



复旦微电子

FM11NT020

***NFC Forum Type2 Tag compliant IC with
232 bytes user memory and field detection***

Datasheet

Apr.2014



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1 Product Overview

1.1 Introduction

FM11NT020 is primarily designed for NFC Forum Type 2 Tag applications in electronics (i.e. connection handover, Bluetooth simple pairing, Wi-Fi Protected set-up, device authentication, gaming and others). Please consult Fudan Micro Electronics Company for more documents.

1.2 Features

1.2.1 RF Interface

- ISO/IEC 14443A
- Contactless transmission of data and supply energy (no battery needed)
- Operating distance: up to 100 mm (depending on various parameters as e.g. field strength and antenna geometry)
- Operating frequency: 13.56 MHz
- Fast data transfer: 106 Kbit/s
- High data integrity: 16-bit CRC, parity, bit coding, bit counting
- True anticollision
- 7 byte serial number (cascade level 2 according to ISO/IEC 14443-3)

1.2.2 EEPROM

- 252 bytes of total memory, divided in 63 pages (4 bytes each)
- 232 bytes of user r/w memory area, divided in 58 pages (4 bytes each)
- Field programmable read-only locking function per page of the first 16 pages and per 2 pages of rest of the memory
- 32-bit user definable One-Time Programmable (OTP) area
- Data retention of 10 years
- Write endurance 100000 cycles

1.2.3 NFC Forum Tag 2 Type compliance

FM11NT020 IC provides full compliance to the NFC Forum Tag 2 Type technical specification and enables NDEF data structure configurations .

1.2.4 Field detection

FM11NT020 features an additional RF field detection functionality. The corresponding output signal can be used as interrupt source to e.g. wake up an embedded microcontroller or trigger further actions. Typical applications are Bluetooth and Wi-Fi pairing.

1.2.5 Security

- Anti-cloning support by unique 7-byte serial number for each device, UID is unchangeable.
- Field programmable read-only locking function per page of the first 16 pages and per 2 pages of rest of the memory.

1.2.6 Cascaded UID

The anticollision function is based on an IC individual serial number called Unique Identifier. The UID of the FM11NT020 is 7 bytes long and supports cascade level 2 according to ISO/IEC 14443-3.

1.2.7 Anticollision

An intelligent anticollision function according to ISO/IEC 14443 allows to operate more than one card in the field simultaneously. The anticollision algorithm selects each card individually and ensures that the execution of a transaction with a selected card is performed correctly without data corruption resulting from other cards in the field.

