

## 192 bytes EEPROM Memory Contactless Smart Card Conform to ISO/IEC 14443A Standard

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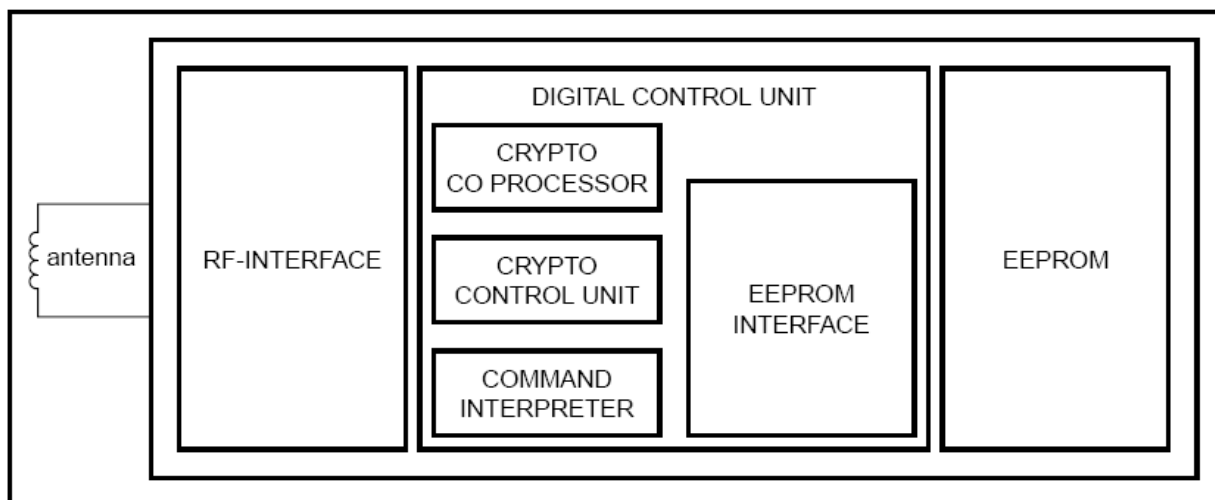
## 1. Features

- Conform to ISO/IEC 14443A 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)
- 192 bytes total memory, divided in 48 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 for first 512-bit
- Field programmable read-only locking function per block
- 32-bit user definable One-Time Programmable (OTP) area
- 16-bit counter
- 3DES Authentication
- Data retention > 25 years
- Write endurance > 500,000 cycle
- Operation temperature range -25°C to +70°C

## 2. General Description

GT23SC4489 is 192 bytes EEPROM Contactless IC - to be used with Proximity Coupling Devices (PCD) according to ISO/IEC 14443A. The communication layer complies to parts 2 and 3 of the ISO/IEC 14443A standard. GT23SC4489 is primarily designed for limited use applications such as public transportation, event ticketing and NFC Forum Tag Type 2 applications.

### 3. Block diagram



### 4. Package Pin Description

Pin	Symbol	Description
pin1	LA	Antenna connection LA
pin2	LB	Antenna connection LB

## 5. Memory Organization

Page address		Byte number			
Decimal	Hex	0	1	2	3
0	00h	serial number			
1	01h	serial number			
2	02h	serial number	internal	lock bytes	lock bytes
3	03h	OTP	OTP	OTP	OTP
4 to 39	04h to 27h	user memory	user memory	user memory	user memory
40	28h	lock bytes	lock bytes	-	-
41	29h	16-bit counter	16-bit counter	-	-
42	2Ah	authentication configuration			
43	2Bh	authentication configuration			
44 to 47	2Ch to 2Fh	authentication key			

## 6. Limiting Values

PARAMETER	CONDITIONS	Min	Max	Unit
Input current		-	30	mA
Input capacitance	17 pF version	14	18	pF
Storage temperature		-55	+125	°C
Operation temperature		-25	+70	°C
ESD	Measured on pin LA-LB	2	-	kV

## 7. Electrical Characteristics

PARAMETER	CONDITIONS	Min	Typ	Max
Operating frequency		-	13.56MHz	-
Write EE cycle time			4 ms	
EE retention time	Operation temperature 22°C	25 year	-	-
EE write endurance	Operation temperature 22°C	500000 cycle	-	-

## 8. Ordering Information

### Part Number

GT23SC4489-MH001WBD

GT23SC4489-MH001SBD

GT23SC4489-MH001P

GT23SC4489-X20MH001

### Package

Sorted Dies Form with Back Grinding and Die Saw

Bumping Sorted Dies Form with Back Grinding and Die Saw

COB

MOA4

## 9. Revision History

<i>REV</i>	<i>History</i>	<i>Page</i>	<i>Date</i>
1.0	Initial Version	--	18/4/2014

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