



NXP®
NTAG 5 boost

NTAG® 5 boost: NFC Forum Compliant I²C Bridge for Tiny Devices

This NFC connected tag uses active load modulation (ALM) to deliver robust and reliable communication with NFC phones, bringing more convenience to tiny devices.



Consumer

Reliably pair small consumer devices with a phone



Industrial

Read out status and error codes from small devices



IoT

Deliver a small footprint for firmware updates and configuration

KEY BENEFITS

- ▶ Antenna size reduction by a factor of 40, same read range as in Passive Load Modulation
- ▶ Long battery life due to low standby current and hard power-down pin
- ▶ Adjustable security levels up to mutual AES authentication
- ▶ Flexible split between three open and/or protected memory areas
- ▶ Interoperable data exchange according to NFC Forum standards

KEY FEATURES

- ▶ NFC Forum compliant Type 5 tag
- ▶ Active Load Modulation can be enabled/disabled at any time
- ▶ 2048 bytes user memory, 256 bytes SRAM
- ▶ Configurable wired interfaces: I²C master and slave, PWM, GPIO, NFC field detection

 everywhere



- ▶ Scalable security: AES 128-bit mutual authentication, 32-/64-bit password protection, 3 configurable user memory areas, ECC-based reprogrammable originality signature
- ▶ NFC silence to disable NFC interface temporarily or permanently
- ▶ Low power consumption: <10 μA standby, <0.25 μA hard power-down
- ▶ Wide temp range: -40 to +85 $^{\circ}\text{C}$
- ▶ Extensive product support (dev board, app notes, software, hands-on training)

NXP's NTAG 5 boost shrinks the NFC footprint while adding AES security, so designers can deliver compact devices for use in IoT, consumer, and industrial applications. It is an NFC Forum compliant contactless tag that delivers exceptional read range, giving tiny devices the ability to interact with the cloud and other NFC-enabled devices, including smartphones.

TINY FOOTPRINT WITH LONGER RANGE

ALM allows construction of a compact yet highly reliable antenna, creating a significantly smaller footprint without compromising the read range. When operating in ALM mode, the read range is significantly longer than when operating in passive mode.

An energy-efficient design, equipped with a hard power-down mode and a standby current of less than 10 μA , ensures long battery life.

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 protection 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 storing access data.

The NTAG 5 boost 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.

CLOUD CONNECTIVITY

With NTAG 5 boost, the device can connect to the cloud with a single tap. The connection uses an NFC Forum compliant data exchange mechanism involving SRAM to ensure highly interoperable data transfers.

NTAG 5 FAMILY SELECTION GUIDE

		NTAG 5 switch	NTAG 5 link	NTAG 5 boost
Contactless Interface	Pure passive ISO/IEC 15693	yes	yes	yes
	Active load modulation	no	no	yes
Wired Interfaces	PWM	yes	yes	yes
	GPIO	yes	yes	yes
	I ² C	Slave	no	yes
Transparent master		no	yes*	yes
Power	Energy harvesting with regulated V_{OUT}	yes, up to 30mW	yes, up to 30mW	only for passive
	Stand-by current typical at RT	<6 μA @ RT	<6 μA @ RT	<10 μA @ RT
	Hard power down current typical at RT	<0.25 μA @ RT	<0.25 μA @ RT	<0.25 μA @ RT
Security	32-/64-bit password	yes	yes	yes
	128-bit AES mutual authentication	no	yes*	yes
	Reprogrammable ECC originality signature	yes	yes	yes

*not available for NTP5312

NTAG 5 BOOST ORDERING INFORMATION

Product Type ID	12NC	Package	Packing	MOQ
NTA53321G0FUA	9353 582 84005	Bare die	Wafer on FFC	1 Wafer
NTA53321G0FTT • 4.4 × 5.0 × 1.1 mm, external leads wave solder compatible	9353 625 04431	TSSOP16	Reel 13"	2500
NTA53321G0FHK • 1.8 × 2.6 × 0.5 mm, leadless	9353 549 13471	XQFN16	Reel 7"	4000