

MIFARE IC Product Overview

PRODUCT FEATURES	MIFARE Ultralight®			MIFARE Classic®			MIFARE Plus®						MIFARE® DESFire®											
	Nano	EV1	C	EV1			S	SE	X	EV1	EV1			EV2										
RF Interface @ 13.56Mhz	ISO/IEC 14443-2 Type A																							
Protocol	ISO/IEC 14443-3						ISO/IEC 14443-3&4						ISO/IEC 14443-4											
UID – unique identifier	7-byte UID			7-byte UID.4-byte NUID.Random ID																7-byte UID.Random ID				
Communication speed	106 Kbps						106-848 Kbps																	
Memory size [Bytes]	40	48	128	144	1K	4K	2K	4K	1K	2K	4K	2K	4K	256	2K	4K	8K	2K	4K	8K				
Memory Model	Compact.4-byte page			Compact.Sectors & 16-byte block												Flexible file system								
Crypto				TDES	Crypto-1			Crypto-1.AES						DES / 2K3DES / 3K3DES / AES										
Key Length				112-bit	48-bit Crypto-1			48-bit Crypto-1.128-bit AES						128-bit AES.up to 168-bit DES										
Authentication key / password	Password			3-pass mutual																				
Communication-Security	-			Encrypted			Plain.CMACed.Encrypted w. CMAC						Plain.CMACed.Encrypted w. CMAC											
MIsmartApp				-									-			✓								
Transaction MAC				-						-			✓			-			✓					
Multi Key Sets				-									-			✓								
Proximity signature				-									✓			-			✓					
Virtual Card Select				-						✓			-			✓								
Originality signature features	ECC signature re-programmable	ECC signature		ECC signature			AES originality keys			AES originality keys, ECC signature			AES originality keys.ECC signature											
CC Certification				-			EAL4+			-			EAL4+			EAL5+			EAL4+			EAL5+		
ISO 7816-4 APDU				-									✓			✓								
NFC compliance	NFC Forum Type 2 tag compliant			No- supported by majority of NFC devices			NFC capable in SL 3			NFC capabilities in SL1 and SL 3			NFC Forum type 4 tag V2.0 compliant											
Target applications	Public Transport & Event Ticketing Loyalty Programs.limited use tickets			Various applications – recommended to move to higher security ICs			Public transport / Campus cards / Access management			Smart City Platform / Advanced Mobility Multi-applications / Micropayment / Loyalty Programs / Access Management														
Input capacitance	17pF or 50pF			17pF			17pF and/or 70pF			17pF or 70pF			17pF or 70pF											
Multi applications	-			supported via MAD			supported via MAD			supported via MAD						dynamic								

