



NXP® MIFARE® DESFire® EV1 256B

The entry-level product of the MIFARE DESFire EV1 family

Based on the MIFARE DESFire EV1 contactless IC, the MIFARE DESFire EV1 256B contactless smart card IC is the ideal product for applications with low memory but high security needs, account-based systems and environments requiring a limited set of applications.

KEY FEATURES

- ▶ ISO/IEC 14443 A 1–4 compliant
- ▶ ISO/IEC 7816-4 compliant (standard commands and native commands wrapping)
- ▶ Up to 256-byte EEPROM (data size)
- ▶ Unique 7-byte identifier
- ▶ Optional "RANDOM" ID
- ▶ Based on Common Criteria EAL 4+ platform
- ▶ Mutual three-pass authentication
- ▶ Choice of open DES/2K3DES/3K3DES/AES crypto algorithms in hardware
- ▶ Flexible file system (5 file types)
- ▶ File size determined during creation
- ▶ Automatic backup mechanism

TARGET APPLICATIONS

- ▶ Event ticketing
- ▶ Hospitality access
- ▶ Public transport
- ▶ Loyalty programs
- ▶ Closed-loop micropayment
- ▶ Gift cards
- ▶ Account based ticketing

KEY BENEFITS

- ▶ Full NFC compliance enables extended use cases
 - Device pairing
 - Form-factor independent solution
- ▶ Simplified integration of mobile devices to existing infrastructure
 - Low integration costs
 - Extendable solutions
 - Simple integration to smart city ecosystem
- ▶ Full compatibility with existing MIFARE DESFire product-based installations
 - In-line with existing security concept
 - Minimal integration effort



BASED ON MIFARE DESFire EV1

The MIFARE DESFire EV1 256B contactless IC offers the same security and file creation features as the higher memory family members, but the number of applications and related files on this product is limited due to its small memory plot. This addresses the needs of account-based systems and environments requiring only a limited set of applications. These applications include but are not limited to access management, public transport ticketing, loyalty schemes and closed-loop payment.

It can work with all other members of the MIFARE DESFire EV1 family, offering the same fast and highly secure data transmission, and is fully interoperable with existing MIFARE DESFire product-based infrastructure.

All MIFARE DESFire products are based on open global standards for both air interface and implemented cryptographic methods.

MIFARE DESFire EV1 256B is compliant to all four levels of ISO/IEC 14443A and uses optional ISO/IEC 7816-4 commands. It also features an on-chip backup management system and mutual three-pass authentication as well as encrypted communication.

The size of each file is defined at the moment of its creation, and provides an automatic anti-tear mechanism for all file types, guaranteeing transaction-oriented data integrity. Data transfer rates from up to 848 Kbit/s can be achieved, allowing for fast data transmission.

FEATURE COMPARISON: MIFARE DESFire EV1 AND MIFARE DESFire EV1 256B

Features	MIFARE DESFire EV1 2 kB, 4 kB, 8 kB	MIFARE DESFire EV1 256B
ISO/IEC 14443 A 1-4		✓
ISO/IEC 7816-4 commands and file structure support		extended
EEPROM data memory	2/4/8 kB	256B
Flexible file structure		✓
NFC Forum Tag Type 4 V2.0 compliant		✓
Secure, high-speed command set		
Unique ID	7 BUID or 4 B random ID	7 BUID or 4 B random ID
Number of applications	up to 28	Number of applications and files per application depending on available memory (e.g. one application....)
Number of files per application	up to 32	
High data rates according to ISO/IEC 14443-3		up to 848 Kbit/s
Crypto algorithm		DES/2K3DES/3K3DES/AES128
Transaction-based backup mechanism		✓

ORDERING INFORMATION

Packaging	Part Type	12NC
17 pF		
75µ wafer on FFC	MF3ICDQ101DUF	9353 074 04005
120µ wafer on FFC	MF3ICDQ101DUD	9353 073 91005
MOA8 Module	MF3MODQ101DA8	9353 074 01118
70 pF		
75µ wafer on FFC	MF3ICDHQ101DUF	9353 077 71005
120µ wafer on FFC	MF3ICDHQ101DUD	9353 077 69005
MOA8 Module	MF3MODHQ101DA8	9353 078 58118