

# NXP® NFC and Contactless Reader Solutions



Samples and demo boards are available on request, please contact a local NXP distributor. Please also note, this linecard provides an overview of NFC focus products. The complete NFC portfolio can be found on [www.nxp.com](http://www.nxp.com).

CONNECTED NFC TAG SOLUTIONS							
NFC Forum compliance	Type 2 Tag						
Carrier frequency [MHz]	13.56						
Input capacitance [pF]	50						
Baudrate [kbit/s]	106						
PRODUCT	NTAG®			NTAG F		NTAG IC plus	
Product description	Passive NFC tag for smart inlays, labels and tags			Passive NFC tag with field-detection output signal		Passive NFC tag with IC interface, energy harvesting, password protection, originality check and high pass-through mode	
	NTAG 213	NTAG 215	NTAG 216	NTAG 213F	NTAG 216F	NTAG IC plus 1k	NTAG IC plus 2k
User memory [Bytes]	144	504	888	144	888	888	1912
Operating distance up to [mm] <sup>(2)</sup>	100			100		100	
Pass-through mode (64-byte SRAM)	-			-		Yes	
Host interface	-			iPC		iPC	
Supply voltage host interface [V]	-			-		1.67 to 3.6	
Standby mode current, typ. [µA]	-			-		150	
Package	MOA8			HXSON4		XQFN8/TSSOP8/SO8	
Temperature range [°C]	-55 to +125			-40 to +85		-40 to +105	
Energy harvesting	-			-		up to 15 mW	
RF Silence	-			via FD pin		via config bit	
Field-detection signal output	Yes			Yes		-	
Security features							
UID ASCII mirror & NFC counter ASCII mirror	Yes			Yes		-	
Authentication via ECC	Yes			Yes		Yes	
Access keys	32 bit			32 bit		32 bit	
Read/Write protection	NFC			NFC		iPC/NFC	
Password authentication counter	Yes			Yes		Yes	
Product support & ordering information							
Product type	NTAG 213	NTAG 215	NTAG 216	NTAG 213F	NTAG 216F	NT3H2111	NT3H2211
12NC reel	NT2H1311G0DA8	NT2H1511G0DA8	NT2H1611G0DA8	9353 015 88125	9353 000 51125	XQFN8: 9353 069 39125 TSSOP8: 9353 069 32118 SO8: 9353 070 09115	XQFN8: 9353 069 43125 TSSOP8: 9353 069 33118 SO8: 9353 070 16115
Development boards	-			NTAGFCL6 9353 045 64699		OM5569/NT322E 9353 078 49699	
	-			NTAGFCLSLED 9353 045 68699		OM5569/NT322ER 9353 078 48699 OM5569/NT322F 9353 078 51699	
Software	Android™, TapLinux			Android: TapLinux		Binaries and source code for Windows® and Android applications, peek & poke GUI, LPCXpresso controller FW example, TapLinux, Android app and PC application	

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- Overall annotations:  
 (1) No software available for NFC tag type 2 and 3 emulation  
 (2) Depending on antenna, coil size, tuning, and environment  
 (3) 160 for ISO/IEC 15693  
 (4) Please search for the product on [www.nxp.com](http://www.nxp.com) to find the latest ordering part numbers. Ordering part numbers can change due to regular firmware updates.  
 (5) Can reach up to 500 mA depending on design  
 (6) The integrated limiter can be disabled by a FW configuration. The maximum current is then 250mA.  
 (7) Low power card detection current consumption strongly depends on polling cycle and detection distance

