SIC278

FDX-A/-B, FSK FECAVA, ISO11784/85, EM, 1408-bit High Performance R/W RFID Transponder IC

REV 1.4

Features Summary

Highlight Features

- High performance read range by SIC's boost-up technique
- Frequency range 100 - 150kHz
- Integrated resonant capacitor of 230pF
- Air tuneable resonant capacitor for maximum read range
- Mainstream LF product Command Compatible
- Extremely low power consumption in read mode
- Two Level of password authorization (Read and Read/Write)

Supported Protocol

- FDX-A, FSK FECAVA
- FDX-B, ISO 11784/85 Animal ID
- 64-bit EM format, data rate 2 kbit/s
- Downlink, 100% ASK, 5.2 kbps pulse interval coding
- Uplink, Deep ASK modulation with Anti---collision Manchester, DBP, and FSK (FECAVA) coding
- Selectable uplink data rate 2, 4, 8 kbps (RF/64, RF/32, RF/16 respectively)
- Hitag-S Compatible Anti-collision (up to 30 tags/s)
- CRC for Data integrity check
- Tag-talk-first mode (TTF) with configurable max block up to 256 bits

Memory

- Factory programmed 7-byte UID
- 1408 bits (44 x 32) EEPROM
- 1184 bits (37 x 32) in user memory area
- Guarantee 100,000 erase/write cycles
- 10 years non-volatile data retention
- Secure memory lock functionality
- 32 bits Unique Identification Number (UID)
- 64 bits Traceability data

Package

- Die-On-Wafer (DOW)
- Die-On-Wafer with Bump (DOWB)
- WDFN

Application

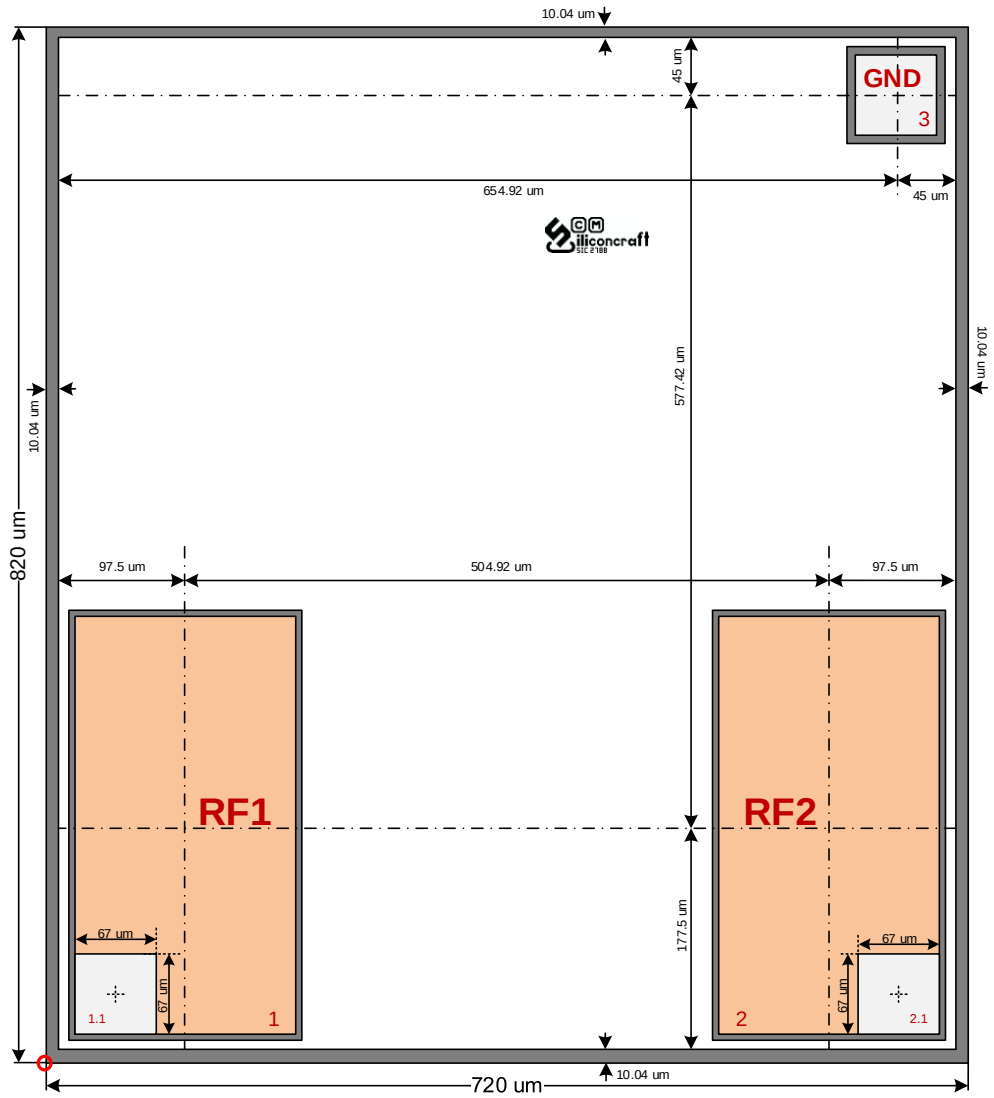
- Livestock Management/ Breeding control
- Animal Identification
- Automation in industry
- Access control

