CLRC663 plus KEY BENEFITS

High performance and more flexible antenna design
- 350mA maximum operating transmitter current
- Freely programmable 6 kByte EEPROM
- Advanced waveform control for overshoot protection
- Integrated support for MIFARE (Crypto 1)

Longer battery life
- Supply voltage: 2.5 to 5.5 V
- Power-save modes: hard power-down, standby, extended LPCD options

Industrial/Automotive temp range (-40 to +105 °C)

Multiple interfaces to support a broad range of microcontrollers and high-security reader implementations
- Host interfaces: SPI, I²C, UART
- Up to 8 GPIO
- SAM interface
- 512 byte FIFO buffer reduces performance requirements of host controller

Fast development
- Supports NFC Cockpit and NFC Reader Library
- Complete development kits

Included licenses
- Includes NXP ISO/IEC14443-A and Innovatron ISO/IEC14443-B intellectual property licensing rights

Full RF standard compliance
- ISO/IEC 14443A: MIFARE® family incl. DESFire family and NTAG® family incl. NTAG I²C plus
- ISO/IEC 14443B
- JIS X 6319-4: comparable with FeliCa1 scheme
- ISO/IEC 15693: NTAG 5 family, ICODE SLIX, SLIX2, DNA
- ISO/IEC 18000-3 mode 3/EPC Class-1 HF: ICODE ILT
- Peer-to-Peer Mode: ISO/IEC 18092 passive initiator
- Compatible with SmartMX® family incl. SmartMX2 P40 & P60

Compact, time-saving package
- HVQFN32 (5 × 5 × 0.85 mm) with wettable flanks and VFBGA36 (3.5 × 3.5 × 0.8 mm) packages
- Pin-compatible to CLRC663 family for easy upgrade of existing designs

APPLICATIONS
- Access control
- Close-loop payment
- Gaming
- Industrial

If you need the best NFC performance or the lowest power consumption, use this remarkably efficient yet highly flexible frontend family to push your design further. It offers an extended temp range, pin-to-pin compatibility, and time-saving software tools.

NXP® multi-protocol NFC frontend CLRC663 plus family

Push your NFC design further
The CLRC663 plus family, including CLRC663 plus, CLRC661 plus, MFRC631 plus, MFRC630 plus, and SLRC610 plus, offers special low-power support to make battery-powered systems more efficient, the flexibility, backward compatibility, and fast time-to-market needed to deliver best-in-class NFC system for a wide range of applications, including access control, payment, gaming, and industrial.

**TEMPERATURE RANGE**
The CLRC663 plus family offers an extended temperature range, from -40 to +105 °C, so it’s an ideal choice for applications that need to operate under challenging conditions, including outdoors, such physical access or car/bike sharing, or in industrial environments.

**EXTRA RF POWER**
With a maximum operating transmitter current of 350mA, the CLRC663 plus family ensures best performance by compensating for losses in the RF field, such as those introduced by the nearby presence of metals.

Other features that improve performance while increasing flexibility include support for ISO/IEC 15693 NFC Forum TST reads, integrated support for MIFARE (Crypto 1), and advanced waveform control for overshoot protection.

**RELIABLE ASSEMBLY AND COMPACT DESIGNS**
The HVQFN32 (5 x 5 x 0.85 mm) package with wettable flanks makes post-assembly inspection simpler, faster, and more efficient.

The new VFBGA36 (3.5 x 3.5 x 0.8 mm) package enables the most compact designs.

**QUICKER DEPLOYMENT**
Advanced design tools make it easier than ever to deliver a contactless design. The CLRC663 plus Arduino interface board (CLEV6630ARD) will kick start your development with any boards featuring Arduino header whereas the CLRC663 plus development board (CLEV6630B, included in the OM26630 kit) together with the antenna development kit (OM29263ADK) will allow you to optimize your complete system design.

The NFC Cockpit is an intuitive, Windows-based GUI with a VCOM interface that lets you control test applications and configure settings – all without writing a single line of software code.

The NFC Reader Library not only speeds development, since it includes APIs and sample applications and is easy to port to standard microcontroller cores, but also simplifies certification with test applications for EMVCo L1, NFC Forum, and ISO/IEC 10373-6 PICC/PCD.

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**DEVICE COMPARISON**

<table>
<thead>
<tr>
<th>Feature</th>
<th>CLRC663 plus</th>
<th>CLRC661 plus</th>
<th>MFRC631 plus</th>
<th>MFRC630 plus</th>
<th>SLRC610 plus</th>
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<tbody>
<tr>
<td>ISO/IEC 14443A – MIFARE/NTAG</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
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<td>ISO/IEC 14443B</td>
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<td>JIS X 6319-4 – FeliCa</td>
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<td>ISO/IEC 18092 passive initiator</td>
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<tr>
<td>Operating transmitter current</td>
<td>350 mA (max.), 500 mA (lim.)</td>
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<tr>
<td>LPCD(1) range(2) (EMVCo RefPICC)</td>
<td>66 mm</td>
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<td>Operating ambient temp. range</td>
<td>VFBGA36: -40 to +85 °C</td>
<td>HVQFN32: -40 to +105 °C</td>
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<tr>
<td>RF transmitter supply voltage</td>
<td>2.5 to 5.5 V</td>
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<tr>
<td>HVQFN32 (5 x 5 x 0.85mm)</td>
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<td>CLRC66103HN</td>
<td>MFRC63103HN</td>
<td>MFRC63003HN</td>
<td>SLRC61003HN</td>
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<td>9353 639 69551</td>
<td>9353 062 14551</td>
<td>9353 062 17551</td>
<td>9353 062 19551</td>
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<td>9353 062 14518</td>
<td>9353 062 17518</td>
<td>9353 062 19518</td>
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<td>VFBGA36 (3.5 x 3.5 x 0.8mm)</td>
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<td>Development kit / board</td>
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<td>Arduino interface board</td>
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</table>

(1) Low Power Card Detection
(2) all detection ranges measured using the standard CLRC663 plus development board (CLEV6630B) operated with external power supply at room temperature.