



# NXP® MIFARE Classic® EV1

## IC solution for convenient maintenance of existing contactless card systems

The MIFARE Classic EV1 contactless IC represents the latest evolution of the MIFARE Classic product family and is suited for the maintenance of legacy systems in public transportation, electronic toll collection, car parking, and other applications.

### KEY FEATURES

- ▶ Fully ISO/IEC 14443 Type A 1-3 compliant
- ▶ 7B UID or 4B NUID
- ▶ 1K or 4K EEPROM
- ▶ Sector and block based user memory (16 byte per block)
- ▶ Memory access conditions freely programmable
- ▶ 2 x 48 bit keys per sector for key hierarchy
- ▶ Personalization options (7B UID version only), supporting flexibility within 4B and 7B infrastructure, e.g. ISO shortcut, UID mapping from 7B UID to 4B NUID
- ▶ NXP originality signature to prove MIFARE Classic genuineness

### BENEFITS

- ▶ Read range of 10 cm increases convenience of touch-and-go experience
- ▶ Easy-to-use and proven toolkits available
- ▶ Supports NXP Originality Check



## THE PIONEER IN CONTACTLESS SMART TICKETING ICs

MIFARE Classic is the pioneer in contactless smart ticketing ICs operating in the 13.56 MHz frequency range with ISO 14443 compliance.

### THE MIFARE Classic EV1

The MIFARE Classic EV1 represents the latest evolution of the MIFARE Classic product family and succeeds all previous versions. It is available in a 1K and 4K memory version, serving different application needs.

The MIFARE Classic EV1 provides excellent ESD robustness for easy handling of the IC during inlay and card manufacturing and best in class RF performance for optimized transactions, allowing for more flexible antenna designs.

NXP recommends that where security is concerned, existing MIFARE Classic systems are upgraded to the latest NXP products of the MIFARE® DESFire® or MIFARE Plus® families with best in class security features and Common Criteria certification.

Building on NXP's proven MIFARE DESFire and MIFARE Plus ICs not only allows you to benefit from enhanced security features, but provides support for multi-application environments and mobile use cases.

### FEATURES: MIFARE Classic EV1

Product features	MIFARE Classic EV1	
<b>Memory</b>		
EEPROM Size [byte]	1K	4K
Write Endurance [typical cycles]	200 000	
Data Retention [years]	10	
Organization	16 sectors with 4 blocks	32 sectors with 4 blocks 8 sectors with 16 blocks
<b>RF Interface</b>		
According to ISO 14443A	Yes - up to layer 3	
Frequency [MHz]	13.56	
Bit-rate [kbit /s]	106	
Anticollision	Bit-wise	
<b>Security</b>		
Unique Serial Number [byte]	4-byte NUID or 7-byte UID	
4-byte Random ID	Yes (7B UID versions only)	
Random Number Generator	Yes	
Access Keys	2 Crypto1 keys per sector	
Access Conditions	Per sector	
Cryptography	Crypto1	

### ORDERING INFORMATION: MIFARE Classic EV1

Packaging	1K Memory	4K Memory	
<b>Sawn Wafer - Au Bumps</b>			
(Package) Part Number			
8 Inch	7B UID	(120 μ) MF1S5001XDUD/V1 (75 μ) MF1S5001XDUF/V1	(120 μ) MF1S7001XDUD/V1 (75 μ) MF1S7001XDUF/V1
	4B NUID	(120 μ) MF1S5031XDUD/V1 (75 μ) MF1S5031XDUF/V1	(120 μ) MF1S7031XDUD/V1 (75 μ) MF1S7031XDUF/V1
12 Inch	7B UID	(120 μ) MF1S5001XDUD2/V1	(120 μ) MF1S7001XDUD2/V1
	4B NUID	(120 μ) MF1S5031XDUD2/V1	(120 μ) MF1S7031XDUD2/V1
<b>MOA4 Module</b>			
(Package) Part Number			
7B UID	MF1S5000XDA4/V1	MF1S7000XDA4/V1	
4B NUID	MF1S5030XDA4/V1	MF1S7030XDA4/V1	
<b>MOA8 Module</b>			
(Package) Part Number			
7B UID	MF1S5000XDA8/V1	MF1S7000XDA8/V1	
4B NUID	MF1S5030XDA8/V1	MF1S7030XDA8/V1	