

Speech synthesis middleware optimised for piezo speakers.



sodi^{ac} for PIEZO



Highly effective at low cost. / Durable and reliable

Power-saving and long-lasting

Clear and intelligible voice guidance

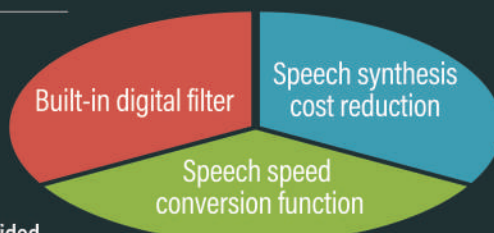
Revolutionary voice guidance solutions. Low cost and high effectiveness with piezo technology.

A new era of voice guidance, with Japanese piezo technology.

Features

- 01. Sound quality and volume approaching that of dynamic SPs through unique voice technology.
- 02. Digital filter / Speech speed conversion / Volume adjustment function / Built-in voice recombination function
- 03. Easy-to-understand voice for an ageing society by speech speed conversion improves product value.
- 04. Lightweight and compact middleware (ROM: 4 to 6 Kbyte, RAM: 100 to 200 byte)

*Dependent on microcontroller



Main functions

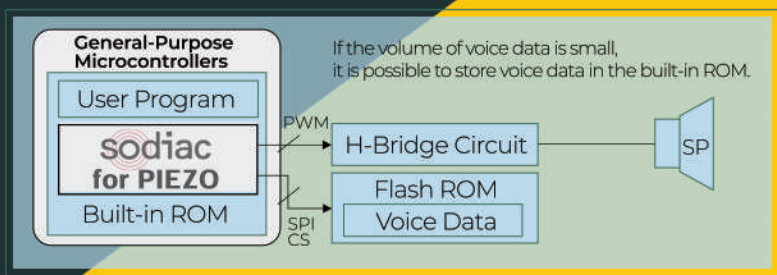
- 01. Dedicated H-bridge circuit for piezo speaker provided.
- 02. Built-in digital filter to reduce the number of components and cost.
- 03. Speech speed conversion function (Arbitrary speed specification from 0.5x [slow] to 1.5x [fast] is possible)*1.
- 04. Speech recombination function (Reduces the volume of speech data by recombining words)*1
- 05. Speech data compression function (realises high compression rate by applying ADPCM and speech speed conversion function)*2

*1: Our original function

*2: Up to 1/5 of the data can be compressed.

Examples of use

Block Diagram



01. Household appliances

Operation guides and alert sounds for washing machines, refrigerators, air conditioners, etc.

02. Cooking items

Cooking guide and timer end-of-day notifications.

03. Transport

Next stop and fare information for auto rickshaws and buses.

04. Entertainment

TV and radio channel guide and volume control information.

05. Markets and Shopping

Market shop guides and product information.

06. Smart home products

Guide to operating home security systems and appliances.

07. Health care equipment

Operating guides and emergency alerts for medical equipment.

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Specification

Item	Specification
Sampling frequency	8, 9, 10, 11 or 12 kHz (select one)
Speech synthesis method	4-bit ADPCM, 8-bit straight/non-linear PCM, 16-bit PCM
Volume control	16 steps (0 to -28db (-2db steps), mute) (*1)
Maximum number of words uttered	4096 words (built-in recombination function for up to 256 words)
Speech speed conversion (*2)	0.5x (slow) to 1.5x (fast)
Silence playback	4 ms - 1024 ms (4 ms steps)
BEEP sound reproduction	Amplitude : 1/1, 3/4, 1/2, 1/4 Frequency : 0.5, 1.0, 1.3, 2.0 [kHz] Time length : 4 ms to 1024 ms (square wave, sine wave 4 ms steps)
Piezo element applied voltage	15V to 30V
Resources used	ROM: 4-6 Kbyte (*3), RAM: 100-200 byte (*3) PWM: 2 ports, SPI: 1 port, General-purpose I/O: 1 port (CS in ROM)

*1 Customisable *2 Selectable whether or not mounting is required *3 Depends on microcontroller

Sodi^{ac} Series

Solution name	Solution Overview
Sodi ^{ac} Basic	Speech synthesis middleware for dynamic speakers
Sodi ^{ac} for Piezo Lite	"Sodi ^{ac} for Piezo" for low-volume speech
Sodi ^{ac} VD04	Sodi ^{ac} Basic built-in voice IC (RL78/G12 from Renesas)
Sodi ^{ac} VD07	Sodi ^{ac} Basic built-in speech IC (HT66FV140 from HOLTEK)

Services Offered

As an expert in voice processing technology, we offer a **one-stop service** from arranging narrators and voice production to middleware integration, circuit/board/acoustic design, voice quality improvement consulting and mass production.

*Narrator arrangements
Audio production*

*Circuit and Board design
Acoustic design
Acoustic consulting*

*Speech synthesis
Middleware
and Device provision*

*Mass production
support*



Alex applies all of its long-standing audio know-how to your products.

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