



Smart solutions for smart services



ISO 14443

ISO 15693

NXP Contactless Reader Systems

	Reader ICs				Evaluation Systems								
	MF RC500	MF RC530	MF RC531	SL RC400	CL RC632	MF RC522	MF RC 523	MF EV700	MF EV800	SL EV400	CL RD 701	UC EV 10x	SL EV 901
Product Features													
Operating distance typ. [mm]	100	100	100	100	100	80	80	75	75	75	75	5-10m	1-2m
Antenna	-	-	-	-	-	-	-	yes	yes	yes	yes	yes	yes
FIFO depth [byte]	64	64	64	64	64	64	64	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Host interface	8-bit parallel	8-bit parallel, SPI	8-bit parallel, SPI	8-bit parallel	8-bit parallel, SPI	SPI, I ² C, RS232	SPI, I ² C, RS232	USB	USB/R232	USB	USB	Serial	Serial
RF Interface													
Analog interface	fully integrated	fully integrated	fully integrated	fully integrated	fully integrated	fully integrated	fully integrated	MF RC500	MF RC500	SL RC400	CL RC 632	n.a.	n.a.
Carrier frequency [MHz]	13.56	13.56	13.56	13.56	13.56	13.56	13.56	13.56	13.56	13.56	13.56	865-928	13.56
Modulation	100% ASK	100% ASK	10% & 100% ASK	10% & 100% ASK	10% & 100% ASK	100% ASK	10% & 100% ASK	100% ASK	100% ASK	10% & 100% ASK	10% & 100% ASK	20% - 40% and 100% DSB-ASK	10% & 100% ASK
Baudrate ISO 14443 [kbit/s]	106	106/212/424/848	106/212/424/848	-	106/212/424/848	106/212/424/848	106/212/424/848	106	106	-	106/212/424/848	-	-
Baudrate ISO 15693 [kbit/s]	-	-	-	1.66 / 26.5 / 53	1.66 / 26.5 / 53	-	-	-	-	1.66 / 26.5 / 53	1.66 / 26.5 / 53	-	1.66 / 26.5 / 53
Baudrate ISO 18000-6-B and EPC class 1 Gen2	-	-	-	-	-	-	-	-	-	-	-	40 - 320	-
Standards & Protocols													
ISO 14443 A	yes	yes	yes	-	yes	yes	yes	yes	yes	-	yes	-	-
ISO 14443 B	-	-	yes	-	yes	-	yes	-	-	-	yes	-	-
ISO 15693	-	-	-	yes	-	-	-	-	-	yes	yes	-	yes
MIFARE Classic protocol	yes	yes	yes	-	yes	yes	yes	yes	yes	-	yes	-	-
ICODE 1 protocol	-	-	-	yes	yes	-	-	-	-	yes	yes	-	yes
EPC protocol	-	-	-	yes	yes	-	-	-	-	yes	yes	yes	yes
ISO 18000-6B	-	-	-	-	-	-	-	-	-	-	-	Yes	-
Security Features													
MIFARE Classic	yes	yes	yes	-	yes	yes	yes	yes	yes	-	yes	-	-
Exception Sensors	V, f	V, f	V, f	V, f	V, f	V, f	V, f	-	-	-	-	-	-
Additional Product Information													
Supply voltage digital [V]	5	3.3 or 5	3.3 or 5	5	3.3 or 5	2.5 ... 3.6	2.5 ... 3.6	5	5	5	5	15-24	15-24
Supply voltage analog [V]	5	5	5	5	5	2.5 ... 3.6	2.5 ... 3.6	-	-	-	-	-	-
Power down mode current, typ. [µA]	2	2	2	2	2	1	1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Wake up time [µs]	1000	1000	1000	1000	1000	1000	1000	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Temperature range [°C]	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	0 ... +70	0 ... +70	0 ... +70	0 ... +70	-20 ... +50	-20 ... +50
Package	SO32	SO32	SO32	SO32	SO32	HVQFN32	HVQFN32	-	-	-	-	-	-
Approvals													
EMC	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC, EN300220, EN202208	CE, FCC, EN300220, EN202208
Software Support	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes

