

## List

1. Features -----	2
2. Pin Description-----	2
3. Module Block Configuration-----	3
4. Control Flow Chart-----	4
5. Commands and Protocol-----	5
APPENDIX-----	13

## **1. Features:**

- Frequency : 13.56MHz
- Tag : ISO14443A
- Antenna : 50Ω (Ext.)
- Interface : USB
- Baud-Rate : 9600, 8, n, 1 (default)
- Power Supply : 5V /400 mA (max)
- Standby current : 5V / 800uA
- Operating Temperature: 0 ~ 60 °C
- Operating Distance : 5cm (Avg.)

## **2. Pin Description**

### **CON1: Antenna**

1. TX1: Antenna Signal 1
2. TX2: Antenna Signal 2

### **CON2: Firmware Upgrade Set**

1. MOSI
2. MISO
3. SCK
4. RST
5. VCC5
6. GND

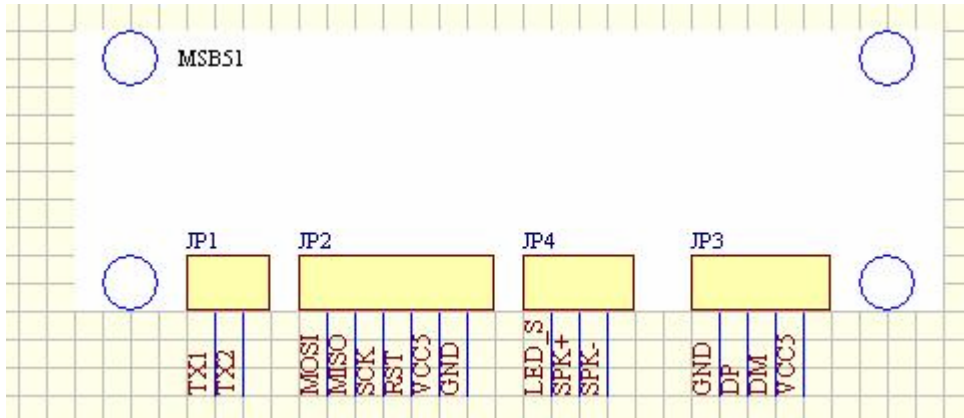
### **CON3: USB**

1. GND: Power Ground.
2. DP: USB port D+ signal
3. DM: USB port D- signal
4. VCC5: USB port 5V Power.

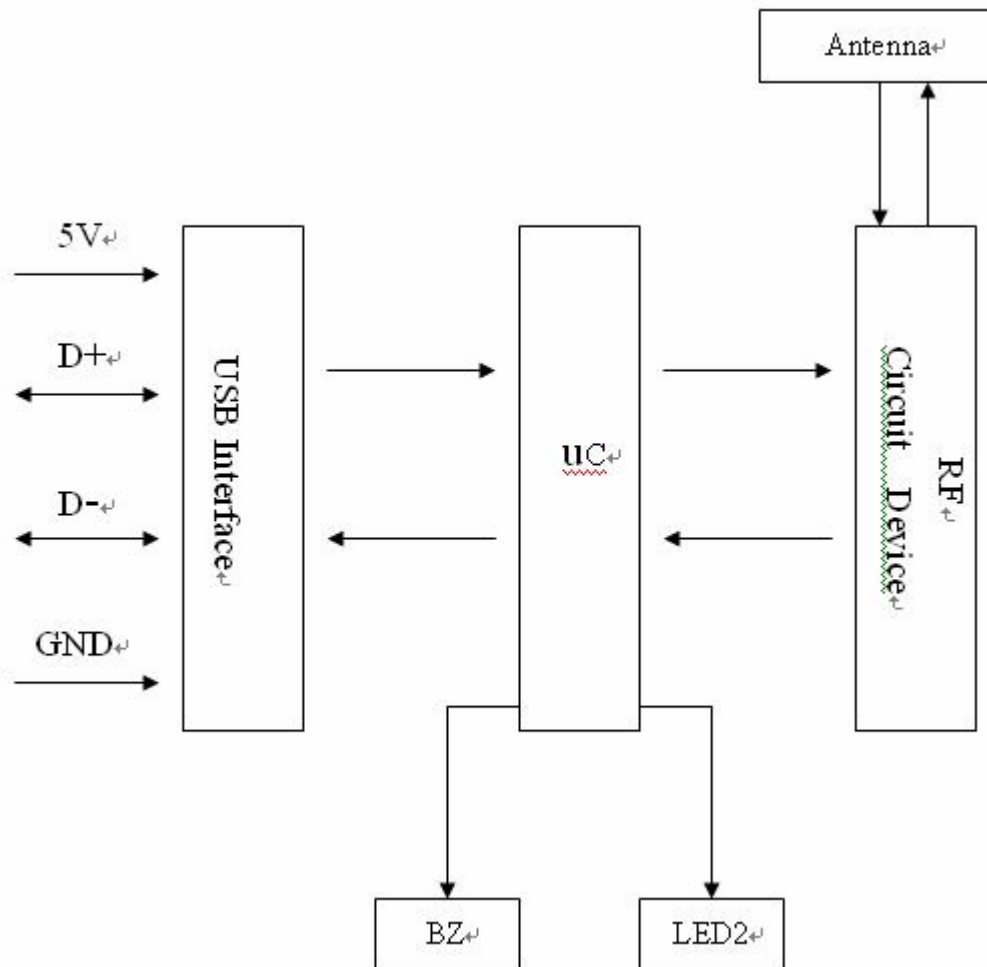
### **CON4: Display Device**

- 1.LED\_S: LED Display
- 2.SPK+: Buzzer Control

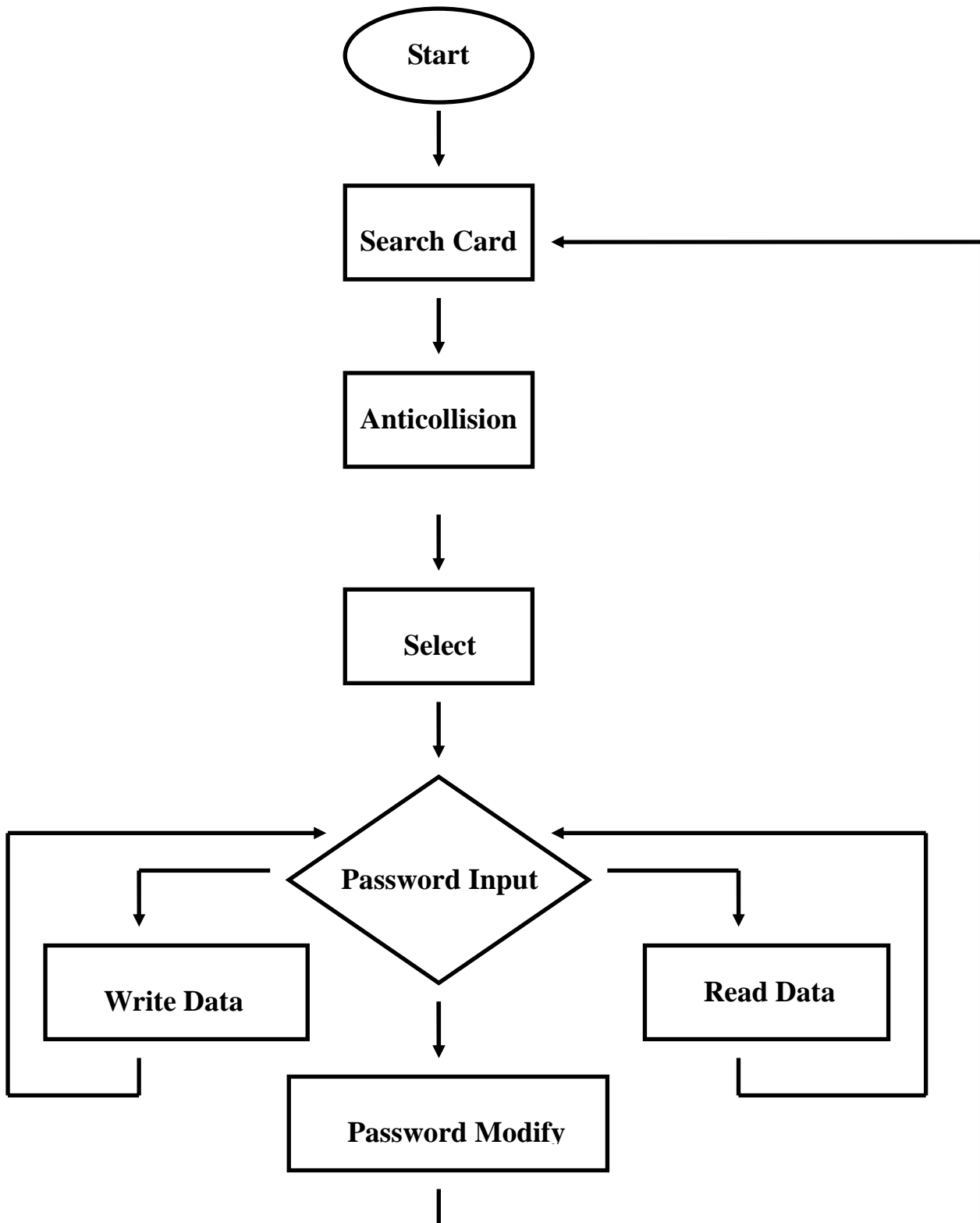
### 3.SPK-: Buzzer Control



### 3. Module Block Configuration



#### 4. Control Flow Chart



## 5. Commands and Protocol

### 5.1 Communication Format

Data Packet Length (L)	Command	Data Packet
