

# Extensive contactless offer for mass transit



**STMicroelectronics**

## Memories and secure MCUs for contactless tickets

**STMicroelectronics, a world leader in the development and delivery of memories and secure MCUs, offers a complete product range for mass transit applications.**

**Our portfolio leverages ST's leadership in non-volatile memories and 20 years experience in security.**

**ST products cover all needs from e-tickets to secure multi-application transport cards.**

### **e-ticket ICs key features**

- Flexible EEPROM memory density (512 bits, 2 Kbits, 4 Kbits)
  - ISO 14443 protocol
  - Two 32-bit binary countdown counters
  - Automated anti-tearing logic
  - 64-bit unique identifier
  - Anti-collision
- Internal tuning capacitor
- Write protection
- Five one-time-programmable blocks for SRixxx versions
- Full EEPROM blocks for SRT512
- Proprietary anti-clone function for SRiX4K

### **Secure MCUs key features**

- 2- to 160-Kbyte EEPROM
- ISO 14443 Type A, B, B' (Innovatron)
- Hardware cryptoprocessor: DES, AES, RSA, ECC
- Common Criteria EAL5+ and EAL6+
- EMVCo
- RSA and ECC are 2 different asymmetric cryptography methods - both are useful
- Innovatron is a company who owns IP around Type B' protocol. It is more explicit to mention Innovatron rather than B'
- Supports secure multi-applications

## RFID product table

Part number	Memory size	64-bit unique ID	Anti-collision	Security features	32-bit countdown counters	Package
<b>ISO 14443 short-range/proximity</b>						
SRI512	512-bit EEPROM	•	•		2	Sawn bumped wafer
SRT512	512-bit EEPROM	•	•		2	Sawn bumped wafer
SRI2K	2-Kbit EEPROM	•	•		2	Sawn bumped wafer
SRIx4K	4-Kbit EEPROM	•	•	Anti-clone function	2	Sawn bumped wafer
SRI4K	4-Kbit EEPROM	•	•		2	Sawn bumped wafer

## Secure MCUs product table

<b>ST23 families based on embedded EEPROM</b>						
Part number	EEPROM (Kbytes)	ROM (Kbytes)	RAM (Kbytes)	Cryptography	Interface	Process
ST23ZR02	2	96	4	EDES, AES	ISO 7816, IART, RF ISO 14443 A/B/B'	90 nm
ST23ZR04	4	96	4	EDES, AES	ISO 7816, IART, RF ISO 14443 A/B/B'	90 nm
ST23ZR08	8	96	4	EDES, AES	ISO 7816, IART, RF ISO 14443 A/B/B'	90 nm
ST23YR18	18	230	4+2	EDES, AES, RSA, ECC	ISO 7816, IART, RF ISO 14443 B/B'	0.13 µm
ST23YR80	80	390	6+2	EDES, AES, RSA, ECC	ISO 7816, IART, RF ISO 14443 B	0.13 µm
ST23R160	160	396	6+2	EDES, AES, RSA, ECC	ISO 7816, IART, RF ISO 14443 B/B'	0.13 µm

## Packaging

Our contactless-ticket ICs are available in the two main optimized form factors: plain or sawn-and-bumped wafers. ST has the unique ability to offer smartcard ICs in wafer form factors and various micromodules. These are either contactless modules or dual modules and combine integration and security. All packages are ECOPACK versions, compliant with the European directive 2002/95/EC relating to restrictions on hazardous substances (RoHS).



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