



Dear customer

ROHM Co., Ltd. ("ROHM"), on the 1st day of April, 2024,
has absorbed into merger with 100%-owned subsidiary of LAPIS Technology Co., Ltd.

Therefore, all references to "LAPIS Technology Co., Ltd.", "LAPIS Technology"
and/or "LAPIS" in this document shall be replaced with "ROHM Co., Ltd."

Furthermore, there are no changes to the documents relating to our products other than
the company name, the company trademark, logo, etc.

Thank you for your understanding.

ROHM Co., Ltd.
April 1, 2024

Dear customer

LAPIS Semiconductor Co., Ltd. ("LAPIS Semiconductor"), on the 1st day of October, 2020, implemented the incorporation-type company split (shinsetsu-bunkatsu) in which LAPIS established a new company, LAPIS Technology Co., Ltd. ("LAPIS Technology") and LAPIS Technology succeeded LAPIS Semiconductor's LSI business.

Therefore, all references to "LAPIS Semiconductor Co., Ltd.", "LAPIS Semiconductor" and/or "LAPIS" in this document shall be replaced with "LAPIS Technology Co., Ltd."

Furthermore, there are no changes to the documents relating to our products other than the company name, the company trademark, logo, etc.

Thank you for your understanding.

LAPIS Technology Co., Ltd.

October 1, 2020

4-Channel Mixing Speech Synthesis LSI with Built-in MASKROM for Automotive

ML22594

LSI

Overview

The ML22594 is a high-quality speech synthesis LSI with built-in MASKROM suitable for automobile application. The LSI, which includes an high-quality HQ-ADPCM decoder, 16-bit DAC, a low-pass filter, a monaural speaker amplifier, and over-current detectible function for Speaker Pins, incorporates the peripheral components necessary for speech output in a single chip. Furthermore, the LSI is provided the high sound quality and a long time sound playback by using the external ROM.

Application examples

- Automobile meter panel
- Car back radar
- Car alarm
- Voice guidance of parking
- Voice guidance of equipments
- Turn signals sound

Features

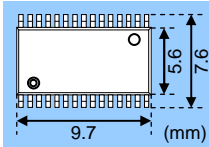
- Built-in high-quality HQ-ADPCM
- Built-in speaker amplifier(1.0W/5V using 8Ω)
- Built-in external analog mixing function
- Power-supply-voltage detection
- Over-current detectible function for Speaker Pins
- 4-channel mixing function enabling simultaneous playback
- CPU IF : Clock synchronizer serial interface
- External ROM IF : Clock synchronizer serial interface

Playback Time

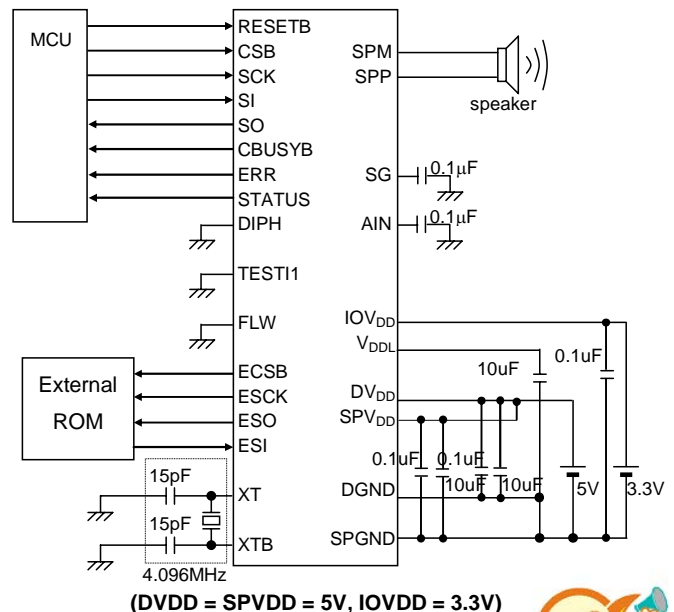
(HQ-ADPCM method)

Product name	Memory type	ROM capacity (bits)	Maximum playback time (s)		
			fs=8.0k	fs=16.0k	fs=32.0k
ML22594	MASK (Internal)	6M	243	121	60
	External	128M	5240	2620	1310

Major Specifications

Speech synthesis method	HQ-ADPCM 8-bit nonlinear PCM 8-bit PCM, 16-bit PCM (Can be specified for each phrase.)
Sampling frequency Fosc = 4.096MHz	6.4k, 8.0k, 10.7k, 12.0k, 12.8k, 16.0k, 24.0k, 25.6k, 32.0k, 48.0kHz (Each phrase can be specified)
Speaker amplifier output	1.0 W (8W, 5V)
Playback phrase count	Up to 1024 phrases (Internal 512 phrases, External 512 phrases)
Other functions	Volume control, Repeat function
Operating power supply voltage	+4.5 to +5.5V
Operating temperature range	-40 to +105°C
Package	30-pin plastic SSOP (2-direction lead type 0.65 mm lead pitch)  (SSOP30-P-56-0.65-Z6K)

Application Circuit



HQ-ADPCM is audio compression technology featuring high-quality sound. It was developed by "Ky's". "Ky's" is a registered trademark of Kyushu Institute of Technology, one of the national universities in Japan.