

Atmel Secure Personalization Kit for CryptoAuthentication

USER GUIDE



Atmel AT88CK9000 Kit

Features

- Single push-button triggers parallel programming
- Supports programming of up to 10 devices at a time for SOIC package
- Supports programming of up to 5 devices at a time for TSSOP, UDFN, or TSSOP
- Provides the following feedback:
 - Serial number
 - Programming count
 - Programming limitation count
 - Firmware version
 - Device and protocol
 - Verification cycle
 - Status lights for Pass/Fail per device
 - Visual feedback while programming (push button light is on)
- Embedded power controller
- Provides power to DUTs only when programming — load/unload safe
- Detects when devices are positioned backwards and cuts power to protect the board
- Standard micro-USB used for power and configuration

Contents

- Atmel® AT88CK9000 board
- Universal power supply adaptor
- 0.5M USB cable

Introduction

The Atmel AT88CK9000 secure personalization kit has been developed to securely personalize the Atmel CryptoAuthentication™ ATSHA204 device. Depending on the ordering code, the kit can securely personalize 8-lead SOIC, 8-lead TSSOP, 8-pad UDFN, and 3-lead SOT23 package types. The 8-lead SOIC kit has sockets that can accommodate two devices per socket making it capable of personalizing up to 10 devices at a time. Safety and security has been added to ensure secure high-reliability programming.

The AT88CK9000 kit interfaces to the Atmel Crypto Evaluation Studio (ACES) software suite to provide communication to a PC via a USB interface. This allows trusted users to program the board outside of the manufacturing environment. Once programmed, the board becomes a standalone board. As a standalone board, it only requires power, after which, will allow the programming of the ATSHA204 devices. In addition, this board has an internal counter to keep track of how many devices were programmed, both in total, as well as by session.

Table of Contents

Becoming Familiar with Atmel AT88CK9000 4

Install Atmel Crypto Evaluation Studio (ACES) 6

Configuring the Atmel AT88CK9000 Board 7

Powering Up the Board 8

Putting the Board in the Program Mode. 9

Ordering Code Information 12

Firmware Upgrade 13

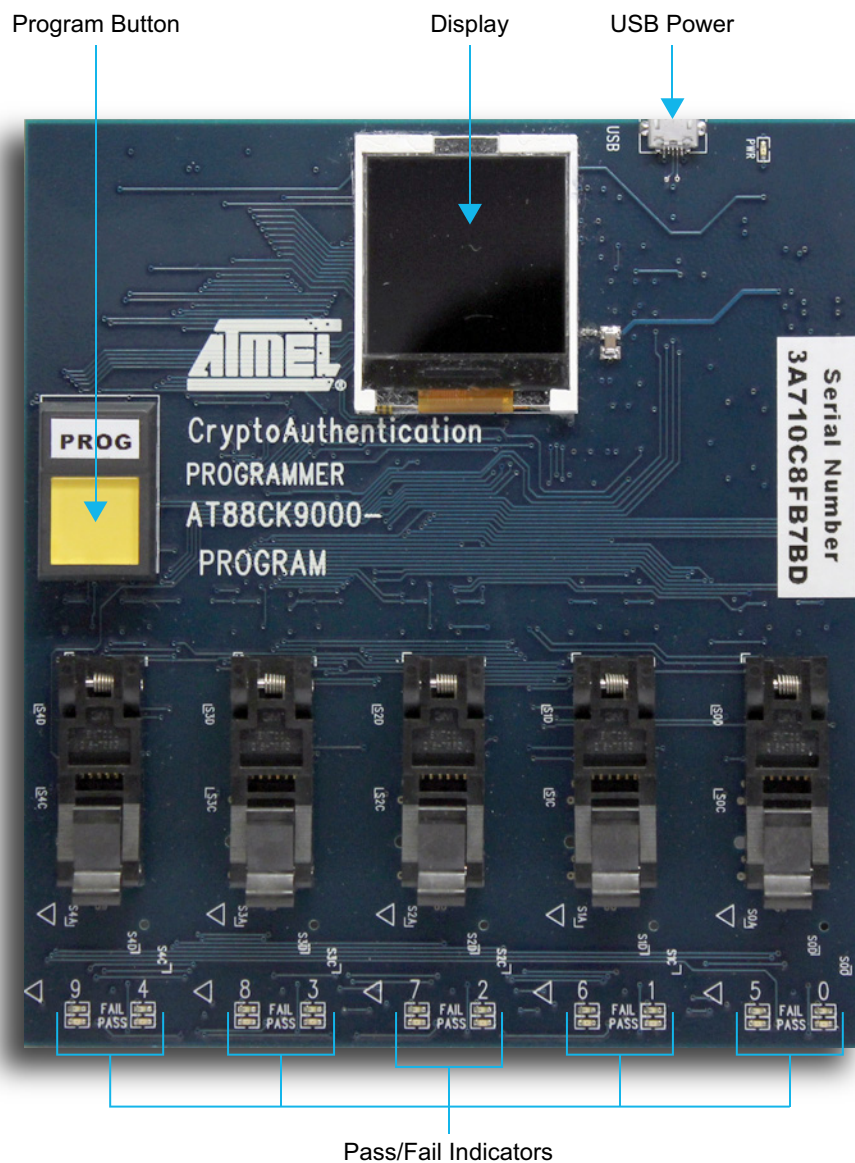
Maintenance of the Atmel AT88CK9000 Kit 13