ISO 15693 ISO 18000 ISO 11784/85

NXP Smart Label and Tag ICs

Product Features	ICCODE SL1-5 ICCODE SL1-5 HC*	ICCODE SL1 SL2 IC520	ICCODE SL1-L ICCODE SL1-L HC*	ICCODE UID-OTP SL2 IC512	ICCODE UID SL2 IC511	ICCODE EPC SL2 IC510	ICCODE 1 ICCODE 1 HC*	UCODE HSL SL3 IC530	UCODE EPC G2 SL3 IC510	UCODE G3RL SL3 IC510	UCODE G2XM	HITAG™ 1	HITAG™ 2	HITAG™ 5	
Memory	2048 100 000	1024 100 000	512 100 000	192 5	192 5	136 5	512 100 000	2048 100 000	512 100 000	368 10 000	880 10 000	2048 100 000	256 100 000	256, 2048 100 000	
Size [bit]	2048	1024	512	192	192	136	512	2048	512	368	880	2048	256	256, 2048	
Write Endurance [cycles]	100 000	100 000	100 000	5	5	5	100 000	100 000	100 000	10 000	10 000	100 000	100 000	100 000	
Data Retention [yrs]	10	10	10	5	5	5	10	10	10	10	10	10	10	10	
Organisation	16 pages each 4 blocks & 4 bytes	32 blocks & 4 bytes	4 pages each 4 blocks & 4 bytes	24 blocks & 1 byte	24 blocks & 1 byte	17 blocks & 1 byte	16 blocks & 4 bytes	44 blocks & 4 bytes	32 blocks & 2 bytes	23 blocks & 2 bytes	55 blocks & 2 bytes	44 blocks & 4 bytes	8 blocks & 4 bytes	44 blocks & 4 bytes	
RF interface	According to ISO 15693, ISO 18000, EPC** 13.56 MHz up to 53 acc. ISO 15693, ISO 18000, EPC** up to 2.0***	ISO 15693, ISO 18000 13.56 MHz up to 53 acc. ISO 15693, ISO 18000, EPC** up to 1.5	ISO 15693, ISO 18000 13.56 MHz up to 53 acc. ISO 15693, ISO 18000 up to 2.0***	EPC** 13.56 MHz up to 53 acc. EPC** up to 1.5	EPC** 13.56 MHz up to 53 acc. EPC** up to 1.5	EPC** 13.56 MHz up to 53 acc. EPC** up to 1.5	ICCODE 1 13.56 MHz up to 26.5 time slot up to 1.5	ISO 18000 UHF / 2.45 GHz up to 40 adapted binary tree up to 7.0	EPC class 1 Gen2 860 - 960 MHz up to 640 slotted ALCHA up to 7.0	EPC Class 1 Gen2 840 - 960 MHz up to 640 slotted ALCHA up to 7.0	EPC Class 1 Gen2 840 - 960 MHz up to 640 slotted ALCHA up to 7.0	HITAG 1 100 ... 150 kHz up to 4 yes, collision detection up to 1.5	HITAG 2, ISO 11784/85 100 ... 150 kHz up to 4 - up to 1.5	HITAG 1+, ISO 11784/85 100 ... 150 kHz up to 8 yes, collision detection up to 2.0	
Security	Unique Serial Number [byte] 8 blockwise	8 blockwise	8 blockwise	5 OTP	5 - OTP	5 - OTP	8 blockwise	8 blockwise	TID: 8 incl. 4 byte SN blockwise	TID: 8 incl. 4 byte SN blockwise	TID: 8 incl. 4 byte SN blockwise	4 blockwise	4 blockwise	4 blockwise, multi-user mode	
Access Keys	32-bit	-	-	-	-	-	-	-	32-bit	32-bit	32-bit	32-bit	48-bit	48-bit	
Access Conditions	Plain, Password Pagewise configurable password protection read/write	-	-	-	-	-	-	-	Plain, Password	Plain, Password	Plain, Password	32-bit Encrypted Mutual Authentication or Plain	48-bit Encrypted Mutual Authentication or Plain	48-bit Encrypted Mutual Authentication or Plain	
Encryption Algorithm	-	-	-	-	-	-	-	-	-	-	-	yes	yes	yes, for authentication only	
Special Features	EAS yes (Plain, Password)	yes	yes (Plain, Password)	-	-	-	yes	-	yes	yes	yes	-	-	-	
ATF	yes	yes	yes	-	-	-	yes	yes	yes	no	no	-	-	-	
EPC	yes	-	-	yes	yes	yes	-	-	yes, 96-bit	yes, up to 240 bit	yes, up to 240 bit	-	-	-	
TTP Modes	-	-	-	-	-	-	-	-	-	-	-	-	yes	-	
Destroy Command	yes	-	yes	yes	yes	yes	-	-	yes	yes	yes	-	-	-	
Privacy Command	yes	-	yes	-	-	-	-	-	-	-	-	-	-	-	
Package	Sawn Wafer Sawn Wafer (Au-Bump)ed	SL2 IC5301EWV17 SL2 IC53401EWV7*	SL2 IC52001DW1D SL2 MOS2001DV SL2 MOS2401EV*	SL2 IC51201DWV1 SL2 IC51201DWV1	SL2 IC51101DWV4 SL2 IC51001DWV4	SL2 IC51001DWV4 SL2 IC51001DWV4	SL1 IC53001WV4D SL1 IC53101WV4D*	SL3 IC53001WV4 SL3 IC51001FWV7A	SL3 IC51001FWV7A	SL3 IC51001FWV7A	SL3 IC51001FWV7A	SL3 IC51001FWV7A	SL3 IC51001FWV7A	SL3 IC51001FWV7A	SL3 IC51001FWV7A
MOA2 Module	SL2 MOS3301EV SL2 MOS3401EV*	SL2 MOS2001DV SL2 MOS2401EV*	SL2 MOS3301EV SL2 MOS3401EV*	-	-	-	-	-	-	-	-	HT1M0A2530/E3	HT2M0A2520/E3	HT3M0A2510/E3	
FCP2 Module	SL2 FCS3301EV0H SL2 FCS3401EV0H*	SL2 FCS2001DV0H SL2 FCS2401EV0H*	SL2 FCS3301EV0H SL2 FCS3401EV0H*	-	SL2 FCS1101DV0H	SL2 FCS101DV0H	-	SL3 FCS1001FV0H	SL3 FCS1001FV0H	SL3 FCS1001FV0H	SL3 FCS1001FV0H	SL3 FCS1001FV0H	SL3 FCS1001FV0H	SL3 FCS1001FV0H	
Stick SOT 385-1	-	-	-	-	-	-	-	SL3S3001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	
TSSOP8	-	-	-	-	-	-	-	SL3S3001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	
HYCON2	-	-	-	-	-	-	-	SL3S3001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	SL3S1001FTT	

