

OKI

OKI SEMICONDUCTOR

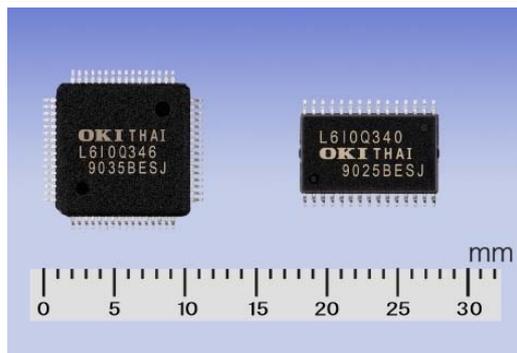
Oki Semiconductor starts shipping samples of ML610340 Series low-power microprocessor family with built-in audio playback function

TOKYO, March 26, 2009 – Oki Semiconductor has developed six products in the ML610340 Series low-power microprocessor family with a built-in audio playback function, ideal for playback of short audio clips such as those used in alarms and voice guidance systems.

These products combine high-quality voice synthesis refined over 25 years together with a microprocessor optimized for low power operation (0.5 μ A at standby).

They also feature a built-in high-output speaker amplifier producing 1.0 W at 5 V. Shipping of ML610340 Series samples starts today, with full-production versions scheduled to ship from October 2009.

Oki Semiconductor intends to expand its range of low-power microprocessors featuring built-in audio playback function and to develop and market attractive products suited to our customers' diverse needs.



Recent years have seen increasing demand for environmentally friendly products, with products with ever-lower power consumption being developed in a wide range of markets. There is a particularly high demand for low-power-consumption devices in home-use devices and toys capable of extended battery-powered operation and in the security products market, for alarm units and the like. Oki Semiconductor has developed the ML610340 Series of low-power microprocessors featuring built-in audio playback function, which offer high audio quality with low power consumption, by combining its extensive technical experience in microprocessors, audio functions, and speaker amplifiers together with HQ-ADPCM*1 to produce high-quality, high-compression audio data on a single chip.

Features

Low-power-consumption microprocessor

The ML610340 Series uses the U8 microprocessor, incorporating Oki Semiconductor proprietary technology, to achieve low power consumption of 0.5 μ A at standby.

HQ-ADPCM low-pass filter for high-quality, high-compression audio

The ML610340 Series incorporates Oki Semiconductor's proprietary HQ-ADPCM audio compression technology to produce high-quality, high-compression audio data. This new technology allows 20% higher data compression than previous ADPCM, enabling high-quality audio with a smaller memory size than previous products. The inclusion of a low-pass filter further enhances the clarity of the sound.

1.0 W high-output AB-class speaker amplifier

The ML610340 Series incorporates an AB-class speaker amplifier capable of high volume with high quality audio. The products incorporate a 1.0 W high-output speaker amplifier, making the products ideal for alarm units or toys requiring high-volume audio output.

High-efficiency RISC CPU*2

The ML610340 Series incorporates Oki Semiconductor's nX-U8/100 CPU, utilizing a RISC architecture. 3-stage pipeline processing*3 ensures that virtually all instructions are executed in a single cycle. High performance is provided by bit operation instructions and multiplication calculations capable of high-speed memory access.

On-chip debugging

The ML610340 Series can be connected to the uEASE on-chip debugging emulator for software debugging in the system operation state as well as flash memory erasure and writing when circuit board mounted, helping to reduce customers' product development lead times

Sales Plan

- Product name ML610Q340, ML610Q346, ML610Q347, ML610340, ML610346, ML610347
- Sample shipment: March 2009
- Volume shipment: October 2009
- Shipment of software development tool (on-chip debugging emulator: uEASE), LCD Tool: March 2009

Summary of the ML610340 series

	ML610340/Q340	ML610346/Q346	ML610347/Q347
CPU	8bit RISC CPU nX-U8/100 Core		
ROM	96 KB (Mask/Flash)	128 KB (Mask/Flash)	
RAM	512 Byte	1K Byte	
Operation Frequency	32 kHz (Internal frequency division), 4.096MHz (Crystal oscillation)	32 kHz (built in RC oscillation), 4.096MHz (Crystal oscillation)	
Operation Voltage	2.2V~5.5V		
Power Management (Typical)	0.5μA (STOP mode) 20μA (32kHz, CPU operation 10%), 10mA (4.096MHz, during voice play back , no output load)		

Voice Synthesis method	4bit ADPCM2, 8bit non-linear PCM, 8bit PCM, 16bit PCM	HQ-ADPCM, 4bit ADPCM2, 8bit non-linear PCM, 8bit PCM, 16bit PCM	
Timer	8bit timer、 Watch dog timer、 Time base counter		
Other functions	—	A/D converter、 UART、 OP-AMP	A/D converter、 UART

Glossary

*1 HQ-ADPCM

Oki Semiconductor's proprietary audio compression and decompression algorithm. This uses variable compression and can compress audio data to 1/5 or less the size of the PCM file format. HQ-ADPCM is Ky's high-quality, high-compression audio technology. "Ky's" is a registered trademark of Kyushu Institute of Technology.

*2 RISC CPU

RISC (Reduced Instruction Set Computer) processor with reduced instruction set for faster processing. However, Oki Semiconductor's nX-U8/100 features a comprehensive set of bit operation instructions and multiplication calculations (58 instructions).

*3 Pipeline processing

Parallel processing of instructions, with separate independent operation by each individual instruction execution unit (fetch, decode, execute).

* Names of companies and products are trademarks or registered trademarks of the respective companies and organizations.

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