HT4180 Transmission IC for RFID read only

Summary

HT4180 is the RFID read transmission circuit that is formed by CMOS. The electronic power is provided by the electronic coil of HT4180's 2 pins, and the operation pulse is provided through the same path. HT4180's application is to adjust radio frequency to make 96 bits data loading on RF. This is the reason that HT4180 can transfer data by RFID. HT4180 best characteristic is fully compatible with the standard of ISO 15693.

Outside circuit

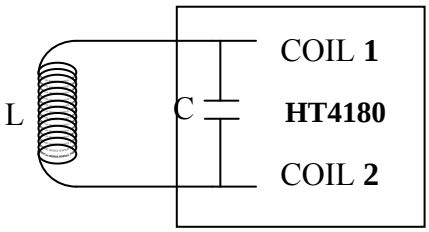
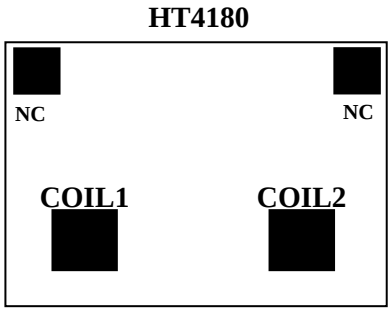


Fig.(一)

IC capacitor 23.5pF in HT4180

HT4180's pin Assignment



COIL1 / CLOCK INPUT

COIL2 / DATA TRANSMISSION

PAD size 90um*90um

Chip size 635um*437um

Fig.(二)

Electronic condition

Table(一)

Parameter	Min	Typical	Max	Unit
operation temperature	-40		+85	℃
operation voltage	3.5	5		V
operation frequency		13.56		MHz
storage temperature	-55		+200	℃
ESD capability		2000		V

Code Format

Logic 0：

A logic 0 starts with 8 pulses of $f_c/32$ (~423.75kHz) followed by an unmodulated time of $256/f_c$ (~18.88μs) , see flgure 3。

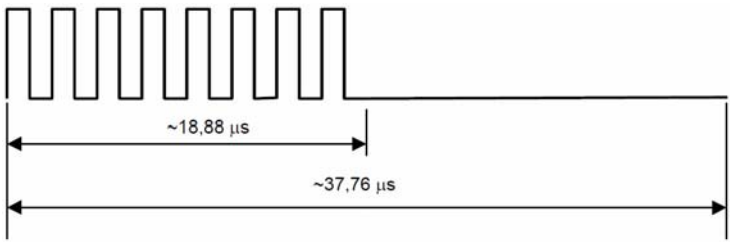


Fig.(三)　Logic 0

Logic 1：

A logic 1 starts with an unmodulated time of $256/f_c$ (~~18.88μs) followed by 8 pulses of $f_c/32$ (~423.75kHz) , see flgure 4。

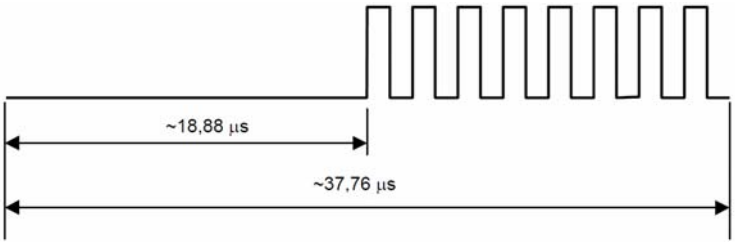


Fig.(四)　Logic 1

SOF：

SOF comprises 3 parts：

1.an unmodulated time of 56.64μs ($768/f_c$)。

2.24 pulses of 423.75kHz($f_c/32$)。

3.a logic 1 which starts with an unmodulated time of 18.88μs ($256/f_c$)，followed by 8 pulses of 423.75kHz ($f_c/32$)。

The SOF for one subcarrier is illustrated in Figure 5。

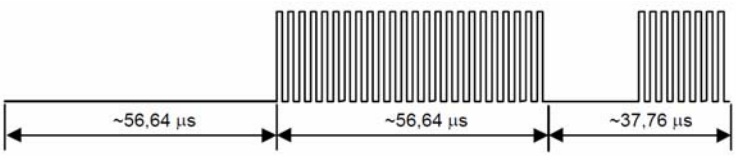


Fig.(五)　Start of frame when using one subcarrier

EOF：

EOF comprises 3 parts：

1.a logic 0 which starts with 8 pulses of 423.75kHz (f_c/32)，followed by an unmodulated time of 18.88μs (256/f_c)。

2.24 pulses of 423.75kHz(f_c/32)。

3.an unmodulated time of 56.64μs (768/f_c)。

The EOF for one subcarrier is illustrated in Figure 6。

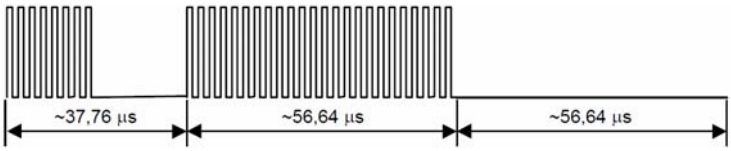


Fig.(六)　End of frame when using one subcarrier

MEMORY ARRAY

The HT4180 memory array contains of the following fields：

1.Flags。

2.One parameter fields。

3.Data (See Table 3)。

4.CRC16 (See Table 4)。

SOF	**Flags**	**Parameters**	**Data**	**CRC16**	**EOF**
	8 bits	8 bits	64 bits	16 bits	