1 Byte	1 Byte	L-1 Byte

### 5.2 Start (0x0B)

Command: 02 0B 0F

Response: 01 00

### 5.3 Search Card (0x02)

Command: 02 02 26

Response: 03 00 04 00 (S50)

03 00 02 00 (S70)

### 5.4 Anticollision (0X03)

Command: 01 03

Response: 05 00 52 00 75 7A (52 00 75 7A is Card Serial Number)

### 5.5 Select (0X04)

Command: 01 04

Response: 03 00 80 86

### 5.6 Password Input (0X06)

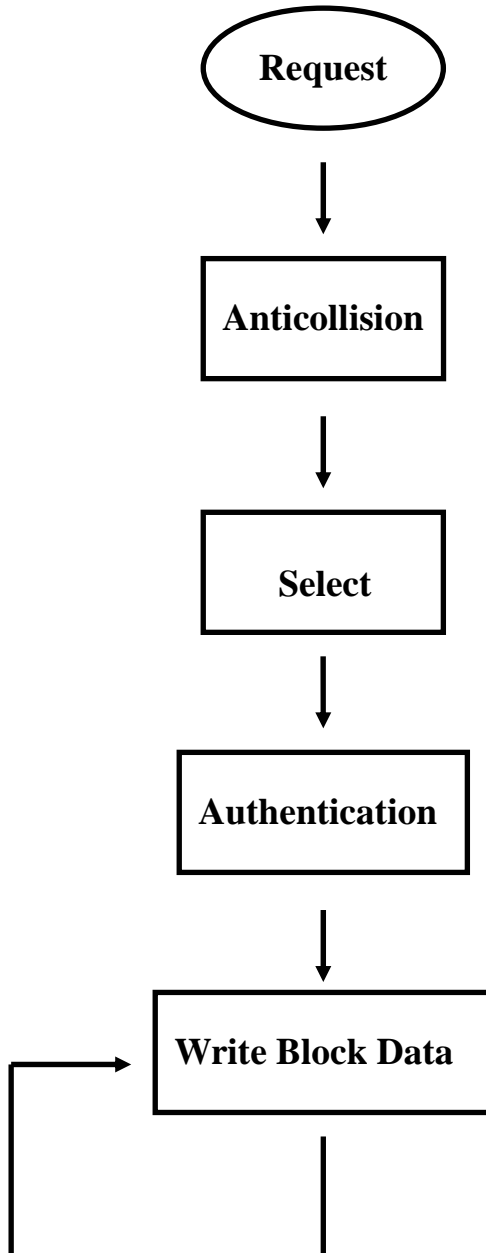
Command: 09 06 60 01 FF FF FF FF FF FF (60 is