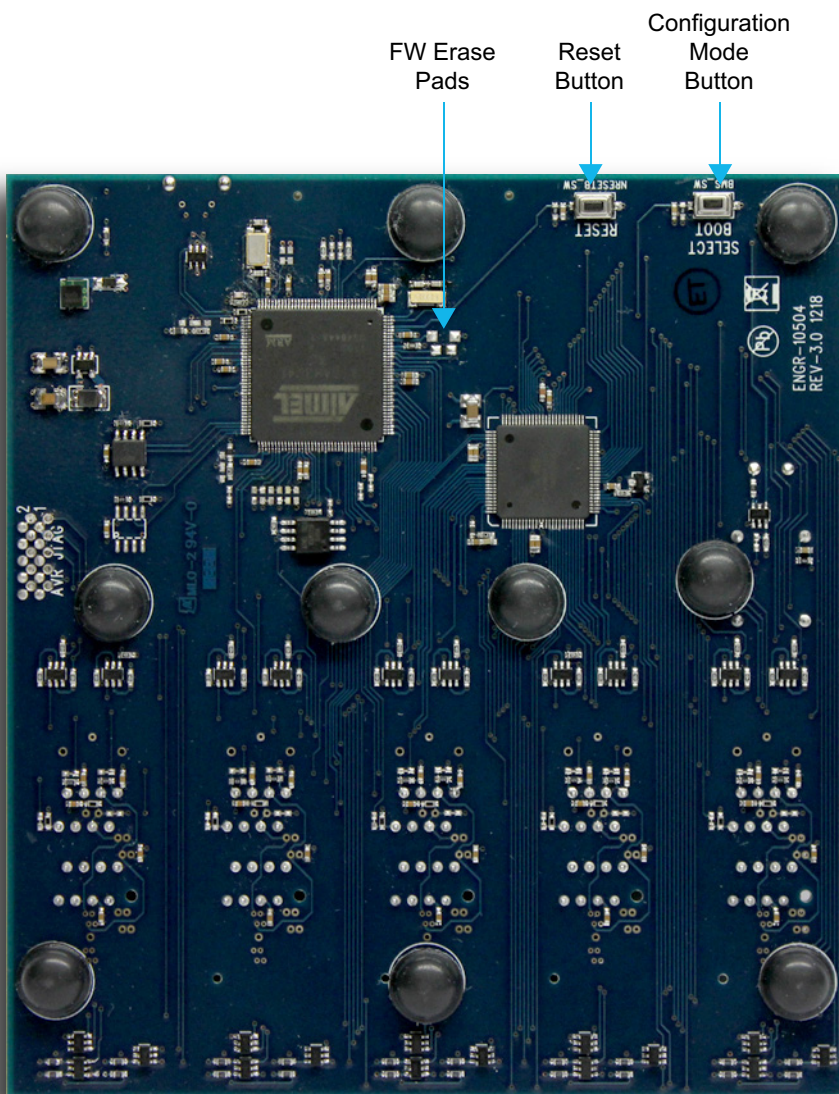
Troubleshooting the Atmel AT88CK9000 Kit 13

Revision History 14

Becoming Familiar with Atmel AT88CK9000

The AT88CK9000 has been designed to make secure personalization of the CryptoAuthentication ATSHA204 devices as easy as possible.