NFC FRONTEND SOLUTIONS							
PRODUCT	SLRC610	MFRC630	MFRC631	CLRC663	CLRC663 plus	PN512	PN5180
Product description	High-performance ICODE ISO15693 and ISO18000-3M3 frontend	High-performance MIFARE frontend	High-performance ISO/IEC 14443 A/B frontend	High-performance multi-protocol NFC frontend	High-performance multi-protocol NFC frontend	Full NFC Forum-compliant frontend, HVQFN32	High-performance multi-protocol full NFC Forum-compliant frontend
Contactless/NFC functionality	Reader/writer	Reader/writer	Reader/writer	NFC reader/writer	NFC reader/writer	NFC reader/writer, P2P, card emulation	NFC reader/writer, P2P, card emulation
Standards & Protocols							
NFC Forum compliance	-	-	-	-	-	Yes	Yes
Reader/writer	ISO/IEC 15693, ISO18000-3M3	ISO/IEC 14443 A	ISO/IEC 14443 A/B	ISO/IEC 18092, ISO/IEC 14443 A/B, FeliCa, ISO/IEC 15693	ISO/IEC 18092, ISO/IEC 14443 A/B, FeliCa, ISO/IEC 15693	ISO/IEC 18092, ISO/IEC 14443 A/B, FeliCa	ISO/IEC 18092, ISO/IEC 14443 A/B, FeliCa, ISO/IEC 15693
Carrier frequency [MHz]	13.56	13.56	13.56	13.56	13.56	13.56	13.56
NFC Forum tag type support	5	1, 2, 4 type A	1, 2, 4	1, 2, 3, 4, 5	1, 2, 3, 4, 5	1, 2, 3, 4	1, 2, 3, 4, 5
ISO/IEC 14443 baudrate [kbit/s]	-	106/212/424/848	106/212/424/848	106/212/424/848	106/212/424/848	106/212/424	106/212/424/848
FeliCa baudrate [kbit/s]	-	-	-	212/424	212/424	212/424	212/424
MIFARE Classic® support (license included)	-	Yes	Yes	Yes	Yes	Yes	Yes
ISO/IEC 15693 baudrate [kbit/s]	26.5/53	-	-	26.5/53	26.5/53	-	26.5/53
EPC class-1 HF / ISO/IEC 18000-3M3	Yes	-	-	Yes	Yes	-	Yes
EMVCo compliance	-	-	Yes	Yes	Yes	Yes (external RF booster required)	Yes
Card emulation	-	-	-	-	-	Yes	Yes
NFC tag type emulation	-	-	-	-	-	2, 3, 4 <sup>(1)</sup>	4 type A
NFC tag type baudrate [kbit/s]	-	-	-	-	-	up to 424	Up to 848
Peer-to-peer (ISO/IEC 18092)	-	-	-	Yes	Yes	Yes	Yes
Passive communication	-	-	-	Initiator	Initiator	Initiator/target	Initiator/target
Active communication	-	-	-	-	-	Initiator/target	Initiator/target
Product features							
Operating distance up to [mm] <sup>(2)</sup>	160	120	120	120/160 <sup>(3)</sup>	120/160 <sup>(3)</sup>	70	120/160 <sup>(3)</sup>
RF transmitter supply voltage [V]	3.0 to 5.5	3.0 to 5.5	3.0 to 5.5	3.0 to 5.5	2.5 to 5.5	2.5 to 3.6	2.7 to 5.5
Transmitter supply current, max [mA]	250	250	250	250	350 <sup>(4)</sup>	100	250
Dynamic power control (DPC), Adaptive waveform control (AWC), Adaptive Receiver Control (ARC)	-	-	-	-	-	-	Yes
Host interface	SPI, iPC, UART	SPI, iPC, UART	SPI, iPC, UART	SPI, iPC, UART	SPI, iPC, UART	SPI, iPC, UART	SPI
Supply voltage host interface [V]	3.0 to 5.5	3.0 to 5.5	3.0 to 5.5	3.0 to 5.5	2.5 to 5.5	2.5 to 3.6	1.8 and 3.3
Standby mode current, typ [µA]	6	6	6	6	6	-	15
Power-down mode current, typ [µA]	0.008	0.008	0.008	0.008	0.008	5	10
Power-down mode with RF level detector on [µA]	-	-	-	-	-	10	-
Low-power card detection mode	Yes	Yes	Yes	Yes	Yes	-	Yes
Available packages	HVQFN32	HVQFN32	HVQFN32	HVQFN32	HVQFN32	HVQFN32, TFBGA64	HVQFN40, TFBGA64
Temperature range [°C]	-25 to +85	-25 to +85	-25 to +85	-25 to +85	-40 to +105	-30 to +85	-30 to +85
Energy harvesting	-	-	-	-	-	-	Yes
Field-detection signal output	-	-	-	-	-	IRQ	IRQ
Security features							
MIFARE® SAM support	in X-mode	in X-mode	in X-mode	in X-mode	in X-mode	Yes	-
MIFARE Classic® security (CRYPTO1 HW)	-	Yes	Yes	Yes	Yes	Yes	Yes
Product support and ordering information						HVQFN32	TFBGA64
						HVQFN40	TFBGA64
PRODUCT	SLRC610	MFRC630	MFRC631	CLRC663	CLRC663 plus	PN512	PN5180
Product type	SLRC61002HN	MFRC63002HN	MFRC63102HN	CLRC66302HN	CLRC66303HN	PN5120A0HN1	PN5120A0ET
12NC single tray	9352 973 35151	9352 973 34151	9352 973 33151	9352 973 32151	9353 062 08551	9352 921 15151	9352 998 52151
12NC multiple tray	9352 973 35157	9352 973 34157	9352 973 33157	9352 973 32157	9353 062 08557	9352 921 15157	9352 998 52157
12NC reel	9352 973 35118	9352 973 34118	9352 973 33118	9352 973 32118	9353 062 08518	9352 921 15118	9352 998 52118
Development boards	CLEV6630A 9353 391 48699			OM26630FDK 9353 391 51699		PNEV512B 9352 981 99699	
	CLEV6630B 9353 391 49699			OM5597 9352 949 09699		OM25180TWR 9353 083 06699	
Software	NFC Reader Library with prepared support for RTOS & Linux, NFC Cockpit		NFC Reader Library with prepared support for RTOS & Linux, NFC Cockpit, EMVCo L1 compliant; EMVCo Loopback application			NFC Cockpit; NFC Reader Library with prepared support for RTOS & Linux, EMVCo L1 compliant; EMVCo Loopback application, card emulation example	

