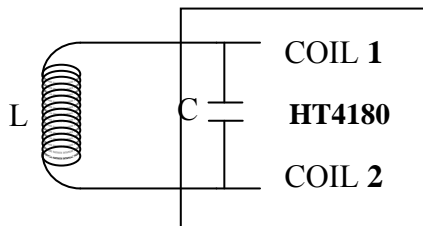


## HT4180 非接觸式唯讀傳輸裝置

### 概述

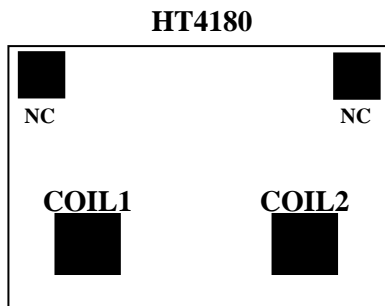
HT4180 是一個由 CMOS 所組成的非接觸式唯讀傳輸積體線路。其電源由 IC 兩端之線圈所提供，且 IC 運作所需要的時脈，也是經由相同的路徑所得到。HT4180 的用途是調變射頻，使 96 個 BIT 的資料加載於射頻，達到非接觸式傳輸資料的目的。其最大特點是相容於 ISO 15693 的標準。

### 外部線路示意圖



圖(一)  
IC 內置電容 23.5 pF

### IC 腳位圖



HT4180  
COIL1 / CLOCK INPUT  
COIL2 / DATA TRANSMISSION  
PAD size 90um\*90um  
Chip size 635um\*437um  
圖(二)

### 電氣條件

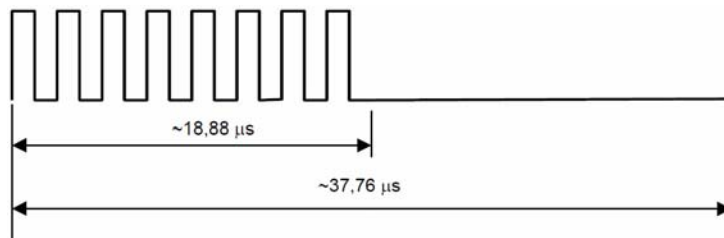
表(一)

參數	最小值	典型值	最大值	單位
工作溫度	- 40		+ 85	°C
工作電壓	3.5	5		V
工作頻率		13.56		MHz
儲存溫度	- 55		+ 200	°C
靜電破壞		2000		V

編碼方式

邏輯 0 :

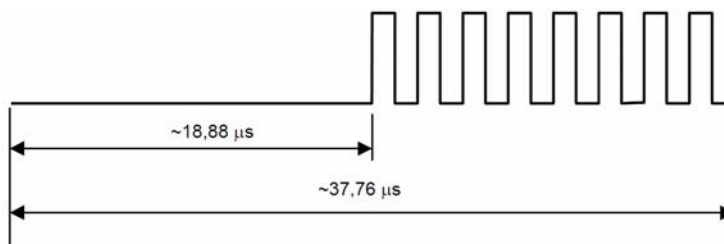
A logic 0 starts with 8 pulses of  $f_c/32$  ( $\sim 423.75\text{kHz}$ ) followed by an unmodulated time of  $256/f_c$  ( $\sim 18.88\mu\text{s}$ ), see figure 3.



圖(三) Logic 0

邏輯 1 :

A logic 1 starts with an unmodulated time of  $256/f_c$  ( $\sim 18.88\mu\text{s}$ ) followed by 8 pulses of  $f_c/32$  ( $\sim 423.75\text{kHz}$ ), see figure 4.



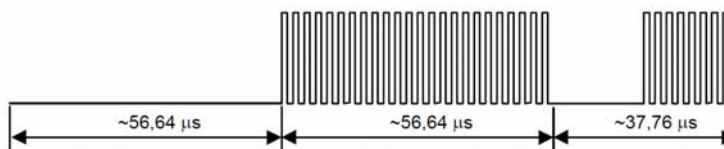
圖(四) Logic 1

SOF :

SOF comprises 3 parts :

1. an unmodulated time of  $56.64\mu\text{s}$  ( $768/f_c$ ).
2. 24 pulses of  $423.75\text{kHz}$  ( $f_c/32$ ).
3. a logic 1 which starts with an unmodulated time of  $18.88\mu\text{s}$  ( $256/f_c$ ), followed by 8 pulses of  $423.75\text{kHz}$  ( $f_c/32$ ).

The SOF for one subcarrier is illustrated in Figure 5.



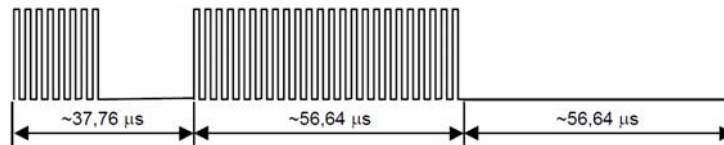
圖(五) Start of frame when using one subcarrier

**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 18.88 $\mu$ s ( $256/f_c$ ) .
2. 24 pulses of 423.75kHz( $f_c/32$ ) .
3. an unmodulated time of 56.64 $\mu$ s ( $768/f_c$ ) .

The EOF for one subcarrier is illustrated in Figure 6 .



圖(六) End of frame when using one subcarrier

**記憶區的內碼格式**

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) .