Table(二)　Memory array

MSB			LSB
Data			
64	57	56	1
E0		Serial number	

Table(三)　Data format

LSByte		MSByte	
LSBit	MSBit	LSBit	MSBit
CRC 16 (8 bits)		**CRC 16 (8 bits)**	

Table(四)　CRC bits and bytes transmission rules

IC BLOCK

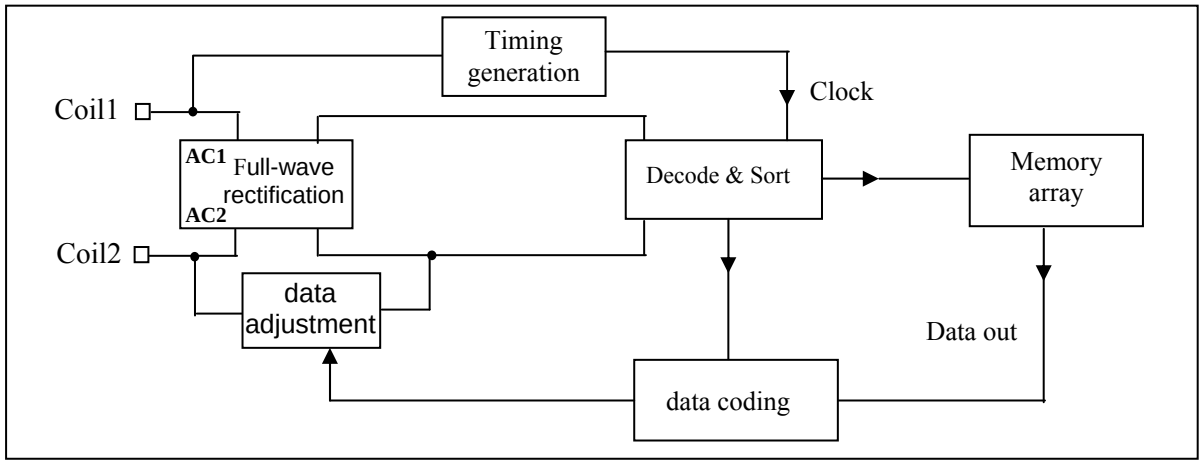


Fig.(七)

CHIP DIMENSIONS

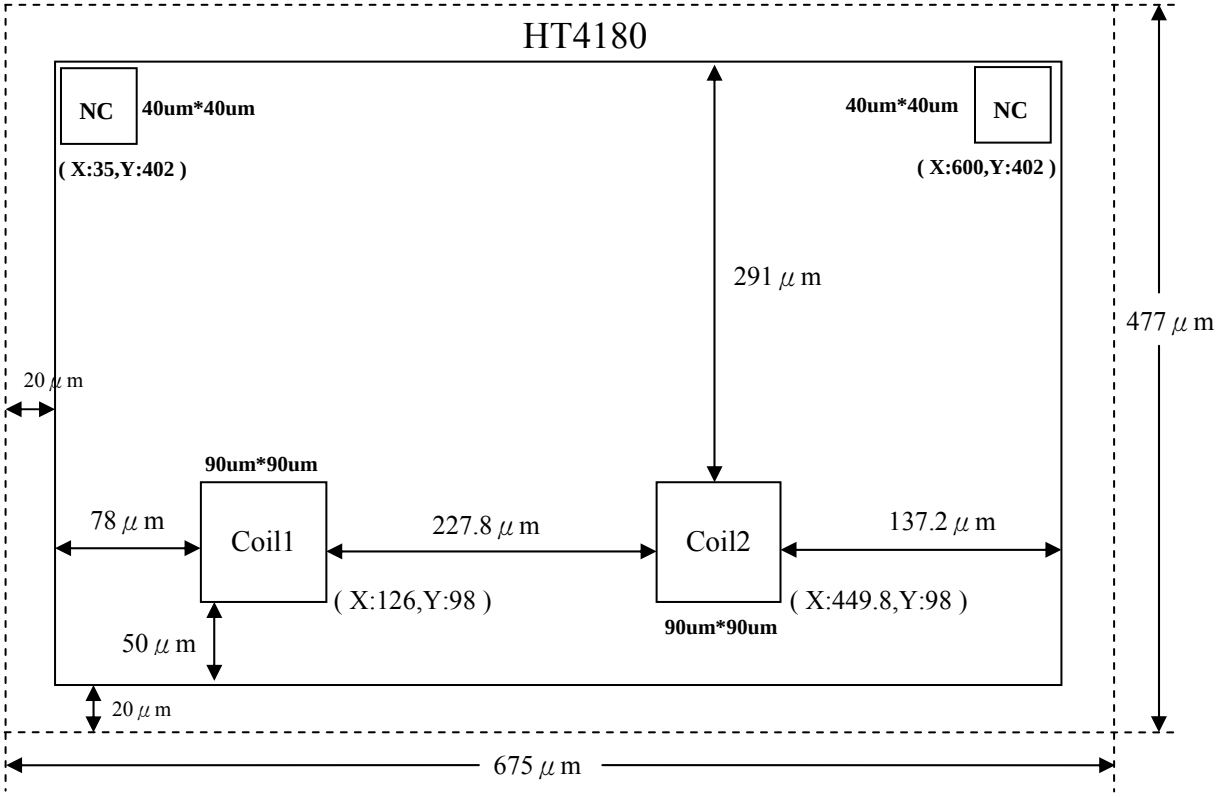


Fig.(八)