PICC\_AUTHENT1A(61 is PICC\_AUTHENT1B),01 is Sector,12 F are Passwords)

Response: 01 00

## 5.7 Write Data (0x09)

### 5.7.1 Write Data Control Flow Chart



### 5.7.2 Request (0X02)

Command: 02 02 52

Response: 03 00 04 00 (S50)

### 5.7.3 Anticollision (0x03)

Command: 01 03

Response: 05 00 52 00 75 7A (52 00 75 7A is Card Serial Number)

### 5.7.4 Select (0X04)

Command: 01 04

Response: 03 00 80 86

### 5.7.5 Authentication (0X05)

Command: 04 05 60 01 04 (60 is PICC\_AUTHENT1A(61 is PICC\_AUTHENT1B),01 is Sector,04 is RegFIFOLength)

Response: 01 00

### 5.7.6 Write Block Data (0X09)

Command: 12 09 04 12 30 00 00 00 00 00 00 00 00 00 00 00



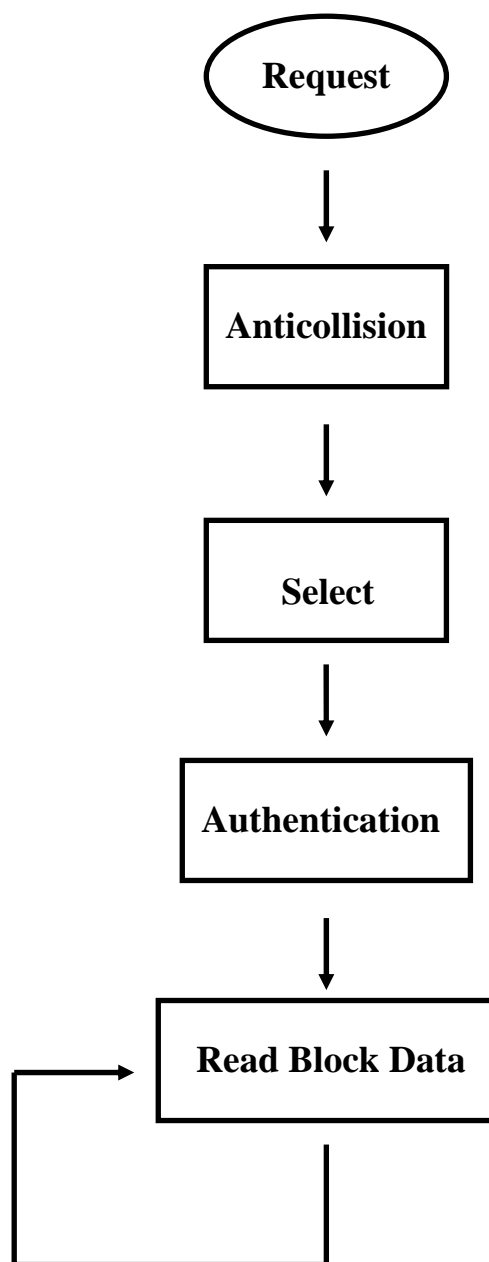
00 00

(04 is Block, 16 bytes begun 12 is the materials written)