Ordering information

Part No.	Description	Package	Standard Packing
P78CDG60DB0UT7810R1	SIC278-10, LF FDX IC with RW memory 1 kbits and Animal ID DOWT, Wafer ring, Dice	DOW	Die-On-Wafer (Ring size 266 mm)
P78CDG60DB0AB7810R2	SIC278-10, LF FDX IC with RW memory 1 kbits and Animal ID DOWT, Wafer ring, Dice	DOW	Die-On-Wafer (Ring size 275 mm)
P78CDH60DB0AB7810R2	SIC278-10, LF FDX IC with RW memory 1 kbits and Animal ID DOWT-INK, Wafer ring, Dice	DOW	Die-On-Wafer (Ring size 275 mm)
P78CDC60DB0AB7810R2	SIC278-10, LF FDX IC with RW memory 1 kbits and Animal ID DOWTB, 6 mils, Wafer ring, Dice	DOWB	Die-On-Wafer (Ring size 275 mm)
P78CDC11DB0AB7810R2	SIC278-10, LF FDX IC with RW memory 1 kbits and Animal ID DOWTB, 11 mils, Wafer ring, Dice	DOWB	Die-On-Wafer (Ring size 275 mm)
P78CDC11DB0AB78S1R2	SIC278-S1, LF FDX IC with RW memory 1 kbits and Animal ID DOWTB, Wafer ring, Dice	DOWB (Special program; **CT** = 0)	Die-On-Wafer (Ring size 275 mm)
P78CWDA1P20UT7810C5	SIC278-10, LF FDX IC with RW memory 1 kbits and Animal ID DFN 0.75 mm, Canister, IC	WDFN	12,000 pcs/Canister
P78CWDA1P20UT7810E3	SIC278-10, LF FDX IC with RW memory 1 kbits and Animal ID DFN 0.75 mm, TnR, IC	WDFN	3,000 pcs/Reel

Package Information

1. Die Information



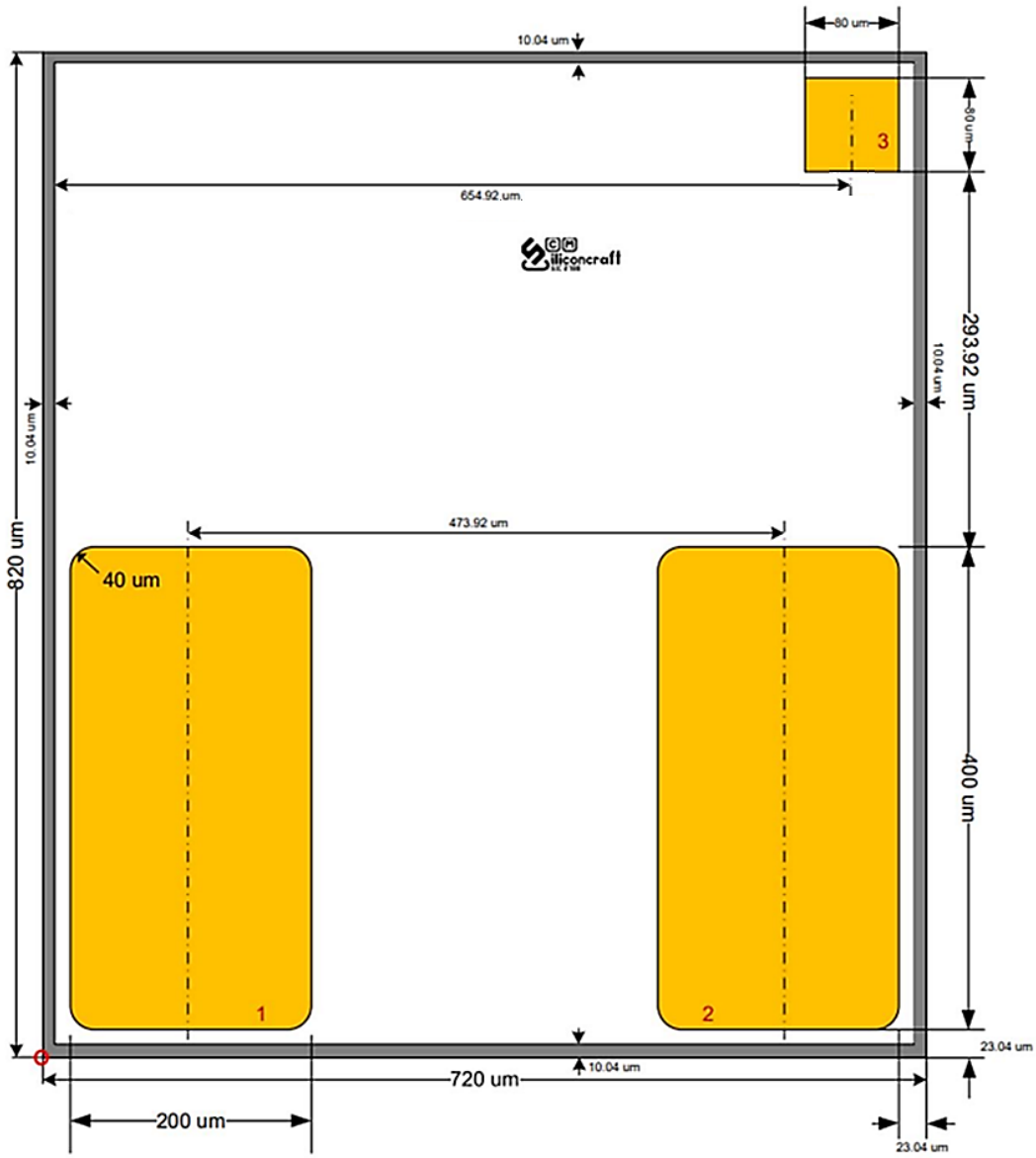
PAD Num.	Center of Pad Co-Ordinate(um)	Description	PADSize (um)
1.	(107.540 , 187.540)	RF1(Mega Pad)	172X332
1.1	(55.04 , 55.04)	RF1	67X67
2.	(612.460 , 187.540)	RF2(Mega Pad)	172X332
2.1	(664.96 , 55.04)	RF2	67X67
3.	(664.960 , 764.960)	GND	67X67