* HC: high capacitance (19pF); ** HF: EPC Class 1; EPCglobal/Auto-ID Center Specification; *** based on ECC regulations

Product Features	HITAG™ Reader ICs	HTRC110 HITAG™ Reader ICs	PCF7921, HITAG Reader Security Controller
Modulation Type	100% ASK	100% ASK	SSOP20
Dimensions [mm]	6.2 x 8.75 x 1.45	6.2 x 8.75 x 1.45	SSOP20
Interface	CMOS	programmable I/O Pins	not applicable
Supply Voltage [V]	5 ±10%	2.1V ... 3.6	not applicable
Antenna Driver Current [mA]	200 continuous	up to 2.2 (single clock instruction)	not applicable
Clock Osc. Frequency [MHz]	4 ... 16	340 ... 85	not applicable
Operating Temperature [°C]	-40 ... +85	-40 ... +85	01; max. 0.5 (RUN: 300; SLE: 20; PD: 100nA)
Power Down Current [µA typ.]	7	7	4 Kbytes EEPROM (Plain) 512 Byte RAM
Memory	-	-	-
Supported Products	-	-	-
HITAG™ 1	yes	-	-
HITAG™ 2	yes	-	-
HITAG™ 5	yes	-	-
Security	-	-	-
HITAG™ 1 data encryption	-	-	-
HITAG™ 2 data encryption	-	-	-
HITAG™ 5 data encryption	-	-	-
Package	-	-	-
SO14, Tube	-	HTRC110 01T00EE	-
SO14, Reel	-	HTRC110 01T00EE	-
SSOP20	-	-	PCF7921ATS3391

ISO 7816

NXP Contact Smart Card Reader ICs

Product Features	Analog Interface					Analog & UART	
	TDA8023	TDA8020	TDA8026	TDA8024	TDA8025	TDA8007B	TDA8029
Analog interfaces	1 card	2 cards	5 cards	1 card	1 card	2 cards	1 card
ISO 7816 UART	-	-	-	-	-	yes	yes
ISO 7816 dedicated timers	-	-	-	-	-	yes	yes
µC-core	-	-	-	-	-	-	80C51RB+
ROM/OTP [kbyte]	-	-	-	-	-	-	16 [ROM]
RAM [byte]	-	-	-	-	-	-	768
Host interface	I ² C	I ² C	I ² C	I/O lines	I/O lines	8-bit parallel	serial
ESD protection on ISO pads [kV]	6	6	6	6	6	6	6
Auxiliary protected lines for C4 and C8 contacts	2	-	2 (on slot 1&2)	2	2	2x2	-
Vcc card power supply [V]	1.8 & 3 & 5	3 & 5	1.8 & 3 & 5	3 & 5	1.2 & 1.8 & 3	1.8 & 3 & 5	1.8 & 3 & 5
Card supply current @ 5V Vcc [mA]	55	2 x 55	55	80	-	2 x 55	65
Card supply current @ 3V Vcc [mA]	55	2 x 50	55	65	65	2 x 50	50
Card supply current @ 1.8V Vcc [mA]	35	-	35	-	65	35	30
Card clock frequency max. [MHz]	20	20	20	26	26	20	20
Card activation time max. [µs]	135	135	135	220	220	130	225
Card deactivation time max. [µs]	110	110	110	100	100	150	100
Protocol Support							
Synchronous card management	yes	-	yes	-	-	yes	yes
Asynchronous protocol T=0 and T=1	yes	yes	yes	yes	yes	yes	yes
Security Features							
Voltage supervisor and over current detection	yes	yes	yes	yes	yes	yes	yes
Current protection on VCC, I/O, RST, CLK	yes	yes	yes	yes	yes	yes	yes
Additional Product Information							
Power supply [V]	2.7 ... 6.5	2.5 ... 6.5	2.7 ... 5.5	2.7 ... 6.5	2.7 ... 5.5	2.7 ... 6	2.7 ... 6
Power down mode current max. [µA]	2	150	2	-	100	350	20 (shut down)
Temperature range [°C]	-40 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-40 ... +85	-25 ... +85
Package	TSSOP28	LQFP32	TFBGA	SO28 / TSSOP28	HVQFN32	LQFP48	LQFP32
Software Support (EMV)	-	-	-	-	-	yes	yes
EMV compliance	EMV4.0	EMV4.0	EMV4.0	EMV4.0	EMV4.0	EMV4.0	EMV4.0
NDS compliance	-	-	-	yes	yes	-	yes

