



复旦微电子

***FM12CD32***  
***DUAL INTERFACE CPU CARD CHIP***

**Datasheet**

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**Apr.2018**



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# 1 Product Overview

## 1.1 Description

FM12CD32 is a dual interface CPU card chip designed by Fudan Microelectronics Group Co.,Ltd. It supports both ISO7816 and ISO14443A protocol.

FM12CD32 is targeting both contact-based and contactless-based smart card applications such like Electronics Wallet, existing Public Traffic RF Card, banking card based on PBOC Standard, PSAM card.

## 1.2 Features

- **Interface Protocol**
  - ISO/IEC 7816 contact interface
  - ISO/IEC 14443-A contactless interface
- **Crypto Algorithms**
  - PAE co-processor (supports RSA、ECC and SM2)
  - Triple-DES co-processor
  - SSF33 co-processor
  - SM1 co-processor
  - SM4 co-processor
  - HASH co-processor (supports SHA-1、SM3)
- **Memory**
  - ROM: 128K Byte
  - EEPROM: 40K Byte
  - RAM: 9.3K Byte
- **Security Features**
  - 32bit True Random Number Generator
  - Security sensors
  - Memory security
    - ◆ Data encryption
    - ◆ Address scramble
    - ◆ Memory data verify
  - Active shielding
  - SPA/DPA/DEMA/DFA attack resistance
  - Security layout
- **EEPROM Reliability**
  - Endurance: 500,000 cycles minimum
  - Data retention time: 25 years minimum

## 2 Functional diagram

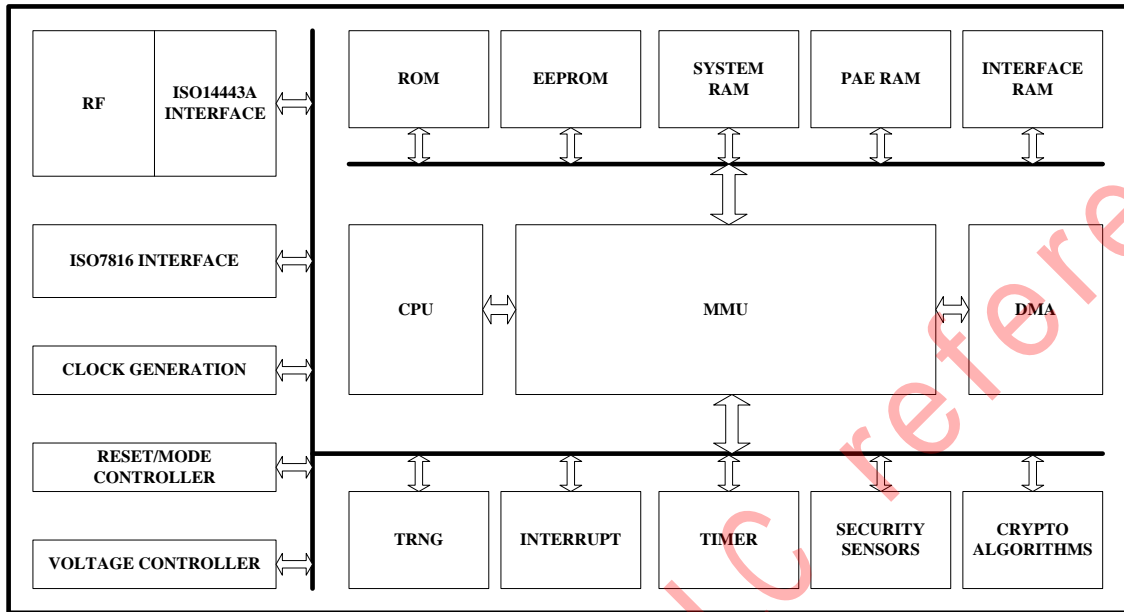


Figure 2-1: FM12CD32 Diagram

## 3 Electrical characteristics

### 3.1 DC characteristics

- Supply Voltage (Support ISO7816 Class A/B): 2.7V ~5.5V
- Supply Current @ Cock-Stop Mode (5.5V): 200uA@5.5V
- Max Supply Current (RSA@30MHz): 10mA

### 3.2 AC characteristics

- ISO14443A Data Rates: 106K~848KBps
- ISO7816 Data Rates: 9600~115200bps
- Capacitance (LA、LB): 16~21pF



## Revision history

Version	Publication date	Pages	Paragraph or Illustration	Revise Description
1.0	Apr.2018	6		Initial Release.

only for HALAL P.LLC reference



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