



NXP NFC controller PN544 for mobile phones and portable equipment

Industry-leading, 2nd-generation NFC controller

This high-quality, high-performance NFC controller enables a new range of contactless applications for improved on-the-go experiences. It complies with all released NFC and ETSI/SCP SWP and HCI standards, guarantees interoperability with the existing infrastructure, and provides a flexible, full-featured platform for meeting GSMA requirements in next-generation NFC-enabled devices and services. It offers fully host-controllable power states, delivers a small footprint, and supports multiple secure elements.

Key features

- ▶ Smallest package TFBGA64 (4.5 x 4.5 x 0.8 mm)
- ▶ High level of integration for greater flexibility
- ▶ Support for variety of RF protocols
- ▶ Integrated power management unit
- ▶ Battery Low mode and Power by the Field enabled to comply with deployed infrastructure when handset is off
- ▶ Integrated Frac-N PLL to save XTAL quartz
- ▶ Simultaneous multi cards management (ISO14443-A,B,B', MIFARE)
- ▶ Compliancy with Paypass and EMVCo polling loop
- ▶ Integrated self test to verify antenna matching circuit during production
- ▶ Up to 70 mm operating distance⁽¹⁾
- ▶ Optimized 80C51 core processor with embedded firmware
- ▶ RoHS-2006 compliant

Key Benefits

- ▶ Support for all released NFC standards
- ▶ Guaranteed interoperability with existing infrastructure

- ▶ PN544 Single Wire Protocol (SWP) interface interoperability with major UICC/SIM suppliers
- ▶ Small footprint
- ▶ Shorter integration time due to qualified design-in support for antenna design & software
- ▶ Easy access to NFC technology
- ▶ Leverages NXP expertise and experience with major device manufacturers

Target markets

- ▶ Mobile phones (smart, feature, and low-cost phones)
- ▶ Portable equipment (PDAs, mobile Internet devices)
- ▶ Consumer devices

Key applications

- ▶ Mobile payment
- ▶ Transport and event ticketing
- ▶ Service discovery
- ▶ Easy pairing of Bluetooth, Wi-Fi, or WUSB devices
- ▶ Object exchange (vCards, digital rights)

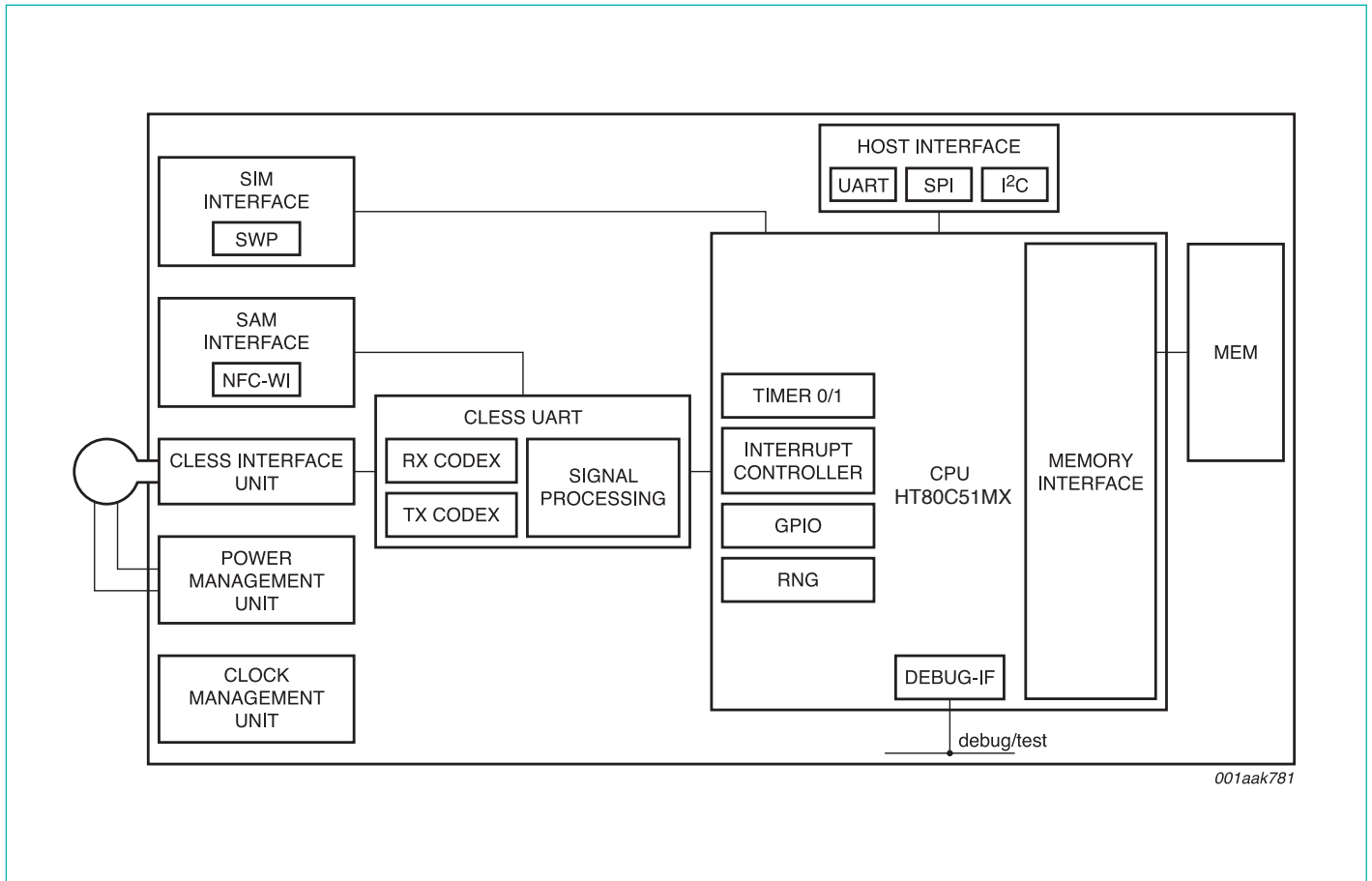
¹ Depending on antenna design and device integration



