



复旦微电子

FM11NC08

NFC Channel Chip

Datasheet

Sep.2020



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Contents

CONTENTS	3
1 PRODUCT OVERVIEW.....	4
1.1 INTRODUCTION.....	4
1.2 FEATURES.....	4
1.3 BLOCK DIAGRAM.....	5
1.4 PINNING INFORMATION.....	5
1.4.1 <i>DFN10 Pinning Assignment (Top View) for FM11NC08S</i>	5
1.4.2 <i>Pin description for FM11NC08S</i>	5
1.4.3 <i>DFN10 Pinning Assignment (Top View) for FM11NC08I</i>	6
1.4.4 <i>Pin description for FM11NC08S</i>	6
2 ORDERING INFORMATION	7
3 PACKAGE OUTLINE.....	8
3.1 DFN10	8
REVISION HISTORY.....	9
SALES AND SERVICE	10



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

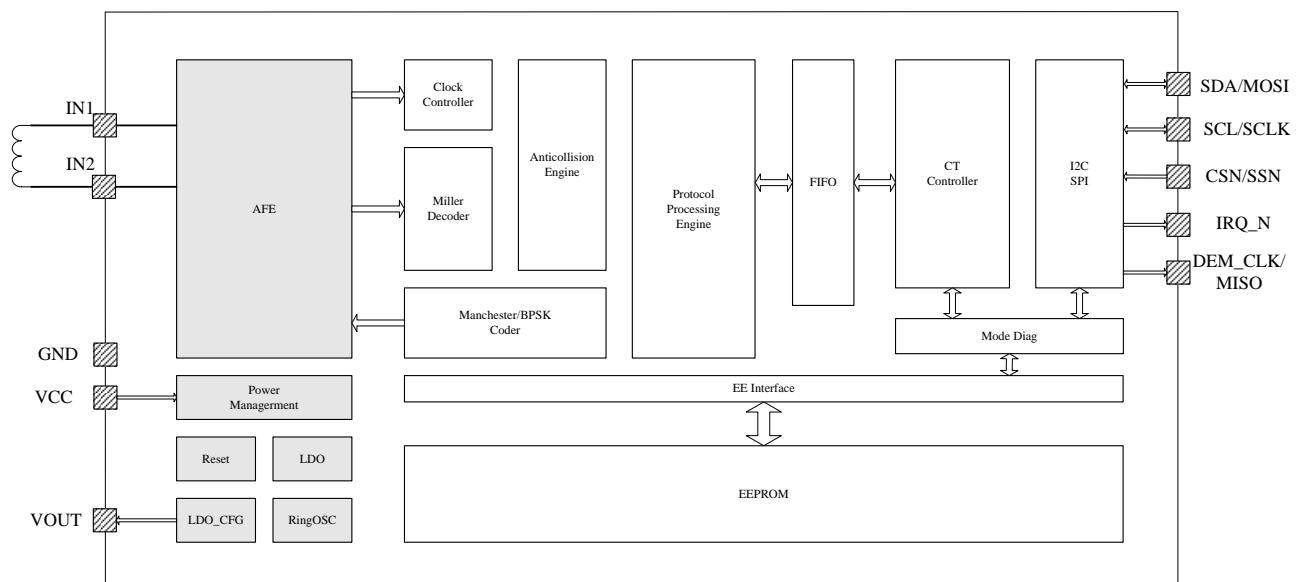


Figure 1-1 FM11NC08 Block Diagram

1.4 Pinning information

1.4.1 DFN10 Pinning Assignment (Top View) for FM11NC08S

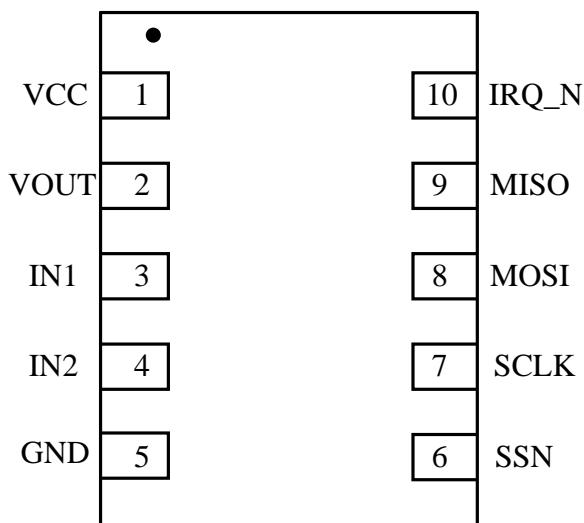


Figure 1-2 FM11NC08S DFN10 Pinning assignment

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