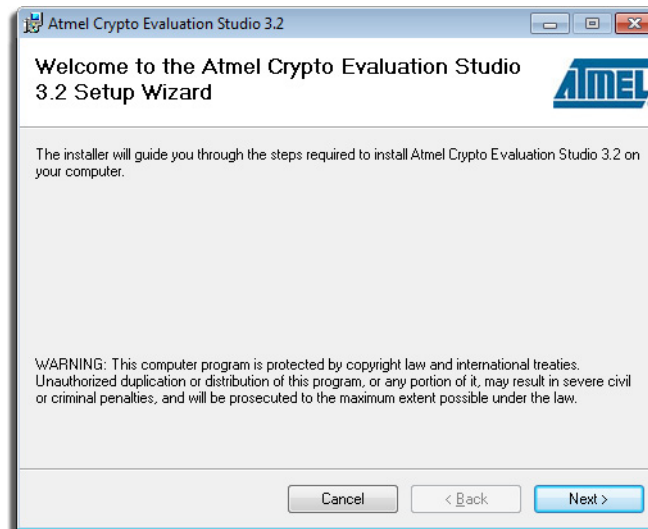
Install Atmel Crypto Evaluation Studio (ACES)

To download Atmel Crypto Evaluation Studio (ACES), visit:

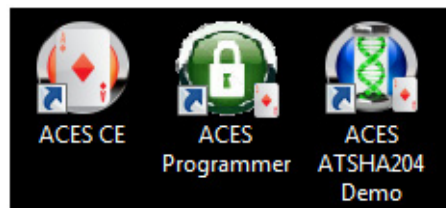
http://www.atmel.com/tools/ATMELCRYPTOEVALUATIONSTUDIO_ACES_.aspx.

Note: The AT88CK9000 kit is compatible with Version 3.2.0 or later.

1. Launch the installer by executing the downloaded file (e.g. ACES_Setup.exe).
2. Follow the installation instructions in the setup wizard.

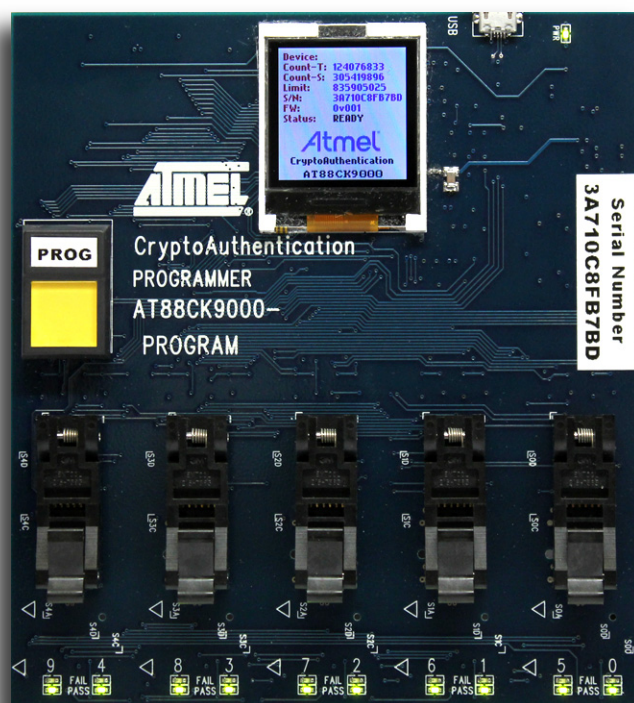


3. Once installed, three ACES icons should be located on your desktop. These icons include:



The ACES Programmer icon will launch the ACES Programmer. See “[Configuring the Atmel AT88CK9000 Board](#)” in the following section for AT88CK9000 board configuration steps.

