



复旦微电子

FM11NC08

NFC Channel Chip

Datasheet

2014.02



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1 Product Overview

1.1 Introduction

The FM11NC08 is an ISO/IEC14443-A compliant NFC channel chip designed by Shanghai Fudan Microelectronics, which contains two sub-types: FM11NC08S with SPI interface and FM11NC08I with I2C interface.

- Works as NFC interface to offer contactless communication ability for regular MCU.
- Embedded with 8K bits EEPROM to support non-real-time data exchange between MCU and NFC devices.
- Energy Harvesting ability to harvest energy from RF field for non-battery applications such as sensor-networks or some low power applications.
- NFC FORUM Type4 Tag function emulation with MCU in other devices.

1.2 Features

- ISO/IEC14443-A compatible
- 8K bits EEPROM, 7200bits available for user application
- 3 data exchange mode: Level3, Level4 or AFE transparent
- 7 bytes UID, anti-collision cascade level 2
- Supported RF data rates: 106K, 212K, 424K, 848K
- 16bit CRC for data integrity
- On-chip 50pF resonant capacitor
- Zero standby power consumption for contact interface
- Wide Operating voltage range for contact interface
- Contact interface: SPI or I2C
- Max data rate for I2C: 1Mbps
- Max data rate for SPI: 10Mbps
- Configurable interrupt output
- 32 bytes FIFO
- Energy harvesting supported with configurable output voltage

