



RA12
RE31
RE41



13.56 MHZ RFID/NFC READER ICs

Silicon Craft's 13.56MHz RFID reader/writer ICs are single-chip ASICs designed. Our products adhere to major global standards, including ISO/IEC 14443A/B, ISO/IEC 15693, and JIS-X-6319-4, ensuring compatibility and reliability across diverse applications.

The communication speed can reach up to 848 kbps. Our RFID/NFC reader/writer ICs deliver the best performance while consuming very low power, down to 0.6 μ A* in power-down mode.

*RA12 only

HIGHLIGHT FEATURES

- Support Standard HF RFID Protocols
 - ISO/IEC 14443A
 - ISO/IEC 14443B
 - ISO/IEC 15693
 - JIS-X-6319-4
- SPI Interface
- Power-Down Mode Consumption:
 - 0.6 μ A (RA12)
 - 1.0 μ A (RE31, RE41)
- Low-Power Card Detection Mode Consumption:
 - 4.7 μ A (RA12)

APPLICATIONS

- Secure Access Control
- Digital Door Lock
- Handheld or Desktop RFID Reader
- Smart Toys
- Electricity / Gas Metering

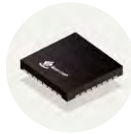


HF READER ICs FAMILY



RE31

ISO/IEC 14443A
ISO/IEC 14443B
ISO/IEC 15693
Support 7V TVDD



RE41

ISO/IEC 14443A
ISO/IEC 14443B
ISO/IEC 15693
JIS-X-6319-4
Support 7V TVDD



RA12

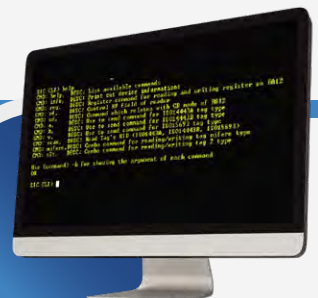
ISO/IEC 14443A
ISO/IEC 14443B
ISO/IEC 15693
with Low-Power
Card Detection

SPECIFICATION TABLE

SPECIFICATION	RE31	RE41	RA12
Ordering Part Number	PI5AVQ07P20UT3101E1	PI5AVQ07P20UT3201E1	PI6BVQL5P60UT1201T1
Protocol			
ISO/IEC 14443A, up to 848 kbps (NFC Type 1,2,4A Tag)	●	●	●
ISO/IEC 14443B, up to 848 kbps (NFC Type 4B Tag)	●	●	●
ISO/IEC 15693, 1 and 2 Subcarrier (NFC Type 5 Tag)	●	●	●
JIS-X-6319-4 (NFC Type 3 Tag)	Unsecured Memory Only (Need MCU to Decoder)	Unsecured Memory Only (On-Chip HW Decoder)	Unsecured Memory Only (Need MCU to Decoder)
Operating Condition			
Receiver Voltage	2.7 - 3.6 V		
Transmitter Voltage	2.7-7.0 V	2.7-7.0 V	2.7-5.5 V
Operating Temperature	-40 - 85 °C		
Maximum Driving Current	300 mA @ 5 V TVDD 400 mA @ 7 V TVDD	300 mA @ 5 V TVDD 400 mA @ 7 V TVDD	250 mA @ 5 V TVDD
Other Features			
Interface	SPI		
EEPROM	256 bytes	256 bytes	-
IRQ Pin	●	●	●
Low-Power Card Detection Mode	-	-	●
Low-Power Consumption on Power-Down Mode	1 µA	1 µA	0.6 µA
Packages	QFN32 (5×5)	QFN32 (5×5)	QFN24 (4×4)

DEVELOPMENT KITS

- RA12 Development Kit
- RE31 Development Kit
- RE41 Development Kit



SUPPORT MATERIALS

- Firmware Source Code with Command-Line Instruction via UART
- Demo PC Software (Windows Based)
- Reference PCB Design and Schematic Diagram
- Reference Antenna and Antenna Design Tool