

## **NFC Forum Type 2 Tag compliant IC with 144 bytes user memory and field detection**

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## 1. Features

- Conform to ISO/IEC14443A standard
- Contactless transmission of data and supply energy
- Up to 100mm operation distance
- 13.56MHz operating frequency
- 106 kbit/s data transfer rate
- 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)
- 168 bytes of total memory, divided in 42 pages (4 bytes each)
- 144 bytes of user r/w memory area, divided in 36 pages (4 bytes each)
- Field programmable read-only locking function per page 16 pages (64 bytes) of the memory
- Field programmable read-only locking function per block (2 pages)
- 32-bit user definable One-Time Programmable (OTP) area
- 16-bit counter
- 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.
- Data retention > 25 years
- Write endurance > 500,000 cycle
- Operation temperature range -25 °C to +70 °C

## 2. General Description

GT23SC4499C is NFC Forum Type 2 Tag compliant IC - to be used with NFC enabled devices according to NFC Forum technical specifications, according to NFC Forum recommendations or Proximity Coupling Devices (PCD), according to ISO/IEC 14443A. The communication layer (RF Interface) complies to parts 2 and 3 of the ISO/IEC 14443A standard. The GT23SC4499C 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).

### 3. Block diagram

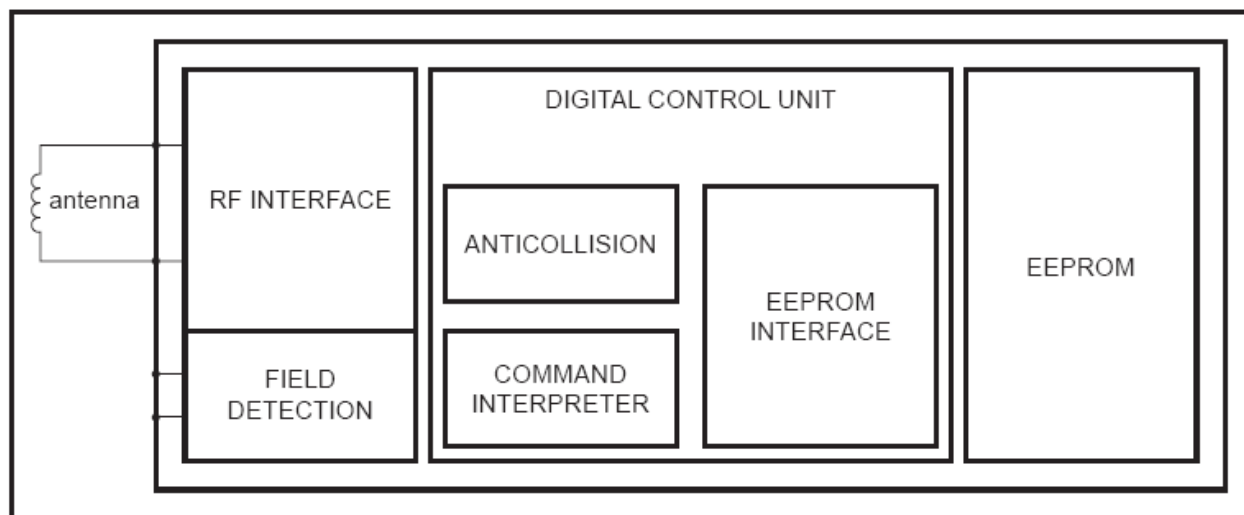


Fig.1 Block Diagram

### 4. Pinning information

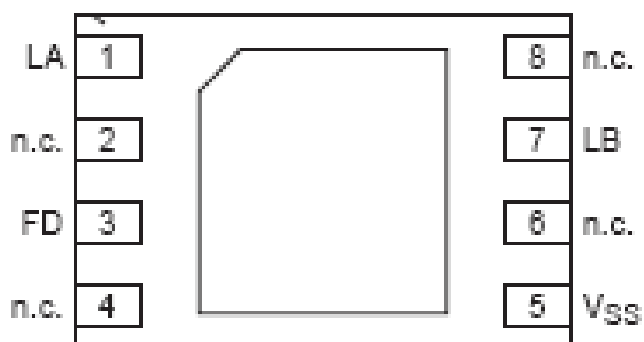


Fig.2 Pin configuration for 8pin UDFN

Table 1 Pin description of 8 pin UDFN package

Pin	Symbol	Description
pin1	LA	Antenna connection LA
pin2	n.c	not connected
pin3	FD	RF Filed Detect connection
pin4	n.c	not connected
pin5	Vss	GND connection
pin6	n.c	not connected
pin7	LB	Antenna connection LB
pin8	n.c	not connected

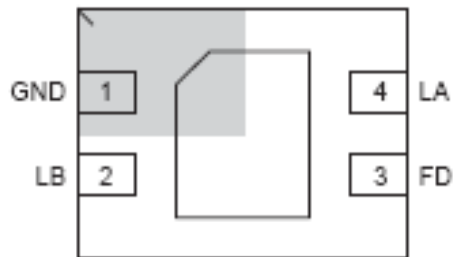


Fig.3 Pin configuration for 4pin XDFN

Table 2 Pin description of 4 pin XDFN package

Pin	Symbol	Description
pin1	GND	Ground
pin2	LB	Antenna connection LB
pin3	FD	RF Filed Detect connection
pin4	LA	Antenna connection LA