ISO 7816

ISO 14443

NXP Contactless MIFARE Smart Card ICs

Product Features	MIFARE Ultralight MF0 IC U1X	MIFARE Mini MF1 IC S20	MIFARE Std 1k MF1 IC S50	MIFARE Std 4k MF1 IC S70	MIFARE DESFire 2k MF3 IC D21	MIFARE DESFire 4k MF3 IC D41	MIFARE DESFire 8k MF3 IC D81	MIFARE SAM MF3 IC D40 SAM	MIFARE DESFire8 SAM-X MF3 IC D81 SAM
Memory									
EEPROM size [byte]	64	320	1024	4096	2048	4096	8192	72k	72k
OTP area [bit]	32	-	-	-	-	-	-	-	-
Write Endurance [cycles]	10 000	100 000	100 000	100 000	500 000	500 000	500 000	100 000	100 000
Data Retention [yrs]	5	10	10	10	10	10	10	10	10
Organization	16 pages á 4 byte	5 sectors á 64 byte	16 sectors á 64 byte	32 sectors á 64 byte 8 sectors á 256 byte	flexible file system	flexible file system	flexible file system	128 key entries	128 key entries
RF-Interface									
Acc. to ISO 14443A	yes - up to layer 3	yes - up to layer 3	yes - up to layer 3	yes - up to layer 3	yes - up to layer 4	yes - up to layer 4	yes - up to layer 4	ISO 7816, T=1	ISO 7816, T=1
Frequency [MHz]	13.56	13.56	13.56	13.56	13.56	13.56	13.56	1 ... 10	1 ... 10
Baudrate [kbit/s]	106	106	106	106	106 ... 848	106 ... 848	106 ... 848	9.6 ... 1000	9.6 ... 1500
Anticollision	bit-wise	bit-wise	bit-wise	bit-wise	bit-wise	bit-wise	bit-wise	-	-
Operating Distance [mm]	up to 100	up to 100	up to 100	up to 100	up to 100	up to 100	up to 100	-	-
Security									
Unique Serial Number [byte]	7, cascaded	4	4	4	7, cascaded	7, cascaded	7, cascaded	7	7
Random Number Generator	-	yes	yes	yes	yes	yes	yes	yes	yes
Access Keys	-	2 keys	2 keys	2 keys	14 keys	14 keys	14 keys	128 key entries	128 key entries
Access Conditions	per page	per sector	per sector	per sector	per application	per application	per application	per key entry	per key entry
MIFARE Classic Security	-	supported	supported	supported	-	-	-	-	supported
DES & DES3 Security	-	-	-	-	MACing / Encipherment	MACing / Encipherment	MACing / Encipherment	MACing / Encipherment	MACing / Encipherment
AES 128 Security	-	-	-	-	MACing / Encipherment	MACing / Encipherment	MACing / Encipherment	-	MACing / Encipherment
Anti-tear supported by chip	-	for value blocks	for value blocks	for value blocks	yes	yes	yes	-	-
Special Features									
Multi-application	-	supports MAD*	supports MAD*	supports MAD2**	28 applications, MAD3***	28 applications, MAD3***	28 applications, MAD3***	-	-
Purse Functionality	-	Value block format	Value block format	Value block format	Value file	Value file	Value file	-	-
Secure Transport Transaction	48 byte read 16 byte write	n.a.	512 byte read 16 byte write	512 byte read 128 byte write	512 byte read 128 byte write	512 byte read 128 byte write	512 byte read 128 byte write	-	-
Transaction Time [ms]	31.4	-	164	140	89	89	89	-	-
Packaging									
Sawn Wafer	-	MF1ICS2007W/V6D	MF1ICS5005W/V9D	MF1ICS7001W/V9D	-	-	-	-	-
Sawn Wafer (Au-Bumped)	MF0ICU1X01W/V1D	MF1ICS2005W/U7D	MF1ICS5005W/V1D	MF1ICS7001W/V1D	MF3ICD2101DUD/01	MF3ICD4101DUD/01	MF3ICD8101DUD/01	-	-
MOA2 Module	-	-	MF1MOA2550/D3F(N)	-	-	-	-	-	-
MOA4 Module	-	MF1MOA4520/D	MF1MOA4550/D	MF1MOA4570/D	MF3MOD2101DA4/01	MF3MOD4101DA4/01	MF3MOD8101DA4/01	-	-
FCP2 Module	MF0FCP2U1X/DH	-	MF1FCP2550/DH	-	-	-	-	-	-
PDM1.1 Module	-	-	-	-	-	-	-	P5DF972EV2/T0PD2050	P5DF072EV2/T0PD4090
PCM1.1 Module	-	-	-	-	-	-	-	P5DF072EV2/T0PD2060	P5DF072EV2/T0PD4100