1.3 Block diagram

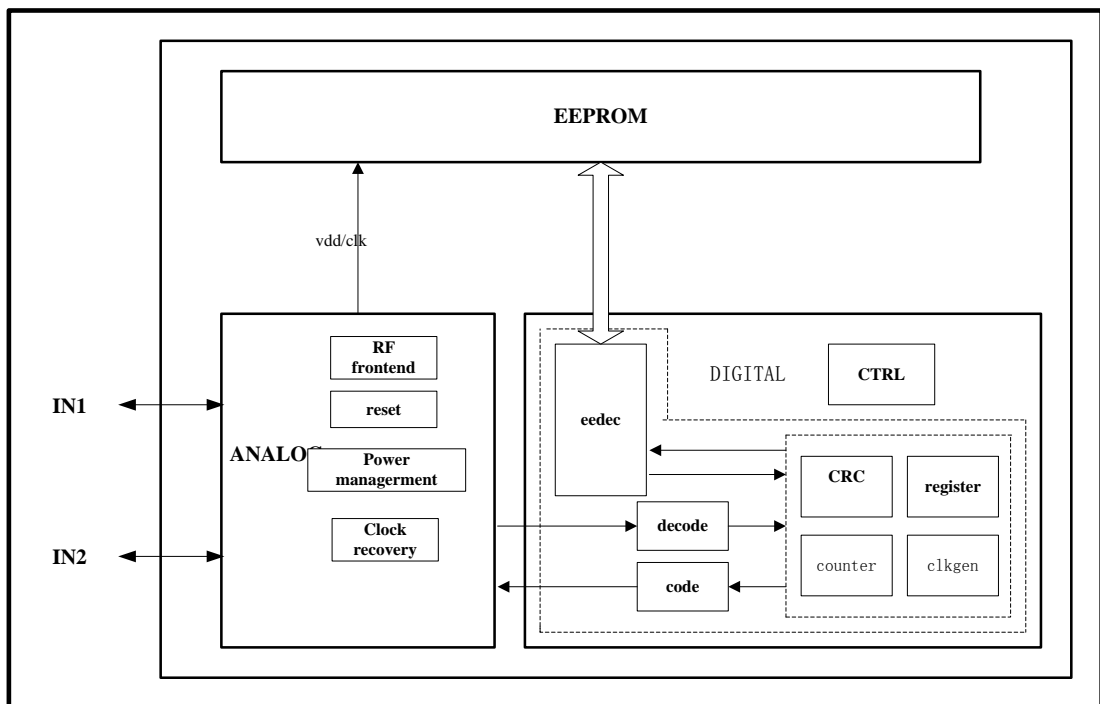


Fig 1-1 FM11NT020 Block diagram

1.4 Pinning information

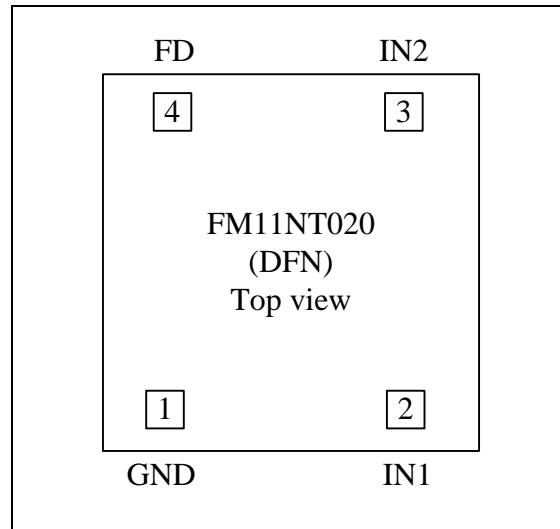


Fig 1-2 Pin configuration for DFNWB1.2X1.6-4L

Pin number	Symbol	Description
1	GND	GND connection
2	IN1	Antenna connection IN1
3	IN2	Antenna connection IN2
4	FD	RF Field Detect connection

Table 1-1 Pin description of the DFNWB1.2X1.6-4L package

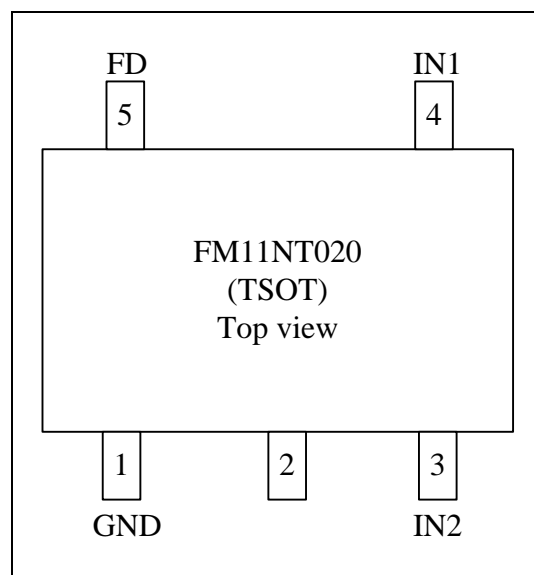


Fig 1-3 Pin configuration for TSOT23-5L



Pin number	Symbol	Description
1	GND	GND connection
2		Dump pin
3	IN2	Antenna connection IN2
4	IN1	Antenna connection IN1
5	FD	RF Field Detect connection

Table 1-2 Pin description of the TSOT23-5L



2 Ordering information

Type Number	Package Name	Packing
FM11NT020-DNB-T-G	DFN4	Tape and Reel
FM11NT020-ST-T-G	TSOT23-5	Tape and Reel