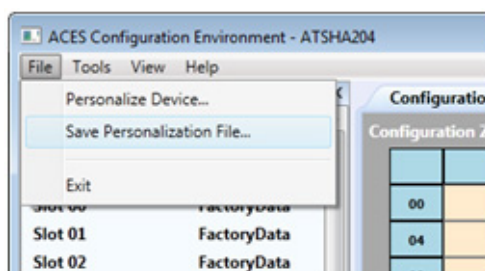
Configuring the Atmel AT88CK9000 Board



Now that ACES has been installed, begin configuring the ATSHA204 to work in your system. The recommended method is to define and test your device configuration using the ACES Configuration Environment (CE). ACES CE can create a personalization file that is compatible with the AT88CK9000 kit.

Save the personalization file in ACES CE:

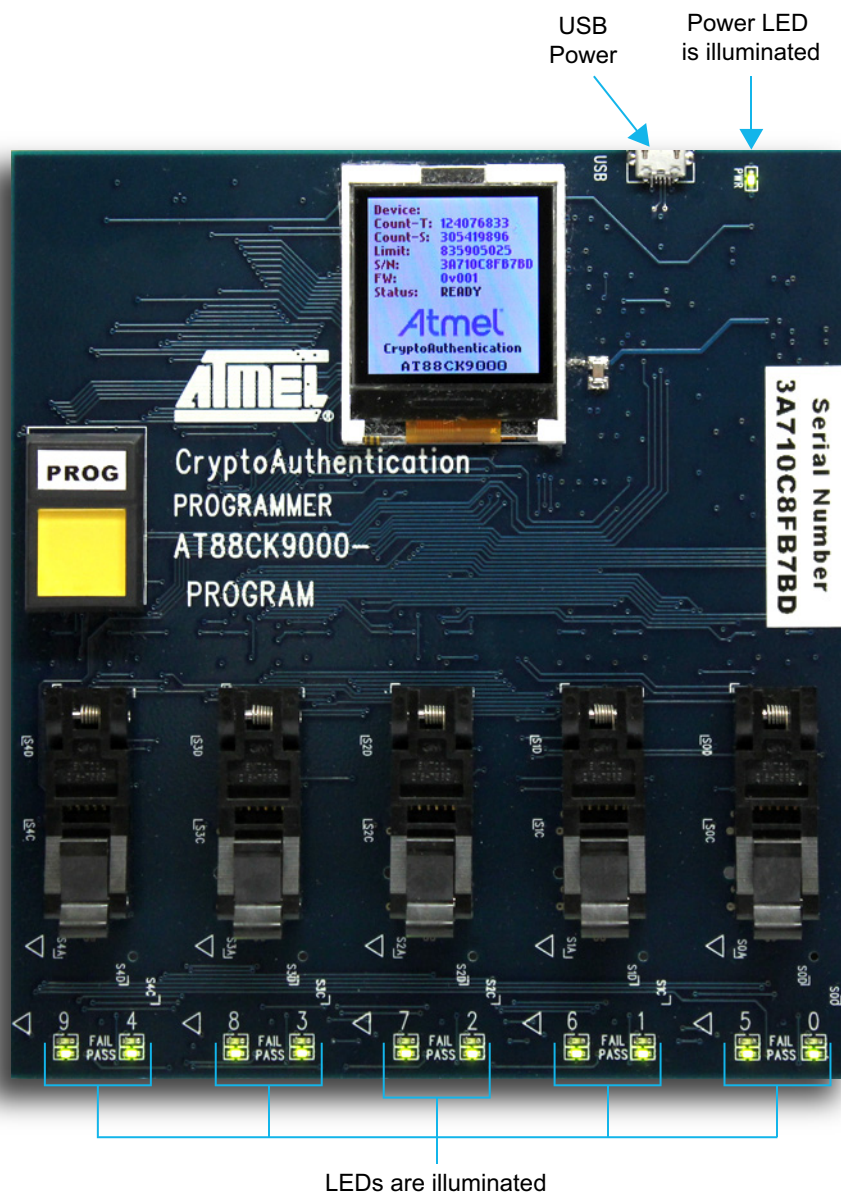
1. Launch ACES CE:
 - From your desktop, select the ACES CE icon *or*
 - From the Start Menu, select **Start > Atmel Crypto Solutions > ACES > ACES CE**.
2. Configure the working device to the desired configuration.
3. From ACES CE menu bar, select **File > Save Personalization File...**



4. The File Save As dialog box will be displayed.
5. Name the personalization file and select **Save**.

Powering Up the Board

The AT88CK9000 board can be powered via the multi-voltage power supply which is supplied with the kit or via a USB port on a PC. Once powered, the green LED will illuminate next to the USB connector, and the green LEDs will illuminate below each socket.



