



FOR IMMEDIATE RELEASE

## **Epson Expands S1C17W00 Series of Low-Power 16-Bit Flash Microcontrollers**

**- The new S1C17W18 operates on 40% less current and supports large programs and high-resolution displays -**

**- San Jose, California, August 27, 2015**

Epson Electronics America, Inc. ("EEA") has begun shipping samples of the S1C17W18, the latest addition to Epson's S1C17W00 series of 1.2V, low-power 16-bit microcontrollers with on-chip flash memory. Volume production will start in March 2016, with monthly production of 200,000 units planned. Samples of the new MCU come in SQFN9 64-pin packages.

Microcontrollers in the S1C17W00 series operate on a small, low-capacity button battery and can be connected to a variety of sensors, making them an ideal and popular choice for mobile gear. Demand has grown for microcontrollers like the new S1C17W18 that are capable of storing large programs and driving high-resolution displays because product developers continue to add more and better features to their goods including digital watches, remote controllers, healthcare devices and security tokens\*.

The S1C17W18 has advanced in significant ways compared to its predecessor, Epson's 16-bit S1C17W15 flash microcontroller. It has double the flash memory, double the embedded RAM, and an LCD driver that is capable of displaying up to 352 segments, which is equivalent to 1.4 times that of the S1C17W15. Yet the S1C17W18 consumes 40% less current in RUN mode—a world-class 150  $\mu\text{A}/\text{MHz}$ —while keeping the same 0.15  $\mu\text{A}$  current consumption in SLEEP mode.

Epson developed the flash memory that enables this low current consumption in RUN mode. The memory can be rewritten on a single 3V power supply, and Epson guarantees 1,000 rewrite cycles. Built-in oscillator circuit scan output seven different frequencies, eliminating the need for external oscillators, reducing total part counts, and saving board space.

Epson is committed to helping its customers improve the performance of their products with solutions that leverage Epson's core technologies that are more compact, save energy and offer outstanding precision.

\* A device that generates a one-time password for security purposes

### **Key Product Features and Specifications**

1. Low-voltage, low-current operation that dramatically extends battery life

- Guaranteed operating range: 1.2 V - 3.6 V
- Power consumption in RUN mode: 150  $\mu$ A

## 2. Interfaces for connecting a variety of sensors

- An R/F converter for temperature and humidity measurement, and UART, SPI, and I2C serial interfaces
- Universal port multiplexers that increase board layout design flexibility

## 3. Embedded circuits that help customers reduce product part counts, save board space, and shrink software development times

- An LCD driver can directly drive an LCD that has up to 352 segments
- Two types of embedded oscillator circuits (a 700 kHz fixed-frequency circuit and a circuit that is switchable between 250 kHz, 384 kHz, 500 kHz, 1 MHz, 2 MHz, and 4 MHz)
- A temperature sensor circuit that is capable of standalone temperature measurement and 12-bit A/D converter
- A supply voltage detector (SVD) circuit that does not require an external power supply supervisor
- A sound generator that supports three octaves, seven notes, and seven rests
- An IR remote controller capable of infrared remote control output

### Product specifications

Product model number	S1C17W18
CPU core	16-bit RISC processor + multiplier/divider
Flash memory	128 K bytes
RAM	8 K bytes
Operating voltage	Guaranteed operating range: 1.2 V - 3.6 V A/D converter operating range: 1.8 V - 3.6 V
Current consumption	SLEEP mode: 0.15 $\mu$ A (typical) HALT mode (32.768 kHz): 0.3 $\mu$ A (typical) <sup>5</sup> RUN mode (32.768 kHz): 4 $\mu$ A (typical) <sup>5</sup> RUN mode (1 MHz): 150 $\mu$ A (typical)
LCD driver	352 segments max. (44 SEG x 8 COM) 192 segments max. (48 SEG x 4 COM)
I/O ports	67 max.
AD converter	7 input ports + 1 port for internal temperature sensor (12-bit successive-approximation ADC)
R/F converter	2 input channels (CR oscillator <sup>6</sup> with 24-bit counters)
Supply voltage detector	Voltage detection accurate to $\pm$ 3.0% (-40°C to 85°C) at 30 levels between 1.2 V and 3.6 V
Serial interfaces	2-channel UART, 2-channel SPI, and 1-channel I <sup>2</sup> C interfaces
Packages	TQFP15-128 (14 mm x 14 mm, with 128 pins and a pin pitch of 0.4 mm) SQFN9-64 (9 mm x 9 mm, with 64 pins and a pin pitch of 0.5 mm) Bare chip with 80 $\mu$ m (min.) pad pitch

### Related links

Please see the link below for further details about these products.

[http://global.epson.com/products/semicon/products/mcu/16bit\\_index.html#ac08](http://global.epson.com/products/semicon/products/mcu/16bit_index.html#ac08)

### **About Epson Electronics America, Inc.**

Epson Electronics America, Inc. (EEA), is a subsidiary of Japan-based Seiko Epson Corporation (SEC) and is responsible for sales, marketing and engineering of the product lines of SEC's Microelectronics Device Division in the America's. EEA provides a wide array of timing and frequency control products, integrated circuits, sensing device and system solutions for customer products and applications that require high levels of accuracy, reliability, stability, energy efficiency and compact design. Based in San Jose, California, the EEA Group has three regional offices, more than 40 sales offices in the U.S. and a growing network of exclusive distributors.

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### **About Epson**

Epson is a global technology leader dedicated to driving innovations and exceeding customer expectations in printing, visual communications, quality of life and manufacturing. Epson's lineup ranges from inkjet printers, printer systems and 3LCD projectors to industrial robots, smart glasses and sensing systems and is based on original compact, energy-saving, and high-precision technologies.

Led by the Japan-based Seiko Epson Corporation, the Epson Group comprises more than 70,000 employees in 94 companies around the world, and is proud of its ongoing contributions to the global environment and the communities in which it operates and its ongoing efforts to reduce environmental burdens.

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