FM 11NT 02 0 -XXX -C -H

Company Name

FM=Shanghai Fudan Microelectronics Group Company Limited

Product Family Name

11NT=NFC TAG Product

Memory

02= about 2K bit EEPROM

Generation number

0=The first generation

Package

DNB= DFNWB1.2x1.6-4L

ST=TSOT23-5L

Packing

T= Tape and Reel

U= Tube

HSF code

G=ROHS Compliant, Halogen-free, Antimony-free

3 Package outline

3.1 DFN4

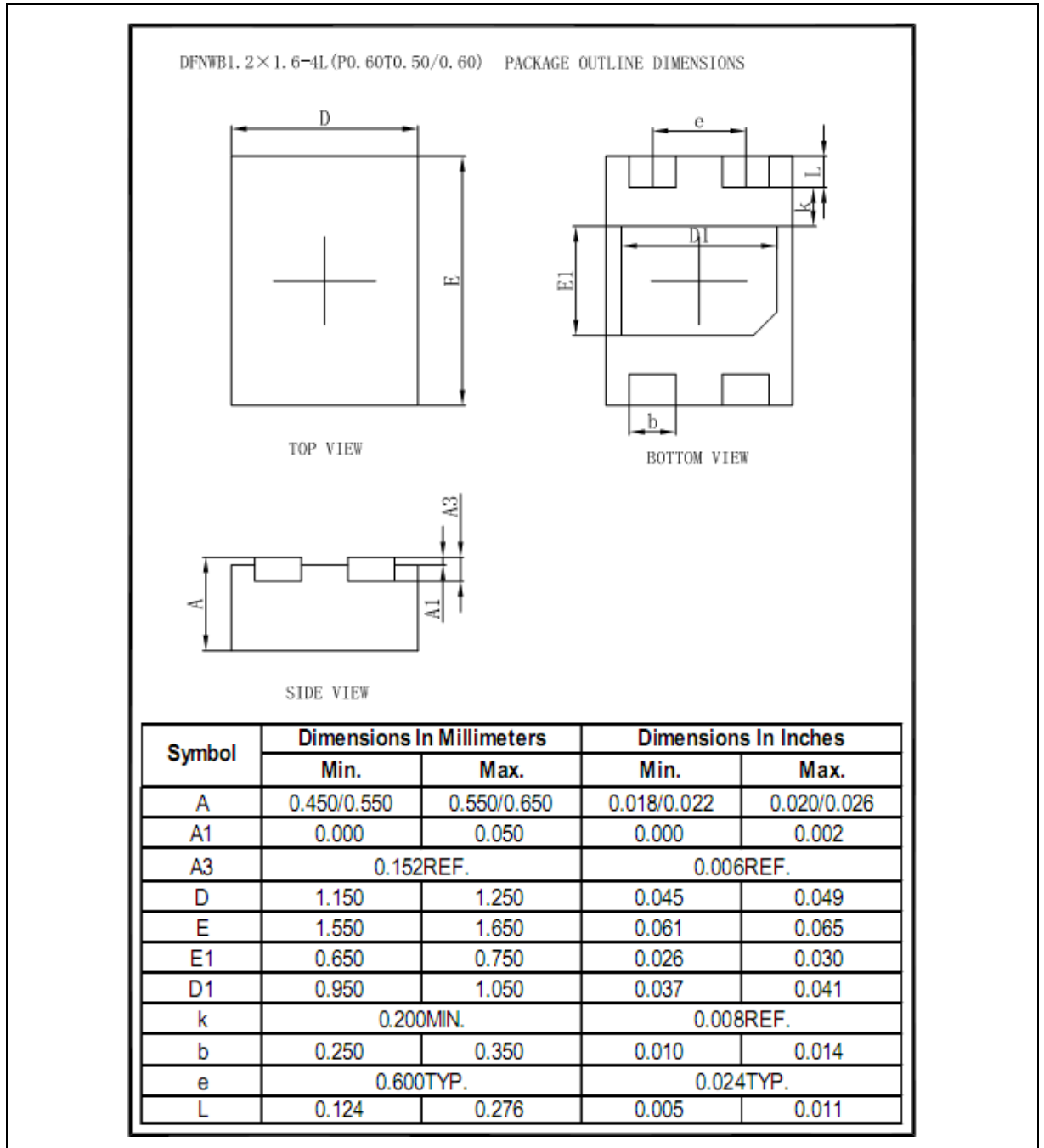
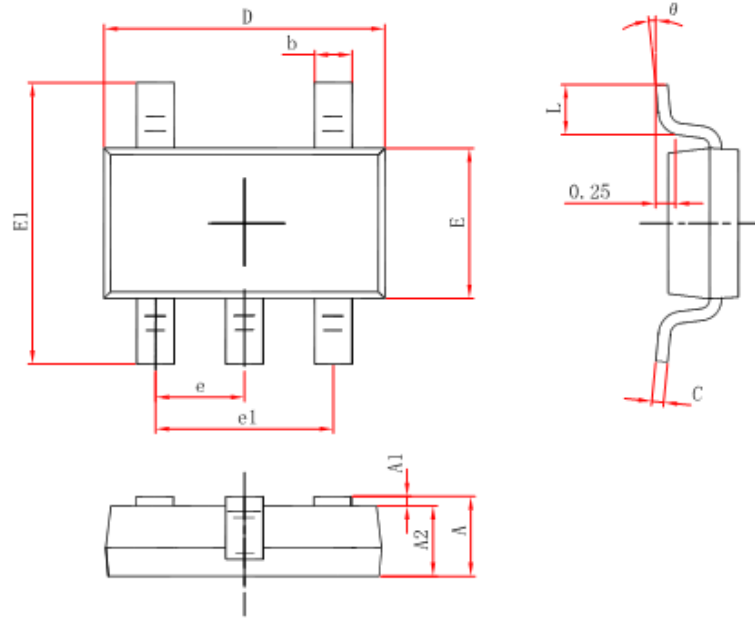


Fig 3-1 Package outline DFN4

3.2 TSOT

TSOT-23-5L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b	0.350	0.500	0.014	0.020
c	0.080	0.200	0.003	0.008
D	2.820	3.020	0.111	0.119
E	1.600	1.700	0.063	0.067
E1	2.650	2.950	0.104	0.116
e	0.95 (BSC)		0.037(BSC)	
e1	1.90 (BSC)		0.075(BSC)	
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Fig 3-1 Package outline TSOT23-5L



Revision history

Version	Publication date	Pages	Paragraph or Illustration	Revise Description
1.0	Apr.2014	12		Initial release



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