

➤ Atmel's CryptoMemory®

The World's Only Secure Serial EEPROM

CryptoMemory® cryptographic security ICs offer a cost efficient, high security solution for any application requiring authentication, data protection, or secure storage.

A cryptographic algorithm encrypts data and passwords, and generates Message Authentication Codes (MAC), thereby providing a secure place where information remains safe even under attack. CryptoMemory is the only family of secure memory devices in the industry with mutual authentication between device and host, plus data encryption. Both synchronous and asynchronous protocols are available.

Key Features

- A family of devices with user memories from 1 Kbit to 256 Kbit.
- Symmetrical dynamic mutual authentication with 64 bit cryptographic keys
- Encrypted passwords with attempt counters
- Stream encryption ensures data privacy
- Industry standard I²C interface



CryptoMemory Advantages

- No operating system needed; easy to program
- Fast time to market
 - Interface software available for easy implementation
- Rich set of security features
 - Rotating session keys
 - Flexible security options

Embedded

CRYPTOMEMORY®

Device	User Memory	Memory Zones	Passwords	Authentication	Encryption	Interface Type	VCC
AT88SC0104CA	1 Kbit	4	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-3.3V
AT88SC0204CA	2 Kbit	4	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-3.3V
AT88SC0404CA	4 Kbit	4	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-3.3V
AT88SC0808CA	8 Kbit	8	Yes	Yes	Yes	ISO7816 + 2-Wire	2.7-3.3V
AT88SC1616C	16 Kbit	16	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-5.5V
AT88SC3216C	32 Kbit	16	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-5.5V
AT88SC6416C	64 Kbit	16	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-5.5V
AT88SC12816C	128 Kbit	16	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-5.5V
AT88SC25616C	256 Kbit	16	Yes	Yes	Yes	ISO7816 + 2-wire	2.7-5.5V

Various Development Kits are Available

www.atmel.com/cryptosecuremem

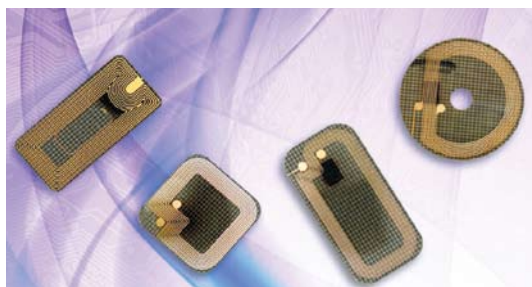
➤ Atmel's CryptoRF®

World's Largest Family of Secure RF Memories

The CryptoRF® transponder and CryptoRF reader pair offer a full RFID secure authentication solution for embedded and non-embedded applications. CryptoRF is a 13.56 MHz RFID device family with a 64 bit embedded hardware encryption engine, dual authentication capability, and up to 64 Kbit of user memory. CryptoRF is ideally suited to meet a variety of security applications such as product authentication, contactless payment, patient safety, anti-cloning of consumables, loyalty and patron management.

Key Features

- 64 Kbit mutual authentication protocol
- Stream encryption ensuring data privacy
- Multiple key sets for authentication and encryption
- Cryptographic message authentication codes (MAC)
- Encrypted passwords with attempt counters
- Selectable access rights by zone
- Tamper sensors
- Compliant with industry standards



CRYPTORF®

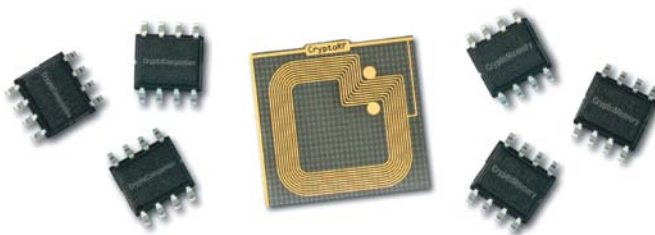
Device	User Memory	Memory Zones	Passwords	Authentication	Encryption	Interface Type
AT88RF04C	4 Kbit	4	Yes	Yes	Yes	ISO14443 Type B
AT88SC0808CRF	8 Kbit	8	Yes	Yes	Yes	ISO14443 Type B
AT88SC1616CRF	16 Kbit	16	Yes	Yes	Yes	ISO14443 Type B
AT88SC3216CRF	32 Kbit	16	Yes	Yes	Yes	ISO14443 Type B
AT88SC6416CRF	64 Kbit	16	Yes	Yes	Yes	ISO14443 Type B
AT88RF1354 - Reader IC	N/A	N/A	N/A	N/A	N/A	ISO/IEC 14443 Type B

Various Development Kits are Available

www.atmel.com/products/securerf

CryptoCompanion™ Host Side Security

CryptoCompanion provides plug-and-play host-side cryptographic security for embedded systems. This plug-and-play convenience means that designers do not have to design or test the cryptographic algorithms. The companion chip implements the necessary algorithms and the entire protocol completely in hardware. It's fully tested and guaranteed to work properly with all CryptoMemory/CryptoRF chips. To validate the authenticity of a consumable or replaceable item (a.k.a. client) connected to a system (a.k.a. host), there must be some secret information stored in **both** the client and the host. The CryptoMemory and CryptoRF devices provide a secure location to store this secret data in the client and the CryptoCompanion chip provides a way to securely store this secret in the host.



CryptoCompanion CRYPTORF® CRYPTOMEMORY®

Device	User Memory	Authentication	Encryption	Interface Type	Package	VCC
AT88SC018	4 Kbit	Yes	Yes	2-wire	8-SOIC	2.7-3.6V

Disclaimer: The information in this document is provided in connection with Atmel products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Atmel products. EXCEPT AS SET FORTH IN ATMEL'S TERMS AND CONDITIONS OF SALE LOCATED ON ATMEL'S WEB SITE, ATMEL ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL ATMEL BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION, OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF ATMEL HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Atmel makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Atmel does not make any commitment to update the information contained herein. Unless specifically provided otherwise, Atmel products are not suitable for, and shall not be used in, automotive applications. Atmel's products are not intended, authorized, or warranted for use as components in applications intended to support or sustain life.

Atmel Corporation

2325 Orchard Parkway
San Jose, CA 95131 USA
Tel: (408) 441-0311
Fax: (408) 487-2600

Regional Headquarters Europe

Atmel Sarl
Route des Arsenaux 41
Case postale 80
CH-1705 Fribourg
Switzerland
Tel: (41) 26-426-5555
Fax: (41) 26-426-5500

Asia

Room 1219
Chinachem Golden Plaza
77 Mody Road Tsimshatsui
East Kowloon
Hong Kong
Tel: (852) 2721-9778
Fax: (852) 2722-1369

Japan

9F, Tonetsu Shinkawa Bldg
1-24-8 shinkawa
Chuo-ku, Tokyo 104-0033
Japan
Tel: (81) 3-3523-3551
Fax: (81) 3-3523-7581

Product Information:

Avenue de Rochepleine
BP 123
38521 Saint Egrève Cedex
France
Tel: (33) 4-76-58-47-50
Fax: (33) 4-76-58-47-60

Literature request

www.atmel.com/literature

Web Site

www.atmel.com

© 2009 Atmel Corporation.
All rights reserved.

Atmel®, logo and combinations thereof, CryptoRF®, CryptoMemory®, CryptoCompanion™, AVR®, and others are the registered trademarks or trademarks of Atmel Corporation. Other terms and product names may be the trademarks of others.

8703A-11/09-500