Samples and development boards and kits are available by request, please contact a local NXP distributor.

NFC CONTROLLER SOLUTIONS					
PRODUCT	PN7120	PN7150	PN736x	PN7462	
Product description	Full NFC Forum-compliant controller with integrated FW and NCI interface	Full NFC Forum-compliant controller with integrated FW and NCI interface	Full NFC open microcontroller - ARM® Cortex M0 core - with 80 KB or 160 KB flash for user's application	Full NFC open microcontroller - Cortex M0 - with contact smartcard interface and 160K Flash for user's application	
Contactless / NFC functionality	NFC reader/writer, P2P	NFC reader/writer, P2P	NFC reader/writer, P2P, card emulation	NFC reader/writer, P2P, card emulation	
Microcontroller features					
Integrated microcontroller	Integrated FW	Integrated FW	Open microcontroller Cortex M0 core	Open microcontroller Cortex M0	
Master interface	iPC	iPC	SPI, iPC	SPI, iPC	
Contact interface	-	-	-	Class A, B, C, EMVCo	
Available memory (KB)	-	-	PN7360: 80	PN7362: 160	160
Standards & protocols					
NFC Forum compliance	Yes	Yes	Yes		
Reader/writer	ISO/IEC 18092, ISO/IEC 14443 A/B, FeliCa, ISO/IEC 15693	ISO/IEC 18092, ISO/IEC 14443 A/B, FeliCa, ISO/IEC 15693	ISO/IEC 18092, ISO/IEC 14443 A/B, FeliCa, ISO/IEC 15693		
Carrier frequency [MHz]	13.56		13.56		
NFC tag type support	1, 2, 3, 4, 5		1, 2, 3, 4, 5		1, 2, 3, 4, 5
ISO/IEC 14443 baudrate [kbit/s]	106/212/424/848		106/212/424/848		106/212/424/848
FeliCa baudrate [kbit/s]	212/424		212/424		
MIFARE Classic® support (license included)	Yes		Yes		
ISO/IEC 15693 baudrate [kbit/s]	26.5		26.5		
EPC class-1 HF / ISO/IEC 18000-3M3	-		Yes		
EMVCo compliance	No		Yes		
Card emulation	Yes		Yes		
NFC tag type emulation	4		3, 4		4 type A
NFC tag type baudrate [kbit/s]	Up to 424		Up to 424		Up to 848
Peer-to-peer (ISO/IEC 18092)	Yes		Yes		
Passive communication	Initiator/target		Initiator/target		
Active communication	Initiator/target		Initiator/target		
Product features					
Operating distance up to [mm] <sup>(2)</sup>	70		120/160 <sup>(3)</sup>		120/160 <sup>(3)</sup>
RF transmitter supply voltage [V]	3.1		2.7 to 4.75		3 to 5.5
Transmitter supply current, max [mA]	150		150 / 250 <sup>(4)</sup>		250
Dynamic Power Control (DPC), Adaptive Waveform Control (AWC)	-		-		Yes
Host interface	iPC		iPC		USB, HSUART, SPI, iPC
Supply voltage host interface [V]	1.8 or 3.3		1.8 or 3.3		1.8 and 3.3
Standby mode current, typ [µA]	20		20		18
Power-down mode current, typ [µA]	10.5		10.5		12
Low-power card detection mode [µA]	150 <sup>(7)</sup>		150 <sup>(7)</sup>		95 <sup>(7)</sup>
Available packages	VFBGA49		HVQFN40		HVQFN64
Temperature range [°C]	-30 to +85		-30 to +85		-40 to +85
Energy harvesting	-		-		-
Field-detection signal output	IRQ		IRQ		Internal interrupt
Security features					
MIFARE® SAM support	-		-		Via UART ISO 7816
MIFARE Classic® security (CRYPTO1 HW)	Yes		Yes		Yes
Authentication via ECC	-		-		-
32-bit password protection	-		-		-
Product support & ordering information					
Product type	PN7120A0EV/C10801	PN7150B0HN/C11002	PN7360AUHN/C300	PN7362AUHN/C300	PN7462AUHN/C300
12NC single tray	9353 056 17551	9353 090 65551	9353 077 96551	9353 084 36551	9353 076 92551
12NC multiple tray	-	-	-	-	-
12NC Reel	9353 056 17518	9353 090 65518	935307796518	9353 084 36518	953507692518
Development boards	OM5577/PN7120ARD 9353 089 04699	OM5578/PN7150ARD 9353 090 78699	OM27462CDK 9353 076 73699	OM27462CDK 9353 076 73699	OM27462CDK 9353 076 73699
	OM5577/PN7120S 9353 063 52699	OM5578/PN7150BBB 9353 090 77699	PNEV7462B 9353 076 74699	PNEV7462B 9353 076 74699	PNEV7462B 9353 076 74699
Software	Android™ Linux® Windows® RTOS	Android Linux Windows RTOS	NFC Reader Library, NFC Cockpit, examples for all interfaces and protocols, EMVCo L1 compliant; EMVCo Loopback application, SAM management example, CCID example		
	Bare metal (MCU without OS)	Bare metal (MCU without OS)			