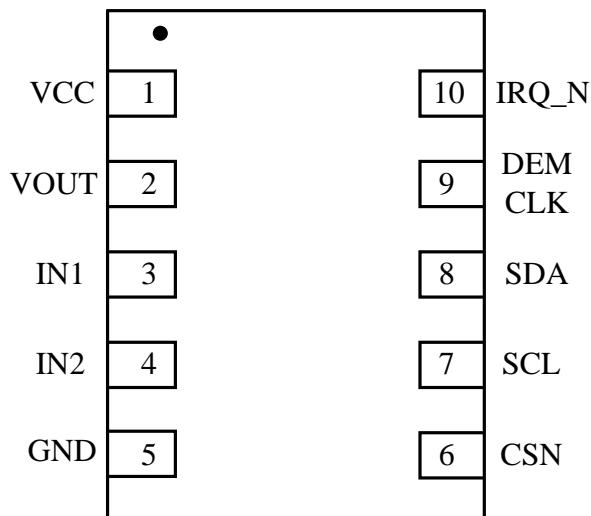


Figure 1-3 FM11NC08I DFN10 Pinning assignment

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

FM 11NC 08 S -XXX -C -H

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

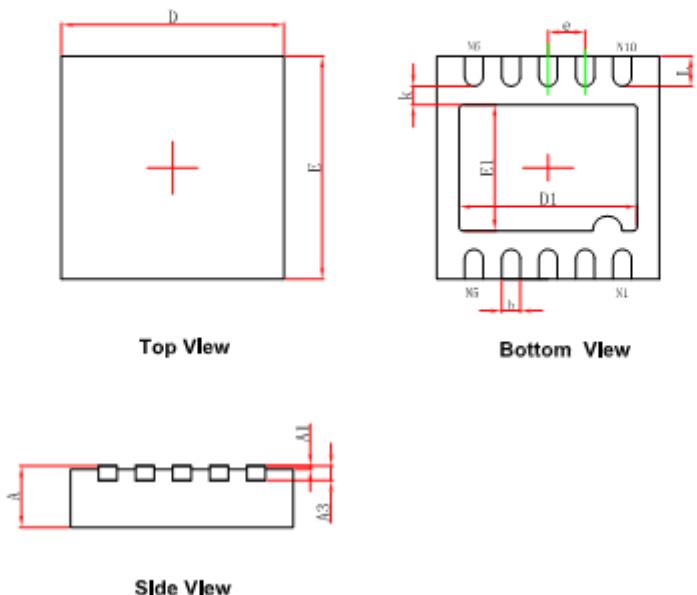
HSF code

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.
1.1	Sep.2020	10		Update the sales information in the last page



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.2306-2308, Building A7, Chuangzhi Cloud City, Liuxian Avenue, Xili Street, Nanshan District, Shenzhen, China.

Postcode: 518000

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 : 47 Kallang Pudding Road, #08-06,The Crescent @ Kallang ,Singapore 349318

Tel : (65) 6443 0860

Fax: (65) 6443 1215

Fudan Microelectronics (USA) Inc.

Address : 97 E Brokaw Road, Suite 320,San Jose,CA 95112

Tel : (+1)408-335-6936

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