | •    |     |
| Extended<br>(-20° to +70°)                                    | •   | •    | •    |     |                          |      |      |     |                      |      |      |     |
| Industrial<br>(-40° to +85°)                                  | •   | •    | •    |     |                          |      |      |     | •                    |      |      |     |

## ORDERING THE ISD33000 PRODUCTS

## ISD33

| Product Series  | Duration  | Package Type   | Special Temperature Field  |
|-----------------|---|--|--|
| ISD33000 Series | 060 = 60 sec.<br>075 = 75 sec.<br>090 = 90 sec.<br>120-4 = 120 sec.<br>120 = 2.0 min.<br>150 = 2.5 min.<br>180 = 3.0 min.<br>240 = 4.0 min. | E = 28 Lead 8 × 14.4mm TSOP<br>P = 28 Lead 0.600-inch PDIP<br>S = 28 Lead 0.300-inch SOIC<br>X = Die | Blank = Commercial Die<br>(0°C to +50°C)<br>or Commercial Packaged<br>(0°C to +70°C)<br>D = Extended<br>(-20°C to +70°C)<br>I = Industrial<br>(-40°C to +85°C) |

## PRODUCT SUMMARY

| Duration         | Input Sample Rate (KHz) | Typical Filter Pass Band (KHZ) |
|------------------|-------------------------|--------------------------------|
| 060 = 60 sec.    | 8.0                     | 3.4                            |
| 075 = 75 sec.    | 6.4                     | 2.7                            |
| 090 = 90 sec.    | 5.3                     | 2.3                            |
| 120-4 = 120 sec. | 4.0                     | 1.7                            |
| 120 = 2.0 min.   | 8.0                     | 3.4                            |
| 150 = 2.5 min.   | 6.4                     | 2.7                            |
| 180 = 3.0 min.   | 5.3                     | 2.3                            |
| 240 = 4.0 min.   | 4.0                     | 1.7                            |



To Order Products or More Information:

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Printed in the U.S.A. ISD33000PB1-699