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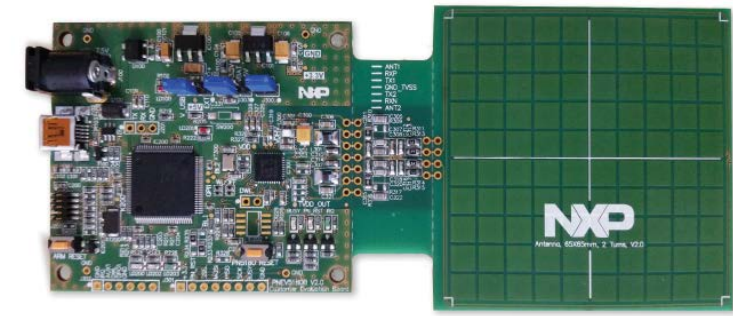


# NXP® NFC and Contactless Reader Solutions

DEVELOPMENT BOARDS													
Name	CONNECTED NFC TAGS		NFC FRONTENDS				NFC CONTROLLERS						
	NTAG® IC plus Explorer Kit	NTAG IC plus Flex Kit (Add-on Kit)	PN5180 NFC Frontend Development Kit	MFR630/SLRC610 Frontend Development Board	CLRC663 plus Frontend Development Kit	PN512 NFC Frontend Development Board	EXPLORE-NFC	PN7120 NFC Controller SBC <sup>(1)</sup> Kit	PN7120 NFC Controller SBC <sup>(1)</sup> Kit for Arduino®	PN7150 NFC Controller SBC <sup>(1)</sup> Kit for Arduino	PN7150 NFC Controller SBC <sup>(1)</sup> Kit for BeagleBone® Black	PN7150 NFC Controller SBC <sup>(1)</sup> Kit for Raspberry Pi®	PN7462 Controller Development Kit
Ordering number	OM5569/NT322E, OM5569/NT322ER (with external reader)	OM5569/NT322F	OM25180DFK	CLEV6630A	OM26630FDK	PNEV512B	PNEV512R (EXPLORE NFC)	OM5577/PN7120ARD	OM5577/PN7120ARD	OM5578/PN7150ARD	OM5578/PN7150B8B	OM5578/PN7150RPI	OM27462CDK
12NC	9353 078 49699 9353 078 48699	9353 078 51699	9353 073 19699	9353 391 48699	9353 391 51699	9352 981 99699	-	9353 063 52699	9353 089 04699	9353 090 78699	9353 090 77699	9353 090 76699	9353 076 73699
Supported products	NTAG IC plus	NTAG IC plus	PN5180	CLRC663, MFR630, MFR631, SLRC610	CLRC663 plus	PN512	PN512	PN7120	PN7120	PN7150	PN7150	PN7150	PN7462, PN7362, PN7360
Contents	<ul style="list-style-type: none"> <li>Explorer board</li> <li>PCB antenna board</li> <li>Flex antenna board</li> <li>Field detector board</li> <li>10 NTAG IC plus SO8 samples</li> <li>USB reader (OM5569/NT322ER only)</li> </ul>	<ul style="list-style-type: none"> <li>Class 4 flex antenna</li> <li>Class 5 flex antenna</li> <li>Class 6 flex antenna</li> <li>10 NTAG IC plus SO8 samples</li> </ul>	<ul style="list-style-type: none"> <li>PNEV5180B development board with 65*65mm antenna</li> <li>30*50mm antenna with matching components</li> <li>3 PCBs for individual antenna matching</li> <li>NTAG216 NFC sample card</li> <li>10 PN5180 samples in HVQFN package</li> </ul>	<ul style="list-style-type: none"> <li>CLRC663 development board</li> <li>CLEV6630B development board with 65*65mm antenna</li> <li>30*50mm antenna with matching components</li> <li>3 PCBs for individual antenna matching</li> <li>NTAG216F NFC sample card</li> <li>10 CLRC663 plus samples in HVQFN package</li> </ul>	<ul style="list-style-type: none"> <li>PNEV512B development board</li> <li>EXPLORE-NFC board - exclusive from element14</li> <li>NTAG216 NFC sample card</li> </ul>	<ul style="list-style-type: none"> <li>PN7120 NFC controller board</li> <li>Raspberry Pi® interface board</li> <li>BeagleBone® interface board</li> <li>NTAG216 NFC sample card</li> </ul>	<ul style="list-style-type: none"> <li>PN7120 NFC controller board</li> <li>Arduino interface board</li> <li>NTAG216 NFC sample card</li> </ul>	<ul style="list-style-type: none"> <li>PN7150 NFC controller board</li> <li>Arduino interface board</li> <li>NTAG216 NFC sample card</li> </ul>	<ul style="list-style-type: none"> <li>PN7150 NFC controller board</li> <li>BeagleBone® interface board</li> <li>NTAG216 NFC sample