Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Tel: +86-755-8981 8866 Fax: +86-755-8427 6832
Email & Skype: info@chipsmall.com Web: www.chipsmall.com
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

Secure 3 click

PID: MIKROE-2761

Secure 3 click carries the ATSHA204A, a cryptographic coprocessor with secure hardware-based key storage from Microchip. The click is designed to run on either 3.3V or 5V power supply. Secure 3 click communicates with the target microcontroller over an I2C interface.

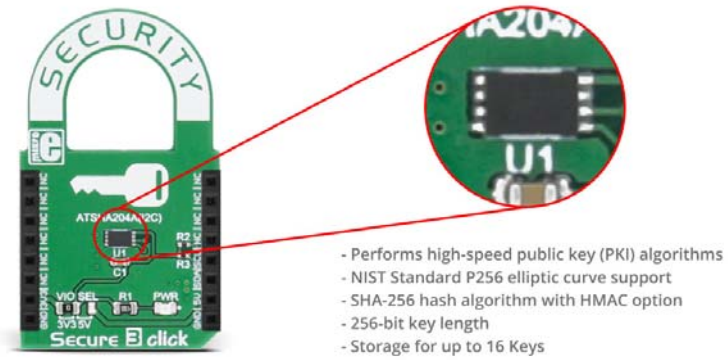
It is ideal to use for:

- Secure download and boot - authentication and protect code in-transit
- Ecosystem control - ensure only OEM/licensed nodes and accessories work
- Anti-cloning - prevent building with identical BOM or stolen code
- Message security - authentication, message integrity, and confidentiality of network nodes (IoT)

NOTE: The click comes with stacking headers which allow you to combine it with other clicks more easily by using just one mikroBUS™ socket.

ATSHA204A features

The ATSHA204A is a member of the Microchip CryptoAuthentication™ family of high-security hardware authentication devices, which uses Secure Hash Algorithm (SHA-256) with 256-bit key length, message authentication code (MAC) and hash-based message authentication code (HMAC) options. It has a flexible command set that allows use in many applications.



The ATSHA204A device includes an Electrically Erasable Programmable Read-Only Memory (EEPROM) array that can be used for key storage, miscellaneous read/write data, read-only, secret data, consumption logging, and security configuration. Access to the various sections of memory can be restricted in a variety of ways, and the configuration can then be locked to prevent changes.

Specifications

Type	EEPROM
On-board modules	ATSHA204A - a cryptographic coprocessor with secure hardware-based key storage
Key Features	superior SHA-256 hash algorithm with 256-bit key length, message authentication code (MAC) and hash-based message authentication code (HMAC) options, storage for up to sixteen keys
Key Benefits	cost-effective symmetric authentication solution
Interface	I2C
Input Voltage	3.3V or 5V
Click board size	M (42.9 x 25.4 mm)

Pinout diagram

This table shows how the pinout on **Secure 3 click** corresponds to the pinout on the mikroBUS™ socket (the latter shown in the two middle columns).

Notes	Pin	mikroBUS				Pin	Notes
	NC	1	AN	PWM	16	NC	
	NC	2	RST	INT	15	NC	
	NC	3	CS	TX	14	NC	
	NC	4	SCK	RX	13	NC	
	NC	5	MISO	SCL	12	**SCL**	I2C clock
	NC	6	MOSI	SDA	11	**SDA**	I2C data
Power supply	**+3.3V**	7	3.3V	5V	10	**+5V**	Power supply
Ground	**GND**	8	GND	GND	9	**GND**	Ground

Jumpers and settings

Designator	Name	Default Position	Default Option	Description
JP1	VIO SEL.	Left	3V3	Power Supply Voltage Selection 3V3/5V, left position 3V3, right position 5V

Programming

Code examples for Secure 3 click, written for MikroElektronika hardware and compilers are available on Libstock.

Code snippet

The following code snippet creates a MAC for a given input and then checks if it is valid using verify function.

```
01 static void MACTest ()
02 {
03     //Generates nonce for use in MAC generation
04     memset (bufferIn, 0x45, 128);
05     if (atcab_nonce(bufferIn) == ATCA_SUCCESS)
06     {
07         LOG( "rnrn Nonce generated." );
08     }
09     else  LOG( "rnrn Nonce generation failed..." );
10     delay_ms (1500);
11
12    //Generates MAC for given input
13     memset (bufferOut, 0x00, 128);
14     memset (bufferIn, 0x14, 128);
15     if (atcab_mac( 0, 0, bufferIn, bufferOut ) == ATCA_SUCCESS)
16     {
17         LOG( "rnrn MAC generated: " );
18         outputHex (bufferOut, 32);
19     }
20     else  LOG( "rnrn Mac generation failed..." );
21      delay_ms (1500);
22
23    //Checks if the generated MAC is valid
24     memset (bufferIn, 0x14, 128);
25     if (atcab_checkmac( 0, 0, bufferIn, bufferOut, otherData) ==
ATCA_SUCCESS)
26     {
27         LOG( "rnrn Check MAC successful. " );
28     }
29     else  LOG( "rnrn Check MAC failed..." );
30 }
```