



**THE DATASHEET OF  
PR601HL/C1,557**





# NXP reader module PRH601

## Highly integrated RFID reader module

Delivering unprecedented integration, this module combines the functionality of multiple discrete ICs in a single package and enable the development of compact, cost-effective contactless reader systems for access and industrial applications. It includes microcontroller functionality and support multiple contactless reader protocols based on 13.56 MHz and 125 kHz.

### Key features

- ▶ Fully compliant with ISO/IEC 14443 A&B, ISO/IEC 15693, and FeliCa
- ▶ NFC-IP1 peer-to-peer support (Passive Initiator Mode)
- ▶ Multi-frequency support: 13.56 MHz and 125 kHz
- ▶ Integrated LPC1227 ARM Cortex-M0 microcontroller
- ▶ Support for MIFARE™ and HITAG™ technology
- ▶ Support for SAM AV2.6 interface
- ▶ Compact, single-package: LQFP100
- ▶ PRH601 combines functionality of LPC1227, CRLC663, and HTRC110

### Key benefits

- ▶ Fast design-in of highly integrated contactless reader systems
- ▶ Integrating multiple functions in a single package
- ▶ Reduced PCB size for development of systems with small physical dimensions
- ▶ Compatibility with all established smartcard ICs, smart tags, and label technologies
- ▶ Small footprint with LQFP100

- ▶ Fast design-in with supplied firmware
- ▶ Dedicated support for multi-frequency readers available worldwide

### Applications

- ▶ Highly integrated access systems
- ▶ Industrial devices requiring high-performance RF
- ▶ Multi-frequency applications that support 125 kHz and 13.56 MHz (e.g. migration of access management systems)

NXP's industry-leading portfolio for RFID reader modules reaches new levels of integration with the PRH601. This module implements a 32-bit LPC1227 ARM Cortex-M0 and a CLRC663 contactless reader IC for communication at 13.56 MHz. With the included HTRC110 HITAG reader IC, the PRH601 supports communication at 125 kHz. The module is a single-package solutions housed in a compact LQFP100 package.



## Key technical data

| Product features                       | PRH601                            |
|--|-----------------------------------|
| HTRC110                                | Yes                               |
| CLRC663                                | Yes                               |
| LPC1227                                | Yes                               |
| Operating distance [mm] <sup>(1)</sup> | 120 / 160 <sup>(2)</sup>          |
| FIFO depth (byte)                      | 512                               |
| Host interface                         | SPI, I <sup>2</sup> C, RS-232     |
| <b>RF interface</b>                    |                                   |
| Analog interface                       | Fully integrated                  |
| Carrier frequency [MHz]                | 13.56 and 0.125                   |
| Modulation                             | 10% and 100% ASK                  |
| Baudrate ISO 14443 [kbit/s]            | 106 / 212 / 424 / 848             |
| Baudrate ISO 15693 [kbit/s]            | 26.5 / 53                         |
| Baudrate FeliCa [kbit/s]               | 212 / 424                         |
| <b>Standards and protocols</b>         |                                   |
| NFC Tag Type Reader                    | Tag 1, 2, 3, and 4                |
| ISO 14443 A                            | Yes                               |
| ISO 14443 B                            | Yes                               |
| ISO 15693                              | Yes                               |
| MIFARE Classic support                 | Yes                               |
| FeliCa                                 | Yes                               |
| EPC Class-1 HF/ ISO 18000-3M3          | Yes                               |
| ISO 18092 (NFC)                        | Yes <sup>(3)</sup>                |
| EMVCo                                  | Yes                               |
| <b>Security features</b>               |                                   |
| SAM support in X-Mode                  | MIFARE SAM AV2.6                  |
| <b>Additional product information</b>  |                                   |
| Supply voltage digital [V]             | 3.3 to 5.0 and 5.0 <sup>(4)</sup> |
| Supply voltage analog [V]              | 3.3 to 5.0                        |
| Temperature range [°C]                 | -25 to +70                        |
| Package                                | LQFP100                           |
| Software support                       | NXP Reader Library                |

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

(2) For ISO15693

(3) Passive Initiator Mode

(4) For 125kHz operation

## Ordering information

| Type number           | PRH601HL/C1 |                       |
|-----------------------|-------------|-----------------------|
| Orderable part number | Package     | LQFP100               |
|                       | Status      | Available             |
| Sales description     | 12 NC       | 9352 985 83557        |
|                       |             | MOQ=450 (single tray) |

### Support and design-in material

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

### HITAG pedigree

HITAG is a well-established brand in the low-frequency (LF) RFID segment. It is optimized for applications that operate in harsh environments and require data transmissions that are highly reliable, robust, and safe.

### 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.

[www.nxp.com](http://www.nxp.com)

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