Contactless
Automotive Reader IC
NCx3320

Automotive NFC Frontend IC Optimized for Secure Car Access

As a member of NXP®'s high-performance reader IC family, NCx3320 combines high RF output power with robust multiple protocol support. High integration and a small footprint make it ideal for small form-factor car door handles.

KEY FEATURES

▸ Fully ISO/IEC 14443 A & B, ISO/IEC 15693 and FeliCa compliant
▸ ISO/NFC 18092 NFC-IP1 peer-to-peer support (initiator mode)
▸ RF driver supply voltage 3 V - 5.5 V with max current of 350 mA
▸ Compact HVQFN32 package (5 x 5 mm) with wettable flanks
▸ Low Power Card Detection
▸ 512 Byte FIFO
▸ High baud rates (up to 848 kbits)
▸ 8 KB EEPROM

KEY BENEFITS

▸ High-output power RF front-end IC in small footprint
▸ Maximum reading distance combined with high operating stability
▸ Supports all relevant contactless protocols
▸ Full compatibility with NXP smart card, smart tags and label ICs
▸ Capable of handling long APDUs

▸ Fast card detection with minimum power consumption
▸ Stores application specific configuration
▸ Communication with mobile NFC devices in reader/writer or peer-to-peer initiator mode
▸ Supplied with generic software library easily portable across different MCUs

KEY APPLICATIONS

▸ Secure car access
▸ Fleet management
▸ Car sharing
▸ Center stack reader for personalization

The NCx3320 combines uniquely high RF output power with a very small HVQFN package to ensure large and reliable reading distances with NFC-enabled smart phones and smart cards.

Its unique combination of features, paired with robustness and quality, creates a benchmark for the automotive industry, where applications require long lifetimes paired with energy efficiency. The NCx3320 makes it possible to create secure solutions with NXP's MIFARE® products. Implementation of the initiator mode of P2P communication enables full support of NFC-based use cases in an automotive environment. To support mobile phones and the emerging use of credentials in different form factors and protocols, the device also integrates a large internal EEPROM for fast and flexible configuration of register settings.

DOOR HANDLE REFERENCE DESIGN
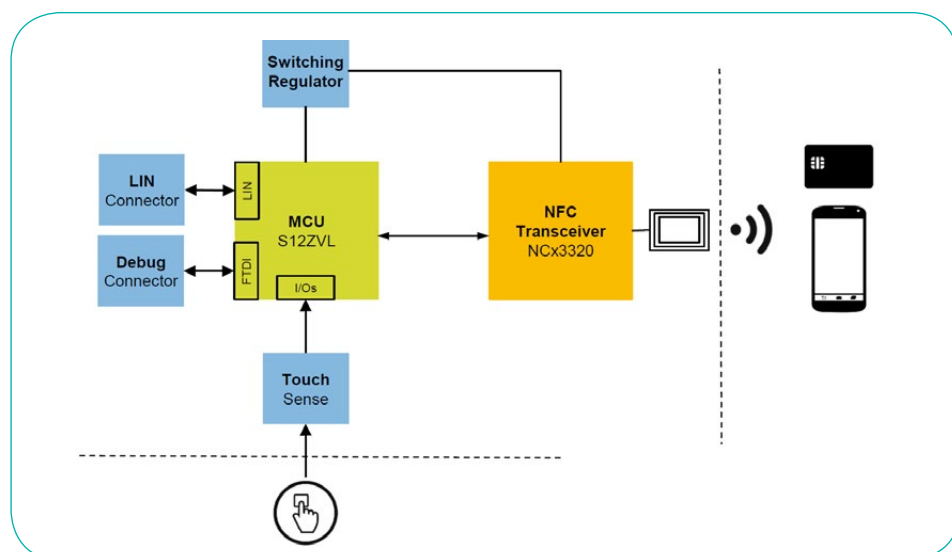
Automotive door handle reference design combining NXP's NCx3320 Reader IC with S12ZVL MCU

NCx3320 FEATURES

PRODUCT FEATURES	NCx3320
Operating distance up to [mm]	100*
FIFO [bytes]	512
Host interfaces	SPI, I²C, RS232
RF Interface	
Analog interface	Fully integrated
Carrier frequency [MHz]	13.56
Modulation	10% & 100% ASK
Baudrate ISO 14443 [kbit/s]	106 / 212 / 424 / 848
Baudrate ISO 15693 [kbit/s]	6.78 / 26.5 / 53
Baudrate FeliCa [kbit/s]	212 / 424
Standards and Protocols	
NFC tag type reader	yes
ISO/IEC 14443 A,B	yes
ISO/IEC 15693	yes
MIFARE Classic® support	yes
ICODE EPC/UID protocol	yes
ISO/IEC 18000-3 Mode 3	yes
ISO/IEC 18092 (NFC)	yes, passive initiator mode
Security Features	
MIFARE Crypto 1	yes
Additional Product Information	
Supply voltage [V]	3 to 5.5
Power down current, typ. [nA] at 25°	40
Standby current, typ. [µA] at 25°	3
Temperature range [°C]	-40 to +85 (NCF), -40 to 105 (NCJ) and -40 to +125 (NCK)
Package HVQFN33	HVQFN32 with wettable flanks

* Depends on antenna size and analog matching system

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