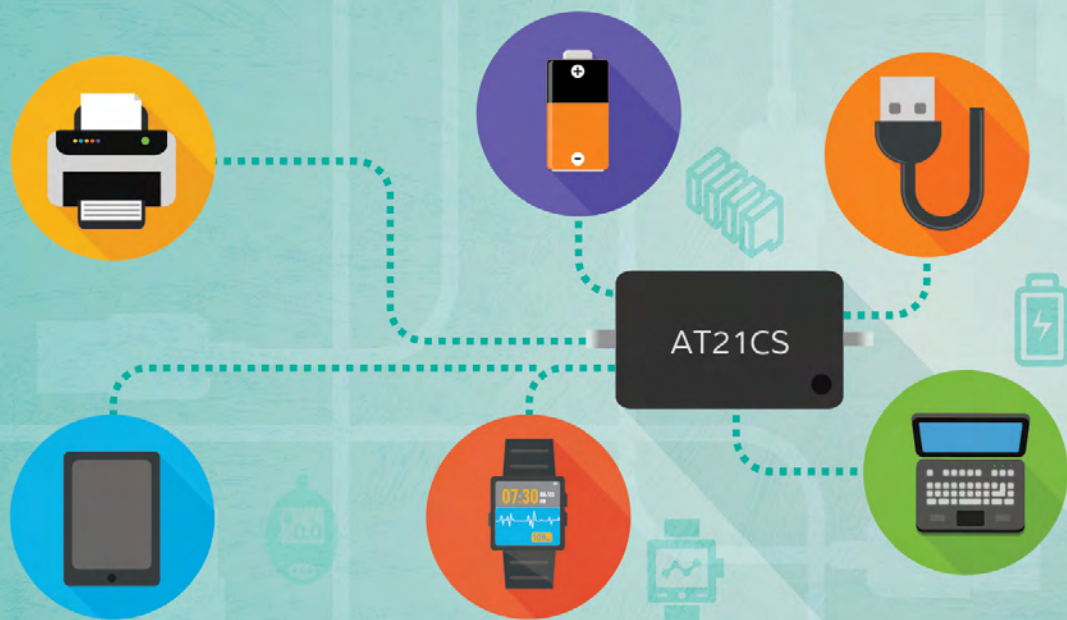




Atmel AT21CS Series Single-Wire Serial EEPROMs



World’s Most
Innovative
2-pin Self-
Powered Serial
EEPROMs

The new Atmel® Single-Wire AT21CS Series Serial EEPROM (SEEPROM) products may be tiny but they are very mighty. Their innovative memory features and best-in-class power consumption will benefit any application.

The AT21CS Series are true 2-pin devices requiring only one GPIO pin from the MPU/MCU to both communicate and power the device. This is possible because the AT21CS Series products feature a novel internal parasitic power scheme that extracts operating power from a single data pin. System designers will definitely appreciate the ability to add critical memory storage and value-added features to an application—and only have to provide a data pin and ground connection to the Single-Wire device.

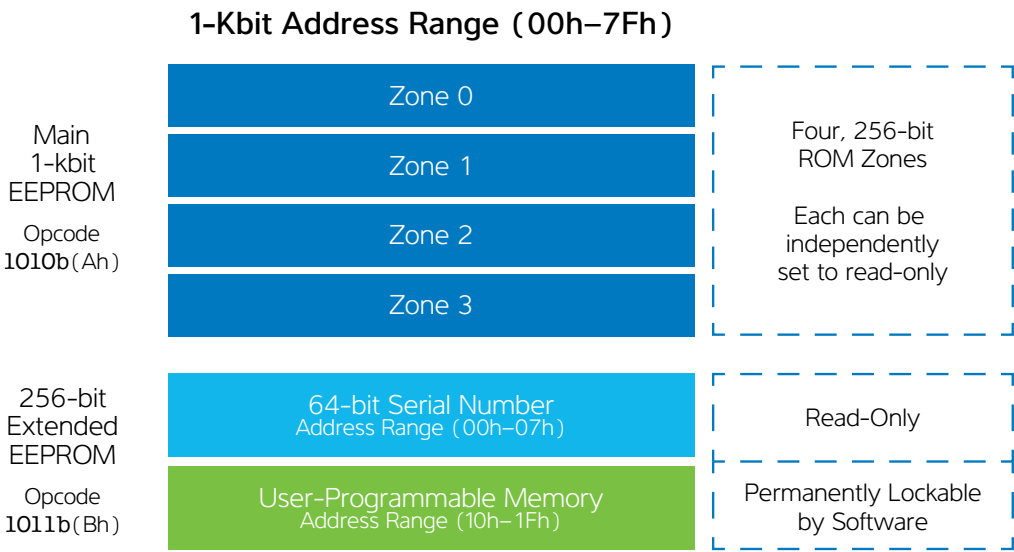
The new Atmel Single-Wire 1-Kbit SEEPROM AT21CS01 product is a perfect fit for applications that have a Vcc range between 1.7V to 3.6V. For applications that need an upper Vcc range, the new AT21CS11 Single-Wire 1-Kbit SEEPROM delivers a 2.7V to 4.5V range to support applications like Lithium-Ion/polymer batteries that require 4.5Vcc support.

