



## NXP Near Field Communication (NFC) controller PN533

# Extensive proximity connectivity capabilities for USB-enabled devices

NXP Semiconductors' PN533 is a highly integrated transmission module for contactless communication at 13.56 MHz including a microcontroller. It is specially designed to provide USB-enabled devices with the most widely deployed contactless communication protocols.

### Key features

- ▶ Full peer-to-peer functionality
- ▶ Reader/ writer functionality compatible to ISO/IEC 14443 A&B, MIFARE, FeliCa and NFC Forum tag types (MIFARE UltraLight, Topaz, FeliCa, MIFARE DESFire)
- ▶ Card emulation functionality when connected to secure controller (P5CN072)
- ▶ Up to 10cm operating distance<sup>1)</sup>
- ▶ 80C51 core processor with embedded firmware
- ▶ USB host interface
- ▶ PN533 software is certified by Cetecom for eGovernment and by FIME for banking application
- ▶ NFC Sec for USB wireless and BT enabler support
- ▶ PC/SC driver WHQL pre-certified

### Key benefits

- ▶ Supports the most widely deployed contactless protocols with a single state-of-the-art chip
- ▶ Relieves the device host from contactless protocol real-time processing tasks and reduces device OS changes
- ▶ Device hosts connection flexibility thanks to the support of multiple interfaces besides USB

- ▶ Small footprint
- ▶ Worldwide support for design-in: antenna design, software
- ▶ Easy access to NFC technology, benefiting from NXP expertise and experience with major device manufacturers

### Target segments

Making it possible to create infrastructure devices that enable a revolutionary 'touch' experience in the computing, infrastructure, and business application segments.

- ▶ E-government and banking applications
- ▶ Ease the pairing of Bluetooth, Wi-Fi or WUSB devices
- ▶ Exchange objects such as vCards, digital rights
- ▶ Read a user-carried token or device for authentication before granting access to the device: logical access control, remote or proximity payment
- ▶ Read a user-carried token or device to authenticate before granting entry to a venue: physical access control

<sup>1)</sup> depending on antenna design and device integration

## Key applications

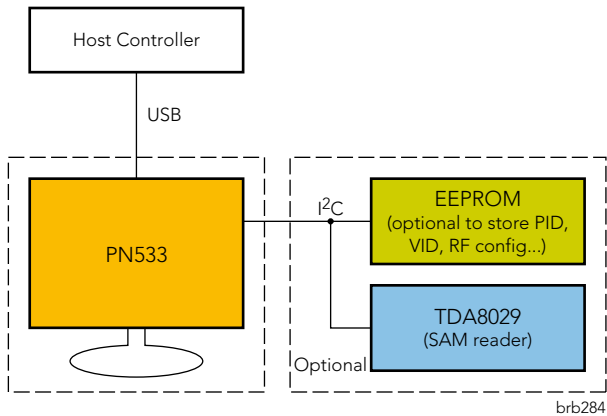
### Computing application

PC and peripheral

- On-line banking
- E-commerce
- E-government on-line access
- PC secure log-in

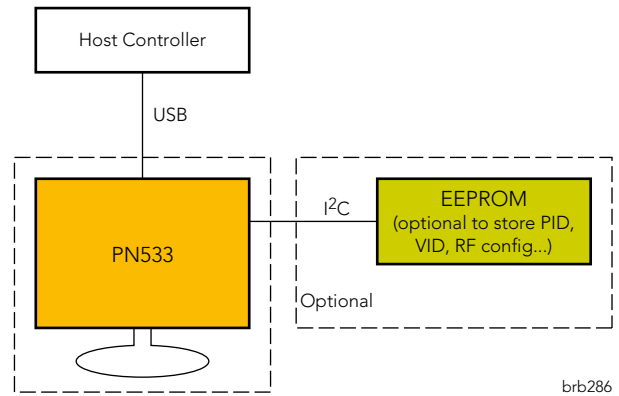
### Home reader application

- On-line banking
- E-commerce
- E-government on-line access



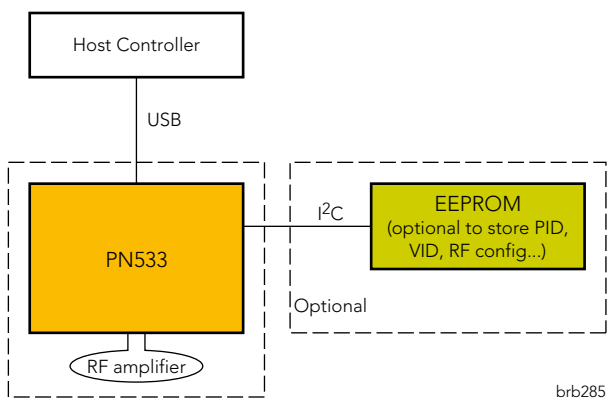
### Contactless terminal application

- Access control for building, transport gate
- Reader module for vending machine, kiosk



