Epson Shipping Samples of New 16-Bit Flash Microcontroller

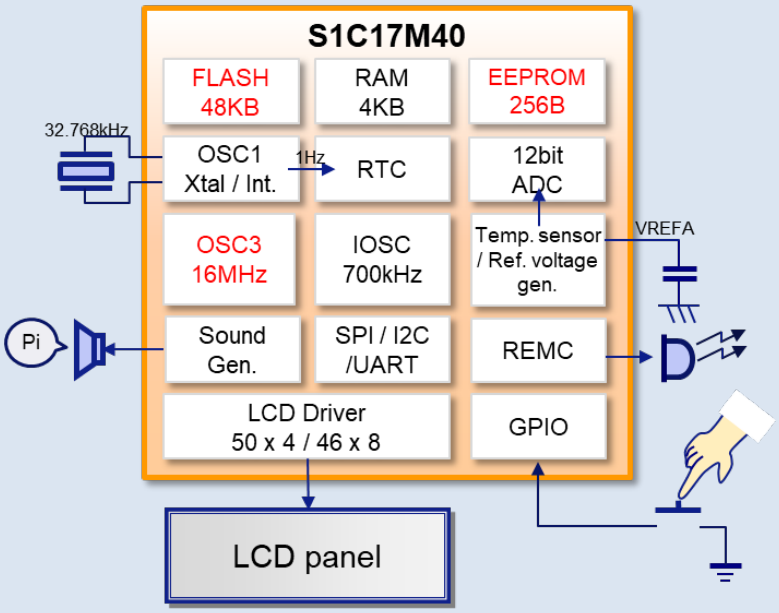
- S1C17M40 supports products from home appliance remote controllers to compact factory automation devices, including those requiring 5V operation -

Seiko Epson Corporation (TSE: 6724, "Epson") has begun shipping samples of the newly developed S1C17M40, a low-power microcontroller with 16-bits of embedded flash memory. This microcontroller unit (MCU) is ideal for remote controlled home appliances such as air conditioners and for small factory automation devices such as time switches and counters. The company plans to produce 200,000 units per month.

TQFP12-48pin

S1C17M40 key product features

Like the other MCUs in the S1C17M3 series, the new S1C17M40 is a versatile MCU with specifications that are ideal for liquid crystal displays. The S1C17M40 also has an embedded oscillator circuit that is stable to within ±1% over an operating temperature range of 0°C to 85°C, an improvement over the ±1% of the S1C17M3 at an operating temperature of 25°C. Moreover, the S1C17M40 is Epson's first single-chip MCU with embedded EEPROM.



Embedded circuits that will reduce the number of components in customers' products, save board space, and shrink software development times

- Embedded oscillator stability: ±1% (when operating at 16 MHz in an operating temperature range of 0-85°C
- Embedded EEPROM (electrically erasable programmable read-only memory)
- Supply voltage detector (SVD) circuit that does not require an external power supply supervisor
- Real-time clock
- Analog-digital converter
- A universal port multiplexer (UPMUX) that allows software to select the input/output function to be assigned to each port
- Three types of serial communications interfaces
- Generator circuit for infrared remote-control output signal

Low-voltage and low-current consumption that extend battery life

- Guaranteed operating range: 1.8 V - 5.5V
- Current consumption in SLEEP mode: 0.25μA
- Power consumption in RUN mode: 170μA/MHz

Summary

Epson's single-chip MCUs, which integrate low-power and liquid crystal driving technologies, have earned a strong reputation among customers for applications in a variety of small devices. A growing number of MCUs support only low operating voltages, but there is still a strong need in factory automation equipment and some home appliances for MCUs that support 5 V operation. So, in 2017, Epson began volume-producing the S1C17M3 series of MCUs with selectable operating voltages ranging from 1.8 V to 5.5 V. The new S1C17M40 is considered the next-generation model in the S1C17M3 series, which is part of Epson's expanding S1C17 family of MCUs with 16-bits of embedded flash memory.

■ **Product specifications**

Model No.	S1C17M40
CPU core	16-bit RISC processor with multiply and accumulation unit and multiplier/divider
Flash memory	48 kilobytes
EEPROM	256 bytes
RAM	2 kilobytes
Operating voltage	Guaranteed operating range: 1.8 V - 5.5V
Current consumption	SLEEP mode: 0.25µA (typical) RUN mode: 170µA/MHz (typical)
Supply voltage detector	VDD: 32 levels (1.7 to 5.0 V) / external voltage: 32 levels (1.7 to 5.0 V)
LCD driver	36 SEG x 5-8 COM (max.) 40 SEG x 1- 4 COM (max.)
Infrared remote controller	1 channel (can be used to generate EL lamp driving waveforms)
Analog-digital converter	3 inputs (12-bit successive-approximation ADC) TQFP12-48 pin package 4 inputs (12-bit successive-approximation ADC) QFP13-64 pin package
Timers	16-bit PWM timer: 3 channels 16-bit timer: 4 channels Watchdog timer Real-time clock
Serial interfaces	UART (3 ch.), SPI (2 ch.), and I2C (1 ch.) interfaces
I/O ports	54 max. 32 of these ports support universal port multiplexers (UPMUX)
Package	TQFP12-48 (pin pitch: 0.5 mm) QFP13-64 (pin pitch: 0.5 mm)

S1C17M40 product information

- S1C17M40 information
- Contact Windows