

PRODUCT INFORMATION

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8-Bit Microcontroller with On-Chip Flash Memory Developed LCD controller/driver built in

LC87F72C8A

Overview

Sanyo's flash memory products feature single-voltage power supply operation and the ability to erase data in small block units. Since a split-gate flash memory technology is used, these product achieve high reliability and do not require an over-erasure prevention function. Sanyo is aggressively expanding its product line of flash microcontrollers, i.e. microcontrollers that include on-chip flash memory, based on this process technology.

Compared to the earlier mask ROM microcontroller, flash microcontrollers provide superlative characteristics for reducing development times and achieving improvements in end-product manufacturing start up and product maintenance. First, during product development, flash microcontrollers allow application software to be debugged through the day before mass production starts, thus providing a significant reduction in the turnaround time required with the earlier mask ROM microcontroller. Another advantage is that during production start up end product specifications can be easily modified if the specifications change frequently or to meet the needs of different customers by using an EPROM writer or the on-board programming functions provided by flash microcontrollers. Additionally, flash microcontrollers contribute to improved end-product maintenance, since the onboard programming function can be used to correct software problems discovered after the product was shipped and to provide software upgrades for functional improvements.

Sanyo has developed a product line of flash microcontrollers designed for the multimedia equipment applications that can take advantage of the features of flash memory. These microcontrollers include products designed for use in IC cards, products for a wide range of data storage equipment control applications, and products that can directly drive fluorescent display tubes for use in consumer products. As a part of Sanyo's ongoing efforts at strengthening this product line, Sanyo has now developed the LC87F72C8A flash microcontroller. This microcontroller features an on-chip LCD controller/driver and is designed for control of home appliances.

The LC87F72C8A features the industry's largest on-chip flash memory (128KB) in an 8-bit LCD microcontroller, and allows this memory to be rewritten in 128-byte units. The LCD controller/driver circuit includes an LCD drive voltage generation circuit and a clock divider circuit for the LCD system, and thus allows the number of external components in end products to be reduced. Although this

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device will first be marketed as a direct replacement for one-time programmable (OTP) microcontrollers (i.e. microcontrollers with on-chip EPROM), Sanyo expects that with increasing sales volume and improvements in manufacturing technology, it will become possible to position this product as a replacement for the corresponding mask ROM microcontroller in the future.

Features

- 128KB on-chip flash memory
- Memory can be erased in 128-byte blocks.
- Built-in LCD controller/driver
- On-board memory rewrite function
- 5-V single-voltage power supply operation guaranteed

Specifications

- Sanyo originally designed 8-bit CPU core
- Program ROM: 128KB
- RAM: 2048 bytes
- Synchronous/asynchronous serial interface
- Synchronous serial interface with automatic data transfer function
- Two 16-bit timers and clock time base timer
- High-speed pulse counter (up to 20 MHz)
- Built-in 12-input 8-bit A/D converter
- Package: QFP100, SQFP100

Sample Availability

Sample of the LC87F72C8A will be available in April 1999; production quantities will be anticipated in the end of 1999.

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