

## Features

- **Smart Card Interface**
  - Smart Card Interface Compliant with ISO 7816 and EMV 2000
  - Support of T = 0, T = 1, TWI (S = 8), 2-wire: SLE 4432/42 (S = 10), 3-wire: SLE4418/28 (S = 9), Others on Request
  - High-performance Smart Card Interface
  - Supports 5V, 3V and 1.8V Smart Cards
  - Supply Current 60 mA to Power the Smart Card
  - Smart Card mOvement Detection With Auto Power-off
  - Automatic Detection of Smart Card Type
  - Short-circuit and Thermal Protection
  - 8-pin handling (C4/C8 Supported)
  - On Request: Second Smart Card Interface
- **Host Interface**
  - USB (Compliant with USB 1.1 and 2.0, CCID Supported)
  - Transmission Speed: 12 Mbps
  - Customer Specific USB Descriptors
- **Keyboard Support**
  - Customer Specific Keyboard-Matrix-Layout for up to 160 keys (Max. Size 20x8), e.g. Multimedia Keyboards
  - Slow Rise and Fall Time on Keyboard-matrix Ports to Ensure Low EMI
  - Ready-to-use Firmware for Keyboard Support included; Customer Specific Firmware Possible
- **Compliance**
  - WHQL (Microsoft) Certified
  - EMV 2000 (Europay, Mastercard, Visa) Certified
  - USB 1.1 and 2.0
  - USB CCID
  - ISO 7816
  - HBCI
- **Other Features**
  - Fast and Easy Certification Process
  - Supports LED Status Indicator (Green: ready; Red: busy)
  - Supports 3 Keyboard LED's
  - Secure Pin Entry (SPE)
- **PC/SC Driver support**
  - Windows 98®
  - Windows ME®
  - Windows 2000®
  - Windows XP®
  - Windows CE 3.0 / CE.NET (Depending on Hardware)
  - Linux®
  - MAC OS X®
- **Deliverables**
  - 64-PIN VQFP Chip-set (Including Firmware and Drivers) on a Per-unit License Fee
- **Development**
  - Design-In Kit Containing
    - 3 CardMan® Smart@Key Chips
    - Ready-to-use sample PCB
    - CD with Drivers and Documentation

[www.DataSheet4U.com](http://www.DataSheet4U.com)



**CardMan®  
Smart@Key**

**AT83R22OK**

**Summary**

**Preliminary**

4306BS-SCR-12/06



This is a summary Document. A complete document is available on the Omnikey Web site. [www.omnikey.com](http://www.omnikey.com)

## Description

Smart Cards are increasingly being used for Payments, Home-Banking, Access Control, Internet Security, PKI-tokens, Healthcare, Loyalty, etc.

The CardMan Smart@Key chip set is a ready to use precertified smart card reader interface to be implemented into keyboards. Being a one-chip solution containing firmware functionality for both smartcard and keyboard support, it facilitates the hardware integrators in reducing time-to-market and offers a unique opportunity to quickly and easily implement smart card reader functionality into their systems. The already existing certifications and compliances guarantee a fast and easy certification process.

With its high performance Smart Card Interface CardMan Smart@Key supports Smart Card technology of the future.

The integration in any USB keyboard can be easily done without any firmware or software (driver) development, simply by embedding the CardMan Smart@Key design and chipset into the target system. The USB CCID support makes this process the easiest ever by connecting host and Smart Card Reader systems without the need of additional vendor specific drivers.

Keyboard Matrix and USB descriptors can be easily adapted to the customer's requests. CardMan Smart@Key is based on Atmel's AT83R5122 microcontroller. The above features make the CardMan® Smart@Key the perfect answer to the increasing demands of many applications.



## Ordering information

Part Number	Temperature Range	Package	Packing
AT83R22OKxxx-RDTUM	Green - Industrial	VQFP64	Tray
AT83R22OKxxx-RDRUM	Green - Industrial	VQFP64	Tape & Reel

xxx: Firmware version

## Document Revision History

**Changes from 4306AS to 4306BS**

1. Modified ordering information.



## Atmel Corporation

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 487-2600

## Regional Headquarters

### Europe

Atmel Sarl  
Route des Arsenalux 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

## Atmel Operations

### Memory

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 436-4314

### Microcontrollers

2325 Orchard Parkway  
San Jose, CA 95131, USA  
Tel: 1(408) 441-0311  
Fax: 1(408) 436-4314

La Chantrerie  
BP 70602  
44306 Nantes Cedex 3, France  
Tel: (33) 2-40-18-18-18  
Fax: (33) 2-40-18-19-60

### ASIC/ASSP/Smart Cards

Zone Industrielle  
13106 Rousset Cedex, France  
Tel: (33) 4-42-53-60-00  
Fax: (33) 4-42-53-60-01

1150 East Cheyenne Mtn. Blvd.  
Colorado Springs, CO 80906, USA  
Tel: 1(719) 576-3300  
Fax: 1(719) 540-1759

Scottish Enterprise Technology Park  
Maxwell Building  
East Kilbride G75 0QR, Scotland  
Tel: (44) 1355-803-000  
Fax: (44) 1355-242-743

### RF/Automotive

Theresienstrasse 2  
Postfach 3535  
74025 Heilbronn, Germany  
Tel: (49) 71-31-67-0  
Fax: (49) 71-31-67-2340

1150 East Cheyenne Mtn. Blvd.  
Colorado Springs, CO 80906, USA  
Tel: 1(719) 576-3300  
Fax: 1(719) 540-1759

### Biometrics/Imaging/Hi-Rel MPU/ High Speed Converters/RF Datacom

Avenue de Rochepleine  
BP 123  
38521 Saint-Egreve Cedex, France  
Tel: (33) 4-76-58-30-00  
Fax: (33) 4-76-58-34-80

---

### Literature Requests

[www.atmel.com/literature](http://www.atmel.com/literature)

**Disclaimer:** Atmel Corporation makes no warranty for the use of its products, other than those expressly contained in the Company's standard warranty which is detailed in Atmel's Terms and Conditions located on the Company's web site. The Company assumes no responsibility for any errors which may appear in this document, reserves the right to change devices or specifications detailed herein at any time without notice, and does not make any commitment to update the information contained herein. No licenses to patents or other intellectual property of Atmel are granted by the Company in connection with the sale of Atmel products, expressly or by implication. Atmel's products are not authorized for use as critical components in life support devices or systems.

© 2006 Atmel Corporation. All rights reserved. Atmel®, logo and combinations thereof, Everywhere You Are® and others are registered trademarks or trademarks of Atmel Corporation or its subsidiaries. Other terms and product names may be trademarks of others. Microsoft Windows 98/ME/NT/2000/XP/CE® are trademarks and/or registered trademarks of Microsoft Corporation. Linux® is a registered trademark of Linus Torvalds. CardMan® is a registered trademark of Omnikey AG. Mac OS X® is a registered trademark of Apple corporation. Other terms and product names may be the trademarks of others.



Printed on recycled paper.

4306BS-SCR-12/06