*MAD: MIFARE Application Directory

**MAD2: MAD Extension for 4 kbyte EEPROM size

***MAD3: MAD2 Extension for DESFire

ISO/IEC 18092

ISO/IEC 14443

NFC devices

Product features	NFC Transceivers		NFC Controllers		
	PN511	PN512	PN531	PN532	PN533
Operating distance typ [mm]	Up to 100 depending on mode, coil...	Up to 100 depending on mode, coil...	Up to 100 depending on mode, coil...	Up to 100 depending on mode, coil...	Up to 100 depending on mode, coil...
Interfaces					
Serial interface [Mbits/s]	up to 1.228	up to 1.228	up to 1.228	up to 1.228	up to 1.228
I ² C interface [bits/s]	400k /3.4 M	400k /3.4 M	400k	400k	-
SPI interface [Mbits/s]	up to 5	up to 5	up to 5	up to 5	-
8 bits parallel interface	yes (with HVQFN40)	yes (with HVQFN40)	-	-	-
USB 2.0 (full speed) interface	no	no	yes	-	yes
CL FIFO depth [bytes]	64	64	64	64	64
Serial/SPI FIFO [bytes]	-	-	180	180	180
S ² C interface	yes	yes	yes	yes	yes
CPU	no	no	80C51	80C51	80C51
RAM/ROM [bytes]	-	-	1k / 32k	1k / 40 k	1.2k / 44 k
RF interface					
Carrier Frequency [MHz]	13.56	13.56	13.56	13.56	13.56
Analog Interface	fully integrated	fully integrated	fully integrated	fully integrated	fully integrated
Standard and Protocols					
ISO 18092 Peer-to-peer (active/passive)	yes	yes	yes	yes	yes
ISO 14443-A Reader/Writer	yes	yes	yes	yes	yes
ISO 14443-B Reader/Writer	no	yes	no	yes	yes
Felica Reader/Writer	yes	yes	yes	yes	yes
Card emulation	FeliCa RF, ISO 14443-A, MIFARE 106 / 212 / 424	FeliCa RF, ISO 14443-A, MIFARE 106 / 212 / 424	FeliCa RF, ISO 14443-A, MIFARE 106 / 212 / 424	FeliCa RF, ISO 14443-A, MIFARE 106 / 212 / 424	FeliCa RF, ISO 14443-A, MIFARE 106 / 212 / 424
Baudrate [kbits/s]	106 / 212 / 424	106 / 212 / 424	106 / 212 / 424	106 / 212 / 424	106 / 212 / 424
Security features					
MIFARE classic	yes	yes	yes	yes	yes
Interface to smart card controller	S ² C	S ² C	S ² C	S ² C	S ² C
Additional Product information					
Embedded firmware	no	no	yes	yes	yes
Middleware	HAL, NFC forum reference implementation	HAL, NFC forum reference implementation	HAL, NFC forum reference implementation	HAL, NFC forum reference implementation	HAL, NFC forum reference implementation
Integrated LDO voltage regulator	no	no	no	yes	no
Low battery mode	no	no	no	yes	no
Supply voltage [V]	2.5 - 3.6	2.5 - 3.6	2.5 - 4.0	2.7 - 5.5	2.5 - 3.6
Min. Host interface voltage[V]	1.6	1.6	1.6	1.6	1.6
USB bus power supply [V]	-	-	4.2 - 5.5	-	4.2 - 5.5
Supply voltage for secure device integrated	no	no	yes	yes	yes
Power down mode typ. [uA]	5	5	10	12	12
Power down mode with RF level detector on [uA]	10	10	30	15	30
Transmitter supply current typ. [mA]	60	60	60	60	60
Temperature range [C]	-25 / +85	-25 / +85	-25 / +85	-25 / +85	-25 / +85
Package thickness	0.85 mm	0.85 mm	0.85 mm	0.85 mm	0.85 mm
Package size	5x5 or 6x6 mm ²	5x5 or 6x6 mm ²	6x6 mm ²	6x6 mm ²	6x6 mm ²
Package type	HVQFN32 or HVQFN40	HVQFN32 or HVQFN40	HVQFN40	HVQFN40	HVQFN40
Design In kit	OM5561	OM5571	OM5555	OM5581	planned

Product features	NFC secure modules
Embedded NFC IC	PN65L
Available host interfaces	serial, SPI, I ² C
Embedded Secure IC	P5CN072
OS for secure device	JCOP or 3rd party
Stacked passive component IC	yes
Package thickness	1.2 mm
Package size	7x7 mm ²
Package type	HLQFN48

Transceiver: RF front-end

Controller: RF front-end + microcontroller on single die
NFC Secure module: NFC IC + Smart card IC in 1 package