## 5. Memory Organization and Initialization

Table 3 Memory organization

Page address		byte number			
decimal	hex	0	1	2	3
0	00h	UID0	UID1	UID2	UID0^UID1^UID2^88h
1	01h	UID3	UID4	UID5	UID6
2	02h	UID3^UID4^UID5^UID6	internal	00h	00h
3	03h	E1h	10h	12h	00h
4	04h	01h	03h	A0h	10h
5	05h	44h	03h	00h	Feh
6 to 39	06h to 27h	00h	00h	00h	00h
40	28h	00h	00h	RFU	RFU
41	29h	00h	00h	RFU	RFU

## 6. Limiting Values

Table 4 Limiting Values

PARAMETER	CONDITIONS	Min	Max	Unit
Input current		-	30	mA
Load current	50 pF version	-	10	μA
Storage temperature		-55	+125	°C
Operation temperature		-25	+70	°C
ESD	Measured on pin LA-LB	2	-	kV

## 7. Electrical Characteristics

Table 5 Electrical Characteristics

PARAMETER	CONDITIONS	Min	Typ	Max
Operating frequency		-	13.56MHz	-
Input capacitance	50 pF version	44 pF	50 pF	56 pF
Output voltage	FD pin	1.2 V	1.8 V	2.0 V
Write EE cycle time			4 ms	
EE retention time	Operation temperature 22 °C	25 year	-	-
EE write endurance	Operation temperature 22 °C	250000 cycle	-	-

