ST25R300

High-performance NFC reader for payment & consumer

Most sensitive and powerful NFC reader with upgraded wake-up range, advanced features for consumer and industrial applications

ST25R300 is designed to operate in noisy environments without sacrificing design freedom. It provides strong analog performance combined with enhanced noise suppression and very high receiver sensitivity to provide reliable electro-magnetic compatibility (EMC).

This high-end NFC reader offers enhanced robustness and advanced features required for applications such as payment terminals, wireless chargers, and access control. With an extended wake-up range, easy-to-configure wave shaping, improved dynamic power output, and automatic antenna tuning, ST25R300 accelerates EMVCo platform validation and NFC Forum certification.

KEY FEATURES AND BENEFITS

- Powerful and sensitive device for EMVCo applications
- Enhanced wake-up range (LPCD)
- Improved Dynamic Power Output (DPO)
- Automatic Antenna Tuning (AAT)
- Enhanced Active Wave Shaping (AWS)
- ST 10-year longevity program

KEY APPLICATIONS

- Contactless payment terminals
- WPC Qi & NFC WLC chargers
- Ki-kitchen appliances
- Access control
- MFi applications (upon request)

Technical features

Universal protocol support

ST25R300 is a front-end device supporting all protocols required for consumer applications:

- NFC Forum NFC-A, NFC-B (ISO14443A/B up to 848kb/s) reader functionality
- NFC-F (FeliCa™ up to 424kb/s) reader functionality
- NFC-V (ISO15693) reader functionality
- NFC-A / NFC-F card emulation
- ISO18092 passive initiator and target

Advanced features

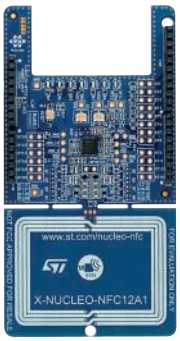
ST25R300 is a powerful NFC reader with advanced features that ensure device sensitivity, robustness, and accelerate time-to-market with an easy certification and design-in process:

- Improved wake-up range and low power card detection based on an adjustable internal inductive wake-up circuit designed to maximize detection range of a phone or card at lowest power consumption.
- Dynamic power output ensures transmitted power levels remain safe and compliant with NFC Forum limits by automatically adjusting the output power in accordance with de-tuning conditions caused by different antenna sizes and distance.
- Active wave shaping is supported by a sophisticated RFAL software library, which makes it simple to set registers that limit signal overshoots and undershoots, ensuring compliance with EMVCo and NFC Forum requirements around mandatory monotonicity tests.
- Most sensitive receiver able to suppress external noise sources from LCD screens (as on payment terminals), ensuring robust and stable performance even when noise is injected on the power supply lines. ST25R300 performs even under harsh conditions with reduced electromagnetic emissions, making it easier to achieve certification.

A rich ecosystem

ST25R300-EMVCO

STEVAL-25R300



X-NUCLEO-NFC12A1

Ease your design process and shorten your time-to-market with ST's hardware and software ecosystem.
The X-NUCLEO-NFC12A1 compatible with STM32 Nucleo boards enables you to test and evaluate the ST25R300.
The STEVAL-25R300 includes the ST25R300 with a 66 x 66 mm antenna and a user-friendly display to jumpstart your design. The ST25R300-EMVCO provides a more powerful 50 x 30 mm antenna and a comprehensive device test environment (DTE) for EMVCo Level 1 firmware control.

Product Summary

Part number	Modes	Interface	Serial Interface	Advanced features	Output Power	Ambient temperature range	Package
ST25R300	Reader & Writer, Card emulation	ISO14443A/B, ISO15693, FeliCa	SPI up to 10 Mbps	LPCD[1], DPO[2], AWS[3], AAT[4], NSR[5], IWU[6]	2.2 W	-40 to +105°C	UQFPN32 (5 x 5 mm)

Note: 1) LPCD: Low Power Card Detection, 2) DPO: Dynamic Output Power, 3) AWS: Active Wave Shaping, 4) AAT: Automatic Antenna Tuning, 5) NSR: Noise Suppression Receiver, 6) IWU: Industive Inductive Wake Up

Order code: FL2501ST25R300