ISD5008 SERIES

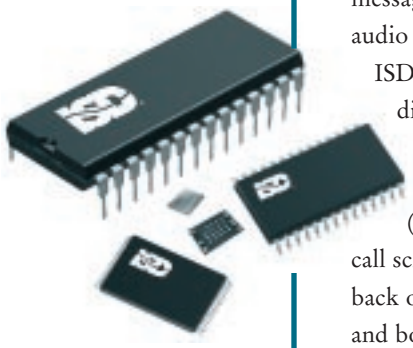
SINGLE-CHIP,
VOICE RECORD / PLAYBACK DEVICES
4- TO 8-MINUTE DURATION

Product Brief

ChipCorder®

ISD5008

Single-Chip Voice Record/Playback Device
4- to 8-Minute Durations



The ISD5008 ChipCorder® product is a fully integrated, single-chip, 3V solution providing seamless integration of four to eight minutes of enhanced messaging features. Additional analog functions and audio gating have also been integrated into the ISD5008 to allow easy interface with integrated digital cellular chipsets. Audio paths have been designed to enable full duplex conversation record, voice memo, answering machine (including outgoing message playback) and call screening features. This product enables playback of messages while the phone is in standby, and both simplex and duplex playback of messages while on a phone call.

The ISD5008 integrates the sampling clock, anti-aliasing and smoothing filters, and the multi-level storage array onto a single-chip. This low power product eliminates external system components by integrating automatic gain control, power amplifier/speaker driver, volume control, summing amplifiers, analog switches and an auxiliary output interface.

Adjustable input amplifiers provide a flexible interface for multiple applications. Sample rates are dynamically programmable for optimizing the audio quality and the durations for the various features required.

The ISD5008 device is designed for use in a microprocessor- or microcontroller-based system. Address, control and duration are enabled through a Serial Peripheral Interface (SPI) or Microwire™ serial interface to minimize pin count. Recordings are stored in ISD's patented multilevel memory cells making zero-power message storage possible. Voice and audio are stored directly into solid-state memory in their natural, uncompressed from, creating superior quality voice and music reproduction.

ISD5008 DEVICE CAN BE USED IN VARIOUS APPLICATIONS:

- Digital cellular phones
- Automotive communications
- GPS/navigation systems
- Portable communication products

FEATURES

Fully-Integrated Solution

- Single-chip voice record/playback solution
- Integrated sampling clock, anti-aliasing and smoothing filters and multi-level storage array
- Integrated analog features: automatic gain control (AGC), audio gating switches, speaker driver (23mW with 8 ohm load), summing amplifiers, volume control and an auxiliary output

Easy-to-Use and Control

- No voice or audio compression algorithm needed
- Programmable sample rates of 8.0, 6.4, 5.3 or 4.0 KHz providing up to 8 minutes of voice storage
- Microcontroller SPI or Microwire serial interface
- Fully addressable to handle multiple messages

Low-Power Consumption

- Single +3V supply
- Operating current (typical): I_{CC} Play = 15 mA
  I_{CC} Rec = 30 mA
  I_{CC} Feedthru = 12 mA
- Power down modes controlled by SPI or Microwire control register

Enhanced Voice Storage Features for Digital Cellular

- One- or two-way (full duplex) conversation record
- One- or two-way (full duplex) message playback (while on a call)
- Voice memo record and playback
- Private call screening
- In-terminal answering machine
- Personalized outgoing message (given caller ID information from host chip set)
- Private call announce while on call (given CIDCW information from host chip set)