### 8. Package outline

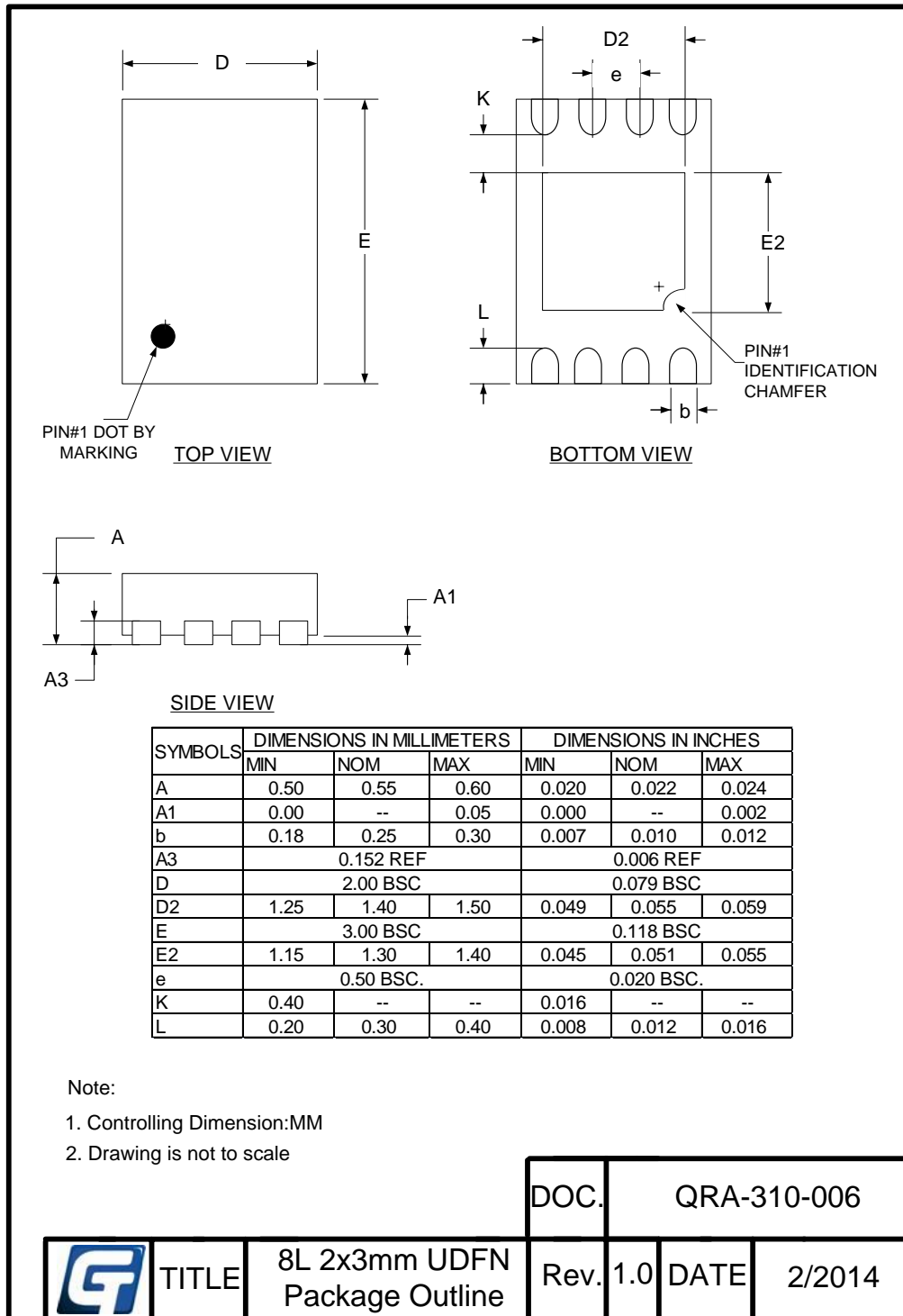


Fig.4 Package outline of 8pin UDFN

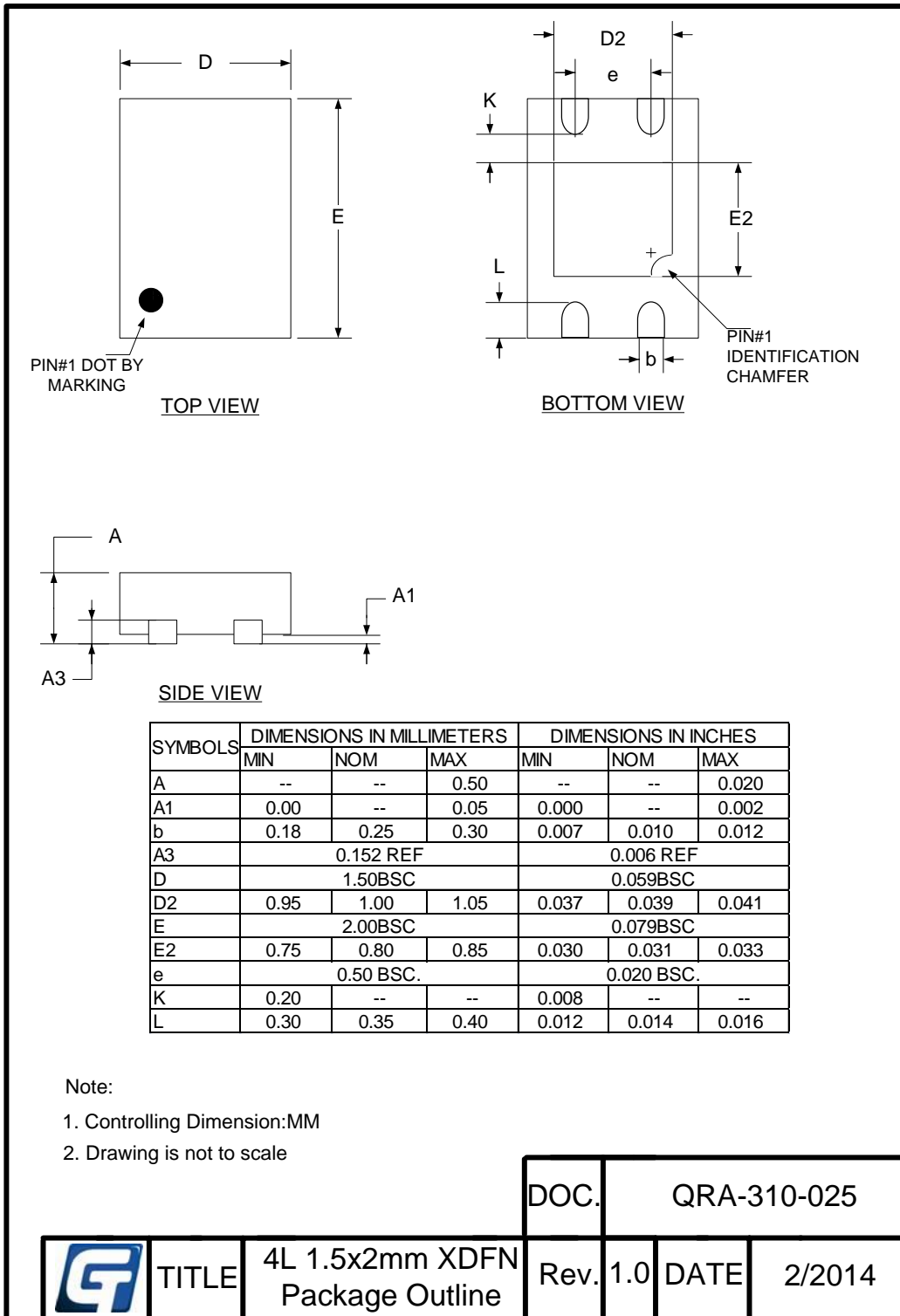


Fig.5 Package outline of 4pin XDFN

## 9. Ordering Information

**Part Number**

GT23SC4499C-2UDLI

GT23SC4499C-2XD4LI

**Package**

8pin UDFN

4pin XDFN

## 10. Revision History

<i>REV</i>	<i>History</i>	<i>Page</i>	<i>Date</i>
1.0	Initial Version	--	2/15/2014
1.1	Update with NDEF data format initialization		6/18/2014

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