NFC PRODUCTS

Innovative NFC for Security, Power, and IoT

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NFC PRODUCTS

Renesas' ground-breaking Near Field Communication (NFC) technology and products have been developed since 2014, targeting the most demanding applications in high-growth markets such as NFC wireless charging, mobile, and point of sale (PoS). Manufacturers of the latest mobile and wearable devices are keen to replace wired charger connections with wireless charging, because of its convenience, design flexibility and reliability benefits. From passport control kiosks to consumer goods, from gaming consoles to check-in counters, from printers in your office to manufacturing automation, from small mobile Point of Sale terminals to Smart PoS – NFC is an inseparable part of your daily experience.

ABOUT OUR TECHNOLOGY

Sine Wave Architecture

Renesas' transmitter directly outputs a pure sine wave eliminating the need for external EMC and most matching components resulting in a significant improvement in terms of NFC interoperability.

Direct Antenna Connection

The NFC antenna is directly connected to the transmitter output for full control of modulation shape, this direct sensing of the antenna signal allows much higher sensitivity than conventional NFC Front ends.

Split Stack Architecture

Renesas' NFC Controller runs all-time critical NFC commands on the embedded hardware accelerator, relaxing the host MCU and simplifying the software integration.

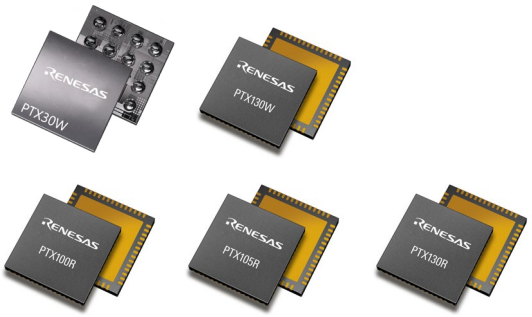
CONTENT

OUR STATE OF THE ART VALIDATION & VERIFICATION ENVIRONMENT

V&V Automated Test Suite and Environment

- Highly automatised V&V grants fast time to market
- 100 years' combined experience relied upon in implementing the state of the art V&V environment

Product Conformity and Quality



Environmental Conditions

- Temperature
- Field-volume
- RF-waveshapes
- Supply voltage
- Clock frequency
- EMI compliance
- New chip-features

RF-Performance and Integration

- Interoperability Tests: FeliCa, PBoC, Industrialized terminals (PoS, IoT)
- Product Integration: OS- and SWintegration, RF-performance

International Standards

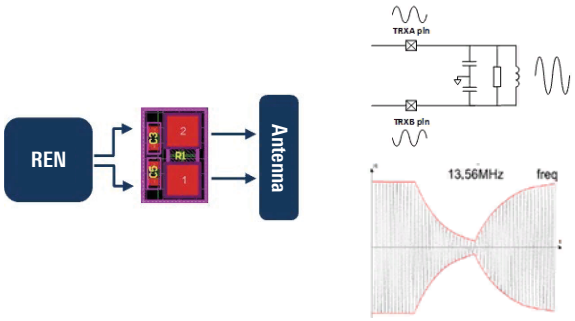
- ISO
- IEC
- Ecma International
- ETSI
- IEC FCC

Industry Specifications

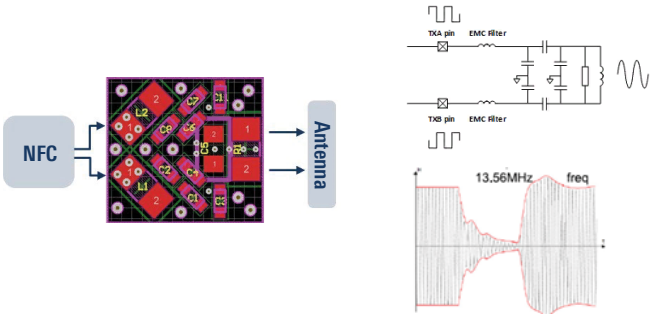
- NFC Forum
- EMVCo
- GSMA
- PCI
- Visa
- Mastercard®
- FeliCa
- GCF
- Car Connectivity consortium
- Wireless Power consortium
- Global Platform®
- Bluetooth®

OUR HARDWARE ARCHITECTURE

Renesas HW Architecture



Conventional HW Architecture



RENESAS DIFFERENTIATORS

- Simplified compliance with standards
- Simplified manufacturing and equal performance across devices
- Best in Class Transmit power (up to 2W on Antenna)
- Accurate Digital Wave Shaping
- BoM reduction (EMI and Xtal)
- Fewer components
- Minimal NFC variation between devices during production

