

NCx3310

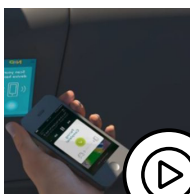
NFC Forum-compliant Tag IC with I²C for Automotive

This NFC connected tag delivers robust and reliable communication with NFC phones, allowing broad automotive use cases.

KEY BENEFITS

- Reading distance: >5 cm with mobile phones and >60 cm with long-range readers
- Zero-power readout of an I²C sensor
- Energy-efficient design with reduced bill of materials
- Long battery life due to low standby current and hard power-down pin
- Antenna size reduction by a factor of 40 in Active Load Modulation (ALM), same read range as in Passive Load Modulation (PLM)

KEY APPLICATIONS



INFOTAINMENT

Out-of-band Bluetooth® and Wi-Fi® pairing.
Diagnostics and Personalization



ORIGINALITY CHECK

Verify originality of automotive parts



BMS

Contactless temperature monitoring of battery modules



KEY FEATURES

- NFC Forum-compliant Type 5 tag
- ISO/IEC 15693 compliant
- 2048 bytes user memory, 256 bytes SRAM
- Configurable wired interfaces: I²C leader and follower, GPIO, NFC field detection
- Energy harvesting with 32/64-bit configurable output up to 30 mW
- Scalable security: 32/64-bit password protection, three configurable user memory areas, ECC-based reprogrammable originality signature, 128-bit AES mutual authentication
- NFC silence to disable NFC interface
- Low-power consumption: <6 μA standby, <0.25 μA hard power-down
- Wide temperature range: -40 to +85 °C, +85 °C (F type) and 105 °C (J type)

NCx3310 allows for implementing a cost-effective NFC interface with a wired host interface that is configurable as an I²C leader/follower for automotive use cases. It is an NFC Forum-compliant contactless tag that can be read and written by an NFC-enabled device at close range and by an ISO/IEC 15693-enabled industrial reader over a longer range.

BLUETOOTH®/WI-FI® PAIRING

NCx3310 is suitable for out-of-band Bluetooth/Wi-Fi pairing by single tap. It supports the TNEP specification, which enables NFC-based Bluetooth/Wi-Fi negotiated handover.

TNEP offers a simple protocol for NFC devices to exchange data between an NFC-enabled phone and the car.

DIRECT SENSOR CONNECTION

The NCx3310 can act as a direct bridge between an NFC-enabled device and any I²C follower, such as a sensor or external memory. This is especially useful in environments that require zero-power, single-shot measurements.

READ RANGE DUALITY

Support for ISO/IEC 15693 standards lets the NCx3310 communicate securely in two ways — with powerful industrial readers, at a range of up to 60 cm and with NFC-enabled devices (proximity range). This duality makes it possible for the device to be calibrated and parameterized automatically while in the factory and then, when put to use in the field, safely communicate with contactless devices such as smartphones.

TINY FOOTPRINT WITH LONGER RANGE

ALM allows for a significantly smaller footprint without compromising the read range. When operating in ALM mode, the read range is significantly longer than in PLM mode.

SCALABLE SECURITY

The tag's 2048 bytes of memory can be divided into three areas, and each area can use a different protection level, varying from no protection to 32/64-bit, password-protected read/write access or up to 128-bit AES protected read/write access with mutual authentication. Different parties in the value chain can have their own dedicated memory areas for data storage.

The NCx3310 comes with pre-programmed proof-of-origin functionality to verify authenticity. The reprogrammable elliptic curve cryptography (ECC) originality signature can be locked or reprogrammed by the customer.

ENERGY HARVESTING

The NCx3310 can operate without a battery by drawing power from the NFC reader instead. The tag supports energy harvesting, which means it can be used to supply power to other components in the system. When sufficient energy is available, the tag can supply a fixed, configurable voltage level to ensure a stable overall system.

NCx3310 ORDERING INFORMATION

Product Type ID	12NC	Package	Packing	MOQ
NCF3310AHN/0 3 x 3 x 0.2 mm	935399489118	HVQFN16	Reel 7"	6000
NCJ3310AHN/0 3 x 3 x 0.2 mm	935410519118	HVQFN16	Reel 7"	6000