

MIFARE DESFire EV3

Secure contactless smart credential
for modern access control



Reference image only*

MIFARE DESFire EV3 is the latest generation of NXP's MIFARE DESFire contactless multi-application IC family. It combines high-speed contactless communication, flexible application management, and advanced cryptographic protection for secure access management and other multi-application credential environments.

The credential operates at 13.56 MHz and supports ISO/IEC 14443 Type A communication with data transfer rates up to 848 kbit/s. MIFARE DESFire EV3 is functionally backward compatible with MIFARE DESFire EV2, EV1, and D40, helping organizations migrate compatible DESFire infrastructures while adopting newer security capabilities.

Its flexible file system supports multiple independent applications, up to 32 files per application, and advanced security mechanisms including AES-128, Transaction MAC, Proximity Check, Originality Check, and Secure Dynamic Messaging.

FEATURES

Fully ISO/IEC 14443 A 1-4 compliant

4/8-KByte NV memory with fast programming

High data rates according to ISO/IEC 14443-4: up to 848 Kbit/s

Hardware cryptography supporting DES, 2TDEA, 3TDEA and AES-128

Cryptographic algorithms in hardware

Privacy protection with optional Random ID

Unique 7-byte serial number (ISO cascade level 2)

Data integrity: CRC, CMAC and transaction-oriented anti-tear protection

Common Criteria certification: EAL5+ for IC HW and SW

Secure, high-speed command set

Proximity Check for relay-attack protection



TECHNICAL SPECIFICATIONS

Product specification	MIFARE DESFire EV3 4K	MIFARE DESFire EV3 8K
Base Part Number	ASSADCNTDF4S	ASSADCNTDF8S
NV Memory Size [byte]	4096	8192
Write Endurance [cycles]	1,000,000 typical*	
Data Retention [years]	25	
Organization	Flexible file system	
Acc. to ISO 14443 A	Yes - up to layer 4	
Frequency [MHz]	13.56	
Baud rate [kbit/s]	106 ~ 848	
Unique Serial Number [byte]	7, cascaded	
Access Keys	Up to 14 keys per application	
DES, 3DES & AES Security	MAC/CMAC / Encipherment	
Multi-application	As many applications as memory supports; up to 32 files/application	
Transaction Logging Capability	Record file / Transaction MAC file	
Card Construction	Gloss white/white PVC or PVC/Polyester Composite	
Dimensions	2.125" × 3.375" × 0.070" max. (5.40 × 8.57 × 0.18 cm)	
Weight	0.20 oz (6.0 g)	
Operating Temperature	PVC Cards: -40 to 122°F (-40 to 50°C) Composite Cards: -40 to 158°F (-40 to 70°C)	
Operating Humidity	5% - 95% Non-Condensing	
Typical Maximum Read Range	Up to 100 mm	
Programming	Factory or field programmable; Access360 credential programming kit available on request	
Warranty	Lifetime warranty. See complete warranty policy for details	

* NXP specifies 1,000,000 write cycles, typical at 25°C, with 200,000 cycles as the stated minimum.
It specifies 25-year data retention.

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