Putting the Board in the Program Mode

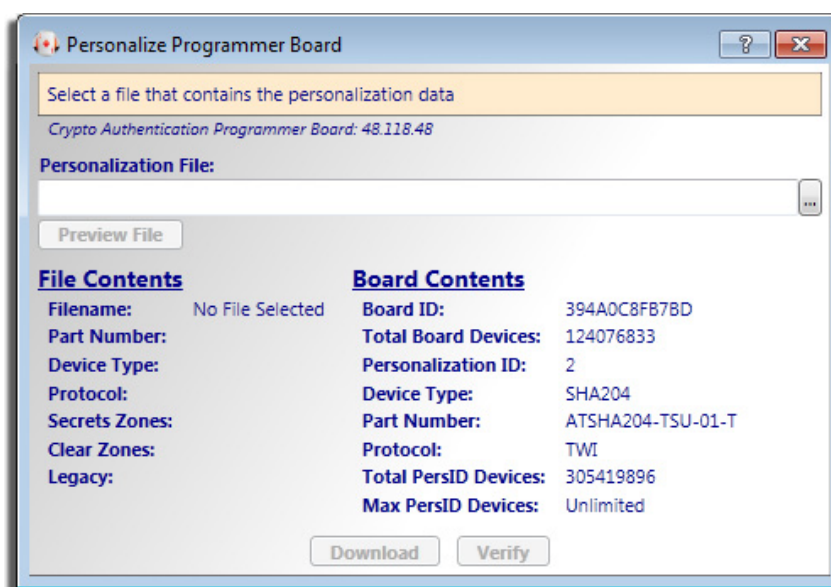
1. Plug in the secure personalization board while holding the Boot Select button.


Holding the Boot Select button located on the back of the board while powering the board will put the board in the programming mode. The below image shows what should be shown on the display.



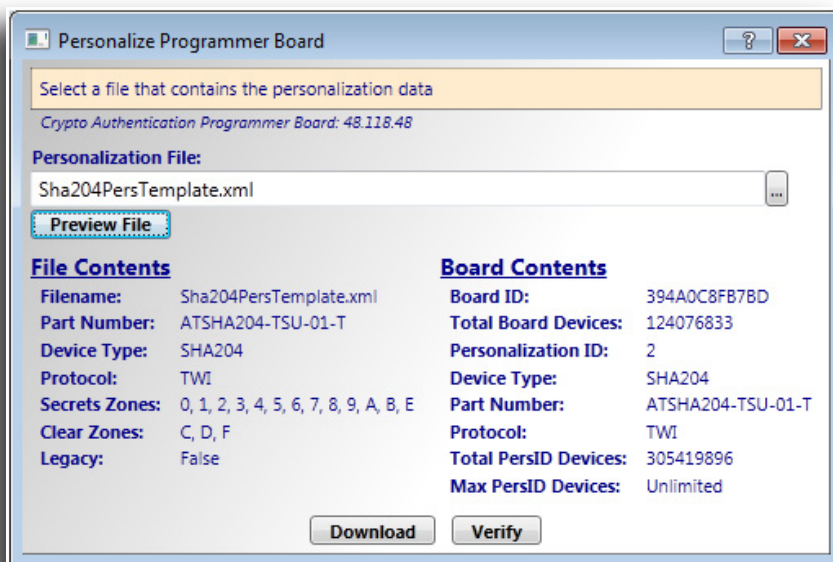
2. Download the file contents to the programmer board.
 - Select the ACES Programmer desktop icon to launch the ACES Programmer.
 - The Personalize Programmer Board dialog box will then be presented.

Notes: 1. The board is attached.
2. The file is *not* selected.

