NXP Near Field Communication (NFC) transceiver PN512 for low-cost electronic devices

Extensive proximity connectivity capabilities for electronic devices

This highly integrated transceiver equips electronic devices with the most widely deployed contactless communication protocols, including NFC. Operating at 13.56 MHz and available in various packages with extended temperature ranges, it enables flexible, future-proof terminals at the lowest costs.

Key features
▸ Reader/writer functionality compatible with ISO/IEC 14443A&B, MIFARE™, FeliCa and NFC Forum tag types (Jewel, MIFARE UltraLight™, FeliCa, MIFARE DESFire™)
▸ Full peer-to-peer functionality (ISO/IEC 18092 NFC-IP1)
▸ Card emulation functionality
▸ Certifiable with antenna booster EMVCo
▸ Operating distance up to 70 mm*
▸ Integrated MIFARE reader support
▸ Available with extended Temperature range
▸ PN512AA: AEC-Q100 compliant

Key benefits
▸ Single-chip support for the most widely deployed contactless protocols, including full NFC
▸ Future-proof design for POS implementations

▸ Flexible device host connection via multiple interfaces
▸ High efficiency with low-power down currents
▸ Small footprint with HVQFN32
▸ Design-in with excellent support available worldwide
▸ Easy access to NFC technology, built with NXP's expertise and experience with major device manufacturers

Target markets and applications
▸ Payment and loyalty schemes
▸ NFC enabled POS terminals
▸ Gaming and entertainment systems
▸ Industrial and medical applications
▸ Easy pairing of Bluetooth, Wi-Fi, or WUSB devices
▸ Automotive applications

*Depends on antenna device and device integration

Key technical data

Product features

Host interfaces	SPI up to 5 Mbit/s Serial UART up to 1228 kbit/s Parallel (HVQFN40 version only) I²C up to 3.4 Mbit/s
FIFO	64 bit

RF interface

Analog interface	Fully integrated
Carrier frequency	13.56 MHz
Baud rates	up to 424 kbit/s

Contactless protocols

Reader / writer	ISO/IEC 14443 A&B MIFARE NFC Forum Tag Type support FeliCa
Peer-to-peer	ISO/IEC 18092 (active and passive)
Card emulation	ISO 14443 A & Mifare

Additional product information

Supply voltage	2.5 - 3.6 V
Power-down mode	5 µA
Typical RF current	60 mA
Package	HVQFN32 (5 x 5 x 1 mm) HVQFN40 (6 x 6 x 1 mm)
Software	Host controller reference implemented in Source code and examples (C, C++)

Ordering information

Part number		PN5120A0HN1/C2	
Sales description	Package	HVQFN32	
	Temperature range	-25 to +85 °C	
	Status	Released	
Ordering information	12NC	9352 92115 118	MOQ=6000 (rail without dry pack)
		9352 92115 151	MOQ=490 (simple tray without dry pack)
		9352 92115 157	MOQ=2450 (5 trays without dry pack)
Part number		PN5120A0HN/C2	
Sales description	Package	HVQFN40	
	Temperature range	-25 to +85 °C	
	Status	Released	
Ordering information	12NC	9352 92114 518	MOQ=6000 (rail without dry pack)
		9352 92114 551	MOQ=490 (simple tray without dry pack)
		9352 92114 557	MOQ=2450 (5 trays without dry pack)
Part number		PN512AA0HN1/C2	
Sales description	Package	HVQFN32	
	Temperature range	-40 to +85 °C	
	Status	Released	
Ordering information	12NC	9352 96854 518	MOQ=6000 (rail without dry pack)
		9352 96854 551	MOQ=490 (simple tray without dry pack)
		9352 96854 557	MOQ=2450 (5 trays without dry pack)

Design-in kit

To support product development and enable easy access to PN512 and NFC technology, NXP provides a design-in kit equipped with all the necessary hardware, software sources, and documentation. A reference implementation for the NFC Forum's protocol stack is also available.

To order samples or design kits, please contact a local NXP distributor (www.nxp.com) or access the NXP distributor portal (https://extranet.nxp.com).

MIFARE pedigree

NXP MIFARE is the leading technology platform for contactless ticket, card, and reader solutions. With more than 40 million core reader components, two billion cards, and one billion smart ticket ICs sold, MIFARE is a proven and reliable technology that represents the largest installed base worldwide.

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MIFARE.net