1.3 Block diagram

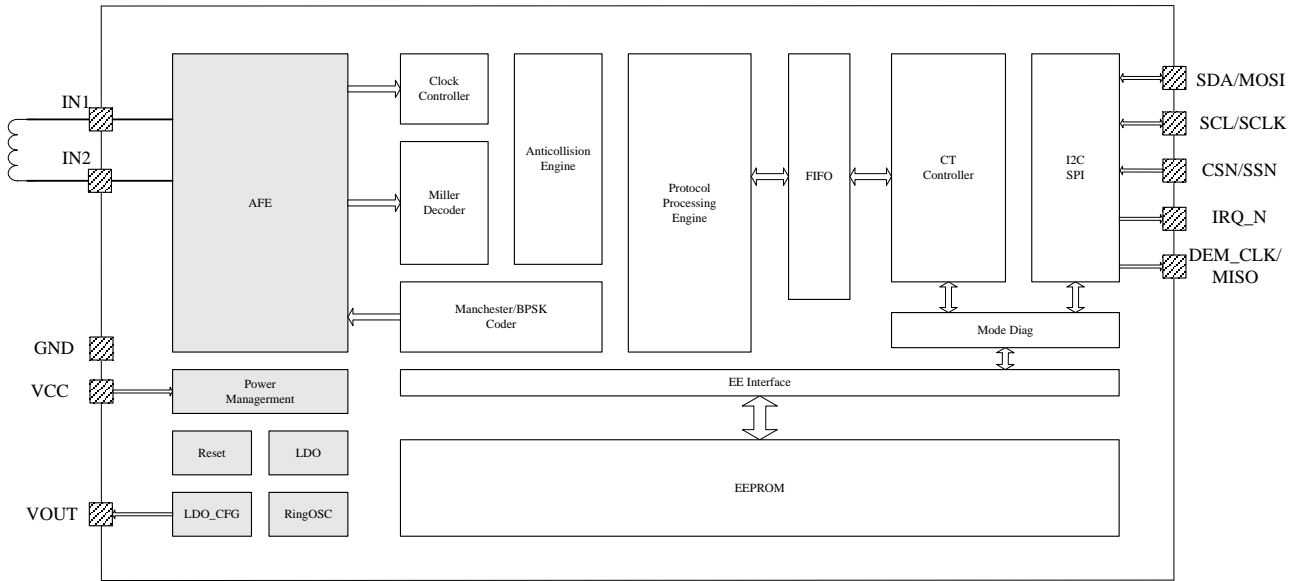


Figure 1-1 FM11NC08 Block Diagram

1.4 Pinning information

1.4.1 DFN10 Pinning Assignment (Top View) for FM11NC08S

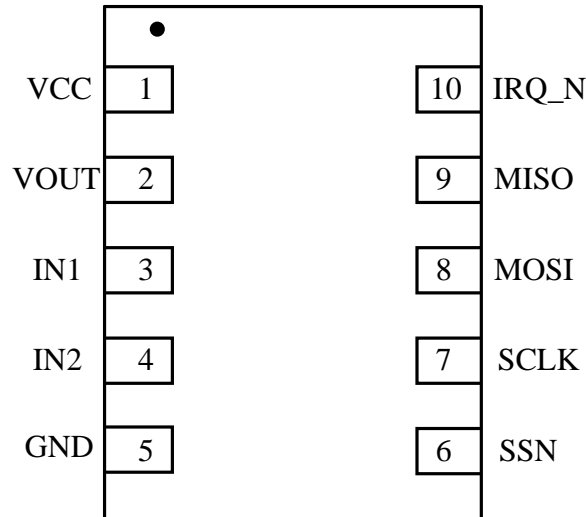


Figure 1-2 FM11NC08S DFN10 Pinning assignment

1.4.2 Pin description for FM11NC08S

Pin No.	Pin Name	Type	Description
1	VCC	PWR	contact interface power supply
2	VOUT	ANA	regulated voltage output for energy harvesting

Pin No.	Pin Name	Type	Description
3	IN1	ANA	RF antenna pin
4	IN2	ANA	RF antenna pin
5	GND	GND	chip ground
6	SSN	DI	SPI chip-selection, low-effective
7	SCLK	DI	SPI clock input
8	MOSI	DIO	SPI slave data input, RF backscatter data input under AFE transparent mode
9	MISO	DO	SPI slave data output, RF recovery clock output under AFE transparent mode
10	IRQ_N	OD	interrupt output, low-effective. RF demodulated data output under AFE transparent mode

Table 1-1 FM11NC08S DFN10 PIN description

1.4.3 DFN10 Pinning Assignment (Top View) for FM11NC08I

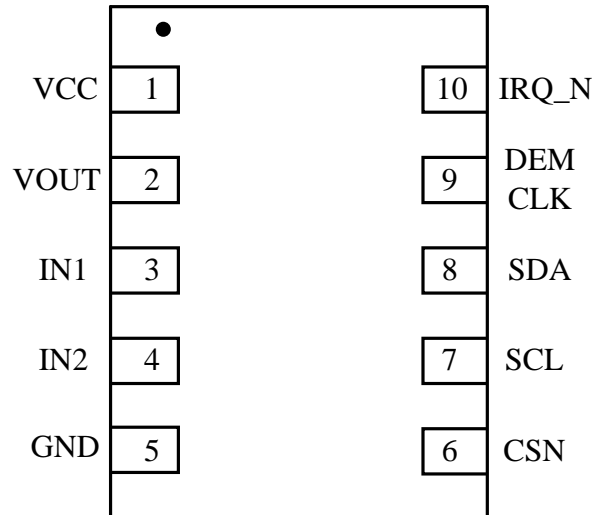


Figure 1-3 FM11NC08I DFN10 Pinning assignment

1.4.4 Pin description for FM11NC08S

Pin No.	Pin Name	Type	Description
1	VCC	PWR	contact interface power supply
2	VOUT	ANA	regulated voltage output for energy harvesting
3	IN1	ANA	RF antenna pin
4	IN2	ANA	RF antenna pin
5	GND	GND	chip ground
6	CSN	DI	I2C chip-selection, low-effective
7	SCL	DI	I2C clock input
8	SDA	DIO	I2C data, RF backscatter data input under AFE transparent mode
9	DEMCLK	DO	RF recovery clock output under AFE transparent mode, high-Z for other modes
10	IRQ_N	OD	interrupt output, low-effective. RF demodulated data output under AFE transparent mode