card</li> </ul>	<ul style="list-style-type: none"> <li>PN7150 NFC controller board</li> <li>Raspberry Pi® interface board</li> <li>NTAG216 NFC sample card</li> </ul>	<ul style="list-style-type: none"> <li>PN7462 development board including 65 x 65 mm antenna</li> <li>30 x 50 mm antenna with matching components</li> <li>3 PCBs for individual antenna matching</li> <li>Sample cards and tags</li> <li>2 USB cables</li> <li>10 PN7462 samples</li> <li>VDC power supply</li> <li>OM13054 LPC-Link2 debug adapter</li> </ul>	<ul style="list-style-type: none"> <li>Easy antenna design with NFC Cockpit software</li> <li>PCB adaptors for antenna matching</li> <li>Easy application development with full NFC-Forum-compliant and contact software libraries</li> <li>Smartcard reader and SAM slots extension</li> </ul>	
Key features	<ul style="list-style-type: none"> <li>Demo, evaluation and development board</li> <li>NFC Forum type 2 tag compliant</li> <li>Energy harvesting – up to 15 mW</li> <li>Pass-through mode – up to 40 kbit/s</li> <li>32-Bit password authentication</li> <li>ECC-based originality check</li> </ul>	<ul style="list-style-type: none"> <li>Add-on to Explorer kits</li> <li>Easy prototyping</li> </ul>	<ul style="list-style-type: none"> <li>Full compliance with all standards relevant to NFC, contactless operation and EMVCo</li> <li>Onboard dynamic power control (DPC)</li> <li>Active load modulation</li> <li>Low-power card detection</li> <li>Artificial damping of the RF field in the middle of the antenna simulating real conditions</li> <li>LPC1769 MCU on board</li> <li>SPI interface accessible for connection of other MCU</li> </ul>	<ul style="list-style-type: none"> <li>Artificial damping of the RF field in the middle of the antenna simulating real conditions</li> <li>LPC1769 MCU on board</li> <li>Antenna can be separated from reader section</li> <li>SPI interface accessible for connection of other MCU</li> </ul>	<ul style="list-style-type: none"> <li>Highest RF performance</li> <li>Full EMVCo compliance</li> <li>Low-power card detection</li> <li>Artificial damping of the RF field in the middle of the antenna simulating real conditions</li> <li>LPC1769 MCU on board</li> <li>SPI interface accessible for connection of other MCU</li> </ul>	<ul style="list-style-type: none"> <li>Supports full development environment of LPCpresso</li> <li>Supported by NXP® Reader Library incl. examples for fast development</li> <li>MIFARE® support</li> <li>Exemplary implementation of a tag 4 type emulation and peer-to-peer communication with a phone</li> </ul>	<ul style="list-style-type: none"> <li>Compliance with all 3 NFC modes</li> <li>Reader mode supports 4 NFC tag types and NXP MIFARE® proprietary command</li> <li>Integrated high-performance antenna</li> </ul>	<ul style="list-style-type: none"> <li>Optimized for BeagleBone® and Raspberry Pi® platforms</li> <li>PCB integrated NFC antenna</li> <li>NFC Integration including many LPCpresso, Kinetics® and LMX boards</li> </ul>	<ul style="list-style-type: none"> <li>Full NFC-compliant expansion board with Arduino-compatible Interface platforms</li> <li>Compliance with reader mode, P2P mode and card emulation