

MIFARE® contactless tag IC family overview

Product features	MIFARE Ultralight®				MIFARE Classic®		MIFARE Plus®					MIFARE™DESFire®								
	Nano	EV1	C	EV1	SE	X	EV1	Light	EV1			EV2								
RF Interface	ISO/IEC 14443-2, Type A 13.56 MHz																			
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	1K	2K	4K	2K	4K	640	2K	4K	8K	2K	4K	8K	16K	32K
Memory model	Compact, 4-byte pages				Compact, sectors & 16-byte blocks					Pre-configured file system	Flexible file system									
Crypto	-			3KDES	Crypto-1		Crypto-1, AES					AES/LRP	DES/2K3DES/3K3DES/AES							
Key length	-			112-bit	48-bit		48-bit Crypto-1, 128-bit AES					128-bit AES	128-bit AES, up to 168-bit DES							
Authentication	-	Password									3-pass mutual									
Communication security	-				Encrypted		Plain, CMACed, encrypted w. CMAC					Plain, CMACed, encrypted w. CMAC								
MisSmartApp																				
Transaction MAC																				
Multi key sets																				
Proximity check																				
Virtual card select																				
Originality check features	ECC signature programmable	ECC signature		-	ECC signature	-	AES originality keys			AES originality keys, ECC signature		✓	-			AES originality keys, ECC signature				
CC Certification																				
ISO 7816-4 APDU																				
NFC compliance	NFC Forum type 2 tag compliant				Not supported by majority of NFC devices		NFC capable in SL3			NFC capable in SL1 and SL3		NFC Forum type 4 tag V2.0 compliant								
Target applications	Public transport & event ticketing loyalty programs, limited use tickets				Single application - not recommended for new design		Public transport/ campus cards/ access management			Smart city platform/ advanced mobility multi-applications/ micropayment/ loyalty programs/ access management										
Input capacitance [pF]	17/50				17		17/70	17	17/70	17/70	17/50	17/70								
Multi applications	-				Supported via MAD		Supported via MAD			Fixed, single application		Dynamic								
Delivery types – 7 Byte UID																				
Wafer 120µm/17 pF	MF0UN0001DUD	MF0UL1101DUD *	MF0UL2101DUD *	MF0ICU2001DUD	MF1S5001XDUD*	MF1S7001XDUD*	MF1SEP1001DUD	MF1PLUS6001DUD	MF1PLUS8001DUD	MF1P2101DUD	MF1P4101DUD	MF2DL1001DUD	MF31CD2101DUD	MF31CD4101DUD	MF31CD8101DUD	MF3D2201DUD	MF3D4201DUD	MF3D8201DUD	-	-
Wafer 120µm/high cap	MF0UNH0001DUD	MF0ULH1101DUD	MF0ULH2101DUD	MF0ICU2101DUD	-	-	MF1SEPH1001DUD	-	-	MF1PH2101DUD	MF1PH4101DUD	MF2DLH1001DUD	MF31CDH1001DUD	MF31CDH4101DUD	MF31CDH8101DUD	MF3DH2201DUD	MF3DH4201DUD	MF3DH8201DUD	-	-
Wafer 75 µm/17pF	MF0UN0001DUF	MF0UL1101DUF	MF0UL2101DUF	MF0ICU2001DUF	MF1S5001XDUF	MF1S7001XDUF	-	MF1PLUS6001DUF	MF1PLUS8001DUF	MF1P2101DUF	MF1P4101DUF	MF2DL1001DUF	MF31CD2101DUF	MF31CD4101DUF	MF31CD8101DUF	MF3D2201DUF	MF3D4201DUF	MF3D8201DUF	-	-
Wafer 75 µm/high cap	MF0UNH0001DUF	MF0ULH1101DUF	MF0ULH2101DUF	MF0ICU2101DUF	-	-	-	-	-	MF1PH2101DUF	MF1PH4101DUF	MF2DLH1001DUF	MF31CDH2101DUF	MF31CDH4101DUF	MF31CDH8101DUF	MF3DH2201DUF	MF3DH4201DUF	MF3DH8201DUF	-	-
MOA4/17pF	-	-	-	MF0M0U2001DA4	MF1S5000XDA4	MF1S7000XDA4	MF1SEP1001DA4	MF1PLUS6001DA4	MF1PLUS8001DA4	MF1P2100DA4	MF1P4100DA4	MF2DL1000DA4	MF3MOD2101DA4	MF3MOD4101DA4	MF3MOD8101DA4	MF3D2200DA4	MF3D4200DA4	MF3D8200DA4	MF3D9200DA4	MF3DA200DA4
MOA4/high cap	-	-	-	MF0M0U2101DA4	-	-	MF1SEPH1001DA4	-	-	MF1PH2100DA4	MF1PH4100DA4	MF2DLH1000DA4	MF3MODH2101DA4	MF3MODH4101DA4	MF3MODH8101DA4	MF3DH2200DA4	MF3DH4200DA4	MF3DH8200DA4	MF3DH9200DA4	MF3DHA200DA4
MOA8/17 pF	-	-	MF0UL2101DA8	MF0M0U2001DA8	MF1S5000XDA8	MF1S7000XDA8	MF1SEP1001DA8	MF1PLUS6001DA8	MF1PLUS8001DA8	-	-	MF2DL1000DA8	MF3MOD2101DA8	MF3MOD4101DA8	MF3MOD8101DA8	-	-	-	-	-
MOA8/high cap	-	-	-	MF0M0U2101DA8	-	-	MF1SEPH1001DA8	-	-	-	-	MF2DLH1000DA8	MF3MODH2101DA8	MF3MODH4101DA8	MF3MODH8101DA8	-	-	-	-	-
MOB6/17pF	-	-	-	-	-	-	-	-	-	MF1P2100DA6	MF1P4100DA6	-	-	-	-	MF3D2200DA6	MF3D4200DA6	MF3D8200DA6	MF3D9200DA6	MF3DA200DA6
MOB6/high cap	-	-	-	-	-	-	-	-	-	MF1PH2100DA6	MF1PH4100DA6	-	-	-	MF3DH2200DA6	MF3DH4200DA6	MF3DH8200DA6	MF3DH9200DA6	MF3DHA200DA6	

* MIFARE Ultralight EV1 and MIFARE Classic EV1 wafer deliveries are next to 8 inch as well available on 12 inch