Response: 01 00

## 5.8 Read Data (0X08)

### 5.8.1 Read Data Control Flow Chart



### 5.8.2 Request (0X02)

Command: 02 02 52

Response: 03 00 04 00 (S50)

### 5.8.3 Anticollision (0x03)

Command: 01 03

Response: 05 00 52 00 75 7A (52 00 75 7A is Card Serial  
Number)

### 5.8.4 Select (0X04)

Command: 01 04

Response: 03 00 80 86

### 5.8.5 Authentication (0X05)

Command: 04 05 60 01 04 (60 is PICC\_AUTHENT1A(61 is  
PICC\_AUTHENT1B),01 is Sector,04 is RegFIFOLength)

Response: 01 00

### 5.8.6 Read Block Data (0X08)

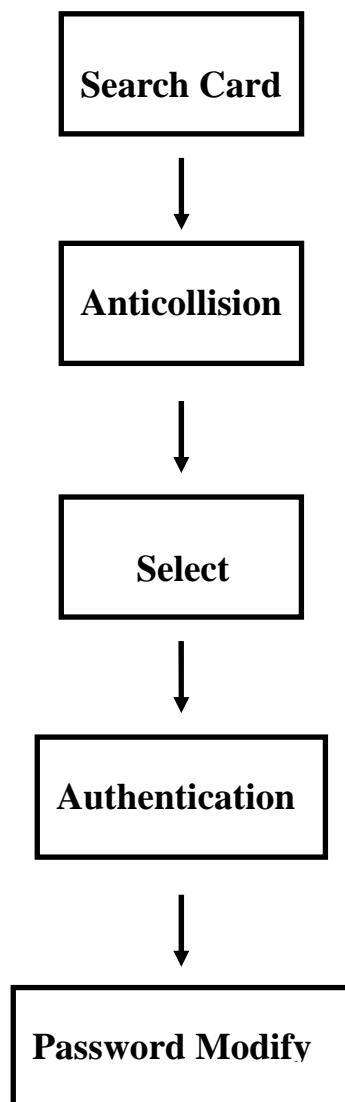
Command: 02 08 04 (04 is Block Number)

Response: 11 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

(16 bytes begun 00 is the materials Read)

## 5.9 Password Modify

### 5.9.1 Password Modify Control Flow Chart



### 5.9.2 Search Card (0x02)

Command: 02 02 26

Response: 03 00 04 00 (S50)

03 00 02 00 (S70)

### 5.9.3 Anticollision (0x03)

Command: 01 03

Response: 05 00 52 00 75 7A (52 00 75 7A is Card Serial  
Number)

### 5.9.4 Select (0X04)

Command: 01 04

Response: 03 00 80 86

### 5.9.5 Authentication (0X05)

Command: 04 05 60 01 04 (60 is PICC\_AUTHENT1A(61 is  
PICC\_AUTHENT1B),01 is Sector,04 is RegFIFOLength)

Response: 01 00

### 5.9.6 Password Modify (0X09)

Command: 12 09 07 33 33 33 33 33 33 FF 07 80 69 33 33 33

33 33 33 (07 is Block Number, 12 bytes begun 33 is New Password)

Response: 01 00

## APPENDIX

### 1. Memory organization of the Tag Transponder( IC S50 for 1K )

Sector	Block	Byte Number within a Block																Description
		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
15	3	Key A					Access Bits				Key B						Sector Trailer 15	
	2																	Data
	1																	Data
	0																	Data
14	3	Key A					Access Bits				Key B						Sector Trailer 14	
	2																	Data
	1																	Data
	0																	Data
:	:																	
:	:																	
:	:																	
1	3	Key A					Access Bits				Key B						Sector Trailer 1	
	2																	Data
	1																	Data
	0																	Data
0	3	Key A					Access Bits				Key B						Sector Trailer 0	
	2																	Data
	1																	Data
	0																	Manufacturer Block

### 2. Outward Appearance