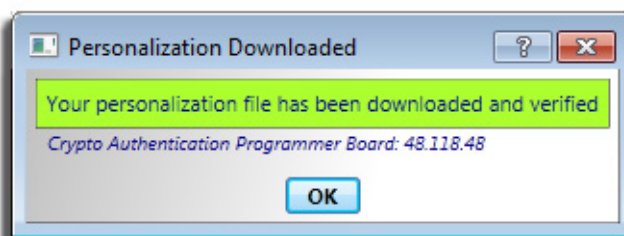


- Select the  button and select a personalization file.
(Select the file that you have created using ACES CE)

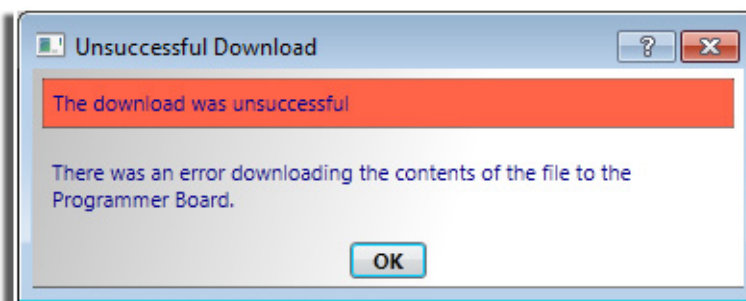
3. To load the contents of the file in preparation to download to the programmer board, select **Preview File**. The Programmer User Interface should resemble the below dialog box.



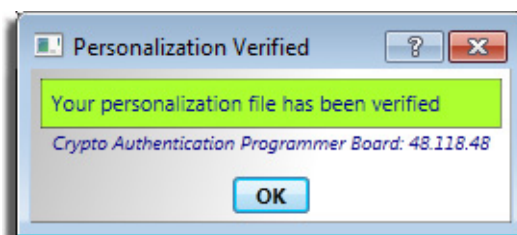
4. Select **Download**.
 - If download is successful, the download confirmation dialog box will be displayed.



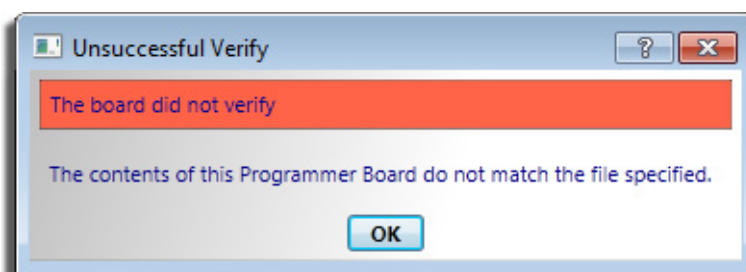
- If download is *not* successful, the unsuccessful download dialog box will be displayed.



5. Select **Verify**.
 - If successful, the verified confirmation dialog box will be displayed.



- If verify is *not* successful, the unsuccessful verified dialog box will be displayed.



6. Once the board has been successfully programmed, either:
 - Unplug the USB cable from the board *or*
 - Press the reset button located on the back of the board.

The AT88CK9000 display should display the communication panel screen as shown below.



Device	= Device Type and Protocol
Count-T	= Lifetime Count of Programmed Devices
Count-S	= Session Count of Programmed Devices
Limit	= Configurable Limit Per Session
S/N	= Unique Serial Number
FW	= Firmware Revision
Status	= Board Status

7. Congratulations, your Atmel AT88CK9000 board is up and running.

Firmware Upgrade

To be determined.

Maintenance of the Atmel AT88CK9000 Kit

The sockets used in the AT88CK9000 kit are rated for 50,000 insertions per socket. Care must be taken to not bend or deform the leads of the socket.

If the sockets become damaged or worn, the following part numbers and suppliers should be used for replacement purchases. The sockets will need to be unsoldered and then resoldered onto the board.

Package Type	Part Number	Supplier
8-lead SOIC	216-7388-55-1902	Digikey 3M5078-ND
8-lead TSSOP	FP-8(24)-065-01A	Enplas
3-lead SOT23-3	499-P36-10	WellsCTI
8-pad UDFN	08QN50L43020	Plastronics

Troubleshooting the Atmel AT88CK9000 Kit

Issue: **No Power**

Resolution: Verify that the USB cable is plugged correctly to the board, and is plugged into an approved power source.

- If the cable is plugged into the correct power source, try unplugging the cable and then replug the cable into the AT88CK9000 board.