<b>SOF</b>	<b>Flags</b>	<b>Parameters</b>	<b>Data</b>	<b>CRC16</b>	<b>EOF</b>
	8 bits	8 bits	64 bits	16 bits	

表(二) Memory array

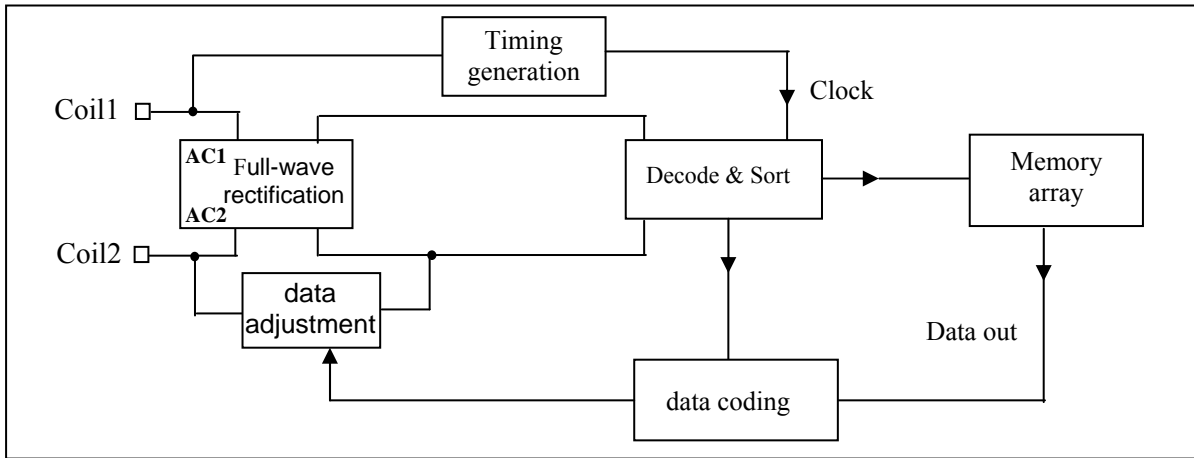
MSB	<b>Data</b>			LSB
64	57	56	1	
E0		Serial number		

表(三) Data format

LSByte		MSByte	
LSBit	MSBit	LSBit	MSBit
<b>CRC 16 (8 bits)</b>		<b>CRC 16 (8 bits)</b>	

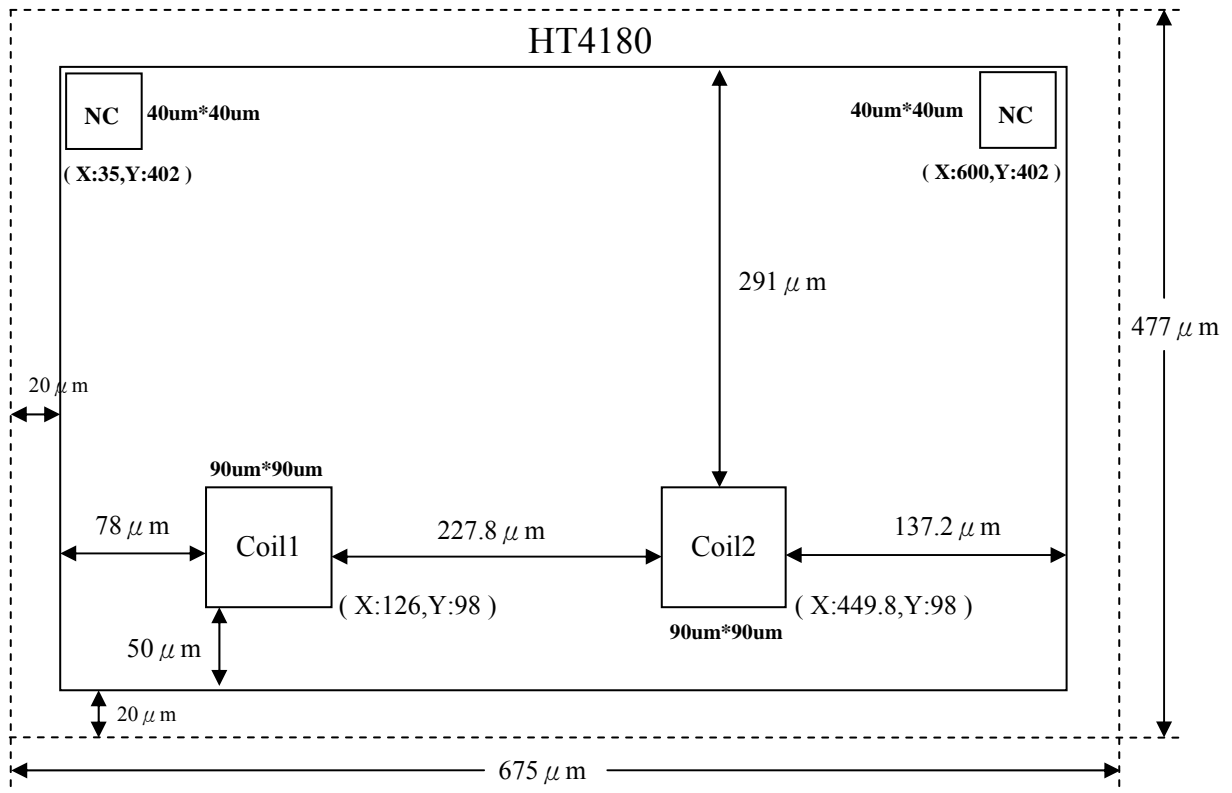
表(四) CRC bits and bytes transmission rules

## IC 方塊圖



圖(七)

## CHIP PAD 位置示意圖



圖(八)