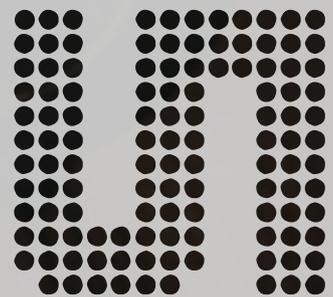# boostedNFC for wearables
www.ams.com/boostedNFC

boostedNFC - Analog front end for embedded payment & ticketing

- Unique boostedNFC technology for ultra-small antenna
- Ultra-low power and small-footprint solution
- Proven solution for payment on embedded devices

We provide innovative analog solutions to the most challenging applications in sensor and sensor interfaces, power management, and wireless.

General Description

AS3921/22 products are advanced Analog Front End with ams' unique boostedNFC technology, ideal for applications that require card functionality, but are environmentally challenged or have limited space for antenna design. This solution allows implementing a simpler design than the conventional NFC controller-based architecture, resulting in a simpler and more cost-effective solution, occupying a board footprint around one-third smaller, using fewer components and consuming five- to six times less power in standby.

boostedNFC technology from ams overcomes the major difficulties in these applications when using passive load modulation through generating a tag response with active transmission. This allows for tag-to-reader communication at coupling factors that are one order of magnitude lower than conventional methods. When compared to conventional NFC implementations ams' boostedNFC increases the useable operating volume

by up to 900 percent. ams' boostedNFC makes the consumer's experience of contactless transactions hassle free, whether for payments in shops, ticketing in metro/urban mass transit infrastructure, or access control.

Additionally, the AS3921/22 leverages ams' unique Q factor adjustment and Automatic Power Control technologies whereas Automatic Antenna Tuning is exclusively supported on the AS3922. These unique technologies give the AS3921/22 unrivalled performance in challenging, dynamic environments, which are prevalent in typical small form factor solutions, such as μSD, μSIM, nanoSIM and wearable devices.

boostedNFC products are compliant with ISO 14443 and FeliCa protocols. An onboard EEPROM allows for optimal operational settings to be selected and programmed by the customer.

Applications

boostedNFC products are ideal for NFC applications on small-footprint devices, such as wearable devices.

boostedNFC products are intended for two types of embedded applications:

- In combination with a Secure Element to allow payment, ticketing and access control on smart devices.
- In combination with NFiC™ or some other RFID tag IC to allow specific features, such as Bluetooth/Wi-Fi pairing through NFC, and communication to a microcontroller through an RF interface.

Features

- Active Boost Technology for boostedNFC
- ISO 14443 (A&B) 106 kb/s and FeliCa 212 kb/s tag with active transmission
- Automatic adjustment of output power
- Automatic Antenna Tuning (AS3922 only)
- Internal timing defined by VCO locked to reader frequency
- Low-impedance output driver with adjustable output power
- ACLB and NFC-WI interfaces for communication to contactless interface of SE
- Power supply switch for SE with low power wake-up at 12 μA
- Internal control loop to adjust output power
- Built-in EEPROM for operating option settings
- SPI interface and interrupt signal for communication with controller
- Supply voltage range from 2.7V to 3.6V

Block Diagram