Saw street width 60x60 um

Figure 0-1: Die Dimension

Recommending for wire-bonding process to connect at the bottom-left corner and bottom-right corner of RF2 and RF2 pad respectively.

2. Die with Bump information



PAD Num.	Center of Pad Co-Ordinate(um)	Description	PADSize (um)
1.	(123.040 , 223.040)	RF1(Mega Pad)	200X400
2.	(596.960 , 223.040)	RF2(Mega Pad)	200X400
3.	(664.960 , 756.960)	GND	80X80

Saw street width 60x60 um

Figure 0-2: Die with Bump information

3. WDFN

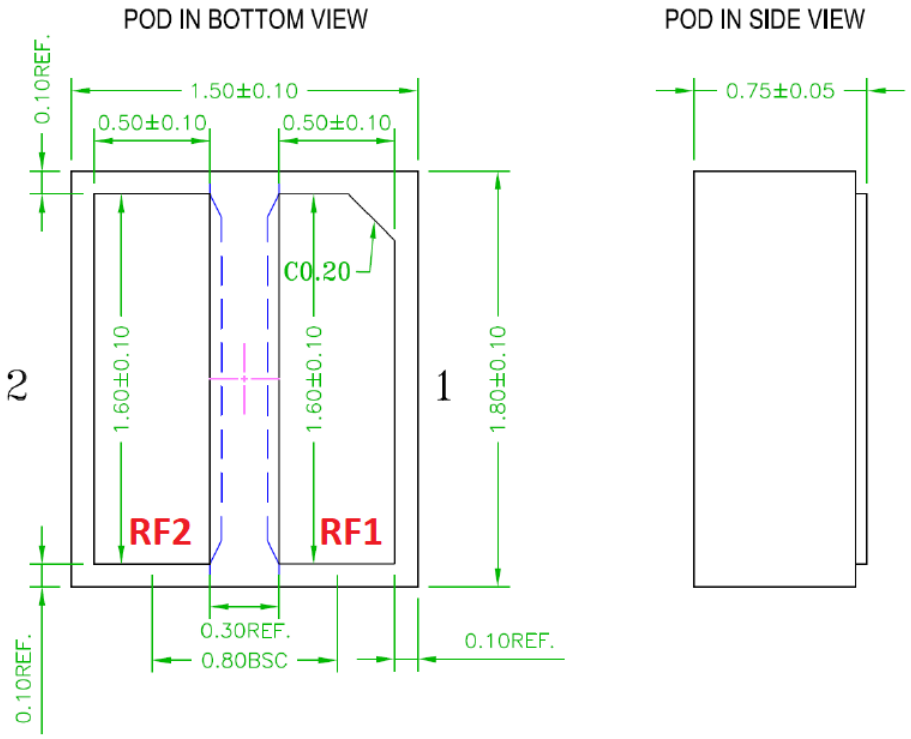


Figure 0-3: WDFN Package drawing

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