

## NFC/RFID Read/Write 48-Pin VFQFPN T/R

**Manufacturer:** [STMicroelectronics, Inc](http://www.st.com)

**Package/Case:** QFN48

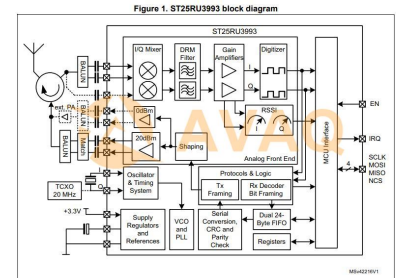
**Product Type:** RF Integrated Circuits

**RoHS:** RoHS Compliant/Lead free 

**Lifecycle:** Active

### 1.1 Block diagram

The block diagram is shown in Figure 1.



Images are for reference only

[Inquiry](#)

## General Description

The ST25RU3993 RAIN® (UHF) RFID reader device provides multi-protocol support for the 840-960 MHz UHF band compatible with ISO18000-62 & -63, ISO29143 and to GS1's EPC UHF Gen2 air interface protocol. It includes an on-chip VCO and a power amplifier, and offers a complete set of RFID features including dense reader mode (DRM) functionality and support for frequency-hopping, low-level transmission coding, low-level decode, data framing and CRC checking.

The ST25RU3993 operates at very low-power, making it suitable for use in portable and battery-powered equipment such as mobile phones.

Packaged in a 7x7 mm QFN, the ST25RU3993 is able to deliver very high sensitivity and provides high immunity against the effects of antenna reflection and self-jamming. This is critical in mobile and embedded applications, in which antenna design is often compromised by cost or size constraints. High sensitivity enables the end-products to achieve their required read range while using a simpler and cheaper antenna, thus reducing overall system cost.

Thanks to its high level of integration, the ST25RU3993 requires only an external 8-bit microcontroller to create a complete RFID reader system, thus eliminating the need for a complex RFID co-processor.

## Key Features

### Description

The ST25RU3993 is an EPC Class 1 Gen 2 RFID reader IC that implements all the relevant protocols, including ISO 18000-6C, the ISO 29143 air-interface protocol for mobile RFID interrogators, and ISO 18000-6A/B for operation in direct mode. It includes an on-chip VCO and a power amplifier, and offers a complete set of RFID features including Dense Reader Mode (DRM) functionality and support for frequencyhopping, low-level transmission coding, low-level decode, data framing and CRC checking.

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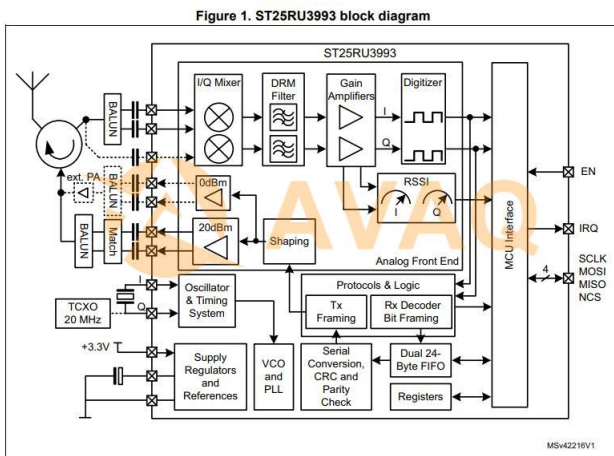
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### Features

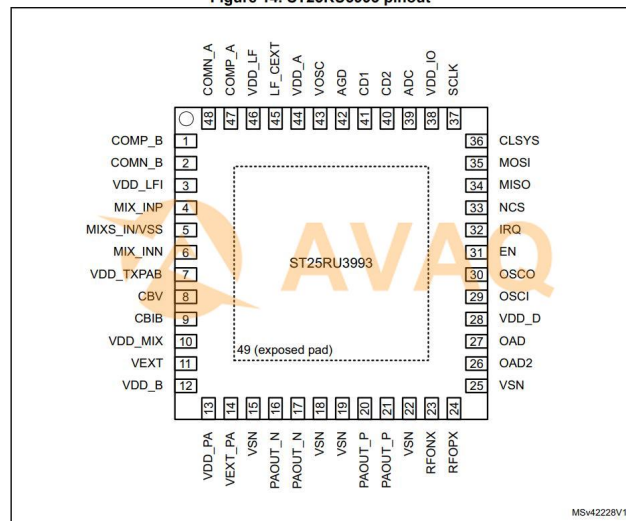
- Supply voltage range 3.0 to 3.6 V
- Limited operation possible down to 2.7 V
- Maximum PA supply voltage 4.3 V
- Peripheral I/O supply range 1.65 to 5.5 V
- Protocol support for:
  - ISO 18000-6C (EPC Class1 Gen2)
  - ISO 29143 (Air interface for mobile RFID)
  - ISO 18000-6A/B through direct mode
- DRM: 250 kHz and 320 kHz filters for M4 and M8
- Integrated supply regulators
- Frequency hopping support
- ASK or PR-ASK modulation
- Automatic I/Q selection
- Phase bit for tag tracking with 8-bit linear RSSI
- Temperature range: -40 °C to 85 °C
- 48-pin QFN (7x7x0.9 mm) package

### 1.1 Block diagram

The block diagram is shown in [Figure 1](#).



**Figure 14. ST25RU3993 pinout**



## Recommended For You

**STA5620**

STMicroelectronics, Inc  
QFN

**ST25R95-VMD5T**

STMicroelectronics, Inc  
QFN32

**STA8090FG**

STMicroelectronics, Inc  
BGA

**STA8088GA**

STMicroelectronics, Inc  
QFN

**ST95HF-VMD5T**

STMicroelectronics, Inc  
QFN32

**ST25DV16K-JFR6D3**

STMicroelectronics, Inc  
12UFDFPN

**ST25R3920-AQWT**

STMicroelectronics, Inc  
VFQFPN32

**ST25DV04K-IER6C3**

STMicroelectronics, Inc  
DNF8

**STA8089GA**

STMicroelectronics, Inc  
QFN

**STA8088FG**

STMicroelectronics, Inc  
VFQFPN56

**ST25DV04K-IER6S3**

STMicroelectronics, Inc  
SOP8

**SMA661ASTR**

STMicroelectronics, Inc  
SOT666

**ST25R3916-AQWT**

STMicroelectronics, Inc  
QFN32

**STMB2WB55CGU7**

STMicroelectronics, Inc  
UFQFN48

**ST25DV04K-JFR6D3**

STMicroelectronics, Inc  
DFPN-1