**NXP SmartMX
Dual Interface Security/PKI Controllers**

Product Features	PSSD005	PSSD009	PSCD009	PSCD036	PSCD072	PSCN072	PSCD072	PSCD012	PSCD020	PSCD040	PSCN080	PSCD080	PSCN144	PSCD144
CPU	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1
ISO Contact Interface	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816
ISO Contactless Interface	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443	ISO 14443
USB Interface	-	-	-	-	-	-	USB 2.0 (low speed)	-	-	-	-	-	-	-
NFC Interface type	-	-	-	-	-	S2C	-	-	-	-	-	-	-	-
ROM [byte]	64 K	96 K	96 K	160 K	160 K	160 K	160 K	200 K	200 K	200 K	200 K	200 K	200 K	200 K
RAM (linear addressable) [byte]	2.25 K	2.25 K	4.5 K	4.5 K	4.5 K	4.5 K	4.5 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K
- Standard RAM [byte]	2.25 K	2.25 K	3.25 K	3.25 K	3.25 K	3.25 K	3.25 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K
- RAM accessible by FameXE [byte]	-	-	1.25 K	1.25 K	1.25 K	1.25 K	1.25 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K
EEPROM [byte]	6 K	12 K	12 K	36 K	72 K	72 K	72 K	12 K	20 K	40 K	80 K	80 K	144 K	144 K
Security Features														
PKI Crypto-Engine (FameXE)	-	-	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
(RSA key length up to 4096-bit)	-	-	-	yes	yes	yes	yes	-	-	-	-	-	-	-
(RSA key length up to 5192-bit)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RSA (1024 bit) signature generation	-	-	-	-	-	-	-	-	-	-	-	-	-	-
(CRT)/verification, Exponent: 216+1	-	-	135 / 3 ms	135 / 3 ms	135 / 3 ms	135 / 3 ms	135 / 3 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms
ECC (192-bit signature) generation/verification	-	-	25 / 35 ms	25 / 35 ms	25 / 35 ms	25 / 35 ms	25 / 35 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms
AES-Engine	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs	DES3 < 40 µs
AES-Engine key length 128/192/256-bit	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Exception Sensors	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light	V, f, T, Light
Memory Management Unit (Firewall)	-	-	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Product Information														
UART for implemented interfaces	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
CRC-Engine	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Supply voltage [V]	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5
External Clock [MHz]	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 6	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)	1 ... 10 (13,56)
Internal Clock [MHz]	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30
Temperature range [°C]	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85
EEPROM page mode granularity [byte]	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1...128	1...128	1...128	1...128	1...128	1...128	1...128
16-bit Timer/Counter	2	2	2	2	2	2	2	2	2	2	2	2	2	2
True Random Number Generator	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)
Technology	0,18 µm	0,18 µm	0,18 µm	0,18 µm	0,18 µm	0,18 µm	0,18 µm	0,14 µm	0,14 µm	0,14 µm	0,14 µm	0,14 µm	0,14 µm	0,14 µm
MIFARE™ emulation (option)	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K	yes, 1K or 4K
Delivery Type Wafer	sawn (75µ/150µ), unsawn	sawn (75µ/150µ), unsawn	sawn (75µ/150µ), unsawn	sawn (75µ/150µ), unsawn	sawn (75µ/150µ), unsawn	sawn/unsawn	sawn (75µ/150µ), unsawn	sawn	sawn	sawn	sawn	sawn	sawn	sawn
Delivery Type Module	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless	Contact, Dual Interface, Contactless
Evaluation and Certification														
3rd Party Hardware Evaluation	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Security Certificates*	EMVCo	EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo	CC EALS+ EMVCo

* Common Criteria (CC), EMVCo, ZKA and other evaluations planned depending on application requirements ** MIFARE is a trademark of NXP B.V.

NXP JCOP Product Range

Product Features	JCOP S10	JCOPS20	JCOPS30	JCOP10	JCOP21	JCOP31	JCOP41
JavaCard 2.2.1	+	+	+	+	+	+	+
GlobalPlatform 2.1.1	+	+	+	+	+	+	+
Visa Card Implementation Requirements 2.1.1 (Visa Errata 2.1.1)	+	+	+	+	+	+	+
MasterCard Requirements	+	+	+	+	+	+	+
EMVCo EMV 4.1 Book1	+	+	+	+	+	+	+
Visa Contactless payment spec			1.4.2 / 2.01			1.4.2 / 2.01	1.4.2 / 2.01
Common Criteria Security Certificates**					EAL 4+	EAL 4+	EAL 4+
VISA Type Approval	VISA	VISA	VISA	VISA	VISA	VISA	VISA
T=0 / T=1	ISO 7816-3	+	+	+	+	+	+
T=CL	ISO 14443-4		+			+	+
USB 2.0 LS	ISO7816-12						+
NFC Interface type	S2C					+	
Crypto support							
DES3, DES	+	+	+	+	+	+	+
RSA up-to 2432 bit		+	+		+	+	+
RSA Key Generation		+	+		+	+	+
ECC GF(2n)					+	+	+
ECC GF(p)						***	
SEED		+	+		+	+	+
SHA1		+	+		+	+	+
MD5					+	+	+
AES					+		+
MIFARE 1KB / 4KB emulation [byte]**			1KB			1KB / 4KB	1KB / 4KB
Available EEPROM options [byte]	10K	12K	12K	18K / 36K	18K / 36K / 72K	36K / 72K / 80K**	72K
Applets for payment included in ROM**	Visa	Visa	Visa	Visa	Visa	Visa	Visa
Applets for eGovernment						BAC (EAL4+)	
Custom Masking for Applets in ROM	+	+	+	+	+	+	+
Delivery Type Wafer**	+	+	+	+	+	+	+
Delivery Type Module**	PCM1.1	PCM1.1	PDM1.1	PCM1.1	PCM1.1	PDM1.1 / MOB4 / SSOP20	PDM1.1
Supported Application Features							
Extended Access Control (EAC)						+	+
Basic Access Control (BAC)			+			EAL4+***	EAL4+***
Dynamic Data Authentication (DDA)		+	+		+	+	+
Static Data Authentication (SDA)	+	+	+	+	+	+	+
Multiple Security Domains					+	+	+
Data Authentication Pattern					+	+	+