AT21CS Series Target Applications

Consumables, Cables, Batteries, and IoT/Wearables

	Consumables: e-Cigarettes, Printer Cartridges, Medical Consumables • Add identification with only one additional pin • Lowest power consumption • Store other characterization, usage, calibration data to enhance end user experience
	Cables Requiring Electrical Identification • Increasing requirement in applications for electronic identification of node connected • Easy to integrate the memory on the cable head • No need to add local power source or battery • Can identify multiple cables on the same host bus
	Lithium Ion/Polymer Battery • Ideal way to meet two critical IEEE 1725 battery spec requirements: • Utilize an electrical identification scheme to communicate the battery’s required charging voltage • A method to allow identification of the cells and battery pack if the external housing is destroyed
	IoT/Wearables—Health and Fitness Monitors, Sport Watches • Best-in-class lowest power consumption for extended battery life • Add identification capability with only two pins • Small packages available for size constraint applications

AT21CS01/11 Memory Architecture



The innovative memory architecture of the AT21CS Series makes it possible to organize memory into multiple zones. This provides the flexibility to organize data into different zones and permanently write protect one or all zones, if needed, to tamper proof and protect the data from inadvertent writes and data changes. The AT21CS01/11 memory shown above is organized into four 32-byte zones. The 256-bit Security Register contains a plug-and-play 64-bit factory programmed serial number and an extra 16-bytes of user-programmable SEEPROM storage located in a separate memory area. A unique serial number included in every device provides an ideal solution to implement a simple product identification and can be used for multiple purposes, including node identity, build control, version control and customer tracking. The extra 16-byte section allows customers to program vital product data and permanently protect the data if needed. With ESD tolerance to IEC 61000-4-2, the single data pin is capable of being directly accessed from outside the application.

Reliability and Power Consumption

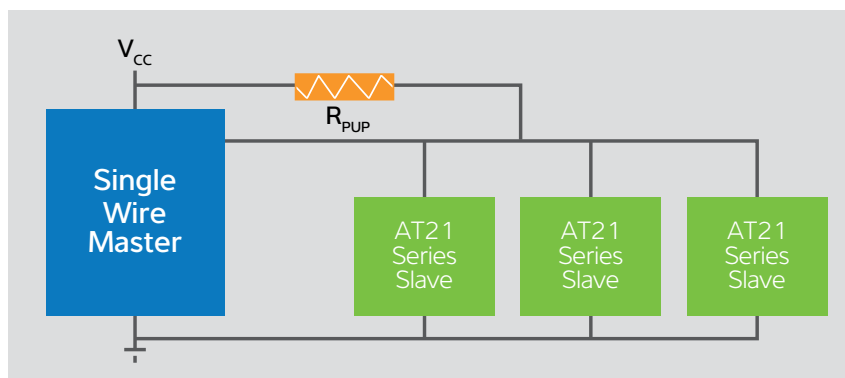
All AT21CS Series products have ultra-high write endurance capabilities—allowing for greater than 1 million write cycles to each and every memory location to meet the needs of today’s high write endurance applications. Furthermore, the devices have ultra-low standby and best-in-class active current, consuming at least one-third less power in active mode than competitive products to provide the lowest power consumption possible for battery-operated applications.

Ultra-low Standby and Active Current:

- 700nA typical standby current at 25°C
- 200µA typical write current at 25°C
- 80µA typical read current at 25°C

Adding More Memory

Each AT21CS Series product has a unique slave address allowing up to 8 devices to be connected and independently accessed by the same Single-Wire Master. This makes it very easy to add more memory to applications with minimal support circuitry.



Availability

Catalog Part Number	Package	Datasheet	Sample Date	Mass Production Date
AT21CS01-SSHMM##-T	8-lead SOIC	NOW	NOW	NOW
AT21CS01-SSHMM##-B	8-lead SOIC			
AT21CS01-STUM##-T	3-lead SOT-23			
AT21CS01-UUM0B-T	4-ball WLCSP		August, 2015	August, 2015
AT21CS01-WWU11M	Wafer Sale		Contact Marketing	

Note: The AT21CS11 will be available in Q4, 2015 and will be offered in the same package variants as the AT21CS01.

Feature

- True 2-pin device
- Ultra-low Standby and Active Current
- Innovative memory architecture and write protection
- Pre-programmed 64-bit serial number
- Serial number is read-only
- Extra 16-bytes of user programmable storage

Benefit

- Requires only one pin from MCU/MPU
- Consumes at least one-third less power in active mode than competition
- Tamper-proof any zone by permanently write protecting the zone
- Enhanced product traceability and identification
- Impossible to alter or change the serial number
- Program vital product data and permanently lock it



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