



NXP® MIFARE® SAM AV3

Secure your connected system by enhancing cryptographic performance in devices

This third-generation MIFARE Secure Access Module (SAM), designed for flexible performance, secures access keys and protects assets. It offers built-in support for MIFARE ICs and NXP's "DNA" range of products from the NTAG, ICODE, and UCODE families. It is a security add-on for embedded systems such as consumer devices, reader and POS terminals, toll gates, and door locks.

KEY FEATURES

- ▶ Compatible with MIFARE® SAM AV2
- ▶ Supports latest security features of MIFARE® DESFire® EV3, MIFARE® DESFire® Light, MIFARE Plus® EV2 and MIFARE Ultralight® EV1
- ▶ Supports UCODE® DNA, ICODE® DNA, and NTAG® DNA
- ▶ Supports Crypto 1, TDEA (56, 112, 168), AES (128, 192, 256), SHA-1, SHA-225, SHA-256, RSA and ECC
- ▶ Flexible key diversification
- ▶ Secure download and storage of keys
- ▶ 128 key entries for symmetric cryptography, 3 key entries for RSA, 8 key entries for ECC asymmetric cryptography and 48 EMV CA keys
- ▶ Programmable functionality for customized commands and logic
- ▶ ISO/IEC 7816 interface with extended baud rates up to 1.5 Mbit/s
- ▶ I²C slave host interface (in HVQFN package only)
- ▶ X-mode for direct pass through connection with NXP reader IC
- ▶ Common Criteria EAL6+ (HW), MIFARE Security Certification (SW), FIPS 140-2 CAVP
- ▶ Available in wafer, PCM 1.5 smart card module, or HVQFN32 package

TARGET APPLICATIONS

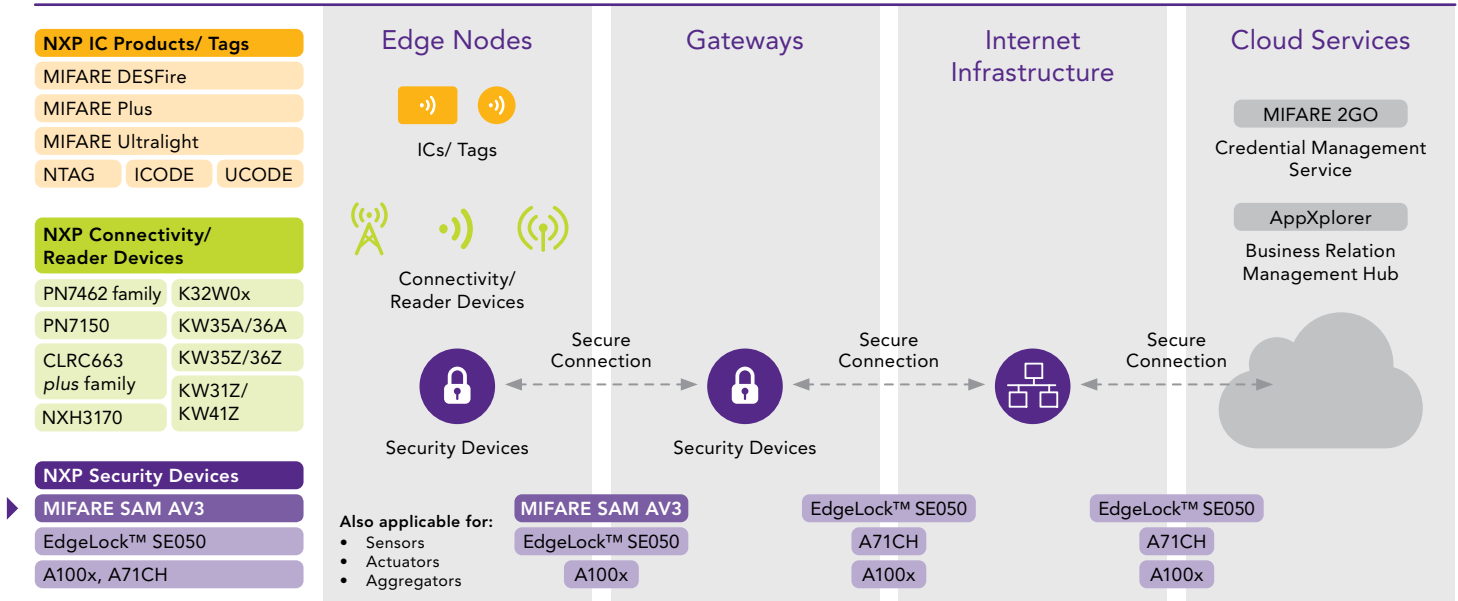
- ▶ Public transport
- ▶ Access management
- ▶ Loyalty programs and micropayment
- ▶ Consumables and part identification
- ▶ Road tolling
- ▶ Electronic vehicle identification
- ▶ Originality and security protection for consumer devices

KEY BENEFITS

- ▶ Strong protection of highly sensitive keys (e.g. Master Keys)
- ▶ Faster, leaner design of edge computing nodes
- ▶ Higher application performance in direct pass through X-mode
- ▶ Customizable flow, executable with one command



Connected Systems Architecture and NXP Solutions



The MIFARE SAM architecture, now in its third generation, extends functionality to include support for NXP's DNA range of the NTAG, ICODE, and UCODE families beyond MIFARE ICs. Optimized for use with the product types in these families that offer Transaction Message Authentication Codes (TMACs), the MIFARE SAM AV3 helps to secure keys and protect assets in a wide variety of applications.

The MIFARE SAM AV3 raises the bar on flexibility by supporting programmable logic, too, so you can integrate a proprietary algorithm for key diversification or implement a full business flow that executes with just one call. Support for programmable logic also lets you develop your own code while re-using the intrinsic cryptography functions of the MIFARE SAM AV3.

To simplify the development of customized logic – a process that requires eligibility, tool investment, and specialized skills – NXP partners with design houses that offer code development and other services tailored to the MIFARE SAM AV3.

The MIFARE SAM AV3 offers an easy way to add security to all of today's increasingly important applications, and accelerates the creation of faster, leaner designs.

The efficient X-mode configuration allows for direct communication with selected NXP RF-frontend ICs to achieve higher application performance.

Taken as a whole, the flexibility and simplicity features of the MIFARE SAM AV3 make it a good choice for securing embedded identification systems.

FEATURES

Product features	MIFARE SAM AV3
Memory	
Number of symmetric key entries	128
Number of asymmetric key entries	3 RSA 8 ECC 48 EMV CA
Interfaces	
ISO/IEC 7816	T=1 protocol for contact communication, 9.6 up to 1500 kbit/s data throughput
I ² C host interface (in HVQFN package only)	Supports standard mode up to 350 kbit/s
Security	
Symmetric crypto	Crypto 1, TDEA- 56-112-168, AES-128-192-256
Asymmetric crypto	RSA (2048 bits), ECC (256 bits)

ORDERING INFORMATION

Delivery Type	Part Type
Wafer	MF4SAM3U15
PCM 1.5 module	MF4SAM3X84
HVQFN32	MF4SAM3HN

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