

PTX105R NFC READER IC

Comprehensive NFC controller for Internet of Things applications



The PTX105R is a comprehensive NFC reader system-on-chip for use in Internet of Things (IoT) applications. It provides a complete NFC reader implementation optimized for use in IoT devices, including the RF physical layer, power management circuit, and on-chip NFC protocol hardware accelerator.

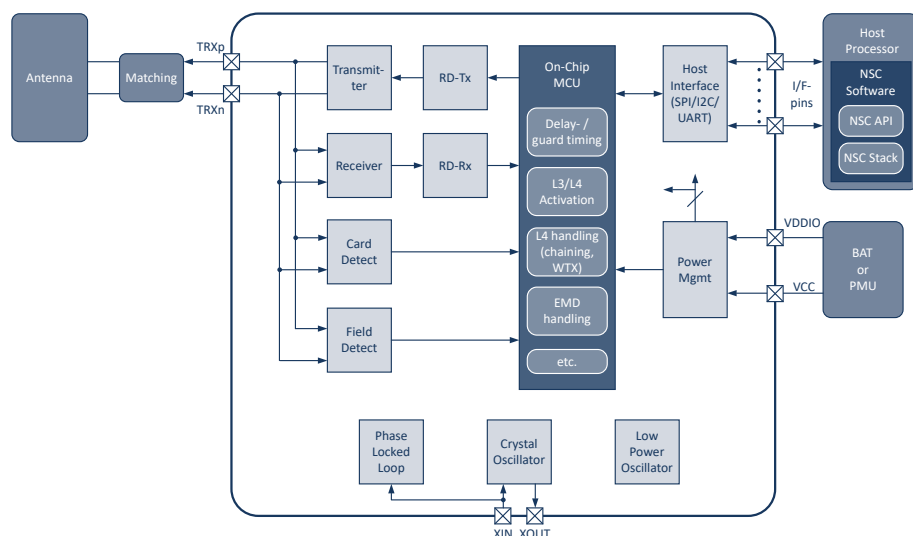


Features and Benefits

Product Features	Customer Benefits
Output power up to 1W @5V Very high Receiver sensitivity (-80dBc)	Optimized solution for IoT application with small form factor 40% increase in Type V reading range vs competition thanks to more than doubled receiver sensitivity
Sine Wave output Accurate Digital Wave Shaping	Allow to pass NFC Forum Waveform tests with margin No 3rd harmonic simplifying FCC certification
Removal of second resonating structure introduced by EMI	Simplification of Antenna tuning No EMI filters for optimal interoperability with different Types of Cards form factor
DiRAC: Direct antenna connection	BoM reduction Less components allow to assure marginal NFC variation between devices during production
Supported Interface	SPI, I2C, UART
NFC Split Stack handling Time critical commands Less packet exchanged between NFC and MCU	Relax the interface between NFC and MCU Simplify SW integration from OEMs
Customer accessible GPIOs	Offload MCU resource by using NFC Reader GPIOs as Input/Output (e.g. to drive LED/Buzzer/subsystem)

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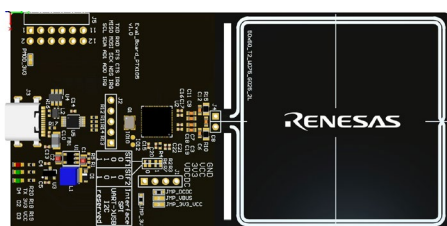
PTX105R Block Diagram



This superior RF performance provides manufacturers of NFC enabled devices with valuable benefits:

- Easier to achieve interoperability with the broader set of more demanding NFC device form factors
- Reliable NFC coupling in challenging operating environments, or with small form factor antenna
- Supports operation through an antenna typically 4-5 times smaller than that required by conventional NFC readers
- Fewer external components for bill-of-materials cost and space savings

PTX105R Evaluation Kit



Evaluation Kit Contents:

- PTX105R NFC Reader Evaluation Board
- 1 H-Field Detector Card
- USB A-C Cable

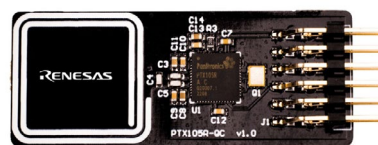
Evaluation Kit Development Features

- Connection for customized antenna design for RF evaluation
- PC application for easy evaluation and development with PTX105R
- PMOD connector to attach application specific microcontroller
- Interface selection between SPI / I2C / UART
- Option for external clocking
- Adjustable voltage supply value

Typical Applications

- Home Automation
 - [Smart Lock with super-low power Wi-Fi and Bluetooth LE](#)
- Access Control
 - [Smart NFC Access Control System](#)
- Authentication
 - [Green 3-Phase Smart Energy Meter](#)
- [IoT Communications Gateway Hub](#)
- Medical Sensor Readers
- Brand Protection
- ID Reader
 - Public Transportation Pass Reader

PTX105R Pmod Solution Kit



PTX105R Pmod Board

Kit Contents:

- PTX105R Pmod board
- PTX105R / RA2E1 Demo Start Guide
- Reference schematics
- NFC Stack library for RA2E1
- Software integration guidelines

For more details, please visit: [renesas.com/PTX105R](https://www.renesas.com/PTX105R)