Issue: **One or More Sockets (Sites) Always Failing.**

Resolution: Visually inspect the socket for bent leads.

- If the leads are straight, clean the contacts on the socket.
- If the site is still failing, the socket may be worn and should be replaced.

Issue: **Board Fails to Enumerate to the PC for Configuration Mode**

Resolution: Be sure the board is in the configuration mode and is not in the programming mode.

- Try unplugging and then replug the USB cable into the board while pushing the boot select mode button on the back of the board.

Ordering Code Information

Ordering Code	Package Type	
AT88CK9000-8SH	8S1	8-lead JEDEC SOIC
AT88CK9000-8TH	8X	8-lead TSSOP
AT88CK9000- TSU	3TS1	3-lead SOT23-3
AT88CK9000-8MA	8MA2	8-pad UDFN



EVALUATION BOARD/KIT IMPORTANT NOTICE

This evaluation board/kit is intended for ENGINEERING, DEVELOPMENT, DEMONSTRATION or EVALUATION PURPOSE ONLY. It is not a finished product and may not (yet) comply with some or any technical or legal requirements that are applicable to finished products, including, without limitations, directives regarding electromagnetic compatibility, recycling (WEEE), FCC, CE or UL (except as may be otherwise noted on the board/kit). Atmel® supplied this board/kit "AS IS," without any warranties, with all faults, at the buyer's and further users' sole risk. The user assumes all responsibility and liability for proper and safe handling of goods. Further, the user indemnifies Atmel from claims arising from the handling or use of goods. Due to open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge and any other technical or legal concerns.

EXCEPT TO THE EXTENT OF INDEMNITY SET FORTH ABOVE, NEITHER USER NOR ATMEL SHALL BE LIABLE TO EACH OTHER FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

No license is granted under any patent right or other intellectual property right of Atmel covering or relating to any machine, process, or combination in which such Atmel product or services might be or are used.

Mailing address: Atmel Corporation
1600 Technology Drive
San Jose, CA 95110
USA

Revision History

Doc. Rev.	Date	Comments
8821A	06/2012	Initial document release



Enabling Unlimited Possibilities®

Atmel Corporation

1600 Technology Drive
San Jose, CA 95110
USA

Tel: (+1) (408) 441-0311

Fax: (+1) (408) 487-2600

www.atmel.com

Atmel Asia Limited

Unit 01-5 & 16, 19F
BEA Tower, Millennium City 5
418 Kwun Tong Road
Kwun Tong, Kowloon
HONG KONG

Tel: (+852) 2245-6100

Fax: (+852) 2722-1369

Atmel Munich GmbH

Business Campus
Parkring 4
D-85748 Garching b. Munich
GERMANY

Tel: (+49) 89-31970-0

Fax: (+49) 89-3194621

Atmel Japan G.K.

16F Shin-Osaki Kangyo Bldg
1-6-4 Osaki, Shinagawa-ku
Tokyo 141-0032
JAPAN

Tel: (+81) (3) 6417-0300

Fax: (+81) (3) 6417-0370

© 2012 Atmel Corporation. All rights reserved. / Rev.: 8821A-CRYPTO-6/12

Atmel®, Atmel logo and combinations thereof, Enabling Unlimited Possibilities®, CryptoAuthentication™, and others are registered trademarks or trademarks of Atmel Corporation or its subsidiaries. Other terms and product names may be trademarks of others.

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 THE ATMEL TERMS AND CONDITIONS OF SALES LOCATED ON THE ATMEL WEBSITE, 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 AND 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 products 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 products are not intended, authorized, or warranted for use as components in applications intended to support or sustain life.

AMEYA360

Components Supply Platform

Authorized Distribution Brand :



Website :

Welcome to visit www.ameya360.com

Contact Us :

➤ Address :

401 Building No.5, JiuGe Business Center, Lane 2301, Yishan Rd
Minhang District, Shanghai , China

➤ Sales :

Direct +86 (21) 6401-6692

Email amall@ameya360.com

QQ 800077892

Skype ameyasales1 ameyasales2

➤ Customer Service :

Email service@ameya360.com

➤ Partnership :

Tel +86 (21) 64016692-8333

Email mkt@ameya360.com