mode standards</li> <li>NFC integration with LPCpresso, Kinetics and LMX boards</li> </ul>	<ul style="list-style-type: none"> <li>Full NFC-compliant expansion board for BeagleBone® Black</li> <li>Compliance with reader mode, P2P mode and card emulation mode standards</li> <li>Integrated high-performance RF antenna</li> </ul>	<ul style="list-style-type: none"> <li>Full NFC-compliant board for Raspberry Pi®</li> <li>Compliance with reader mode, P2P mode and card emulation mode standards</li> <li>Integrated high-performance RF antenna</li> </ul>	<ul style="list-style-type: none"> <li>Easy antenna design with NFC Cockpit software</li> <li>PCB adaptors for antenna matching</li> <li>Easy application development with full NFC-Forum-compliant and contact software libraries</li> <li>Smartcard reader and SAM slots extension</li> </ul>	
Certification	CE, FCC		CE, FCC	CE, FCC, MIC	CE, FCC, MIC	CE	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC
Software and tools	<ul style="list-style-type: none"> <li>Binaries and source code for Windows® and Android™ applications</li> <li>Peek &amp; poke GUI</li> <li>LPCpresso controller FW example</li> <li>TapLinux</li> <li>Schematics and BoM of all boards</li> </ul>		<ul style="list-style-type: none"> <li>NFC Reader Library</li> <li>NFC Cockpit</li> </ul>	<ul style="list-style-type: none"> <li>NFC Reader Library</li> <li>NFC Cockpit</li> </ul>	<ul style="list-style-type: none"> <li>NFC Reader Library</li> <li>NFC Cockpit</li> </ul>	<ul style="list-style-type: none"> <li>NFC Reader Library</li> <li>NFC Cockpit</li> </ul>	<ul style="list-style-type: none"> <li>NFC Reader Library for Linux</li> <li>Software for tag reading, tag writing and P2P</li> </ul>	<ul style="list-style-type: none"> <li>Linux driver support</li> <li>Android driver support</li> <li>Windows IoT driver support</li> </ul>	<ul style="list-style-type: none"> <li>Linux driver support</li> <li>Android driver support</li> <li>RTOS and Null OS support</li> </ul>	<ul style="list-style-type: none"> <li>Linux Software Stack</li> <li>Android driver support</li> <li>Windows IoT driver</li> <li>RTOS and Null OS support</li> </ul>	<ul style="list-style-type: none"> <li>Linux Software Stack</li> <li>Android driver support</li> </ul>	<ul style="list-style-type: none"> <li>Linux Software Stack</li> <li>Windows IoT driver</li> </ul>	<ul style="list-style-type: none"> <li>NFC Reader Library</li> <li>NFC Cockpit</li> <li>PN7462AU FW and software example</li> </ul>
Target applications	NFC pairing, industrial calibration, smart meter, logistics, IoT, healthcare, consumer electronics, smart media		Payment, POS & mPOS terminals, access control, industrial and e-Gov	Industrial, single protocol reader, public transport, gaming	Access control, payment, gaming	NFC reader applications requiring full P2P functionality		Set-top boxes, gateways, routers, wireless access points, TV, blu-ray decoders, remote, audio devices, home appliances, printers, IP phones, healthcare and fitness, gaming consoles					Multi-market USB reader solutions, access control, e-Gov, EMVCo, simple POS terminals, USB readers, home banking, home eID, gaming console accessories