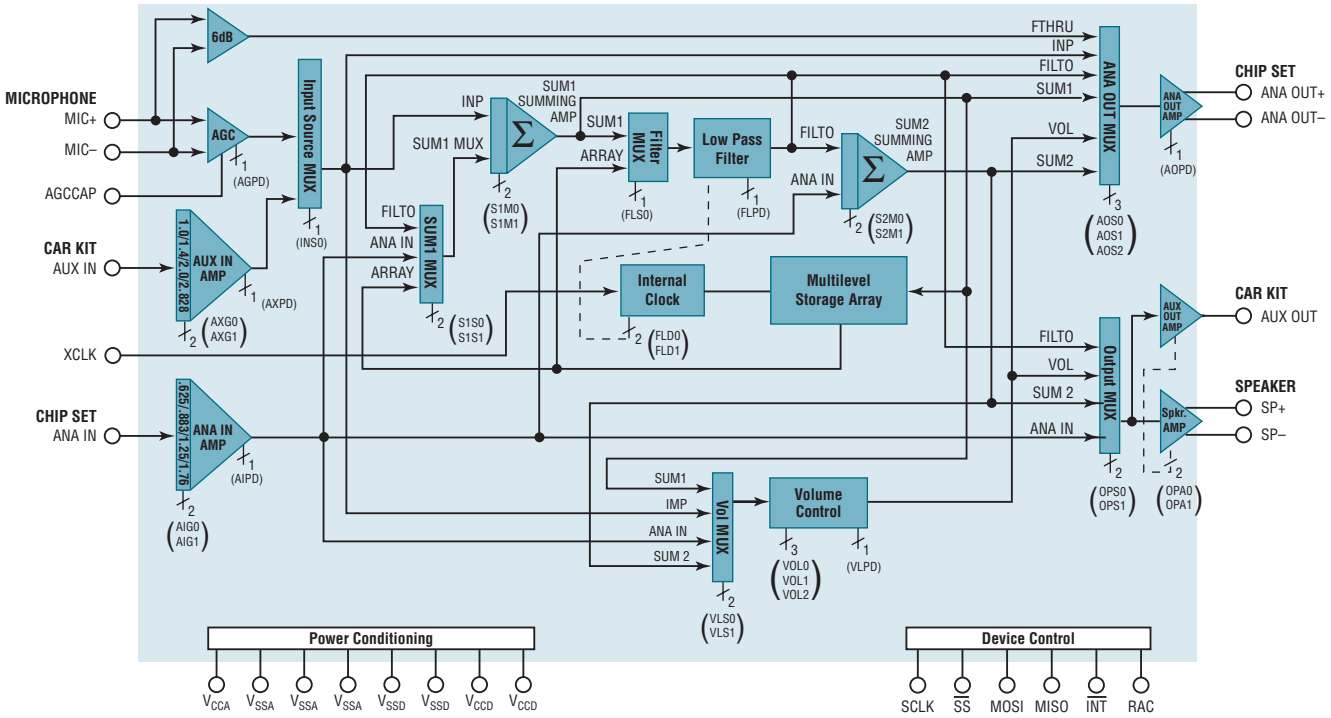
High Quality Solution

- High quality voice and music reproduction
- ISD's standard 100-year message retention (typical)
- 100,000 record cycles (typical)

Options

- Available in die form, PDIP, SOIC, TSOP and chip scale packaging (CSP)
- Extended temperature (–20 to +70°C) and industrial temperature (-40 to +85°C) versions available

ISD5008 BLOCK DIAGRAM

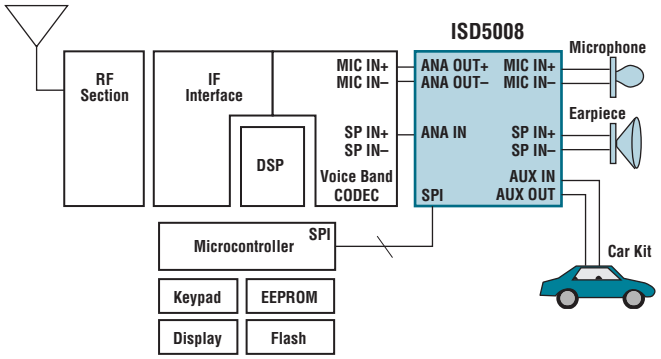


ISD5008 PACKAGE AND TEMPERATURE AVAILABILITY

	TSOP	PDIP	SOIC	DIE	CSP
Commercial Die (0 to +50°)				•	
Commercial Packaged (0 to +70°)	•	•	•		•
Extended (–20 to +70°)	•		•		•
Industrial (–40 to +85°)	•		•		•

ISD5008 APPLICATION EXAMPLE:

Digital Cellular Terminal System Block Diagram



ORDERING THE ISD5008 PRODUCTS

ISD5008 __ __

Product

ISD5008
(4–8 minutes)

Package Type

E = 28-Lead 8 × 14.4mm TSOP Type 1
P = 28-Lead 0.600-in. PDIP
S = 28-Lead 0.300-in. SOIC
X = Die
Z = Chip Scale Package (CSP, µBGA)

Special Temperature Field

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

ISO9001 CERTIFIED

Printed in the U.S.A. ISD5008PB3-1099

A Winbond Company

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