* Available on 72K version only

** Not all possible combinations may be commercially available

*** planned

NXP Contactless Payment

	Contactless Payment P3SR008
Product Features	
pre-installed applications	
PayPass Mag Stripe	v3.2
Visa c'less payment specification	v2.0.2
Memory	
EEPROM [byte]	8 K
Write Endurance [cycles]	500
Data Retention [years]	10
RF Interface	
Standard	ISO 14443 A
Frequency [MHz]	13.56
Baudrate [kbit/s]	106 / 212 / 424 / 848
Anticollision	True deterministic
Operating Distance [cm]	10
Security	
Unique Serial Number [byte]	7
Anti-tear supported by chip	yes
DES Engine	Triple-DES
Exception Sensors	V, f, T, light
Full MasterCard CAST certification	Yes
General Product Information	
Operating Temperature Range [°C]	-25 ... +85
Packaging	
MOB6 module	Standard
MOB4 module	Standard
Sawn wafer (8" on UV irradiated FFC)	120/75 um (Optional)

**NXP SmartMX
Contact Interface Security / PKI Controllers**

Product Features	PSSC020	PSSC009	PSSC018	PSSC036	PSCU036	PSSC072	PSSC012	PSSC020	PSSC021	PSSC024	PSSC037	PSSC040	PSSC052	PSSC079	PSSC080	PSSC144
CPU	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1	Secure_MXS1
ISO Contact Interface	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816
ISO Contactless Interface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
USB Interface	-	-	-	-	USB 2.0 (low speed)	-	-	-	-	-	-	-	-	-	-	-
ROM [byte]	160 K	96 K	128 K	128 K	160 K	160 K	160 K	160 K	200 K	160 K	200 K	200 K	244 K	200 K	200 K	200 K
RAM (linear addressable) [byte]	3.5 K	4.5 K	4.5 K	4.5 K	4.5 K	4.5 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K	6 K
- Standard RAM [byte]	3.5 K	3.25 K	3.25 K	3.25 K	3.25 K	3.25 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K	3.5 K
- RAM accessible by FamaXE [byte]	1.25 K	1.25 K	1.25 K	1.25 K	1.25 K	1.25 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K	2.5 K
EEPROM [byte]	20 K	10 K	18 K	36 K	36 K	72 K	12 K	20 K	20 K	24 K	36 K	40 K	52 K	72 K	80 K	144 K
Security Features																
PKI Crypto Engine (FamaXE)	-	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
(RSA key length up to 4096-bit)	-	yes	yes	yes	yes	yes	-	-	-	-	-	-	-	-	-	-
(RSA key length up to 8192-bit)	-	-	-	-	-	-	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
RSA (1024-bit) signature generation	-	135 / 3 ms	135 / 3 ms	135 / 3 ms	135 / 3 ms	135 / 3 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms	99 / 2 ms
(CRT) verification, Exponent: 216+1	-	-	-	-	-	-	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
ECC (192-bit signature) generation/verification	-	25 / 35 ms	25 / 35 ms	25 / 35 ms	25 / 35 ms	25 / 35 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms	20 / 30 ms
AES-Engine	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs	DES3 < 40 μs
AES-Engine key length 128/192/256-bit	-	-	-	-	-	-	< 12/13/15 μs	-	< 12/13/15 μs	-	-	< 12/13/15 μs	-	< 12/13/15 μs	< 12/13/15 μs	< 12/13/15 μs
Exception Sensors	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light	V, I, T, Light
Memory Management Unit (Firewall)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Additional Product Information																
UART for implemented interfaces	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
CDC-Engine	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Supply voltage [V]	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5	1.62 ... 5.5
External Clock [MHz]	1 ... 10	1 ... 10	1 ... 10	1 ... 10	1 ... 6	1 ... 6	1 ... 10	1 ... 10	1 ... 10	1 ... 10	1 ... 10	1 ... 10	1 ... 10	1 ... 10	1 ... 10	1 ... 10
Internal Clock [MHz]	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30	1 ... 30
Temperature range [°C]	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85
EEPROM page mode granularity [byte]	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 64	1 ... 128	1 ... 64	1 ... 64	1 ... 64	1 ... 128	1 ... 64	1 ... 128	1 ... 128
16-bit Timer/Counter	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
True Random Number Generator	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)	yes, acc. to FIPS 140-2 / AIS 31 (Class P2)
Technology																
Delivery Type Wafer	sawn (150μ)	sawn/unsawn (150μ)	sawn/unsawn (150μ)	sawn/unsawn (150μ)	sawn/unsawn (150μ)	sawn/unsawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)	sawn (150μ)
Delivery Type Module	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact	Contact
Delivery Type SMD package	HVQFN32	SSOP20	-	SSOP20	-	SSOP20	HVQFN32	HVQFN32	HVQFN32	HVQFN32	HVQFN32	-	HVQFN32	-	-	-
Evaluation and Certification																
3rd Party Hardware Evaluation Security Certificates*	planned CC EALS+ planned EMVCo planned	yes CC EALS+ EMVCo	yes EMVCo	yes CC EALS+ EMVCo	yes -	yes CC EALS+ EMVCo	yes CC EALS+ planned EMVCo planned	yes CC EALS+ planned EMVCo planned	yes CC EALS+ EMVCo	yes CC EALS+ planned EMVCo planned	yes CC EALS+ planned EMVCo planned	yes CC EALS+ EMVCo	yes CC EALS+ planned EMVCo planned	yes CC EALS+ EMVCo	yes CC EALS+ EMVCo	yes CC EALS+ EMVCo

* Common Criteria (CC), EMVCo, ZKA and other evaluations planned depending on application requirements