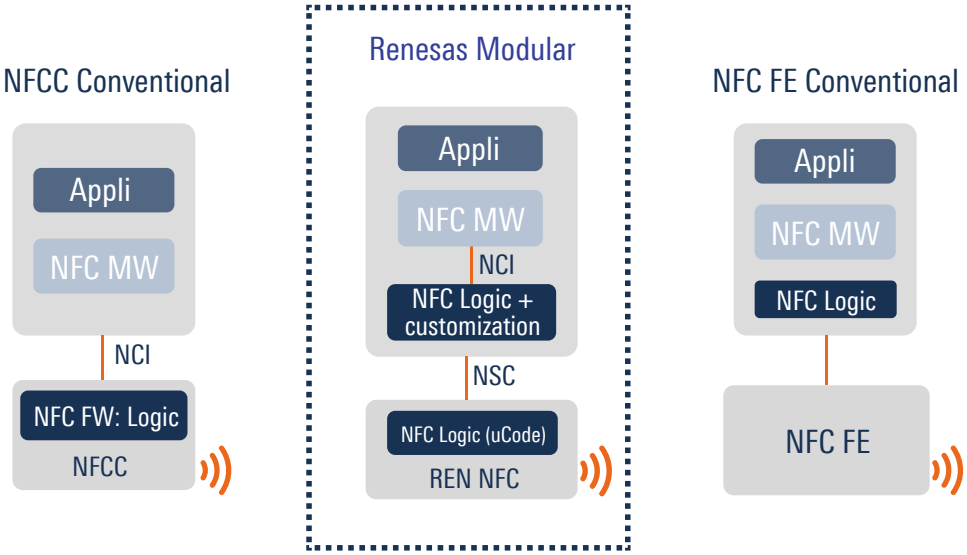
READER

- Best in Class Receiver sensitivity (-80dBc)
- Higher performance enables use of ultra compact antenna (<2mm^2)
- EMVCo 3 in small FF PoS
- EMVCo 3 with NFC behind the display
- Ultra compact Form Factor

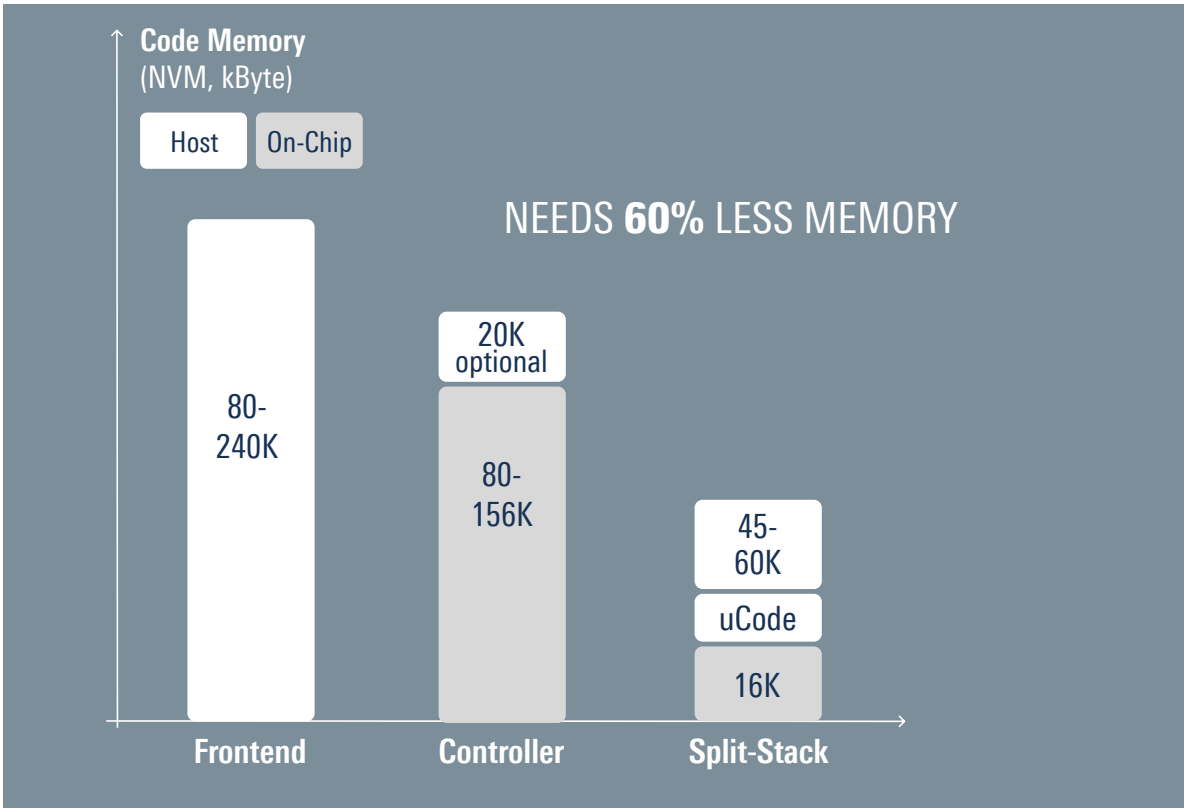
WIRELESS CHARGING

- High WLC power transfer
- More flexibility in placement of Poller vs Listener
- Up to IW on output of listener, >= 2x better than competitor solution
- Direct antenna connection
- Constant matching over volume