### Infrastructure (POS) application

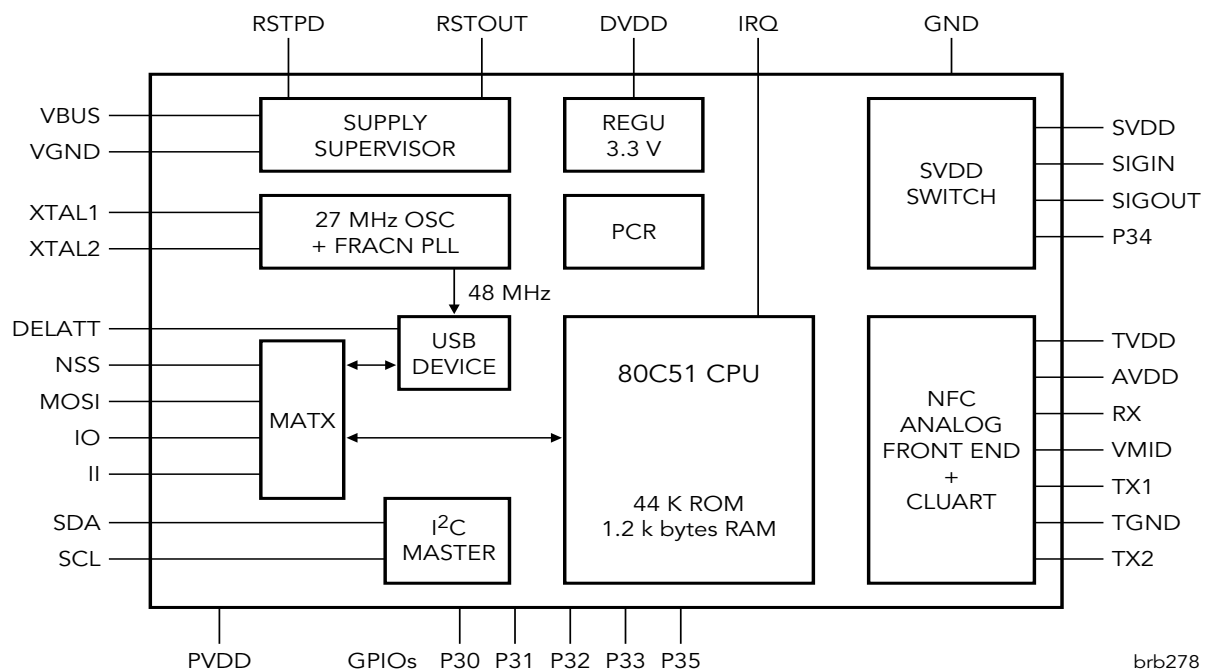
- Contactless payment
- E-coupon management



| Key technical data    |                                   | PN533                                                             |
|-----------------------|-----------------------------------|-------------------------------------------------------------------|
| Contactless protocols | Peer-to-peer                      | Full ISO 18092 (up to 424 Kbits/s)                                |
|                       | Reader/writer                     | ISO 14443 A&B (up to 848 Kbits/s), MIFARE, FeliCa, NFC Forum tags |
| Host interface        | USB 2.0 (full speed)              | Yes                                                               |
| Extensions            | I <sup>2</sup> C master interface | Available                                                         |
|                       | Connection to external EEPROM     | Available                                                         |
|                       | Connection to Contact Reader      | Available                                                         |
| Power characteristics | Supply voltage                    | 2.5 V - 3.6 V                                                     |
|                       | USB bus power supply              | 4.2 V - 5.5 V                                                     |
|                       | Power down mode                   | 12µA                                                              |
|                       | Typical RF active current         | 60mA                                                              |
| Temperature range     |                                   | -25°C / +85°C                                                     |

| Ordering information |         |                         |          |
|----------------------|---------|-------------------------|----------|
| Partnumber           |         | PN5331B3HN/C270         |          |
| Sales description    | Package | HVQFN40 (6mmx6mmx1,0mm) |          |
|                      | Status  | Available               |          |
| Ordering information | 12NC    | 9352 878 68518          | MOQ=4000 |
|                      |         | 9352 878 68551          | MOQ=490  |
|                      |         | 9352 878 68557          | MOQ=2450 |

Block diagram



### Design-in kit

To support your product development and to enable easy access to NFC technology, NXP has prepared a design-in kit with all the necessary hardware, software and documentation:

- ▶ 12NC: 9352 865 87699
- ▶ 1 USB board
- ▶ 1 USB dongle demoboard (reference design)
- ▶ Cables and power supply
- ▶ Possibility to have contactless smart cards depending on export regulation restrictions
- ▶ Documentation: datasheet, user manual, application note
- ▶ Drivers, source code and examples (Windows, Linux)

NXP can also provide a NFC Forum protocol stack reference implementation.

### How to order documentation, samples, design-in kit

- ▶ A list with technical NFC documentation is available for each IC (<http://www.nxp.com/nfc>)
- ▶ NFC documentation can be requested by filling in the request form:  
[http://www.nxp.com/acrobat\\_download/other/identification/NFC\\_request\\_final.pdf](http://www.nxp.com/acrobat_download/other/identification/NFC_request_final.pdf)
- ▶ The samples and design-in kits can be ordered:
  - for NXP distributors via our portal: <https://extranet.nxp.com>
  - for customers a list of distributors is available at <http://www.nxp.com/nfc>

### Useful Links

NFC Forum specifications: <http://www.nfc-forum.org/specs/>

EMVco: <http://www.emvco.com>

MIFARE: <http://www.mifare.net>

CETECOM: <http://www.cetecom.de>

FIME: <http://www.fime.com>

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