All development kits come with quick start guides and user manuals.

Please go to [www.nxp.com](http://www.nxp.com), type the part number into the search bar and find community discussions, videos, and a rich set of documentation on the dedicated development kit page.



OM25180DFK



OM5569/NT322ER



OM5578/PN7150ARD

## CONTACT SMARTCARD READER ICs

Product features	TDA8023TT	TDA8024	TDA8026ET	TDA8034HN	TDA8034T	TDA8035HN	TDA8037	TDA8029HL		
	Analog, UART, and CPU									
Analog interfaces	1	1	5	1	1	1	1	1		
ISO/IEC 7816 UART	-	-	-	-	-	-	-	Yes		
ISO/IEC 7816 dedicated timers	-	-	-	-	-	-	-	Yes		
Microcontroller core	-	-	-	-	-	-	-	80C51RB+		
ROM [kbyte] / RAM [byte]	-	-	-	-	-	-	-	16/768		
Host interface	IPC	I/O lines	IPC	I/O lines	I/O lines	I/O lines	I/O lines	Serial or IPC		
ESD protection on ISO/IEC 7816 pins [kV]	6	6	7	8	8	10	8	6		
Auxiliary protected lines for C4 and C8 contacts	2	2	2 <sup>(2)</sup>	2	-	2	2	-		
VCC card power supply [V]	1.8, 3, and 5	3 and 5	1.8, 3, and 5	1.8, 3, and 5	3 and 5	1.8, 3, and 5	3	1.8, 3, and 5		
Card supply current @ 5 V VCC [mA]	55	80	55	65	65	65	-	65		
Card supply current @ 3 V VCC [mA]	55	65	55	65	65	65	65	50		
Card supply current @ 1.8 V VCC [mA]	35	-	35	65	-	35	-	30		
Card supply voltage @ 1.2 V VCC [mA]	-	-	-	-	-	-	-	-		
Card clock frequency max. [MHz]	20	26	20	26	26	26	20	20		
Card activation time max. [µs]	135	225	135	3500	3500	3400	554	225		
Card deactivation time max. [µs]	110	100	100	250	250	250	250	100		
<b>Protocol support</b>										
Synchronous card management	Yes	-	Yes	Yes	Yes	Yes	Yes	Yes		
Asynchronous protocol T=0 and T=1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
<b>Security features</b>										
Voltage supervisor and over-current detection	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
Current protection on VCC, I/O, RST, CLK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		
<b>Additional product information</b>										
Power-supply interface VDDI (V)	1.5 to 6.5	-	1.6 to 3.6	1.6 to 3.6	1.6 to 3.6	1.6 to 3.6	-	-		
Power-supply (VDD)	2.7 to 6.5	2.7 to 6.5	2.7 to 5.5	2.7 to 5.5	2.7 to 5.5	2.7 to 5.5	3.0 to 3.6	2.7 to 6.0		
Power-down current max. (µA)	10	100	15	5	5	3	400	20		
Temperature range (°C)	-40 to +85	-40 to +85	-25 to +85	-25 to +85	-25 to +85	-25 to +85	-25 to +85	-25 to +85		
EMVCo 4.3 compliance	Yes	-	Yes	Yes	Yes	Yes	Yes (3 V only)	Yes		
CISCO compliance	-	Yes	-	Yes	-	Yes	Yes	Yes		
<b>Product support &amp; ordering information</b>										
Product type	TDA8023TT	TDA8024T	TDA8024TT	TDA8026ET	TDA8034HN	TDA8034T	TDA8035HN	TDA8037T	TDA8037TT	TDA8029HL
Package	TSSOP28	SO28	TSSOP28	TFBGA64	HVQFN24	SO16	HVQFN32	SO28	TSSOP16	LQFP32
12NC single tray	-	-	-	9352 882 86 551	9352 882 86 551 9353 086 34151	-	9353 086 13151	-	-	9352 747 33151
12NC multiple tray	-	-	-	9352 882 86 557	9353 086 34157	-	9353 086 13157	-	-	-
12NC reel	9352 988 14118	9352 713 42118	9352 991 52118	-	9353 086 34118	9352 883 49118	9353 086 13118	9353 015 17118	9353 015 01118	9352 747 33118
12NC reel dry pack	-	9352 713 42518	-	9352 882 86 518	-	-	-	-	-	-
12NC bulk pack	-	-	-	-	-	9352 883 49112	-	-	-	-
Development boards	-	OM9800/DCT8024T 9353 046 58699	OM9800/DCT8024TT 9353 046 59699	OM9800/DCT8026 9352 931 69599	OM9800/DCT8034 9352 931 71599	CAKE8034_01_D	OM9800/DCT8035 9352 931 72599	CAKE8037_T	CAKE8037_TT	OM9800/DCT8029-11D 9353 046 61699 OM9800/DCT8029-12D (PC) 9353 046 62699
Software support										ARM TDA8029 IC drivers, TDA8029 demo

