Full NFC-Forum-compliant functionality for automotive applications

NXP® NCx3340 Automotive-Qualified NFC Controller with NCI Interface

Equipped with embedded firmware, the compact, fully NFC Forum compliant NCx3340 controller enables easy integration of NFC functionality into embedded systems of a car via the NCI interface.

KEY FEATURES

- NCI over I²C and SPI host interface
- NFCIP 1 and NFCIP 2 compliance
- All NFC operating modes
  - Read/Write Mode: ISO/IEC 14443 A&B up to 848 kbit/s, FeliCa at 212 & 424 kbit/s, MIFARE® 1K, 4K, NFC Forum type 1, 2, 3, 4, 5 tags, ISO/IEC 15693
  - All peer-to-peer modes
  - Card Emulation Mode (from host): NFC Forum T4T (ISO/IEC 14443 A&B) at 106 kbit/s
- Integrated ARM® Cortex®-M0 core
  - Fully configurable polling loop with low power mode
  - Active load modulation
  - Pad supply voltage: 1.8 or 3.3 V
  - RF driver: 2.7 to 5.5 V, 170 mA max
- Integrated self-test to verify antenna circuit during production
- Very low power (<1 mW polling)
- HVQFN40 package (6.0 x 6.0 x 0.85 mm)
- Temperature range: NCF: -40°C – +85 °C; NCJ:-40°C – +105°C
- Software drivers: Linux®, Android™, AUTOSAR NCI stack and NXP NCI example

KEY BENEFITS

- Fully automotive qualified
- Full NFC Forum compliance
- Integrated firmware with NCI interface
- Fast time-to-market
- Low bill of materials (BOM)
- Easy development
- Proven interoperability
- Low power operation

APPLICATIONS

- Bluetooth®/Wi-Fi® pairing
- Driver authorization (e.g., engine start)
- Personalization (air conditioning, seat features and mirror settings)
- Transmit vehicle diagnostics data
- Payment services

NXP's NCx3340 is an ideal solution for designers working in automotive real-time operating system (RTOS) environments. The NCx3340 comes with embedded NFC firmware and uses the NFC Forum's NCI interface to ease the NFC software integration.

The embedded firmware reduces the BoM and enables a smaller design because it lets the NCx3340 connect directly to the host processor. The use of production-ready drivers simplifies integration and reduces time-to-market, while compliance with the NFC Forum ensures interoperability with every NFC-enabled product on the market.

The small HVQFN40 package and low power operation make the NCx3340 suitable for use in various automotive applications. The integrated power management supports hard power down mode and consumes less than 1 mW in the polling phase.

RF PROTOCOLS

The NCx3340 executes peer-to-peer mode in compliance with the NFC Forum-defined standard NFCIP-1 and NFCIP-2. It supports host-card emulation in accordance with ISO/IEC 14443 Type A/B, and supports all the relevant protocols for read/write modes, including ISO/IEC 14443 Type A and B read/write up to 848 kbits/s, ISO/IEC 15693, FeliCA read/write up to 424 kbits/s, read/write support for MIFARE cards, and all NFC Forum tag types. The NCx3340 is also compatible with ISO/IEC 15693 to complete the broad range of possible applications.

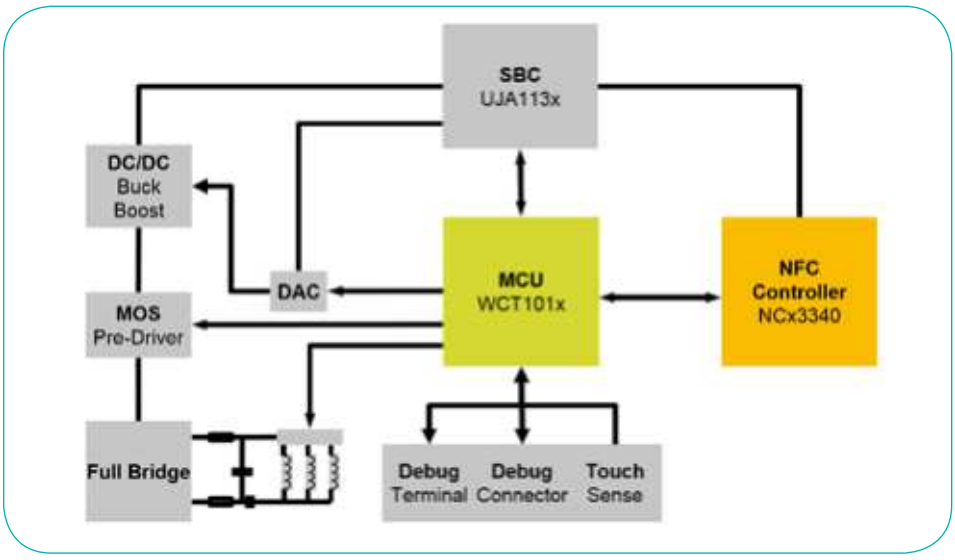
SUPPORT TOOLS

For a head start on design, the NCx3340 is available with a demo kit that includes a NCx3340 demo board, LPC1769 LPCXpress host controller board, Windows® GUI, user guide, application notes and a bunch of NFC tags. For requesting an NCx3340 demo kit please contact **automotive_nfc@nxp.com**.

SPECIFICATION	NCx3340
Carrier frequency [MHz]	13.56
Operating distance up to [mm]	100*
RF transmitter supply voltage [V]	2.7–5.5
Transmitter supply current, max [mA]	170
Power-down mode current, typ [µA]	10
Power-down mode with RF level detector on [µA]	20
Low-power card detection mode [µA]	200**
Temperature range [°C]	-40 to +85 and -40 to +105
Package	HVQFN40 with wettable flanks

* Depends on antenna, coil size, tuning, and environment
** Depends on the duty cycle

COMBINED NFC AND QI WIRELESS POWER CHARGING MODULE



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