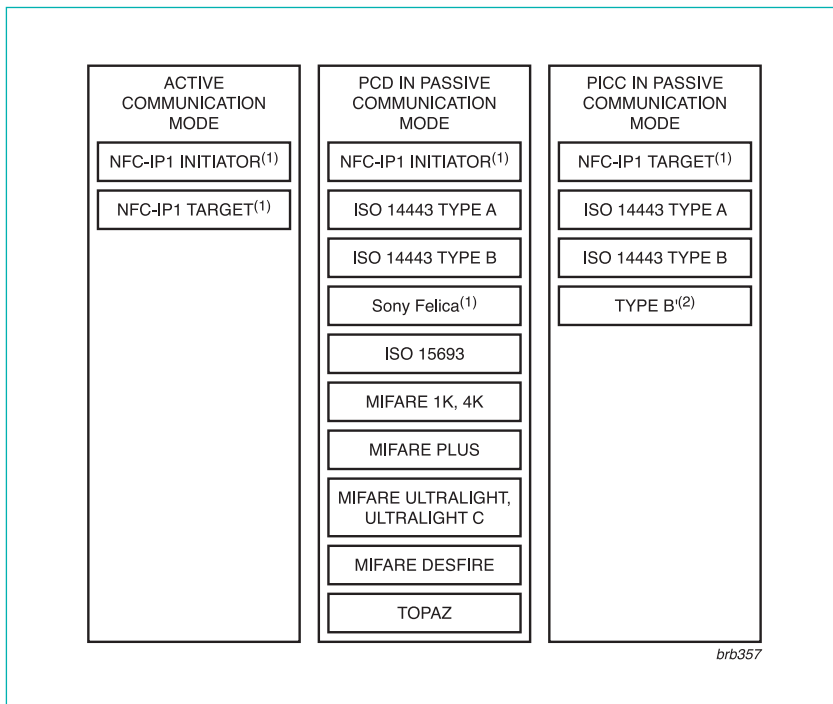
Key technical data

		PN544
Contactless protocols	Peer-to-peer	Full ISO 18092 (up to 424 Kbits/s)
	Reader/writer	ISO 14443 –A-B, MIFARE, FeliCa®, NFC Forum tags, ISO 15693
	Card emulation	ISO 14443 –A-B-B', MIFARE, FeliCa RF
Host interfaces	Serial UART	460800 bits/s
	I ² C	400 Kbits/s or 3.4 M
	SPI	8 Mbits/s
	SWP	Yes
	Secure element interface	NFC-WI
	RAM/ROM/EEPROM	5 K / 128 K / 52 K
Power characteristics	Supply voltage	2.3 to 5.5 V
	Host interface voltage (min)	1.65 to 1.95 V
	Power down mode (typ)	3 μA
	RF active current (typ)	60 mA
	Battery-off mode	Yes
Temperature range		-25 to +85 °C
Package		TFBGA64 (4.5 x 4.5 x 0.8 mm)

PN544 block diagram



PN544 transmission modes



⁽¹⁾ According to ISO/IEC 18092 (ECMA 340) standard

⁽²⁾ Type B⁺ via SWP only

Design-in kit

To support your product development and enable easy access to NFC technology, NXP has prepared a design-in kit with all the necessary hardware, software and documentation. It includes a reference board OM5596/N5441U02 12NC 9352 91682 699, a data sheet, a user manual, and an application note, along with drivers, source code and examples in Windows and Linux. We also offer a reference implementation for the NFC Forum's protocol stack.

Ordering information

▶ PN544 ICs

NFC IC	12 NC	Shipping option		MOQ
PN544	9352 913 91157	PN5441A2ET/C20501	5 trays	2450
	9352 913 91118	PN5441A2ET/C20501	tape and reel	4000
	9352 913 91151	PN5441A2ET/C20501	tray	490

▶ Technical documentation

- List of available documents: <http://www.nxp.com/nfc>
- To place an order: http://www.nxp.com/acrobat_download/other/identification/NFC_request_final.pdf

▶ Samples & design kits

- List of NXP distributors: <http://www.nxp.com>
- Portals for NXP distributor: <https://extranet.nxp.com>

Useful links

- ▶ NFC Forum specifications: <http://www.nfc-forum.org/specs/>
- ▶ MIFARE: <http://www.mifare.net>

MIFARE is a registered trademark of NXP Semiconductors N.V.

www.nxp.com

© 2010 NXP Semiconductors N.V.

All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

Date of release: September 2010

Document order number: 9397 750 17000

Printed in the Netherlands