OUR SOFTWARE ARCHITECTURE



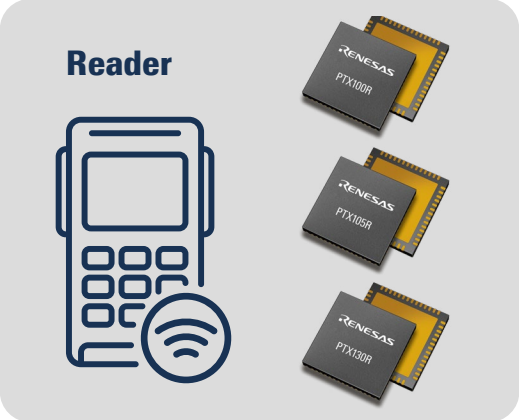
- NFC Forum Compliant "split-stack" architecture
- Developed from ground up to meet current and future demands, unlike legacy architecture
- Simplified API accelerates integration time without compromising on flexibility
- Can be universally used for all NFC applications and markets: PoS, IoT, WLC and Mobile



PRODUCT FAMILIES

NFC Reader R Series

- Improved interoperability, easing certification
- Delivering up to 2W directly onto the antenna



	Features	Applications
PTX100R	High-performance, high-power multiprotocol NFC Forum reader Universal SW device integration	EMVCo 3.0/3.1 PoS and high end IoT applications
PTX105R	Mid-power, multiprotocol NFC Forum compliant reader. Universal SW device integration	Mid-power universal multimarket reader solutions
PTX130R	High-performance, high-efficiency and high-power multiprotocol NFC Forum compliant reader. Universal SW device integration	EMVCo 3.0/3.1 PoS, Android devices, high performance IoT applications

NFC Wireless charging Poller & listener W Series

- Direct connection to antenna reduces design complexity
- Maximize charging efficiency
- Reduced harmonics easing EMI and FCC certification

	Features	Applications
PTX130W	High-efficiency, highperformance, high-power NFC Wireless Charging (WLC) frontend solution with multiprotocol reader functionality. Universal SW device integration	Smart ring, smart glasses, fitness tracker, smart watch, medical device, headset
PTX30W	Highly integrated, scalable NFC WLC Listener with I2C interface and on-board PMIC and LDO. Operating devices with or without battery using standalone or MCU controlled operation	Smart ring, smart glasses, fitness tracker, smart watch, medical device, headset

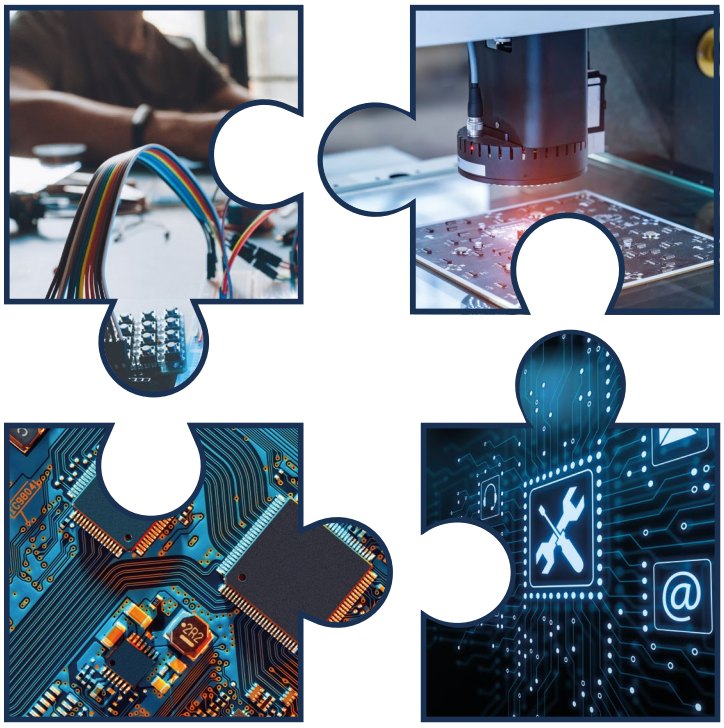
360° CUSTOMER SUPPORT

Dedicated HW and SW Support

- Dedicated HW and SW engineering support team
- Application specific evaluation kits
- Up-to-date technical documentation
- Design-in and certification support

Evaluation Kits

- PTX100R, PTX130W, PTX30W, PTX105R, PTX130R evaluation boards
- GUI with User manual
- Documentation and SDKs
- Mock up with own antenna for RF evaluation
- SW evaluation and integration



Product Samples

- Samples available for: PTX100R, PTX130W, PTX30W, PTX105R, PTX130R

Support Portal

- Dedicated portal for specific applications
- Searchable knowledge base
- Real-time interaction with the support team

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