NXP 32-bit HiPerSmart Smart Computing Platform

	Security Controller
Product Features	P9SC648
CPU	32-bit MIPS RISC CPU
ISO Contact Interface	ISO 7816
ROM [byte]	-
Flash [byte]	512 K
RAM total [byte]*	16 K
Instruction Cache [byte]	2 K
Data Cache [byte]	1 K
EEPROM [byte]	142 K
Security Features	
Exception Sensors	V, f, T, Light
Memory Management Unit	yes
Hardware Firewall	yes
Additional Product Information	
UART for implemented interface	yes
GSM Power Control Mode	yes
Supply voltage [V]	1.62 ... 5.5
External Clock [MHz]	1 ... 8
Temperature Range [°C]	-25 ... +85
EEPROM page mode granularity [byte]	128 bytes
32-bit Timer/Counter	2
True Random Number Generator	yes, according to FIPS140-2 / AIS31
Technology	0,18 µm
Delivery Type Wafer	sawn/unsawn
Delivery Type Module	-
Evaluation and Certification	
3rd Party Hardware Evaluation	yes*
Certificates	
Software	
Secure Cryptolibrary	yes*

* Common Criteria (CC), Mastercard, VISA, ZKA evaluations planned depending on application requirements

NXP Contactless Smart eID Products

Product Features	Smart eID P304G002	Smart eID P308G002	Smart eID P310G002	Smart eID P332G004
pre-installed applications				
ICAO 9303 file system types	LDS, BAC	LDS, BAC	LDS, BAC	LDS, BAC
Enhanced file system types	BAC+	BAC+	BAC+	BAC+
Maximum number of files (DFs + EFs)	35	35	35	tbd
Memory				
EEPROM [byte]	4 K	8 K	10 K	32K
Write Endurance [cycles]	100	100	100	500
Data Retention [years]	20	20	20	20
RF Interface				
Standard	ISO 14443 A	ISO 14443 A	ISO 14443 A	ISO 14443 A
Frequency [MHz]	13.56	13.56	13.56	13.56
Baudrate [kbit/s]	106 / 212 / 424 / 848	106 / 212 / 424 / 848	106 / 212 / 424 / 848	106 / 212 / 424 / 848
Anticollision	True deterministic	True deterministic	True deterministic	True deterministic
Operating Distance [cm]	10	10	10	10
Security				
Unique Serial Number [byte]	7	7	7	7 (4 for MIFARE 1k emulation)
DES Engine	DES3 <40ms	DES3 <40ms	DES3 <40ms	DES3
Exception Sensors	V, f, T, light	V, f, T, light	V, f, T, light	V, f, T, light
General Product Information				
Operating Temperature Range [°C]	-25 ... +85	-25 ... +85	-25 ... +85	-25 ... +85
MIFARE emulation (option)	n/a	n/a	4k optional	1k or 4k optional
Availability	2007	2007	2007	Q3 / 2008
Packaging				
MOB6 module	n/a	n/a	n/a	P332G004tbd
MOB4 module	P304G002A4	P308G002A4	P310G002A4	P332G004A4
MOB2 module	P304G002A3	P308G002A3	n/a	n/a
Sawn wafer (8" on UV irradiated FFC)	P304G002UA	P308G002UA	n/a	n/a

Development Tools Overview NXP Smart Card Controller Families

Product Family	Tool Components					
	Software Tools	Hardware Tools				
	C-Compiler, Assembler, Linker/Locator	Simulator	Source-Level Debugger, Integrated Development Environment	In-Circuit Emulator	Prototyping Kit	Smart Card Probe
Extended 8051 Architecture						
MIFARE ProX Family	Keil	Keil*	Ashling	Ashling	Ashling	Ashling
SmartMX Family	Keil	Keil*	Keil	Ashling	Ashling	Ashling
P5Sxyyy			Ashling	Philips	Keil	Keil
P5Cxyyy						
Smart MIPS Architecture						
HiPerSmart Family	MIPS, Distribution via Ashling	MIPS, Distribution via Ashling	Ashling	Ashling Philips	Ashling	Ashling
P9Sxyyy		HPS FPGA Board, distributed via NXP				

* Product specific simulator extensions are available from NXP free of charge

Development Tool Packages available via NXP Sales

12NC	Type
SmartMX Family	
9352 767 14122	OM3700/5ULTRA51SQA
9352 767 15122	OM3702/5EPKSC
9352 767 16122	OM3703/5PKSC
9352 767 17122	OM3704/5CONVKIT
9352 775 22122	OM3730/5ULTRA51
9352 771 99122	OM3740/5DBOX
HiPerSmart Family	
9352 767 07122	OM3720/9VITRA
9352 767 08122	OM3721/9GENIA
9352 767 09122	OM3722/9OPELLA
9352 767 11122	OM3723/9PKSC
9352 767 13122	OM3729/9DEVCD
9352 771 31122	OM3748/9XC2V6000

Development Tool Partner Contacts

Ashling Division, SFO Technologies
National Technological Park
Limerick
Ireland
Email: sales.ie@nestgroup.net
<http://www.ashling.com>

Keil Elektronik GmbH
Bretonischer Ring 15
D-85630 Grasbrunn
Germany
Email: sales.intl@keil.com
<http://www.keil.com>

Identification product range