Table 1-2 FM11NC08I DFN10 PIN description



2 Ordering information

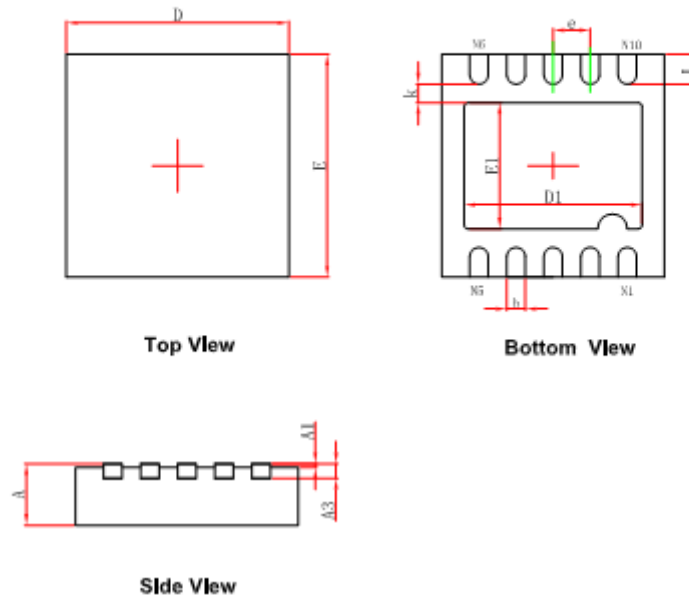
Device number	Package Name	Packing
FM11NC08S-DN-T-G	DFN10	Tape and Reel

	<u>FM</u>	<u>11NC</u>	<u>08</u>	<u>S</u>	<u>-XXX</u>	<u>-C</u>	<u>-H</u>
Company name prefix	FM=Shanghai Fudan Microelectronics						
Product family		11NC=NFC Channel compliant to ISO/IEC14443					
Product Memory			08=approximate 8k bits EEPROM				
Product version				S=SPI I=I2C			
Package					DN=DFN10		
Wrap						T= Tape and Reel U= Tube	
HSF code							G=ROHS Compliant, Halogen-free, Antimony-free

3 Package outline

3.1 DFN10

DFNWB3×3-10L (P0, 50T0, 75/0, 85) PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700/0.800	0.800/0.900	0.028/0.031	0.031/0.035
A1	0.000	0.050	0.000	0.002
A3	0.203REF.		0.008REF.	
D	2.900	3.100	0.114	0.122
E	2.900	3.100	0.114	0.122
D1	2.300	2.500	0.091	0.098
E1	1.600	1.800	0.063	0.071
k	0.200MIN.		0.008MIN.	
b	0.180	0.300	0.007	0.012
e	0.500TYP.		0.020TYP.	
L	0.300	0.500	0.012	0.020

Figure 3-1 FM11NC08 DFN10 Outline



Revision history

Version	Publication date	Pages	Paragraph or Illustration	Revise Description
1.0	Feb.2014	10		Initial Release.



Sales and Service

Shanghai Fudan Microelectronics Group Co., Ltd.

Address: Bldg No. 4, 127 Guotai Rd,
Shanghai City China.

Postcode: 200433

Tel: (86-021) 6565 5050

Fax: (86-021) 6565 9115

Shanghai Fudan Microelectronics (HK) Co., Ltd.

Address: Unit 506, 5/F., East Ocean Centre, 98 Granville Road, Tsimshatsui East, Kowloon, Hong Kong

Tel: (852) 2116 3288 2116 3338

Fax: (852) 2116 0882

Beijing Office

Address: Room 423, Bldg B, Gehua Building,
1 QingLong Hutong, Dongzhimen Alley north Street,
Dongcheng District, Beijing City, China.

Postcode: 100007

Tel: (86-010) 8418 6608

Fax: (86-010) 8418 6211

Shenzhen Office

Address: Room.1301, Century Bldg, No. 4002, Shengtingyuan Hotel, Huaqiang Rd (North),
Shenzhen City, China.

Postcode: 518028

Tel: (86-0755) 8335 0911 8335 1011 8335 2011 8335 0611

Fax: (86-0755) 8335 9011

Shanghai Fudan Microelectronics (HK) Ltd Taiwan Representative Office

Address: Unit 1225, 12F., No 252, Sec.1 Neihu Rd., Neihu Dist., Taipei City 114, Taiwan

Tel : (886-2) 7721 1889

Fax: (886-2) 7722 3888

Shanghai Fudan Microelectronics (HK) Ltd Singapore Representative Office

Address : 237, Alexandra Road, #07-01 The Alexcier, Singapore 159929

Tel : (65) 6472 3688

Fax: (65) 6472 3669

Shanghai Fudan Microelectronics Group Co., Ltd NA Office

Address :2490 W. Ray Road Suite#2

Chandler, AZ 85224 USA

Tel : (480) 857-6500 ext 18

Web Site: <http://www.fmsk.com/>