Connected NFC tag with secure authentication

Designed for secure device-to-device and consumable-to-device authentication, this Common Criteria (CC) EAL6+ certified ISO/IEC 14443-4 Type 4 tag helps protect products while enhancing end-user experiences.

Target applications

- Mobile accessories
- Gaming accessories/peripherals
- Building and home automation
- IP cameras
- Gateway/routers
- Industrial
- Batteries
- Smart appliances
- Healthcare
- Retail

Developers of IoT devices and accessories can meet their security requirements while simplifying design-in efforts and enabling deeper end-user relationships with this new connected NFC tag, which enables easy cloud interaction, direct connection to an MCU, secure authentication, easy key management and distribution, product management from production to end of life, and innovative interactions with consumers.

Key features

- Dual interface: connected tag (NFC Type 4) with NFC + I^{2}C
- Security: AES 128/256 + PKI ECC p256, CC EAL6+
- Energy harvesting (20 mW) (battery-less: easy to meet regulations)
- Support lower power classes — 1.1 V and 1.8 V
- App-less: compatible with any NFC mobile
- Data rate up to 848 kbit/s
- Memory: up to 16 kB
- NTAG services and EdgeLock® 2GO, including credential delivery
- Small, light form factor (WLCSP16, FFC wafer)
- Package: HVQFN20 (for industrial applications), WLCSP16

Key benefits

- Easy integration with MCU and other system peripherals with dual NFC/I^{2}C interface

- Higher security with CC EAL6+ certification and EdgeLock 2GO certificate delivery

- Anti-counterfeit solution with PKI-based asymmetric authentication and self-generated SUN message

- Future-proof cryptography that complies with current NIST FIPS standards

- Robust contactless communication, even in metal environments (data rate up to 848 kbit/s)

- Deployment flexibility with app-based or app-less (website) authentication

Optimized for IoT devices and accessories

Today's IoT devices, accessories and other high-value components are continually exposed to security threats, from their creation in the factory to their last day in the field. The NTAG X DNA delivers the latest security standards to protect devices, accessories and consumables at every point — while providing effortless NFC interactions with end users.

The NTAG X DNA enables secure authentication of devices and accessories, with the ability to do things like authenticate items without opening the package box, and authenticate new items, like accessories, figurines or toys with base equipment.

The NTAG X DNA can be used to create digital product passports (DPPs), which record events, transactions and sustainability data throughout a product's lifetime. With a single tap, with or without an app, consumers can confirm the authenticity of a battery, inkjet cartridge, medication or other limited-use consumable, and can obtain the expiration date, maintenance instructions, recycling guidelines, or availability of spare parts.

At home, quick device onboarding gives consumers tap-and-go provisioning of light bulbs, thermostats, smart plugs, and other devices that use Wi-Fi, Bluetooth®, or Smart Home standards like Matter, Thread, or Zigbee. Easy device registration and warranty simplifies setup and strengthens brand relationships.

Patients can check the authenticity of devices and medications or access dosing information, with or without a network connection. In the field, technicians can use a smartphone app to quickly diagnose machinery errors or initiate secure firmware updates. In the supply chain, manufacturers can prevent unauthorized components from entering the factory, while inspectors and retailers can quickly differentiate between genuine products and unauthorized fakes.

Built for performance and security

The NTAG X DNA's NFC functionality supports pre-provisioning of certificates to the device during manufacturing, using an NFC-enabled smartphone. Once the device has left the factory, other NFC features, including originality signature check and SUN messaging protect against cloning.

Certified to CC EAL6+, the NTAG X DNA delivers the latest security standards to protect devices, consumables and accessories — while providing effortless NFC interactions with end users.

PKI-based security protects the device identity and allows certificate-based authentication for secure communication. Backed by NXP's EdgeLock 2GO cloud service for secure credential delivery and safe, easy updates in the field, the NTAG X DNA stores and protects private keys and certificates, using secure on-chip key generation.

What's more, AES 128/256 encryption prevents counterfeiting and protects brand, while offering the long-term promise of quantum resistance.