Samples and demo boards are available on request, please contact a local NXP distributor.

Overall annotations:  
 (1) SBC stands for Single Board Computer Kit.  
 (2) On slot 1.

## MIFARE® SAMs FOR READER SYSTEMS

Product features	MIFARE® SAM AV2	MIFARE® SAM AV2.6
<b>Memory</b>		
Write endurance [cycles]	100,000	100,000
Data retention [yrs]	10	10
Secure key storage	Up to 128 key entries	Up to 128 key entries
<b>SAM interface</b>		
UART	ISO/IEC 7816, T=1	ISO/IEC 7816, T=1
Frequency [MHz]	1 to 10	1 to 10
Baudrate [kbit/s]	9.6 to 1500	9.6 to 1500
X-interface	PN7462, MFRCS23, MFRCS22, PN512	CLRC663 plus, CLRC663, MFR630, MFR631
<b>Security</b>		
Unique serial number [bytes]	7	7
Random number generator	Yes	Yes
Access keys	128 key entries	128 key entries
Access conditions	Per key entry	Per key entry
MIFARE Classic® security	Supported	Supported
DES & DES3 security	MACing/encipherment	MACing/encipherment
AES 128 security	MACing/encipherment	MACing/encipherment
PKI	Signature/encipherment	Signature/encipherment
RSA	Signature/encipherment	Signature/encipherment
<b>Packaging</b>		
PCM1.1 module	P5DF081X0/T1AD20605	P5DF081X0/T1AR10705
HVQFN32 package	P5DF081HN/T1AD2060	P5DF081HN/T1AR1070
<b>Product support and ordering information</b>		
Product type	MIFARE® SAM AV2	MIFARE® SAM AV2.6
12NC PCM1.1	9352 931 25118	9352 968 39118
12NC HVQFN32	9352 931 21118	9352 968 33151
Development boards	MFEV710 9352 941 66599 CLRD710 9352 941 65599	-
Software support	17173x NXP Reader Library, 8663x MIFARE® Discover	17173x NXP Reader Library, 18663x MIFARE® Discover

Samples and demo boards are available on request, please contact a local NXP distributor.



Specifications subject to change without notice.  
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