



# NXP contactless reader IC PR533

## Contactless reader IC with USB host interface

Operating at 13.56 MHz and designed for PC, eID, and payment applications, this MCU-based transmission module lets you develop single-chip reader systems supported by existing Windows 7 and Linux OS drivers.

### Key features

- ▶ Reader/writer functionality compatible with ISO/IEC 14443 A&B, MIFARE™, FeliCa, and NFC Forum tag types (Jewel, MIFARE Ultralight, FeliCa, FeliCa lite, MIFARE DESFire), and supports I-class (Picopass B type modulation)
- ▶ ISO18092 passive initiator
- ▶ PID/VID customization possible via external EEPROM
- ▶ Complies with German eID, ICAO, and EMVCo 2.1
- ▶ Supports PCSC part 3 release 2.01.07
- ▶ Integrated support for MIFARE reader
- ▶ USB 2.0 host interface, serial host interface (high-speed UART), and CCID protocol support
- ▶ I<sup>2</sup>C master enables additional contact interface via TDA8029
- ▶ Validated with Microsoft Windows and Linux CCID native drivers

### Key benefits

- ▶ Extended reader functionality dedicated for PC applications
- ▶ Supports two LEDs
- ▶ Integrated microcontroller implements high-level RF protocols

- ▶ Integrated RF level data mode detector
- ▶ Small footprint (HVQFN40 = 6 x 6 x 1 mm)
- ▶ Easy integration, pin-compatible with PN533/C270
- ▶ Excellent design-in support available worldwide

### Key applications

- ▶ PC integration, PC peripherals
- ▶ Single-chip reader connected by USB or serial host interface
- ▶ Electronic identity (eID) applications
- ▶ Online payment/Internet security

The NXP PR533 supports the CCID drivers and the smartcard reader function included in Windows7 and Linux operating systems. It supports reader and passive initiate modes as implemented by the CCID drivers.



## Key technical data

<b>Product features</b>	<b>PR533</b>
Operating distance [mm]	Up to 70 mm <sup>(1)</sup>
Host interfaces	USB 2.0 or high-speed UART I <sup>2</sup> C master for connection to external additional EEPROM or TDA8029
Microcontroller	Yes with ROM code
Driver	CCID supported (Windows & Linux)
<b>RF interface</b>	
Analog interface	Fully integrated
Carrier frequency [MHz]	13.56
Baud rates [kbit/s]	106 / 212 / 424 / 848
<b>Contactless protocols</b>	
Reader / writer	ISO/IEC 14443 A&B, B' MIFARE FeliCA
Peer-to-peer	ISO/IEC 18092 <sup>(2)</sup>
EMVCo compliance	Protocol level yes <sup>(3)</sup>
<b>Security features</b>	
MIFARE Classic security (Crypto 1)	Yes
<b>Additional product information</b>	
USB bus power supply	5 V single supply possible
Supply voltage [V]	2.7 to 5.4
Power-down mode [ $\mu$ A]	12
Typical RF current [mA]	60
Temperature range [°C]	-25 to +85
Package	HVQFN40 (6 x 6 x 1 mm)
Software	HAL, NFC Forum reference implementation, USB CCID driver
Evaluation boards	OM5588, PREV533

(1) Depends on antenna, coil size, tuning, and environment

(2) Passive initiator mode

(3) External booster required for RF compliance

## Ordering information

Type number	PR5331C3HN/C360	
Orderable part number	Package	HVQFN40
	Status	Available
PR5331C3HN/C360,51	12 NC	9352 976 57518 Reel dry pack, SMD, 13
PR5331C3HN/C360,55		9352 976 57557 Tray dry pack, bakeable, multiple
PR5331C3HN/C360,55		9352 976 57551 Tray dry pack, bakeable, single

### Evaluation boards

To support product development and enable easy access to the PR533 and its contactless technology, NXP offers the OM5588/N5331U01 and PREV533 design-in kits. The necessary hardware, documentation, and software sources are available at NXP's website ([www.nxp.com](http://www.nxp.com)).

To order samples or design kits, please contact your local NXP distributor 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 50 million core reader components, over five billion cards and ticket ICs sold, MIFARE is a proven and reliable technology that represents the largest installed base worldwide.

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Date of release: September 2012

Document order number: 9397 750 17324

Printed in the Netherlands