Flexible delivery option

The NTAG X DNA is available in a small-footprint WLCSP16 package and FFC package, so it fits in tight spaces, and can also be delivered in HVQFN to support use in harsh environments.

NTAG X DNA block diagram
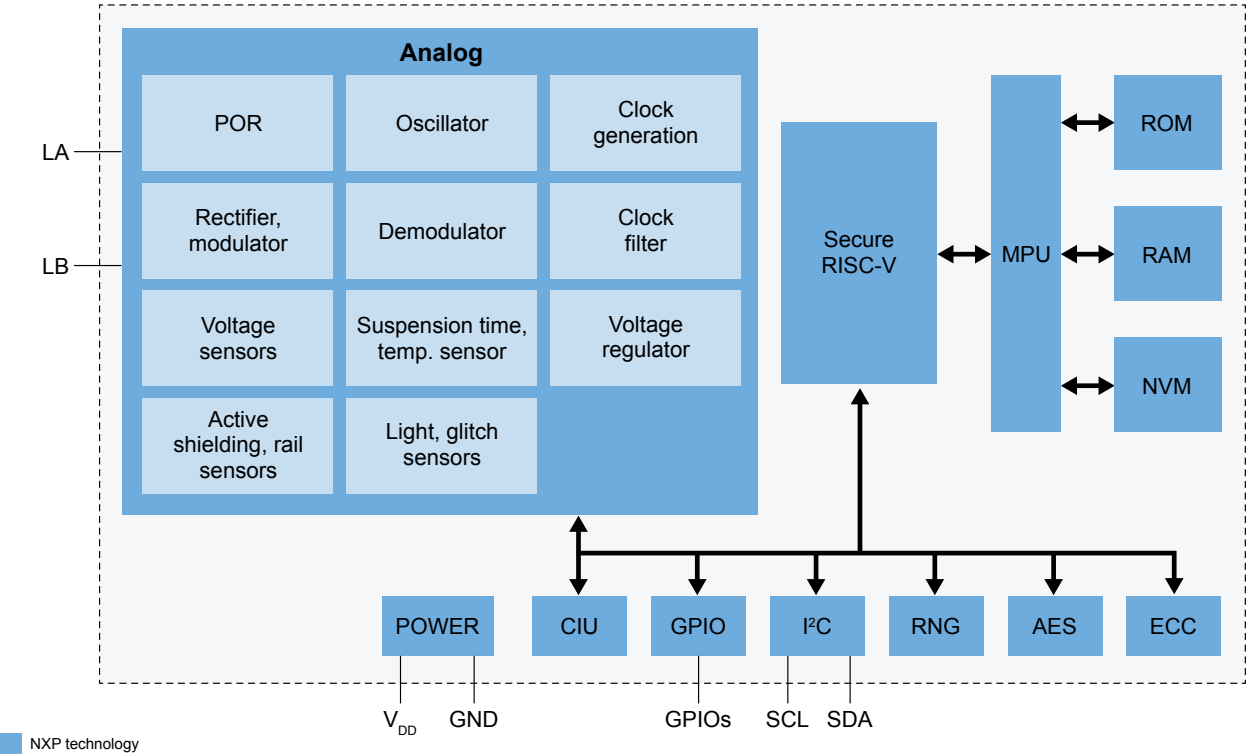
Ordering information

Item	Orderable part number	Description	Temperature range	12NC
NTAG X DNA	NT4PLDJUK/20038YZ	NTAG X DNA in WLCSP package to support I2C and NFC	−40 °C to +105 °C	9354 644 71019
NTAG X DNA	NT4PLDJHN2/2003LXJ	NTAG X DNA in HVQFN package to support I2C and NFC	−40 °C to +105 °C	9354 644 65118
NTAG X DNA	NT4PMDJU32/20031CZ	NTAG X DNA in FFC to support NFC only	−40 °C to +105 °C	9354 644 72045
NTAG X DNA development kit	NTAG-X-DNA-EVAL	NTAG X DNA development boards	−40 °C to +105 °C	9355 050 96598