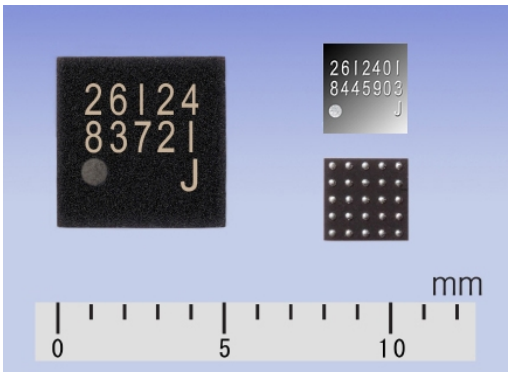
OKI SEMICONDUCTOR

Oki Semiconductor expands its ultra-compact Audio LSI lineup

- Launching the new ML26124 based on the acclaimed ML26123 with the addition of two microphone inputs -



TOKYO, March 24, 2009 – Oki Semiconductor Co., Ltd. has developed and will start shipment of the ML26124 this month. The ML26124 is a 16-bit monaural audio CODEC LSI optimized for high-quality recording and playback in portable devices. This LSI is an upgraded version of the popular ML26123 CODEC LSI, and features improved features while maintaining compatibility with the ML26123 facilitating a migration path from existing designs using the ML26123. New features include the availability of two direct microphone inputs, the addition of a 9-dB gain setting for the video amplifier, and the capability of supporting a video amplifier impedance of 75 Ω to 300 Ω. This LSI incorporates an embedded power regulator[*1] that enables stable audio performance regardless of the signal condition of the power supply. There are two options in the package type: a 5-mm-by-5-mm QFN package that facilitates board design and a 2.56-mm-by-2.46-mm ultra-compact W-CSP[*2] package that minimizes board space requirements. These package options satisfy requirements of a wide range of portable devices.

The ML26123 started shipping in 2008 and since then has gained popularity as an easy-to-use CODEC offering stable audio performance. The ML26124 was newly developed to incorporate functions based on customer feedback. The main functions added to the ML26124 are as follows.

1. Selector switch between internal microphone and external microphone
2. Addition of a 9-dB selection in the video amplifier gain range
3. Increase in the impedance value range for the video amplifier input (new range from 75 Ω to 300 Ω)

The ML26124 is fully compatible with the ML26123 in terms of package, internal registers and power supply noise rejection.

Features

Supports two microphone inputs

The following microphone selections are available according to the package type.

Microphone type	ML26124-00GD	ML26124-01HB (W-CSP)

	(QFN package)	
Single-ended	2 mic input selection	1 mic only
Differential	Yes	No

Embedded AV output video amplifier

The LSI includes a composite signal[*3] output video amplifier allowing 6 dB, 9 dB, and 12 dB gain settings. The video amplifier input impedance supports a wide range from 75 Ω to 300 Ω.

Provides stable audio performance regardless of the signal condition of the power supply

The LSI uses the acclaimed power regulator used in the ML26123, providing stable recording and playback even with less-than-optimal power supply signal conditions. This embedded regulator enables the PSRR (power supply rejection ratio)[*4] to exceed 90 dB, an increase of over 500 times compared with previous products.

Ultra-compact package technology

The LSI has two options in package type: a 5-mm-by-5-mm QFN package that facilitates board design and a 2.56-mm-by-2.46-mm ultra-compact W-CSP[*2] package.

Acoustic functions optimized for portable devices

The LSI includes three acoustic functions for ensuring high-quality sound recording in portable devices: 5-band noise reduction notch filter[*5], 5-band programmable equalizer[*6], and high-pass filter for wind noise reduction.

Support for digital microphone interface

The LSI features interface circuits allowing the connection of digital microphones. Digital microphones digitize the voice signals using an internal circuit to prevent interference due to superimposed noise along the signal path especially when the microphone and audio CODEC are separated by some distance.

Oki Semiconductor plans to continue expanding its range of audio LSI products capable of offering rich sound for use in compact and slim personal mobile applications. Details of Oki Semiconductor's audio LSI technology and products can be found at the Oki Semiconductor website.

Sales Plan

- Product name ML26124-00GD/ML26124-01HB
- Sample shipment: Now
- Evaluation board shipment: Now
- Volume shipment: Now

Other features

- Monaural CODEC: ADC SNR 92dB/DAC SNR 95dB
- ALC/ limiter
- Simultaneous recording and playback
- Video amplifier for composite signal output without using an external capacitor
- 420mW　Monaural 8Ω speaker amplifier
- Line amplifier
- Wind noise reduction filter, Notch filter for recording, Programmable equalizer for playback
- Serial audio interface
- Sampling frequency：8k、11.025k、12k、16k、22.05k、24k、32k、44.1k、48k Hz
- Drive voltage:

  Regulator (HVDD2)　2.7V～3.6V

  Speaker, video amplifier (HVDD1)　2.7V～3.6V
- Package:　ML26124-00GD　32pin QFN（5mm×5mm）

  ML26124-01HB　25pin W-CSP（2.56mm×2.46mm）

Glossary

*1: Power Regulator: Circuit correcting current fluctuations caused by external noise to ensure a stable current.

*2: W-CSP (Wafer level Chip Size Package): Technology incorporating entire package in wafer state, enabling LSI package to be reduced in size to the same dimensions as the chip.

*3: Composite signal: Composite video signal which combines the brightness and color signals making up a television image.

*4: PSRR (Power Supply Rejection Ratio): Measure of the immunity of the output signal against variations in the power supply signal. Higher PSRR values indicate a stable output with respect to power supply voltage fluctuations.

*5: Notch filter: A filter capable of reducing noise at a specific frequency by attenuating gain for a specific frequency. This is used to reduce superimposed interference noise at a specific frequency during recording.

*6: Programmable equalizer: An equalizer capable of setting and correcting the center frequency and cutoff frequency of a signal as required.

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