



NXP® multi-protocol NFC frontend CLRC663 *plus* family

Push your NFC design further

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.

CLRC663 *plus* KEY BENEFITS

High performance and more flexible antenna design

- 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

EMVCo ready

- EMVCo 2.6 L1 analog & digital compliance

Full RF standard compliance

- ISO/IEC 14443A: MIFARE® family (Ultralight, Classic 1K & 4K, DESFire EV1 & EV2 and Plus EV1) and NTAG® family incl. NTAG 21xF & NTAG I²C *plus*
- ISO/IEC 14443B
- JIS X 6319-4: comparable with FeliCa1 scheme
- ISO/IEC 15693: 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 with wettable flanks to support high production yield
- Pin-compatible to CLRC663 family makes it easy to upgrade for existing designs

APPLICATIONS

- Access control
- Payment
- Gaming
- Industrial



The CLRC663 *plus* family, including CLRC663 *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 (limiting value of 500mA), 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 T5T reads, integrated support for MIFARE (Crypto 1), and advanced waveform control for overshoot protection.

RELIABLE ASSEMBLY

A compact HVQFN32 (5 x 5 x 0.85 mm) package with wettable flanks makes it easier to see if the package successfully soldered to the PCB, so post-assembly inspection is simpler, faster, and more efficient.

QUICKER DEPLOYMENT

Advanced design tools make it easier than ever to deliver a contactless design. The CLRC663 *plus* development kit (OM26630) includes a development board (CLEV6630B) with extended LPCD and optimizations for access-control applications, plus antenna boards, NFC sample cards, and ten CLRC663 *plus* samples in HVQFN packages.

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

The free, easily scalable NFC Reader Library speeds development, since it includes APIs and sample applications, and is easy to port to standard microcontroller cores. The NFC Reader Library also simplifies certification, with test applications for EMVCo L1, NFC Forum, and ISO/IEC 10373-6 PICC/PCD.

DEVICE COMPARISON

	CLRC663 <i>plus</i>	MFRC630 <i>plus</i>	SLRC610 <i>plus</i>	MFRC630	SLRC610
ISO/IEC 14443A/MIFARE/NTAG	yes	yes		yes	
ISO/IEC 14443B	yes				
JIS X 6319-4/FeliCa	yes				
ISO/IEC 15693/ICODE SLIX/DNA	yes		yes		yes
ISO/IEC 18000-3m3/ICODE ILT	yes		yes		yes
ISO/IEC 18092 passive initiator	yes				
Operating transmitter current	350 mA (max.), 500 mA (lim.)			250 mA (max.)	
LPCD range (EMVCo RefPICC)	66 mm			26 mm	
Operating ambient temp. range	-40 to +105 °C			-25 to +85 °C	
RF transmitter supply voltage	2.5 to 5.5 V			3.0 to 5.5 V	
Package type	HVQFN32 with wettable flanks			HVQFN32	
Item reference	CLRC66303HN	MFRC63003HN	SLRC61003HN	MFRC63002HN	SLRC61002HN
12NC single tray delivery	9353 062 08551	9353 062 17551	9353 062 19551	9352 973 34151	9352 973 35151
12NC reel delivery	9353 062 08518	9353 062 17518	9353 062 19518	9352 973 34118	9352 973 35118
Development kit	OM26630FDK (12NC 9353 391 51699)				
Development board	CLEV6630B (12NC 9353 391 49699)			CLEV6630A (12NC 9353 391 48699)	